

## ASSESSMENT OF THE POTENTIAL OF SHEA BUTTER PROCESSING ON THE LIVELIHOOD OF WOMEN PROCESSORS IN KWARA STATE, NIGERIA

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### Abstract

*Potential of shea butter processing on processors' livelihood, processing techniques, shea nuts' availability, outcomes and constraints of shea butter processing in Kwara State were investigated. Random sampling technique was used to select 81 processors used as respondents. Percentages and frequencies were used for data analysis. The average age of the processors and years spent in shea butter processing were 48.40 and 20.6 years respectively. Manual processing technique dominated the enterprise. Low processing (0.98 kilograms of shea butter), income of N490.00 or \$US 2.72 Dollars/day (higher than the critical poverty level of \$1/day) was recorded. Also, 42%, 45% and 43% of processors were able to pay the school fees, settled hospital bills, lived in block and cemented buildings showing the potential of shea butter processing on improving processors' livelihood provided loan is liberalized for acquisition of processing machine to increase the quantity and quality of shea butter.*

**Key Words:** *Improving livelihood, Income, Loan liberalization, Processing machine, Increasing shea butter processing*

### Introduction

The shea tree (*Vitellaria paradoxa*) which belongs to the family Sapotaceae is a tree native to African (Makeish, 2012). The tree grows naturally in the wild in the dry savannah belt of West African from Senegal in the west to Sudan in the east, and onto the foothills of the Ethiopian highlands covering a total of 20 countries across the African continent. These include Benin, Ghana, Chad, Burkina Faso, Cameroon, Central African Republic, Ethiopia, Guinea Bissau, Cote d'Ivoire, Mali, Niger,

Senegal, Sierra Leone, Sudan, Togo, Uganda, Zaire, Guinea, the Gambia and Nigeria (Addaquay, 2004). Shea nut tree grows in the wild in many states in Nigeria including Niger, Nasarawa, Kebbi, Kwara, Kogi, Adamawa Benue, Edo, Katsina, Plateau, Sokoto, Zamfara, Taraba, Borno and Oyo.

The shea tree produces the nut for shea butter processing and it has names across the globe. The English call it "shea" a vernacular name in Bambara language while the French call it "karate" a name given to it in Senegal. It is called

Nku in Ghana. It is called Kokoro, Komere and Yao by Ugandans (Okullo *et al.*, 2010). In Nigeria, shea is called “mankade” by the Hausas, Okwuma by the Ibos and Igi-emi by the Yorubas. Though, it appears to be a rather obscure wild species, its widely known value are exploited by the natives in all areas where it occurs.

Shea butter or karate butter is a fatty extract from shea nut. Its kernel contains about 60% edible fat referred to as shea butter. It is a slightly yellowish fat extracted from the nut. The extracts are rich in vitamin A and a number of natural ingredients with biological activities. Shea butter is noted for its great moisturizing and remarkable healing properties for skin ailment including blemishes, itching, sunburns and skin wounds. Indeed it has an exceptional large healing and medicinal values. The shea nut is also an excellent ingredient for livestock feed production. One of the residual products (shea cake) serves as a raw material and a substitute of cocoa butter in chocolate industry in order to make chocolate smoother and creamier. Furthermore, shea butter can be transformed into other value added products such as shea soap and hair care (Eneh, 2010).

#### **Literature Review**

Poverty and food insecurity were few of the myriad of problems faced by women in Nigeria. Women provide more than 50% of agricultural labour in the country and are directly involved in 70% of agricultural work, with a major role in production, agro-processing and marketing of food crops (Akpokodje, 2001). Women’s role in the economy and their work in agriculture have often been underestimated. While policy makers

have targeted, health and nutrition programmes to women in their reproductive roles, they have neglected women as productive agents. Setshwaelo (2014) states that women account for more than half of the labour force required to produce the food consumed in the developing world, perhaps three-fourths in sub-Saharan Africa (SSA) where Nigeria belongs. Furthermore, she reports that African women perform about 90 percent of the work of processing food crops, 80 percent of the work of food storage and transport from farm to village. Despite the level of involvement of women in agricultural production chain, they constitute 65% of the population living below the poverty line.

Processing of agricultural produce is one of the fasted growing enterprises among women in Nigeria. Processing activities have the potential to increase earnings, market value of produce, assured regular income all year round, reduction in losses of farm produce, enhanced quality of produce, become a reliable source of income, minimize wastage and prolong the shelving life of farm produce. Therefore, it can be inferred that processing activities could have significant impact on the livelihood of beneficiaries, all other things being equal. Shea butter processing is one of agricultural enterprises embarked upon by women and is regarded as an opportunistic business for them. However, the enterprise is bedeviled with many teething problems. Nigeria, the leading processor of shea butter in the world with a processing capacity of about 600,000 metric tons (Eneh, 2010) is yet to fully realize her potentials in the processing and export of shea butter. The

export potential of shea butter is not well documented by National Bureau of Statistics, Central Bank of Nigeria and National Export Promotion Council.

Although women are acknowledged as mostly involved in processing of shea butter, they are systematically denied the resources and information they need to fulfill their responsibility (Agbamu, 2005). The transformation of shea nuts into butter is a difficult task. The process involves intensive physical labour as well as considerable amount of water and firewood. The preparation process takes several days and involves many stages.

The steps in the Nigeria traditional shea butter processing takes 14 days (Daniel *et al.*, 2005). The processors relied on crude methods that were passed down through generations and have no access to quality processing equipment. The inefficiency of the processing techniques lowers the quantity and quality of shea butter available in the market. Moreover, there is no estimate of the overall balance between cost of input and the economic output of shea butter, as the processing is not only arduous, labour-intensive and time consuming. Bonkougou (2005) states that most of the shea butter processed in Nigeria are of very low market value compared to cocoa butter. Shea butter also deteriorates very rapidly on exposure to poor storage conditions. The low quality of shea butter is now a major concern, as it falls below international standard required for exporting the commodity. The export market performance of Nigeria's shea products is poor relative to the processing potentials. For instance, in 1965, Nigeria exported a total of 25,000 compared with 533 of Ghana and 4,340 tonnes of Burkina Faso. The Nigeria's, Ghana's

and Burkina Faso's export figure for 2002 was 800, 27,627 and 34,975 tonnes of shea nuts respectively (FAOSTAT (Food and Agricultural Organization Statistics, 2010). It is overt that Ghana and Burkina Faso maintained a good export record of shea nut while that of Nigeria fell drastically. Thus the product is therefore consumed locally, fetching low price for the processors (Carrette *et al.*, 2009). These lowered the accruable income to processors resulting in Nigerian women remain poor, culminated in the country's classification as one of the poorest countries in the world with about 90 percent of her population living on less than US-\$1 a day (Ukeje, 2003).

The shea butter tree has no capacity for vegetative regeneration and can only be propagated by seed. Thus there is slow growth rate of the tree from seeds, taking about 30 years to maturity. Presently, there is no well documented effort to reduce the maturity age of the tree. The trees are ravaged by annual bush fires that usually burn the undergrowth, leading to stunted growth and prolong its maturity age. The yield (3-4 kgs dry nuts annually per plant is low. As much as about half of shea harvest is left uncollected in the wild. Despite this, there is an increase rate of felling shea butter trees for charcoal production in Nigeria. These could hamper the availability of shea nut for processing. Finance and machinery are also not adequate in the shea processing industry. Lovett (2004) stated that trade network for shea in West Africa is dominated by lack of information and standards in terms of market demand and quality price structure. Organization of the shea butter industry at the local, national and international level is generally weak with

few, if any, fully functional association. The provision of information flow and options for bargaining on the international trading is therefore lacking. This typically leaves the women as price takers and prevents shea butter and kernel being traded as profitable commodity. There is currently no incentive, let alone opportunity to improve quality.

Export figure of shea butter is low, implying more of local consumption. In 2002, only 1.25% of world's total export was recorded; only shea nuts were exported. Specific policies and support programmes for the industry are still being expected; not much support has been received from international agencies, apart from preliminary investigations that were conducted. Nigerian Export Promotion Council (NEPC) views shea butter as new export commodity for which support for export is yet to be provided.

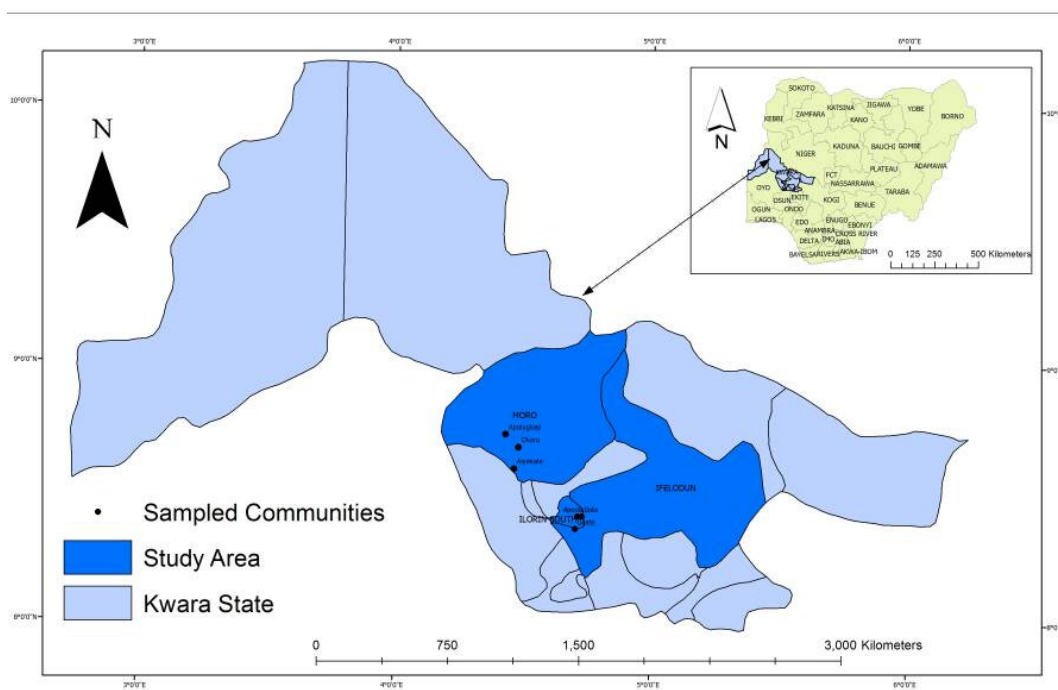
Therefore, the broad aim of this study was to assess the potential of shea butter processing on the livelihood of women processors in Kwara State while specific objectives were to: investigate existing processing techniques, availability of shea nut, identify existing constraints and outcomes of shea butter processing. The study provided information on variables that influence shea-butter processing in the country, thereby serving as pathways to knowing how these variables could be better managed to improve and sustain the shea butter enterprise. This study could also serve as a source of relevant information to other countries facing similar situations. Nigeria is currently the highest processor of shea butter to the world market. Therefore, identifying the potentials in shea butter processing

among women would bring about mobilization of women processors for increased output and income to satisfy and ameliorate the prevailing level of poverty. All the tiers of government would be convinced to plan, implement appropriate support programmes for women processors. It is therefore apt at this material time to assess the potential of shea butter processing on the livelihood of women in Kwara state, Nigeria.

## **Methodology**

### ***Study Area***

The study was conducted in Kwara state, Nigeria. It falls within the North Latitudes 11° 2' and 11° 45'. It is sandwiched between longitudes 2° 45' and 6° 40' East of Greenwich Meridian (i.e. Longitude '0'). The State was established in 1967 and presently has 16 Local Government Areas. These in alphabetical order are Asa, Baruten, Edu, Ekiti, Ifelodun, Ilorin East, Ilorin South, Ilorin West, Irepodun, Isin, Kaiama, Moro, Oke-Ero, Offa, Oyun, Patigi Local Government Areas. The state has boundaries in the south with Oyo, Ekiti and Osun State. It is bounded in the West by Benin Republic while in the North and the East; it is bounded by River Niger, and Kogi State respectively. The population is about 2.3 million. The state has two main climatic season; the dry and wet season. The natural vegetation of the state comprises the wooded savannah and rain forest. Agriculture is the main stay of the state's economy. However, Kwara state is naturally endowed with cultivation of shea tree that is grown in the wild. Thus, Shea butter processing is popular in many LGAs of the state.



Map of Kwara State showing the study Areas

### ***Target population, Sample Size and Sampling Techniques***

The target population for the study consisted of women involved in shea butter processing in Kwara state. A purposive sampling technique was used to select three (3) local government areas (LGAs) where shea butter processing is popular in the state and these include Moro, Ilorin South and Ifelodun LGAs. Secondly, a purposive sampling

technique was used to select 3, 2 and 1 community in Moro, Ilorin South and Ifelodun respectively where the study was carried out. Thirdly, a random sampling technique was used to select the respondents proportionate to the population of processors in each community. Consequently, 81 out of the total 134 identified processors in the 6 selected communities were used as respondents for the study (Table 1).

Table 1: Sample size for the study

Local government area	Actual Number of shea butter processors in the communities	Number of processors used as respondents
MORO		
Okoru,	29	15
Apolugbaji	35	19
Aiyekale	10	11
ILORIN SOUTH		
Ilota	20	13
Apoola	30	17
IFELODUN		
Gatta	10	6
TOTAL	134	81

Primary data were collected from the respondents by means of interview schedule while secondary data were collected from records kept in the Federal and State's Ministries of Agriculture, Kwara State Agricultural Development Project, National Bureau of Statistics and the Central Bank of Nigeria. The descriptive statistics, (mean, percentages) were applied to the analyses of data while frequency table was used to present results of data analyses.

## **Result and Discussion**

### ***Socio-Economic Characteristics of Shea Butter Processors***

The result of the study (Figure 2) showed that more than half (53.1%) of the processors were between 45 and 54 years of age. The average age was 48.40 years. Age is a crucial factor in agricultural ventures, as young, active and virile women processors are expected to be more agile, venturesome and productive. Ageing has an adverse effect on agricultural productivity in general. The United Nations Economic Commission for Africa predicts that the size of the elderly population is expected to jump from 16.6 million to 28.6 million persons over the period from 1995 – 2015 (Ismaila *et al.*, 2010). This was simply showed by the result of this study as more than half of the processors were 50 years old and above. Agriculture including processing is accompanied with

drudgery. This explained low participation of relatively young women in the processing enterprise. It was a small population of young women (8.7%) that were involved in shea butter processing. The low level of participation might not be unconnected with the drudgery involved in shea butter processing. It is desirable that cost effective technology that will eliminate drudgery are invented and introduced to the processors for adoption. This would encourage the participation of women of different age categories in the shea butter enterprise.

Majority (96.7%) of the processors were female, corroborating Cocoa Research Institute of Ghana (2007) that women are more involved in the processing of shea butter. Since poverty has no sex boundary, the male should be mobilized by extension organizations (private or public) to participate in the shea butter processing enterprises in order to ameliorate the vicious cycle of poverty that engulfed Nigerians. Most (79.0%) of the processors were married, suggesting that family labour might be supportive in the shea butter processing value chain. However outmigration of young and vibrant people to cities in search of greener pastures could have devastating effects on supply of manual labour in shea butter processing in Nigeria.

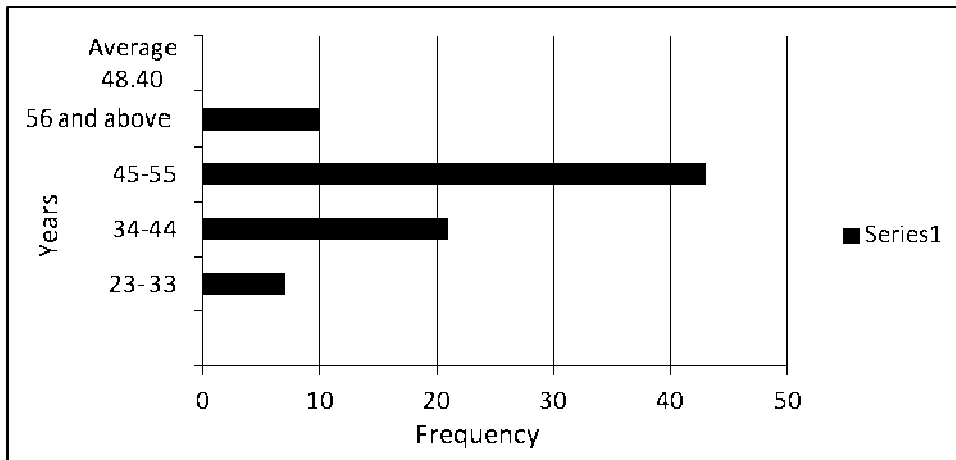


Fig. 2: Graphical illustration of ages of shea butter processors in Kwara State

#### ***Educational Status of the Processors***

The result (Table 2) indicated that majority (92.6%) of the processors had no formal education, inferring illiteracy and difficulties in accepting innovation. The implication is that women might remain in the group of unskilled labour. Chalfin (2004) opines that education is a variable that determines the ability to access and understand information. Therefore, the low level of educational status of the processors could hinder application and understanding of modern processing equipment. However, enhancing relevant skills of women, through regular training can improve their participation throughout the shea butter processing value chain.

Table 2: Educational status of processors

Variable	Frequency	Percentage
No Formal	75	92.6
Adult education	1	1.2
Islamic Education	2	2.5
Primary school	3	3.7

#### ***Processing Techniques of Shea Butter Processors***

As shown in Table 3, majority (87.7%) of the processors relied on manual processing system. Thus the drudgery inherent in the manual system remained with the enterprise unabated. This might be held responsible for the low participation of youth in the enterprise. This is congruent with Addaquay (2004) that rural based women using manual method of shea butter processing predominate in West Africa. The use of crude processing techniques explained loss of 40% of shea butter during processing alone. On the other hand, it was 4.0% and 8.4% of the processors that were found to have adopted full mechanized and semi-mechanized system of shea butter processing respectively. This was an indication that processors were gradually being informed and convinced of the efficiency of mechanized processing systems and hence the gradual diffusion of the approach within the rank of the processors.

Table 3: Distribution of processing techniques of the shea butter processors

Variables	Frequency	Percentage (N=81)
Manual Traitional System	71	87.7
Semi-Mechanised System	7	8.3
Fully Mechanised system	3	4.0

### **Quantity of Shea Butter Processed**

Figure 3 revealed that 74% of the processors produced between 21kg and 40kg of Shea butter per month. That is, a processing range of 252kg to 480kg per annum or an average annual processing of 356.04 kilograms. By implication the average daily production was 0.98 kgs per day. With the prevailing local selling price of N500.00/kilogram the daily income of the processor was N490.00/day. This income level was higher than the critical level of poverty (US 1

Dollar/day). This showed the potential of shea butter processing to reduce poverty level of women processors provided that shea nuts are readily available and improved mechanized processing techniques are accessible at affordable cost. The improved processing techniques would enhance the quality of shea butter processed and it would attract better price within or at international markets. The overall benefit is that the income of processors would be enhanced and level of poverty ameliorated.

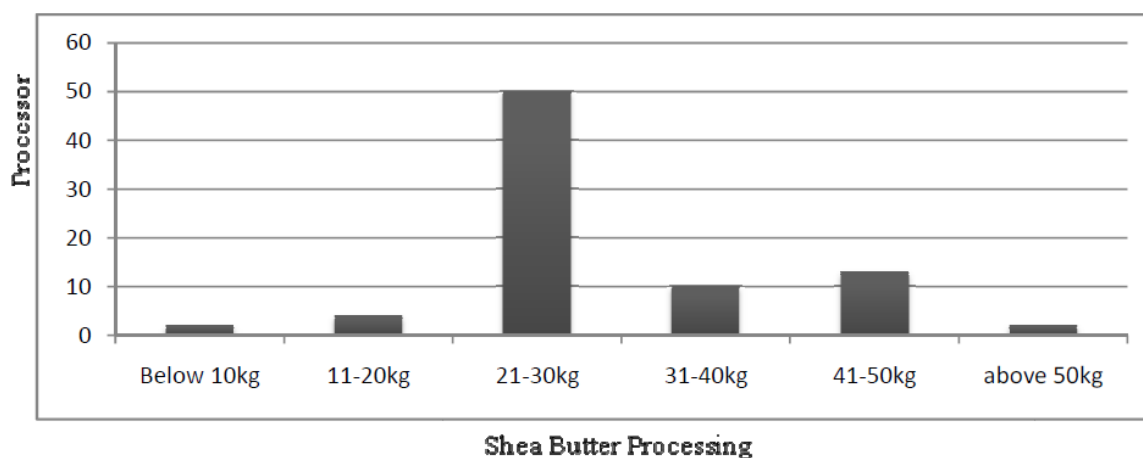


Figure 3: Monthly distribution of shea butter processing by the processors

### **Shea Butter Processors' Constraints**

Table 4 revealed that more than half (56.9%) of the processors rated cost of processing equipment as the most important constraints in shea butter processing. This partly explained the reason for the poor (4% of the processors, Table 4) that adopted the full mechanized system. Therefore, the government should liberalize the conditions for loans

for the women processors while the women should constitute themselves into viable cooperatives for capital formation which can be used jointly for the acquisition of efficient and effective processing equipment. The result also showed that it was few processors, 6.2% and 14.8% reported marketing and storage facilities as hindrance to shea butter processing in Kwara state. This is



as a result of small scale of processing and readily availability of market. A processor reported shea butter was on high demand with available locally and externally buyers as far as Republic of Cameroon. Consumers booked and paid in advance for the shea butter. The result also showed that about half (48.1%) of the processors reported that availability of shea nut was moderately severe. This indicated that, the supply of shea nut was dwindling. This might not be unconnected with the uncontrolled felling of the shea trees for charcoal production in Nigeria. Similarly, the processors cum gatherer were ageing and therefore could not move far into the wild or forest for

the collection of the nuts. Most of the people of over 55 years are unwilling or unable to work, especially when the farm is far from the house Ismaila *et al.* (2010). Thus a chunk of shea nuts were left in the wild due to the cumbersome nature of gathering of the nuts. The implication is that with the automation of processing, there would be under utilization of capacity of processing machines. Therefore, plant breeders should increase the tempo of domestication of the plant, so that it can be grown on plantation. This would ease the collection of the nuts, and increase its availability for shea butter processing.

Table 4: Distribution of Shea butter processors' constraints

N=81

CONSTRAINTS	Highly severe	Severe	Moderately severe	Not severe	Highly not severe
	Frequency	Frequency	Frequency	Frequency	Frequency
Accessibility processing equipment	7 (8.6)	5 (6.2)*	2 (2.5)	44 (54.3)	23 (28.4)
Cost of machine	38 (56.9)	31 (38.3)	11 (13.6)	1 (1.2)	-
Marketing of shea butter	1 (1.2)*	5 (6.2)	8 (9.9)	37 (45.7)	30 (37.0)
Shea butter storage facilities	1 (1.2)	12 (14.8)	31 (38.3)	28 (34.6)	9 (11.1)
Availability of shea nut	2 (2.5)	12 (14.8)	39 (48.1)	23 (28.4)	5 (6.2)

Figure in parentheses represent percentages

### ***Outcomes of Shea Butter Processing on the Livelihood of Women Processors***

The women processors (42%) reported easy payment of school fees for their children as a return to investment in shea butter processing (Table 5). In the same vein 45.7% strongly agreed that shea butter processing is a source of fund for the settlement of hospital bills of their children. However, 43.2% of the women processors were living in a block walled and cemented building compared with mud walled and uncemented building occupied by others in the shea butter processing enterprise. These indicated the

potential of shea butter processing to support the processors to meet family responsibilities and improved on standard of living. However, the performance of the enterprise on the livelihood of the processors could be better if mechanized processing equipment is adopted for shea butter processing. The quality and the current low level of processing (0.98 kilograms per day) would be enhanced. Thus the product can be used as a suitable substitute for cocoa butter in the chocolate industry where it can attract better price.

Table 5: Distribution of livelihood outcomes of shea butter processors

Livelihood Outcomes	SA	A	MA	D	SD
Have been able to pay the children's school fees	34 (42.0)*	21 (25.9)	-	14 (17.3)	12 (14.8)
Have been able to pay hospital bills of the children	37 (45.7)	23 (26.0)	3 (3.7)	10 (12.3)	8 (9.8)
Living in a block and cemented building	1 (1.2)	2 (2.5)	35 (43.2)	43 (53.1)	-

### Conclusion and Recommendation

It was concluded that shea butter processing involved mainly female, married with no formal education. The processors had spent an average of 20.6 years in shea butter processing. This had no impact on the quantity and quality of shea butter processed since crude method of processing prevail in the industry. The living conditions and ability to meet family responsibilities and overcoming the vicious cycle of poverty is improving. Shea butter processing has the potential to assist the women processors to break the vicious cycle of poverty with the generation of an average income of N490.00 or US 2.72 Dollars per day. The use of modern processing technique could increase shea butter output, enhanced quality of product for export and use in the local industries where the product is on high demand. Unless mechanized processing technique is adopted, young women may not be attracted to participate in the industry while scientific improvement of shea tree should be step up to reduce the maturity age of the plant and guarantee regular supply of shea nuts to avoid idle capacity when processing machine is acquired by the shea butter processors. It was therefore recommended that women processors should be trained regularly. The government should liberalize the conditions for accessing credit for the

women in order to acquire mechanized processing system and encourage them to replace the predominant manual processing system with semi or full mechanized approaches. The extension organizations (public or private) should educate the male across all age categories in the villages to actively participate in shea butter processing and dump the idea that it is solely women enterprise. The processors should constitute themselves into viable cooperatives for capital formation which can be used to acquire effective and efficient processing equipment.

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