



Shea nut and butter in Ghana

Opportunities and constraints for local processing



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Framework

This research was done in the context of a research project set up by Hans Eenhoorn, associate professor at the Wageningen University, the Netherlands, and the Resilience Foundation. The project was a study on opportunities and constraints for small scale farmers to become entrepreneurs, with the aim to find new insights on strategies for poverty reduction in Sub-Saharan Africa.

This report is a result of a side project on the opportunities of shea nuts for Northern Ghana. Five students went to Ghana in the period of May – October 2008, and carried out different studies on the shea nut in different study areas. The findings of these studies are brought together in this report.

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And all the others who helped and inspired us.

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Summary

Introduction

The aim in this research was to do a first exploration upon the opportunities and constraints for local communities, processors and traders in Ghana to earn more from shea business. This research was done with five students in 2008 in the framework of a larger research project which was about rural farmers and entrepreneurship in Ghana. In total 15 students linked to the University of Wageningen were involved in the overall project.

A regional overview of the shea supply chain is made, which includes the production systems of shea nuts, the processing, traders in shea butter, and shea butter consumers. This approach was used, because it was believed that knowledge on the workings and connections within the shea supply chain is essential to find the above mentioned opportunities and constraints.

In the Upper West region, research on shea nut production system was conducted, while around Tamale (Northern Region) and in Accra, the research on local trade and export of cosmetic shea butter products was carried out. All research was based on structured interviews. Besides the main research there were also some unstructured interviews for example with people from research institutes, traders or from local authorities.

Shea production

The nut that is involved in this research is the shea nut which is the seed of the shea fruit that grows on the shea tree. This tree is an indigenous tree species to many countries in Sub-Saharan Africa and in these countries the shea tree and its many uses have been known for over centuries. What makes this crop special is that, other than with other crops, shea business is traditionally women's business and it is a source of income for many families living in rural areas.

There are many physical factors that influence shea tree yield like weather, bush fires (natural and man-made), drought, caterpillar plagues and pruning. On a longer term anthropogenic selection of the trees, the age and regeneration influence the shea nut yield. One of the main concerns expressed by various authors is them noticing an aging trend of shea trees which they account to the shortening of fallow periods due to land pressure and population growth. If need for money is high on a short term, shea trees can be burnt for charcoal production. Increasing shea nut yield might be an opportunity to increase income from this nut, however it needs to be taken into account that increased yield does not automatically lead to increase in income without increase in demand.

Another opportunity is to invest in shea kernels in the harvest season and sell them in the dry season, as prices might rise up to threefold in the dry season as compared to the harvest season (harvest 2007: 0,11 US\$/kg, dry 2007: 0,36: US\$/kg). However, this is only a realistic opportunity for those who are not in immediate need of money in the lean season and can invest. The poorest will need to sell all the shea products immediately to buy food in the lean season, even though this is the season when food is most expensive and prices they get for their shea products

is lowest. Moreover, this year of lean season 2008/2009 demonstrated that investment doesn't always lead to success as for example in Tamale as stocks of shea kernels piled up, but buyers didn't appear.

Shea was found to be of significant importance for the rural people in the Upper West Region, as for many families income from shea contributed to a quarter or in some cases more than half of a yearly income of a household. Besides the monetary value shea is also of nutritional value as it is an important source of fats and vitamins.

Processing: manual vs semi-automated

In this research manual shea butter extraction is compared with, semi-automated butter extraction. Efficiency of butter extraction was higher with semi-automated extraction (= extraction with the aid of machinery), as 1 kg of shea butter was obtained from 3 kg of shea kernels during manual extraction, while the same amount was extracted from 2.5kg of shea kernels during the semi-automated process.

Although the extraction process is less efficient with manual shea butter extraction, it was found to be more profitable as compared to mechanized shea butter extraction due to the fuelcost, maintenance cost, and cost of the shea kernels that are involved with the mechanized process. Price for which shea butter can be sold per weight (or price per volume, as small traders do not have weighing scales and trade per volume) is higher if the butter is sold in small portions as compared to sale in bulk quantities.

Shea butter trade

Many actors are involved in the shea butter supply chain. The supply chain of nuts and shea butter is complex as there are many actors involved.

On Tamale market (Ghana, Northern Region) three types of bulk traders are distinguished: 1) local traders 2) traders from the South of Ghana 3) traders who also trade abroad. Involvement in wholesale of shea butter trade is mainly women's business, but as the shea market is growing the number of men involved in shea business is also increasing.

Middlemen who got hired by large companies are the largest buyers. They do not only go the markets for shea butter, but also get into contact with local village communities, women groups, and processing sites with the purpose to buy shea butter.

Shea butter is priced lower per kg if bought in large quantities. However, little is known on the butter quantity involved in trade, due to lack of records kept by those involved.

Characteristics relevant for shea butter quality are: colour, texture, melting point, moisture content, and purity. Hard butter is considered good as it implies low moisture content and therefore high fat content.

The yellow colour comes from the root extract which is sometimes added to the butter. The export industry is more demanding on the quality of the shea butter, and they require a certain degree of consistency of quality. This is a constraint for traditionally shea extraction, as butter extracted with these methods generally vary too much in quality. However, this offers an opportunity if quality can be made more consistent by better controlled extraction methods.

On the one hand shea nut and shea butter production is increasing, while on the other hand local shea butter consumption around Tamale seems to be decreasing. A possible explanation for the decreased consumption is that people make more use of alternative oil products, of which many are imported while the increased production can be explained by an increased shea demand from both the south Ghanaian and international shea market.

Shea cosmetics

In Ghana there are businesses set up that have started producing cosmetic products based on shea butter. The production of cosmetics can be increased to a higher level as well at the quantitative side as well as the qualitative side. Presently, the local cosmetic companies using shea in their products are relatively small and they are not processing the whole year round because they often don't stock too much, but process when they receive orders. The companies often don't have large storage rooms and it is relatively risky to produce in advance because the products have a restricted durability.

The main competition for the shea-cosmetics is the cosmetics made out of cocoa butter and imported care products. Nonetheless, demand for shea products is increasing; especially in the US, Japan and Europe .

A first important constraint is that some inputs necessary for processing the shea butter into a high quality end product, are scarcely available or expensive.

Companies might miss out on profit from a wider target groups, as the companies producing shea cosmetics often copy product concepts from other companies.

Concerning income generation from shea business it is the case that the companies who process the nuts or butter into high quality finished products are all based in Southern Ghana. Which makes that the poorer people in the north, stay poorer and don't gain optimal from the shea product because in general, they only supply the raw material.

The first reason why most shea cosmetics companies are mostly situated south is that it is economically more attractive to be located close to Tema, the main harbour of Ghana and also because the required ingredients that are important usually arrive from the harbour. If the inputs enter the country in the South and have to be transported up North this will result in increased transportation costs.

Besides this the south is more developed than the north. Power cuts occur more frequently, roads are less well maintained, less technology and expertise is available in the north and water is more scarce in the north. This makes it more difficult to have a business

Exporters of finished shea product

Shea is mainly exported in the form of shea kernels, rather than shea butter or finished shea products. Information can be found on oversea shea kernel exports. However, records on overland exports, records on export quantities of shea butter and finished shea products are lacking.

According to the interviewed exporters of finished shea products an important constraint is that the producers and exporters have difficulty getting access to the buyers, especially when they are overseas.

Opportunities for producers of finished products might be to visit trade fairs to get into contact with potential buyers or to find a way to distinguish themselves from other by making different types of shea products. The time and finances needed to get a permit for selling shea products is mentioned as a constraint. Besides this it was said that the government is not actively supporting exporters of the products, and the government doesn't keep track on amounts of butter produced and exported. However, the West Africa Trade Hub, was said to more actively supporting exporters of shea butter (products).

Urban shea butter consumers

The results of a research on the view of consumers of shea butter in the urban area of the city Tamale, located in the Northern Region in Ghana is presented. People using shea butter within this research are mostly non educated middle aged women selling food dishes and snacks at their homes and along street sides. Consumers linked the following butter characteristics to its quality: colour, smell, taste and moisture content.

White butter is preferred by most in the Northern region, as it is seen as pure butter and most suitable for cooking. Yellow butter is generally more popular in the Southern regions, as the colour is found more attractive and the shea smell is less due to the root additives. All respondents pointed out that the choice for a certain type of shea butter depends on the purpose for the butter, its price, the way it was processed and its availability.

When shea butter was said to be disliked the main mentioned reasons were that they disliked the smell and taste, or in the case of food sellers that they were afraid that their customers would dislike it.

It was mentioned that local consumption of shea butter decreased due to the increase in availability and popularity of alternative products, like palm oil for cooking or modern skin care products and that demand from the south of Ghana increased due to the increased knowledge there on the product and its many uses. Due to this increased demand consumers think that in total there is more shea butter production now a days than in their childhood

Unless Kpare has a guaranteed and direct buyer of shea butter in large quantities for a fixed price that is higher than the cost price, shea butter extraction is not profitable. Main constraints are fuel costs, high transport costs due to remoteness of the village which makes regular sale in bulk quantities unprofitable. Other constraints are limited access to spare parts, lack of expertise, lack of capacity to secure the factory building and its content from theft.

Introduction

Why this report?

An aim of this report is to generate better understanding of the production and trade in the shea chain in Ghana, and in this way to facilitate those engaging in business, policy making or research in the shea sector. The authors also hope that poverty reduction strategies by NGO's or governments that include shea business as one of its tools can be applied more effectively with better understanding of the shea supply chain. This attention for poverty reduction is reflected in the report by the search for opportunities for the rural poor and local traders in Ghana to benefit more from shea business. This report is based on literature and on fieldwork done between April and October 2008 by four students that took part of a project from the Wageningen University and the Resilience foundation. It was noted that no report yet existed that tried to bring together information on shea production, processing and trade in Ghana, although P. Lovett did write many different reports that together provide a broad range of information on shea markets in Ghana. This report is an effort to bring together existing information with the addition of field research to make an overview of the supply chain of shea kernels and shea butter within Ghana, and for a small part on the international trade. In the end of the report we wish to highlight the opportunities and constraints for local communities that are involved production, processing or and trade to earn more from shea business. In processing and trade a distinction is made between shea kernels and shea butter as these apply to two different markets.

Where does shea come from?

Shea trees grow in a large part of Sub-Saharan Africa. This shea tree is important for the livelihoods of the rural population as it has been for over centuries (Lovett & Haq, 2000). Almost every part of the tree has its use, for example: the fruit is eaten and the leaves are used as fodder and serve as an ingredient for making alkaline and paint (Lovett & Haq 2000).

Presently shea is exported to France, Great Britain, the Netherlands, Denmark, North America and Japan (Elias & Carney, 2007). In these countries it is processed in a wide range of food products including chocolate and it is also becoming more popular in the cosmetic industry (Schreckenber 2000). In products of multinationals shea is often used in combination with palm oil, or illipe In 2003 shea butter became one of the six vegetable fats allowed by the EU to serve as a Cocoa Butter Equivalent (CBE). One of the mentioned advantages of shea butter is that it brings up the melting point of (Schreckenber 2000).

Shea trees occurs naturally in a 5000km long zone stretching from Sudan to Guinea, with a width of 500 km and can be found in eighteen different countries which include: Senegal, Guinea, Mali, Ivory Coast, Ghana, Togo, Benin, Burkina Faso, Nigeria, Niger, Chad Cameroon, Central African Republic, Uganda, Congo, Kenya and Sudan, as depicted in fig1. In Ghana the shea tree only grows in the Northern regions where the climate is dryer compared to the south. Typically the shea occurrence zone lies in the zone of 600 and 1400mm of annual rainfall (DFSC, 2000).

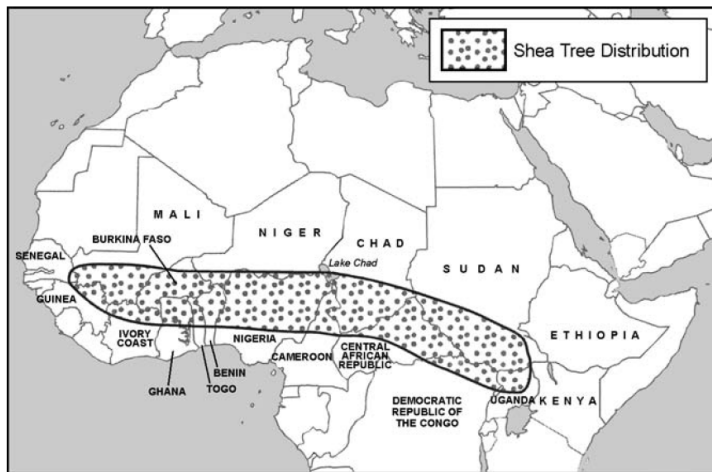


Figure 0.1 - Distribution of the shea trees (Elias & Carney, 2007)

What makes shea an interesting product for poverty reduction?

There is a combination of aspects that make the shea nuts an interesting product for poverty reduction. In Ghana the majority of the poor are people who live in rural areas in the northern parts of Ghana. The poorest are usually farmers. Annual rainfall lies around 1000mm per year which means that the climate is unsuitable for the cultivation of crops like palm, or cocoa, however the climate is suitable for the shea tree to grow (DFSC,2000). For shea nut production little investment is needed as the shea tree is an indigenous species and it occurs in large numbers in the whole of northern Ghana, the only investment needed is time and labor to pick the fruits. Another aspect of shea, other than many other crops, is that it generates income specifically for women as it is traditionally seen as women's' business (Elias and Carney 2007). Besides this, shea fruits are one of the few natural resources accessible for the landless poor (field observations). Finally, there is significant demand for shea products both within Ghana as on the international market, which is important for the income generating potential of shea.

Structure of report

The structure of the report is ordered by function within the supply chain, which is as follows: producers, processors, traders, and consumers. The report consists of six chapters. The first chapter is about the shea production system and the shea nut pickers, represented by the box "Producers" in fig. 1.1. The second chapter is about small scale processing of shea nuts into shea butter. The third chapter is about trade of shea butter and shea nuts on local markets. This is followed by chapter four in which the focus lies on the Ghanaian shea butter cosmetics business. Chapter 5 is about the export of finished shea products. The last chapter, chapter 6, focuses on the local shea butter consumption trends in the Northern region of Ghana. International buyers of shea nuts, shea butter and finished shea butter products have not been taken into account in this research and thus leaves space for further research.

In the end of the report a case study is given on a village of Kpare, and an assessment is made what the possibilities and the constraints are for this community to earn more on shea business.

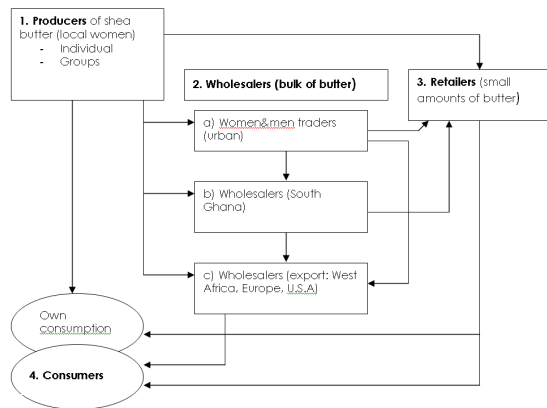


Figure 0.2 - Schematic overview of supply chain

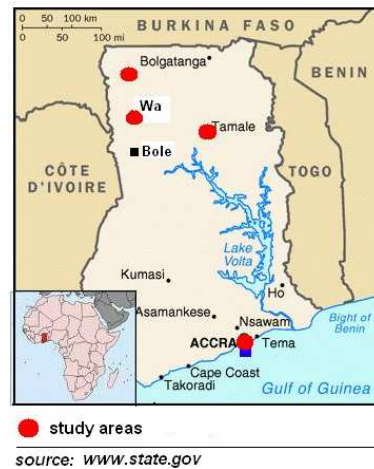


Figure 0.3 - Overview of study areas

Each chapter was based on interlinked, but separately conducted field studies with each study having its own study area and methodology. The research on the production and processing (CH. 1 & 2) was carried out in three communities in Upper West Region of Ghana (see figure 3). The research on traders, shea butter cosmetics, and shea butter consumers (Ch. 3, 4, 5, 6) was conducted in the northern region, around Tamale, and in Accra. All research was based on interviews with local populations and people involved in the shea business. For more detailed information on the research methods see Appendix 1.

PART I - Shea nut production and processing

The research in this section was carried out in the Upper West Region of Ghana. The focus of the research is expressed by the following research questions: What is the present state of the shea nut production and what are the opportunities and constraints for the locals to earn more from production? What is the cost-benefit of small scale shea butter extraction: manual and semi-automated? Additionally a case study was done on the suitability of the placement of a shea butter production factory in the village of Kpare. For this assessment we considered the following factors: production capacity, transportation cost to potential customers and cultural factors.

Chapter 1 Shea nut production

In this chapter background information is given on the production system of the shea nut. The aim is to give more insight in the physical, socio-economical and cultural context in which the nut is produced, and how this relates to the livelihood of the rural population.

1.1 Tree, fruit and nut

The shea tree, *Vitellaria paradoxa*, belongs to the family of Sapotaceae. The nuts that this tree produces can contain from 20% up to 50% edible fat. The shea tree population of East Africa is the subspecies *nilotica*, which produces the more liquid type of shea fat; this is due to its higher oleic acid content in the kernels (e.g. up to 50 to > 60 % in Uganda). The Shea tree population in the West of Africa, from Nigeria to Senegal, is a tree of the subspecies *paradoxa* of *Vitellaria paradoxa* and produces more solid shea butter as it contains more stearic acid (DFSC 2000, Maranz 2004). Our research area lies in the region of the *paradoxa* subspecies. The *vitellaria* tree species are also sometimes confused with the male Shea nut tree *Lophira lanceolata* (Lovett and Haq 2000, PROTA).

In Sub-Saharan Africa there many different genetic varieties of shea trees (Ferris et al. 2001). Authors consider domesticated or semi-domesticated as they are not planted but depend on natural regeneration, and semi-domesticated because there has been a century long tradition of anthropic selection of shea trees based on the trees yield, age and size (Lovet & Haq 2000, Kelly et al. 2007).

Generally shea trees are valued for their fruits and the nuts by the rural communities. The fruits are eaten and the shea nuts can be sold or processed into butter which may be used for cooking, skin cream, or medicine. Multiple parts of the shea tree can be used: the bark can be used as medicine, the leaves are used to make paint, the wood for utensils, furniture or as construction material. Furthermore, the shea tree wood is used as firewood or the making of charcoal. The co-products of shea butter extraction can be used to mix with soil material for plastering. These co-products can be used as fuel and the ashes that are left after burning can be used for the extraction of alkaline. Shea butter is also sometimes mixed with different types of alkaline to make soap. Shea trees are common and often dominating woodland species in Sub-Saharan

agricultural parklands. These parklands are fields used for crop cultivation where shea trees grow in between the crops.



Figure 1.3 - Agricultural parkland, with shea trees



Figure 1.4 - Shea fruit

Shea trees start to bear fruits at the age of 15-20 years, and reaches maturity from about 45 years. The tree can produce fruits up to its 200th year or more. The yield of the shea fruits can vary strongly vary significantly per tree as was demonstrated by research done by Boffa (Boffa et al.,1996). The difference in yield between an average yielding tree and a good yielding tree can differ up to fivefold. In their research the average yield of a tree was over 700 nuts per tree, which corresponds with ± 2.4 kg in terms of dry kernel-weight, while in another study an average yield of 5 kg of kernels per tree was recorded (Schreckenber, 2004). Besides varying yields between trees, the yield of a tree also varies per year which was also mentioned by the respondents in our study.

Fruiting of the shea tree starts in December and January, seeds mature during March till May and the fruits are ready for picking from April till August. The shea fruit is a green fruit that resembles the shape and size of a plum. One fruit normally contains 1 seed, but occasionally has 2 or 3 (DFSC,2000). The respondents explained that the ripeness of the nut can be seen from the color of the nuts shell. When unripe the shell will have a ivory white color, when it is ripe it will have a dark brown color, as visible from fig 3.



Figure 1.5 - Ripeness according to colour. Left: ripe, middle: semi-ripe, right; unripe.

So, the color of the nutshell can tell something about the nut quality. However, the nut size does not correlate with the fat content according to the study by Lovett & Haq (2000).

1.1.1 Shea tree yield and external factors

Factors like weather, bush fires, presence of insects and parasites can have significant influence on the yield of the trees (Kelly et al. 2004, Dwomoh 2004). According to Dwomoh (2004) droughts can lead to wrinkling of the seed or even abortion of shea fruit growth. Respondents mentioned that strong winds or heavy rain shower can make flowers drop down and they also mentioned the negative effects of droughts on shea nut yield. Other factors were the damage that bush fires can cause to the flowers, the fruits and/or the tree. Respondents mentioned that the severity of the damage caused by fire is partly related to the season in which the fire occurs. If fires occur in the beginning of the dry season the moist in the vegetation and soil is relatively high, which causes the intensity of the fire to be smaller. In the dry season, the vegetation contains little moist, which causes more intense fires, causing more damage to the shea trees. Some of the fires are set by humans with the intention to get rid of low vegetation to decrease the risk of getting bitten by snakes. Fires can also be set with the aim to hunt for “bush meat”. Especially young shea trees are easily killed by fire, which affects tree regeneration.

Caterpillar species are also common in the north of Ghana and affect the foliage and fruits of the shea tree (Dwomoh 2003, Dwomoh 2004). A large quantity of caterpillars and tree foliage damage was recorded in the field during this research in the first week of August 2008. According to the respondent the caterpillars were a problem, but they would go away automatically. An important insect for the shea tree, like for many trees, is the bees which is responsible for the pollination of the fruits (Dwomoh, 2003). The shea tree grows on different soil types and heights, except for low places that get regularly flooded (Boffa et al. 1996). Dispersion of the shea nuts is done by animals like monkeys and bats.

The mistletoe is a parasitic plant and it is very common on the shea trees in the North of Ghana (CRIG 2002). The respondents state that the mistletoe affects the fruit yield and that if there are too many on the tree the tree dies off.

1.2 Tree management and regeneration

Traditional management of shea trees is to selectively maintain the trees on lands that is cleared for the purpose of cultivation. The anthropic selection of trees on their size, age, and yield, results in a relative higher yielding and relative larger trees in farm lands (Djossa et al. 2007). A percentage of 70- 90 % of woody biomass consists of shea trees on farmed lands, while this is near to 10 % in unmanaged lands, according a research done by Lovett and Haq (2000) in Uganda. Regeneration occurs naturally and the regeneration occurs continuously in unmanaged lands, while and on farm lands regeneration occurs mainly during fallow periods. In the farming season all small vegetation is removed during ploughing, including the small shea trees. That is also why fallowing and the length of fallowing is considered as a crucial factor for shea tree regeneration (Lovett & Haq 2000, Schreckenber 2004).

One of the reasons why setting up a plantation and domestication of shea trees is time taking is due to the long tree maturation period. The trees don't start fruiting until after 15- 20 years, and reaches optimum yields not until its 40th year.

Grafting is one of the methods that could be interesting for shortening the period needed for shea trees to start yielding. Research on shea tree grafting has been carried out by Sanou et al. (2004) and showed that the grafting of ontogenetically old scions on younger specimens can result in shea trees that start fruiting within two years. The majority of the respondents were unfamiliar with grafting. In some cases farmers had ever heard of it and in two cases grafting was actually applied. One man from Kpare, had grafted three specimens of a shea nut tree upon a mango tree, and said that each specimen had died within a few years. There is a case in Jirapa where several shea tree had been successfully grafted. In the CRIG institute in Bole, branches of older shea trees are grafted on younger shea trees. Shea branches are also grafted on cashew trees, mango trees and also on other tree types. The CRIG is also conducting research on germination and high yielding species (visit to CRIG in July 2008).

Box 1.1 - Cashew and shea

A farmer in Kpare in northern Ghana owns a tree plantation with shea and cashew trees. This combination raises interest as the harvest season of the two species occur in different seasons. Cashew trees have their harvest season in the dry season, a period in which little work is available. This cashew-shea combination can generate additional work and income. This combination was also noted as a opportunity by Schreckenber in her research in Benin (2004).

Some farmers said that they used fertilizers before, but that they did not use it in the farming season of 2008 due to the high prices. The prices for fertilizers doubled between spring 2007 and spring 2008 according to the respondents, which can be explained due to the fuel prices that had almost doubled in this same period (indexmundi, 2009).

1.2.2 Sustainability of tree management

Several authors expressed their concern on the lack of regeneration of the shea trees and the decreasing shea tree density in different countries of Sub-Saharan Africa (Kelly et al 2007). Population pressure causes fallow periods to grow shorter (Okullo et al. 2004). Some farmers in our research area farm on their land continuously, because they have too little land for fallowing, which has negative impact on shea tree regeneration, but also has negative impact on soil quality and crop yield in general.

According to Gijsberts et al (1994), shea tree density had decreased with approximately 45 % in Burkina Faso, between 1957 and 1988 (Teklehaimanot 2004, Elias and Carney 2007) and tree population decreased from 230 trees ha⁻¹ to 11 trees ha⁻¹ in Sudan between 1940 and 2003 (Teklehaimanot 2004). Besides this some also state that there is a trend of aging of the shea trees which can be explained by a lack of regeneration (Lovett and Haq 2000, Okullo et al. 2004). In our research area respondents indicated that the village chiefs and earth priest discourage or forbid the cutting down of shea trees. In Jirapa there was even a case where people were arrested and fined for cutting shea trees on their own land. Some shea trees are cut down or are burnt for the purpose charcoal making and sale. It was also mentioned that the use of charcoal is a relatively new phenomenon in the region and that it was introduced only some decades ago.

From a farmers perspective shea trees are seen as interceptors of sunlight for the crops, decreasing crop yield. However it was found that shea trees in farm land can contribute to crop

growth through soil improvement and decreasing evapotranspiration (Teklehaimanot, 2004). A field study done by Boffa et al. (2000) showed that soil moisture, organic carbon content and potassium content was higher near to the shea tree. Yield of crops were lowest under the tree crown and highest at the edge of the shea tree crown. From this it could be concluded that a certain amount of shea trees standing in the farm land, was not only good for the yield of shea nuts, but also for crop yield.

Sometimes they are removed because of this or pruned. Pruning of the tree branches also occurs for the purpose of increasing shea fruit yield of older trees. Tractor ploughing is also expected to have negative effects on shea tree density, but is not (yet) very common in the study area. In the field large variability differences in tree density, but also distribution of tree girth were visible between different plots, which might indicate different management approaches of the trees depending on the land owner.

1.3 The shea nut pickers

Shea nut picking and the processing of nuts into butter is traditionally done by women (Elias & Carney, 2007). The respondents in the research area indicated that some men collect the nuts, but none of them extract butter from it. Some respondents said that there are more men collecting now than in the past due to the rise in prices offered for the nuts.

Shea nut picking is a daily activity. Women and children usually collect shea nuts early in the morning (from 5.30 to 8.30) within 1 -3 km radius from their house. On average they go picking 4 days per week. The women set out early because there is competition between pickers; the first to pick will get the fruits. Generally the nut pickers go bare feet or they wear slippers. One of the mentioned problems by the majority of the respondents is related to early picking when there's little light and visibility is low, is the risk to get bitten by scorpions or snakes, as also snakes are attracted to the shea fruit. This is a risk, for a bites of snakes that occur in the north of Ghana can be mortal.

Some women and children shake the shea tree or throw with sticks into the branches to make the fruits fall, but most are aware of the fact that this can make unripe fruits fall, and that from nuts of unripe fruits less shea butter can be obtained due to the lower fat content.

Respondents indicated they do not go far into the bush to collect shea nuts, or firewood. They said this was because they were afraid not to get help in case of accidents and/or because they were afraid to meet ghosts.

In these communities there are traditional rules on where one can or cannot pick. One can pick the fruits on one's own cultivated land; no one else is allowed to pick, unless the owner permits it. In most cases extended family of the owner is allowed collect nuts on the land. 59 out of 60 respondents stated that anyone is allowed to pick nuts from fallow or bush and.

On cultivated farm lands, "illegal" picking is common; those who are not permitted to pick fruits come and pick them when the farmer is not around. With the farmer having plots of land on different locations, sometimes miles away from home, illegal picking is difficult to prevent.

1.4 Importance of shea for livelihood

The main activity in the research area was agriculture with crops as groundnuts, beans, maize, millet, sorghum, rice, okra, tomatoes, and onions. Also livestock such as goats, chickens or fowls are common. Livestock can serve as capital saving. Most farmers in this region do not have much land, 1 – 5 ha. These farmers in the study area mainly produce for their own consumptions rather than for a market (subsistence farming). In a good year part of the harvest can be sold to buy other type of foods, seeds or fertilizers. In years of failed harvest the harvest might be little, and when it is too little and no capital or help is at hand this can lead to food shortage.

The average amount of nuts collected during the fruiting season 80 kg of kernels. This has a value of US\$ 15 in the shea picking season, en can reach to a value of US\$30 after the picking season. Income from crop selling in the UWR communities varies from negative (net amount of food bought) to up to 30 US\$.

When the financial situation permits shea nuts are often stored and used for home consumption or sold when prices are higher. Over half of the respondents of the UWR survey indicated they would buy shea nuts in the picking season and sell in times when prices are higher, if they had the money to invest. The poorest farmers with failed harvests are forced to sell the nuts in the picking season when prices are low to buy food or pay for sudden medical costs or funeral costs. They might choose to buy shea butter in the lean season for a higher price than they price they got for it earlier on, making a net loss.

Besides the economic potential shea fruit also has nutritious value. The fruiting during the in the lean season when food stocks are low but when need for labour is high (Maranz, et al. 2003). In this season any additional food is welcome and the shea fruit serves as an important and nutritious snack. Shea butter, for non-pastoral areas/cultures are the only source of fat in the diets of many local communities in Sub-Saharan Africa (Schreckenber, 2000). Besides this shea butter contains vitamin E, A and F (Renfrow, 2008)

Money from shea generally goes to the women and this is one of the very few sources of income for them. With the money the women get from selling the nuts or the butter, they generally buy food, clothes or pay school fees and medical care.

Especially for the years of failed harvest, income from shea might serve as an extra buffer to be able to buy food. And also for those who are poor and landless, shea nut picking and selling can be crucial for survival as it is one of the few natural resources they have access to of economical value.

Women traditionally do not own land, for the landownership is part of the patriarchal system. Widows, however, can inherit the land of their deceased husband, in some cases land is claimed back by the husband's family. Another way in which women can become owner of a piece of land is by purchase. People that do not own land do have access to shea nuts if there are shea nuts growing on fallow land or bush land on walking distance. However, due to population growth the amount of fallow and bush land is decreasing, while competition for nuts is increasing.

Prices offered in rural areas are generally less than in better connected and larger towns. In July 2008 prices of nuts per kg were as follows:

Table 1.1 - Prices of shea kernels in US\$/kg over time for the places of Kpare, Karni and Jirapa*

	Kpare	Karni	Jirapa
Harvest 2007	0,07 -0,09	0,09	0,11
Lean 2007	Up to 0,31	? (estimated)	Up to 0,36

		0,34)	
Harvest 2008	0.11 – 0.14	0.14- 0.16	0.16–0.23

* note that these prices change within the lean/harvest seasons as well.

In the harvest season a standard sized bag of 85kg of could cost around 13 US\$, while in the lean season it can get as high as 31 US\$ for the same weight of nuts. With the estimated average annual income of a farmers income somewhere in between 50-100 US\$ in this region, income from shea can contribute significantly.

Chapter 2 Shea nut processing

In this chapter a description will be given on the processing steps needed to obtain dried shea kernels and in the second part of the chapter the processing steps of shea butter extraction will be explained.

2.1 Drying of kernels

After the shea nuts are collected the nuts go through five processing steps before they are placed in storage, put out for sale or before butter can be extracted from them. The process of obtaining dried kernels is depicted schematically in figure 2.1.

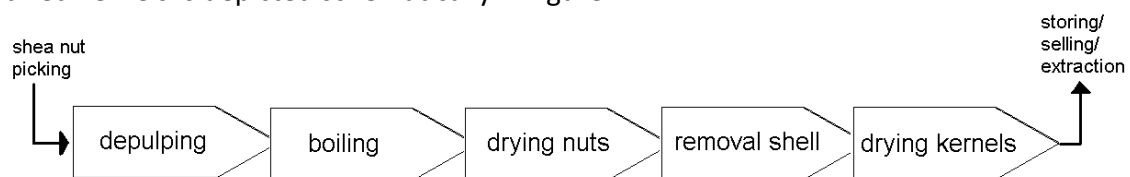


Figure 2.1 - Steps of processing freshly picked nuts into dried kernels

2.1.1 Removal of pulp

After the nuts have been collected, the pulp of the shea fruit is removed. The pulp contains high amounts of sugar that encourages the growth of fungi which decreases oil content of the kernel. So the purpose of the removal of pulp is to prevent further growth of fungi.

2.1.2 Boiling

After depulping the nuts are boiled to terminate the germination process of the nuts. The germination process starts within a few days after they have fallen to the ground and leads to the formation of free fatty acids, which will result in poorer shea butter quality and can cause a “bad” taste. After the nuts have been cooked for about 45 minutes ash is added to the nuts. According to the locals this step stops the formation of starch and is needed to successfully obtain shea butter later on. According to the JICA (2007) prolonged boiling of the fruits tends to destroy desirable natural compounds that keep the kernel in good condition. The processors state that boiling for a prolonged period makes extraction of butter during more difficult, or even impossible later on.

2.1.3 Drying nuts

When boiling is finished the nuts are left on the ground or on the roof for a couple of days to dry in the sun. At the end of this drying step, the moisture content of the nuts will be approximately 8% of their weight (JICA, 2007). Shea nuts will turn black if the nuts cannot dry well, for example if they are wetted by rain or when direct sunlight is not available. Poorly dried or black nuts fetch lower prices on the market than well-dried kernels.

2.1.4 Removal shell

The nuts are well-dried when they produce a rattling noise when shaken. At this point, the shell has detached from the kernel and the shell can be easily removed by hand after the nut is cracked. Cracking of the shell is done by gently pounding the nuts with a mortar or stone.

2.1.5 Drying kernels

The kernels are then dried for another 3 to 5 days. After this the moisture contents in kernels should be about 1% of their weight (JICA, 2007). This is done to prevent fungi to grow in the nut. In table1. the results of time of labour and resource costs are shown per processing step. This was measured during shea nut processing by women in the Kpare community. In table 2.1 an overview is given on the resources cost, labour time, aim of the step, and tools used per processing step.

Table 2.1 - Schematic overview: processing steps of getting the nuts ready for storage

Steps	Objective	Quantity used	Quantity obtained	Time	Used tools	Used resources	Cost resources *1	Comments
Removal of pulp	Avoid fungi growth	30 kg fruits	15 kg fresh nuts	1 h	-	-	-	-
Boiling of nuts	Stop germination	15 kg fresh nuts	15 kg boiled nuts	1h*1	Iron cooking pot, basket/perforated metal basin	Water:11 L, Firewood, Ash	Water: ~ 0,015 GC Firewood: 1 GC	Prolonged boiling → destroys desired compounds
Drying nuts	Detach kernels from shell, avoid fungi and turn black	15 kg boiled nuts	9 kg dried nuts	3 to 8 days *2	-	-	-	too much rainfall during drying process → black kernels
Removal of shell	Remove kernels from shell	9 kg dried nuts	7 to 8 kg kernels	¼ h	Mortar & pestle / stone	-	-	-
Drying kernels	Avoid growing fungi	7 kg kernels nuts	6 kg dried kernels	3to 5 days	/	-	-	too much rainfall during drying process → black kernels

- 1 Time necessary to collect water and firewood is not included
- 2 weather dependent; more sun, less time needed to dry

Once the kernels are dried they are either stored, or they are sold or processed right away. Generally, shea kernels stored in large plastic sacks inside a storage room. In Ghana there were two types of standard sized bags which are the one that can contain 120 kg of shea kernels (40 coco bowls¹ of kernels), and the smaller bag can contain 90 kg of kernels (30 coco bowls).

During storage the kernels sometimes get infested with fungi. This is the case when the nuts are not well dried, or when the nuts are stored in humid conditions. To get rid of the fungi the kernels are washed with fresh water and re-dried for a couple of days. Other problems that occur during storage are maggots that eat the nuts.

2.2 Shea butter extraction

Shea butter can be extracted in different ways. Methods of extraction can differ community or region. For example, in Burkina Faso the nuts are buried into the ground to stop the nuts from germinating, while in Ghana the nuts are boiled to stop germination (Lovett, 2004).

Manual extraction here is described as it was observed in the in the village of Kpare, and similar ways of processing have been observed in the Northern region. To compare cost-benefits for manual extraction with that of semi-automated extraction, small-scale shea butter extraction factories in Jirapa were visited.

At the end of the chapter other examples on shea butter extraction methods will be given, to give the reader an overview of the different methods used, both locally, regionally, and internationally. As was mentioned before, shea butter can be extracted from shea kernels. In this section the processing steps towards this extraction are described step by step .

To process the nuts into butter, an additional six processing steps are required as depicted below in figure 2.2.

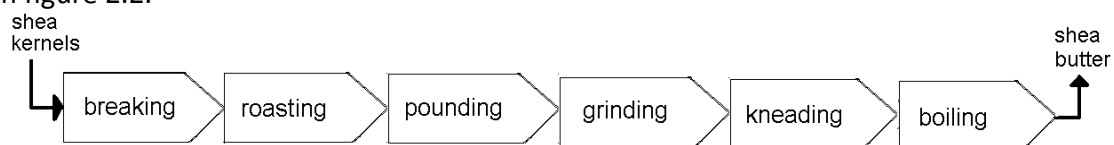


Figure 2.2 - Steps of processing shea kernels into shea butter

2.2.1 Traditional manual extraction

When the women extract shea butter, a maximum of six to twelve kg of kernels is processed at a time. This is because some processing steps need to be done on the same day with limited time intervals, and with too much quantity being processed at the same time, this is not possible. The

¹ ¹Coco bowl is a standard sized bowl that is used as a method to measure many edible goods, widely used in markets all over Ghana as an alternative to weighing scale which are seldom used by small traders. One coco bowl can contain about 2.4 kg of shea kernels. However, one bowl of kernels bought actually weighs 3 kg, because the sellers/buyers usually add one big handful.

processing steps needed for traditional shea butter extraction and that will be described in this section are: 1. breaking 2. roasting, 3. pounding 4. grinding 5. beating and 6. boiling.

2.2.1 A. Breaking

The first step is to break the kernels into small pieces so that they are prepared for roasting. Breaking is done with a mortar and pestle.

2.2.1 B. Roasting

Then these nut pieces are roasted. After this step it is vital that all the processes that follow: pounding, grinding, beating and boiling are done with limited time intervals. Roasting is stopped when the kernels attain a deep brown colour and when they can be easily broken by hand. According to Schreckenber (2004) roasting at a temperature close to 120°C will lead to maximum butter extraction without the kernel getting burnt. Butter extracted from burned kernel bits will become black and can't be sold on the market.

2.2.1 C. Pounding

Once roasted, pieces are again pounded with a mortar and pestle to obtain a brown-black paste. The paste is then removed and put in a cooking pot is heated to facilitate the grinding step which is next.

2.2.1 D. Grinding

The heated black paste is grinded with a grinding stone on a flat stone surface. This step is indicated by the respondents to be the hardest. This step is a vital part for the butter extraction process, for the thoroughness at which the grinding is done will be a determinant factor for the quantity of butter that is eventually obtained.

2.2.1 E. Beating

Before the paste is beaten, warm water is mixed into the paste. Warm water is added several times during the beating to keep the paste at a relative high temperature because if the paste becomes too cold the mass becomes tough and beating becomes difficult. During the beating process the butter should appear as a creamy mass floating on top of the mixture, see figure 2.3.



Figure 2.3 - Creamy mass separating from brown water

2.2.1 F. Boiling

This mass is then washed once or twice before boiling. Washing will remove unwanted shea nut and contaminant compounds from the butter, however it also removes vitamins and taste; so too much washing is undesirable. To obtain the butter the creamy mass is boiled in a cooking pot. Due the lower boiling point of water compared to the butter, the water will evaporate leaving the butter behind. Women remove pot from the fire and wait a few minutes for the oil to cool down and decant to remove any remaining impurities, leaving a clear yellow oil. After this the oil is left to cool down, it will turn into a solid white butter. The labour and resource costs for each of the described steps are shown in table 2.2.

Table 2.2 - Table 2.1: Schematic overview of processing steps butter extraction

Steps	Objective	Quantity used	Quantity obtained	Time ¹	Used tools	Resources used	Resource costs ²	Quality
Breaking	Reduce size of kernels for uniform roasting	9 kg of kernels	9 kg Kernel pieces	¾ h – 1h	Mortar & pestle	-	-	the finer the pieces, the more uniform the roasting.
Roasting	Make grinding easier	9 kg Kernel pieces	9 kg Roasted pieces	1 ¼	Boil pot	Firewood	-	Prolonged roasting → black shea butter
Pounding	Reduce size of broken roasted kernels to make grinding	9kg Roasted pieces	9kg paste with pieces	¾ h	Mortar & pestle	-	-	-

	easier							
Grinding		9 kg Paste with pieces	9kg paste	1½ h - 2h	Grinding stone & boil pot	Firewood	-	The finer the grinding is the more the shea butter extract
beating	Extract shea butter	9kg paste	5 to 6 kg Creamy mixture	1h - 1½ h	Metal basin	Lukewarm water ~ 10L	-	-
Boiling	Vaporize left water	5 to 6 kg Creamy mixture	3 kg butter	1h	Boil pot	Firewood	-	

1 Excluding the time necessary to collect water and firewood to the house

2 Mostly, women go to collect water (bore all) and firewood (farmland)

Quantity obtained

The quantity obtained from 9 kg of dried kernels is about 3 kg of butter, so conversion from kernel weight to butter weight is done with 1/3. The quantity obtained depends on the uniformity and temperature of roasting, on the fineness of grinding and the ripeness the nuts used. The more optimal the roasting, the finer the grinding and more optimal the ripeness of the nuts used the more butter that can be obtained.

In the experiments on extraction rates conducted by Yé et al. (2007) another extraction method was used: extraction with a pressing machine. In these experiments the fineness of grinding was also found to be of main importance.

Box 2.1 - Local soap making

Home made soap in Ghana is usually made from palm oil, but some women also make soap from shea butter. Usually this is used for home-consumption and in some cases the soap is made in large quantities for the purpose of selling and so generates cash income. Shea soap is based on a blend of shea butter and alkaline (potash).

Obtaining alkaline

Alkaline is obtained by boiling and filtering the ash obtained from burnt leaves of certain trees. All trees containing alkaline can be used. In the study areas trees the following trees, among others, were used for alkaline extraction:

branches and leaves of Nim tree (*Azadirachta Indica*)

branches, leaves and shells of the fruit of Dawadawa tree (*Parkia Biglobosa*)

Millet stem (after harvesting)

Mistletoe (parasite of the shea tree)

Making the soap

Shea soap contains only shea butter and alkaline with a ratio of close to 1:1. The rightness of the soap mixture is determined by the maker by its taste. Making soap is a tricky process because if the ingredients are not added in good proportions the mixture will not turn to soap.

2.2.2 Small scale automated processing

In the town of Jirapa in the Upper West Region, the labour, resource and maintenance costs were measured for two different small scale shea butter extraction factories. The results were used to compare the cost-benefits of the small scale processing with that of the manual processing.

The experiment set up: In both factories shea butter was extracted from about 75 kg of shea nuts. The weight of nuts processed and the weight of the extracted butter is compared for both factories. The outcome of the extraction rate in both factories turned out to be the same, namely: 0,4 kg of butter was extracted from 1 kg of shea nuts.

The women groups stated that a running shea butter extraction factory can process 200 - 250 kg of nuts a day which can result in 80- 100 kg /day of butter extracted. The limiting factor for the processing capacity was the roasting machine, which can process 85 kg in 4 hours. The factories of the main maintenance cost

In table 2.3 the resource costs and labour costs are written down. This includes all cost for running the machines: diesel, electricity, firewood, and water. Maintenance costs are estimated. Labour costs are calculated on the bases of a wage of 0,68US\$/day.

Table 2.3 - Energy costs in Jirapa - July 2008

	Price *1
Diesel	0,63 US\$/l
Engine oil	1,27 US\$/l (Wa) 1,8 US\$/l (Jirapa)
Firewood	0,68 US\$/ headload
Electricity	0.10 US\$/KWh

*1conversion rate Ghana cedis to US\$ used : 1GC = 0.68 US\$

*2 Note that these are prices during peak world oil prices between april- august 2008.

In the following table 2.4 the results of the cost-benefit assessment of the two shea extraction factories is depicted. Also cost-benefit for manual extraction is included. For manual extraction two different assessment methods were used. Manual –rural, assumes that there is no other job available and that there that firewood and water have no economical value, although this need not be necessarily the case for all rural areas. Then the manual non-rural extraction, assumes that labour time put into extraction could have been spent elsewhere and for each day of work 1 GC could have been earned, it also assumes the resources(firewood, water) could have been sold, if it had not been used for the shea extraction process.

Table 2.4 - Cost-benefit analysis of two shea extraction factories

*5	Processing costs in US\$/kg SBE *1	Price*2 of shea kernels in US\$ / kg SBE	TOTAL extraction costs US\$/kg SB	Average price*3 of SB in US\$/kg (bulk)	Average price *4 of shea butter in US\$/kg (small-quant.)	Average profit*5 (US\$) if sold in bulk	Average profit*5 if sold small quantities
Factory Yipaala	0,52	0,68	1,20	0,72	1,87	- 0,48	+ 0,62
Factory Wayiri	0,48	0,68	1,16	0,72	1,87	- 0,44	+ 0,71
Manual, rural	-	0,41	0,41	0,72	1,87	+ 0,31	+ 1,46
Manual, non-rural	0,47	0,41	0,88	0,72	1,87	- 0,16	+ 0,99

*1 SB=shea butter; SBE = shea butter extracted

*2 based on prices of shea kernels, end July of 2008 (in Jirapa: 0,22 US\$ /kg, in Kpare: 0,14 US\$/kg)

*3 based on price offered by middleman in Wa (1 to 1,1 GC/kg of shea b. = 0,68 – 0,75 US\$/kg)

*4 depends on weight of balls sold. Fixed price per ball (0,034US\$/ball), but weight varies between 13 g and 30 g in research area.

*5 minus(-) indicates loss.

If labour costs are not included, which can be relevant for rural places where there is no employment, than manual extraction is profitable both if sold in bulk quantities and in small quantities. Semi-automated processing is only profitable if sold in small quantities. But this would lead to a over flooding of the local market and will disturb the local market, leading to lower prices.

*5 The price of shea kernels in US\$ needed for extraction of 1 kg shea butter (different for manual and semi-automated), is influenced by the price of shea kernels on the one hand, and the butter extraction rate on the other hand. The shea butter extraction rate for semi-automated processing is higher, but the prices for the kernels were also higher in the town where this semi-automated processing takes place. For the extraction of 1kg of shea butter manually 3,03kg of kernels are required, and for semi-automated extraction 2,5kg of kernels are required to for the extraction of 1 kg of shea butter.

Conclusions & discussion PART I

In this chapter the conclusions on the opportunities and constraints for local communities in Ghana to earn more from production, processing and trade are given.

Production

There is a constraint in the production as it is hard to influence the total shea nut yield. Planting more trees as it will take at least 15 years before there are returns of investment. Besides this the yield is dependent on many environmental factors, while there is little human intervention on these factors (lack of irrigation, infrastructure and lack of means to fight plagues). Fertilizer use might increase yield although this requires further study. Then there are bush fires, both natural and human set fires, that decrease yield and regeneration. Another aspect concerning yield on the long term is regeneration. Regeneration does occur, but it is unclear whether the regeneration rate can pace up with the aging, dying of the already existing trees. The factors that are considered most threatening for regeneration in the study are the cutting down of shea trees and the lack of sufficient fallowing to enable regeneration. However, increased production does not necessarily lead to increased income if it makes the prices go down. The picking of unripe nuts due to shaking of trees, can be explained by the competition between pickers.

Opportunities and constraints on processing

In this research manual shea butter extraction is compared with, semi-automated butter extraction. Efficiency of butter extraction was higher with semi-automated extraction, as 1 kg of shea butter was obtained from 3 kg of shea kernels during manual extraction, while the same amount was extracted from 2.5kg of shea kernels during the semi-automated process. However, production cost are higher for semi-automated processing.

Constraints in semi-automated processing are the combination of high shea kernel prices and the high fuel and maintenance cost according to prices in 2008, which make shea butter extraction unprofitable. Additionally, lack of spare-parts that are not easily obtainable and lack of finance cause reparations to get postponed. Manual processing relies on local available resources and is therefore a sustainable business. It involves lower production costs and therefore is more profitable even if longer labour hours is taken into account. Therefore manual butter extraction is a good opportunity for income generation, especially in places where employment is scarce. Note that the profitability is highly dependent on fuel price, shea kernel and shea butter prices. Because the prices of these goods are subject to frequent changes, this will affect on the profitability over time.

One of the possible income generating opportunities is to invest in buying shea kernels in the harvest season and sell them in the dry season, as prices might rise up to threefold in the dry season as compared to the harvest season (harvest 2007: 0,11 US\$/kg, dry 2007: 0,36: US\$/kg). However, this is only a realistic opportunity for those who are not in immediate need of money in the lean season and can invest. The poorest will need to sell all the shea products immediately to

buy food in the lean season, even though this is the season when food is most expensive and prices they get for their shea products is lowest.

If too many nuts are stored in the dry season than the prices might not go up at all and investors may find themselves stuck with their nuts unsold, as was what happened in the dry at the end of 2008

Note: when finalizing the report, news came from CRI in Ghana, that the production of shea nuts from shea trees after planting can be reduced from 15 to 7 years (Ghananewstoday). This has however not been officially confirmed yet.

Part II – Shea traders, on the local market and in finished products in the south of Ghana and for export

This second and last part of the report contains the last four chapters on shea trade, urban shea butter consumption followed up by a case study.

Chapter 3 Buyers and sellers of shea butter at the local market

The focus in this chapter is on whether the traders are able to satisfy the demand of shea butter in quantities and in quality set by the next buyer. This research question is explained with sub-questions concerning the quantity, quality and price of shea butter that the traders buy and sell. Attention is given to the type of storage, packaging and transportation used on the local market in the shea butter trade. Different actors and their interactions within the trade of shea butter are illustrated in figure 3.1. This chapter will elaborate on these actors and the flow of shea butter within the local trade, with special focus on the wholesalers on the local market. The main attention of this field research is with the women who trade in bulks of shea butter, as they are situated at bottom part of the shea butter supply chain. The hypothesis is that these women (and men) trading in bulk of shea butter on the local market have the most difficulty in meeting up to the standards of shea butter set by the buyer. It must be said that this study is done within the city of Tamale, in Ghana in the year 2008, and can be considered a case study. The observations and conclusions in this chapter are typical for this case and one have to be careful in drawing general conclusions.

The supply chain and it's actors on the local market

The supply chain of shea nuts and butter is complex as there are many actors involved. In figure 3.1 a simplified supply chain of shea butter is given. The buyers in this chapter are the actors at the end of each arrow in the supply chain, i.e. the boxes where the flow of butter arrives at. These are wholesalers (2), retailers (3) and consumers (4). The sellers or suppliers of shea butter are the producers (1) of shea butter, the wholesalers (2) and the retailers (3) (figure 3.1).

The producers (1), women working individually or in groups, sell to wholesalers (2), to retailers (3) and to consumers (4). Producers and shea butter processors can be seen as retailers as they sell from a fixed location. For example, the butter can be sold from the building where butter is produced, from local markets or from the producers' homes. Generally, the women producers keep some of the butter for their own household, which makes them consumers at the same time. There are no statistical records of amounts of butter that the women are keeping for their own use, for they nor any statistical board keeps any records of it. It could also be that some simply do not wish to tell how much they use as they are not always supposed to keep some of the butter apart (Personal communication Dr. Yidana, the producers, the trading women, and consumers, 2008).

In northern Ghana, retailers in shea butter (3) are women selling shea butter in small amounts (in quantities of 15-40 grams) or in bowls (ca. 5kg). Other than the producers retailers are buying from producers or wholesalers to sell the butter in smaller amounts to individuals, households or business women who cook and sell meals and snacks (figure 3.1: (4) consumers).

In Ghana different wholesalers have been identified. Wholesalers (2) in shea butter accounted in North Ghana are: a) men and women who are trading in large amounts from a fixed location on an urban market, b) men and women from the south of Ghana and c) men and women trading abroad in bulk quantities. The traders from the northern urban markets sell their butter to the other wholesalers from the south and as an export product. Traders from southern Ghana are selling the butter to exporters as well. Thus export traders buy their shea butter directly from producers, and from the urban and southern wholesalers. The local trade in shea butter is mostly done by women, and some men, but there seems to be a trend of increased involvement of men in shea butter business which and might be related to the larger quantities butter being exported. No statistics were found for this statement and is made by observation (Dr. Yidana, Personal Communication, 2008)

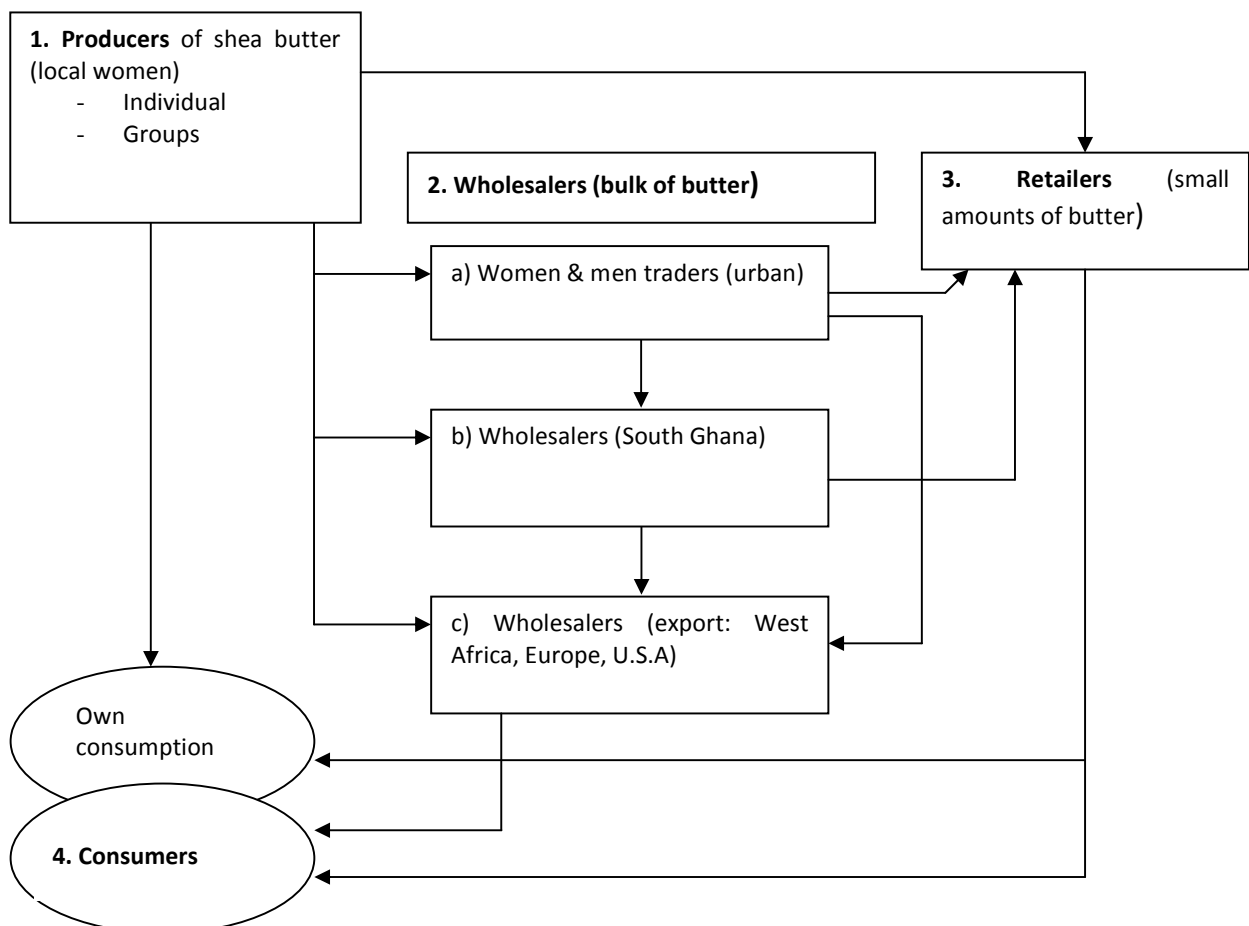


Figure 3.1 - The shea butter supply chain

3.1.1 Women shopkeepers on the Aboabo market in Tamale (a)

At the local Aboabo market in Tamale those trading in bulks of shea butter have a store on the market. 26 stores, of different sizes, were observed. Around 90 to 95% of the stores were run by women and 10 to 5% by men. It is common that a shea butter store is shared by a number of individuals, and often it is the oldest person who is the store owner (see box 3.1). Besides shea butter, they also sell other products like shea kernels, maize or beans.

The store keepers trading in shea butter go to the surrounding villages on the market days – in the north of Ghana every 6 days - to buy bowls (ca. 5kg) and big calabashes (16-25kg) from the village women who process the nuts into

Box 3.1 A family business

Younger family members can be in charge as well in the storage rooms of shea butter. Especially when there is enough money or the family has more stores. This was the case of Ima Faizha. Ima Faizha is the daughter of the lady owning the store. But Faizha is the one running the business in shea butter. Her mother comes once in a while. Her aunt is helping out in the store and to keep Sister Faizha company. A family business.



1



2



3



4



5

1. A calabash is rapped in paper, 2. The rapped calabashes go into the burlap sack, 3. Last calabash goes into the sack, 4. The sack is tight firmly by rope, 5. Sack with three calabashes of shea butter is ready to be sold and transported.

butter. The women processors also come to the city where they sell the butter to the store owners. A store can contain an average of 300 sacks with the sacks weighing around 60 to 90kg (see table 3.1 at section 3.3). In figure 3.2 it is illustrated how such a sack is packed. Calabashes with shea butter are covered with paper from a former cement bag. The sack is sealed with rope.

3.1.2 Traders from the South of Ghana (b)

A few decades ago, much of the shea butter processed locally in the three northern regions was sold to the South of Ghana. The traders and their agents in butter were mainly women who travelled up north to buy the shea butter. In the south the butter was sold on the markets and used by households. There was relatively a little export at that time (Lovett, 2005a). Women and men from the south still come to processors in the villages and to the shopkeepers on the city market to buy butter. Market women, medicine men and local refineries buy several sacks, with an average amount of 10 sacks (see figure 3.3; personal communication with the urban shea traders, 2008). Probably they buy for export as well to sell at the harbour of Tema or across the country borders to Côte d'Ivoire and Benin.



Figure 3.3 - Few sacks (here 3) bought by a woman ready for the lorry transport

3.1.3 Middlemen and women, agents and companies (c, d)

Other wholesalers are middlemen and women for companies, agents for those middlemen and women, and agents for companies. They collect larger quantities of butter than urban shopkeepers by going to different locations to buy. They do business directly with women groups or processing centres or with processors/individual processors in a village, they go to the urban stores. These actors sell the butter for 'regional' export, trade within West-Africa, and export to other African countries and to Europe, Asia and the U.S.

Most of the large buyers are trading in the nuts, rather than the butter. To give an idea of the amounts of nuts being traded by middlemen, here an example of a substantial trader: According

to mr. Alhaagi Baaba, the chairman of the Northern Region of the National Association of Shea Farmers, Processors and Buyers and he is trader in shea nuts, he is able to collect an amount of 40.000 to 50.000 tonnes of nuts from the different parties in a year when the shea nuts are abundant in the fruiting season.



Some of the big companies worldwide and nationally are AarhusKarlshamn (AAK Sweden), Loders Croklaan (The Netherlands), ADM & Wilmar (Asia), 3F (Japan), Ghana Nuts, Olam Ghana Ltd. 2 and many more.

3.2 Quantity and Prices

Within the retailing small amounts of butter are traded. In wholesaling large amounts of shea butter are sold. In table 3.1 the quantities and prices for which the butter is sold are illustrated.

On the local markets the shea butter is measured in small

sizes, in bowls, calabashes and in sacks. The small amounts are small round bowls able to fit in the palm of your hand (see figure 3.4). They weigh around 15 to 40 grams. A bowl of shea butter weighs 4 to 7 kg (figure 3.5) and a calabash with shea butter (figure 3.6) can weigh between 16 and 28 kg. The amount of butter that fits into three calabashes is close to the amount that goes into one sack, which ways around 80 to 90 kg (see figure 3.7 and figure 3.2). The price for a bowl at the time of data collection (low-price season 2008), when bought directly from processors, was in the range of 3 to 5 Ghana cedis (1.85 to 3.10 euro) and 20 to 30 Ghana cedis (11.25 to 15.60 euro) for a calabash. Urban traders, however, sold a bowl for 5 or 6 GhC (3.10 to 3.75 euro) and a calabash in the range of 25 to 35 GhC (15.60 to 21.90 euro). One sack was sold for 80 to 90 GhC (50 to 56.25 euro).

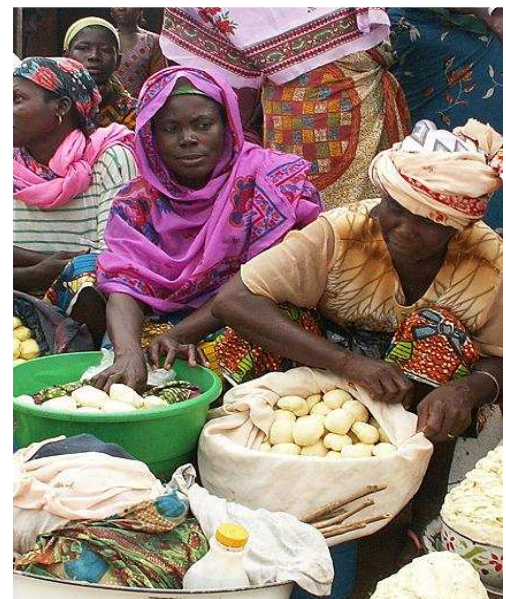


Figure 3.4 - Women selling small sizes of shea butter on the Aboabo market, Tamale (~30grams for 0.05 GhC, 0.03 euro)

Figure 3.7 shows sacks that are stored in a storage room on the city market of Tamale.

Table 3.1 shows how the price per kg can vary for different sellers and for different quantities. For the producers and retailers it seems more profitable to sell small amounts of shea butter

² <http://www.aak.com/>; <http://www.croklaan.com/>; <http://www.adm.com> & <http://www.wilmar-international.com/>
[http://www.ghananuts.com](http://www.ghananuts.com;); <http://www.olamonline.com>

compared to the bowl and calabashes volumes. As the price per kg for the small amounts is 0.75 euro, when sold at 40 grams, the prices per kg of the bowl (0.37 to 0.50 euro/kg) and calabashes (0.70 to 0.62 euro/kg) is considered higher in table 3.1.

Table 3.1 - Overview of local and European prices, and quantities of butter sold by retailers and wholesalers on the urban markets in Tamale*

Producers and retailers					Store keepers (urban)		
Local weight	International weight (kg)	Prices selling			Prices selling		
		Ghana cedis	Euro**	p/kg (€)	Ghana cedis	Euro**	p/kg (€)
Small amounts	0.015 - 0.04kg	0.05	0.03	2.00 - 0.75			
Bowl	5kg	3-4	1.85 - 2.50	0.37 - 0.50	5-6	3.10 - 3.75	0.62 - 0.75
Calabash	16-28kg	18-25	11.25 - 15.60	0.70 - 0.62	25-35	15.60 - 21.90	0.98 - 0.78
Sack	60-85kg				80-90	50 - 56.25	0.83 - 0.66

* Data collected in July-September 2008.

** Euro rate: 1 euro is 1.60 GhC



Figure 3.5 - Bowls of shea butter for sale (~5kg)

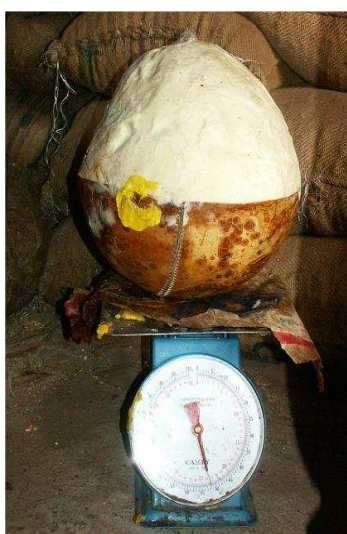


Figure 3.6 - A calabash of shea butter on a weighing scale (28 kg)



Figure 3.7 - Sacks of shea butter in a store

For the urban store keepers the price per kg are higher than those of the processors. For those wholesalers the calabashes has the highest price per kg, 0.98 to 0.78 euro/kg. Interesting to note is that when the weight of the bowls and calabashes get larger the prices per kg are lower, i.e. a

higher amount of shea butter is cheaper per kg for the customer. The data of weights in table 3.1 are extremes, lowest and highest weights are given. Prices are not fixed, as bargaining is usually done among the traders.

Costs involved in the process of making shea butter and the costs involved in the trading on the local market are rarely identified and recorded. When asked, the urban women say that drivers sometimes have records on their transportation loads. For example, the driver might receive the details of delivery on paper with amount of sacks of a certain product, the delivery address and the price paid for it, but usually those papers aren't kept. The lack of records makes it hard to estimate the quantities of butter sold per month or in a year.

Some examples of costs made by sellers are costs of shea butter extraction (see previous chapter), transportation to the markets, transportation to the client, packaging and loading, labour time, cultural and social costs. Gifts, in the form of shea butter, are given away by the traders as well to build social relationships. Giving away shea butter is common on special occasion of a family member and/or an economical relation, like when a new baby is born, on a wedding or on a funeral.

In table 3.2 the costs and benefits made by the urban traders in shea butter are illustrated. The costs of the sack and rope, the men hired for packing and loading are paid by the buyer of shea butter at the store on the urban market.

Table 3.2 - Costs and benefits made by the store keepers on the urban market, Aboabo Tamale *

Costs	GhC	Euro**	Benefit	GhC	Euro**
Store	12 per year	7.5	Bowl	5	3.13
Watchmen	1-2 month/store	0.63-1.25	Calabash	25-35	15.63-21.88
'council toll'	1,5 month/store	.94	Sack	80-90	50 - 56.25
calabash from rural women	18 – 25	15.60 - 21.90			
bowl from rural women	3-4	3.10 - 3.75			
young man for packing	1 per sack	0.63			
young man for loading	0.50- 1 per sack	0.31 - 0.63			
sack/rope	.	.			
paper	.	.			
transport to and from village market	Depending on distance and on load	.			

* Data collected in July/August 2008.

** Euro rate: 1 euro is 1.60 GhC

3.3 Quality

Quality is an issue locally, as consumers and traders look at the colour, texture, the melting ability, the moisture content, coverage and attractiveness of the butter. The butter sold on the local market is white or yellow in colour.

Melting of the butter is the biggest concern for the traders on the local market. All sellers of the butter take care to keep the butter in the shade, they cover it and store the butter in a cool and dry place. Retail women on the markets, who sell small sizes of shea butter show the butter partly uncovered, while the rest is covered by a wet piece of cloth.

The moisture content is qualified by touching and rubbing the butter through the fingers. If the butter feels soft, it is considered to have a high moisture content. This means less butter, so hard butter is considered a good quality butter by traders and consumers. (interviews traders and consumers, see chapter 6 also).

The demand on the colour of shea butter can vary from white to yellow and every colour that is in between. White shea butter is pure shea butter, which is mostly used for cooking. The yellow butter becomes yellow because of the roots that are added during the butter extraction process, and is favoured in the south of Ghana for the making of cosmetic products (interviews by urban trading women). Yellow butter is considered to be softer than white butter by several women traders. Lovett (2005) dictates that there is no difference in texture between the different coloured butters when taken into labs for testing. The yellow colour of the butter is said to make it more attractive for the use in skin products.

Another characteristic mentioned on the market was the texture of the butter. It has to be smooth and no contamination should be mixed into the butter, like for example, sand, stones, or dust.

The export industry is more demanding on the quality of the shea butter. Current traditional post-harvest processing of shea kernels nut into shea butter results in quality that is too inconsistent for export (see for further details chapter 5). This is a constraint for traditionally shea extraction, however might offer an opportunity if quality can be made more consistent by better controlled extraction methods.

Box 3.2 - Way of packaging calabashes of shea butter into sacks

The producers have their butter, in bowls and calabashes, covered with a cloth and a second cloth covers everything.

When the butter is sold to a store keeper, the cloths are removed and it will be covered in paper. The paper is from paper bags of cement. Two paper bags are holding the cement. The outside paper is used for the covering of the shea butter. The inside of the outer paper touches the butter and outer calabash. Three calabashes are covered that way, and but in a sack (see figure 3.2).

3.4 Constraints and opportunities of shea butter traders

Supply of butter is dependent on the supply and availability of the shea nuts. The picking of the shea nuts starts in May/June. Around that time till September the supply of butter is larger than the demand. At this time especially rural producers are in need of direct cash. Rural families that have limited amount of money and food are in direct need of cash in the lean season. This makes their negotiation position weak, and then it is the urban women who are in a dominant position of deciding on prices.

On the local market price bargaining is a usual aspect of buying and selling. In the high supply season, many rural producers are more dependent on the prices asked by the next buyer as they are in need of cash.

The market access, the roads and transportation costs and reliability are often a constraint, especially in northern Ghana and the small villages. The infrastructure is still a major constraint for the supply of shea butter and the availability of buyers coming to a village or local market.

From September/October onwards until the next new season of shea nuts is starting (May/June), traders who can afford it are storing the shea nuts and shea butter. They will sell the shea nuts and butter at a higher price. As observed in the beginning months of storage, the urban storekeepers is buying butter, but are not selling the shea butter. No profit seemed to be made. The case was that so called investors are actually assigning the local middle women to buy shea butter for them. These investors are people who give money to the urban shea butter trader to buy a certain quantity of butter. The urban shopkeeper will store the butter until the prices are rising. The women on the market will then sell the butter at a higher price and the investor will gain some profit. The market woman will get her share in the business cooperation. The 'investor' has to pay 1GhC rent as well and is free to give any other amount to the market woman mostly depending on how satisfied the 'investor' is.

More about the nature and implications of economic uncertainty for rural markets and livelihoods can be found in an article of Chalfin (Chalfin, 2000).

3.4.1 Social networking

On the local market the trading women help each other. They go on turns to the local markets to buy their shea butter stock, while it usually are the older women who stay at the stores and buy butter from shea butter producers that come by. Many of these producers come from far and will go shopping on the market. Often they can leave their luggage, or merchandise bought on the market, in the stores.

Between many traders there exists an understanding based on trust and they are usually unfamiliar with information who someone works for. They maybe know a name, but usually not

company or where another trader comes from. Also in the stores little records of sales are kept, although some records have been found at some processing centres around Tamale city.

3.5 Trends over the last years

The shea butter market around Tamale has changed over the last ten years. What we can see is that the shea nut and shea butter industry have increased (Lovett, 2005). On the other hand it seems that shea butter use is decreasing at household consumption level in Ghana within the city (see Chapter 6 on consumption). The exporting industry in shea nuts and butter is showing an increasing trend and because of this larger demand more women organize themselves in shea butter extraction or trading groups instead of operating individually. Besides this, more and more shea butter extraction centres are established. The formation of women associations and groups can partly be an effect of the privatisation of the cocoa board after 1990. More on the cocoa board will be explained in chapter 5, "Exporters of finished shea products". This governmental body increased the activity of the shea business by giving rural women better market access. The main purpose of the cocoa board was to organize the shea market in such a way that it was better able to meet the shea butter and shea kernel demand for export purposes (stated by Dr. Yidana, 2008). The National Association of Shea Farmers, Processors and Buyers have been established in 2007. Their aim is to have a shea board separated from the cocoa board, and to be able to focus more on the opportunities and making improvements within the shea market.

According to Dr. Yidana (Personal communication, 2008), fifty years ago the household consumption of shea butter as edible fat could be estimated 60% compared to other edible oils. Today this percentage is considered to be much less and can be explained due to the decreased production of traditional agricultural crops. For example, less yam and cassava is grown while production of rice and soya is getting more common (personal communication Dr. Yidana, 2008). The import of substitutes for food and cosmetics are reflected in the consumption patterns in the household use. Import products of other edible oils like palm oil, groundnut oil (peanut oil) and other vegetable oils (soya, sunflower) are substitutes for shea butter in cooking. Also skincare products are getting increasingly popular, compared to shea butter as a skin cream. Even if these products are more expensive, they are seen as more 'modern' than the unrefined shea butter. (further details chapter 6, "Urban shea butter consumption").

3.6 Conclusions

On the local market the supply chain of shea butter consists of producers, wholesalers, retailers and consumers. Traders are confronted by challenges like market access, costs of transportation, seasonality's of weather and fruiting season, cultural events and availability of buyers. Looking at the main question of this working document on "How can local pickers and processors earn more from shea nuts/ shea butter?", for the local trade it can be said that not only local pickers and

processors have difficulty in earning from shea but also the local traders, the producers, retailers and wholesalers. In the text below follows the conclusion on the subject of local trade.

A research question on the local trade is formulated: “Are the traders able to satisfy the demand in quantities and in quality of the next buyer?”. The result that came out is not all that clear. It was not possible to obtain any clear data from quantities of shea butter sold or bought over a certain period, for example over a year, within the month of research. This is because most of the time no records are kept of the business in and output. The situation can be described as follows within the supply chain of shea butter on the local trade regarding to the sub-question: “How can local women storekeepers and retailers earn more from shea butter?”. The producers and women wholesalers (women 93% in Tamale Aboabo market) are dependent on their buyer, other middlemen and women, southern traders and export companies. Many small and bigger middlemen are within the supply chain, this means that the product is often not traded directly to consumers or companies but makes a long way before the shea butter is used or ends at the consumer. Because of this the producers and small middlemen (women), wholesalers and retailers, do not benefit optimally. The product will increase in price at every step in the supply chain because of the storing, packaging and transportation costs included of the next seller to the following buyer. A solution for the producers, storekeepers and retailers on the local market is to have enough buyers and to have reliable buyers. Another possible solution is to have a direct trading from the producers, to the traders and the industry to the consumer. To create more transparency and control on the trade of shea butter and its price.

Another opportunity is to have better control over the shea kernel processing and shea butter extraction, and thus to have a more consistency in the quality, a standardized method. The Ghana standards board and the Ghana export promotion council is working on this with different women groups, although the activity has to come from the South of Ghana and is seemingly to be not that effective (yet) (see chapter 5, see appendix III & IV).

Many business women within the shea market are complaining of the lack of market, due to competition concerning quantities and quality, their position on the market – individual processors, women groups, small urban middle women or successful middle men and factories – and the market change as the export market is increasing. The problem considered lays therefore more within the commercial experience, the competitive pricing, pre-financing and financial organisation, the timing of delivering and quality control of processing and packaging and is a matter of trust and reliability. A solution to this are the creation of partnerships, where women groups are formed, and join each other and are contracted by the buying organisations. Rules and regulations concerning these contracts should therefore be judiciary in case of broken contract legal actions can be taken. The shea market within Ghana is complicated and many side aspects within the market are to be developed.

4.1 Introduction

In Ghana there is a small number of businesses set up by Ghanaians who process shea butter into cosmetics. There are of course non-Ghanaians involved as well, but the focus in this research is on the small scale entrepreneurs and most of them are Ghanaian. Most of the interviewees during this research are the ones that are seen by the West Africa Trade Hub (WATH) as 'export ready'. Export ready in this sense means among other things that the company can produce a satisfying quality and quantity and can deliver this on time (USAID WATH, 2005).

A small part of the picked shea kernels ends up in cosmetic products, for export this is a relatively new market. Shea has interesting properties for the cosmetic industry; among others the moisturizing, anti-irritant, regenerative, anti-inflammatory effects and the UV-absorbing function. These properties will not be further discussed in this report but more about these chemical and physical properties can be found in the article of Alander and Andersson (Alander and Andersson).

4.2 The market

Currently, the main market for shea cosmetic products is not in Ghana but especially in the US, Europe and Asia. Therefore the entrepreneurs are searching for buyers in western countries and so export trade will be stressed in this report, more about that in chapter 5.

Most shea butter products are shipped from the harbour in Tema (in the south of Ghana), only a little part of the production is transported over land to other West African countries (e.g. Burkina Faso) and hardly any butter is transported by air. Most of the time only samples are sent by air because this is the fastest way of transport.

4.2.1 Market size

The current size of the market for shea butter and shea containing cosmetics is not clear. Data about quantities produced by the companies in Ghana has not been completely collected yet by any of the government authorities, although improvement is on the way (more about this in paragraph 5.3), nor is there quantitative information on demand. Estimating quantities of the market for these products is complicated, as well because interviewed companies didn't give out information easily about quantities produced and traded. The companies investigated in this research indicated that they could produce more if they were sure that there are buyers for their products.

The demand for shea products is increasing; especially in the US, Japan and Europe.

There are options for increasing the market for shea products because the main competitors for shea-cosmetics are cosmetics made out of cocoa butter, coconut oil and imported cosmetics. Most of these products are imported, as there are not many cosmetic producers in Ghana. If the

shea cosmetics could be used more instead of these substitutes this could mean a sharp increase of demand as well locally. A constraint is that looking at consumers in Ghana they often prefer non-Ghanaian cosmetics, but more about that in chapter 6.

4.2.2 Market players

The companies that are producing finished products are in general based in the south of Ghana. The interviewed companies in Accra are 'All Pure Nature', 'Ele Agbe', 'Naasakle' and 'Haymor Natural cosmetics'. Besides this there is a women group in Sagnarigu (in Tamale, northern region) that is making soaps and exporting these to Japan with help of the Africa 2000 Network (A2N), JICA, AFRASIA business council and UNDP Ghana. This women group has been investigated in this research as well.

So far the Ghanaian companies that are producing cosmetic products out of shea butter are relatively small and there are only a few. The companies are relatively small as well and are not processing the whole year round because they often don't stock too much but work more when they receive orders. They often don't have large storage rooms and because of the perishability it is relatively risky to produce in advance, in general shea butter has a storage life of approximately 2 years.

There are large companies (e.g. L'oreal, L'occitane) using shea as ingredient for cosmetic products but those companies are owned by non-Ghanaians and production of the products doesn't find place in Ghana.

4.2.3 Product range

The main finished export shea products made in Ghana consist of a small range of products. In general: bars of shea soap in different varieties (natural shea butter, with added baobab leaves, henna leaves or black soap), jars with pure shea butter or with added flavours, lip care products in lipstick form, shower products, hand and body creams and lotions.

The line of products consisting shea butter is slowly increasing, examples of relative new products are shampoos and conditioners, body lotions, massage creams and sunscreens. New markets are open and partly still unexplored for shea butter products; e.g. small hotel soaps, in Burkina Faso there are some companies working on this. In Ghana no companies are found that make hotel soaps consisting of shea butter.

Looking at the shea export cosmetic products, many cosmetic products are gift wrapped; the shea butter is often packaged in calabashes or in ceramic jars with a cellophane cover. This adds value to the product but as well makes transport costs higher.

Production of cosmetics

The in this research investigated producers made clear that they could produce more if they were sure that there is demand for the products. According to the producers quality is not a problem, but at the same time other sources made clear that the produced goods aren't always of the desired quantity and quality. An important issue is that shea butter is a perishable product which

has to be taken into account when producing products out of it; the limited storage life makes producing large amounts in advance difficult.

Innovations

An example of an innovative product is produced by the company Haymor natural cosmetics, they are making soap bases; shea butter out of which more liquid is extracted and it looks like big crumbs or flakes of butter. The butter is exported in this form and used in companies abroad as a base for their soaps. This is the only company seen which is making this kind of whole sale product out of shea nuts.

There are a few companies producing organic shea butter; an example of this in Ghana is 'Ideal Providence Farms'; the company of Georgina Koomson. She started in 2002 with organic shea butter. The first year it was new and demand was low, the second year it increased a lot, demand and production capacity increased strong. There is a high demand for organic butter from Dubai. The target is the middle and low class because the demand of the high class is too low. A constraint in organic shea is the bureaucracy that comes with being certified.

4.4 North versus South Ghana

There is a gap between the north and the south of Ghana, which can be addressed in different ways as been explained earlier in the introduction. The northern part is poorer and less developed. Climate, crops, culture are important issues, but in this chapter the economic gap is an important issue. The people who are picking and processing the shea nuts are located in the north and an important question is in which way they can gain more from the shea business.

The companies that process the nuts or butter into high quality finished products are mainly located in southern Ghana. The people in the north don't gain optimal from the shea product because they often only supply the raw material. Especially adding value to the nuts can give a higher profit and increase the incomes of the people involved.

The fact that the products are often processed in the south has several reasons and reflects some of the constraints that people face in the north and the opportunities that the people have in the south.

The first reason is that it is economically more interesting to be located close to Tema; the main harbour in the south of Ghana. The inputs necessary for making the products are entering the country most through the harbour, for example the packaging materials and essential oils. If the inputs enter the country in the South and have to be transported up North this will result in increased transportation costs.

Another issue is that the south is more developed than the north. Power cuts occur more often, roads are worse, there is less high quality technology and expertise available in the north and access to water is more difficult.

Finally in the north there are more illiterate and less schooled people than in the south. This makes it more difficult to have a business.

More about the north south relation can be found in a report from the centre of policy analysis (ODI, 2005)

4.5 Opportunities and constraints

A first important constraint is that some inputs necessary for processing the shea butter into a high quality cosmetic product, are scarcely available or expensive. Important examples of this are packaging materials and essential oils.

The time of delivery of the packaging materials takes a relative long time as well. This, especially in relation to the lack of storage room and lack of credit to buy large quantities of these inputs, makes it difficult to respond to unexpected demand for certain products. The length of the delivery time might be uncertain which doesn't help the production planning process as well.

Packaging is an important problem, in Ghana no really good packaging materials are produced so now the materials have to be imported from e.g. China.

Another constraint that the interviewed producers and exporters mention is uncertainty of quality and quantity of shea butter that can be delivered. The butter is supplied from the north from which the transport is not always reliable. Unexpected events like wedding and funerals can halt business for days and deadlines sometimes aren't strictly met.

An important opportunity seen in the women group in Sagnarigu (www.sheaproject.org) is that they got help from a number of NGO's. They were linked up with a buyer in Japan and therefore have the confidence that their product will be bought. This encourages them to increase their production because they are sure there is a market for their products. This can be especially an opportunity if you are looking for other buyers yourself as well, than the help of the NGO can be used as a start up for more business transactions.

At the same time help from NGO's can be a constraint as it makes the producers dependent on those organisations. The organisations have projects that are temporary, if the project stops it remains uncertain whether they will be able to continue business and find other buyers.

A big issue in the shea business is the copying of product concepts. This is visible in different aspects of the business, for example the shea butter packaged in calabashes and ceramic jars can be seen in different shops of the exporters. According to the interviewed producers of shea products they try to be innovative but it doesn't always turn out that they really sell different products. Not much difference in (unique) selling points or product lines was found between the different companies. An opportunity could be for a company to develop a unique product.

An opportunity could be to use the by-products of the shea nuts and butter. E.g. the shea fruits are now eaten by the local people but it could be investigated if they could be preserved so that they can be consumed at a later moment, or that jams or lemonades could be made from these fruits. Another example is the 'brown water' that arises when the butter is kneaded. If this hardens it is often used as fuel to boil the butter but there could be other purposes as well in the direction of consumption.

Increasing the level of knowledge sharing can be an opportunity. Linked to knowledge sharing are issues like the state of the infrastructure and information technology equipment. Elias et al gives some ideas for solving knowledge sharing problems. E.g. producer certification could increase the international visibility of the companies involved. Prokarite and Table Filiere Karite (TFK) are two

initiatives in West Africa of projects active in (among others) knowledge sharing, harmonizing product standards and promoting and coordinating the shea business (Elias M. et al, 2006).

4.6 Conclusions and discussion

The companies are small, obviously there are options for growth but then the in previous paragraph mentioned constraints have to be faced and opportunities have to be utilised.

It is difficult to gather reliable quantitative data. Traders are not very easy in giving out information about quantities and prices. Partly because of the competition in this business but not that many records about quantities traded and prices in different years are kept as well.

The production of cosmetics can be increased to a higher level, both on the quantitative side as on the qualitative side.

Producers of shea cosmetics are looking for market for their products abroad. It could be interesting if they would focus more on the market in Ghana and West Africa. Especially giving attention to consumer awareness for shea products and creating a market are challenges that the producers and traders have to face. There would be less transaction costs involved and the producers and traders could have more bargaining power in comparison with the markets in western countries. This can create higher profit on their products.

An important question is whether the women in the north of Ghana can be involved in the production of high quality cosmetic products. And related to this; what are the opportunities for women in the north to increase their standard of living through trade in finished shea (cosmetic) products?

5.1 Introduction

The 8 major exporters of shea are Burkina Faso, Mali, Ghana, Nigeria, Cote d'Ivoire, Benin, Togo and Guinea-Conakry. In table 5.1 an overview can be found on the estimated export tonnages of these countries. These numbers are estimated by P. Lovett and were presented on July the 28th, 2008. Nigeria is the largest producer of shea nuts but contributes relatively only little to world exports due to heavy domestic demand (Technoserve). The main market for shea butter is in the chocolate and vegetable fats industry. In the year 2000 the European parliament decided to allow a maximum of 5% vegetable fat additives to be used in place of cocoa butter in the production of chocolate. The possibility to use shea as a CBE (cocoa butter equivalent) has been an important factor in the increased demand for shea over the last years.

In recent years the demand for nuts doubled while the demand for butter stayed the same (Sekaf).

The international demand for shea butter in cosmetic products is recently growing, the Body Shop has a line with shea butter products but in many products shea is an (hidden) ingredient as well. The market for cosmetic purposes of shea is growing but still small and uncertain compared to the food industry (Greig, 2006). Stathacos gives an optimistic view on the demand from the US for high-quality shea butter cosmetic products (Stathacos, 2004). Consumer awareness is an important factor in this increasing demand.

Table 5.1 - Export tonnages of shea nuts (P. Lovett, 2008)

	Country	Export tonnage (in 1000 mt)
1	Burkina Faso	70
2	Mali	70
3	Ghana	50
4	Nigeria	40
5	Cote d'Ivoire	30
6	Benin	20
7	Togo	15
8	Guinea-Conakry	7

5.2 Categories of exporters

Exporters can be categorized looking at different aspects. The two main subjects that will be discussed in this paragraph are the type of product (bulk butter, bulk kernel versus finished products) that is traded, and second the size of the company and therefore as well the influence in the market.

³ At the national workshop day of the national association of shea nut farmers processors and buyers of Ghana. This meeting had the topic 'shea nut in Ghana, the way forward'.

5.2.1 Type of product

Shea is mainly exported in the form of shea kernel, a smaller part is exported as bulk Shea butter and a very small part is exported in the form of finished products. An overview of the quantities butter vs kernel for the period 1992 – 2002 can be found in the second report of the WATH on the shea value chain (Lovett, 2004).

According to some traders the weight per bag differs in between different countries. In Ghana a bag normally weighs 85kg but in Burkina Faso it weighs 86 kg. No standard.

The time of buying and selling is very important in the shea business; especially with the kernels. The longer a nut is stored the drier and lighter they are. Real sales start at the end of July/ beginning of August. Buying later is better because the water content is lower, therefore it weighs less and price is determined by weight so it is cheaper.

One of the expectations in this research was that higher margins could be earned by the producers of butter by selling their product to different markets. But actually the prices received for selling butter to the food versus the cosmetics industry are the same. Adding value in the form of processing the butter into cosmetic products does have advantages but doesn't specifically increase the money earned by the women who are processing the nuts into butter.

5.2.2 Size of traders

Looking at the size of companies they can be categorized as well. Because of the focus of the research is on the entrepreneurial spirit of small scale actors, some of the larger sized traders will be shortly mentioned and the focus will be on the smaller traders.

Larger sized buyers of butter often work with middle men that buy and collect for them at the local markets and transport it to the harbour in Tema.

Examples of large exporters are Ghana specialty fats industries Ltd. which in cooperation with ADM Wilmar recently set up a shea processing plant in Tema. They sell shea stearin, a vegetable fat that is an ingredient for confectionary and pastries, and shea olein, which is liquid at room temperature and works well for liquid soaps and creams, and edible fat (ADM website). Another example is Ghana nuts, located in Techiman (in the Ashanti region, the centre of Ghana).

The smaller a company the more likely it is that the women have a livelihood approach instead of a business approach. They often lack a long term planning and cost-benefit calculations are hardly done which makes that they even often don't know if what they are doing is profitable.

Ghanaian traders find it hard to find buyers for their shea products. During the research the question on how to find buyers and contacts in the EU and US was regularly heard. Stable demand for the products is important for the survival of their business.

Prices for the butter are often the same for all qualities of butter. Buyers often give the price of grade 3 for all the butter they buy; actually butter of grade 1 should get a higher price but the quantities of this high quality butter are very small. This is used as main argument to give one price instead of giving different prices for different quality levels.

Another issue is the unclarity about the market; the prices and the demand.

There are many traders in butter; some of the companies spoken to are Sekaf (www.sekafghana.com), the Body shop, Savanna Fruits Company, Bosbel, etc. But the main interest for this research was to do research among the companies that add value to the butter. The Body Shop is an example of an exporter of shea butter that is doing community trade with women groups in the Northern region of Ghana. Body Shop is sold to L'Oreal in 2006 but is still working under the name Body Shop. These women produce butter in refined form. The Body shop is importing their shea butter from Ghana. They started around 1997 (Body Shop, website 2009), the Northern Empowerment Association (NEA) coordinates the shea butter shipment for the Body Shop international. NEA buys nuts for the women who produce the butter for them. There are 11 women groups involved including approximately 450 women. The name for this complete group is TUSEWA, they are not forced to sell to the Body Shop only but as well allowed to sell to other buyers. The price paid for the butter is decided by the body shop and is predetermined. Generally the Body shop pays more than the market price, how exactly the price paid for the butter is determined is not clear. The women are trained in producing good quality butter. The women make soap as well but do not (yet) export this because it is more difficult, it has to go through many more channels. NEA sends the butter to the Zaanse Olie Raffinaderij (ZOR, an oil refinery in the Netherlands) and after that it is transported to the Body Shop in the UK. Getrade Ghana, INC (Development and marketing of traditional soap for the West African market) is arranging the transport of the shea butter. The quantity that the Body Shop buys is approx 200 tonnes per year (it is exported in containers which each can contain 18 tonnes of butter). Formally every of the 11 groups delivers each 1 tonne of butter and the Body Shop would buy 18 tonnes per month. But according to the women they could produce a lot more; according to them an estimation was that they could produce 54 tonnes per month. The demand is not always predictable but according to David Mensah of NEA the women never failed delivering the butter. They never tested what the capacity is of the women and it is hard to estimate what their maximum production could be. The amount demanded differs through the year; e.g. in December (because of Christmas) the demand is higher and in other parts of the year it is lower.

Sekaf is an African producer and exporter of shea nuts and specialized in traditionally made unrefined shea butter (www.sekafghana.com). In August 2008 a shea butter village is opened with the purpose to process premium quality, pure shea butter products. Sekaf is thereby stressing that industrial processing tends to alter the very true nature of shea, as also stated by Addaquay (Addaquay, 2004). They use this as selling argument for their semi-mechanically processed shea butter.

5.3 Government bodies involved in export of shea

The government of Ghana is involved through a number of departments; in this paragraph the four most important offices involved in the trade of shea will be discussed: The Cocoa board, the ministry of trade and industry, the Ghana standards board and the Ghana export promotion council.

Brenda Chalfin has among other things written about the influence of the government in the shea industry in Ghana. Especially through the cocoa board they have played an important role, to

understand the current situation better it is recommended to read her article Market reforms and the state (Chalfin, 1996). She is also one of the few writers who wrote a book about the shea industry (Chalfin, 2004).

5.3.1 Cocoa Board

The cocoa board is responsible for cocoa as well as for shea and cashew. Shea is grown and mainly processed in the north and cocoa especially in the south and middle of Ghana.

The cocoa board has several offices in Ghana but the most northern office is based in Kumasi (which is an approximate 6 hours drive from Tamale). This distance is a problem according to the people in the north,

The cocoa research institute of Ghana (CRIG) is part of the cocoa board and is doing research on shea as well. CRIG has a research centre in with a shea nursery in Bole (North West of Ghana) and there is a research centre in New Tafo. Bole has been visited as part of this field research; there was a nursery where several experiments are being done by researchers with grafting but no further research with respect to the trade or processing of the product. There is a building at the research centre which is under construction and is supposed to become a processing centre of shea where as well research is planned to be done about making cosmetic products from shea (soaps, creams and lotions etc.) Besides this the head office of CRIG is in New Tafo (eastern Ghana) but that one is not visited during this field research. Nor at the station in Bole nor at the head office in Accra the people working at the Cocoa board couldn't tell what kind of research about shea is done in New Tafo, as well as what happens with the results.

The Cocoa board keeps records about quantities produced and trade of cocoa and is important in setting the prices that the producers get for the cocoa. However, in shea the board is less active. They have records about nuts, yet no records are kept of the butter. And the data on the nuts only contains data of the quantities shipped through Tema – no records about trade over land.

In the north many complaints are heard about the Cocoa board; according to the people in the north the Cocoa board only pays attention on the Cocoa market and should therefore not represent the shea nut producers. Many people in the north are, in fact, in favour of setting up a shea board.

Ghana is one of the largest cocoa producing (and exporting) countries. Cocoa is mainly produced in the south and in central Ghana. The vegetable fat in shea nuts is used in the production of cacao butter equivalents (CBE's) and used as cocoa butter improver (CBI), this is a cheap substitute for cocoa butter. The prices of cocoa and shea are therefore linked to each other (Fold, 2008). This is the main reason for the competition between the cocoa and shea producers and the complexity that the cocoa board has to represent both interests.

5.3.2 Ministry of Trade and industry (MoTi)

Under the ministry of trade and industry there are a number of boards who execute the policy of the MoTi. Those boards are the Ghana export promotion council, the Ghana standards board and the NBSSI (National Board for Small Scale Industries). For the export the GEPC and GSB are most important and will be discussed in the following paragraphs.

The MoTi is developing a national strategy on shea. It has seen the increasing interest in and demand for shea and therefore wants to stimulate this business more. The plan was that this national strategy would be clear by October 2008 but so far no final paper has been available.

5.3.3 Ghana export promotion council (GEPC)

In Ghana the GEPC is responsible for recording quantities traded over the borders. The figures that they have are quantities of nuts shipped through the harbour of Tema. So the same situation as at the Cocoa board; there are no numbers available of nuts traded over the land borders to Togo, Benin, Burkina Faso and Cote D'Ivoire. Because Burkina Faso is landlocked many nuts are coming from Burkina Faso over land to the harbour from where the nuts are shipped, so the data from the GEPC is not representative for the quantity Ghana nuts exported.

The Ghana Export Promotion Council could play a more crucial role in mobilizing people who want to share their knowledge and experience with others in order to increase the export of shea butter from Ghana.

5.3.4 Ghana standards board (GSB)

The GSB is responsible for the guaranty of the quality of the products. This institution gives a certificate for each product that is certified. There is a standard for (unrefined) shea butter (GS 238: 2006) and a standard for shea kernel (DGS 824 : 2006) (Appendix III and IV). In Tamale the regional GSB office for the three northern regions located, this office, as well as the headquarter in Accra, has been visited during this research. At the office in Tamale there was no standard for shea butter nor for shea kernel available, although all producers and many traders and exporters of these products can be found in the three northern regions. At the head office in Accra the standards were available, these standards each normally cost 40 GhC.

Exporters have to have an export certificate to be allowed to export products as well as to be allowed to sell their product in Ghana. The premises are checked, if this is ok samples of the products will be taken and sent to Accra for testing, the to be tested components like moisture content and Free Fatty Acids (FFA) level can be found in Appendix III and IV. Generally it takes approximately 3 to 4 weeks before the results are clear. If the results are good the company can buy the certificate which costs 220 GhC. This certificate has to be renewed annually. The GSB periodically performs unexpected inspections to check the companies.

5.4 Assistance to producers and exporters

According to a number of people in the industry some examples of governance support could be that they could link the producers to buyers, give financial help through loans, building warehouses to store products, increase the quality of the roads to access all areas.

Due to the lack of governance support in the shea industry many NGO's are active in this industry. Examples of NGO's are the SNV Netherlands development organisation, Technoserve, Africa 2000 network, Japan international cooperation agency (JICA), the United Nations Development Programme (UNDP) and the Afrasia business council. There are mixed experiences with these organisations.

Technoserve (www.technoserve.org) helps women groups by providing them with machines for more efficient and advanced technical processing of the butter, e.g. solar dryers, sun boilers, crushers and rosters. Besides this they provide grants and link women to domestic and foreign markets. Technoserve itself is funded by USAID (United States Agency for International Development). It is a small organization. One of the problems that Technoserve comes across is that the market for butter is low, normally buyers come to Technoserve and they link them to

one or more women groups. The women produce on demand. Differences in quality level of both the nuts as the butter are a problem, this can have different causes. E.g. nuts that are directly sun dried give lower quality than when a solar dryer is used. But a solar dryer costs money and even when it is available people don't always like to use it because drying the nuts in the sun is taking less time (according to some of the interviewees).

A lack in the NGO sector in Ghana is that there is no network; they are not structurally linked with each other, this has the result that the wheel is invented more than once by several NGO's which is not efficient and thus unnecessarily costs money and time and often goes at the expense of the producers.

The shea industry is still mainly at peasant level, that is a reason why the margins are often low. A possible solution could be that the government steps in and arranges guaranteed prices. Another option could be an increase of the consumption at local level; this will increase the market demand and is good for the economy. It makes the Ghanaian traders more competitive for foreign buyers, could decrease unemployment and gives more security for the producers that their products will be sold, even if the international demand is fluctuating. More about consumer preferences in Ghana can be found in chapter 6.

Another type of organisation supporting shea products producers and traders is the West Africa Trade Hub (WATH). The WATH supports exporters by giving workshops and seminars and giving assistance to join trade fairs. Another important activity is that they are doing research and over the last years have published a number of reports under the subject 'The shea butter value chain'. These reports give useful information for traders and processors to enhance growth and promotion of their business.

Stathacos stresses that for market development it is important that not only consumers but especially the manufacturers of body and health products should be approached (Stathacos, 2004). This is an important opportunity, an active marketing approach could boost the shea market in West Africa.

5.5 Opportunities and constraints

According to the interviewed exporters of finished shea products, an important constraint is that the producers and exporters have difficulty getting access to buyers, especially when they are overseas.

Some possible opportunities to overcome this constraint:

'Going to trade fairs' is an important opportunity. It is an important way to meet people and get connected to buyers overseas. It is also an opportunity to see the products of the competitors and thus see what is on the market, compare the different products and different ways of marketing and discover the gaps and opportunities for new products.

Making use of the 'internet' is an opportunity, some of the companies have started to develop websites and put them online. Examples of those companies are Ele agbe (<http://eleagbe.com/>),

All Pure Nature (<http://allpurenature.com/>) and Naasakle (<http://sheabuttergh.com/>). It is not yet clear if this appearance on the internet will give a boost to export numbers.

It relatively takes a lot of time and a lot of money to get a certificate from the Ghana Standards Board to sell the product in Ghana and export it as well. In total it can take a year to get the necessary certificate from the GSB to be allowed to sell and export the product. This form a constraint for exporters to handle quickly, it could be interesting to look at opportunities to reduce this period.

A constraint is that there are many substitutes competing with shea in different sectors where shea is used. For example cooking oils used in Ghana; groundnut oil, palmnut oil and frytol are competing with shea oil. Cosmetic products like cocoa butter or coconut oil that are used where shea butter could be used, etcetera. The strong points of shea should be stressed and consumer awareness should be increased in order to make shea a stronger product on the market.

Opportunities for traders are given by the West Africa Trade Hub, they are actively supporting exporters of shea butter (products). There is renewed government attention for shea, in the national strategy on shea, but this is implemented yet. This can turn out to be an opportunity but time has to tell.

Lately improvements have been made on the period needed for the shea tree to mature and give fruits. The question is if this is an opportunity or not. Who will gain from this new chance and how will it work out for the local pickers, producers and processors of shea if plantations will rise. What about quality issues; will the new varieties have the same quality aspects as the old indigenous trees that grow outside in the wild?

The quality is often a constraint, bad nuts do give bad butter, and there sometimes are insects in the butter when not stored and packaged well. The butter reacts with air which decreases the quality, so the butter should be sealed airtight and stored in good conditions. The butter has a low shelf life and therefore timing is very important. Moisture content is important, human hairs can sometimes be found in the butter, e.g. when the women are not working hygienically enough. The type of water used is important, when fetched in rusty bowls it can oxidize which can degrade the butter.

5.6 Conclusions and discussion

There is a lack of data and especially reliable quantitative data about nuts and especially butter and finished products traded. The government is not actively supporting exporters of the products, and the government doesn't keep track on amounts of butter produced and exported. It could be useful if more data would be available in order to keep track on the industry and make things more clear.

Competition between traders is high and therefore there is a lack of openness, this doesn't enhance the industry and. Cooperation could be interesting especially since some of the producers/ traders are very small, scale efficiency could be increased. Product differentiation and developing new innovations is important for traders to survive in the future. Quality will become a more and more important issue and has to be addressed by the traders. Looking at the future it is important to not only address the US, EU and Asia but as well focus on West Africa and find out what the chances are in this huge market for shea products.

Chapter 6 Urban shea butter consumers

6.1 Introduction

This chapter gives the view of consumers of shea butter in the urban area of the city Tamale, located in the Northern Region in Ghana. Within three weeks 70 people are interviewed. 55 of them are using shea butter and 15 do not use the butter. The people are chosen at random and are met along the streets, at the market and in their houses. These interviews are done to give an idea of who the people are using or not using shea butter and for what purpose they use it, if they use it; and why they like or do not like shea butter. A structured questionnaire is given to the 55 consumers with questions about the type of shea butter they buy and use, and how it is presented to them, the quantity and frequency of shea butter they buy; if they perceived any changes in the quantity, prices and quality of shea butter on the markets over time and what substitutes they use as well. The people (15) who do not like to use shea butter are asked about their opinion why they would not use it; if they are aware about the uses and qualities of shea butter and what other products do they use. In the appendix the two questionnaires for consumers (I) and non-consumers (II) are supplemented.

As comparison an example of a research done in Mali among shea butter producers and consumers can be found in the article of Akeredolu, (Akeredolu, M. et al).

6.2 Consumption

6.2.1 Identification of consumers

Women (87%) and men (13%) were interviewed on markets, on the streets and in their homes. People using shea butter within this research are mostly non educated middle aged women selling food dishes and snacks at their homes and along street sides. 91% of the 55 consumers are women, and 75% of the total consumers did not go to formal schools (figure 6.1) which all are women. 87% of the 15 non-consumers are women. In figure 6.2 can be seen that 54% of shea butter is used for selling. When asked about the profession of the consumers, 45% of 55 people is trading, mostly in food, 6 people are actually trading in shea butter (11%) as well as using it for themselves and their households, others are unemployed (33%) or have an other job (11%).

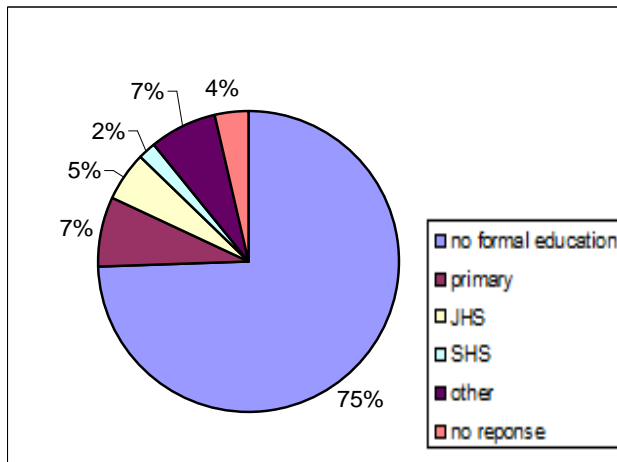


Figure 6.1 - Educational level of consumers

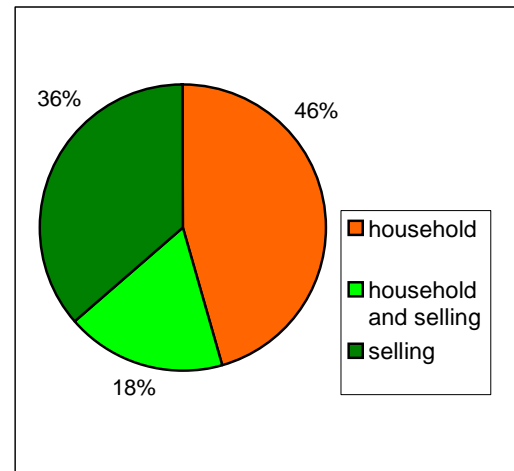


Figure 6.2 - Shea butter use

6.2.2 Perceived quality of the shea butter by the consumers

After some conversations with people who use shea butter the following remarks are made. The results are that a distinguish is made between white and yellow butter (colour) and between hard butter and soft butter (texture). An other characteristic of the butter is the smell and taste. These are the main characteristics on which the consumer decides to select the shea butter of his or her choice.

Figure 6.3 gives an idea of the colour preference selected among 55 consumers. The white butter is preferred by most (73%), yellow butter by 16% and consumers buying any colour, white or yellow, is selected by 11%. Reasons given by the consumers choosing white, yellow or any of the two colours of shea butter are illustrated in table 6.1. For the choice of white butter the opinions given are about common use, 'best' choice for food preparation, and the natural state of the butter. Yellow butter is seen as attractive and as a product for consumers and traders from the south of Ghana. It is perceived to give the butter an extra flavour. Any type of shea butter is selected in the interviews to point out that the choice will depend on the use by the consumers and on the availability of the shea butter on the market. Some consumers do not perceive any difference between the white and yellow butter.

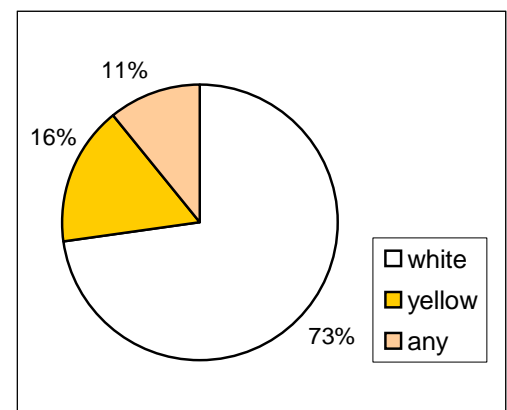


Figure 6.3 - Percentage of shea butter colour bought among 55 people

Table 6.1 - Reasons of choice in white, yellow or any type of shea butter among consumers

White	Yellow	Any type
<p>Common use “used to it in Upper East where she is from” “that is what costumers like to buy”</p> <p>Cooking & consumption “best for cooking” “better for cooking, yellow foams as if it is soap” “good for consumption, other type is used for other purposes” “good for food preparation” “good for local consumption” “White one is for home consumption in local northern Ghana. Yellow colour is preferred by the South”</p> <p>Skincare “Colour is added to yellow butter, this is not very good for the body” “use for skin”</p> <p>Clean oil & natural oil, no additives “White one is clean oil” “White one is clear” “White one is natural, nothing has been added” “Clean and convincing” “Chemicals are added in the yellow ones” “Yellow one becomes dark oil after melting”</p>	<p>Attractive “Yellow colour is attractive and good” “Yellow butter is more attractive” “It is attractive to buyers”</p> <p>Attractiveness to southern Ghana “Yellow one is attractive for people from the South”</p> <p>Flavour “Yellow butter gives a nice flavour” “The colour in oil adds flavour to it”</p>	<p>Depending on use “Colour is depending on what buyers want”</p> <p>Depending on availability “Shea butter choice is depending on what is available on the market”</p> <p>No difference “All shea butter are the same, only difference in colour” “For cooking, people will not see the colour difference”</p>

A distinguish is made by the consumers in the texture of the shea butter, hard and soft. Respectively 53% of the consumers chose for hard butter, 25% for soft shea butter and 20% for any type of butter, 2% did not have an opinion (Figure 6.4). Table 6.2 outlines different reasons and opinions of preferences between hard, soft and any type of butter. Qualities of hard butter mentioned are better preservation, low water content, a high oil content, good for cooking, a nice taste and the common use of hard butter. The qualities of soft butter are easy melting, easy to smear on the skin, the freshness and it can be cheaper than hard butter. The category of any type of texture chosen by the consumers is done by the following arguments: seeing no differences in hard or soft butter, the availability of the butter, choice depending on the buyers acceptance, choice depending on the season and selection depending on the way the butter has been processed.

The melting characteristic is mentioned as something useful and as something not useful in cooking depending on the view of the consumer and the perception the consumer has of the product. There is a time constraint by using hard butter, as it will take longer for it to melt. On the other hand a higher water content can be disturbing in frying food. The yellow coloured butter can also be seen as soft butter, which people find favourable as skincare product. An assumption is that the water content is also higher in yellow butter, because of the added roots which absorb the water. The assumption is that the colour yellow also makes the appearance of the butter more soft.

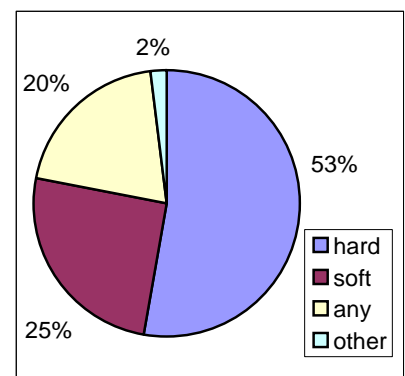


Figure 6.4 - Percentage of choice on texture of shea butter among 55 consumers

Table 6.2 - Reasons for choosing hard, soft or any type of texture of shea butter by consumers

Hard butter	Soft butter	Any type
Better preservation "It does not melt when you keep it" "It will last longer" "It is easier to preserve" "Soft ones will not harden"	Easy melting "Soft butter melts easier than hard butter when heated" "For fast melting" Skincare "Easier to robb on the body"	Availability "I buy what I can get" "What others like, is on the market, and I will like it as well"
Low water content "Soft ones contain to much water, this is not good for	Freshness "Softer, means fresher	No difference in texture "I do not see any differences" Depending on buyers

<p>cooking” “Soft butter has too much water in it” “Water content is low”</p> <p>Good for cooking “Hard butter makes the frying look good” “People like it the most for cooking” “Good butter for cooking stew”</p> <p>More oil “Hard butter is heavier, this means more oil content” “It will not melt easily</p> <p>Better taste “The taste is better than soft butter”</p> <p>Common use “Buyers like it more”</p>	<p>butter”</p> <p>Cheaper “Cheaper than hard one, used for soup so no problem”</p>	<p>acceptance “Depending on what the buyers like, some like soft butter, some like hard butter”</p> <p>Depending on season “Hardness depending on season availability at time needed” “Softness and hardness is depending on rainy and dry season (temperature outside)”</p> <p>Depending on processing “Smoothness, hardness and softness is depending on how it is boiled during the processing of the butter”</p>
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The packaging and presentation of the shea butter to the consumer can be seen as a problem to consumers. This because of exposure to sun and to dust. The butter can be packaged in a plastic bag (polytyn bag), covered by a cloth, put in a container or in a bowl or calabash. In table 6.3 an overview is given of the advantages persons see in different ways of packaging. Some remarks are given that shea butter given in a container would be nicer. Actually this is mostly done by the consumers themselves at home (personal communication to consumers).

Comments on the packaging (see table 6.3) are related to common use, as it is known and used by generations. An other comment is ‘when the processing of the butter is done in a correct way, there will be no disadvantages’. So it will not matter in what way it is given to the consumer. Comments as ‘easy to carry’ and a ‘direct measurement for the shea butter’ are frequently mentioned. Three people mentioned the environmental concern of using paper and plastic bags.

Table 6.3 - Way of presenting and packaging the shea butter

Polytyn/coverage	Covered by cloth	Container	Bowl
"Easy to carry" "Keeping from melting" "Keeping from dust" "Good because of texture" "Better now because before only in paper or leaves" "It is okay like this" "It is always done like this" "Will put it in a container at home" "Well protected" "Looks clear this way" "Colour and texture can be seen" "Easy to pack for a little quantity and to keep it"	"Taste still good"	"Nice and fancy container is nicer" "Nicer to put it directly in a container" "Pieces will not crumble together" "Looks neat"	"Direct measure" "Paper and polytyn are not good for the environment"

6.2.3 Usage and quantities

Shea butter is used in general for food preparation and skincare. As mentioned before 54% (of 55 people) (figure 6.2) are buying shea butter for selling food along the streets, on the market or from their houses. Households are using shea butter mostly for cooking and skincare.

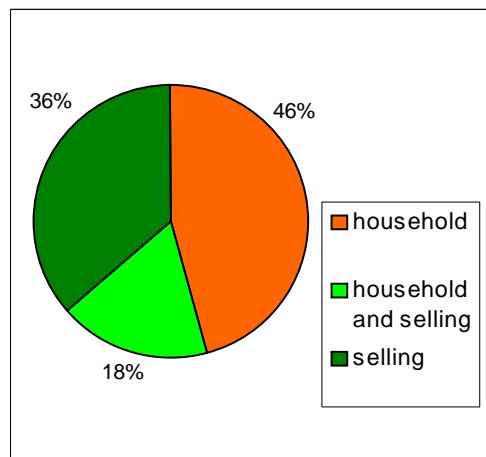


Figure 6.2 - Shea butter use

The amounts people buy are small sizes of ca. 15 to 40 grams, bowls (4-6kg) and calabashes (16-25kg). Small sizes and bowls are bought the most, 55% and 36% (see figure 6.5). In figure 6.6 the frequency of the small sizes and the bowls are illustrated. As can be seen 40% of half of the consumers buy 0.5 to 2 of the small sizes a month. 40% of consumers who buy bowls, buy an amount of 3 to 5 bowl per month. For skincare small amounts are used and last longer. Shea butter for cooking is used in larger quantities. Depending on the household size or depending on economical use of the shea butter, as in selling food, larger quantities are used.

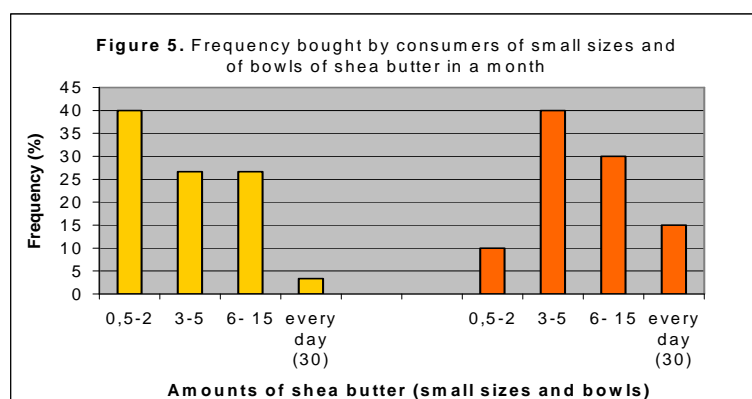


Figure 6.5 - Amounts of shea butter bought by 55 consumers

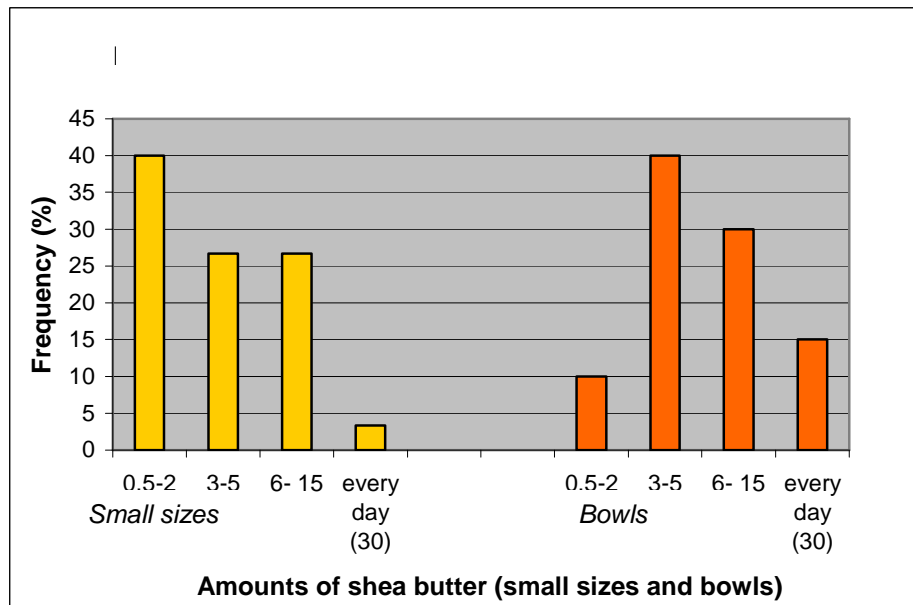


Figure 6.6 - Frequency bought by consumers of small sizes and of bowls of shea butter in a month

For skincare the shea butter is often put into a small container (ca. 150 gr) and used for 1 to 2 months. Depending on the sale, a business woman in food can do 3 days with 1 bowl (5kg) of butter approximately.

In contrast to consumers of shea butter, 15 non consumers of shea butter are interviewed. People who are not using shea butter (15 people) are asked if they used shea butter before and for what reason they stopped using it (table 6.4). Several reasons are that people do use the shea butter but only in the dry season, the Harmattan season, when their skin is very dry. Cooking, medicinal and ritual purposes are usages for shea butter. But only in time of need. For cooking other edible oils have the preference but shea butter will be used when it is cheaper and if the person is not able to chose him or herself. For medicinal only when the person has a scar or muscle acke. For ritual purposes shea butter will be used only when the rituals will be carried out.

Table 6.4 - Why people do not use shea butter anymore

Cooking	Skincare	Medicinal	Ritual
"Do not like it in the Northern Region" "Better oils available on market" "Other oils are cheaper" "Shea butter is expensive" "Children will not eat the food" "Husband does not like it"	"Use in dry season" (Harmattan season) "Now I can choose myself what I want"	"Only when having scars, or other pains only using to treat sickness"	"At the moment no rituals"

6.2.4 Reason of dislike

The smell and taste of shea butter can be constraining factors in the use of shea butter for skincare and for cooking. Half of the consumers interviewed (50% of 55 people) had no problem in their use of shea butter (see figure 6). People are using additives within the shea butter to improve its' smell or taste. For example onions, garlic and other spices are fried before the shea butter or added at the same time to reduce the smell and taste in the food. Perfume, orange peels or specific freshly scented seeds can be added in the shea butter as skincare product. The butter will be heated to make it easier to spread the perfume, orange peels and grains or spices into the butter. Also water is used to dilute the butter and to reduce smell and taste. If something is put into the butter to soften the texture is not mentioned. Other habits mentioned are the use of different body crèmes or other skincare products at the same time to cover the smell of the shea butter and to soften the butter.

A reason mentioned as well by consumers and by non-consumers who are reluctant in using shea butter, is that other people would be able to smell the shea butter. This can create certain ideas about the consumers using shea butter, for example about their so called inexpensive choice or about the way they will attract attention due to the smell. Smell can be a constraint in cooking as others, the household or customers dislike the smell of shea butter oil in their dish.

In table 6.5 other comments on dislikes of shea butter uses are mentioned by the consumers. Within the processing of the shea nuts into butter, the drying process of the nuts are mentioned as a crucial part within the production. When the nuts become moist because of bad drying or bad storage, they germinate or get infected by fungus, this will lead to a bitter or sour taste of the shea butter in cooking.

Other negative aspects mentioned by consumers was the yellow butter and the hardness of the butter. The first one was mentioned in the context of not being suitable for preparing meals. The hardness of the butter is mentioned as well. It could be that this has a negative effect because it will not melt fast when used for cooking and if used as skin-cream it might be hard to smear.

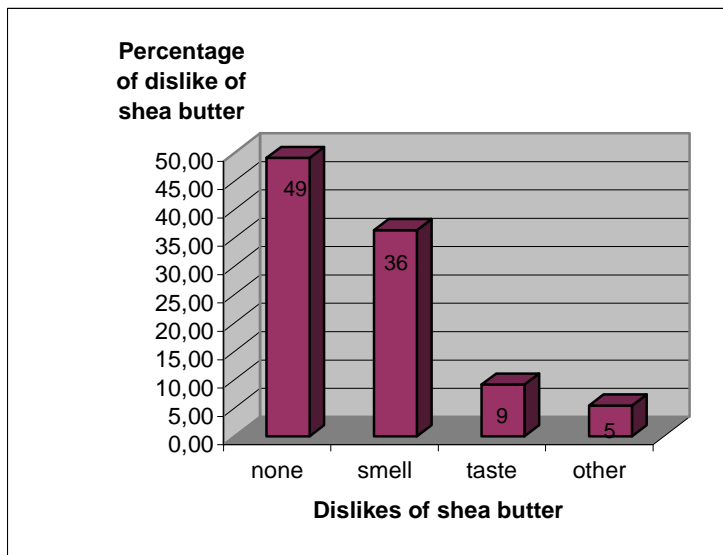


Figure 6.7 - Percentage of dislike of shea butter among consumers

Table 6.5 - Comments on dislikes of uses of shea butter

Smell	Taste	Other	None
<p>Frytol smells nicer than shea butter</p> <p>- "When pregnant, the smell makes vomit"</p> <p>Redundant to use shea butter for skincare</p> <p>When cooking, others complain of the smell</p> <p>After some time, the smell gets worse</p> <p>Onions are added to improve smell</p>	<p>sometimes bad (bitter because of bad nuts that germinated already before process)</p> <p>germinated nuts used, tast will be bitter or sour</p> <p>I will add spices, ginger and onions to it to improve the taste</p>	<p>yellow butter, not good for cooking</p> <p>hardness</p>	<p>Add to oil, makes the taste better</p> <p>We are using it since infancy, it is good and still using it</p> <p>grandfathers were using it, and they are/were healthier than us</p> <p>that is how it is given to us, no problem depending on process. When too much fire, it will burn the oil and make the butter bitter</p> <p>it is used for so many</p>

Water is added to neutralize the smell			things and it is good using since infancy that way smell and taste are no problem
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6.2.5 Changes in quantity, prices and quality perceived by consumers on the market

People are aware of the changes on the market in regard to shea butter. A question asked to the 55 consumers is: if there is more shea butter bought today than in their childhood, 10, 20 to 50 years before. The result of this question is that a little bit less than half of the answers responded “yes” (44%) and little bit more of the half responded “no” (56%). The remarks for answering “no” included that: (1) before it was a very common product; that (2) today there are more substitutes; that (3) it is depending on the season of availability of the shea nuts and that (4) today shea butter is more expensive. For answering “yes” to the question –more shea butter is bought today – the arguments are: that (1) there are many uses economically, like the increasing export and that it can be refined and/or manufactured in other goods; (2) there is a high demand for shea in the south; (3) there is more awareness of the many direct uses like preparing food, skin care, medicinal, and even moulding blocks in construction work are mentioned; (4) shea butter is still general used for cooking; (5) prices are cheaper in comparison to other similar oil and skincare products. Depending on the view of the consumer the answers are given. It can be said that people are aware about what is happening on the shea butter market, that it still is a commercial product but the focus is shifted more beyond the local regions.

When the questions about a change in quantity of shea butter are asked to the consumers similar results came out. About the change in price over time, the interviewed consumers are saying that before the prices were less (85% of 55 people) this because of a change in money value, because of the larger demand of local household consumers and because of a smaller market.

A question concerning quality change of shea butter gives the following results. Six people are saying that the quality became less (11%), 10 people that the quality is increased (18%), 37 people are saying that the quality remains the same (67%) and 2 persons do not have an opinion (4%). Arguments for those answers are given in table 6.6. Some respondents said that mechanized butter production improves the quality, but some mentioned the opposite. The time spend to process the shea butter, is said by some to make a difference in the quality of the

butter. Before, everything within the process of making the butter was used was mentioned as well as a quality issue. But this remark is maybe not necessarily meant for the quality of the butter it self, as more as for the quality of the process, for the minimizing and recycling of waste produced of the process. Most of the interviewed people mentioned that the quality remained the same. By looking at the butter they do not see any differences or changes in the quality from before. And the change in processing did not change the quality either.

Table 6.6 - Opinions on the change of the quality of shea butter today compared to 10 to 50 years before

Less	More	Same
- People do not take their time anymore to process	- The butter is more attractive now	- The Processing is still the same, only little mechanised
- Within the butter making process, additives are added	- People do know more how to process	- By looking no difference is seen
- Before, everything within the process of making butter was used	- Mechanisation improves the quality	- Nothing is done to improve the quality
- Less due to mechanisation	- There are more shea nuts available	- The quality can not change - The processing of the butter is different, but did not change quality

6.3 Substitutes for shea butter

Today on the local markets many substitutes can replace the shea butter. Different cooking oils depending on the food and dishes prepared and depending on the preference of the consumer. Some people dislike to use shea butter and favour things products with palm oil as or people do not like the smell and taste of shea butter in their food.

In box 6.1 and 6.2 different substitutes for shea butter are given. Box 6.1 is an example of frequently used edible oils and there prices in 2008. Compared to shea butter these oils are more expensive (see chapter 6). Crude shea butter sold by the women on the markets to households

and food sellers is at that time at most 0.75 GhC for a kilo. In box 6.2 some examples of skincare products are illustrated. Cocoa butter is a popular product, and hair products and soaps are substitutes for shea butter as well.

Interesting to note is that consumers and non-consumers of shea butter interviewed did not always perceive the

substitute products as more expensive than the shea butter. This can be due to the preference in use of refined more modern products which are accounted as not being too expensive, as it is affordable to get.

Box 6.1 - Examples of frequently used cooking oils available on the market and in the shops, Ghana*

Oil	Amount	Price
Palm oil	1 liter	3 GhC
Frytol	1 liter	3 GhC
Gino	1 liter	3.50 GhC
Blueband margarine	250 mg	1.10 GhC
Jago margarine	900 mg	3 GhC

* data September 2008



Box 6.2 - Examples of skincare products available on the market and in the shops, Ghana*

Product	Amount	Price	Land of production
- Cocoa butter Tendrina Eversheen	120-250 ml	2.00 – 3.00 GhC	Côte d'Ivoire
- Dark and Lovely	1000 ml	8.00 GhC	Canada
- Soft Hair	500 ml	3.00 GhC	Côte d'Ivoire
- UB Universal	1000 ml	5.70 GhC	Côte d'Ivoire
- Apple Hair food	300 ml	2.50 GhC	Nigeria
Hair treatment		1.20 GhC	
Soaps Dettol, Gheisha , Lux, Premier, Harmony, Pharmapur herbal, Imperial leather, Canoe, Lifebuoy	200-250 gr	1.00 - 1.80 GhC	Nigeria, Unilever, Unilever, Nigeria+Ghana, Indonesia, South Africa, Ghana
Keysoap bar	200-300 gr	0.30 – 0.80 GhC	Ghana
Ducksoap bar	300-400 gr	0.50 – 1 GhC	Ghana Ghana

* data September 2008





Figure 6.8 – Skinlight, a popular skincare product as well.

6.4 In sum

Most consumers using shea butter interviewed are women (87% of 70 people) who are not formal educated and are selling food along the street side, at the market side or from their houses. The shea butter is used as edible oil for cooking and for skincare by household members (46% of 55 consumers), by household members and in addition shea butter is used as edible oil in selling local snacks and meals (18% of 55 consumers) and shea butter is solely bought for selling food dishes cooked in shea butter (36% of 55 consumers).

The characteristics perceived by consumers and non-consumers on which choices are made, are between the shea butter colour (white, yellow, any type), between the texture of the butter (hard, soft, any type) and the smell and taste. The interviewees are asked about their choice of shea butter by the way they perceive it's quality (see overview table 6.7 below). White butter is chosen the most (see also figure 6.3), probably because it is used more frequently in cooking and bought in larger quantity than yellow butter. Yellow butter is more general used for skincare and seen as attractive, especially for consumers of the south of Ghana, this considered by the northern urban traders and consumers (see also table 6.1). Hard butter (chosen by 53%) is seen by several as containing low concentration of water and for that matter containing more oil. The soft shea butter (chosen by 25%) is chosen for the opposite reason as the hard butter, for its' easy melting because of the higher water content. Consumers choosing any type of butter (chosen by 20%) do not consider the difference in texture, and are looking at more external factors as availability (see also table 6.2).

Table 6.7 - Overview of percentage of people's choice (55 people) in shea butter

The choice of colour:		The choice in texture:	
White	73%	Hard	53%
Yellow	16%	Soft	25%
Any colour	11%	Any type	20%
		Other	2%

Overview opinions:	
Colour	
White:	common use, cooking, pure butter.
Yellow:	skincare, attractive, attractive to southern Ghana, extra flavour in cooking.
Any colour:	no differences seen, colour dependent on use and availability on market
Texture	
Hard:	common use, better preservation, low water content, more oil, good for cooking
Soft:	easy melting, skincare, freshness, cheaper
Any texture:	depending on availability, season, processing, buyers; no difference

The quantity of shea butter consumers, households and food sellers, buy are relatively small amounts of shea butter at once. This can be many small pieces in one time as well. Most of the small quantities sold are small sizes of ca. 40grams each or in bowls of ca. 5kg (see previous figures 6.4 and 6.5). Amounts between 0.5 to 2 of small sizes are bought the most (40% of the buyers of small sizes) per month. Quantities of 3 to 5 bowls per month is the most frequently bought amount of bowls.

Non-consumers interviewed (15 persons) are not using shea butter because they are not familiar to it and grew up elsewhere or explained that the shea butter used before was better than in the urban area of Tamale. Other reasons given are about usage once in a while, for example in the dry season, for medicinal or ritual purposes. Some just do not like the smell and taste and prefer other refined products. An other reason of not using shea butter is the dislike that other people have for shea butter. They would be reluctant eating shea butter dishes because of the taste and smell or they would be reluctant to smear shea butter on their bodies because of the scent and texture. Consumers do know how to improve strong smell and taste of shea butter by adding onions and spices in the shea oil and perfume, orange peels, fresh scenting seeds or other body crèmes for example in the shea skincare product.

Trends on the shea butter market are perceived by the consumers as there is an economic focus that shifted more to the southern regions and to the export trade. The way of processing is (semi) mechanized. This is not always perceived as an improvement for the quality of the shea butter by the consumers. Actually most consumers responded to see no change in the quality due to mechanization of the processing of the shea butter.

Substitutes for shea butter frequently accounted are palmoil, 'frytol' and 'Gino' oil. Cocoa butter, 'skinlight' and 'lux' and 'key' soap are mentioned by most as popular skin care products. Even as these products are more expensive than shea butter, it is not always perceived that way by consumers. Modern, refined and nicely packaged products are popular among the people in Tamale although people do know the healing and healthy properties of the shea butter. In cases of need, as in the Harmattan season, for wound healing or for ritual purposes people do intend to use the shea butter. Although the change in 'modern' mindset, it still seems that many people use shea butter for cooking local dishes and for skincare purposes.

Chapter 7 The case of Kpare:

The 60 women interviewed in Kpare are all involved in the picking of nuts. Only some women such as elderly or sickly women with disability of picking nuts don't engage in shea nuts collection.

50 % of women interviewed in Kpare collected nuts from only bush because they don't have access to farmland or because shea trees in the farmland don't yield. 30 % of women interviewed go to both bush and farmland and start usually by going to the bush because competition with other women is highest there. The other 20% only pick shea nuts from the farmland.

All the men interviewed only pick shea nuts on their farmland. As far as the children are concerned, 2 of them go only to the bush, 3 others only to the farmland of their father and the 2 last to both.

In Kpare, the average amount of shea fruits collected per women per day at peak of the fruiting season is about 25 to 30 kg. But this quantity is less at the beginning and ending of the harvest season, and is also less for women of old age, who will collect 15 kg on average. If this is extrapolated over the fruiting season, 1400 kg of fruits can be picked which results in 280 kg of kernels. However, the interviewed women indicated to collect an average of 180 - 240 kg. This difference can be explained because the pickers are not able to pick on some days due to sickness of themselves or family members or having other activities such as farm work, funerals and family visits.

$15 \text{ weeks} \times 4 \text{ days} \times 15 \text{ kg} + 9 \text{ weeks} \times 4 \text{ days} \times 30 \text{ kg} = 1400 \text{ kg of fruits (1380 kg)}$

$20\% \text{ of } 1400 \text{ kg} = 280 \text{ kg of kernels.}$

7.1 Processing

All the women interviewed in Kpare process nuts into kernels themselves, except one.

Among the 60 women interviewed in Kpare, 57 women use kernels for making butter. 2 women have to sell all their nuts to buy food, 38 of women sell a part of the kernels and keep some for their own use.

Among the 5 men interviewed, 4 give some kernels to their wives or mothers and sell the rest. One sells all the nuts that he collects. The 7 children interviewed give about 1/3 of the kernels to their mother and sell the rest.

Among the 57 all process kernels into shea butter themselves, however 6 out of these 57 did not extract butter because the work is too heavy for them due to their old age. Most of them process kernels manually; only 6 go to the grinding machine sometimes in Karni, Santu or Jirapa. In general, this is only done when large quantities need to be processed at the same time, for the purpose of selling.

16 % sell some of their butter. The other 84% use shea butter only for home consumption. With our data, average annual consumption of shea butter in Kpare has been estimated at 55.6 kg per household. They consume shea butter during the entire year but more during the season of farming, when the kernels and butter are readily available. Among women interviewed all use

shea butter for cooking, 2/3 also use it to make soap. Only a few of them use shea butter for skin treatment; it is mainly used for baby skin.

7.2 Buying and selling of shea butter

The quantity of shea butter bought or either sold differs a lot per woman. Last year (2007), some of them, didn't buy or sell anything. At the same time, others bought 2 bags of shea nuts and re-sold it at a higher price. Last year, among women interviewed, 1/3 bought nuts and 1/3 bought butter. Among those who bought nuts, 2/3 bought nuts to make butter for home consumption and 1/4 for selling them later when the price got higher. 10% of the women make butter to sell it. Two out of five of the men interviewed bought some shea kernels nuts last year store them, sell the kernels later at higher prices.

Some women prefer buying butter rather than nuts because they can use it immediately and because from some nuts are of less quality from which not much butter can be extracted. However, some women explained that they prefer buying nuts than butter because some sellers put porridge into butter to make it look heavier.

Women prefer selling butter to get a higher profit. However, most of them need to sell the kernels, because they are need money on a short term and do not have time to process the kernels into butter.

7.3 Access to market

The size of the market in Kpare on the once every six days market is very small relative to the neighbouring villages. While in other villages like Piina, Kani and Ulo many traders come from outside, the market of Kpare is more a small market amongst the inhabitants of Kpare itself.

To reach a larger market inhabitants of Kpare generally travel to Piina on its market day. This market is relatively near (10 km) and large compared to the other villages in the neighbourhood. To go from Kpare to Piina it takes about 2 hours by foot and 45 min by bicycle.

7.4 Access to transportation

Kpare lies relatively far (+/- 30 km) from towns like Nandom and Jirapa. The roads until Jirapa are sandy roads and there is no regular transport connecting Kpare to adjacent villages or towns. There are a few regularly market trucks passing by. There is one going from Piina to Wa, that run through Kpare. However, it tends to be overloaded before it reaches Kpare and besides this it does not have a fixed route; it sometimes passes through Kpare, but sometimes doesn't pass Kpare at all.

The cost to go on a market truck/ car to Piina market costs 0,7 to 0,14 US\$. To carry a load of the size of a standard transport bag cost an additional 0,68 US\$.

Mostly women that come from Kpare on the Piina market go by foot because they can't find transport or can't afford it. So they carry products on their head. Generally the maximum weight they can carry is 30 kg and for those who are less strong, like older ladies, cannot carry more than 15kg. Further more, they only have acces to Piina market. Jirapa, is generally too far, while prices offered for the nuts there are higher than in Piina.

So, in 2007, 70 % of the exchange of the respondents in Kpare was done on Piina market and 25% in Kpare. The 5% remaining concern exchange which was done in place around like Karnii or Jirapa.

7.5 Supply and demand

Women don't complain about difficulties to sell. In some cases traders come to buy at the farm gate. Others can easily sell all they carry to the market, with the exception of the period from July to August because of the big supply.

In some cases the women sell for a relatively low price at the farm gate due to uncertainty whether another middleman will pass by and whether his offered prices will be higher or not. Many of the shea nut pickers are in need for money on the short term and so sometimes sell the shea kernels, even though they expect prices to rise within a month or two.

The women respondents indicated that the money from shea product is spent on the following things; 56 % to buy soup ingredient or food, 27% to buy clothes, 15 % to go to the corn mill, 10 % to pay schools fees, 4% to pay medical fees, 6 % to invest in product that they can sell later like shea kernels, ground nuts or guinea corn for making local beer.

Children use money mainly to buy school stuffs like pens, books, uniforms and sandals. Men use money to invest in farm tools or to invest in product that they can sell later, like animals and groundnuts. Two of them use money mostly to buy beer. For some of the people the selling of shea products are the only source of income, this is particularly the case for children and for old ladies who can't farm anymore.

7.6 Shea nuts factory in Kpare?

Strength of the shea nut factory is that there is an nationwide and international demand for shea butter and in Kpare there is a relatively high shea nut production. Besides this there is a NGO that has offered to provide for the shea nut factory construction and machines. The production capacity of kernels of the village is estimated at 35 tons per year, which would result in 14 tons of shea butter per year. However there are large constraints concerning production costs, and the remoteness of the village. This makes the placement of a shea nut factory with the current prices for fuels and nuts and other production costs seem hardly profitable. From the experiment of semi-automated processing in Jirapa, and knowing that resource cost and transport cost will be higher than in that experiment due to the remoteness of the village, the added value is not expected to weigh up to fuel and maintenance cost. For examples, many spare parts of the machines are only sold in Jirapa, or in Wa.

According to the results in table X. it would be more profitable to do manual shea butter extraction than to process it with the aid of machines even if the extra labour time needed for the extraction is paid for in the local daily wage.

Conclusions & discussion PART II

The companies are small, obviously there are options for growth but then the in previous paragraph mentioned constraints have to be faced and opportunities have to be utilised.

It is difficult to gather reliable quantitative data. Traders are not very easy in giving out information about quantities and prices. Partly because of the competition in this business but not that many records about quantities traded and prices in different years are kept as well.

The production of cosmetics can be increased to a higher level, both on the quantitative side as on the qualitative side.

Producers of shea cosmetics are looking for market for their products abroad. It could be interesting if they would focus more on the market in Ghana and West Africa. Especially giving attention to consumer awareness for shea products and creating a market are challenges that the producers and traders have to face. There would be less transaction costs involved and the producers and traders could have more bargaining power in comparison with the markets in western countries. This can create higher profit on their products.

An important question is whether the women in the north of Ghana can be involved in the production of high quality cosmetic products. And related to this; what are the opportunities for women in the north to increase their standard of living through trade in finished shea (cosmetic) products?

There is discussion possible about if the right people did this research. Now a group of Dutch/French students went to Ghana to do this research. It could be questioned if this is the best choice because maybe a research like this could maybe better be done by insiders in the business or by Ghanaians in this case because they probably better understand the culture. On the other hand as 'white' people it was easier to get into the offices of the traders and of government buildings. The white skin attracts attention and people are happy that you are interested in their business. But therefore it was even harder to explain that we didn't have money to buy their products or connect them to buyers in Europe.

There is a lack of data and especially reliable quantitative data about nuts and especially butter and finished products traded. The government is not actively supporting exporters of the products, and the government doesn't keep track on amounts of butter produced and exported. It could be useful if more data would be available in order to keep track on the industry and make things more clear.

Competition between traders is high and therefore there is a lack of openness, this doesn't enhance the industry and. Cooperation could be interesting especially since some of the producers/ traders are very small, scale efficiency could be increased.

Product differentiation and developing new innovations is important for traders to survive in the future. Quality will become a more and more important issue and has to be addressed by the traders.

Looking at the future it is important to not only address the US, EU and Asia but as well focus on West Africa and find out what the chances are in this huge market for shea products.

Most consumers using shea butter interviewed are women (87% of 70 people) who are not formal educated and are selling food along the street side, at the market side or from their houses. The shea butter is used as edible oil for cooking and for skincare by household members (46% of 55 consumers), by household members and in addition shea butter is used as edible oil in selling local snacks and meals (18% of 55 consumers) and shea butter is solely bought for selling food dishes cooked in shea butter (36% of 55 consumers).

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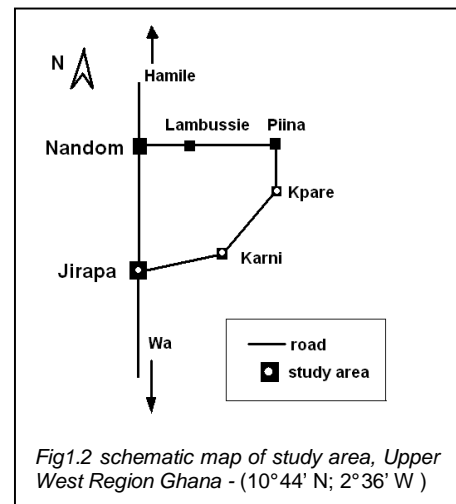
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APPENDIX I - Details on research methods PART 1

Research method and study area

Chapter 1 and 2 on shea nut production and processing results from a combination of literature and field research carried out by two students. The field studies were conducted in Upper West Region, Ghana, and consisted of interviews with local farmers, traders and local enterprises.

One of the students did a research more focused on manual shea butter extraction which was conducted in the village of Kpare. For this a fixed interviews were done with 72 respondents. The other field study was focused more on land and shea tree management, and consisted of 60 interviews in three different towns (20 per town): Kpare, Karni and Jirapa. This study area is schematically depicted in fig 1.2.



Jirapa lies 60 km north of the province capital Wa, and 50 km south from the northern border with Burkina Faso. The distance between Kpare and Jirapa is approximately 30km.

The vegetation is a typical for a savannah landscape and the annual rainfall has been ranging from 650 to 1400 mm between 1997 and 2007, according to measurements done in Wa (MSDW, 2007). This rain mostly falls between May to October. Population of Kpare is estimated at 1000 inhabitants, Karni has over 2000 inhabitants, while Jirapa has over 9000 (Ghana Statistical Service, 2000 PHC).

All information on prices was obtained in Ghana cedis, but is converted into US\$ assuming 1 Ghana cedis = 0,68 US\$. The prices per kg are based averages of weighed quantities on local markets, as small traders in Ghana sell their products per volume rather than per units of weight. Cost benefit assessment for manual extraction as for semi-automated small scale butter extraction were made and compared. Measurements on manual processing was done in Kpare. While processing costs for semi-automated butter extraction was derived from experiments at two different small-scale shea butter extraction factories in Jirapa. Both factories had the same machines from the same producer. The reason to choose small-scale extraction for comparison is because this is more in the reach of the rural farmers, than large scale processing.

APPENDIX II - Questionnaires

A. Questionnaire shea nut availability

Do you pick/buy in shea nuts: yes no → Questionnaire on availability on shea nuts
There are many questions, the interview may take 1 or 1 ½ hours (2.) this is a research for a university, it is not for the government (3) I will not give away any information along with your name, I will make a general report (4.) If for any reason you would not like to answer any of the questions feel free not to.

Date: _____ ID: _____
Time at the start of the interview: _____ Time at the end of the interview: _____
Did the respondent have any problems in understanding and answering the questions? [yes, no]
Was the respondent open and straightforward? [yes, no]
Do you think this person is suitable for in-depth study? [yes, no] _____ Comments: _____

GENERAL

- 1. Dagaare name: _____ 2. Christian/muslim name: _____
- 3. Town: _____ since..... 4. place of birth: _____
- 5. age: _____ → birthyear: _____ 6. household size: _____ (how many people do you take care of + 1)
- 7. Individual: m/f group: m /mixed/ f 8. Marital status: single married widowed divorced
- 9. Level of education completed: No education / primary / JHS / SHS /TTC /TL
- 10. Which languages do you speak? (1) dagaare (2) English, (3) Others-specify..
- 11. Religion: (1) Traditionalist, (2) Catholic, (3) other Christian-specify, (4) Muslim, (5) "Free-thinker", (6) other-specify...
- 12. Employment status: employed unemployed _____ 13. Occupation: a farmer _____

13. If married: job husband..... 15. Where is he living now?..... 16. born in this town? Y / N, born in.....

LAND OWNED

- 17. How much land do you have available for use, including fallow & bush?: Farm land: Fallow: Bush : ...
- 18. Do you have shea nut trees on your land? yes no
- 19. Do you own all this land? yes no, partially/ fully borrowed from.....
- If borrowed, 20. how much is borrowed/rented from other people?:..... 21. borrowed from own family? y / n
- 22. How many years have you been borrowing this piece of land? _____
- 23. Do you need to give anything to the landowner in return of borrowing the land? Y / N comm.: _____

24. Can the landowner claim the land back at any time? Y / N
25. Are you always allowed to harvest economic trees (e.g Shea, dawadawa) from borrowed or rented lands? Y/ N /Sometimes
26. If no or sometimes, what are the arrangements for harvesting these trees on such land?.....
27. How long do you take a piece of land into agricultural use before it is left as fallow land?
28. How many years do you keep your lands fallow?.....
29. What is a problem that concerns all the people of this village or region right now ?.....
30. What are the obstacles for increasing the yield of your crops?.....
31. How could you produce more? (more land, more fertilizer, irrigation, labour, other)?.....
32. Are there other people borrowing land from you at this moment? Y / N If, no → in the past? Y / N
33. How many people? person(s) (1) acres since..... (2).....acres, since.....
34. Are there shea nut trees on that land? Yes no → if yes 35. are they allowed to pick the fruits? Y / N
→ if yes: 36. do they have to pay you for it? Y / N 37. do they give part of the harvest/profit to you? Y / N

Find out by going into the field this set of questions: Size of land that is owned, with help of GPS coordinates:

1	3
2	4

How many shea trees are there on the land?..... How many have visible fruit yield?.....

IMPORTANCE OF SHEA

38. Are shea nuts important to you? Why?.....

39. What is the most important product or activity for you income?.....

40. How much did you earn from this mst.imp. crop last year?.....year before?.....

COLLECTING

41. What obstacles / problems do you face when picking shea nuts?

→ If snake bites: ever got bitten?

42. How can these problems be solved?

43. How many shea nuts did you collect in... ?:

Year	Quantity (bowl=alonka, pan, bag)	If quantities differ per year, why?
2007		
2006		
2005		

44. How many times a day do you go picking? ... times a day → all day morning afternoon evening

45. When do you leave and when do you come back from picking? From..... to (& from to.) = hrs/day

46. Are you able to pick almost all the fruits are available on your land, or are many left unpicked? Pick all no, not all.....

47. What keeps you from picking more hours per day? time health specify:.....

48. How many days per week do you spend on picking shea nuts?days

49. what keeps you from picking on other days?.....

50. When was the last time you went to collect?and before that?.....

51. How much did you collect?

...

52. From what time until what time is the harvesting season of the shea fruits?.....

53. Do you find the trees on your farm to be good yielding shea trees? Y/ N, how come yield (not) well?.....

54. Do you also collect shea nuts from the bush? Y / N

56. How about the trees of the bush? Y / N How come they yield (not) well?.....

57. How many bowls of shea fruit can one harvest from a good yielding shea tree?.....

58. Does the yield of a tree vary a lot per year? Y/ N..... → if yes: any idea why?.....

59. What do you do with the shea nuts after picking? Sell kernels directly process shea butter store

60. If shea butter, for home use or selling? only home use mostly for home use mostly for selling just for selling

61. If soap, for home use or selling? only home use mostly for home use mostly for selling just for selling

62. How much did you sell? → where sold?..... to whom?.....

Year	Shea kernels	Month/place/pr ice	Shea butter/soap	Month/place/ price	Why diff?
2007					
2006					
2005					

63. Do you also use other types of oil/butter besides shea b.? No, shea b. only. yes, I use.....
64. Which oil/butter do you prefer to use?.....51b. why?.....
65. how much shea butter do you & your household consume per week/month/year?.....
66. Is this consumption the same throughout the year? yes no,.....
67. Are there taboo days for shea nut picking? no if yes, on.....
68. Is this really a taboo-day for you, or do you still go picking on this day? I do pick on this day no, I don't pick
69. Do you think there could be a consequence if you do farm or do go picking fruits on this day?
- 69b. If you do pick/farm and get bitten by a snake, do you also have to pay (animals/money?).....
70. Would you like to collect more nuts than you normally do? Y / N 58 What keeps you from picking more?.....
71. Are you in a association/group doing anything with trade in shea nuts or shea butter processing? yes No
72. if no, have you ever heard of such a group? No / yes, I heard of.....
73. Would you like to be in one? Y / N 62. If yes, are you already taking steps to organize one, or is some one else in your close environment starting to organize one? Y / N (if yes, specify).....
- ACCES TO THE TREES
74. Who is allowed to pick the shea nuts from the trees on your families land?
 only household (husband, wife, children, grandparents) household & extended family anyone
75. Who picks them in practice?
76. Do you have problems with people coming on your land to pick fruits 'illegally'? no / yes →daily problem? Y / N,.....
77. Are you allowed to pick from other peoples land? Y/ N Is the bush owned by someone? N / Y → by whom?.....
78. If yes, are you then not picking illegally or is it allowed to pick there?
79. How far is the distance to the bush and back ? it is like distance between and or it's km
80. Do adult men also pick shea nuts? Y / N → How was this is the past ?.....
81. If different, why do you think it is now different from past?..... 82. Is there land that is owned by no one? Y/N
- 82b. Can women own land?

83. Is the land around here in the hands of families only, or are also parts of it owned by the government?

84. How about the school terrain, the clinic, the marketplace? Who owns it?

85. Land paid for when new road is built, permission of landowner needed?.....

BUYING → 86. did you buy shea nuts last year? Y/ N → And in years before? Y/ N

87. For what use? own consumption process+sell re-sell when price get higher

Year	Quantity (bowl=alonka, pan, bag)	Period	place	price	If diff. why?
2007					
2006					
2005					

STORAGE – 88. Stored = collected + bought - sold - consumed?

year	Quantity stored	When did own-picked storage run out?	If numbers differ, how come?
2007			
2006			
2005			

89. Use of stored nuts: sh.butt. only home use shea butter for home use and selling selling kernels

90. plans to store shea nuts coming season?Y/ N 91. How many bags do you want in store at end of rainy season?.....

92. can you get this amount by just collecting?.....

93. Do you aim to have a the quantity of shea nuts so that it lasts until the next rain season? Y/ N.....

94. Do you ever have problems with storage of shea nuts? No yes, with.....

95. If no, Ever heard of fungus or maggots being a problem?..... 96. if infected by fungus nuts still usable?..... 97. How does fungus affect the quality of the kernels/butter?

98. Do they sometimes go bad? → if yes: how much went bad from last year:..... 99. how come that nuts go bad?:

MANAGEMENT

100. Is there anything you are not allowed to do with the shea tree?.....

100b. Do you or some one else cut the branches of the shea nut trees (pruning)? no If yes, why?

101.If no→ not for decreasing shade for the crops? Y / N → not to try increase yield of older trees?

102. The fields where the shea trees are, do you apply fertilizer on the fields? Y/ N 103. apply animal droppings on the fields?Y/ N

104. Do you keep all the young trees? Y / N →
 105. if yes, so you don't remove any?
 106. Do you sometimes plant shea trees? Y / N
 107. Grafting? No / yes I did it, base-tree used: Result:
 108. Do you sometimes burn some parts of your land? Y / N
 109. Does this affect the shea trees?.....
 110. can fire also be beneficial for the flowering/ fruiting of the trees?.....
 111. which animals/ insects are responsible for pollinating the flowers of the shea tree?.....
 112. Do you compost home waste (like leaves, groundnut shells, food-left over's)to apply to the land? Y / N
 113. Are there insects that harm the shea trees? no yes, namely.....
 114. Animals, parasitic plants, parasites, diseases?..... b. Mistletoe a problem?.....
 115. Any animals that spoil the fruits, nuts?.....
 116 Do animals sometimes eat/harm crops? Y / N if yes→ when was last time?.....how much damage? whose + which animals?did you get a refund?.....
 117. Do you take any special measures to protect the shea trees?
 118. Did the chief, tendana or anyone from government come to tell about shea trees management, farming methods, new technologies? No / yes,..... 119. Do they say anything on (not) cutting/burning them down? Y / N
 120. Do you have enough land to produce enough food for you own family? Y / N 121. Do you need more land? Y / N
 122 Can you get more? Y / N → if yes where? 123. permission from anyone except land owner needed? Y / N
 124. What is the best type of wood for making:

charcoal	firewood	A mortar	Construction wood

125. Do you sometimes use the shea tree for making charcoal/firewood/ a mortar/ construction wood?.....
 126. Besides the fruits and nuts, are other parts of the shea tree used for anything?

roots	bark	juice	leaves	flowers

127. Do you remember whether in the past there were the same amount of/ more / less shea nut trees?.....
 128. What has changed in this town since you were younger/ first came here?
 129. For you, what is the biggest problem concerning of shea picking, processing, selling, storage?

b. How could you overcome this?.....

....

130. If you can change only one thing what would you like to change (first open question, later examples possible: better tools for processing, machines, acces to loan, better acces to a market/buyers, less competition, better storage facility, irrigation, more boreholes, better roads, better market buildings, better information on prices elsewhere)

.....

131. Do you have a business plan / dream / hopes for your future?.....

.....

132. Do you think people are in control of their own fate, their own success (or is it in the hands of some one/ some thing else)?

.....

133. Did ever a middleman approach you to the sell kernels to him/her? N / Y

.....

134. → If yes: Where is he/she from..... Quantity:.....

Price:.....

135. Where would you rather invest in: shea nut business, increase yield of your crops, or something else?

your husband/children pick shea

nut?.....

Something to add/ comments/ questions:

.....

.....

B. Questionnaire consumers of shea butter

Introduction of interviewer: Your name.

(1.) There are many questions, the interview may take up to 30 minutes (2.) this is a research for a university, it is not for the government (3) I will not give away any information along with your name, I will make a general report (4.) If for any reason you would not like to answer any of the questions feel free not to.

Date:

Time at the start of the interview: Time at the end of the interview:

Comments:

IDENTIFICATION

Location: area in Tamale: at the home at a market other:

Name of area:

name (maybe asked at the end of interview):

Age: < 20 20-25 25-30 30-35 35-40 40-45
45-50 50-70 70+

2.2 Gender: male female

2.3 Marital status: single married widowed divorced

2.4 Household number (people you take care of +1):

2.5 Are you living in Tamale Metropolis: yes no, name area:

2.6 Schooling completed: no education primary JHS SHS others:

2.7 Occupation: unemployed trading: in..... Other:

PRODUCT

What type sheabutter did you buy?

Size: calebash bowl small size other/specify:

Colour: white yellow others:

Why this colour?:

For what price (if it differs per size, give a range the cheapest and the most expensive one)?

If small sizes, how many did you buy?

1-5 6-10 11-15 16-20 21-40 40+

PLACE

How many times a month do you buy sheabutter?

Where do you buy it? market home other:

6.1 Is it always same place/person?

same place, same person same place, different person

different place, different person different place, same person

USE

Who will be using the sheabutter? your self household others as in they will buy from you? Other:

7.1 The sheabutter is used most by: your self: household: used for selling: other:

Why do you buy sheabutter (more options possible)?

cooking skincare medicine others:

If for cooking, what dish?.....

What size do you use in that dish?

How long will it last?

Is there anything you do to the sheabutter to make it nicer?

If for skincare, what do you like about it?

What container size do you use?

How long will it last?

Is there anything you do to the sheabutter to make it nicer?

If for other uses,

What quantity do you use?

How long will it last?

QUALITY

What type do you like? soft butter hard butter any type other:

12.1 What is the reason?:

13. How is the butter packaged and given to you? in a paper in a plastic robber/polytyn
in a bowl packaged in a container other:

13.1 Do you like it that way? yes no

13.2 Reason:

What do you NOT LIKE about sheabutter? there is nothing I do not like (there is no problem)
smell taste other:

14.1 Reason:

CHANGES

Do people buy more sheabutter today compared to the 'olden days' (like 20-50 years ago)?

yes no

15.1 How come?:

Can you see any changes in the quantity when you were a child? Was the amount of sheabutter at that time: less more same

How come?:

How long ago was this? (make an estimation) 10 years ago 20-30 years ago 50 years ago

Can you see any changes in the price at that time?

less more same

17.1 What is the reason?

Can you see any changes in the quality?

less more same

18.1 What is the reason?

SUBSTITUTES

What other products do you use instead of sheabutter?

Cooking: no other products than sheabutter palm oil frytol oil
groundnut oil others:

- Why? Reason: better taste cheaper than sheabutter other:

Skincare: cocoa butter skin light other types:

- Why? Reason: modern package smell others:

C. Questionnaire non-consumers of shea butter

Introduction of interviewer: Your name.

(1.) There are a few questions, the interview may take a few minutes of your time (2.) this is a research for a university, it is not for the government (3) I will not give away any information along with your name, I will make a general report (4.) If for any reason you would not like to answer any of the questions feel free not to.

Date:

Time at the start of the interview: Time at the end of the interview:

Comments:

IDENTIFICATION

Location: area in Tamale: at the home at a market other:

Name of area:

name (maybe asked at the end of interview):

Age: < 20 20-25 25-30 30-35 35-40 40-45
45-50 50-70 70+

- 2.2 Gender: male female
- 2.3 Marital status: single married widowed divorced
- 2.4 Household number (people you take care of +1):
- 2.5 Are you living in Tamale Metropolis: yes no, name area:
- 2.6 Where did you grow up?
- 2.6 Schooling completed: no education primary JHS SHS others:
- 2.7 Occupation: unemployed employed, as: Other:

3. Why are you not buying shea butter?

4. Have you ever bought shea butter?
 How long ago was this?
 For what did you use the shea butter?
 Why are you not using it anymore?

What are the uses shea butter has?

What other products do you prefer using for cooking?
 Why?

What other products do you prefer using for skincare?
 7.1 Why?