

*Full Length Research Paper*

# Livelihood Systems of Smallholder Cashew Farmers in the Guinea Savannah Woodland and Semi-Deciduous Forest Zones of Ghana

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## Abstract

In Africa, Smallholder agriculture systems continue to experience changing dynamics and patterns as part of larger agrarian change arising from globalization. However, these dynamics are not well understood for informing policy and agricultural development planning. This paper examined the livelihood systems of smallholder cashew farmers in the transitional ecological zones of Ghana and the implications for development planning. The study employed a mixed research design for data collection and analysis. These methods included focus group discussions, key informant interviews and a survey of 239 cashew-farming households. The study identified three (3) categories of cashew farmers, namely, small-scale, medium-scale and large-scale farmers. The results further reveal that small-scale farmers are an overwhelming majority in the industry with farm holding sizes of between 1 to 10 hectares and that they diversify into other livelihoods. These additional livelihood portfolios include food crop farming, cocoa farming, livestock rearing, masonry, carpentry, dressmaking/tailoring and trade in agro-chemicals and groceries. The paper underscores the importance of an integrated approach to development planning that takes cognizance of the complex nature and inter-linkages of livelihood systems of smallholder cashew farmers for promoting synergies and complementarities for achieving sustainability.

**Keywords:** Smallholder, Farmers, Cashew, Livelihood, Diversification, Ghana.

## INTRODUCTION

Smallholder agriculture plays a vital role in the sustenance of farmers' lives in most developing countries across the globe. As the main economic activity for majority of the people in Africa most especially sub-Saharan Africa, smallholder agriculture serves as the main livelihood source for a greater proportion of small-

holder family farmers; who dominate the agricultural landscape (Kamara et al., 2019). The role of smallholder agriculture is to help feed the ever growing population of the World through the production of food crops (FAO, 2017). However, it has been feared that the growing of cash crops in Africa would displace food production and that has evidently be seen in the past years and lately, where there has been concentration of cash crop production which was hitherto food cop production on the basis of smallholdings (Evans et al., 2014; Wiggins, et al.,

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2015). In light of this, there has been continuous upsurge of cash crops farming because of its imperativeness in livelihoods and poverty reduction among smallholder farmers. For instance, cash crops which serves as the mainstay of exports generation, income for farmers and at the same time improve on access to food has become the trickling effects to other aspects of household livelihoods (Achterbosch et al., 2014); consequently contributing to poverty reduction and decent standard of living. Moreover, the upsurge in cash crops has the potential to reduce poverty and improve livelihoods through incomes earned from sales of produce to purchase goods for household consumption, even though many smallholder farmers are inefficient producers (Hettig et al., 2017). Smallholder cash crop farming in particular has the potential to increase income levels of farmers in a way that could improve their living conditions both in rural and peri-urban areas; which are regarded as smallholding agricultural hubs.

Consistently, there has been increasing shift in research on rural agrarian change with the quest to improving wellbeing and reducing poverty in rural areas (Thanichanon, et al., 2018). In other words, agrarian change triggered by market accessibility improvement has caused a transformation from subsistence-oriented smallholder farming systems into systems that are primarily oriented towards production for the market (Kem, 2017). According to Thanichanon et al., (2018), the shift in agrarian change is coupled with intensive cash crop production which consequently replaces traditional crops of farmers that are mainly grown for household consumption hence the amplification of researches on smallholder cash crop farming systems. Kem, (2017) in the study on commercialization of smallholder agriculture, impact on rural livelihoods and agrarian change concentrated on the impact of smallholder agriculture commercialization in Cambodia through a case study on the impacts of cassava boom. Achterbosch et al., (2014) also in their study focused on cash crops and food security: contribution to income, livelihood risk and agricultural innovation. In addition, Thanichanon et al., (2018), centered their research on balancing cash and food; impacts of agrarian change on rural land use and wellbeing in Thailand whereas Urrego-mesa and Infante-amate (2019) focused on pasture and cash crops and further highlighting biomass flows in the socio-metabolic transition of 21<sup>st</sup> century in Colombian Agriculture. Despite the focus of these studies on agrarian change and cash crops, there still exist limited literature in the area of agrarian change and smallholder cash crop farming systems in general and Africa in particular and research and literature on cash crop farming and livelihood systems of smallholder farmers in particular.

It is against this backdrop that this paper aims at describing the livelihood systems of smallholder cashew farmers in the Guinea Savannah Woodland and Moist Semi-Deciduous Forest zones of Ghana. The livelihood

systems of cashew farmers and farming households is made up of the capital assets that are used by farming households to aid them in their production processes. These capital assets have greater tendencies to either improve or impair the livelihood of smallholder farming households hence the need for planning. It is therefore imperative for development planning policies to be in tandem with farming households' livelihood systems to help achieve decent and appreciable standard of living for smallholder farmers specifically cashew farmers in the Guinea Savannah Woodland and Semi-Deciduous Forest Zones termed as the transitional zone.

This paper is structured into eight (8) distinctive parts. It starts with an introduction and proceeds with a review of literature on agrarian change and the sustainable livelihood framework for theoretical and conceptual guidance. This is then followed by a description of the study area and vulnerability context, methodology, results and discussion. The final segment comprises the conclusions and implications for development planning.

## **Agrarian Change and Livelihood Diversification**

### **The theory of Agrarian Change**

This paper is partly informed by the Boserupian theory on agrarian change, which posits that population growth is a trigger to agriculture intensification and commercialization among smallholder farmers (Boserup, 1965). In particular, recent applications of Boserup thesis reveals that population growth causes smallholder farmers to innovate and intensify agriculture land use change leading to an agrarian change (Desiere & D'Haese, 2015) thus, bringing about the diversification of livelihoods among smallholder farmers (Mark et al., 2015).

Some authors argue that aside population pressure, other triggers such as international trade and farmer's orientation to move out of poverty zones can drive commercialization of smallholder agriculture (Soby, 2017). Ester Boserup's agrarian change theory is relevant to this study in the aspect of resource limitations, innovations for sustainability and in particular, livelihood diversifications.

Smallholder farmers in Sub-Saharan Africa are constraint by resource limitations, poverty and livelihood insecurity. That said, majority of these smallholder farmers are innovating to deal with the constraint in resources through livelihood diversification. Boserup's theory stipulates that diversification of livelihood among farmers is used as a survival mechanism, as it generates certain livelihood outcomes which improves farmers' standard of living towards ensuring the sustainability of their livelihoods.

### **Agrarian Change in Africa**

Agriculture play a central role in the provision of productive employment for Africa's youth mostly on the

basis of smallholdings (Ripoll et al., 2017). Smallholder agriculture has seen momentous changes in the World's economy and thus contributed significantly to changes in the agrarian systems in Africa (Tsikata, 2015). Agrarian change in Sub-Saharan Africa (SSA) converges around the creation of agrarian structures where smallholder farmers predominate, alongside the expansion of plantations (Moyo, 2016). According to Moyo (2016), SSA has undergone a transition where peasantries disappear due to rural emigration and 'multi-occupational survival strategies which have flourished over the last 10 years. Also, increased market demand in cash crops has facilitated cash crop trade, leading to agrarian change from subsistence to commercial agricultural systems. This transformations increases income but raises concerns of whether the income gained provide the food needs of farming households as farmers grow cash crops at the expense of food crops (Rubhara et al., 2020) and thus, likely to lower food production in the near future. Rural areas in developing countries who are often characterized by poverty, also experience a shift of agrarian system towards market-orientation that is, a shift to intensive cash crop production and often monoculture production (Thanichanon et al., 2018). Moreover, the shift leading to the intensification of agricultural systems often results in better productivity and higher income for smallholder farmers (Zimemrer et al., 2015). The focus of agrarian change on export-oriented production of cash crops also raises potentially negative impacts on basic wellbeing such as increase in cross-border agricultural trade and impacts in terms of food security and household incomes (Thanichanon et al., 2018). A major concern is food security, as commercialization of agriculture is promoted on cash crops at the expense of staple crops thus, resulting to a decline in food production for household consumption (Ntakyo & Berg, 2019).

### **The Sustainable Livelihood Framework**

This paper adapts the Sustainable Livelihood Framework (SLF) for conceptual guidance. The thrust of the SLF on this paper is to enable the understanding of livelihood systems of smallholder farmers (Kamwi et al., 2018). The framework places rural poor at the center of a web of interrelated concepts that affect how these people create a livelihood for themselves and their households. It is built with the belief that livelihood assets are needed to achieve a certain livelihood outcome. Rural poor therefore have different kinds of assets that they can combine to achieve the livelihood they seek. Human capital is one of these assets. It refers to the skills; knowledge, capacity to work and good health that enable rural poor and their households achieve desired livelihoods. Human capital is essential in order to use the other kinds of capital assets that exist. Social capital refers to the social resources that these poor people can

get help in order to achieve their livelihoods. They include networks and connections (patronage, neighborhoods, and kinship), formal and informal groups or relations of trust that make them support each other. Natural capital covers land and produce, water and aquatic resources, trees and forest products, wildlife, biodiversity and environmental services that will enable poor households have a livelihood. Physical capital describes infrastructure such as roads, secured shelter and buildings, water supply and sanitation, etc as well as tools and technology such as tool and equipment for production, seed, fertilizer, pesticides and traditional technology that are needed to support the livelihood that the rural poor seek. Financial capital as the final capital asset includes saving, remittances and other financial resources that can be used to achieve the livelihoods they strive for.

The framework has four components namely; the vulnerability context, policies and institutions, capital assets and livelihood strategies (Figure 1). These components are connected to each other with a feedback loop indicating their relationship. The vulnerability context which entails the shocks and trends is interrelated with policies and institutions whose responsibility is to ensure that policies with respect to cashew become effective. These two components in the framework are also directly linked to the livelihood or capital assets which are at the centre of the framework. The framework assumes that farmers devise individual livelihood diversification strategies in consideration of their vulnerability context, policies and institutions and the capital assets available to them for production.

In relation to the framework, smallholder cashew farmers act as managers with respect to the choices of livelihood they make. Farmers' experiences in diversification inform subsequent choices in respect of the combination of capital and livelihood strategies as indicated by the feedback loop.

### **Study Area and Vulnerability Context**

#### **Study Area: Location, People and Environment**

The study was conducted in Sebreni, Duadaso No.1 and Nsawkaw communities in Jaman North, Jaman South and Tain districts respectively; located in the Bono region in Ghana. Duadaso No.1 is located between latitude 7 °55'SW and longitude 2 °39NW with a population of about 5, 623 in 2010(GSS, 2014). Duadaso No.1 is physically located to the North-Western part of the Bono Region from the regional capital, Sunyani and shares boundaries with the other two study districts thus Tain and Jaman South districts to the North-Eastern and south-western part of the Bono region respectively. Nsawkaw community is located between latitude 7 °53'SW and longitude 2 °21'NW with a population of about 6000 in

2010 (GSS, 2014). Likewise, Sebreni community, located between latitude 7 °36'SW and longitude 2 °52'NW from the regional capital, Sunyani. Sebreni is also made up with a population of about 1,290 in 2010 (GSS, 2014).

The people from Sebreni, Duadaso No.1 and Nsawkaw communities are predominantly farmers. Agriculture which is the major source of livelihood for the people employs majority of the active labour force. The agriculture sector in the Bono region is made up two main sub-sectors namely crop farming (that is food and cash crop production) and livestock rearing sub-sector. Hitherto, cocoa was the dominant cash crop grown by majority of farmers in the region because of the returns and demand in the international market. In recent times, the cultivation of cashew as a cash crop has become an 'eye-catching' venture attracting both the young and the old in the region hence creating avenues for jobs, for the active working population to earn a living. Unfortunately, the produce from the production of cashew are mostly hauled from the production areas and exported annually from Ghana in their raw state by foreign and local merchants, which yields little benefits to the smallholder farmers in the region and the country's economy due to the under developed value chain. The service and commerce sectors also offer employment to about 12% and 18% of the population respectively thereby contributing significantly to reducing the unemployment rate in Ghana.

The Bono region of Ghana has a fairly good climate that supports majority of the crops produced in Ghana. The region is commonly known to be the transitional belt. Duadaso No.1 community in Jaman North district lies within the wet semi-equatorial region and experiences a mean annual rainfall ranging between 120mm to 178mm. The community enjoys bi-modal rainfall patterns with the major one occurring between April to July and the minor one between September and October each year. Nsawkaw and Sebreni communities in Tain and Jaman South districts respectively are also made up of two seasons (that is rainy and dry seasons); the main season occurs between April to July and the minor season, between mid-August and mid-November with an annual rainfall of about 1,140 – 1,270mm and 1,270 – 1,454mm respectively. Notwithstanding, climate change in the 21<sup>st</sup> century has been one of the main environmental problems bedeviling the source of livelihood of farmers. Climate change across Ghana is evidenced by unpredictability in weather patterns, and consequently impacting on people's livelihood most importantly smallholder farmers of which the study areas are no exception.

The vegetation of the study communities are characterized by two main ecological zones. These ecological zones are the Guinea Savanna Woodland consisting of widely dispersed short trees and grasses/shrubs. This part of the land is made up of sandy

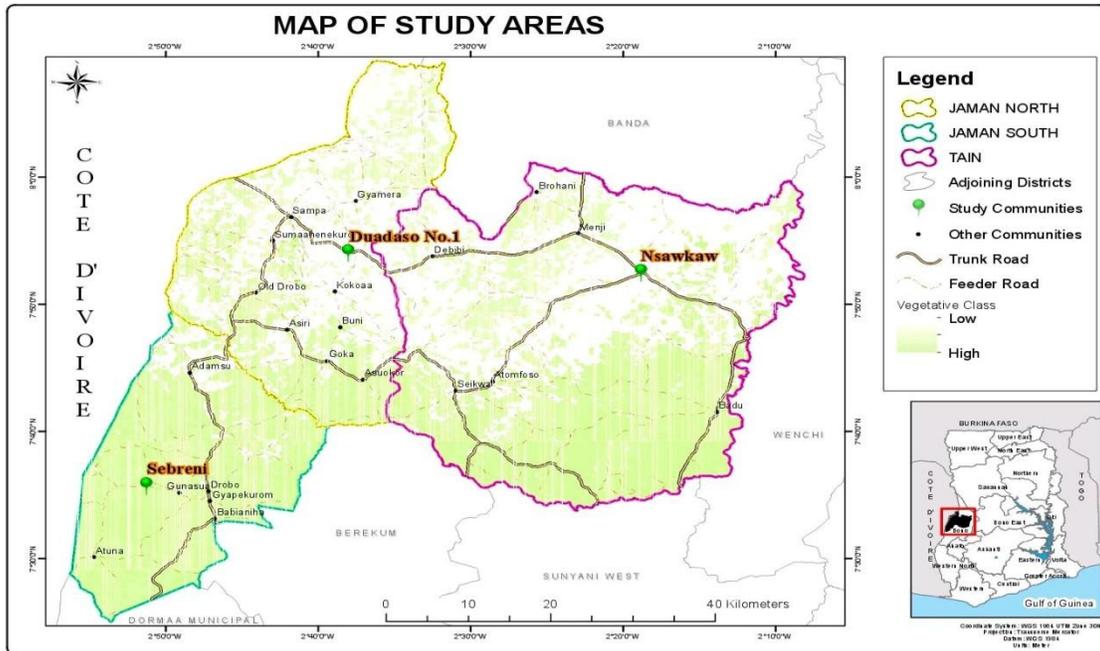
loamy soil type and suitable for the cultivation of food crops such as yam, cassava, rice, beans, maize, sorghum, vegetables, groundnut and cash crops such as cashew, orange and mango. The Moist Semi-Deciduous Forest on the other hand also consists of secondary forest that is suitable for the cultivation of plantain, cocoyam, cassava and yam. In addition, major timber species such as Odum, Wawa, Mahogany and Teak are found in the ecological zone pronouncedly, Sebreni community in the Jaman South district. In as much as vegetation in the study area supports farming activities, deforestation has been one of the most talked about issues in the ecological zones. Deforestation is fueled by the desire for people to earn income in a quest to making 'ends meet' at the household level. This therefore has caused some degree of threat to the zones hence affecting farming activities in the study area.

### **The Institutional Framework for Local Governance**

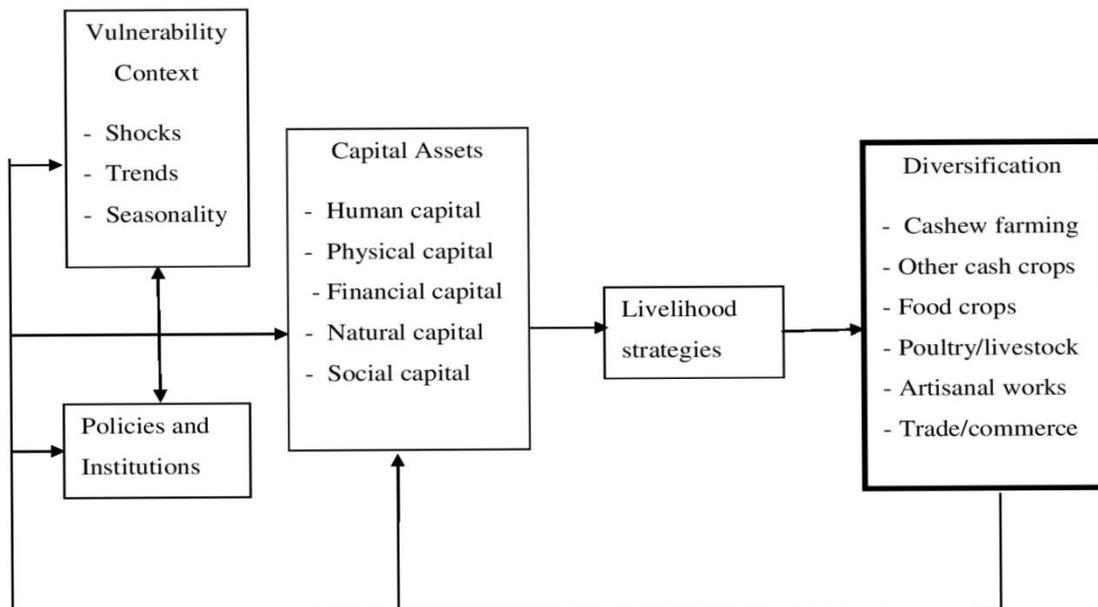
The District Assemblies are charged with the responsibility to ensure the overall development of all sectors in their jurisdictions thus, according to the local government Act 462 (993). The role of the Assemblies can only be attained through effective planning and ensuring that policies are harnessed to derive desired outcomes hence the role of institutional framework for policy planning and local governance. Notwithstanding, the Department of Agriculture at the District Assemblies specifically focuses on the growth and development of the agriculture sector and the role they play cannot be underestimated. The Department of Agriculture in partnership with the Development Planning Unit at the Assemblies ensures that agriculture which is the main source of livelihood for majority of the inhabitants continue to contribute significantly to the lives of farmers. The cashew sub-sector is beginning to attract attention in policy cycles and among stakeholders due to its thriving market potentials. Consequently, beginning to receive some responsiveness by policy makers and stakeholders to put in place plans in their quest to support the sector to be resilient and serve as a major foreign exchange earner and enhance the living conditions of cashew farmers. For instance, the president of Ghana launched a 10-year Cashew Development Plan in 2018 to revamp the cashew industry as well as diversifying the Ghanaian economy (Kombat & Adogla-Bessa, 2018).

### **METHODOLOGY**

The mixed method comprising qualitative and quantitative methods was employed. The exploratory sequential design was used to collect data in two (2) manageable phases. The research process in the study is therefore given a notation of mixed methods thus qualitative and quantitative method as QUAL + quan (Demir and Pismek,



**Plate 1.** Map showing the study communities and district.  
Source: Authors Construct, (2019).



**Fig. 1.** Sustainable Livelihood Framework  
Source: Adapted from (Serrat, 2017).

2018). The field work was presided by Interactions with key informants to have an appreciation of the sociology, dynamics and protocols of the respective communities and how to address community members on issues considered as sensitive to respective communities. The

qualitative approach was used to explore the dynamism of livelihood systems among smallholder farmers in the Guinea Savannah Woodland and Moist Deciduous Forest zones in the Bono region of Ghana this was complemented by household survey using quantitative

methods. The Bono region, the districts and communities were selected purposively because of their uniqueness as major and leading cashew production areas and a hub for cashew market and their strategic location as border districts (sharing border with Ivory Coast) therefore suitable to explore information on the effects of cashew production on farming households. Sebreni, Duadaso No.1 and Nsawkaw communities were selected from Jaman South, Jaman North and Tain districts respectively. Qualitative data was collected using Focus Group Discussions (FGDs) and Key Informant Interviews (KII). Instruments such as the focus group discussion guide and key informant interview guide were used. Purposive and snowball sampling techniques were adopted in selecting male and female cashew farmers and “resourced” cashew farmers respectively in the study communities. District MoFA officers were also interviewed as key informants’ because they are the primary source of information regarding cashew production and livelihood systems among smallholder cashew farmers. Six (6) focus group discussions comprising eight (8) discussants in each session were conducted. Six (6) key informant interviews were conducted with 6 “resourced” farmers (that is 3 each for rich and poor “resource” farmers) in the study communities. Also, note-taking (summaries) and audio recordings were used to aid the collection of qualitative data. Secondary data was obtained from documented information to augment the primary facts on cashew production and the livelihood systems of smallholder cashew farmers. This included data collected from articles, books, newsletters and official records from District Assemblies and District MoFA offices. Thematic analysis was used to analyse qualitative data, direct quotations and narrations by interviewees and focus group discussants were also utilized. The researchers adopted a cross-sectional household survey for the study. Interviewer-administered structured questionnaire were used to collect quantitative data. The structured questionnaire was designed using KoBoCollect; a Computer-Assisted Personal Interviewing (CAPI) software. The CAPI software was used by the Researchers because of its idealness for conducting interviews in remote areas. The KoBo Toolbox as a data collection tool aided the administration of the structured questionnaire to respondents using android smart mobile phones. The interviewer-administered structured questionnaire was used because of the apparent low level of literacy among the main units of the population that was studied. Simple random sampling was employed in selecting the cashew farmers. Houses were selected in each of the three (3) communities within the districts under the study as a first step. In order to avoid bias, a listing of all the houses in each community was done and applying the balloting system, houses were given unique numbers. The unique house numbers of each house in

each of the communities were then written on a piece of paper folded and selected at random by handpicking to arrive at the sample size. A farmer in each selected house was interviewed. The balloting system was also applied in selecting the cashew farmers who are the main unit for the data collection. To do this, an alphabet was written on a piece of paper and folded together with other blank pieces of paper. The cashew farmers were then asked to pick at random any cashew farmer who picked a piece of paper with an alphabet on it was interviewed. Descriptive statistics was used to analyse the quantitative data thus; using simple percentages and percentages in cross-tabulation and data presented in tables and figures. A total number of 595 cashew farmers comprising 115, 160 and 320 from Sebreni, Duadaso No.1 and Nsawkaw respectively was obtained from the district division of the Ministry of Food and Agriculture (MoFA) in the various districts of study. These represented the sampling frame for the household survey. The Yamane (1967) method was therefore used to determine the sample size for the survey. Subsequently, a proportionate sample relative to the sample size obtained was then used to distribute the sample to arrive at the individual samples. Below is the procedure.

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

Where n= sample size, N=sampling frame (595) and  $\alpha$  represent the margin of error which is 0.05 with confidence level of 95%. By substituting 595 and 0.05 into the formula:

$$n = \frac{595}{1 + 595(0.05)^2} \quad n = 239.19 \approx 239$$

The distribution of the sample size; 239 to get samples for individual communities in a proportionate sampling method produced 46, 64 and 129 in Sebreni, Duadaso No. 1 and Nsawkaw communities respectively (see Table 1).

## RESULTS

### Background Characteristics of Cashew Farmers

A total of 239 cashew farming households were selected for the household survey. These cashew farming households were selected from Sebreni, Duadaso No.1 and Nsawkaw in Jaman South, Jaman North and Tain districts respectively. With the sample frame of each study community obtained from the records of MoFA offices, 46, 64 and 129 cashew farmers were selected respectively from these three communities.

The production of cashew in the study area was dominated by males, representing 54.4% as against 45.6% females. The male dominance in cashew production could be attributed to their control of livelihood

**Table 1.** Sample Size Determination for smallholder farmers by Study Communities.

Sampled Communities	Units	Sample frame (N)	Proportionate sample
Sebreni	Smallholder household cashew farmers	115	<b>46</b>
Duadaso No. 1	Smallholder household cashew farmers	160	<b>64</b>
Nsawkaw	Smallholder household cashew farmers	320	<b>129</b>
<b>Total</b>		<b>595</b>	<b>239</b>

**Source:** Authors Construct, (2018).

assets and ownership. Another reason could be the dominance of females in market trading of goods and food crop farming as a way of supporting the household. Also, majority (79.4%) of the respondents fell within the ages of 31 and 60 years while 6.3% were below 31 years. This indicates that the cashew production venture is dominated by people above 31 years and not attractive to young men and women. This could be attributed to the inability of young men and women to access productive resources; which is very vital in the cashew sub-sector. Besides, majority of the young people in these communities are in school with most of them pursuing education up to the tertiary level. Conversely, educational levels of respondents were found to be low, as 38.9% of the respondents had no education. Also, 33.9% and 13.8% had up to junior high/middle school and primary school education respectively. Regarding marital status, majority (69%) of the respondents had their status as married. The high number of respondents falling within the category could be attributed to the need for household support in farming activities. This is therefore considered as the reason for large household size among the respondents studied. It was further revealed that, as high as 52.6% of respondents had their household size between 5 to 10 members (see Table 2). In addition, out of the total number of (239) respondents, majority (84.9%) of farmers were Christians' while Islam recorded 11 representing 4.6% of the respondents. Also, African Traditional Religion (ATR) recorded the least (4.2%). This means that majority of the respondents were strongly committed to religious groups in the study areas while 15 representing 6.3% are not affiliated to any of the religious groupings (see Table 2).

### Farm Sizes of Cashew Farmers by Gender

The results showed that cashew farmers had varying farm sizes. Respondents revealed that cashew production required a lot of financial commitment and adherence to good farming practices consequently, farmers increase their farms progressively depending on their financial strength. The results further reveal that majority of farmers (55%) had farm size holdings ranging

from 1-10 hectares. The percentage of farmers decline with increasing sizes of farms as follows: 18% of farmers have farm holdings sizes of 11 to 20; 12% owning 21-30 hectares; 5% own 31- 40 hectares; another 5% owning 41-50 hectares and 3% own over 50 hectares (see Table 3). The results also reveal some gendered patterns. For instance, majority of females (64%) owned farm sizes of between 1 to 10 hectares while 48% of their male counterparts owned similar land holdings. Male farmers owned bigger farm sizes than their female counterparts as the evidence shows. The results show that more male farmers owned bigger farm sizes than their female counterparts in the next three categories of farm holding sizes: 26% males compared to 15% females for 11-20 hectares; 13% male farmers compared to 11% female for 21-30 hectares; and 6.2% male farmers compared with 4.6% females for 31-40% hectares (see Table 3). The male dominance in ownership of bigger farms could be attributed to the huge capital investment in cashew production inter alia production resources controlled by males in most households. Hence, it's impossible for smallholder farmers' especially female farmers with less capital resource to expand their farms. In relation to this, a female discussant in Nsawkaw, Tain District explained; *Most times, the strength and money is not always there to cultivate the whole land at once, so we do it little by little as the years go by. The size of the farm increases as the years goes by (Focus Group Discussion, female discussant – Nsawkaw, Tain; January 25, 2019).*

This was strengthened by a male discussant in the same community;

*“The truth is that, we the men are not able to cultivate cashew on all the lands that we have and its worst for the women. If you don't have money you can't cultivate cashew; so what we do is to increase the size of the little by little every season depending on the rate of work on the farm and money available” (Focus Group Discussion, male discussant – Nsawkaw, Tain district, January 26, 2019).*

However, respondents highlighted that, not having a large farm size could also lead to better farm management. In explaining this, a “resourced” farmer from Sebreni in Jaman South District said;

**Table 2.** Background and Demographic Characteristics of Cashew Farmers.

Variables	N = 239	Percentage
<b>Sex</b>		
Male	130	54.4
Female	103	45.6
<b>Age</b>		
<31	15	6.3
31 – 60	190	79.4
>60	34	14.2
<b>Educational level</b>		
Never been to school	93	38.9
Primary school	33	13.8
Junior high/middle school	81	33.9
Senior high/secondary school	22	9.2
Technical/vocational school	1	0.4
University/polytechnic	9	3.8
<b>Religion</b>		
Christianity	203	84.9
Islam	11	4.6
ATR	10	4.2
None	15	6.3
<b>Marital status</b>		
Single	31	13.0
Married	165	69.0
Divorced	12	5.0
Widow/widower	31	13.0
<b>Household size</b>		
<5	99	41.4
5 – 10	126	52.6
>10	23	5.9

**Source:** Field Survey, (2019).

*When you look at all the different scales of farmers, farmers that have medium farms are able to take care of their farms well than those with bigger farms. I'm saying this because if you have a farm without good maintenance practices and money, your farm will not do well but farms can best be managed when they are small even with less money (Key Informant Interview, poor resource cashew farmer – Sebreni, Jaman South district, January 21, 2019).*

### Cashew output by size of farms

The household survey revealed that majority of farmers (45%) get an annual output of 5-15 bags of cashew nuts. This is followed by those farmers harvesting 15-25 bags (18%); 25-35 bags (14%); 35-45 bags (10%); 45-55 bags (7%) and over 55 bags (6%) (see Figure 2). The qualitative data reveals that farm size is a factor that largely influences the output levels of farmers.

To further understand the output levels by farm sizes, a cross tabulation of farm sizes and output/yield per annum was analyzed. The analysis reveals some patterns of yields relative to three categories of farm holdings (see Table 4):

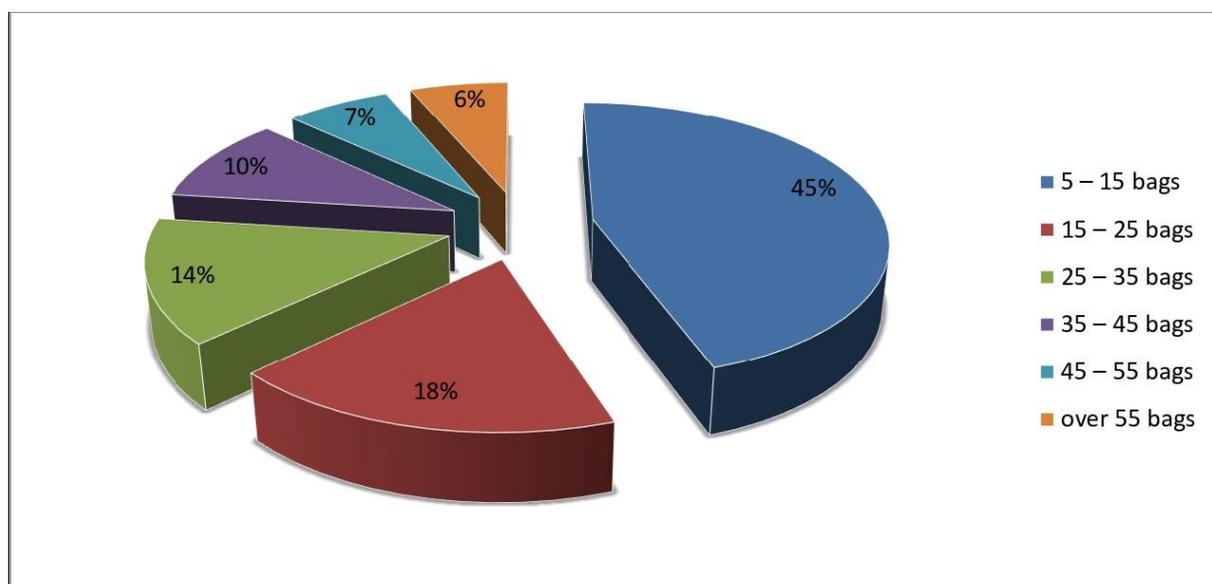
- Analysis of Farmers with 1-10 hectares reveals a wide variation of output levels for this category of farmers. The majority of farmers with farm size 1-10 hectares (71%) have an annual yield of between 5-15 bags (88%) of nuts. This is followed by 18% and 8% with annual yield of 15-25 bags (56%) and 25 to 35 bags (29%) respectively from the same landholdings. Thus, farmers are experiencing a wide range of yield diversity and experiences from same landholdings.

- For the category of Farmers with 11-20 hectares, the majority of farmers with landholdings 11-20 hectares (32%) obtain a yield of between 15 – 25 bags (32%) annually. This is followed by 25% of landholdings with farmers' annual yield of 5-15 bags and 23% with a yield

**Table 3.** Cross Tabulation of Farm Size by Sex among Cashew Farmers.

Farm Size		Sex of Respondent		Total
		Female	Male	
1 – 10 ha	Count	70	62	132
	% within sex of respondent	64.2%	47.7%	55.2%
11 – 20 ha	Count	16	28	44
	% within sex of respondent	14.7%	21.5%	18.4%
21 – 30 ha	Count	12	17	29
	% within sex of respondent	11.0%	13.1%	12.1%
31 – 40 ha	Count	5	8	13
	% within sex of respondent	4.6%	6.2%	5.4%
41 - 50 ha	Count	3	10	13
	% within sex of respondent	2.8%	7.7%	5.4%
Over 50 ha	Count	3	5	8
	% within sex of respondent	2.8%	3.8%	3.3%
Total	Count	109	130	239
	% within sex of respondent	100.0%	100.0%	100.0%

**Source:** Field Survey, (2019).



**Fig. 2.** Output/Yield per Annum of Cashew Farmers  
Source: Field Survey, (2019).

of 35-45 bags (29%) annually. What is striking for this category is that about 10% of farmers have an annual yield of 5-15 bags, the yield experience of the overwhelming majority of farmers for the first category.

With respect to Farmers belonging to the last four categories, the analysis reveals wide variations of output levels for the last four categories of farmers. For the category of 21-30 hectares, majority of farmers with landholdings of about 45% obtain a yield of between 35-

45 bags (54%) annually. This is followed by landholdings of 41% and 10% with farmers' annual yield of 25-35 bags (35%) and 15-25 bags (7%) respectively. The categories of 31-40 hectares and 41-50 hectares also reveals similar pattern of variations. For the category of 31-40 hectares, majority of farmers with landholdings of 31% obtain an annual yield of 45-55 bags (25%) followed by 23% also obtaining an annual yield of 35-45 bags representing 13% of farmers. The category of 41-50 hectares further

**Table 4.** Cross Tabulation of farm size and yield per annum.

Farm Size	Yield per annum (Using 50kg bag)							
	5-15 bags	15-25 bags	25-35 bags	35-45 bags	45-55 bags	Over 55 bags	Total	
1 – 10 ha	Count	94	24	10	2	1	1	132
	% within farm size	71.2%	18.2%	7.6%	1.5%	0.8%	0.8%	100%
	% within yield per annum	87.9%	55.8%	29.4%	8.3%	6.2%	6.7%	55.2%
11 – 20 ha	Count	11	14	10	6	2	1	44
	% within farm size	25.0%	31.8%	22.7%	13.6%	4.5%	2.3%	100%
	% with yield per annum	10.3%	32.4%	29.4%	25.0%	12.5%	6.7%	18.4%
21 – 30 ha	Count	0	3	12	13	1	0	29
	% within farm size	0.0%	10.3%	41.4%	44.8%	3.4%	0.0%	100%
	% within yield per annum	0.0%	7.0%	35.3%	54.2%	6.2%	0.0%	12.1%
31 – 40 ha	Count	1	2	1	3	4	2	13
	% within farm size	7.7%	15.4%	7.7%	23.1%	30.8%	15.4%	100%
	% within yield per annum	0.9%	4.7%	2.9%	12.5%	25.0%	13.3%	5.4%
41 - 50 ha	Count	0	0	1	0	8	4	13
	% within farm size	0.0%	0.0%	7.7%	0.0%	61.5%	30.8%	100%
	% within yield per annum	0.0%	0.0%	2.9%	0.0%	50.0%	26.7%	5.4%
Over 50 ha	Count	1	0	0	0	0	7	8
	% within farm size	12.5%	0.0%	0.0%	0.0%	0.0%	87.5%	100%
	% within yield per annum	0.9%	0.0%	0.0%	0.0%	0.0%	46.7%	3.3%
Total	Count	107	43	34	24	16	15	239
	% within farm size	44.8%	18.0%	14.2%	10.0%	6.7%	6.3%	100%
	% within yield per annum	100	100	100	100	100	100	100%
	%	%	%	%	%	%	%	

Source: Field Survey, (2019).

reveal that majority of farmers with landholdings of 62% have an annual yield of between 45-55 bags (50%) of nuts from cashew cultivation. This is followed by 31% with an annual yield of farmers obtaining over 50 bags (27%) from the same landholdings. The majority of farmers with farm size of over 50 hectares (88%) obtain a yield of over 55 bags (47%) of cashew nuts annually. What is outstanding in these last four categories is that, as the landholdings increases, the yield of farmers also increases hence a similar pattern showed for the three categories of farm holdings.

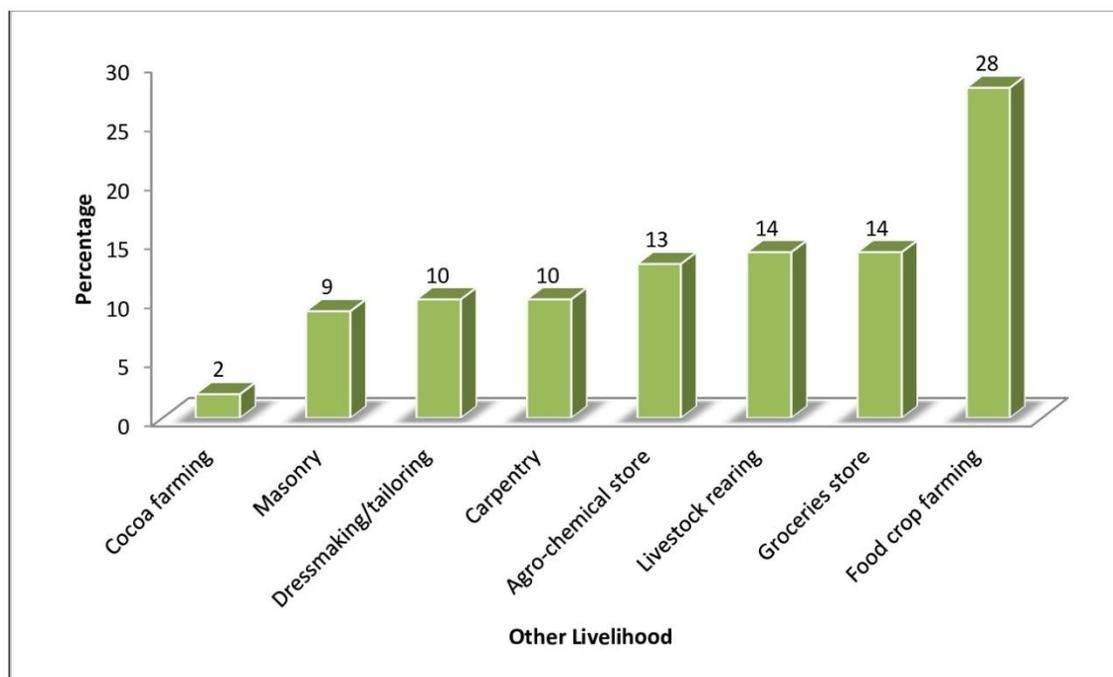
#### Other Livelihoods of Smallholder Cashew Farmers

The qualitative data revealed that smallholder cashew farmers engage in other livelihoods to supplement their income aside producing cashew. Respondents during the qualitative phase highlighted that they engaged in livestock rearing, food and cocoa farming. In addition, others trade in agro-chemicals and groceries in stores and artisanal works such as masonry, carpentry and dressmaking/tailoring during the lean seasons of cashew

farming to support their livelihoods. The survey results corroborate this assertion. The results show that majority of farmers (28%) engaged in food crop farming to supplement cashew farming. This is followed by trade in groceries/store (14%); livestock rearing (14%); agro-chemical store (13%); carpentry (10%); dressmaking/tailoring (10%); masonry (9%) and the least of farmers engage in cocoa farming (2%) as add-on to cashew farming (see Figure 3).

Farmers combine cashew production with other occupations mainly because of uncertainties in both climate and prices of cashew nuts. The following statements from discussants from focus group discussions and a respondent from key informant interview revealed that cashew farmers engage in other livelihoods to complement cashew farming.

*Before cashew came to this community, we were already farming food crops and cocoa. But due to climatic change, some of us have come to a realization that farming alone cannot cater for ourselves and families. So we engage in carpentry, tailoring, masonry and other businesses to supplement cashew farming (Focus Group*



**Fig. 3.** Other Livelihoods of Smallholder Cashew Farmers.  
Source: Field Survey, (2019).

**Table 5.** Typologies of cashew farmers.

Type of farmer	Characteristics and indicators	
	Socio-demographic	Economic
Small-scale	Could be male or female with fewer more males; aged 31-60 years or less than 31 years; low formal education or no formal education at all; likely Christian or African tradition; married or single with mixed household sizes of 5 -10 or less than 5(See Table 2).	Produce cashew as an alternative livelihood; with cashew farm size of 1 to 10 hectares; and annual yield of 1-15 bags. Also, farmers engage in food crop farming, livestock rearing, non-farm activities and artisanal jobs that complement cashew farming.
Medium-scale	Could be male or female with fewer females; aged 31-60 years or more than 60 years with low formal education or no formal education at all; likely Christian or no religious affiliation; married or widow/widower with varied household sizes of 5-10 or more than 10 (see Table 2).	Produce cashew as a main livelihood; with farm size of 11-50 hectares; and annual yield of 16 to 55 bags. Farmers as well engage in food crop farming and non-farm livelihoods such as trade/commerce and artisanal jobs that complement cashew farming.
Large – scale	Could be male or female with smaller number of females; aged 31-60 years; low formal education or no formal education at all; likely Christian, Muslim or no religious affiliation; married, divorced or single with mixed household sizes of 5-10 or more than 10 (see Table 2)	Produce cashew as an alternative livelihood; with farm size of over 50 hectares; and annual yield of more than 55 bags. Furthermore, farmers engage in non-farm livelihoods like trade/commerce and artisanal jobs that supplement cashew farming.

**Source:** Authors Construct, (2019).

*Discussion, male discussant; Sebreni – Jaman South District, January 21, 2019).*

*Apart from the cashew we have, majority of us women engage in trading. We also grow groundnut, maize, pepper, and some other common food crops to complement our household income for survival especially*

*when the cashew season is gone (Focus Group Discussion, female discussant, Duadaso No.1 – Jaman North District, January 23, 2019).*

*“Aside cashew, we grow cocoa. But for now the cashew is the dominant thing we do more than any other crop. This is no surprise because it helps us generate ready*

income. We also engage in trading such as taking food stuffs to the market to sell and some of us also have provision stores” (Focus Group Discussion, female discussant, Nsawkaw – Tain District, January 25, 2019).

Moreover, respondents highlighted that aside cashew cultivation, most of them farm food crops and rear livestock while few are into “off-farm” businesses to supplement earnings from cashew nuts (Figure 2). In relation to this, a “resourced” farmer in Nsawkaw community, Tain district gave this narration;

*“Farming is the main occupation here. Food crop production and livestock rearing are common, just a few of us are into trading and store businesses. I personally have an agro-chemical and grocery store which also contributes to my livelihood so it’s not only cashew. But I get more money in cashew than my store”* (Key Informant Interview, rich resource farmer, Nsawkaw – Tain District, January 25, 2019).

This was reinforced by a male discussant in Sebreni community, Jaman South district;

*This is a farming community and aside cashew production; we cultivate cassava, plantain, yam, cocoyam, vegetables, maize and fruits to support the income we earn from cashew* (Focus Group Discussion, male discussant; Sebreni – Jaman South District, January 21, 2019).

## DISCUSSION

The discussion addresses three main issues: the types of cashew farmers and associated dynamics including gender, livelihood diversification for sustainability and the policy implications for development planning.

Drawing on the results, this paper classifies cashew farmers into three types namely; small-scale, medium-scale and large-scale farmers based on selected socio-demographic and production factors. The socio-demographic factors include sex, age education and household size. The production factors include farm sizes, yield levels and pattern of livelihood diversification. The findings showed that majority of cashew farmers are small-scale farmers (55%) with land holding between 1 to 10 hectares, annual output levels of between 5 to 15 bags (50kg) and some gendered patterns in production. This brings to the fore three key issues, landholdings, productivity and gender. First, there is wide diversity in the sizes of farms, so that farm sizes range from 1-10 hectares thus, revealing that majority (55%) of farmers are within this landholding typology. The qualitative results further showed that a lot of financial commitment is needed in cashew production and for that matter recorded more farmers in the category due to inadequate finance to support bigger farm holdings recording just 3% of farmers. This corroborates the results of Armah (2018) who concluded in the study on productivity and resource-use of cashew farmers in Ghana that most farmers

producing cashew operate on a small-scale. In the studies of Ibrahim, (2015) on cashew-nut production technologies and their effect on cashew-nut productivity in Tanzania and Bofo & Lyons (2019) on expanding cashew nut exporting from Ghana’s breadbasket, a political ecology of changing land access and impacts for local food systems indicated that majority of African smallholders farmers on the average cultivate crops less than 2 hectares of farm lands. This is a departure from the results of this study given that a significant number of farmers have farm sizes beyond two hectares; in many cases, landholdings are actually between 1-10 hectares. The findings also reveal gender differences. Male farmers have bigger farms and yields than their female counterparts, although, admittedly, the participation of women in the industry is significant and shows a great potential. For instance, the study finds significant levels of participation of women at all scales of production and this is revealing. Given the current state of gender and development, it is remarkable that women are participating in both medium and large-scale production, thus competing with their male counterparts who control most productive resources such as lands. This paper makes a significant contribution to gender analysis in the cashew farming industry. Most studies have generally focused on other domains of production, mainly production and marketing. The second issue is that productivity among smallholder farmers is low. As the results suggest, smallholder farmers have an annual yield of 5-15 bags from 1 to 10 hectares of farmland. Standard and/or estimated productivity level for cashew per hectare is 20-30 bags (50kg) of nuts per hectare (ADB, 2000) if best agronomic practices are required. Findings of low productivity is consistent with the results of Ren et al., (2019) in their study on the impact of farm size on agricultural sustainability. They reported low productivity among cashew farmers and assert that farm size is key in determining productivity and agricultural development. Similarly, Agbongiarhuoyi et al., (2015) in a study reported low yield of cashew among farmers in growing areas of Nigeria. Inadequate investment is one of the reasons why majority of cashew farmers have low productivity.

The second issue is that smallholder cashew farmers generally have diversified livelihood portfolios which presents an interesting pattern to explore given that it does not just highlight the diversification of these farmers but the nature of the diversifications. In addition to cashew farming, these farmers are involved in other livelihoods as a way of ensuring household livelihood security. The patterns of diversification reveal a shift from food crop farming (only 28% are involved), poultry/livestock (14%), cocoa farming (2%) and more into “non-farm” livelihoods (56%) depicting that majority of cashew farmers have diversified livelihood portfolios in “non-farm” livelihoods. Small-scale farmers mostly invest

in “non-farm” livelihoods, food crop farming and poultry/livestock rearing whiles medium-scale farmers on food crop farming and “non-farm” livelihoods such as groceries and agro-chemical store. Large-scale farmers usually invest in cocoa farming and “non-farm” livelihoods. There are differential patterns in the livelihood diversification by the types of farmers since food crop farming is mostly invested by small-scale and medium-scale farmers who are characterized by land holdings size of not more than 10 hectares and between 11 to 50 hectares respectively. However, large-scale farmers with land holdings of over 50 hectares diversify their livelihoods by investing in cocoa farming and “non-farm” livelihoods which apparently demands huge capital investment and returns. The livelihood diversification patterns also indicate all the types of farmers investing in “non-farm” livelihoods but on different livelihood portfolios such as small-scale farmers investing more on artisanal jobs whiles medium and large scale farmers investing on trade (see Table 5). The diversification of livelihoods by farmers is meant to supplement their main livelihood (cashew farming). This validates the livelihood diversification thesis of the Boserupian theory which proposes that farmers go into other livelihoods aside their main livelihood as a surviving mechanism and generate a certain livelihood outcome which ensures the sustainability of livelihoods. This is also consistent with the results of Zakaria et al., (2019) who reported that households that rely solely on agriculture do not generate enough income to support their livelihood, hence, resorting to “off-farm” businesses. The findings also confirms those of Melketo et al., (2020) in the study of livelihood diversification patterns among smallholder farm households that smallholder farmers diversify their livelihood activities to supplement household income. Income serving as the main resource, flow from the production of cashew into the investment of other livelihoods and vice versa. This is consistent with the work of Zakaria et al. (2019) who concluded that farm households diversify their livelihoods to increase incomes which also promote more investments for the sustenance of livelihood and better standard of living. Similarly, Ahmadzai (2020) further concluded that farmers engage in off-farm activities to maximize income and intend use the income to diversify and invest in on-farm activities. Also, livelihood diversification is part of the reason cashew production is done at a small-scale. Given the lack of resources coupled with uncertainty in livelihoods, farmers resort to diversification to minimize the risks of livelihood failures but this is also probably the reason the scale of production is small as there is thin spread of investment.

This paper has sort to explore the patterns of diversification and rationale among cashew farmers relative to diversification to deepening understanding appreciation from the perspective of cashew farmers to

enhance and inform better policy formulation. The study consequently discovers some livelihood diversification patterns. First, small and medium scale farmers combine cashew with food crop farming, trade and “non-farm” artisanal works. The primary focus of such a strategy is to guarantee livelihood and when possible, make profits. For large-scale farmers, they combine cashew production with other economic crops so that the orientation is towards maximizing profit. Secondly, there are synergies, complementarities and resource flows between these livelihoods. For instance, trade in agro-chemicals and groceries complements cashew farming given that returns used to invest in the production of cashew. Correspondingly, trade in agro-chemicals is part of the cashew value chain and thus point to some potential for growth in the industry. To further explore the patterns of diversifications, artisanal jobs (carpentry, masonry and dressmaking/tailoring) and food crop farming does not contribute much in terms of returns to the cashew production venture, but rather, these livelihoods complement household consumption for survival. This finding substantiates those of Mensah (2014) who asserted that households with their survival instinct, diversify and invest in high value crops aimed at achieving livelihood sustainability and welfare improvement.

The results present an opportunity for informing evidenced based policy formulation for supporting the development of the cashew industry in the context of decentralization and local governance. The local Governmental Act (Act 462) empowers Metropolitan, Municipal and District Assemblies as the fulcrums of development policy and planning in the exercise of local governance at the district level (Otoo, 2017). Thus, we recommend three policy perspectives for consideration by local government authorities.

First, support programmes and interventions should target the key stakeholders in the industry the small-scale cashew farmers to ensure growth and sustainable development of the cashew industry. As the discussion reveals, small-scale producers are the majority in the sector but they experience low productivity arising from low investments. Hence, innovative approaches to capitalization and extension support will be critical. Given limited credit sources, farmers should be mobilized into Village Savings and Loans Associations (VSLAs) as a self-help initiative. This will open several windows including mobilization of local financial resources for supporting individual farmer investments and improve organizational ability to tap into formal sources of funding such as government and Non-Governmental Organizations (NGOs) supported programmes and possibly the banks. Furthermore, mobilization of funds for investments should go along with extension support services targeted at improving farm management practices for addressing low productivity among smallholder

producers. Extension support will require strengthening collaboration with the Ministry of Food and Agriculture (MoFA), NGOs and the private sector.

Secondly, an integrated approach to designing interventions is imperative given that smallholder farmers have diversified livelihood portfolios. The essence should be to offer support in a manner that is consistent with harmonizing the synergies and complementarities between the livelihoods that farmers engage in. If the need for balance is not considered, there will be risk that interventions can undermine diversified portfolios and make farmers more vulnerable to livelihoods failures.

Finally, a promotional and positive discriminatory policy or affirmative action in support of increasing women's participation in cashew farming is critical for achieving gender equity in the industry. This is because as the results revealed, female representation in cashew farming is limited relative to their male counterparts. However, there is a great potential as more women are becoming interested in the cultivation of cashew in recent times. Initiatives such as community and farmer education/campaigns to sensitize women on the need to take cashew farming as a cash crop can potentially increase female participation in the industry and contribute to wealth creation and poverty reduction consistent with the sustainable development goals. A positive discrimination policy on gender can inform the strategic orientations of development partners, including NGOs towards promoting gender equity in smallholder cashew farming.

## CONCLUSION

This paper set out to describe the livelihood systems of smallholder cashew farmers in the Guinea Savannah Woodland and Moist Semi Deciduous Forest Zone in Ghana. Drawing on the results, the paper puts forward three related conclusions. First, that the majority of cashew farmers are small-scale holder farmers with farm holding sizes of between 1 and 10 hectares and corresponding yield of between 5-15 bags per annum. Secondly, to achieve livelihood sustainability, smallholder cashew farmers diversify their livelihood portfolios beyond cashew farming to include a wide range of other livelihoods in the agriculture value chain, artisanal work and commerce. Finally, the paper recommends evidenced based policy-formulation and development planning anchored on the need to develop the cashew industry with a pro-development focus through promotional interventions targeting smallholder producers, promoting livelihood diversification and gender equity.

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