

# Challenges Facing Small-scale Cashew Nut Processors in Ruangwa district, Tanzania: An Implication for Policy Change

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## ABSTRACT

This study was carried out to assess the challenges faced by small-scale cashew nut processors in Ruangwa District, Tanzania. The study employed a correlational research design using a survey on a sample of 180 small-scale cashew nut processors. Data were collected through questionnaire administration, focus group discussions, key informant interviews and documentary reviews. Quantitative and qualitative data were analyzed by using descriptive statistics and content analysis respectively. The study revealed the following challenges that face small-scale cashew nut processors: use of inefficient local processing tools, less availability of appropriate equipment and machine for processing, lack of money to acquire new technology, and lack of investment and working capital. Other challenges were the availability of raw materials, lack of market information on kernel, lack of reliable training facilities, and lack of government initiative support on cashew nut processing. The study recommends improvement and facilitation of modern processing equipment, training processors on improved processing techniques and improvement of domestic and international cashew nut markets.

**Keywords:** Cashew nut, processors, Ruangwa, small-scale.

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## I. INTRODUCTION

### A. Background

Cashew (*Anacardium Occidentale* L.), a multipurpose crop, is a tropical tree native to South America. Cashew was introduced in Asia and Africa by European explorers in the 16<sup>th</sup> century and gradually expanded throughout the world. Today, it has been widely grown mainly as source of income in most tropical regions including Brazil, India, Vietnam and several countries in West and East Africa [1].

Cashew trees were first introduced in Tanzania in the sixteenth century by Portuguese and now widely cultivated. The crop was initially introduced for soil conservation and reforestation [2]. The country production has been increasing in recent years and reached about 155245, 265238 and 313826 tones for the years 2015/2016, 2016/2017 and 2017/2018, respectively [3].

Cashew industry earned the country US\$ 340.9 million, US\$ 565 million and US\$ 251 million in the 2016/17, 2017/18 and 2018/19 seasons respectively [4]. The main cashew production regions include Mtwara region, which produces 71% of the total raw cashew output in the country followed by Lindi (18%), Coast (8%), with the remaining 3% coming from the minor producer regions (mainly Ruvuma and Tanga) [5].

The most important products derived from cashew trees are cashew nuts, which are then processed to get kernel. Cashew nuts are a valuable source of macro and micro-nutrients, such as protein (18 g/100 g), fats (44 g/100 g) and iron (7 g/100 g)

[2]. They also contain high levels of magnesium, zinc, copper, manganese and essential fatty acids [6]. The cashew apples are important in making juice, jam, alcoholic and soft drinks. Cashew trees can also be used for firewood, charcoal and in carpentry for manufacturing of different furniture.

Farmers are advised to add value to their crops/crop produces before they take them to the market. Value addition refers to processing of products or produces into forms that have higher market value [7]. Cashew nut processing increases farm-gate price as well as earnings from export and provides employment opportunities [8]. It also reduces the exportation of raw cashew nuts hence encouraging local consumption and exportation of processed products [9].

Cashew nut processing in Tanzania is mostly done by small-scale processors who constitute the Small and Micro Enterprises (SMEs). The country has the SME Development Policy as one of several policies that underpin the country's Vision 2025. The latter envisions that "Tanzania will have graduated from a least developed country to a middle income country by the year 2025 with a high level of human development. Similarly, the country has the Sustainable Industrial Development Policy (SIDP) 1996-2020 which emphasizes employment creation. Here the priority is given to resource-based enterprises particularly activities that add value to agricultural products [10].

Cashew nut processing involves several stages including cleaning, soaking, roasting, shelling, sorting, grading and packing [11]. Cleaning is usually done manually to eliminate unwanted extraneous materials such as stones, sand, and

leaves before any further processing. Soaking of nuts in water helps to avoid scorching during the roasting operation. Roasting of nuts makes the shell brittle and loosens the kernel from the shell. The next step is shelling which is the removal of the roasted outer cover. Separation of cashew kernels from broken shell pieces and unshelled kernels is the next stage. A sorting operation is required to segregate the kernels into whole, broken and splits. Cashew kernels are finally graded based on size, colour and other standards and then parked for storage or transportation [11].

### B. Status of Cashew Nut Processing in Tanzania

Cashew nut value addition in Tanzania began in the 1960s when a private company established a simple processing factory in Dar es Salaam. In the 1970s the Government of Tanzania secured funds from the World Bank to construct 12 Cashew processing factories with a capacity to process 116 000 tones. All the factories were large scale mechanized using Italian or Japanese technology. The factories were built in Newala (2), Lindi (1), Masasi (1), Mtwara (2), Tunduru (1), Mtama (1), Nachingwea (1), Dar es Salaam (2), and Kibaha (1). The numbers in the brackets indicate the number of factories. Following inefficiencies in the operation of the factories, the Government of Tanzania decided to sell the 12 factories to private firms. Since then, the privatized factories have remained underutilized to their established capacities and hence grounded. There are, however, about 40 small and medium factories processing cashew in Tanzania with limited capacities, skills and lack of competition to secure the needed materials and markets [12].

Currently, the Cashew nut Board of Tanzania (CBT's) data shows intended capacity of the cashew factories in the country is 179 000 Mt of which installed capacity is 58 000 Mt (32%) and the operating/utilized capacity is 14 662 Mt (25%) per annum. Apart from these there are about 240 small-scale processors in Local Government Authorities (LGAs) who operate individually or in groups, shelling, peeling and roasting cashew kernels by hand for sale in streets, roadside and at bus stands. The marketing and sale of the products is supervised and monitored by CBT with assistance through various farmer cooperatives in place specifically in the production areas [13].

Techno serve Tanzania (2004) reported that there are 144 small-scale processing groups in Tanzania of which 103(72%) groups are located in the Coastal Region. The information by the processing officer from CBT says that the number of small-scale processor groups now has increased up to 188. These processors do the processing under traditional ways (local conditions) and sell their kernel either along the road as *Machingas* (mobile petty traders) while few of them sell their kernels during national festivals such as *Sabasaba* and *Nanenane* days. He added that, around 50% of the kernel sent to the market during these occasions is not sold (Mkulia J., personal communication, 2021).

### C. Problem Statement

Although production of cashew nuts and demand for processed cashew nuts both for local and international markets has been increasing, still cashew nut processing remains very low in Tanzania [14]. For example, only 15-20% of produced cashew nuts are processed locally for both domestic and international market making about 80-85% of

the total output to be exported as raw cashew nuts [9]. As a result, for the period from 2008 to 2012, Tanzania got a loss of 551 million US\$ which is equal to 110 million US\$ per annum by exporting in-shell cashew nuts instead of processing them or adding value [15].

In its efforts to encourage in-country processing, the Government of Tanzania imposed an export tax on raw cashew nuts and introduced the Warehouse Receipt System (WRS) under the Act no. 10 of 2005 of Cashew nut Board of Tanzania [6]. The WRS requires that all raw cashew nuts are marketed through Agricultural Marketing Cooperative Society (AMCOS) at auctions with the aim of preventing exploitation of farmers and to enhance competitiveness of processors. Additionally, the government policy of promoting agro-processing and value addition to crops and their by-products, have been a leaven to promotion and improvement of small-scale cashew nut processing [14].

Despite all the efforts made, still the export of processed cashew nuts has actually been declining compared to raw cashew nuts [6], which is associated with the challenges that might be facing the small scale processors. For example, we still don't know their ability (capability) on cashew nut processing, technology used for processing cashew nuts, availability of raw materials and accessibility of raw materials. Therefore, this study aimed at bridging this knowledge gap by assessing the challenges faced by small-scale cashew nut processors in Ruangwa District.

Understanding of the challenges faced by small-scale cashew nut processors will enhance the policy makers and development planners to plan and prioritize efforts to address them. This will lead to increase in cashew nut processing in the country specifically in the study area. Increased internal cashew processing will eventually contribute to reduced exportation of raw cashew nuts, while increasing exportation of processed cashew nuts, internal market, employment opportunities and income to rural communities [16]. This is in line with the Tanzania Development Vision (TDV) 2025, which emphasizes on diversification of economy to be based on dynamic industrialization through programme focusing on local resource-based industries (agro-industries) [17].

## II. METHODOLOGY

The study was conducted in Ruangwa District in Lindi region (Fig. 1). The District is located between Latitude 9.5° S and 10° S and Longitude 38.5°E and 39.5°E, with a total area of 2560 km<sup>2</sup> which is approximately equal to 256 036 hectares. According to the Tanzania 2012 population and housing census report, the District has a population of 131 080 people of which 63 265 are males and 67 815 are females. Administratively, the District consists of three divisions, 22 wards, 90 villages and 436 hamlets. The majority of people depend on crop production and livestock keeping for their livelihood (Ruangwa District Profile, 2019).

Cashew nut production is the main income generating activity performed by most people in Ruangwa district, which occupies more than 70% of the population. Most cashew nut producers are smallholder farmers whose farms are 4 acres on average (Ruangwa District profile, 2018). These smallholder cashew nut farmers have been engaged in cashew nut processing (value addition) since 2010. Processing activities

are performed both by individuals and groups. These groups form an association called WAKORU (*Wabanguaji Koroshu Ruangwa*), which currently has 25 groups with a total of 323 small-scale cashew nut processors (Ruangwa District profile, 2020).

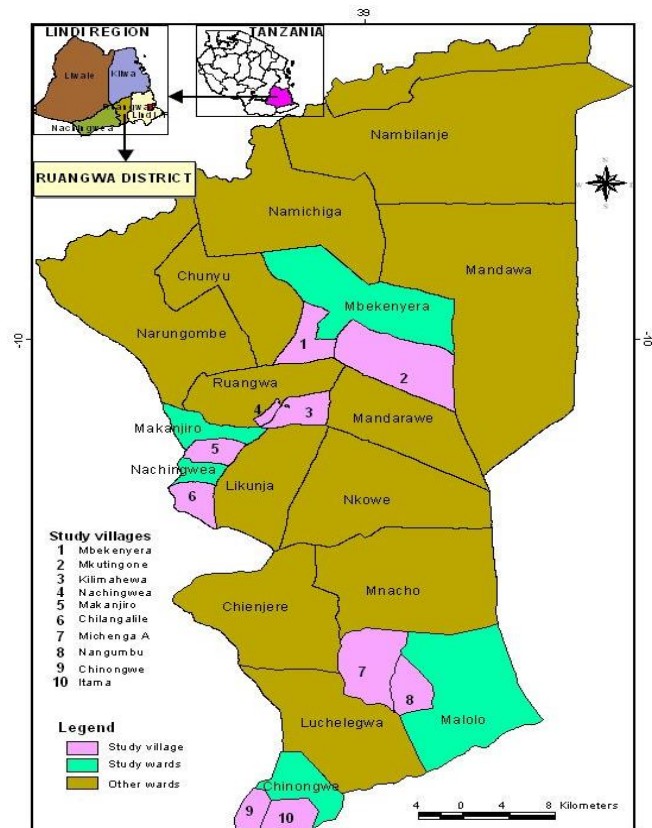


Fig. 1.

All small-scale cashew nut processors in the WAKORU association in Ruangwa District constituted the study population. The study adopted a multistage sampling technique as suggested by [18]. The first stage was the selection of five wards. Then two villages were randomly selected from each ward. The list of 323 small-scale cashew nut processors from WAKORU association was used as a sampling frame to draw the study sample. Eighteen small-scale cashew nut processors were randomly selected from each village by using simple random sampling technique to constitute 180 study respondents.

The sample size was obtained by using the formula suggested by [19]:

$$n = \frac{N}{1 + N(e)^2}$$

where  $n$  = sample size;  $N$  = Total number of WAKORU members;  $e$  (acceptance sampling error) = 0.05.

Therefore,

$$n = \frac{323}{1 + 323(0.05)^2} = 179; 179 \div 10 = 17.9 \sim 18,$$

then in each selected village 18 processors were selected for the study.

In order to achieve triangulation and increase validity of the results, both qualitative and quantitative methods of data

collection were used. Qualitative methods included semi-structured interviews with key informants and focus group discussions. The quantitative method used was household survey, which used a semi-structured questionnaire consisting of both closed and open-ended questions. Key Informant Interviews (KII) and focus group discussion were also used to collect data from some purposively selected people. Household interviews were conducted at the respondents' homes while the FGDs and KIIs were conducted in the arranged places. The entire data collection took place between April 20<sup>th</sup> and May 2<sup>nd</sup> 2021.

Quantitative data were coded, entered into the computer, cleaned and analyzed using the IBM Statistical Package for Social Science (SPSS) version 20 software. Descriptive statistics such as frequencies, means, standard deviation, percentages and multiple responses were used to make inferences. Qualitative data were analyzed by using content analysis technique.

### III. RESULTS AND DISCUSSION

#### A. Demographics Characteristics of Respondents

Study findings (Table I) show that respondents' age ranged from 21 to 77 years with the average of 45.6 years and standard deviation of 12.69. Majority (87.7%) of respondents were in the economically active age group, i.e. less than 60 years whereas the remaining (12.3%) were in the dependent age group, i.e. 60 years and above. Since cashew nut processing is considered a demanding activity, these findings are likely to imply that those involved were physically energetic and able to supply the required labour so as to meet responsibilities and goals. The findings disagree with [20] whose study on gender roles and challenges of small-scale cashew nut processing enterprise in Enugu North Nigeria found that most of processors were youth with mean age of 33 years.

Seventy-one respondents 71(39.4%) were men and 109 (60.6%) were women (Table I) Traditionally in the study area cashew nut processing activities are dominated by women. The dominance of women was also demonstrated by membership in WAKORU group where about 64% of members were women. During FGD with women, one participant had this to say,

*“Cashew nut processing is a tedious work, which needs to be tolerant. Women in nature are tolerant as may be seen in the way like taking care of the family. Also, traditionally, they believe cashew nut processing is a woman's work”.* (FGD, Nachingwea Village; April 14, 2021).

Similarly, another woman was quoted arguing on the same that, *“only few men are engaged in cashew nut processing because of lack of permanent market for kernel”.* These findings resonate well with [21] who found that in Benue state Nigeria, more women participated in cashew nut processing than their male counterparts. On the other hand, the findings disagree with [22] who analyzed cashew nut marketing in Kwara state, Nigeria and revealed that, most (81.1%) of wholesale marketers and processors were males.

TABLE I: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS (N=180)

Variables	Frequency	Percentage	Mean
Age (Years)	21-30	26	14.4
	31-30	36	20.0
	41-50	56	31.1
	51-60	40	22.2
	Above 60	22	12.3
Sex	Male	71	39.4
	Female	109	60.6
Education level	Non formal education	21	11.7
	Primary	119	66.1
	Secondary	35	19.4
	University/College	5	2.8
Marital status	Married	124	68.9
	Single	35	19.4
	Widowed	5	2.8
Household size	Divorced/Separate	16	8.9
	1-3	87	48.3
Income per month (tshs)	4-6	81	45.0
	Above 6	12	6.7
	50001-200000	99	55.0
	200001-350000	68	37.8
	350001-500000	7	3.9
	500001-650000	4	2.2
	Above 650000	2	1.1

It was also found that 119(66.1%) of respondents had primary school education, 35(19.4%) completed secondary school, 5(2.8%) had university/college education and 21(11.7%) had no formal education (Table I). Education is perceived as among the factors that influence an individual's perception of an intervention before making decision to take part. It is believed to impart desire to the individual to learn more, attend training and seek information regarding agricultural and non-agricultural activities. These findings may imply that the majority of respondents were able to follow training and instructions as they could read and write in Kiswahili (the National language of Tanzania). These findings are in line with [23] who found that majority of cashew nut processors in Benue state Nigeria at least had attained primary education.

Majority 124(68.9%) of respondent were married, 35(19.4%) were single, 16(8.9%) were divorced/separated and few 5(2.8%) were widowed. Marriage promotes participation of couples in the formation of economic groupings. Marriage couples are more likely to be productive than singles. It is expected that married people are less mobile and have obligations hence due to this they remain in the village doing agricultural activities including crop value addition. Findings for this study are in line with [18] whose study on social economic factors affecting cashew nut production in Ruangwa Tanzania found that majority of cashew nut farmers were married. Similarly, [25] whose study was on analysis of cashew nut marketing in Kwara state, Nigeria, found that majority (92.8%) of marketers were married. This indicates a higher chance of involving family labour in cashew nut marketing.

The findings show that the smallest household had only one member while the largest had eight members with an average of 3.71 members and a standard deviation of 1.574. Household size denotes the availability of labour force for cashew nut processing at the family level. During FGD it was agreed that the household with less than three members is categorized as small, the one with four to six is categorized as medium and the one with more than six members was categorized as large household. About 87(48.3%) of the sampled households were small, 81(45%) were medium sized whereas few 12(6.7%) were large. On average 48.3% of the sampled households were small-sized (with one to three members). This may imply that less labour is available for cashew nut processing in the area. As compared to other countries, these findings disagree with [23] who found that in Benue state Nigeria majority of household were large, which is an indication of availability of labour for cashew nut processing.

Income of respondents was measured on a monthly basis and expressed in Tanzanian shillings (Tshs). The study found that 99(55%) of respondents earned income between (Tshs) 50,001/= and 200,000/= per month; 68(37.8%) earned between Tshs 200,001/= and 350,000/=; 7(3.9%) earned between 350,001/= and 500,000/=; while 4(2.2%) earned between 500,001/= and 650 000/=. Low income is a manifestation of crop yield since farmers (processors) may fail to get enough cash to purchase inputs required for crop production. This can lead to lack of raw materials by processors as majority obtained raw materials from their own farms. One FGD participant emphasized this,

*“Because of low income/capital, most small-scale processors fail to buy inputs as compared with their neighbor farmers in Newala and Tandahimba who practice early weeding and other agricultural practices. This leads to high yield. Also, low income hinders processors to buy raw materials from auctions and hence majority of us are not engaged in cashew nut processing throughout the year. This is due to lack of raw materials and improved equipment (FGD, Nachingwea Village; April 14, 2021).*

The study findings are in line with [14] who made a study on cashew nut production technologies and their effects to cashew nut production in Mkinga Tanzania and found that low income caused low crop yield.

#### B. Challenges Facing Small-scale Cashew Nut Processors

Small-scale cashew nut processors tend to grow and become more popular among smallholder cashew growers in Ruangwa District. However, in the efforts to increase the processing level in the area, there are some challenges that are encountered. Analytical findings indicated that the main challenges that faced small-scale cashew nut processors are divide into three groups (i) **Challenge on the use of recommended processing practices, which include:** use of inefficient local processing tools, less availability of appropriate equipment and machine for processing, and lack of money to acquire new technology; (ii) **Challenge on availability of raw materials and market access, which include:** lack of investment and working capital, availability

of raw material, and lack of market information on kernel; (iii) **Challenge on government policy and managerial skills, which include:** lack of accessible information on government regulations about processing business, lack of reliable training facilities, and lack of government initiative support to processors.

1) *Challenge on use of recommended processing practices*

(i) *Use of inefficient local processing tools*

The study findings showed that the first challenge encountered by small-scale cashew nut processors on use of recommended processing practices is the use of inefficient local processing tools. As it can be seen in (Table II) majority of respondents agreed that there is use of inefficient local processing tools which lead to low quality processed product. This was also revealed during FGD as shown in the remark from one participant,

*“We use traditional tools/equipment during processing because we lack the improved one. For example, the mostly used hand lifted processing machines are poor, which can process less than 20kg of raw cashew nuts. Also use of open pan method during roasting which employ direct heat to the nuts produces scorched kernels, which are considered of poor quality. Apart from that, manual packaging due to lack of sealing machine increases deterioration of kernels and reduce flavor hence kernel fetch low market price”.* (FGD, Chinongwe Village; 21<sup>st</sup> April 2021).

These findings are in line with that of [25] who conducted a study on Technological capability building in Nigeria cashew nuts processing industries and found that failure to procure right equipment during processing causes low product quality and affects investment capability in the cashew industries. Similarly, [14] informed that mostly, small-scale processing unit follows traditional processing methods because of problem of technology transfer, which lead to inferior quality cashew nut. In addition to that one key informant suggested that CBT as the main institution, which deal with cashew nut, together with Local government, should supply equipment and machines for processing with high processing capacity at least above 40kg of raw cashew nuts per day. If these are available to small-scale processors, they can enhance improvement in cashew nut processing (KII, Ruangwa District April 23, 2021).

(ii) *Less availability of appropriate equipment and machine for processing*

Apart from using inefficient local processing tools, the study Table II revealed that less availability of appropriate equipment and machine for processing was ranked as second challenge encountered by small-scale cashew nut processors. This can be caused by lack of capital among processors to buy more improved equipment (modern) and increase availability of processed equipment. In this regard one participant had this to say,

*“Although we are engaged in cashew nut processing, most of us don’t own processing machine instead we borrow from organizations which are very few. Similarly, a large*

*number of processors use pieces of wood and stones during de-shelling instead of processing machine which lead to inferior quality of cashew nuts with high level of contamination”* (FGD in Nachingwea Village, April 14, 2021).

The findings call attention to the government and other cashew nut stakeholders to provide enough capital for processors so as to help on buying improved equipment and processing tools in order to increase their processing capacity. Similarly, [31] through the ministry of Finance, conducted a study on small-scale processors Cashew nut Industry Strategy in Tanzania and the results revealed that some equipment is expensive. Apart from that the present study findings are in line with that of [22] who reported that marketing of cashew nuts is mostly affected by poor storage and processing facilities.

TABLE II: CHALLENGES ON THE USE OF RECOMMENDED PROCESSING PRACTICES (N=180)

	Responses			Rank
	F	% (Contribution to 100)	% (Multiple responses)	
Use of inefficient local processing tools	176	14.0	98	1
Less availability of appropriate equipment and machine for processing	171	13.6	95	2
Lack of money to acquire new technology	168	13.3	93	3
Poor storage facilities	165	13.1	92	4
Lack of technology on use of recommended processing practices	155	12.3	86	5
Unable to select proper technology	150	11.9	83	6
Lack of skills on use of recommended processing practice	142	11.3	79	7
Complexity of technology	132	10.5	73	8
Total		100.0		

(iii) *Lack of money to acquire new technology*

The respondents (Table II) ranked lack of money to acquire new technology the third challenge on small-scale cashew nut processors’ use of recommended processing practices. Their main reported problem was a lack of enough capital to acquire new technology. One FGD participant who had these to say also pointed this out,

*It is difficult to acquire new technology on cashew nut processing because most of technologies are found far from our residential areas, for example, from SIDO in Lindi and Naliendele Research Institution in Mtwara.* (FGD, Chinongwe Village; 21<sup>st</sup> April 2021).

These findings are in line with [27] whose study on Factors affect growth of sunflower oil small-scale processors in Dodoma reported that lack of funds to acquire new technology and lack of skills to handle new technology were the biggest challenges facing sunflower oil processors in the region.

2) *Challenges on availability of raw materials and market access*

(i) *Lack of investment and working capital*

The study respondents ranked lack of investment and working capital as the first challenge facing small-scale

cashew nut processors, which eventually affect availability of raw materials and market access (Table III). This ranking is an indication that small-scale cashew nut processors are highly affected by lack of financial resources. It came out during FGDs that most small-scale processors don't manage to get loans until the enterprise is up and running, thus affecting the whole agro-processing business in the area. One FGD participant made this clear by saying,

*“We're still facing challenges related to financial resources due to high collateral requirement from banks and other lending institutions, and high interest rates charged by banks and other lending institutions. Not only that, but also loan application procedures for the majority of banks and other lending institutions are too complicated for us to manage”* (FGD, Nachingwea Village; April 14, 2021).

These findings correlate with the study by [28] who found that small-scale cashew nuts processors in Morogoro and Coastal region in Tanzania, were greatly constrained by lack of processing knowledge, lack of working capital and competition from the same product from big processors. Similarly, [29] who studied on Cashew value chain in Mozambique, reported that lack of enough income (capital) lead to low cashew nut processing capacity by small-scale cashew nut processors.

TABLE III: CHALLENGES ON THE AVAILABILITY OF RAW MATERIALS (N=180)

	Responses			Rank
	Frequency	% (Contribution to 100)	% (Multiple responses)	
Lack investment and working capital	176	15.5	98	1
Availability of raw material	170	15.0	94	2
Lack market information on kernel	167	14.7	93	3
Less availability on access to credit	166	14.6	92	4
Lack of cashew management skills	157	13.8	87	5
Lack of access to raw materials	153	13.5	85	6
Unsatisfying quality of raw materials	147	12.9	82	7
		100.0		

#### (ii) Availability of raw materials

Findings of the study (Table III) show that, the respondents ranked availability of raw materials as the second challenge for the growth of small-scale cashew nut processors. This is related both to supply and quality of raw materials. Because larger numbers of food processing MSEs are very much dependent on the input of raw materials, farm-level constraints can have a large impact on the non-farm sector. Availability of raw materials can be influenced by change in weather conditions, whereby drought severely affects agricultural output and seasonality of a crop. To get more insights, this was one of the topics in FGDs in one of which a participant had these to say:

*“Inadequacy of raw materials for processing is because about 30% to 40% cashew trees found in our area are local*

*varieties which produce small nuts. Lack of funds for purchasing raw cashew nuts from the auctions causes processors not to engage in cashew nut processing throughout the year”* (FGD, Nachingwea Village; April 14, 2021).

The present findings agree with [30] whose study on the linkage among cashew nut processors in Mtwara region, Quality optimization and volume, found that failure to utilize full capacity is due to lack of raw materials caused by insufficient fund for purchasing the raw cashew nuts as well as production cost. They added that when funds are available processors face limited availability of raw materials due to high competitions on auctions. Similarly, these findings resonate well with [31] whose study on Economic analysis of cashew nut units in Srikakulam district India found that cost of raw materials reduce capacity of cashew processing firms.

#### (iii) Lack market information on kernel

It is shown in Table III that unavailability of market ranked the third challenge facing small-scale cashew nut processors. This challenge can be caused by inadequate market for the products, lack of demand forecasting and absence of relationship with the organization that would conduct marketing research. The current study findings are in line with [27] who found that inadequate market information for product, difficult on searching new market and lack of demand forecasting are challenges facing growth of sunflower oil processors in Dodoma region, Tanzania.

#### 3) Challenges on government policy, regulation and managerial skills

##### (i) Lack of accessible information on government policy and regulation about processing business

Study findings (Table IV) show that lack of accessible information on government policy and regulation is one of the challenges facing small-scale cashew nut processors in the study area. This is an indication that strict regulations imposed by authorities have limited small-scale processors from accessing information on cashew nut processing. Possibly this has significantly affected their growth, and thus minimized their profit. These findings confirm what is reported by [32] that, sunflower oil processors in Babati, Tanzania, are facing a challenge in accessing information on government policy. The study also reported that failure to access government regulations and directives significantly affect the growth of the firm.

TABLE IV: CHALLENGES ON GOVERNMENT POLICY, REGULATION AND MANAGERIAL SKILLS (N=180)

	Responses			Rank
	Frequency	% (Contribution to 100)	% (Multiple responses)	
Lack of accessible information on government regulation about processing business	156	30.4	87	1
Inadequate reliable training	152	29.6	84	2
Lack of government initiative support on processors	142	27.7	79	3
Complication of TBS certification processes	63	12.3	35	4
Total		100.0		

*(ii) Inadequate reliable training on processing*

Study respondents ranked lack of reliable training facilities as second challenge facing small-scale cashew nut processors under government policy, regulation and managerial skills. During FGDs it was revealed that more than half of respondents attended training more than ten years ago. The WAKORU, CBT and other research institutions organized these trainings. This may imply that processors should be provided with new training to update their knowledge on cashew nut processing.

The findings of the study are in line with that of [28] whose study on consumer demand for tradition processed nuts in Morogoro and Coast region revealed that small-scale processor is constrained by lack of processing technology, lack of working capital and competition, some from advanced big processors. This significantly affects their performance.

*(iii) Lack of government initiative support for processors*

Lack of government initiative support on processors was ranked the last challenge facing small-scale cashew processors under government policy, regulation and managerial skills. Findings in Table 4 show that majority of participants agreed that they are hardly getting government support on processing activities. During FGDs one participant said:

*“The government should introduce enough strategies on cashew nuts from production level to processing and emphasize on improving equipment and marketing for kernel”*(FGD, Nachingwea Village; April 14, 2021).

Regular training is likely to improve processing practices and increases processing capacity of small-scale cashew nut processors. These findings are in line with [33] whose study on a review of the challenges affecting the agro-processing sector in Tanzania found that inadequate support from the government is among the challenges facing agro-processing.

#### IV. CONCLUSIONS AND RECOMMENDATIONS

##### A. Conclusions

This study assessed the challenges facing small-scale cashew nut processors in Ruangwa district. Based on the study findings, the following main conclusions are made: The challenges facing cashew nut small-scale processors were mainly grouped in three categories. Firstly, challenges on use of recommended processing practices, which include, use of inefficient local processing tools, less availability of appropriate equipment and machine for processing and lack of money to acquire new technology. Secondly, challenges on availability of raw materials and market access including lack of investment and working capital, unavailability of raw materials and lack market information on kernel. Lastly, challenges on Government policy and managerial skills, which include lack of accessible information on government regulations about processing business, lack of reliable training facilities, and lack of government initiative support on processors.

##### B. Recommendations

Based on the above conclusions, the study recommends the following:

- (i) The government through the Ministry of Agricultural, Food and Cooperatives, Ministry of Industrial and Marketing together with CBT should continue providing training and guidance to small-scale cashew nut processors and cashew farmers from production, management, processing (value addition). The government should also build marketing centres for selling cashew kernels.
- (ii) The study urges Ruangwa District council in collaboration with the WAKORU Association and Financial Institutions to conform to the provision of credit to the demand and situation of small-scale cashew nut processors in the rural context. This has especially taken into account accessibility and reduced conditionality. In reality, these small-scale processors demand credit to finance their processing practices.
- (iii) Futher, Ruangwa District Councils in collaboration with CBT should help traditional processors and sellers by giving them guidelines, regulations and policies which fever small-scale processors to easily obtain raw materials from auctions.
- (iv) Moreover, TARI- Naliendele SIDO and CBT should train both processors and sellers on modern technology on business and marketing skills to enable them to compete with similar products produced by advanced/bigger processors.

#### CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.

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