J Bangladesh Agril Univ 17(3): 369–374, 2019 https://doi.org/10.3329/jbau.v17i3.43217

ISSN 1810-3030 (Print) 2408-8684 (Online)

Journal of Bangladesh Agricultural University

Journal home page: http://baures.bau.edu.bd/jbau, www.banglajol.info/index.php/JBAU

An assessment of the value chain of shea in Borgu area of Niger state, Nigeria

Madu Ali Bwala ✉, Abdulhamid Garba Yaru, Wasiu Alani

Department of Agricultural Economics and Extension Services, Ibrahim Badamasi Babangida University, Lapai, Nigeria

ARTICLE INFO

Article history:
Received: 17 December 2018
Accepted: 11 July 2019
Published: 30 September 2019

Keywords:
Value chain,
Shea nut,
Value addition,
Market margin,
Nigeria

Correspondence:
Madu Ali Bwala
✉: madubwala@gmail.com

ABSTRACT

This study assessed the value chain of shea in Niger State, Nigeria. One hundred and forty respondents were selected through a multistage random technique. Data were analyzed using value addition method and descriptive statistics. Findings revealed that there are four key players in the shea value chain, namely the sole picker, the processor/picker, butter marketer and the retailer. Regarding value addition, it was found that the sole picker adds a value of ₦250 (3.10%), the local processor, adds a value of ₦1550 (19.38%), the shea butter marketer adds ₦600 (7.70%) and the retailer adds a value of ₦5600 (70%). Furthermore, findings revealed that the retailer has the highest margin of ₦3460 (70.47%) while the processor has a margin of ₦1050 (21.38%). The sole picker has the lowest margin of ₦150 among players in the chain. However, findings reveal that, the picker has a higher margin when he doubles as a processor. Since majority of the pickers and processors are women, empowerment of the female gender can be enhanced through interventions in the shea value chain. Therefore, this study recommends a gender-based study of the shea value chain in the study area which will further reveal potentialities for empowering women and the household in the study area. Furthermore, to give leverage to the sole picker in terms of the size of market margin attracted, it may be expedient to empower the sole picker to get involved in the processing of the nuts.

Introduction

The essence of developing commodity value chains should be to ensure the attainment of maximum quality of produce and products, good reward for value created and added by actors and the provision of level playing ground to all actors/players along the chain. In recent times, the shea tree has gain prominence and has attained the status of an economic tree in regions where it is domiciled. This is because the harvested nut has several domestic and industrial uses (Jamala *et al*., 2013). Nigeria accounts for 62 percent of the estimated 600,000 metric tons produced in West Africa (Enaberue *et al*., 2011). The tree however, is endangered due to the good qualities of the trunk as a slow burning fuel wood (Aderibigbe *et al*., 2017). It has therefore attracted protection against extinction from concerned agencies in some African countries (Buyinza and Okullo, 2015). The high export value and acceptability of the butter by a growing number of local consumers has attracted more players in the shea value chain. In Nigeria, the processing of the shea is mainly carried out in the rural areas where the nuts abound in the wild. Hence, key players in the chain of activities leading to the delivery of the final product to the consumer are in the rural area.

The full range of activities required to produce a product or service from inception through different phases of processing, to delivery of final product to consumers and the final disposal after use is referred to as value chain (Mayoux and Mackie, 2009). Ensuring the availability of quality products in a market requires significant development of the commodity chain. The availability of market for a commodity stimulates research and development for the commodity chain, hence, the economic value available for players along the commodity chain necessitates the placement of a distribution structure that will facilitate equitable reward for work done by each player. The shea value chain in Nigeria has not been well investigated, the literature available show that most of the works dwelled on profitability (Tiamiyu *et al*., 2014), economic analysis of the plant (Garba *et al*., 2011; Salawu *et al*., 2014), efficiency (Adeyemo *et al*., 2015) and socioeconomic analysis (Jamala *et al*., 2013). Hence, this study sought to add to the literature of the shea nut value chain in the area

Cite this article

Bwala, M.A., Yaru, A.G. and Alani, W. 2019. An assessment of the value chain of shea in Borgu area of Niger state, Nigeria. *Journal of Bangladesh Agricultural University*, 17(3): 369–374. https://doi.org/10.3329/jbau.v17i3.43217

of value in Nigeria. Furthermore, little or no study has been carried out identifying the players in the chain and the value addition component between the linkages. Consequently, a paucity of information exist in that regard. It is therefore necessary for the linkages within the shea value chain to be examined. This is because shea nut harvesting and processing have the capability of significantly increasing income opportunities of the local people by providing livelihood strategies (Ani *et al*., 2012). Furthermore, literature has shown that sale of shea products add to the family income in Africa, this can further be enhanced through improved processing and value addition (Saka *et al*., 2004); for this to happen, a proper understanding of the chain is critical. It is against this backdrop that this study assessed the shea value chain by identifying the actors in the chain and estimating the value added and margin of the actors.

Materials and Methods

Study area

The study was carried out in Borgu Local Government Area of Niger State. A survey was administered and conducted in four communities in area. The study area was purposively selected due to the high shea nut harvesting and processing activity in the area.

Source of data and sampling technique

Primary data were collected and utilized for this study, respondents were interviewed using a structured questionnaire. Multistage sampling procedure was employed for the study where four communities in the local government area were selected for the study. This is because of the concentration of players engaged in shea nut harvesting and processing in the area. The selected communities are old Dogongari, old-Kurwasa, Karabonde and Lesigbe. Subsequently, a random selection of one hundred and forty respondents were sampled and interviewed (Table 1).

Table 1. Distribution of Sample collected from communities in the study area

Community	Sample	Percentage
Old Dogongari	35	25
Old-Kurwasa	35	25
Lesigbe	35	25
Karabonde	35	25
Total	140	100

Source: Field Survey, 2017

Analytical Techniques

Descriptive statistics

Descriptive statistics such as mean, frequency and percentage were used to describe the demographic characteristics of the respondents involved in the processing activities of the shea nut.

Value addition analysis

The value addition analysis was used to estimate the value added to the shea nut being processed into butter by various chain participants as specified below:

$$VA = DP - CI \quad (1)$$

where, VA = value added, DP = disposable price of output, and CI = cost of input.

Thus, the value added by a chain participant/actor should further improve the quality of the product and hence attract higher price from the market.

Results and Discussion

Demographic characteristics of shea nut processors

Descriptive analysis of the data collected shows that majority (66.2%) of the respondents were within the age group of 20 - 50 years (Table 2).

Table 2. Distribution of shea nut pickers/processors by demography

Variable	Frequency	Percentage (%)
Age range		
20 – 30	26	18.6
31 – 40	32	22.8
41 – 50	35	24.8
51 – 60	36	22.5
61 -70	11	7.8
Total	140	100
Gender		
Male	0	0
Female	140	100
Total	140	100
Marital status		
Single	11	7.9
Married	100	71.4
Divorced	9	6.4
Widowed	20	14.3
Total	140	100
Years of experience		
3 – 6	30	21.4
7 – 12	41	29.3
13 and above	69	49.3
Total	140	100

Source: Field Survey 2017.

This indicates that most of the shea nut processors in the study area are in the productive stage of life, and are therefore capable of handling the labor demands of task. A small number of the respondents in the study area are within the age group of 61-70 years having (7.8%). The processing of the shea nut is labor intensive, aged people may find it difficult cope with the processing activities most especially when such individuals have to carry out the processes themselves. Further analysis reveals that all of the respondents involve in shea nut processing in the

area were females. This implies that women are the dominant group in the shea nut processing business. This finding is corroborated by the reports of Saka *et al*. (2004), NEPC (2006), and Jamala *et al*. (2013) who reported that majority of players involved in shea nut processing were women.

Regarding marital status of the respondents, result revealed that a majority (71.4%) of the respondents were married with just a few that were single, widowed or divorced. These groups of chain players represent 7.9%, 14.3%, and 6.4% respectively. In every human endeavor, specialization is attained by experiences acquired through years spent on the job; number of years spent on a particular trade or endeavor translates to experiences that can be used to improve the processes involved. The study revealed that majority (49.3%) of the respondents had 13 years and above of processing shea nut, also 29.3% had shea nut processing experience of 7-12 years. The implication of this finding is that years of experience afford the respondent the leverage to master the processes involved in the conversion of shea nut into butter. Hence, efficiency can be said to improve over time.

Shea value chain mapping in the study area

The chain of activities in the shea nut trade starts with the pickers who on daily basis visit the forest very early in the morning to harvest shea fruits that have fallen to the ground over the night (Figure 1). This group of individuals consists of mostly children and women. The flesh of the fruit is removed thereafter by the pickers to access the nut which is of value. The fruits are then dried and shelled: This is the first stage in the chain. There are two categories of pickers, those who collect the nuts and sell to marketers and those who double as processors (picker/processor). The sole pickers then sell off the shelled nuts to marketers at ₦6000 for a 75 kg of nuts; the marketers bag the shelled nuts and store for onward linkage with markets in neighboring Republic of Benin. However, the picker/processor prepares the nuts for processing into butter for local consumption, this is the second stage. There are cases where the sole picker sells the nuts to the picker/processor, this happens when there is a scarcity of the nuts (out of season) and the marketers are not buying. Such transactions are usually carried out at a negotiated low price.

The third stage in the shea chain is the processing of the nut into butter this is the stage where the bulk of the value addition in the shea chain is carried out. The picker/processor is the main actor in this stage. The main activity in this stage is the administering of the various procedures to extract the butter from the nuts (Figure 2). The activity in stage three is depicted in Figure 2 as adopted and modified from Oil Seeds Association of Nigeria, OSAN (1997). Stage three ends with the processed shea butter which is then stored in containers ready for purchase by marketers who are basically wholesalers (stage four). Further down the line (stage five) retailers in the cities purchase the shea butter from the wholesalers for sale to final consumers. The retailers usually purchase the butter in 20 to 25 liters container; they then repackage the butter in small containers of approximately one liter for sale to the final consumers. Some retailers add fragrances and other additives to the butter for preferences.

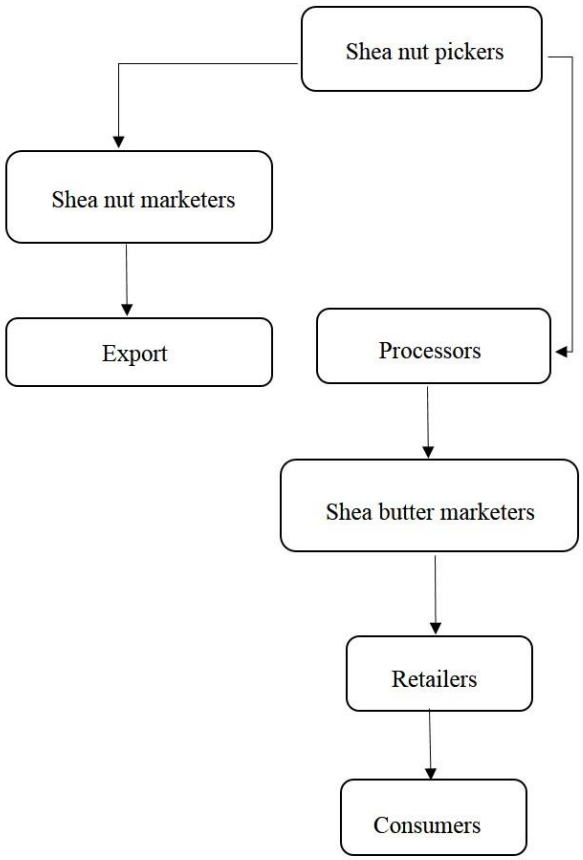

Fig. 1 Shea value chain map in Borgu. Source: Author's conception 2017

Estimation of the value added on shea nut processing chain

Changing the current location of a product and time of availability; and altering the set of characteristics of a commodity to a more preferred characteristics by the consumer in the market place can be termed as value addition (Boland, 2009). The objective is to satisfy the consumers' preferences. Table 3 show the estimates of the value added through the processing of shea nut by various players in the chain. Since the pickers pick the shea nuts for free in the wild, their investment in acquiring the nuts is the time and energy they invest for the collection. For the quantity of nuts under consideration (22.5 kg), it takes on average,

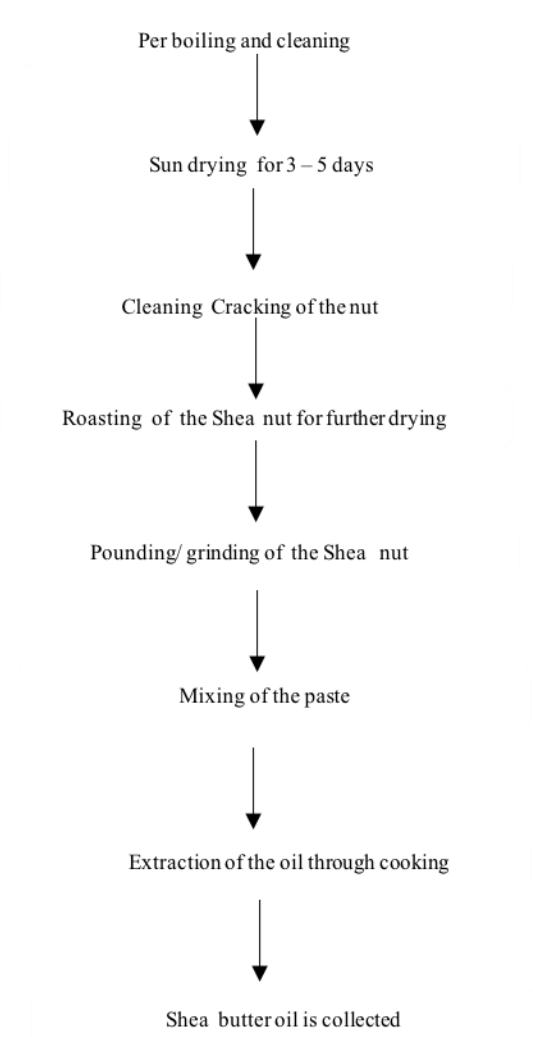

Fig. 2 Processing of shea nut into butter. Source: Adopted and modified from OSAN (1997).

one hundred and twenty minutes to pick from the wild depending on the availability and proximity of trees. Hence, valuing the shea nut based on man day (₦125/hr) used for collection, 22.5 kg of shea nuts cost ₦250.

The nuts then undergo roasting, grinding and finally, extraction of the oil by the local processor. The quantity of shea butter extracted from a 22.5 kg quantity of nuts is on average 7.5 liters. The processor then sells this quantity (7.5 liters) of butter to the shea butter marketer at N1800. The shea butter marketer adds value of ₦600 on this quantity through the provision of space and package utility. Thereafter, the retailer buys the 7.5 liters of shea nut butter at ₦2400 from the marketer. The retailer adds a value of ₦5600 through further refinement and repackaging and sells the product to the final consumer at ₦8,000. Considering the magnitude of value added by the players in the chain, the retailer adds the most, followed by the processor (Table 4). It is imperative to note that the picker adds the list value in the chain. This may translate to a low reward/return to the picker for services rendered in the chain. The implication of this for the sole picker would be that the picker may be trapped in a vicious cycle of low income. Also, the Shea butter retailer adds the largest value among the players in the chain, it should be expected that he gets the highest reward in the chain.

Estimating marketing margins of shea nut chain players

The actors in the shea value chain in the study area have market margins indicating that all the players are rewarded for adding value in the chain (Table 4). The picker/processor has a total margin of ₦1050 (₦150 for picking and ₦900 for processing), whereas the shea nut marketer has a margin of ₦250 and finally the retailer, who has a margin of ₦3460. Recalling that that the retailer adds the highest value in the shea nut chain he/she therefore receives the largest reward (margin) among the actors in the chain. The players having high rewards in the chain are the processor and the retailer, the retailer however, has the highest reward. The point of entry for value chain development of any commodity is important; this is because the point of entry determines the level of impact to be achieved concerning the objective of the intervention. Concerning the reward (margin) in the shea value chain in the study area, the sole picker gets the least margin, however it is the sole picker that braves the conditions of the wild to harvest and make the nuts available. Furthermore, the sole picker is the least in terms of economic endowment. Hence, the present arrangement is not in the best interest of the sole picker in terms of the total potential value available for all players in the shea nut chain.

The essence of developing commodity value chains should be to ensure the attainment of maximum quality of produce and products, good reward for value created and added by actors and the provision of level playing ground to all actors/players along the chain. The attainment of maximum satisfaction by all players through receipt of good reward should be the key goal. Hence, considering the shea nut value chain as identified in this study, it appears that the sole picker is at a disadvantage if he/she only picks and sells the nuts. The large margin made by the processor in this chain under study is due to the fact that the processor also doubles as a picker, thus acquiring the nuts directly from the wild for free and processing into shea butter.

Table 3. Activity and cost involved in processing 7.5 litres of shea butter

Actors	Processes	Cost (₦)
Picker	Shea nut head/pan (22.5 kg)	150.00
	Cost of transport	100.00
	Total	250.00
Local processor	Shea nut	250.00
	Roasting	100.00
	Milling	100.00
	Mixing	100.00
	Extraction	200.00
	Total	750.00
Shea butter marketer	Shea butter	1800.00
	Package	150.00
	Transport	200.00
	Total	2,150.00
Shea butter retailer	Shea butter	2,400.00
	Packaging/container	1640.00
	Transport	500.00
	Total	4540.00
Final consumer	8 units of ≈ 1 liter shea butter	8,000.00

Source: Field Survey 2017

Table 4. Value added by players for processing 7.5 liters of Shea butter

Actor	Product	Value (₦)	Value added (₦)	Percent Value added
Picker	Unsorted shea nut	250.00	250.00	3.10
Processor	Shea butter	1800.00	1550.00	19.38
Shea butter marketer	Shea butter	2400.00	600.00	7.70
Shea butter retailer	Shea butter	8000.00	5600.00	70.00

Source: Authors' estimation

Table 5. Marketing margins for players in the value chain for 7.5 liters of Shea butter

Player/actor	Cost	Revenue	Margin ₦	Percent Margin
Picker	100.00	250.00	150.00	3.05
Local Shea butter processor	750.00	1800.00	1050.00	21.38
Shea butter marketer	2150.00	2,400.00	250.00	5.09
Shea butter retailer	4540.00	8000.00	3460.00	70.47

Source: Authors' estimation

Conclusion

The economic potential of shea nut is enormous, this is because its contribution to the wellbeing of players in the value chain is robust. There are four key players identified in the shea value chain in the study area, these players provide both space and form utility to the final consumer. The shea value chain rewards the players based on the magnitude of value added. The study therefore, recommends that since majority of the pickers and processors are females, a gender-based study of the shea value chain will further reveal potentialities for empowering women in the study area. Furthermore, to give leverage to the sole picker in terms of the size of market margin she attracts, it may be expedient to empower the sole picker to get involved in the processing of the nuts

References

Aderibigbe, E. J., Folarin, O. O., Clement, O. O. and Felix, A. O. (2017). Eco-distribution of *Vitellaria paradoxa* (G.F. Gaertn) in Kwara State, Nigeria. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*, 9(4): 503–507. https://doi.org/10.15835/nsb9410072

Adeyemo, R., Oke, J.T., Owombo, P.T. and Lanlokun, O. 2015. Economic Efficiency of Shea Butter Production In Oyo State, Nigeria. *International Journal of Agriculture and Rural Development*, 18: 2017–2020.

Ani, D.P., Aondona, G. and Soom, A. 2012. Economic Analysis of Shea butter Plant in Ukum Local Government, Benue State, Nigeria. *American-Eurasian Journal of Agronomy*, 5(1): 10–18.

Boland, M. 2009. How is Value-added Agriculture Explained? *Kansas State University. Available at* https://www.agmrc.org/business-development/getting-prepared/valueadded-agriculture/articles

Buyinza, J. and Okullo, J.B.L. 2015. Threats to Conservation of *Vitellaria Paradoxa* Subsp. nilotica (Shea butter) Tree in

Nakasongola district, Central Uganda. *International Research Journal of Environment Sciences*, 4(1): 28–32.

Enaberue, L.O., Okolo, E.C. and Yusuf, A.O. 2011. Phenotypic Variation of *Vitellaria paradoxa* (Shea butter tree) Gaernt. F. In Agro forestry Parkland of Nigeria Guinea Savanna. *Journal Applied Agricultural Research*, 3:203–209

Garba, I. D., Nwawe C. N. and Oisakede I. L. 2011. Potentials of the Shea nut Tree to the Nigerian Economy. *International Journal of Agricultural Economics and Rural Development*, 4(1): 62–72.

Jamala, G.Y., Jada, M.Y., Yidau, J. J. and Joel, L. 2013. Socio-Economic Contribution of Shea Tree (*Vitellaria paradoxa*) in Support of Rural Livelihood in Ganye, Southeastern Adamawa State, Nigeria. *Journal of Environmental Science, Toxicology and Food Technology*, 6(5): 75–81. https://doi.org/10.9790/2402-0657581

Mayoux, L. and Mackie, G. 2009. *Making the Strongest Links: A Practical Guide to Mainstreaming Gender Analysis in Value Chain Development*. International Labor Organization, Addis Ababa.

NEPC. 2006. Nigerian Export Promotion Council. Shea butter Market Potential: Government Policy and Incentives, Stakeholder's Forum and handover ceremony of the RMDC Upgraded Shea butter Processing Centre at Agbaku-Eji, Kwara State, July 27.

OSAN. 1997. Oil Seeds Association of Nigeria. White Paper on the Oil Seeds Situation in Nigeria.

Saka, J.D.K., Swai, R., Mkonda, A., Schomburg, A., Kwesiga, F. and Akinnifesi, F.K. 2004. Processing and Utilisation of Indigenous Fruits of the Miombo in Southern Africa. Agroforestry Impacts on Livelihoods in Southern Africa: Putting Research into Practice. pp. 343–352 in Rao M.R. and Kwesiga F.R. (eds.). Proceedings of Regional Agroforestry Conference on Agroforestry Impacts on Livelihoods in Southern Africa: Putting Research into Practice: World Agroforestry Centre: Nairobi, Kenya.

Salawu O. L. and Ibrahim F. A. 2014. Assessment of The Contribution of Shea butter Processing to Poverty Reduction Among Women in Kwara State, Nigeria. *Journal of Sustainable Development in Africa*, 16(3): –12.

Tiamiyu, S.A., Adagba, M.A. and Shaahu, A. 2014. Profitability analysis of Shea nuts supply chain in selected states in Nigeria. *Journal of Agricultural and Crop Research*, 2(12): 222–227.