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PERCEPTION OF INTERPERSONAL RELATIONSHIP BETWEEN PASTORALIST AND CROP FARMERS IN ONDO STATE, NIGERIA

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ABSTRACT
The competition for resources between pastoralist and crop-farmers has lead to conflicts of various dimensions in recent times in Nigeria. This study thus examined the perception of interpersonal relationship between pastoralists and farmers in Ondo state. Respondents were selected through purposive sampling of communities located along grazing routes. Sixty farmers and 30 pastoralists were randomly selected for the study. Descriptive and inferential statistics (t-test) were used to analyse the data. Results reveal that majority (91.7%) of farmers were male and all (100.0%) pastoralists were male. They were mostly married (91.7% and 93.3% farmers and pastoralists, respectively). Mean age was 58.5 years for farmers and 40.5 years for pastoralists. Occupational experience was 32.5 years for farmers and 20 years for pastoralists. All pastoralists were Muslims while majority (96.7%) of farmers were Christians. Majority (66.7%) of pastoralists had Islamic/Arabic education while most (53.4%) farmers had primary education and above. Destruction of crops was the major cause of conflict as reported by 86.7% of farmers and 53.3% of pastoralists. Pooled mean perception of the relationship between the two groups revealed an unfavourable perception ($\overline{x}$=32.6). T-test revealed no significant difference in the perceptions of their relationships (t=0.13, p>0.05). This implies that both parties agree in their perception of an unfavourable relationship. Heads of the farmers and pastoralist were the major peace brokers in the communities. Regulations on pastoral activities should be put in place by the government.
Keywords: Pastoralist, Crop farmers, Conflict, Resolution, Relationship

INTRODUCTION

A conflict can be understood as an incompatible interaction between at least two actors, whereby one of the actors experienced damage, and the other actor caused this damage intentionally, or ignores it (Mason and Rychard, 200). Diez *et al* (2006) defined conflict as a struggle or contest between people with opposing needs, ideas, beliefs, values, or goals. According to the human needs theory, conflicts are caused by basic "universal" human needs that are not satisfied (Burton, 1990). Conflict according to Pia and Diez (2007) is however not always characterised by violence. Yet, conflict might escalate and lead to destructive results, in particular in the form of physical violence that is increasingly seen as legitimate as conflict intensifies. On a positive note, conflict can also lead to a new social or political organisation and therefore be productive if the parties involved are able to deal with their incompatibilities so that such a new organisational form is achieved. When defined in broadest terms, conflict denotes the incompatibility of subject positions.

In recent times in Nigeria, there has been an increase in the occurrence of clashes between crop farmers and pastoralist known as Fulani herds' men. The occurrence, which was once limited to the northern region of the nation, has become a threat to life and property in the south, south west and east of the country. The remote cause to some is a complex of the effect of climate change on the nation's vegetation and the Boko Haram crises in the Northeastern part of the country which has made herds' men to abandon the foraging grounds for security reasons (Fabiyi and Otunuga, 2016).

Though, conflict between these two groups has existed from time immemorial, it has been at a low frequency until recent times. Increase in herd sizes due to better veterinary services and affordable drugs, intensification of crop cultivation due to increasing population and growth of Fadama cultivation activities have further contributed to the competition for land, available vegetation and water during the dry season (Blench, 2010; Sulaiman and Ja'afar-Furo, 2010).

Data reveal that Nigerian cattle population has grown from 9 million heads of cattle in 1975 to about 25 million in 2016 and is estimated to reach about 60 million by 2050. Furthermore, the cows consume about 1 billion gallons per day of water and 500 million kilograms of grass and forage crops (Fabiyi and Otunuga, 2016). These facts, coupled with the competition for scarce and limited natural resources by other livelihoods make the situation a dicey one for sustaining the cattle business. The Nigerian case is however more pathetic as the conflict has been coloured by religious, ethnic and political sentiments. Conflicts will definitely continue until there is a political will to produce the right policies and develop holistic programmes that attend to all the facets of the conflicts. In Nigeria, the spate of conflicts and fatal clashes between pastoralist and arable crop farmers is on the increase and going round the various states. Neighbouring states; Ekiti and Edo States has had their own share of this skirmishes and it has not yet subsided, though their State governments are already making legislation

towards it. It is against this background that the study was set, to investigate actors' perception of the conflict status and plausible solutions in Ondo State Nigeria such that lives and properties will be preserved and economic activities enhanced.

The general objective of the study was to assess the interpersonal relationship between crop farmers and pastoralist in Ondo State of Nigeria. Specifically it is to;

1. ascertained the socio-economic characteristics of the respondents;
2. determined respondents' perception of their relationship;
3. identified causes of conflicts; and
4. identified the institutions that are involved in conflict resolution between the respondents.

The hypothesis of the study, stated in null form was stated as; there is no significant difference between arable crop farmers and pastoralist perception of their interpersonal relationship.

METHODOLOGY

The study was conducted in Akure north of Ondo State, Nigeria. The state serves as a transit zone for pastoralists migrating from neighbouring states and the Niger Republic towards central and southwestern Nigeria in search of green pasture at the end of the wet season. Ondo State, like many other states in southwest Nigeria, has a history of clashes between pastoralists and arable farmers. Ondo State stretches from latitudes $5° 45^1$ N and $7° 52^1$ N and longitude $4° 20^1$ E, covering a landmass of 15,500 square kilometres. Agriculture has a unique position in the economy of the state. It is estimated that agriculture, in its various forms, provides the means of livelihood for over 80 per cent of the population of the area.

A purposive sampling method was used in the study. Information on Fulani grazing route was obtained from the head of the cattle markets in Akure North Local Government Area. Three communities on the routes were purposively selected due to the incidence of conflicts. In each community, 20 farmers were randomly selected giving a sample size of 60 farmers. The Fulani pastoralists in the study area were interviewed on

contact. Thirty Fulani herdsmen were thus encountered and interviewed. Qualitative and quantitative data was used in the study. Quantitative data were collected with the aid of a well structured interview schedule while key informant interview with Fulani chiefs and leader of farmers association were used to generate qualitative data.

The data used in this study were essentially from primary sources. The English versions of the questionnaire were translated to Yoruba and Hausa language for proper understanding by the farmers and cattle rearers. Data collected were analyzed using statistical tools such as mean, percentage and frequency counts which was used to analyzed socio economic characteristics of the respondents. The t - test analysis was used to establish the difference in the perception of arable farmers and cattle rearers.

Perception of the interpersonal relationship between pastoralist and arable crop farmers, was measured by presenting respondents with eight statements on a 5 - point likert- type scale. Positive statements were scored '1' for strongly agreed, '2' for agreed, '3' for undecided, '4' for disagreed and '5' for strongly disagreed. These were reversed for the positive statements. This was done so that the higher the score, the more their unfavourable perception. The maximum score was 40 and the minimum 8. Dividing the range of 32 into equal halves, those with 16 and below were categorised as having favourable perception of their relationship while those equal to or above 16 were categorised as having unfavourable perception.

RESULTS AND DISCUSSION

Socioeconomic characteristics - Figure 1 shows that 91.7% of the crop farmers were male, while 8.3% were female. This implies that more male were involved in farming than the female. Only male (100%) made up the population of cattle rearers. The sole involvement of male in cattle rearing can be adduced to the rough terrain and various inconveniences they have to undergo *vis-à-vis* the stressful nature of the job, which makes such a job unsuitable for the female gender.
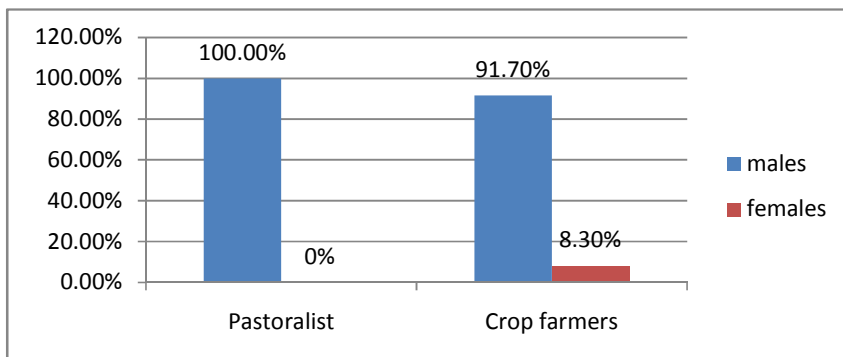
Figure 1: Sex distribution of respondents

The age distribution of pastoralists as presented in Figure 2 reveals that cattle rearers who fell below 30 years were 23.4%, , those in the range of between 31 and 60 years were 66.7% , and 10% were above 60 years. This implies that majority of the cattle rearers were still young. The mean age was 40.5 years. The age distribution of the crop farmers shows that 50% of the respondent falls in the above 60years category and the other half were under 60 years. Mean age was 58.5 years for crop farmers. The finding shows crop farmers were older than pastoralist in the study areas. This suggests that most of the pastoralists are still energetic with vigour to take up both economic and social activities that could enhance the living status of the households. However, in the case of violence they will have more ability to inflict harm and damage to crop farmer.
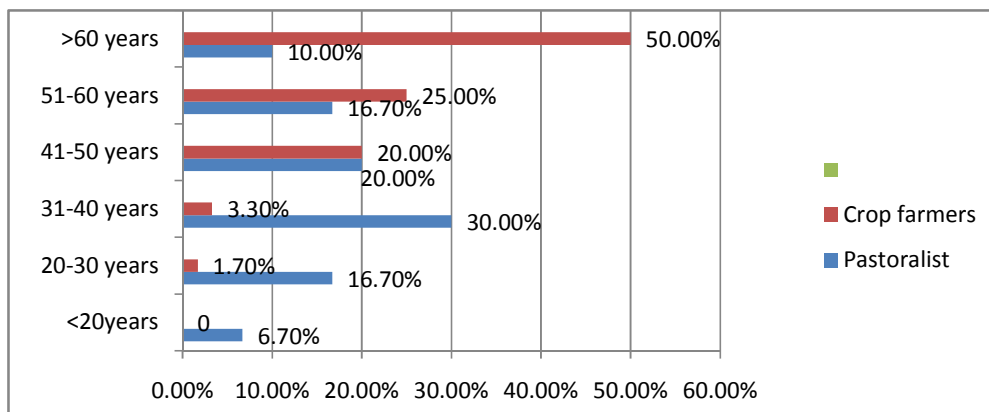
Figure 2: Age distribution of respondents

The pastoralist as shown in Figure 3 were all (100%) Muslims, while majority (96.7%) of the crop farmers were of the Christians. This area of difference could also serve as flash points for conflicts as their beliefs and manner of lifestyle may be contrary. Thus, communication programmes should preach tolerance and patience and encourage dialogue to understand one another's view point in case of conflicts.
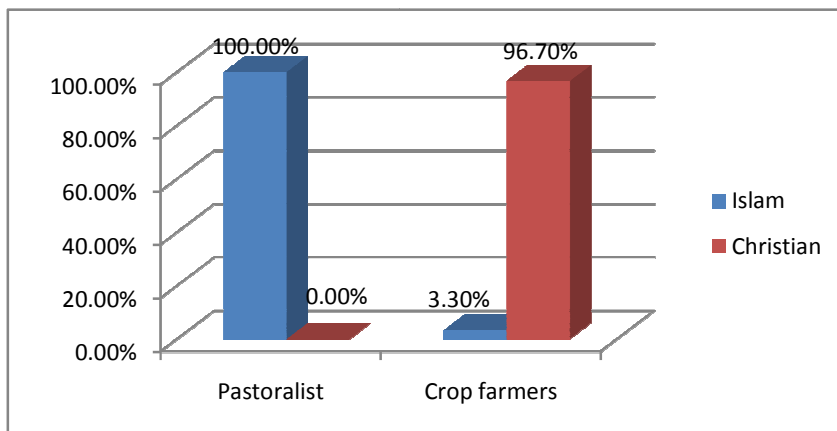
Figure 3: Distribution of respondents based on religious affiliations

The educational level of the respondents as shown in Figure 4 reveals that majority (66.7%) of the pastoralist had Qur'anic education. This is likely because they were itinerant and this lifestyle may not be suited to formal education. This calls to question the nomadic education programme of the Federal government as only 20.0% had primary education and 10.0% had secondary education. The reverse was however the case with the crop farmers as 31.7% had primary education, 21.7% had secondary education and 10.0% had adult education.
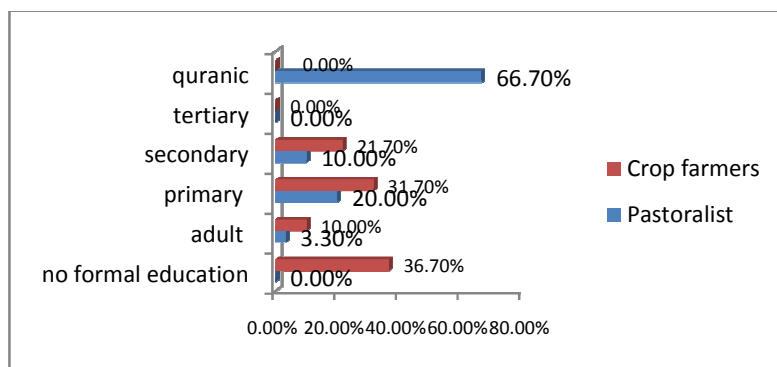
Figure 4: Educational distribution of respondents

Figure 5 indicates that 26.7% of the pastoralists had occupational experience of 1 to 10 years, those who had over 10 years of experience were more (73.3%).For crop farmers, few of them (16.7%) had a working experience of less than 20 years of age, signifying a relatively higher level of experience than the pastoralists Mean years of occupational experience was 32.5 years for farmers and 20 years for pastoralists. This finding tallies with the age groups of the farmers. The study therefore reveals crop farmers had more occupational experience than the pastoralists. Thus by their age and experience they will be able to settle conflicts amicably.
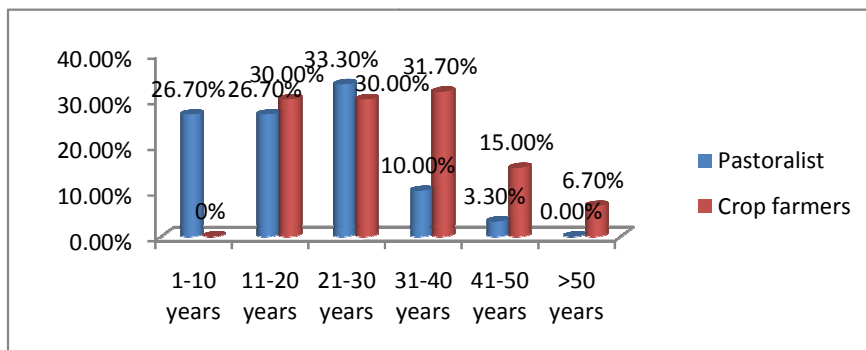
Figure 5: Distribution of respondents according to occupational experience

Figure 6 shows that 70.0% of the pastoralist speaks Yoruba language which may be due to their long stay in the southwest where Yoruba is the major language. All (100.0%) the pastoralist speaks Hausa language. Twenty percent of the pastoralists were able to speak English. Fifty five percent of crop farmers could speak English which is due to the fact that Yoruba's place more value on education. Those who spoke Yoruba were 96.7% while 3.3% of the farmers could not speak Yoruba because they are non Yoruba indigenes. Those who spoke Hausa among them were 6.7 %. The distribution of languages spoken reveals that language will not be a barrier as majority of both parties will be able to understand one another especially in the Yoruba language. Communication programmes on promotion of peace should thus be implemented in Yoruba and Hausa languages to ensure effectiveness
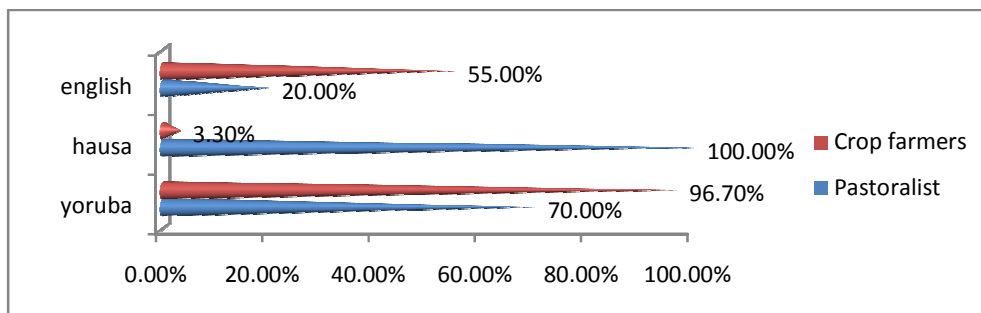
Figure 6: Distribution of respondents according to languages spoken

Causes of conflict - Causes of conflict as indicated by crop farmers (Figure 7) was mainly due to destruction of their crops by the cows of the pastoralists (86.7%), followed by stealing of their farm produce by the pastoralists (13.3%). On the part of pastoralists, 54.0% agreed destruction of crops was the main cause of their conflict, while others responded by indicating lack of grazing reserves for their animals as a cause of conflict. It is thus clear that the competition for land to provide feeding material vis-à-vis for crop production is the main source of conflict.
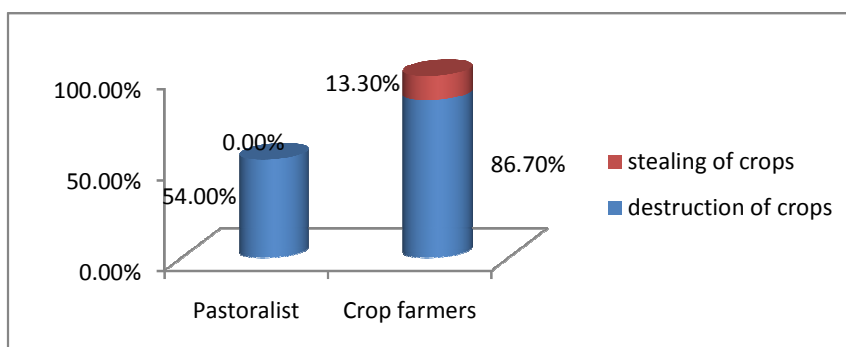
Figure 7: Distribution of respondents according to causes of conflicts

Perception of interpersonal relationships - Table 1 presents the responses of the respondents on their relationship with one another. Those who agreed that they can never be in agreement with one another were 98.9% while 1.1% were undecided. About 97.0% agreed that the only solution was for them to stay in separate locations, while the rest were undecided. Those who agreed that no solution has ever worked to resolve their disputes were 96.7%. All the respondents agreed that their relationship with one another was far from being cordial. Furthermore, only 13.3% of the respondents believed that there can still be a good relationship between them; the majority (86.7%) did not. It is thus clear that both parties are not in good terms with each other. They are thus predisposed to violence any time.

The t-test as shown on Table 2 revealed there was no significant difference in the perception of the two parties (mean difference=0.67, t= 0.13, p>0.05). Therefore, both parties agree to the existence of a highly volatile relationship

Table 1: Perception of interpersonal relationships among respondents (N=)

Statements	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Level of relationship between pastoralist and arable crop farmers is not cordial	80.0	20	0.0	0.0	0.0
The pastoralist and arable crop farmers can never agree together	80.0	18.9	0.0	1.1	0.0
No solution has worked to solved our dispute	53.4	43.3	1.1	0.0	2.2
There can be no other solution except pastoralist and arable crop farmers stay in separate areas	51.7	45.0	1.7	0.0	0.0

Table 2: Result of t-test analysis on the difference in respondents' perception

	Mean	Mean difference	Std. deviation	t-value	df	p-value
Farmers	32.60	0.67	2.84	0.13	29	0.89
Pastoralist	32.53					

Institutions for conflict resolutions

All respondents in the study indicated that the head of the farming community and the head of the pastoralist groups are often the point of call in the event of any conflict. However, 23.3% of the pastoralist indicated government agencies were also involved while 31.7% of the crop farmers indicated same. It is thus evident that traditional avenues are being sought to settle disputes and this should be strengthened and incorporated into conflict settlement programmes as they are closest to the people and can quickly respond to crises before government institutions
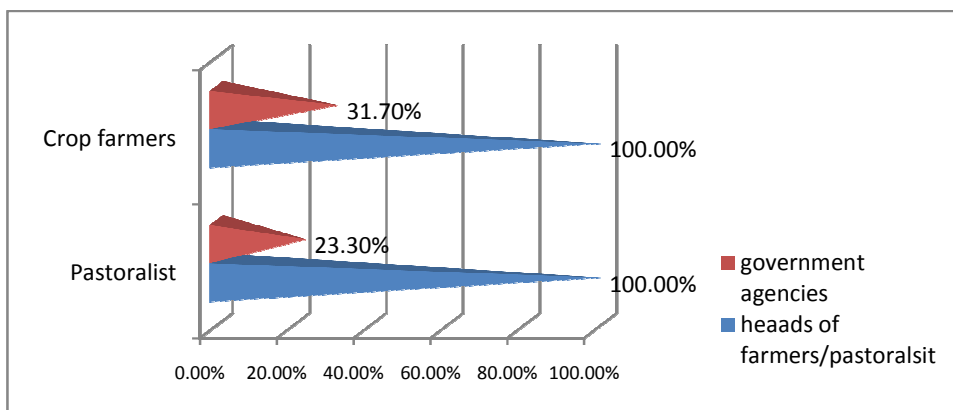
Figure 8: Distribution of respondents according to institutions involved in conflict resolutions

CONCLUSIONS AND RECOMMENDATION

The study concluded that majority of the respondents were males and married. Armers were older than pastoralist. There was also an unfavourable perception of their interpersonal relationship in the study area. The destruction of crops was the major cause of conflict between pastoralists and crop farmers in the state. It is therefore recommended that

1. Pastoralists should seek permission from host communities before embarking on grazing activities
2. Sustainable cattle production, such as ranching as it is being done in developed countries where we have cow boys should be encouraged. Grazing lands/reserves should be established by government or government –private partnership in the northern and middle belt of the country and pastoralist should be given access to such at an economic rate.
3. Government task force should be inaugurated as it is being done by some states to monitor the activities of pastoralists, attend to conflicts and also enforce the sustainable cattle production programme

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EFFECT OF ENGAGEMENT IN CASSAVA VALUE ADDITION ACTIVITIES ON RURAL HOUSEHOLDS IN SAKI EAST LOCAL GOVERNMENT AREA OF OYO STATE

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ABSTRACT

The diverse uses and demands for cassava products have impact on rural households hence this study was carried out to determine the effect of engagement in cassava value addition activities on rural households in Saki-East Local Government Area of Oyo State. Data were collected on respondents' personal characteristics, source of information, various forms of value addition activities, benefit of value addition of cassava on rural household and various constraints faced by cassava farmers. Multistage sampling procedure was used to select sample of 120 respondents. Data were analyzed using descriptive and inferential statistics at p =0.05. The mean age was 43 years with standard deviation of 17.23 years and mean household size of 5 persons with standard deviation of 3.81 persons. Majority of the respondents (74.2%) were female and married (62.5%), 44.2%, 46.7% and 43.4% were Christians, had secondary education and had more than 20 years of processing experience. Various forms of cassava value addition activities respondents engaged in were garri, fufu, lafun, starch, livestock feed, flour, chips and tapioca. Benefit of cassava value addition activities were mostly on increase in household food security (80.8%), increase in income (66.7%) and generation of employment for rural dwellers (58.3%). The respondents had low level of benefit. Major constraints faced by respondents were inadequate capital (63.1%), transportation problem (50.8%) and low level of cassava tuber production (41.7%). Respondents' age (χ^2=5.72), household size (χ^2=6.69) and marital status (χ^2=2.14) were significantly related to the benefit derived from engagement in value addition activities. In spite of various cassava value addition activities respondents engaged in, respondents' level of benefit was low. The study recommends that adequate credit facilities should be provided. There is also the need for farmers to be encouraged to venture into more cassava tuber production so that raw materials for processing will be readily available.

Keywords: Cassava, value addition, rural households

INTRODUCTION

Cassava is one of the important sources of food in the tropics. It is a crop that is extensively used in trade. The collaborative study of cassava in Africa (COSCAI) has shown that in tropical Africa, 40% of total cassava is planted purposely for sale and that cassava contributes more cash income to households than any other crop. (Onabolu and Bokanga,2003). Cassava is a starchy root crop and it is fondly called the anti-famine crop in Africa. No nation in the continent that extensively cultivate this sturdy crop has been known to suffer wide-spread famine in recent years. It is also the most important root crop in Nigeria in terms of food security and employment creation (Ukpabi, 2008).

Value addition simply implies the process of increasing the economic worth or value of a commodity by transforming it to another commodity termed as a value added commodity. It includes local processing, packaging, cooling, drying, extracting or any other types of process aimed at improving the value of raw agricultural produce. Value addition has been identified as a pathway for farmers out of poverty. A study by Unterschultz, Jefrey, and Qugraine (2000) suggest that farmers would be better off with increased prices of their produce as a result of value addition. Lundy, Ostertag and Best (2002) observed that opportunities exist for rural households to improve their incomes and diversify their livelihoods through value addition.

Some value added products from cassava includes cassava flour, starch, bread, chin-chin, chips, flakes, odourless fufu, doughnut, cake, biscuit and animal feed. The value adding technology in cassava consumption, diversifying its uses as well as using same to enhance livelihoods of farm families through providing opportunities for employment, micro agro enterprises, development income and boosting economy of rural households (Nwakor, Ekwe, Amagbo, Anyaegbunam, Ironkwe and Asumagha, 2007). Again, Amamgbo, Ekwe and Aeniedu (2006) observed that diversification of cassava use promises high potentiality for wedging hunger, alleviating poverty as well as enhancing the livelihoods of many rural farm households. Thus development and dissemination of cassava value adding technologies by National Root Crops Research Institute, Umudike is timely, appropriate and vital in the current effort to improve the livelihoods of rural households.

Despite the aforementioned importance of value addition, Nigeria still suffers from challenges which would have been overcome if the farmers had been engaging in cassava value addition. For instance, Awoyinka (2009) noted that Nigeria can earn about US$5 billion per annum from cassava and its by-products, making it a key foreign

exchange earner and instrument for job creation and catalyst for development. The USAID (2013) records also reveal that Nigeria spends about USD 680 million annually on importation of flour, starch, glucose, and animal feed, most of which can be made from processed cassava. In boosting the rural economy, reports inferred that a farmer who harvested a basin of cassava and sold it at five hundred naira(500) has the opportunity of making five thousand naira (5,000) from that basin of cassava through the value addition activities. Attempt by National Root Crops Research Institute (NRCRI), Umudike, Nigeria to add value to cassava have led to development of several products such as cake, bread, chin-chin, from cassava in order to diversify its utilisation (Ekwe, Nwafor, Ironkwo and Amangbo, 2008).

Onabolu and Bokanga, (2003) opines that with the increase in population and with the current trend in the economy and trend towards urbanization, the need to diversify the products made from cassava and to maintain their appeal to customers is of high priority and it calls for more investment in product development and research on cassava. As such this study sought to examine effect of engagement in cassava value addition activities on rural household in Saki east local government area of Oyo state. The broad objective of this study is to investigate the effect of engagement in cassava value addition activities on rural household in Saki east local government area of Oyo state.

The specific objectives are to:
i. describe the personal characteristics of the respondents in the study area.
ii. identify the sources of information of value addition activities in the study area.
iii. examine various value addition activities by farmers in the process of adding value to cassava.
iv. ascertain benefit derived from engagement in cassava value addition on rural household
v. identify the constraints faced by cassava processors in the process of adding value to cassava.

METHODOLOGY

The study was conducted in Saki East Local Government Area of Oyo state with its headquarter at Ago-Amodu. The Local Government Area has five major communities namely; Ago-Amodu, Sepeteri, Ogbooro, Oje-Owode and Agbonle. It has an area of 1,569 square kilometres and an estimated population of 110,223 (National Population Commission, NPC, 2006). Saki East Local Government Area was purposively chosen because it is rural-based and they participate actively in cassava production,

processing and marketing. Population of the study consists of all cassava processors in the study area.

A multistage sampling procedure was used in selecting the respondents. In the first stage, two (2) major cassava processing centres were randomly selected from each of the major community making ten (10) processing centres. In the second stage, twelve (12) respondents were randomly selected in each of the processing centres. In all, (120) one hundred and twenty respondents constituted the sample size.

Structured interview schedule and questionnaire were used to elicit data from the respondents. Data were analysed using descriptive statistics (frequency and percentage) and the hypothesis was tested using chi-square. Information collected were on socio-economic characteristics of the respondents, source of information, various value addition activities by processors, benefits derived in engagement in value addition as well as the problems encountered in cassava processing activities.

RESULTS AND DISCUSSION

Result on table 1 shows that 74.2.2% of the respondents were female. This is expected given the fact females are always engage in post-harvest activities. This is in line with the observation of Ezedinma *et al* (2007) who reported that cassava processing is a female dominated activity. It was also found that 50.8% of the respondents were between 21 and 40 years of age with the mean age of 43years. It implies that farmers are in their active age and can still participate actively in agricultural production. This result is in consonance with that of Yekini (2011) that mean age of farmers in Nigeria is 43 years.

The marital status result of the respondents show that 62.5% of them were married and only 18% were single revealing that most of them had family responsibilities. The distribution of the respondents based on religion reveals that 44.2% were Christians and only 20% were traditional worshippers. The information on educational level of respondents indicates that larger percentage (46.7%) had secondary education compared to others. This implies low literacy level may have negative impact on adding values to cassava.

The information on household size of the respondents indicates that 69.2% of the respondents had household size between 1-5 persons while 30.4% of the respondents had household size above 5 persons. Household size determines the availability of family labour, the larger the household size, the more human capital available to the family that can contribute to family farming labour. Respondents had more than 20 years of processing experience (43.4%). This shows that

respondents are highly experienced in cassava   processing.

Table 1: **Distribution of respondents by socioeconomic characteristics (n = 120)**

Variables	Frequency	Percentage	Mean	S.D.
Age				
Below 21	0	0		
21 – 40	61	50.8	38.58	11.230
41 – 60	49	40.8		
>60	10	8.4		
Sex				
Male	31	25.8		
Female	89	74.2		
Religion				
Christianity	53	44.2		
Islam	43	35.8		
Traditional	24	20.0		
Marital status				
Single	22	18.3		
Married	75	62.5		
Divorced	14	11.7		
Widowed	1	0.8		
Years of formal education				
No formal education	16	13.3		
Primary	28	23.3	6.84	5.741
Secondary	56	46.7		
Tertiary	20	16.7		
Household size				
1-5	83	69.2		
>5	37	30.4		
Years of processing experience				
1-10	18	15.0		
10-20	50	41.6		
>20	52	43.4		

Source: Field survey; 2015

Source of information

Result on source of information on table 2 shows that 41.5% of the respondents got their information from other processors while others 21.8%, 16.7%, 11.0%, 6.7% and 3.3% of the respondents sourced their information from radio, television, all of the above, extension agents, research institute and newspaper respectively.

Table 2: Distribution of respondents by sources of information

Sources of information	Frequency	Percentage
Radio and Television	25	21.8
Newspaper	8	3.3
Other processors	49	41.5
Extension agents	13	11.0
Research institutions	4	6.7
All of the above	20	16.7

Source: Field survey, 2015

Forms of value addition activities

Table 3 shows that 80.2% of the respondents indicate gari (80.2%), fufu (74.5%), lafun (66.4%), flour (58.0%), starch (47.3%), livestock feeds (45.8%), chips (27.4%) and tapioca (6.1%) as the forms in which they process cassava. The study reveals that chips and tapioca were not adequately processed by the respondents. The result may be as a result of low literacy level among the respondents and the inadequacies in the farmer-processors/extension contact through which fresh opportunities and skill acquisition will be made available and possible to the prospective users.

Table 3: Distribution of respondents based on various forms of value addition activities

Processed forms	Frequency	Percentage	Rank
Gari	105	80.2	1st
Starch	62	47.3	5th
Fufu	98	74.5	2nd
Lafun	87	66.4	3rd
Livestock feed	60	45.8	6th
Chips	33	27.4	7th
Cassava flour	76	58.0	4th
Tapioca	8	6.1	8th

Source: Field survey, 2015

Benefit derived from engagement in cassava value addition on rural household

From table 4, increase in household food security shows a percentage of (80.8%), increase in income (66.7%), generation of employment opportunity for rural dwellers (58.3%), increase in demand for cassava and the products (58.3%) increase in involvement in economic and social organization (54.2%), increase in marketing outlet for cassava(50.8%), increase in acreage cultivation (45.8%), reduction in cassava wastage (37.5%), improvement of the taste and quality of cassava (31.7%) and increase in access to agricultural information (30.8%). The distribution is not surprising as one of the major crop cultivated in the rural area is cassava.

Table 4: Distribution of respondents based on benefit derived from engagement in cassava value addition on rural household

Benefit	Frequency	Percentage	Ranking
Reduces cassava wastage	45	37.5	8th
Improves the taste and quality of cassava	38	31.7	9th
Increases income	80	66.7	2nd
Increases acreage cultivation	55	45.8	7th
Generates employment for rural dwellers	70	58.3	3rd
Increases access to agricultural information	37	30.8	10th
Increases involvement in economic and social organization	65	54.2	5th
Increases household food security	91	80.8	1st
Increases marketing outlet for cassava	61	50.8	6th
Increases demand for cassava and the products	70	58.3	3rd

Source: Field survey, 2015

Result on Table 5 shows that 42.5% of the respondents had high level of benefit while 57.5% had low level of benefit. This implies that the processors experienced relatively low level of benefit. The fact that 57.5% had low level of benefit suggest the need to address the constraints faced when engaging in cassava value addition on rural household in the study area.

Table 5: Distribution of respondents by level of benefit derived in engagement in cassava value addition

Level of benefit	Percent
Low	57.5
High	42.5
Total	100

Source: Field survey, 2015

Constraints faced by cassava farmers

Table 6 shows the major constraints encountered by the processors as follows: inadequate capital (63.3%), transportation problem (50.8%), low level of cassava tuber production (41.7%), inadequate technical know-how of processing machine (40.0%), lack of adequate value addition knowledge of cassava (37.5%), insufficient labour and inadequate market (33.3%) and involvement in many non-farm activities (24.2%).

Table 6: Distribution of respondents based on constraints faced by cassava processors

Constraints	Frequency	Percentage	Rank
Inadequate capital	76	63.3	1st
Low level of cassava tuber			

production	50	41.7	3rd
Involvement in many non-farm activities	29	24.2	8th
Inadequate market	40	33.3	6th
Inadequate technical know-how of processing machine	48	40.0	4th
Lack of adequate value addition knowledge of cassava	45	37.5	5th
Insufficient labour	40	33.3	6th
Transportation	61	50.8	2nd

Source: Field survey, 2015

Relationship between personal characteristics and benefit derived from engagement in cassava value addition

As presented in table 7, it reveals that age of the respondents (χ^2 =5.72), marital status (χ^2=2.14) and household size (χ^2=6.69) were significantly associated with the effect of engagement in cassava value addition on rural household in the study area. This implies that age, household size and marital status of the respondents had effect on engagement in cassava value addition on rural household in the study area while the other personal characteristics (religion and educational level) were not significant at the 0.05 level. It shows that respondents' age is vital to the volume of value adding activities he or she will carry out. Respondents should not be too old or too young but possess enough strength and experience gain to perform the value adding activities. The result also explains that respondents with larger household size would enjoy labour support which can thus help to boost production**.**

Table 7: Statistical analysis of respondent's personal characteristics and benefit derived

Variable	χ^2	Df	p-value	Remarks
Age	5.72	2	0.000	S
Marital status	2.14	3	0.05	S
Educational level	14.22	3	0.24	NS
Household size	6.69	2	0.03	S
Religion	0.49	1	0.48	NS

Source: Data analysis, 2015

df =degree of freedom, χ^2 =Chi square, S = significant, NS=not significant, p-value=significant at p=0.05

CONCLUSION AND RECOMMENDATIONS

The study concludes that age, marital status and household size can be used to determine the effect of engagement in cassava value addition activities of rural household in the study area. Variables such as age, marital status and household size were shown to have positive effect on the respondents' engagement in cassava value addition activities of rural household in the study area. However:

1. the cassava processors should be organised into groups or cooperative society to address the problem of finance
2. Farmers should be encouraged to venture into cassava tuber production so that raw materials for processing will be readily available
3. The extension agencies should assist the processors to discover better technologies that can be used to overcome the problem of technical know-how and train them on how to utilise the improved processing machine

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ASSESSMENT OF FOOD SECURITY AMONG FARMING HOUSEHOLDS IN AGRARIAN COMMUNITIES OF OLUYOLE AREA OYO STATE, NIGERIA

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ABSTRACT
This study assessed food security status among farming households in Oluyole area of Oyo state, Nigeria. Multi-stage sampling technique was used to select 120 farmers. Data were collected with the aid of interview schedule and analyzed using frequency counts, percentages, mean and Logistic regression analysis. The result revealed that 60.8% of the farmers were male, 33.3% had secondary school education and the mean age was 51 years with an average household size of 6 persons. Findings also revealed that 86.7% of the households were food insecure while only 13.3% were food secure, some of the factors responsible for food insecurity with their mean score include unavailability of locally produced food (2.77), changes in the price of food items (2.22) and household income (2.56). Result of hypothesis testing revealed that there is a significant relationship between sex (β=-1.765, $p<0.05$), years of farming (β=-0.121, $p<0.05$), household income (B=0.012, $p<0.05$) and food security among the farming households. Based on the findings, it was therefore concluded that most of the farming households were food insecure. Therefore, it is recommended that efforts should be made at improving access of farming households to production resources by the government or non-government organizations, since they are involved in the agricultural value chain. Farmers of all gender should be exposed to cost-effective food production, processing and storage strategies. The government should be firm on policies that will encourage local food production if the attainment of food security will not be a mirage in Nigeria.
Keywords: Food security status, locally produced food, availability, accessibility and farming households

INTRODUCTION

The problems of hunger and food insecurity have global dimensions and it requires urgent concerted actions to prevent dramatic increase of hunger in some regions considering the anticipated increase in the population of the world and the pressure on natural resources (FAO 1996). Food security is a condition in which all people at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets people dietary needs to live an active and healthy life (FAO, 2007). According to Oni *et al*, (2011) food security is the availability of food throughout the year to sustain household protein, energy, and other nutritional requirements. Hart (2009) pointed out that most definition of food security includes the phrase "at all times" and as such does not distinguish between different durations and intensities of food insecurity. A household is considered food secured when it has access to the food needed for a healthy life for all its members (adequate in terms of quality and culturally acceptable) and when it is not at risk of losing such success (Alaja *et al* 2011). The world's population can be divided into three groups considering food security status: the first and the largest of food secured group includes those who are sure of having enough to eat to enable them to live an active and healthy life, the second group comprises those who are vulnerable to changing economic conditions and thus may not always have enough to eat; their food security is at risk, while the third group are the absolutely poor, those who

frequently consume less than the amount needed for healthy living (Joachin, 1991).

However, Nigeria attained self-sufficient in food production and a net exporter of food to other regions of the continent in the 1950s and 1960s. Due to reduction in food production in the country, the government embarked upon massive food importation in order to satisfy excess demand over the food supply. Stamoulis *et al* (2004) opine that the persistence of hunger in the developing world means that ensuring adequate and nutritious food for the population will remain the principal challenge in policy making in the future. World Bank (2012) estimates the population of Nigerian to be above 160 million people, the largest in Africa and almost accounting for 47% of West Africa's total population. Indeed, factors such as desertification, climate change, and erosion are also impacting on the already diminishing resources and further threatening food production. Obamiro *et al* (2005) report that the problem of food insecurity especially during the hungry period among rural households in Nigeria is long-standing. The level of food insecurity has continued to rise steadily since the 1980s. It rose from about 18% in 1986 to about 41% in 2004. The national per capital growth in the production of major food items in Nigeria has not been sufficient to satisfy the demand for an increasing population, several reports show a consistent increase in the production of staple food in the country especially between 1999 and 2005, but there is still an observable gap between food demand and food supply (Sanusi *et al*., 2006).

Despite all the various agricultural programmes and projects set up by the government in the country in order to reduce the rate at which food insecurity grow in the country, many of the populace are still not food secured. The programs such as Agricultural Development Project (ADP); Operation Feed the Nation, (OFN); Green Revolution (GR) in the 70s; Directorate of Food, Road and Rural Infrastructure, (DFRRI) in the 80s; National Agriculture Land Development Authority,(NALDA) in 90s, National Fadama Development Project,(NFDP); Nigeria Agricultural Cooperative and Rural Development Bank,(NACRDB); National Special Programme on Food Security, (NSPFS); Commodity Marketing and Development Companies, (CMDC),Presidential Initiatives on selected crops and 7 Points Agenda with emphasis on Food Security.

The primary objective of the study was to assess the food security status among farming households in Oluyole area of Oyo State, Nigeria. Specifically, the study determined and characterised the food security status, assess factors responsible for food insecurity and described the socio-economic characteristics of the farming households in the study area. The hypothesis tested was to establish a significant relationship between selected socio-economic characteristics and the food security status of the farming households.

METHODOLOGY

Study area - This study was carried out in Oluyole Local Government Area of Oyo State in the southwestern geopolitical zone of Nigeria, It has an area of 629 km² and a population of 202,725 (NPC, 2006). It shares boundaries with Ibadan South West, Ibadan South East, Ona Ara and Ido Local Government Areas. The study area has distinct dry and wet seasons with high relative humidity. The vegetation type is rainforest. Onigambari forest reserve is located in the area and it is also a source of livelihoods for the people in the study area.

Sampling procedure and data collection - A multistage sampling technique was used to select 120 respondents for the study. The selection procedure was as follows: The first step was the random selection of one zone out of the four zones in Oyo State Agricultural Development Program. The second stage was the random selection of three extension blocks in the selected zone. At the third stage, simple random sampling was used to select two extension cells to make six cells and the fourth stage include a random selection of two communities in each of the cells. Thus a total of twelve communities were selected for the study. Finally, from the frame of the list of farmers in each community, a proportional random selection was carried out to select farmers respectively from the communities which added up to 120 farmers. An interview schedule was used to elicit information from the farming households for the purpose of the study.

Measurement of variables - The factors responsible for food insecurity in the households were measured at an ordinal level on 3 point rating scale format of major factor (3), minor factor (2), not a factor (1). The household food security status was measured using the USDA approach for the analysis of farm household food security at an ordinal level on three-point rating scale format of often true, sometimes true and never true. For these questions, both often true and sometimes true are considered as affirmative responses because they indicate that the condition occurred at some time during the year and are coded as 1 while never true as 0. The maximum obtainable score was 16 while the minimum obtainable score was 0. The maximum and minimum obtainable score were added together to a resultant score. The resultant score was divided by 2 to get an average score of 8. Any household that has a score below the average score was categorised as food insecure household, and any household that has a score above the average score was categorised as food secured household.

Data analysis - Data were analyzed using descriptive statistics such as frequency counts, percentages, mean and Binary Logistic regression to test the hypothesis.

The Binary Logistic regression model

$$\text{Prob}(Y=1/X) = \ln(Pi/1-Pi) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9$$

Pi = Probability that farming households are food secure

$Y = 1$ if household is food secure, 0 if household food insecure

β_0 = constant

$X1$ = sex (male=1, female=0)

$X2$ = marital status (single=1, married=0)

$X3$ = religion (Islam=1, Christianity=0)

$X4$ = age (measured at interval level as actual year of the respondents)

$X5$ = estimated monthly income (measured at interval level as estimated monthly income of the respondents)

$X6$ = household size (measured at interval level as the number of persons living together in a household)

$X7$ = farm size (measured at interval level in acres)

$X8$ = educational status (No formal education=1, Primary education=0, Secondary education=0, Tertiary education=0)

$X9$ = years of farming

RESULTS AND DISCUSSION

Socioeconomic characteristic of respondents - Entries in Table 1 showed the socio-economic characteristics of the respondents. The

result revealed that 60 percent of the respondents were male. According to Ziervogel et al (2006), men have easier access to farmland through paternal inheritance than women in Nigeria. Based on this, male-headed households are expected to have more access to farmland for food production. Less than one-third (25.8%) of the farmers were in the age category of 50 – 59 years of age. The mean age was 51 years. Similarly, the average household size was 5 persons. Household size is an important factor in farming household because the larger the size, the more likely they could supply labour needed for agricultural activities. Findings also revealed that 33.3% of the farmers had secondary education. Education is believed to enhance knowledge and comprehension of new farm technologies, practices and systems which in turns improve households' food security status. This agrees with Babatunde et al, (2007) who posited that education is a social capital, which could impact positively on a household's ability to access and adopt innovations as well as assisting them to

take good and well–informed production and nutritional decisions. Furthermore, the result of the analysis (Table 1) also revealed that the average farm size of the farmers was 2.41 acres, which indicated that the respondents were subsistence farmers. Akinsanmi and Doppler (2005) posited that the size of farmland that a household cultivates directly affects their production and hence food security. Most (92.5 %) of the farmers earn less than fifty thousand naira per annum that is, $166.6 per annum and less than $1 per day)from farming ventures. This showed that they are a low income earner. Thus, the farmers will require additional source of fund to be able to afford sufficient food for the households. This agrees with Olagunju et al., (2012) who posited that a low-income household is more likely to suffer food shortages than a high- income household. The amount of money available determines the households' purchasing power and hence the quantity of food items they can buy. This also has implications in their quality of living.

Table 1: Distribution of socio-economic characteristics of the respondents (n=120)

Variables	Frequency	Percentage	Mean	SD
Sex				
Male	73	60.8		
Female	47	39.2		
Marital status				
Single	76	63.0		
Married	44	37.0		
Religion				
Islam	61	50.8		
Christianity	59	49.2		
Age (Years)				
<30	16	13.3		
30-39	9	7.5		
40-49	26	21.7	51	14.66
50-59	31	25.8		
60-69	23	19.2		
70-above	15	12.5		
Estimated monthly income (Naira)				
<50,000	111	92.5		
51,000-100,000	8	6.7	29,888	18,449.65
>100,000	1	0.8		
Household size (persons)				
1-5	63	52.5		
6-10	55	45.8	5	2.39
11-above	2	1.7		
Farm size (acres)				
<1	1	0.8		
1-4	101	84.2	2.41	0.99
>4	18	15		
Level of Educational				
No formal education	22	18.3		
Primary education	31	25.8		
Secondary education	40	33.3		
Tertiary education	27	22.5		
Years of farming				

Variables	Frequency	Percentage	Mean	SD
<20	69	57.5		
21-40	33	27.5	18	12.34
>40	10	15.0		

Source, Field Survey (2016)

Food security status of the respondents - The result of the study (Table 2) showed that majority (87.5%) of the farmers revealed that they ate less than they should, 82.5 percent said that they were ever hungry and did not have anything to eat, while the same percentage of the respondents were worry that food stock will run out before they get another to eat. Another startling result was the experienced inadequate food supply in the household of many respondents (79.2%) which resulted in many of the adults to skip meals or cut the size of their usual meals (76.7%) in many households. The consequences include loss of body weight (73.3%). This is an indication that food supply and availability were major concerns in the study area and good indicators of the severity of food insecurity status of the farming households. This agreed with the finding of Abur (2014) who posited that many households were facing food insecurity and skip meals to ensure the availability of another day maintenance ration.

Furthermore, the result of the study revealed that more than half (57.5%) of the children in the farming households also skipped meals as a result of inadequate fund to purchase food by their parents. This agreed with Coleman-Jensen *et al*. (2016) that reports that a food-insecure household is one in which access to adequate food is limited by a lack of money or other resources. The findings further showed about one – third (35%) had nothing to eat in a whole day. This calls for urgent attention. Gitterman *et al*., (2015) opined that households with children are nearly twice as likely to be food insecure than households without children.

Table 2: Distribution of food security status of the respondents (n=120)

Variables	Affirmative F (%)	Negative F (%)	Mean
I ate only one meal per day	105 (87.5)	15 (12.5)	0.88
I have enough resource to acquire enough food	102 (85.0)	18 (15.0)	0.85
I worry that food stock will run out before I get another to eat	99 (82.5)	21 (17.5)	0.83
I was hungry but did not eat	99 (82.5)	21 (17.5)	0.83
I can afford to feed my children balanced meals	97 (80.8)	23 (19.2)	0.81
I often experienced inadequate food supply in my household	95 (79.2)	25 (20.8)	0.79
Adult in my household skip meals or cut the size of their usual meals	92 (76.7)	28 (23.3)	0.77
I lose weight because there was not enough food to eat	88 (73.3)	32 (26.7)	0.73
I supplement my children's feed with low cost foods	82 (68.3)	38 (31.7)	0.68
I and other adults in my household did not eat for a whole day because there was not enough money to buy food	78 (65.0)	42 (35.0)	0.65
My children were not eating enough food because I couldn't afford to purchase the right quantity of required food	77 (64.2)	43 (35.8)	0.64
I cut the size of any of my children's meal because there was not enough money for food	71 (59.2)	49 (40.8)	0.59
The children skip meals because there was not enough food to eat	69 (57.5)	51 (42.5)	0.58
Children were ever hungry but you just could not afford more food	59 (49.2)	61 (50.8)	0.49
I can afford to eat balanced meal	56 (46.3)	65 (53.7)	0.46
The children ever not eat for a whole day	42 (35.0)	78 (65.0)	0.35

Source: Field survey (2016)

Categorisation of food security status of the respondents (n=120)

The results of the study (Table 3) showed the food security status of the respondents. The results revealed that majority (86.7percent) of the farming households in the study area were food insecure, it was 13.3% of the respondents that could be categorised as food secured. This implies that there is a high prevalence of food insecurity in Oluyole LGA, a typical agrarian community in Oyo State, by extension, it could be deduced that many rural households in the state were food insecure. Children from food insecure households are more likely to have poor growth attainment,

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recurrent infections, inadequate energy and nutrient intakes, compromised learning ability and psychosocial problems (Alaimo *et al.*, 2002; Kaiser *et al.*, 2002; Oh and Hong, 2003; and Reid, 2000). This agreed with FAO (2010) that reported

households are food insecure when, members of the households, at all times, lack physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Table 3: Distribution of categorisation of food security status of the respondents

Variables	Score range	Frequency %
Food insecure	8-16	104 86.7
Food secure	0-7	16 13.3

Factors responsible for food insecurity

The result of the study revealed four important factors that were responsible for food insecurity in the study area. The factors include food availability, sustainability, accessibility, and utilisation. The food availability was measured by factors which include unavailability of local production of food consumed in the community with a mean score of 2.77, lack of storage food during surplus (2.71) and lack of assistance provided during food inadequacies (2.71).The importance of food availability was corroborated by Aliber (2009) who posited that immediately after harvesting most rural households are food secure as they have enough food from their own production. Therefore facilities must be provided to upscale level of food production of farming households as well as the provision of processing and storage facilities at affordable prices. Regular training should be carried out to expose the farmers to new storage techniques. FAO (2010) pointed out that ending hunger and achieving food security requires sustainable intensification of food production, encouraging sustainable food consumption and reducing food losses and waste.

Food sustainability was another factor that could be responsible for food insecurity. This was measured in terms of weather variability to support agricultural production, Changes in the price of food item, unfavourable policies for food production, preservation and storage facilities, and economic factors on the trade of food item. The mean score for these variables were 2.25, 2.22, 2.21 and 2.07 respectively. These factors could affect the quantity of agricultural produces the farming households can produce. Government policies that support food importation will have a negative impact on local food production. Therefore, the government should be firm in keeping food importation to the barest minimum in order to encourage local food production and

reduce the vicious cycle of poverty which engulfed the farming households. This agreed with FAO (2010); Buttriss and Riley (2013) that opined that sustainable food production is key to assuring food security. Food security and food sustainability are then strongly linked.

In addition, the study revealed that food accessibility component of food security was hindered by low level of household income of the farmer (mean=2.56) and hence low purchasing power of the households. Similarly, transport and market infrastructure for food supply system affect the household access to food thereby limit their ability to access food required by the households. Finally, the study identified food utilisation capability of the house as important in the food security status of farming households. Important variables used to assess the food utilisation (Table 4) along with mean score in descending order of magnitude include Poor orientation of rural people on importance of certain food items (2.62), Poor food processing practices (2.11), Poor hygiene and manufacturing practices (2.11) and Poor diet quality and diversity (2.03). Even when the food is available the utilisation is also important in order for the household to achieve food security so as to reduce waste and to obtain better nutritional value and vitality. Therefore, concerted efforts must be made so that the rural households were empowered to overcome these elements of food utilisation described earlier on. Therefore, limited access to nutritious food in the study area could be attributed to poor orientation on specific importance of some foodstuffs, and poor food processing techniques. The findings agreed with International Food Policy Research Institute (2011) that limited availability of nutritious foods, economic constraints and lack of knowledge and information. This hindered food utilisation and hence the food security of rural households.

Table 4: Distribution of factors responsible food insecurity in the households (n=120)

Variables	Major factor		Minor factor		Not a factor		Mean
	Freq	%	Freq	%	Freq	%	
Food Availability							
Unavailability of local production of food consumed in the community	98	81.7	16	13.3	6	5.0	2.77

Lack of storage of food during surplus of harvest	95	79.2	15	12.5	10	8.3	2.71
Lack of food assistance provided during food inadequacies	93	77.5	19	15.8	8	6.7	2.71
Regular supply of food items not ready found available in community	86	71.7	24	20.0	10	8.3	2.63
Food Sustainability						
Weather variability to support agricultural production	43	35.8	64	53.3	13	10.8	2.25
Changes in the of food item	46	38.8	54	45.0	20	16.7	2.22
Unfavourable policies for food production preservation and storage	49	40.8	47	39.2	24	20.0	2.21
Economic factors on the trade of food item	39	32.5	51	42.5	30	25.0	2.07
Food Accessibility						
Household income of the farmer	76	61.7	38	31.7	8	6.7	2.56
Transport and market infrastructure for food supply system	74	61.7	38	31.7	8	6.7	2.55
Lack of purchasing power of rural household	60	50.0	48	40.0	12	10.0	2.40
Food Utilisation						
Poor orientation of rural people on the importance of certain food items	85	70.8	25	20.8	10	8.3	2.62
Poor food processing practices	48	40.0	37	30.8	35	29.2	2.11
Poor hygiene and manufacturing practices	31	25.8	42	35.0	47	39.2	2.11
Poor diet quality and diversity	40	33.3	43	35.8	37	30.8	2.03

Source: Field survey (2016)

Test of hypothesis

The result of the hypothesis testing (Table 4) revealed that there is a significant relationship between; household income ($\beta=0.012$, $p<0.05$) and food security status of the respondents. Thus a unit increase in the income level of the farmers will lead to a corresponding increase in household food security status. The income of the farmer will determine his ability to adopt innovations, hire farm machines and equipment, pay for hired labour in order to increase agricultural production and buy foodstuffs if the need arises. This agreed with Aliber (2009); (Olagunju et al. (2012) who stated that there was a strong relationship between a household's income and household food security status. Similarly, the sex of the farmer was found to have an inverse relationship with household food security status. Men have access to land, credit, exercise control on social capital and most of the resources required for agricultural production than women. Men also have the physical energy to cultivate or operate most of the tedious activities of farming and can work in terrain such as Fadama than women. The implication of this is that women are more predisposed to the challenges of food insecurity than men. This agrees with Oni et al, (2011) who posited that access to social capital is one of the determinants of household food security status. Since for security has no sex boundary, the best option is to provide enabling environments such as provision of land cultivation equipment and herbicide across the sex. These will eliminate drudgery and encourage women to engage in productive agricultural ventures.

Table 4: relationship between socio-economic characteristics of the respondents and household food security status

Variables	β	S.E	Wald	df	Sig	Decision
Age	.028	.040	.511	1	.475	N.S
Sex	-1.765	.721	5.999	1	.014	S
Marital status	.608	.898	.459	1	.498	N.S
Household size	-.181	.243	.553	1	.457	N.S
Religion	1.417	.728	3.787	1	.052	N.S
Educational status	-.784	1.198	.428	1	.513	N.S
Farm size	-.817	.607	1.809	1	.179	N.S
Years of farming	-.121	.060	4.090	1	.043	S
Household income	0.012	.000	6.324	1	.013	S
Constant	-1.507	1.492	1.020	1	.312	

CONCLUSION AND RECOMMENDATIONS

Based on the findings, it was therefore concluded that most of the farming households in the study area were food insecure. Factors responsible for food insecurity were unavailability of locally produced food consumed in the community, lack of adequate processing and storage facilities for food during surplus, weather variability to support agricultural production, changes in the price of food item. There was also a glaring evidence of a low level of household income. If the rural agrarian communities that were supposed to produce food for the urban communities were food insecure, then, the future is blinking for the attainment of food security in the study area and the country at large. Therefore, it was recommended that efforts should be at improving access of the farming households to production resources by the government or non-government organization. Farmers as a whole should be exposed to cost-effective production, processing and storage strategies for locally produced food. The government should be firm on policies on banning of food importation in order to encourage local food production.

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SOURCES OF INFORMATION AND FINANCE FOR WOMEN SHEA BUTTER PRODUCERS IN NORTH CENTRAL STATES OF NIGERIA

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ABSTRACT
Shea butter production activities in North Central States of Nigeria are sources of income to women in the area but the level of income received is generally low when compared with the potentials due to several factors one of which is the lack of awareness of the collectors and processors of sources of information and finance for superior handling and processing methods and equipment The study ascertained their sources of information and finance for the activity. Data were collected from 197 respondents which represented 50% of the 400 shea butter producers from Niger and Nassarawa states (200 from each state) using questionnaire and interview schedule and analyzed using descriptive statistics. Results revealed that majority (89.6%) of the respondents had 11 years' experience in shea butter production. They were married, illiterate and young with the average age of 36 years and average family size of 8. Many belonged to cooperatives (about 58%). Extension agents constituted the major (57.9%) source of information for the respondents. They had some level of contact with agricultural extension workers with majority (48.7%) having contact with extension workers every 3-6 months. However, family and friends were equally important in Nassarawa state including extension agents (62.9%). The major source of finance for their shea butter processing business was personal savings (69.1%). However, Nassarawa state respondents depended more on personal savings with a percentage of 69.1% compared to Niger state (36%). The study recommends among others that other sources of information like the electronic media should be used to complement the efforts of the extension agents and the rural women should form cooperative bodies to access better funding for enhanced shea butter production for higher income and consequent improved standard of living.
Keywords: Women, Shea butter production, Nigeria

INTRODUCTION

Shea tree *(Vitellaria paradoxa)* grows naturally in the wild in the Savannah belt of Africa, from Senegal in the west to Sudan in the east and into the foot hills of the Ethiopian highlands, as well as in 17 countries across the African Continent: Benin , Ghana, Chad, Burkina Faso, Cameroon, Central African Republic, Guinea Bissau, Cote D' Voire, Mali, Niger, Nigeria, Sierra Leone, Togo, Uganda, Zaire, Guinea and Gambia. In Nigeria the tree grows abundantly in Niger, Nasarawa, Kebbi, Kwara, Kogi, Oyo, Ondo, Kaduna, Adamawa, Zaria, Taraba, Borno and Sokoto States (Ogunsami, 2008).

The benefits derived from the shea butter tree as follows – the pulp of the fruit is edible while the bark and root are used in traditional medicine. It is used in childhood ointments for minor scrapes and cuts, and the shell of the nuts can be used to repel mosquitoes. The seed, when crushed, yields a vegetable oil that can be used in cooking, soap making, skin and hair care. This makes it a valuable trade commodity. Collecting the nuts and making butter have traditionally been women's work. Suleman (2008) observed that marketing the oil was giving women better opportunities, primarily through improved income. Shea tree activities in North Central States of Nigeria are sources of income to many people, especially women, in the area but the level of income received is generally low when compared with the potentials. This is attributable to several factors one of which is the lack of awareness of the collectors and processors of superior handling and processing

methods and equipment. Where they are aware, the cost of such equipment is generally beyond what they can afford as individual operators.

In order to transform these shea butter processing activities from a marginal economic activity into a veritable vehicle of poverty alleviation, there is the need to assess these activities of the women in the shea industry and create awareness on how to obtain higher quantity and quality of shea nuts and butter through better handling, processing and marketing procedures for higher economic returns. One of the ways of facilitating this is by assessing their sources of information and finance for their activities with a view to recommending better sources for enhanced productivity and consequently higher income for improved standard of living for the rural women.

The general objective of this study is the involvement of women in shea butter production in the north central states of Nigeria. The specific objectives are to:
1. examine the socio-economic characteristics of respondents,
2. ascertain their sources of information for the technologies available for the activities,
3. investigate the women's source of finance for the production of the shea butter in the study area.

METHODOLOGY

The area of study is the North Central Zone of Nigeria. The zone is made up of six states

namely Kogi, Benue, Niger, Kwara, Nassarawa, Plateau. The zone has a population of 21.1 million (2006 census) and a land area of 235.110 km^2 within the Guinea Savannah region of Nigeria. The zone has seven months of rainfall in the year (April – October) with July and August having the heaviest rainfall. This area has the largest concentration of shea trees in Nigeria (Okolo *et al.,* 2009). Two States Niger and Nasarawa were purposively selected because of the high density of shea trees and high level of activities in shea butter production and trade in the states.

Niger State is the largest State in Nigeria with a total land area of 76,363 sq km. It has a population of 3,950,245 (2006, census). The state is endowed with great potential for agricultural production because of the availability of abundant arable land. Nasarawa State has total land area of 27,117sq km with a population of 2,040,097 (2006 census). Nasarawa State has agriculture as the mainstay of its economy with the production of varieties of cash crops throughout the year.

There are three zones in Niger State Agricultural and Rural Development Project- Zone A (Niger South), Zone B (Niger Central), Zone C (Niger North). For administrative purposes, each zone is made up of 10 extension blocks. Each block has 8 extension circles with each extension circle having 8 extension sub-circles. From this structure, each zone is made up of 640 extension sub-circles and a total of 1920 extension sub-circles in the three zones of the entire State. There are also three zones in Nassarawa State Agricultural and Rural Development Project also namely Western zone, Eastern zone and Southern zone. Each zone is made up of 10 extension blocks, each block has 8 extension circles, while the extension circle has 8 extension sub-circles and a total 1920 extension sub-circles in the entire State.

In each state, there are 20 registered women shea butter producers per block. There is therefore a total of 200 women shea butter producers that formed the sample frame in each State. Fifty percent (50%) of the sample frame i.e. 100 women shea butter producers, were randomly selected in each State for the study. The population for this study included all women shea butter producers in Niger and Nasarawa states of Nigeria. Sampling of respondents was done using the multi-stage sampling process. The first stage involved the purposive selection of Zone A (Niger South) and Western zone in Nasarawa State for their more intensive shea butter production activities. In each State the zone like the other zones had 10 extension blocks. Each block had 20 registered women shea butter producers making a total of 200. In the second stage 50% of the sample frame i.e. 100 women shea butter producers, were randomly selected for the study.

Data required to accomplish the objectives of the study were obtained from primary (questionnaire/interview schedule) and secondary (i.e. textbooks, journals and publications) sources. A comprehensive open and close-ended questionnaire / interview schedule was developed and administered to the women shea butter farmers who constitute the target population of the study. Secondary data were collected from literature and records of the ADPs.

Data collected were analyzed using descriptive statistics such as frequency value, mean and standard deviations and percentages.

RESULTS AND DISCUSSION

Socioeconomic characteristics -The socioeconomic characteristics of the respondents including the pooled results are as shown in Table 1. The result for age revealed that the majority of the shea butter producers in the study area were within the age bracket of 30-39 years, 26.9%, within 40-49 years, 11.9% were less than 30 years while 1.6% were within 50-59 years of age. The average age of the respondents was 36 years (35 years for Nassarawa and 37 years for Niger respondents) suggesting that the producers were young. This probably indicates that shea butter production is an energy consuming activity that would be too stressful for older persons to engage in hence the predominance of young persons in the business. Reports by Ani *et al*., (2012) corroborate this finding and reported an average age of about 30 years for shea butter processors. However, studies by Matanmi *et al*., (2011) revealed that shea butter producers were generally older with over 80% of their respondents above 40 years old.

The pooled results for the marital status showed that most of the respondents were married with a percentage of 95.3%. The fact that almost all those involved in shea butter production were married (this is true for respondents in Niger, 90.6%, and Nassarawa, 100%, States).This is an indication that they engaged in it to cater for their families. The level of divorce among the respondents was very low (1%). This suggests that the family setting is closely knit. The findings agree with the results of Moore (2008) who reported that most shea butter producers were married. An examination of the respondents' household size showed that about 46.6% had 5-7 persons, about 19% had 8-10 persons while 22.3% had over 10. The average household size was 8 (7 for Niger and 9 for Nassarawa state respondents) indicating that the respondents had several persons staying with them. No doubt this large number of persons can assist them in the shea butter production operation. A household size of 7 was reported for shea butter producers in Benue state by Ani *et al*., (2012).

The result also revealed that majority of them was not literate with a percentage of 86% having no formal education. About 11.4% attended primary school while 1.6% went to secondary school. Respondents from both states showed similar poor educational background (i.e. no formal education) with a percentage of 86.5% and 85.6% for Niger and Nassarawa state respondents. This finding suggests that most shea butter producers in the study area were non-literate with very few having formal education. This finding agrees with the report of Matanmi *et al.,* (2011) who found that most shea butter producers were not educated. This low level of education may affect their adoption of new practices such as improved processing methods since it is asserted that being educated enables farmers to understand more easily the use of improved technologies (Tshivunza, *et al*, 2001).

Almost all the respondents interviewed were Muslims with a percentage of 92.7% (Table 4.1). This suggests that the study area was predominantly a Muslim area. The implication of this is that the religion is not against the adherents engaging in shea butter production. The pooled results for the major occupation of the respondents revealed that most of them were farmers. The percentage was 89.6%. This is true for the

respondents in both states (80.2% for Niger and 99% for Nassarawa state). Very few or 7.3% were into trading as their major occupation. Shea butter production is generally not a sole or major occupation among the respondents. This is because activities of shea butter production are carried out based on the availability of fruits which is seasonal.

In terms of experience in shea production the result of Table 1 showed that majority or 46.6% have been involved for 1-5 years, 30.1% have been for 1-6 years while 16.1% have been involved for 11-15 years. The average shea butter production experience of the respondents was 11 years showing that the respondents were quite experienced in shea butter production. The results for both states indicate that Nassarawa state respondents had relatively more experience than Niger respondents with an average of 15 to 8 years respectively.

About 41.5% of the respondents were not members of any farm association. About 32.1% of them belonged to Fadama association, 15.5% belonged to Ena eko kpara chizhi group while only 6.7% belonged to shea butter fruit association. Membership of farm organizations has the benefit of enabling farmers' access information and capital among others (Madukwe, 2005).

Table 1: Socio-economic Characteristics of Respondents

Characteristics	Categories	Niger Freq	%	Nassarawa Freq	%	Total Freq	%
Age (range)	<30	7	7.3	16	16.5	23	11.9
	30-39	56	58.3	59	60.8	115	59.6
	40-49	30	31.3	22	22.7	52	26.9
	50-59	3	3.1			3	1.6
	Total	96	100	97	100	193	100
Marital status	Single	5	5.2			5	2.6
	Married	87	90.6	97	100	184	95.3
	Widow	2	2.1			2	1
	Divorced	2	2.1			2	1
	Total	96	100	97	100	193	100
Household size range	4 & below	16	16.7	7	7.2	23	11.9
	5-7	56	58.3	34	35.1	90	46.6
	8-10	15	15.6	22	22.7	37	19.2
	>10	9	9.4	34	35.1	43	22.3
	Total	96	100	97	100	193	100
Educational level	No formal education	83	86.5	83	85.6	166	86
	Primary sch.	11	11.5	11	11.3	22	11.4
	SSS			3	3.1	3	1.6
	NCE	2	2.1			2	1
	Total	96	100	97	100	193	100
Religion	Christianity	7	7.3	7	7.2	14	7.3
	Islam	89	92.7	90	92.8	179	92.7
	Total	96	100	97	100	193	100
Major occupation	Farming	77	80.2	96	99	173	89.6
	Civil service	5	5.2	1	1	6	3.1
	Trading	14	14.6			14	7.3
	Total	96	100	97	100	193	100
Production	1-5	76	79.2	14	14.4	90	46.6

Characteristics	Categories	Niger		Nassarawa		Total	
		Freq	%	Freq	%	Freq	%
experience	6-10	11	11.5	47	48.5	58	30.1
	11-15	6	6.3	25	25.8	31	16.1
	>15	3	3.1	11	11.3	14	7.3
	Total	96	100	97	100	193	100
Membership of Farm Associations	Fadama association	14	14.6	48	49.5	62	32.1
	Shea fruit association	1	1	12	12.4	13	6.7
	Ena eko kpara chizhi			30	30.9	30	15.5
	Cooperatives	2	2.1	6	6.2	8	4.1
	None	79	82.3	1	1	80	41.5
	Total	96	100	97	100	193	100

Source: Field survey (2014)

Source of Information on Shea butter production

Table 2 shows the information sources to the respondents. From the pooled result, it is seen that 57.9% of the respondents got information from extension agents, 4.7% from families/friends while 37.4% of obtain information from both extension agents and family/friends. From the results it can be said that extension agents constitute the major source of information for shea butter producers in the study area. However, for Niger state respondents extension agents were the major source with percentage of 79.6% compared to Nassarawa state where the source of information is 37.1% of the respondents. Findings by Kante (2008) showed that most women shea butter producers in Mali received information on production issues from weekly meetings, opinion leaders or from a radio station at the village level.

Table 2: Sources of Information on Shea Butter Production

Sources	Niger		Nassarawa		Pooled	
	Freq	%	Freq	%	Freq	%
Extension agents	74	79.6	36	37.1	110	57.9
Family/friends	9	9.7			9	4.7
Ext agents/family/friends	10	10.8	61	62.9	71	37.4
Total	93	100.0	97	100.0	190	100.0

Source: Field survey (2014)

Respondents' sources of finance

Table 3 shows the respondents sources of finance used in their business. From the pooled results it is seen that 50.3% of them used their personal savings, 17.8% borrowed money from moneylenders, 51.3% collected loan from cooperatives. From the findings, personal savings constitute the major source of finance for the respondents in their business. When personal savings constitute the largest source of finance it is possible that respondents level of investment in the business may remain low which will affect the level of output. This is because respondents' personal income may be low. For both states, Nassarawa state respondents depended more on personal savings with a percentage of 69.1% compared to Niger state (36%). Similarly, there was high dependence on moneylenders by respondents from Nassarawa state (30.9%) compared to the 5.6% of Niger state respondents. The results showed that very few respondents patronised commercial bank loans. It is said that high interest rates, collateral requirements and cumbersome documentation demanded by the formal financial institutions deter many clients such as shea butter producers from easily assessing formal or commercial bank loans (Esinam, 2010). The low patronage of the informal sources such as moneylenders has been explained as due to their high interest rates (Ani et al., 2012).

Table 3: Respondents source of finance

Sources	Niger		Nassarawa		Pooled	
	Freq*	%	Freq*	%	Freq*	%
Personal savings	32	36	67	69.1	99	50.3
Bank loan	2	2.2	1	1	3	1.5
Money lenders	5	5.6	30	30.9	35	17.8

Cooperatives	50	56.2	51	52.6	101	51.3

Source: Field survey (2014)

CONCLUSIONS AND RECOMMENDATIONS

From this study it can be concluded that shea butter production process is dominated by women with no formal education and their participation in the process was affected by or related to some socio-economic characteristics of the women. Extension agents constitute the major source of information for shea butter producers in the study area. However, for Niger state respondents extension agents were the major source with percentage of 79.6% compared to Nassarawa state where only extension agents was the source of information for 37.1% of the respondents. Majority (69.1%) of the respondents used their personal savings to finance their shea butter business. However, Nassarawa state respondents depended more on personal savings with a percentage of 69.1% compared to Niger state (36%). The study therefore recommends among others that other sources of information such as the electronic media should be used to complement the efforts of the extension agents and women should form cooperative societies to access better funding for enhanced shea butter production and consequently higher income for improved standard of living for the rural women.

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ANALYSIS OF DIETARY INTAKE ADEQUACY OF PEOPLE LIVING WITH HIV/AIDS IN RURAL COMMUNITIES OF BENUE STATE, NIGERIA

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ABSTRACT
Human Immunodeficiency Virus (HIV) among rural dwellers depletes quality of agricultural labour and reduces quality of life. Use of Antiretroviral Therapy (ART) has not significantly reduced consequences of infection, as the effort is being compromised by inadequate dietary intake. This study analysed the dietary intake of People Living with HIV/AIDS (PLWHA) in rural communities of Benue State, Nigeria. Data were collected from 190 PLWHA randomly selected from members of two rural support groups with high prevalence of HIV in Benue State using interview schedule. The data were analysed using descriptive statistics, Pearson Product Moment Correlation, and Student t-test at 0.05 significance level. Mean involvement in agriculture was 15.2±10.6 before HIV and reduced to 9.0±8.2 after HIV infection. Extent of involvement in agriculture significantly reduced pre and post HIV infection in Benue State (t=10.2). Diet diversity score was low among 64.7% of the PLWHA, with a mean of (4.1±1.3) and diet was adjudged severely inadequate. However, change in level of involvement in agriculture had significant correlation with dietary intake (r=0.22). The study concluded that dietary intake of PLWHA in Benue State was inadequate, thus there is need for extension workers to be more pro-active in combating the current challenge of HIV/AIDS among rural households in order to improve food security.
Keywords: People Living with HIV/AIDS, diet diversity, dietary intake

INTRODUCTION

Agricultural productivity anchors on the factors of production: land, capital, labour and entrepreneur (the farmer). Therefore, land, supply of agricultural inputs, loans, credits and subsidies in agriculture may contribute to achieving optimal productivity. The functionality of these factors, however, rests on the coordination of the entrepreneur, the majority of who are rural dwellers. Such coordination is influenced by their state of health.

The impact of HIV/AIDS on agriculture is enormous: labour shortage, reduction in farm size, substitution of cash crops for crops which require less labour and strength to produce, poor household nutrition, food insecurity, economic losses among others. According to USDA (2001), for every 1% decrease in the supply of labour, production will decrease by 0.3%. The World Health Organization (WHO) also estimated that local losses in agricultural productivity from AIDS at the households or village level range from 10 to 15% in about ten sub-Saharan African countries, including Nigeria. Therefore, HIV goes beyond being a health issue but has also become more of a social and economic issue.

There have been several interventions at local government and state levels in Nigeria by various stakeholders such as the federal government, donor agencies, NGOs and others to obviate and arrest the scourge of HIV/AIDS through provision of Anti-Retroviral Drugs, clinical care and support, yet, the prevalence rate remains high and death toll from HIV/AIDS escalates at an alarming rate particularly in the rural areas (FMH, 2014). According to UNAIDS (2015), approximately 3.5 million people are living with HIV/AIDS with an estimate of 2.9 million who do not have access to Anti Retroviral Therapy (ART). In 2014, out of 1.5 million PLWHA who were eligible for ART, only 747,382 were enrolled. At the end of 2015, approximately 250,000 new infections occurred and an estimate of 180,000 AIDS related death were reported. Unfortunately, HIV infection occurs mostly among those in the sexually active age, ranging from 15-49 years, as the most common means of transmission in Nigeria is heterosexual activities (FMH, 2010). Those who fall within this age range are considered the most active, vibrant and most productive within any given community.

The statistics above indicates that urgent attention needs to be paid to support PLWHA and arrest the high rate of mortality among carriers of the virus. To achieve this, various studies (Castleman *et al* (2004) and FANTA (2004)) have shown that adequate dietary intake along side ART is the key. This is because adequate dietary intake helps keep the immune system strong, enabling one to better fight the disease and help the body of PLWHA process the many medications taken (Nanziri, 2008). HIV/AIDS attacks the immune system making the body susceptible to opportunistic infections like fever, diarrhoea, tuberculosis, pneumonia, sores and blisters and has no cure. Therefore, efforts made by government and other concerned organisations must be augmented by the infected individuals through proper and adequate dietary intake. This is because poor nutritional intake for PLWHA has dire consequences for an already compromised immune system. Adequate dietary intake may help to delay rapid progression from HIV to AIDS and reduce high mortality as a result of HIV/AIDS.

According to World Bank (2007), adequate dietary intake cannot cure HIV infection,

but it is a panacea to maintain the immune system, prevent opportunistic infections, sustain physical activity and achieve optimal quality of life. In this way, infected people can live longer and more meaningful life despite the virus. However, Nanziri (2008) noted that the role played by good nutrition and adequate dietary intake as a major component of managing the health of PLWHA is poorly emphasised in most HIV interventions.

The understanding and practice of adequate dietary intake among PLWHA is, therefore, an important step in the direction towards reducing the mortality rate from the pandemic and the consequent effect on agriculture and national economy as a whole. It is against this background that this study seeks to provide answers to the following research questions:

The general objective of the study was to analyse the dietary intake of people living with HIV/AIDS in rural communities of Benue State, Nigeria.

The specific objectives of the study are to:
1. describe the personal characteristics of PLWHA in rural communities of Benue State;
2. examine change in level of involvement in agricultural activities among respondents;
3. access the respondents' level of adequacy of dietary intake.

A null hypothesis was tested in the study:

H_01: There is no significant relationship between respondents' change in level of involvement and the level of adequacy of their dietary intake.

METHODOLOGY

The study was conducted in Benue State of Nigeria. It lies at the middle-belt region of Nigeria with a population of 4,253,641(NPC, 2006). The state is administratively divided into three agricultural zones (A, B and C) and each zone has a government owned hospital where Anti Retroviral Therapy were administered to PLWHA. The major ethnic groups in Benue State are Tiv and Idoma. The present Benue State is endowed with agricultural produce such as yam, cassava, potatoes, rice, millet, guinea corn, groundnut, maize, beniseed, sesame, soya beans among others and a vast range of fruits and vegetables which all earned the State the slogan 'food basket of the nation'.

A multi stage sampling procedure was used to select respondents for this study. The first stage was the purposively selection of two LGAs (Okpokwu and Tarka LGAs) to capture rural communities with high HIV prevalence in Benue State (FMH, 2014). In stage two, all HIV/AIDS support groups within the two LGAs were sampled comprising of one support group each in Okpokwu and Tarka of Benue State. Members of the support group were those who have tested and found to be infected with HIV. In stage three, fifty percent of registered members in each group were selected using simple random sampling technique to get a total sample size of 216 respondents out of which 190 questionnaires were returned and used for analysis giving 88.4% response rate. Interview schedule was used to collect quantitative data for the study.

Respondents' level of involvement in agricultural activities were categorised into pre-planting operations, planting operations, post planting operations, marketing of produce, processing of produce, animal husbandry and fishery. The level of involvement for pre and post HIV infections were measured using a three point scale of (a) Often (b) Occasionally and (c) Never. Often was scored two, Occasionally, one and Never, zero and the mean computed. Based on the mean Pre HIV infection (12.7) and Post HIV infection (7.0) respondents were categorised into low and high level of involvement in agriculture; Pre HIV infection low (0-13), High (14-34), Post HIV infection low (0-7), High (8-30)

Level of adequacy of dietary intake data were collected from respondents using the Individual Dietary Diversity Score adapted from FANTA scale (2007). Respondents were asked to tick Yes or No to the consumption of any of the options of 12 food groups given which are: carbohydrates, tubers, dark green leafy vegetables, fruits, meat, eggs, sea foods, food made from beans, yoghurt, milk or milk products, food made from oil, fat or butter, sugar or honey and beverages (alcoholic and non-alcoholic), using a 24 hours diet recall method. A 'yes' response was scored one and a 'no' response zero. The highest score was 12 while the lowest score was 0. The higher the score, the more diversified the diet and the more adequate. The scores were grouped into terciles (Ruel, 2003) as Low (0-4) (severely inadequate), average (5-8) (inadequate) and high (9-12) adequate dietary intake. Adequacy of respondents' dietary intake was judged based on their position on the scale.

Descriptive and inferential statistics were used to analyze the data. Descriptive statistics used include; mean, frequency and percentage distribution while inferential statistics used were Pearson Product Moment Correlation and Student's t-test.

RESULTS AND DISCUSSIONS

Respondents' personal characteristics - Age distribution of respondents as presented on Table 1 showed that in Benue, 55.3% were within the age range of 21-40 years with a mean age of 37.5±11.9 years. This suggests that the majority of the respondents were in their economically active and productive years. This is in agreement with Kormawa (2005) who opined that HIV/AIDS

affects the most active and productive segment of the rural society. The prevalence of HIV/AIDS within this age group is an indication that agricultural productivity and inevitably food security may be threatened, thereby putting families increasingly at risk of food unavailability and poor nutritional intake in the study area.

More female (58.9%) were infected with HIV than the male. This is in agreement with UNAIDS (2012) report which stated that HIV/AIDS prevalence rate were generally higher among female than male and that girls and women showed higher cum early vulnerability and infections than boys and men. These women account for 70% of the agricultural labour force and 80% of food production in Nigeria (Olomola, 2007) in addition to preparing meals consumed in homes falls disproportionately on women. This is a dangerous trend in that the more women infected with HIV/AIDS implies threat to food security and poor nutritional intake by families.

Half (51.1%) of the respondents were married. According to UNAIDS (2012), the bulk of new infections occur in persons who are not engaging in high risk sex, a sub population that includes cohabiting or married partners. Infections acquired as a result of the previous or present high risk behaviours or relationship by one sex partner is easily transmitted to the unsuspecting partner. This is probably because cohabiting or married partners are usually unsuspecting of their sexual partners and often consider them free from Sexually Transmitted Infections (STIs) and so use of condom is low. HIV infection within a family distorts family structure, reduces quality and quantity of agricultural labour. As a result of this, food production may reduce and food security becomes threatened.

The majority (53.2%) had an household size of 5-8persons with mean of 7.0±2.7 members. Similarly the findings of Adebayo (2012) indicated the average household size for most families to be between 5-8 members. The household is fairly large which may result in reduced food availability, food intake and poor nutritional status.

The highest educational level attained by (46.6%) of the respondents was secondary school education. This is consistent with the findings of Mofolorusho, Fatiregun and Osagbemi (2013) that most rural dwellers have at least secondary school education.

Education plays a major role in information communication as it is necessary for proper processing of information as observed by Oladeji and Oyesola (2000). Therefore, knowledge on dietary intake is expected to be high, resulting in a positive attitude towards adequate dietary intake.

Table 1: Percentage distribution of respondents according to personal characteristics

Variable	Percent	Mean±SD
Age (years)		
≤20	5.8	
21-30	27.9	
31-40	27.4	
41-50	24.7	
51-60	10.5	
61-70	3.7	37.5±11.9
Sex		
Female	41.1	
Male	58.9	
Marital status		
Single	23.7	
Married	51.1	
Divorced	8.4	
Widowed	16.8	
Household size		
1-4	26.8	
5-8	53.2	
9-12	18.4	
>12	1.6	6.8±2.7
Educational attainment		
Non formal education	5.3	
No formal education	23.8	
Primary education	12.7	
Secondary education	46.6	
Tertiary education	11.6	

Involvement in agricultural activities pre and post HIV infection

Table 2 shows the respondents' level of involvement in agriculture before having the knowledge of being HIV infected and their level of involvement now that they live with the virus. Mean involvement of respondents in agricultural activities before HIV infection was; land clearing (1.05), removing stumps (1.00), planting on the field (0.98) and harvesting of crops (1.00). Currently while living with HIV, (0.61) cleared their land, (0.62) removed stumps,(0.59) planted on the field and (0.59) harvested their crops. In his comparative study on the productivity level of women in HIV/AIDS prevalent and non-prevalent areas of Benue state, Ekele (2003) revealed a drastic reduction in the farm size and production

level between the two groups. If left unchecked, the impact of HIV/AIDS on agriculture would be full blown where coping mechanisms are likely to fail and food security severely threatened.

From the results, it was also observed that majority (7.3) of the respondents engaged in crop farming alone. Only a few explored other forms of agriculture such as animal breeding before (0.61) and after (0.48) HIV infection. Mean involvement in fishery was (0.03) before HIV and (0.02) after. It is important that extension workers help explore these other aspects of agriculture (animal rearing and fish farming) which are less laborious than crop farming and can also supply PLWHA households with the much needed protein for body building.

Table 2 Mean level of involvement in agricultural activities pre and post HIV infection

Variable	Pre infection	Post infection
Land clearing	1.05	0.61
Burning of cleared land	1.03	0.61
Parking of unburnt materials	1.01	0.61
Stumping	1.00	0.62
Seed selection	1.00	0.58
Planting in the field	0.98	0.59
Weeding	1.00	0.61
Thinning	1.00	0.58
Staking	0.98	0.58
Fertiliser application	1.00	0.59
Harvesting	1.00	0.59
Storage	0.97	0.65
Marketing of crop produce	0.09	0.07
Processing of crop produce	0.03	0.01
Breeding	0.61	0.48
Feeding animals	0.59	0.44
Marketing of animal produce	0.57	0.47
Processing of animal produce	0.56	0.56
Stocking of fish	0.03	0.02
Feeding	0.04	0.06
Marketing of fish produce	0.10	0.08
Harvesting of fish	0.08	0.03
Processing of fish	0.43	0.02

Categorisation of respondents' level of involvement in agricultural activities pre and post HIV infection

Table 3 reveals that, 50.0% of the respondents had both high and low level of involvement in agricultural activities before they were infected HIV. However, 56.3% had high level of involvement in agricultural activities after HIV infection as against 43.7% that had low level of involvement. .

Thus many of the respondents were still actively involved in agricultural activities, even

with their HIV status. This is so because with proper management, PLWHA can still carry on their daily activities as HIV does not necessarily mean a death sentence. Although it may not prevent involvement in agriculture, it can cause loss of man days, reduce their productivity and quality of farm produce. Therefore with proper management, using ART and adequate dietary intake, PLWHA can live normal lives for a long period of time (World Bank, 2007).

Table 3: Categorisation of respondents' level of involvement in agriculture pre and post HIV infection

Scores	Pre HIV infection	Scores	Post HIV infection
	%		%
Low	50.0	Low	56.3
High	50.0	High	43.7
Mean±SD	15.1±10.6	Mean±SD	9.0±8.2

Test of difference in the mean level of involvement of agricultural activities pre and post HIV infection

A significant (p≤0.05) difference was observed in respondents' involvement in agricultural activities pre (Mean=15.2) and post (Mean=9.0) HIV infection. This implies that food and nutrition security would be affected particularly at household level. This may cause a lowering of the body immune system due to inadequate dietary intake (Koethe and John, 2010). AIDS prolongs and deepens poverty, making it harder to escape this inevitable outcome if not properly managed.

Table 4: Difference in involvement of agricultural activities pre and post HIV infection

Variable	Mean	Std. Deviation	Mean diff.	t-value
Pre	15.2	10.6	6.2	10.2
Post	9.0	8.2		

*Significant level p≤0.05

Respondents' dietary intake using 24 hours diet recall

The distribution of respondents' 24 hours diet recall as presented on Table 6 reveal that the majority (55.3%) of the respondents ate cereals, 80.0% ate tubers while dark green leafy vegetables and food made from beans were consumed by (54.2%) and (55.3%) of the respondents respectively. Food groups least consumed were food made from yoghurt, milk and milk products (4.2%) and eggs (8.9%). This result is consistent with the report of Sanusi (2010) on food group consumption pattern in Nigeria which reveals that consumption of cereals and tubers were consumed by a high percentage of people, while the consumption of milk and milk products and eggs were consumed by a few. Diets that are predominantly starchy are usually low in micronutrients which is needed to strengthen the body immune system.

This situation presents the urgent need for extension agents and stakeholders to promote the cultivation and consumption of food that give essential nutrients (fruits and vegetables) required for optimal health and the practice of animal husbandry in order to provide protein from animal sources. Apart from the high nutritive value of vegetables, they can also serve as means of providing additional income for households who produce them (Abugu *et al*, 2013)

Table 6: Percentage distribution of respondents based on 24 hours diet recall dietary intake

Food group	%
Cereals (millet, wheat, sorghum, maize, bread, others)	55.3
Tubers (potatoes, yam, cassava, cocoyams, others)	80.0
Dark green leafy vegetables (Ugu, green leaf, waterleaf, bitter leaf, okro, others)	54.2
Fruits (mangoes, oranges, paw-paw, guava, others)	41.6
Meat (beef, pork, rabbit, chicken, offal, others	28.4
Egg	8.9
Sea foods (Fresh or dried fish, cray fish, shell fish)	38.9
Any food from beans	55.3
Any food from yoghurt, milk, other milk products	4.2
Any from made with oil. fat or butter	9.5
Sugar or honey	11.1
Tea, coffee, cocoa, herbal drink	6.3

Categorisation of respondents by dietary diversity score

Dietary diversity measured by the number of food groups consumed has been shown to be a potential proxy indicator of adequacy of nutrients (Torheim *et al*, 2004).

The Individual Diet Diversity Score (IDDS) of the respondents as indicated on Table 7 shows that 64.7% of the respondents had low IDDS of food group category, while only 0.5% had high IDDS of food group category. The mean score was 4.1 for 12 food groups. This is an indication that respondents food intake is grossly inadequate.

According to Azadbakht, Mirmiran and Azizi (2006), diet diversity improves nutritional status. Therefore eating variety of foods from different groups is usually recommended.

Although food intake among people who reside in rural areas is culturally influenced as opined by Wahlquist (2005), this result negates the researcher's submission that it is associated with a more diversified diet. The need to ensure that PLWHA have better access to good nutrition and proper education on adequate dietary intake becomes apparent.

Table 7: Categorisation of respondents by Dietary Diversity Score

IDDS	%	Mean±SD
Low	64.7	
Average	34.7	4.1±1.3
High	0.5	

There is no significant relationship between change in level of involvement in agriculture and dietary intake adequacy of PLWHA in Benue State.

There is a significant correlation (r=0.22; p>0.02) between change in level of involvement in agriculture and dietary intake adequacy. It implies that high or low level of involvement in agriculture would affect dietary intake. Benue state is largely an agrarian community with farming as the main form of livelihood and source of income. Therefore, the extent to which agricultural activities are engaged in would determine quantity and quality of food intake. This is corroborated by the findings of Ekele (2003) who in his study found that productivity level of farmers in HIV prevalent areas reduced when compared to productivity level of farmers in non HIV prevalent areas in Benue State.

CONCLUSION AND RECOMMENDATION

The dietary intake of most people living with HIV/AIDS in rural communities of Benue State accessed through the 24 hour diet recall and Diet Diversity Score (IDDS) based on 12 food groups was low and severely inadequate. It is of paramount importance that extension agents and other stakeholders work closely with local farmers especially women farmers, to identify locally sustainable and appropriate ways to promote home gardens. This is to ensure that foods eaten are varied, nutritious, readily available and accessible at all times. This could also be a source of additional income to the households.

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THE ROLES OF COMMUNITY BASED ORGANIZATIONS IN LIVELIHOOD DIVERSIFICATION OF FARMERS IN RIVERS STATE, NIGERIA

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ABSTRACT

This study was conducted to investigate the roles of community based organizations (CBOs) in livelihood diversification of farmers in Rivers State. A multi-stage sampling technique was used for the selection of sampled respondents. Structured questionnaire was administered to generate data from the respondents. A total of 120 respondents were used for the study. The data were analyzed using descriptive statistics. Also, a sample of 60 farmers who were involved in CBOs and 60farmers who were not, were randomly selected from three (3) agricultural zones. Primary data was utilised in this study. The study revealed that majority of the respondents (75%) fell between the age ranges of 31-40 years, 45% were illiterate, 66% had farming experience from 10-15years. The result of this study further identified some roles played by community based organization in livelihood diversification of farmers. These include provision of credit facilities, awareness campaign, provision of basic amenities, and organization of farmers' cooperatives, capacity building and opening of ways for farmers' involvement in grassroots development. The mean output and mean income of farmers who were members of CBO were greater than the mean output and mean income of those who were not members. The major constraint to farmers' involvement in CBOs' programmes was inability of CBO to identify farmers' felt needs (100%) which was ranked first, followed by high membership dues (86%) and age discrimination (72%) which were further ranked 2nd and 3rd respectively. Other constraints were inadequacy of credits given (55%), high level of illiteracy (46%). These were ranked 4th and 5th respectively. From the findings of this study, it can be concluded that, the community based organizations in the study area benefited farmers by diversifying farmers' livelihood on output and income. Therefore, this study recommended that the organized farmers' cooperative societies by CBOs should assist themselves financially. Farmers should make a list of their felt needs known to CBOs.

Keywords: Roles, CBOs, farmers' livelihood, multi-stage, primary data.

INTRODUCTION

Community based organization can be defined as an organization through which individuals become more competent in their skills, attitudes and concept in order to gain control over local aspects of their communities through democratic participation. Community based organizations seek to broadly empower community members with the goal of distributing resources equally throughout the community (Warts, 2008). Based on this perspective, it could mean that community based organization's primary goal is to meet the unique needs of the community it serves as a whole and individuals in particular. In addition, community based organization generates and utilises available resources and skills, as well as those untapped skills to meet the varied needs of the community and those of its residents (Akanya, 2008). Community based organizations are set up by a collective efforts of indigenous people of heterogeneous attributes that are living within the same environment to create conditions which broaden the base of self-reliance and diffusion of agricultural information, ideas or technologies. The concept of community development is not new in Nigeria. Before achieving independence from colonial powers, some communities in the country had developed indigenous approaches in organizing development activities at local levels to diversify rural livelihood and reduce poverty (Adefila, 2011). The

idea of livelihood diversification refers to the collection of activities carried out to assist individuals and households to meet their basic needs. According to Igonoh (2011), diversification has become imperative for poverty alleviation and ensuring food security because of shortage of food due to adverse climatic conditions. Rural livelihood diversification in the context of this study can therefore be defined as the process by which households construct a diverse portfolio of social support activities for the survival from both increase in their output and income to improve their standard of living and poverty reduction (Harper and Dunham, 2005). The agricultural extension institutions and organizations; operations and practices; and systems approaches are entwined with complex interrelations within and without the context of extension activities. The demonstration and confirmation of these complex interrelationships is established by Adedoyin (2002) when he defined extension as "a comprehensive programme of services deliberately put in place for expanding, strengthening and empowering the capacity of the present and future farmers, farm families and other rural economic operators (such as processors, marketers, farm labour force and communities as well as providing essential entrepreneurial and managerial skills that they need to succeed in farming and farm related activities occupations. It is clear from the above that the top-down approaches to extension works and other rural

development programmes have no place in the farmer-centred extension strategy in Nigeria. The extension strategy which is capable of developing agriculture through the farmers themselves with their own resources and assistance of other stakeholders in extension are Community Based Organizations (CBOs) among others. This paper therefore, examines the roles of CBOs by addressing the following objectives.

The broad objective was to assess the roles of Community Based Organizations in livelihood diversification of farmers in Rivers State, Nigeria. The specific objectives were to:

  i. describe the socio-economic characteristics of CBO farmers and non-CBO farmers in the study area
 ii. identify the roles of Community Based Organizations
iii. determine the livelihood diversification of farmers
 iv. identify the constraints to farmers' involvement in CBOs

METHODOLOGY

This study was carried out in Rivers State. The state was formed in 1967 with the split of the Eastern Region of Nigeria. Until 1996, the State encompass the area now known as Bayelsa State. Rivers State is one of the 36 states of Nigeria. According to census data released in 2006, the state has a population of 5,185,400, making it the sixth-most populous State in the country. Rivers State is bounded in the south by the Atlantic Ocean, to the North by Imo, Abia and Anambra States, to the East by Akwa Ibom State and to the west by Bayelsa and Delta States. It is a home to many indigenous ethnic groups: Ikwere, Ibani, Opobo, Okrika and Kalabari, Etche, Ogba, Ogoni, Engenni

and others. Major cash crops produced are Oil palm, rubber, coconut, raffia palm and jute. Other crops grown for food include vegetable, melon, pineapple, mango, pepper, banana and plantain. The fish industry is an important sector in Rivers State. Also, the State provides valuable sea foods such as crabs, oysters, shrimps and sea snails among others. Rivers State is composed of twenty (23) Local Government Areas (LGAs) divided into three (3) major agricultural zones (zone I, zone II and zone III). Based on a reconnaissance survey carried out on the study area, a multistage sampling procedure was used in this study. In the first stage, one (1) LGA each was purposively selected from each of the three agricultural zones. Those were PortHacourt LGA from zone I, Obgba/Egbema LGA from zone II and Emohua LGA from Zone III based on intensity of community based organizations and data given by Rivers State Agricultural Development Programme (RADP). In the second stage, two communities each were randomly selected from each of the three (3) LGAs. Hence, a total of six (6) communities were chosen for the study. Those were Oroworukwo and Ogbunuabali from PortHacourt LGA; Akabuka and Obite from Ogba/Egbema LGA; and Ogbakiri and Rumuji from Emohua LGA. The final stage involved random selection of CBOs at 10% from the sampling frame of the communities. The sampling frame was the list of community based organizations compiled during the reconnaissance survey (Table 1). A sample size of 120 out of 1,200 sample frame was used for the study. A structured questionnaire was used to collect data for analysis. The data were analyzed using descriptive and Z-test statistics. The sample distributions are as follows;

Table 1: Distribution of sampled respondents in the study area

ZONES	Name of LGA/Communities	Registered CBOs farmers sample frame	10% sample size
I	Port Harcourt LGA		
	i. Oroworukwo	200	20
	ii. Ogbonubali	205	21
II	Ogba/Egbema LGA		
	i. Akabuka	200	20
	ii. Obite	205	21
III	Emuoha LGA		
	i. Abgakiri	200	20
	ii. Rumuji	190	19
		1200	**120**

To determine the livelihood diversification of farmers on the output and income of farmers, 60 CBO farmers and 60 non-members were interviewed and data analyzed using Z- test statistic. The formula for Z-test statistic is as follows;

$$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\dfrac{S_1{}^2 + S_2{}^2}{n_1 + n_2}}}$$

Where:
Z= calculated value

X_1= Mean output and income of farmers with CBOs

X_2= Mean output and income of farmers without CBOs

S^2_1= Standard deviation of farmers with CBOs

S^2_2= Standard deviation of farmers without CBOs

n_1 = Number of farmers who were involved in CBOs activities

n_2 = Number of farmers who did not involve in CBOs activities

RESULTS AND DISCUSION

The findings in Table 2 below revealed that majority of the respondents (75%) fell between the age ranges of 31-40 years. The average age of the farmers was found to be 35 years. This implies that, they were generally young farmers. This means that they are matured and energetic farmers and could be active in the participation of CBOs activities. This finding is synonymous with that of Davies *et al.* (2014), who reported that majority of farmers in Southeastern Nigeria were between the ages of 35-40years. This also agrees with the findings of Nwanko *et al.* (2009) who reported that the most active farmers' age group engaged in agricultural production was within 30- 40 years. About 45% of the farmers were illiterate and 66% had farming experience from 10-15years. This implies that, the farmers had long time farming experience. This may be the reason why the farmers could make strong decisions to participate in CBO activities.

The result of the farmers' household size shows that majority 50% of the farmers had household size that ranged from 6-10 persons with an average household size of 5.3 persons. The implication of large household size is that, it will increase household consumption expenditure which would compete for increase in productivity. This result is in variance to Okoruwa and Ogundele (2016), who reported that large household size did not necessarily translate to higher use of improved practices because some of the young able bodied household members may prefer other jobs than farming.

The result of the farmers' farm size shows that majority (57%) had farm size ranging from 0.1 to 1.0 hectare. This implies that the farmers had small farm sizes and will not be able to adequately participate in CBOs activities. This result agreed with Ani (1999) who reported that, it is common to observe among Nigerian farmers that they have relatively small sizes of farms. Small farm size is an impediment to agricultural mechanization because using farm machineries like tractor will be difficult. Small farm sizes might be as a result of the fact that most of the farmers got their lands through inheritance.

Table 2: Distribution of socio-economic characteristics of CBO farmers and non-CBO farmers

Variables	Frequency	Percentage	Mean
Age			
20-30	2	1.6	
31-40	90	75	35
41-50	18	15	
51-60	10	8.3	
Farming experience			
1-5	11	9.2	
6-10	30	25	
10-15	79	66	12
Total	120	100	
Educational level			
Non-formal education	54	45	
Primary education	25	20.8	
Secondary education	20	16.6	
Tertiary education	21	17.5	
Household size			
No household	12	10	
1-5	25	20.8	
6-10	60	50	5.3
11-15	23	19.2	
Total	120	100	
Farm size			
0.1 - 1.0	57	67.6	
1.1 - 2.0	41	25.6	1
2.1 - 3.0	22	6.1	
Total	**120**	**100**	

Field survey, 2016

The result of this study in Table 3 below further identified some roles played by community based organization in livelihood diversification of farmers. These include provision of credit facilities (95%), awareness campaign (83.3%), provision of basic amenities (74.2%), and organization of farmers' cooperatives (63.3%), capacity building (45.8%) and opening of ways for farmers' involvement in grassroots development (35%). This result implies that, the CBO roles are very relevant to the farmers' needs. This means also

that, most of the farmers had access to credit facilities which could support them in farming. Ekong (2003) asserts that credit facility is a very strong factor that is needed to develop any enterprise and its availability could determine the extent of production capacity. The finding of organization of farmers' cooperatives is in line with Agbamu, (2006), who reported that cooperative formation ensures that the members derive benefits from the groups such as they could not derive individually.

Table 3: Distribution of roles of community based organizations

Roles of CBOs	Freq.	Percent	Rank
Provision of credit facilities	115	95.8	1st
Awareness campaign	100	83.3	2nd
Provision of basic amenities	89	74.2	3rd
Organization of farmers' cooperatives	76	63.3	4th
Capacity building	55	45.8	5th
Opening of ways for farmers' involvement in grassroots development	42	35	6th

Field survey, 2016

Table 4 revealed the Z-test result of output and income of farmers as indices for measuring the livelihood diversification of farmers. The result revealed that the mean output (1832.78) and mean income (177326.75) of farmers who were members of CBO were greater than the mean output (656.60)

and mean income (76326.19) of those who were not members. This implies that, the activities of CBOs had significant effect on the output and income of the farmers who were members but did not significantly affect the output and income of farmers who were not members.

Table 4: Result of Z-test on output and income in livelihood diversification of farmers

Item	N	Mean	SD	SE	Z-test	sig
Output of farmers with CBOs	60	1832.78	2122.92	267.47		000
Output of farmers not wit CBOs	60	656.60	480.68	60.56	4.29	
Income of farmers with CBOs	60	177326.75	128909.21	16241.4		000
Income of farmers not with CBOs	60	76326.19	24600.68	3099.39	6.12	

Field survey, 2016
*= Significant at 5% level of probability

From the result in Table 5 below, it showed that, the major constraint to farmers' involvement in CBOs' programmes was inability of CBO to identify their felt needs (100%) which was ranked 1st followed by high membership dues (86%) and age discrimination (72%) which were further ranked 2nd and 3rd respectively. Other constraints were inadequacy of credits given

(55%), high level of illiteracy (46%). These were ranked 4th and 5th respectively. This implies that, the inability of the CBOs to identify farmers' needs and high membership dues may make the farmers not to fully benefit from the CBOs. The high illiteracy may also make the opportunities available to improve farmers' livelihood strategies, enhance food security be limited.

Table 5: Distribution of constraints to farmers' involvement in CBOs

Variables	Frequency	percentage	Rank
Inability of CBOs to identify farmers' felt needs	120	100	1st
High membership dues	104	86	2nd
Age discrimination in credit given	86	72	3rd
Inadequate credit given	66	55	4th
Hugh level of illiteracy	55	46	5th

Field survey, 2016

CONCLUSION

From the findings of this study, it can be concluded that, the community based organizations in the study area benefited farmers in many ways such as provision of credit facilities and basic amenities and creating farmers' awareness about the availability of useful agricultural information. Others were by grouping farmers into cooperative societies and capacity building. Also, there were significant differences between the output and income of farmers who were with CBOs and those who were not.This means that,the mean output and mean income of farmers who were members of CBO were greater than the mean output and meanincome of those who were not members.Despite this, the farmers still faced some problems in participating in community based organizations activities. Some of these problems include inability of CBOs to identify farmers' felt needs, high membership dues, Age discrimination in credit given and inadequacy of credit given to farmers.

RECOMMENDATIONS

i. This study recommended that, the organized farmers' cooperative societies by CBOs should meet regularly and extend mutual benefits to it members.

ii. Farmers should make a list of their felt needs known to CBOs.

iii. Adult education Centre should be established and encourage farmers to enroll in it due to their high level of illiteracy

iv. Government and private owned credit institutions should enable farmers have access to adequate credit to meet their required needs.

v. More farmers should be encouraged to participate in CBO activities so that their livelihood status could increase.

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USE OF RADIO FOR EXTENSION SERVICE DELIVERY TO FARMERS IN RURAL COMMUNITIES OF ABIA STATE, NIGERIA

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ABSTRACT

This study assessed radio utilisation for extension service delivery to farmers' in rural communities of Abia State, Nigeria. The specific objectives of the study included analyses of the socio-economic characteristics of the respondents, ascertaining the access/ownership of radio and frequency of use of radio for extension service delivery to the respondents. A multi-stage sampling technique was adopted in selecting126 respondents for the study in the three agricultural zones of the State namely; Umuahia, Aba and Ohafia. Structured questionnaire and scheduled interview were employed to elicit information from the respondents. Data were analysed using frequency distributions, percentages, mean and ordinary least square regression analysis. The result showed that the area was fairly dominated by males (51.59%). The respondents had a mean age of 44 years. It also showed that majority (79.36%) of the farmers were married. The average income earned by a respondent per week was N2631.15k. The findings also revealed that (87.30%) of the respondent had access/ownership to radio and frequency of use of radio was high (83.57%). The factors that significantly influenced the use of radio for extension service delivery were age and marital status at 1% level of probability and frequency of extension contact at 5% level of probability. The study recommended that rural farmers' access to radio should be sustained to ensure adequate awareness of innovations generated by research institutes and other governmental and non-governmental agencies. Rural farmers' radio forum should be formed to increase access to information by farmers. Extension workers should put moreconcerted effort to develop the use of radio as a valuable source of agricultural information. They should be educated to direct the content of the message to address the needs of the farmers.

Keywords: Rural, technologies, farmers, utilisation, access

INTRODUCTION

Transferring agro-technologies to the clientele at the appropriate time is an effective way of developing agriculture. Hence, the achievements of agricultural growth programmes in developing countries depend, to a large extent, on the environment and level of use of media technology in mobilization of people for progress.

The organisers and planners in developing countries understand that the development of agriculture could be facilitated with the active use of mass media (Salleh *et al*, 2010). Adoption of improved farm technologies is a reliable means to solve the problem of low agricultural productivity in Nigeria. Improved technologies are valueless until they can be put to some practical use for economic and social well-being of the people.

Radio is a mass medium of communication and can reach a large number of people at a given time involving the least expense. In terms of accessibility, radio is perhaps the most direct means of information in rural areas. The accessibility to farm radio programmes depends on the extent of radio ownership, the reception of radio signals, understandability of the message and convenience of listening time. Also, the availability of transistor's radio nowadays makes it easy for almost every family to own a radio (Onuekwusi and Atasie, 2011). For agricultural purposes, radio is one of the most popular means of communicating with farmers. Adekunle*et al* (2004) identified radio to be a very good source of information to farmers in Abia State. The medium has become the favourable choice of Agricultural Development Projects (ADP$_S$) in communicating useful agricultural information to farmers in remote areas.

The first radio station in the country was run by the Nigerian Broadcasting Service and started its operation in Lagos in the mid-1940s' with limited coverage. According to NBC (2011), there are 136 radio stations of which 43 are owned by the Federal Government and 41 by State governments. Privately-owned stations are 25, while 27 radio stations are campus radio. Radio is a very powerful communication tool. Experience with rural radio has shown the potential for agricultural extension to benefit from both the coverage and relevance that local broadcasting can achieve by using participatory communication approaches (Nwachukwu, 2010).

Since technologies are practices and inputs that can guarantee profitable results of production on the farm and farm family, as well as increase in food production and eradication of poverty must be achieved, efforts must be geared towards effective and efficient means of transferring technologies and the required knowledge especially through the use of mass media in Nigeria. It would be wrong to assume that suitable technologies will become available to farmers without considering and testing the level of awareness and use of technologies by the extension workers who offer the technical advice.

Based on the above fact, a study on use of radio for extension service delivery was carried out

to reveal the extent of access/ownership, frequency of use and ascertain its effect on the socio-economic characteristics of farmers. This study is imperative because it would provide a better way to increase and sustain the utilisation of radio for technology transfer.

The specific objectives of the study were to:

1. analyse the socio-economic characteristics of the respondents;
2. ascertain the access/ownership of radio for technology transfer;
3. examine the frequency of use of radio for technology transfer in the study area.

The research hypothesis was tested in the null form, is that there is no significant relationship between socioeconomic characteristics of respondents - (age, marital status, farming experience, farm size, educational level, ownership/access to radio, frequency to extension contact and income level of the respondents) and level of radio utilisation for extension delivery.

METHODOLOGY

The study was conducted in Abia State which covers a geographical area of about 5243.7sq km, and is approximately 5.8 per cent of the total land area of Nigeria. It is bounded on the north and north-east by Anambra, Enugu and Ebonyi States. On the west of Abia is Imo State. To the east and south-east were Cross River State and Akwa Ibom States, and to the south is River State. Rainfall is heavy in the State with about 2400 mm/year, and it is quite intense between the months of April through October. Abia State shares similar rainfall regime with Imo State (Ifenkwe and Izuogu, 2015).

The population for the study was made up of all farmers in Abia State. Multi-sampling technique was adopted in selecting 126 respondents for the study. The sampling involves the selection of farmers from the three agricultural zones of the State namely; Umuahia, Aba and Ohafia. From the zones 2 blocks were selected each, giving a total of 6 blocks. Out of the 6 blocks, 3 circles were randomly selected giving a total of 18 circles. Seven farmers were randomly selected from each of the circles making a total of 126 farmers.

Primary data were collected with the use of interview schedule and structured questionnaire. The questions were based on the objectives of the study in order to achieve the goal of the research. Descriptive and inferential statistical tools were employed using frequencies, percentages, means and ordinary least square regression analysis. Objective 1 was analysed using frequency, percentage and mean to describe the socio-economic characteristics of the respondents such as sex, age, marital status etc. Objective 2 was analysed using frequency, percentage and mean to

ascertain the access/ownership of radio for extension service delivery. Objective 3 was analysed using frequencies, percentages and means to examine the frequency of use of radio for extension service delivery in the study area. Information on the frequency of use of radio was collected using a 3-point scale which was graded as follows: Daily = 3 points, Weekly = 2 points and Monthly = 1 point

Radio with scale responses of a mean score of 2 and above were described as have been used by the respondents, while those with mean scores of less than 2 was described as not have been used by the respondents.

The research hypothesis was tested using Ordinary Least Square (OLS) regression analysis fitted to the data.

The implicit form of OLS multiple regression models is stated below:

$Y = f(X_1, X_2, X_3, X_4, \ldots X_n + e)\ldots\ldots$equation 1:
Where;
Y = Use of Radio (Usage = 1, Non-usage = 0)
X_1= Age (years),
X_2= Marital status (1for married, and 0 for not married),
X_3 = Farming experience (years),
X_4= Farm size,
X_5= Educational level (years in school),
X_6= Ownership/Access to Radio,
X_7 = Frequency of extension contact,
X_8= Access to credit,
e = error term.

The implicit forms of the four functional forms (Linear, Double log, Semi Log and exponential) fitted into the equation are specified as follows:

Linear
$Y=b_0+b_1X_1+b_2X2+b3X_3+b_4X_4+b_5X_5+b_6X_6+e$

Double- Log (Cobb-Douglas)
Log $Y=b_0+b_1logX_1+b2logX_2+b_3logX_3+b_4logX_4+b_5logX_5+ b_6X_6+e$

Semi-Log
$Y=b_0+b_1logX_1+b2logX_2+b_3logX_3+b4logX_4+b_5logX_5+ b_6X_6+e$

EXPONENTIAL
Log $Y=b_0+b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+ b_6X_6+e$

The lead equation was chosen based on the one that provides the best fit on the basis of the F-statistics, R square- magnitude of coefficient of multiple determinations, sign and significance of the coefficient (Tanko and Jirgi, 2007).

RESULTS AND DISCUSSIONS

Socioeconomic characteristics of respondents - This section provides the socio-economic characteristics of respondents within the study area. The major findings of the study were presented and discussed with inferences drawn from them.

Data presented in Table 1 showed that 48.41% of the respondents were female, while 51.59% were male. This indicates that males constituted a higher percentage of people engaged in farming activities in the study area and points to the need to encourage their female counterparts to be involved in farming activities. It also agrees with a previous study by Izuogu and Ekumankama (2015).

Table 1 revealed that 66.6% of the respondents were between the ages of 36 -55 years. This result implies that majority of the respondents

were in the productive stage of their lives and were capable of engaging in farming activities. FAO (1992) described this group of people to be economically productive in population (16-64 years). Such a group is most likely to be active in farming and would tend to develop more interest in sourcing for technologies through the mass media.

Most (81.7%) of the respondents were married. This was not surprising as most of them were adults and ready to have their own family. Ekong (2010) observed that getting married is a highly cherished value among ruralities in Nigeria.

Table 1: Socioeconomic characteristics of respondents

Characteristics	Operationalised	Frequency	Percentage (%)
Sex	Female	61	48. 41
	Male	65	51. 59
Age	26-35	29	23.02
	36-45	46	36.51
	46-55	38	30.16
	56-65	13	10.20
Mean age = 44			
Marital Status	Single	23	18.26
	Married	100	79.36
	Divorced	3	2.38
Income (N) (weekly)	500-2500	76	60.32
	2501-4500	33	26.19
	4501-7500	17	13.49
Mean Income (N) = 2631.15			

Source: Field Survey (2014)

However, it could be deduced that since majority of the respondents were married, it is expected that they will source for agricultural technologies through radio to increase their productivity and enhance their income. The low percentage of divorce is attributed to the fact that though Nigeria has adopted more liberal divorce laws in the last two decades, many households still value the sanctity of marriage (Izuogu *et al,* 2015) Furthermore, marriage is appreciated and honoured among people.

The income earned by the respondents was also described in Table 1. From the result, it was revealed that 60.32% earned N500.00 – N2500.00 per week, and 26.19% earned between N2501.00- N4500.00 per week, while only 13.49% of the respondents earned above N4500.00. The average income earned by a respondent wasN2631.15k/week. This implies that a respondent receives an average of N375.88k on daily basis showing a low income level when

compared with the country's economy and large household size.

Farmers' access/ownership of radio for technology transfer

Table 2 shows the level of access/ownership of radio as indicated by the respondents. Radio had a high rate of accessibility/ownership as revealed from the Table. From the findings, 87.30% of the respondents had access/owned radio. This may be as a result of the advantages that radio has over other mass media channels. Munyua (2000) found out that radio was successful in the delivery of agricultural technology. It also has the ability of being put to use without necessarily interfering with the activities of the user. This result is also in agreement with Ani and Baba (2009) who stated that radio breaks illiteracy barrier which affect use of newspapers and other books. Also, Ataise (2011) reported that farmers showed favourable attitude toward the use of radio as an information source.

Table 2: Distribution of respondents according to their level of access/ownership to radio for technology transfer

Mass media	Level of access/ownership	
	Yes	No
Radio	110 (87.30)	16 (12.70)

Figures in parenthesis are percentages

Frequency of use of radio for technology transfer

The daily use of radio for extension service delivery was high (83.57%). Almost all homes have radio as a source of news and entertainment. Radio uses alternative source of power (battery) which is relatively cheaper when compared to electricity or fuelling a generating set. Also radio can be listened to while one is busy with his/her work (Onuekwusi and Atasie, 2011).

Table 3 Distribution of respondents according to their frequency of use of radio for technology transfer

Mass media	Frequency of utilisation				
	Always	**Sometimes**	**Rarely**	**Mean**	**Decision**
Radio	117*(83.57)	23*(16.42)	-	2.8	High

* Multiple Responses. Figures in parenthesis are percentages

Multiple Regression analysis for hypothesis one on the relationship between socioeconomic characteristics of the respondents and use of radio

Based on statistical and econometric reasons, the Double log model was chosen as the lead equation for the analysis. The F-ratio was 3.690. The coefficient of multiple determinations (R^2) was 0.349, implying that about 34% variations in the use of the radio was determined by the variables included in the model. The coefficients of regression that had expected signs (positive) that are consistent with *a priori* expectations were age and marital status. This implied that those variables that had positive signs were positively related to the use of the radio. In other words, an increase in any of the variables would increase use of radio.

The coefficient of determination for age was positively related to the use of radio by the respondents with a t-value of 2.301, which was significant at 1% level of probability. This suggests that the older the age of the respondents, the more they make use of radio and vice versa. This shows that as their age increases their responsibilities also increases and this makes them to devise means to acquire more information to meet their farming challenges. This indicates that most of the respondents were adults and fall within the group described by FAO (1992) as economically productive population (16-64 years). Such group is usually active in farming and tends to develop more interest in sourcing for agricultural technology through the mass media channels. This finding is in agreement with Muhammad and Garforth (2001), who reported that radio was the major source of agricultural information, followed by television.

Marital status was also significant and positively related to the use of radio with a t-value of 4.134 at 1% level of probability. This shows that as there is increase in the marital status there is an increase in radio use. However, it could be deduced that since majority of the respondents were married, it is expected that they will source for more information to increase their productivity and enhance their income.

However, the variable that was negative and significant implied that it had negative effect on the use of radio. This means that an increase in the variable would lead to a decrease to the use of radio. Contact with extension workers was negatively significant at 5% level of probability, with a t-value of -0.233. This implies that the more access the respondents had to extension workers the less they made use of radio. It shows that farmers do not make effective use of electronic media in getting agricultural information. The situation demands for more concerted effort in this regard to develop urge for using radio as a valuable source of agricultural information. The result is in consonance to that of Muhammad (2004) who reported that the use of electronic media for getting agricultural information was not encouraging.

Table 3: Testing of hypothesis one - Ordinary Least Square Regression (OLS) estimate of the influence of selected socio-economic characteristics of the respondents on their use of radio for extension service delivery.

Variables	Linear	Semi log	Double log +	Exponential
Constant	1.995	-8.746	-2.532	0.893
	(2.443)**	(-1.523)	(-1.632)	(3.942)***
Age	0.031	1.502	0.369	0.007
	(2.674)***	(2.526)**	(2.301)**	(2.226)**
Marital status	0.034	1.114	0.343	0.010
	(3.424)***	(3.623)***	(4.134)***	(3.804)***
Farming experience	-0.291	-0.541	-0.194	-0.076
	(-1.179)	(-0.775)	(-1.024)	(-1.111)

Variables	Linear	Semi log	Double log +	Exponential
Farm size	0.256	0.381	0.064	0.051
	(1.325)	(1.012)	(0.634)	(0.954)
Educational level	0.114	0.262	-0.011	0.017
	(0.363)	(0.076)	(-0.057)	(0.195)
Ownership/access to radio	-0.278	0.542	0.206	-0.079
	(-0.699)	(0.609)	(0.858)	(-0.718)
Frequency of extension contact	-0.843	-2.654	-0.936	-0.256
	(-2.170)**	(-1.791)*	(-0.233)**	(-2.379)**
Income Level	0.000	0.404	0.170	3.385E-5
	(1.017)	(0.581)	(0.904)	(0.900)
R^2	0.244	0.315	0.349	0.252
Adjusted R	0.169	0.216	0.255	0.178
F-ratio	3.265	3.168	3.690	3.413

Source: Field survey 2014

*** Significant at 1%, ** Significant at 5%,* Significant at 10%

+ represents lead equation

Based on the F ratio value, the null hypothesis was accepted which stated that there is no significant relationship between the selected socio-economic characteristics of the respondents and use of radio for receiving information. This decision was taken since the computed F ratio value (3.690) was greater than the F table value (2.41).

CONCLUSION AND RECOMMENDATIONS

In line with the objectives of the research, the study concluded that; the farmer had a mean age of 44 years and there were slightly more male farmers (51.59%) than female farmers (48.41%). Most (79.36%) of the farmers were married. The farmers had a mean income of N2631:15K per week. Radio had a high rate (87.30%)of accessibility/ownership by the farmers. Its daily use for extension service delivery was also high (83.57%). The coefficient of determination for age and marital status was positively signed and significantly related at 1% level of probability each to use of radio for extension service delivery while contact with extension workers was negatively related and significant at 5% level of probability.

The study recommended that rural farmers' access to radio should be sustained to ensure adequate awareness of innovations generated by research institutes and other governmental and non-governmental agencies. Rural farmers' radio forum should be formed to increase access to information by farmers. Extension workers should put more concerted effort to develop urge for using radio as a valuable source of agricultural information. They should be educated to direct the content of the message to address the needs of the farmers.

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PARTICIPATION OF RURAL YOUTHS IN COMMUNITY DEVELOPMENT PROCESS IN OSUN STATE, NIGERIA

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ABSTRACT

Youths are important entities that through their inputs such as physical strength, mental capabilities and exposure serve as a great tool for improving their communities which makes it essential to determine the extent of their involvement in the development of their community. It is based on this that the study assessed the level of participation of rural youths in community development process in Osun state. Data were collected on level of participation, constraints, attitude, and benefits. A multistage sampling procedure was employed to obtain data from 135 rural youth between the ages of 18-35years. Structured questionnaire was used to collect data. Data were analysed using descriptive such as frequency, percentage, mean, standard deviation and inferential statistical tools such as Chi-Square and Pearson Product Moment Correlation (PPMC) at p=0.05. Result shows that majority of the respondents (53.3%) were male, single (74.80%) and have membership in at least one organization (81.50%). The result also shows that marital status (χ^2=7.831; p=0.005), benefits such as increased self sufficiency, reduction in rate of unemployment, reduction in poverty rate(r=0.410; p=0.000), constraints such as lack of incentives, political constraints affected participation while(social constraint (p=0.006) and personal constraint (p=0.028) and attitude (r=0.410; p=0.006) were significantly related with their level of participation in community development. It is concluded that despite the constraints that youths face in their participation, lack of benefits that are afforded them, if given the opportunity to serve their communities, they are willing and ready to do so to the best of their abilities.

INTRODUCTION

Youth can be seen to form a basic bedrock of the community, they are regarded as the future leaders of the community, therefore it is essential to include them in any developmental project or programs that may be available in the community from the planning stage to the implementation stage through the evaluation stage. According to reports from United Nations (2008) and World Bank (2010), about 50% of the developing world populations are youths estimated at about 1.2 billion aged between 15 and 24 years. Of this number, about one billion live in developing countries In developing countries, up to 75 percent of the young people aged 15-25years live in rural areas with few primary schools and poorly qualified teachers. Youths in Nigeria include people between the ages of 18 years and 35 years. Older youth especially in poor rural household are matured enough to make major contributions to development in their various communities.

Udensi *et al.,* 2013 opine that 'the role of the youths to accelerate community development programme has been recognized, particularly, in local communities where they have played pivotal role in education, health, environmental sanitation, mass mobilization, religious activities etc. The imperative of youth participation in the process community development programme, considering their numerical strength, is an unlimited window in which a larger and younger workforce who can drive economic development faster and play a significant role in national security, leadership and social development of their communities can be enhanced'. Community development is an opportunity for people living in a community to come together, identify the problems and needs which they share, help them to discover the resources that they already have and the resources they need to source for, promote knowledge, skill, confidence and the capacity to work together, strengthen contacts between members of the community. Rural community development is a process conducted by community members. It is a process where local people can not only create more jobs, income and infrastructure, but also help their community become able managers of change.

Udensi *et al;.* (2013) explain that youth comprises of nearly 30 per cent of the world's population, these large numbers of young people are an opportunity; an investment to their communities. Adesope (2007) noted that youths have been cited for active involvement in community affairs, greater social propensity, faster reaction, time, innovative and prowess, therefore it becomes necessary to exploit their active features for progressive change in the community through active and meaningful participation in program directed towards their development. The development of community is a dynamic process involving all segments of the locality, including the often-overlooked youth population. As youth are brought into and connected with community development programmes that they have often times been ignored or excluded from, they can participate in actively and contribute in decision-making at multiple levels. Nitzberg (2005) argued that youth must be fully engaged and involved in change efforts at the community level if they are to learn to function as effective members of the society. Therefore, it is essential to assess the different capacities by which youths have been

actively involved in the development of their community, to determine the reasons why their participation is limited and what are the benefits that youths derive from participating in these development programs in their community. The objectives of the study are to;

1. describe the personal characteristics of youth in the study area;
2. identify the factors affecting the participation of youths in the process of development programmes;
3. examine the benefits derived from participating in these programmes;
4. ascertain the level of youths participation in the process involved in the programme;
5. there is no significant relationship between the factors affecting participation and participation in development programs.

METHODOLOGY

The study was carried out in Osun State, which is one of the six states in the South-western Nigeria. It covers a total land mass of approximately 9,251 square kilometers with a population of 3,423,535 (2006 population census) and shares boundaries with Kwara State in the North, Ekiti State and partly Ondo State in the East, Oyo State in the West, in the south by Ogun State. Osun State is divided into three federal senatorial districts namely: Osun West, Osun East and Osun Central. Each of these three senatorial districts is composed of two administrative zones.

A multi-stage random sampling procedure was used for the study. In the first stage, one (1) Local Government area each was chosen from the three (3) senatorial districts in the state. After which two (2) towns/ villages were selected. Subsequently, 10% of the total numbers of members of community based organization in the area were selected giving a total 135 as illustrated in the table below.

These were interviewed and primary data were obtained using structured questionnaire while data was analysed using both descriptive such as frequency, mean and standard deviation and inferential statistical tools such as Regression analysis

Respondents were asked to state their actual age which was measured at interval level of measurement. Respondents were asked to indicate their sex and scores were assigned as follows Male = 1, Female = 2. This was measured at nominal level of measurement. Respondents were asked to tick their religion and scored as Christianity = 1, Islam = 2, Traditional = 3, and others specify. It was measured at nominal level of measurement. Respondents were asked to indicate their educational level from the options provided and was scored as Informal education = 1, Primary education = 2, Secondary education = 3, Tertiary education = 4. This will be measured at ordinal level of measurement. Respondents specified their marital status and it was scored as single = 1, married = 2, widow(er) = 3, separated = 4, divorced = 5, measured at nominal level of measurement. Respondents were asked to state their family size and it was measured at interval level of measurement. Respondents were asked to indicate if they are members of any youth association. Yes = 1, No = 0.

A list of factors affecting participation was provided such as lack of incentives, bureaucratic process, political and social constraints, personal constraints, financial constraints, lack of awareness and lack of technical skills and respondents were asked to indicate the factors that were affecting them by ticking the most important factors by using a 3-point Likert-type scale. Scores will be assigned with high=3, moderate=2 and low=1. The mean score was calculated to identify the extent at which these factors affect the participation of the respondents.

A list of 14 possible benefits derived from participating in community development was presented to the respondents to indicate the level of benefit derived from participation. The response options were not a benefit, mildly beneficial and highly beneficial. The scores assigned were not a benefit=0, mildly beneficial=1 and highly beneficial=2. The mean score of each of the statement was calculated which id then used in the ranking of the statements.

Computation of sample size

Senatorial districts	Local government areas	Towns/villages	Total no in community based organization	Estimated no of respondent (10%)
Osun West	Ayedaade	Orile Owu	190	19
		Akiriboto-Oke	100	10
		Oogi	130	13
		Wakajaiye	80	8
Osun East	Ife-North	Asipa	100	10
		Yakooyo	60	6
		Moro	160	16
		Edun Abon	130	13

Senatorial districts	Local government areas	Towns/villages	Total no in community based organization	Estimated no of respondent (10%)
Osun Central	Odo Otin	Okua	80	8
		Ekosin	70	7
		Ekusa	100	10
		Ijabe	150	15
	Total		**1350**	**135**

RESULTS AND DISCUSSION

Personal characteristics - The result of the analysis in Table 1 shows that 49.60% of the youths fall within the age range of 18-22 years old. Twenty-eight percent (28.90%) falls between the age ranges of 23-27years old. Fourteen percent (14.10%) falls between the age of 28-31years old while seven percent (7.40%) are 31 and above. The mean age is 23.8. This implies that majority of the youth can be classified as young youth (18-27 years old) making a total of 78.50% and the older youth making a total of 21.5%. This corroborates Brennan et al (2007) that older youths are more active, provide opportunities for community involvement. Also, that younger adolescents might be an untapped audience from which volunteers and future community activists could be recruited. Specialized efforts such as periodic training, public awareness could be used to reach younger audience.

The result also shows that 53.3% of the respondents are male while 46.7% are female. This backs up Akinboye et al (2007) that males participate more in community development than their female counterparts who have more pressing things to attend to such as youths taking care of the children and doing house chores.

From Table 1 below, about seventy-five percent of the respondents were single and about one-quarter were married. This is to be expected because the study is dealing with youth with majority of the being students within age 18-22years.

Furthermore, Table 1 indicates that 63.7% of the respondents have tertiary education, 26.7% had secondary education, 5.9% had primary education and 3.7% had informal education. This corroborates Akinboye et al. (2007) that the ability to write and read will increase or help understand the community development initiative. Olujide (2008) in his study stated that the high literacy level reveals that the youth that are more enlightened can easily organize themselves into formal and informal organizations that may lead to community development.

Table 1 also shows that the respondents that indicated a family size of 1-4 were 62%, family size of 5-9 were 39% while a family size of 10-15 were 3% with a mean of household size of 23.8.. This corroborates Beard (2007) who stated that households with lower socio-economic status generally contribute less time and money to community development.

Table 1 reveals that 81.50% of the respondents belong to an organization while eighteen point five percent (18.50%) indicated they were not in any organization. This implies that majority of the youths should be able to contribute to the decision making process. This also corroborates Akinboye et al (2007) that youths involved in social/youth organizations will contribute to the decision making process in form of sounding birds and/or initiating groups in relation to community development.

Table 1: Distribution of respondents based on their Personal Characteristics (N=135)

Variable	Frequency	Percentage	Mean
Age			
18-32	67	49.6	
23-27	39	28.9	23.8
28-32	19	14.1	
33 and above	10	7.4	
Sex			
Male	72	53.3	
Female	63	46.7	
Marital status			
Single	101	74.8	
Married	34	25.2	
Level of education			
Informal education	5	3.7	
Primary education	8	5.9	
Secondary education	36	26.7	

Variable	Frequency	Percentage	Mean
Tertiary education	86	63.7	
Family size			
1-4	84	62.3	
5-9	50	37.0	4.6
10 and above	1	0.7	
Membership of organization			
Yes	110	81.5	
No	25	18.5	

Source: Field survey, 2016

Factors affecting participation in community development programme

Result of analysis from Table 2 shows the distribution of respondents based on the level at which the factors affecting their participation in the program

Table 2 shows that higher percentage (42.2%) of the respondents claimed lack of incentives as a high factor affecting participation of youth in community development while very few (3.7%) said that lack of incentive is a low factor. Majority (50.4%) of the respondents said that bureaucratic process is a moderate factor affecting youth participation in community development program while few (9.6%) of them indicated it as a low factor. Also, a higher percentage (51.1%) of the respondents indicated financial constraints as a moderate factor affecting their participation while few of them (10.4%) considered it a low factor. Similarly, 44.4% of the respondents said that lack of awareness of the community development program is a factor affecting their participation in community development program while a small percentage of them (11.1%) said it is a low factor affecting their participation.

Table 2: Distribution of respondents based on the level at which the factors affect their participation in the program

Factors	High F (%)	Moderate F (%)	Low F (%)	Mean	SD
Lack of incentives	57 (42.2)	39 (28.9)	5 (3.7)	1.88	0.43986
Bureaucratic process	20 (14.8)	68 (50.4)	13 (9.6)	1.55	0.43986
Political constraints	20 (14.8)	29 (21.5)	12 (8.9)	0.96	0.49875
social constraints	11 (8.1)	36 (26.7)	13 (9.6)	0.87	0.49953
Personal constraints	27 (20.0)	46 (34.1)	30 (22.2)	1.50	0.43136
Financial constraints	24 (17.8)	69 (51.1)	14 (10.4)	1.66	0.40149
Lack of awareness	60 (44.4)	26 (19.3)	15 (11.1)	1.83	0.43986
Lack of technical skills	18 (13.3)	19 (14.1)	10 (7.4)	0.76	0.47572

Source: Field survey, 2016

Categorisation of respondents based on factors affecting participation in community development

Table 3 shows that the mean of the categorisation of factors affecting participation in community is 5.01. About thirty-two percent (31.9%) percent of the factors have high effect on their participation while about sixty-eight point one percent (68.1%) have low effect on their participation.

Table 3: Categorisation of respondents based on factors affecting participation in community development

Factors	Frequency	Percentage	Mean	Standard deviation	Min.	Max.
High (Below mean)	43	31.9				
			5.01	2.15	0.00	8.00
Low (Mean and above)	92	68.1				

Benefits derived from participation in community development

The results in Table 4 shows that the respondents consider better utilisation of community resources, decreased dependency on the government, increased self sufficiency, eased hardship and provision of a sense of belonging (49.6%, 51.9%, 51.1%, 59.3% and 59.3% respectively) as the benefit that are derived from participating in community development process. Alternately, the respondents cited that participation in community development programs has not helped to reduce poverty rate(53.3%), improved standard of living (48.1%), provision of market for farm produce (39.9%), creating an alternative way of getting income. This negates Kleiner *et al* (2004) who said that community members who have the capacity to do something to enhance their quality of life are portrayed as having the ability to think, to decide, to plan and to take action in determining their lives. Therefore, in any community development programme both economic and individual growth must be given equal attention to ensure that the process of community development achieves its due balance (continuity and sustainability through adequate participation of all the key players in the community). Community development in the words of Gilchrist (2004) helps local community residents to identify unmet needs. It seeks to build capacity by improving skills and knowledge for individual and community as a whole.

Table 4: Distribution of respondents based on the benefits of community development

Statements	Highly beneficial F (%)	Mild Benefit F (%)	Not a benefit F (%)	Mean	SD
Adds more knowledge about several things	34 (25.2)	94 (69.6)	7 (5.2)	1.20	0.51543
Reduce unemployment among youths	28 (20.7)	88 (65.2)	19 (14.1)	1.06	0.58845
Better utilisation of resources	67 (49.6)	58 (37.0)	18 (13.3)	1.42	0.70824
Reduced dependency on government and the community	70 (51.9)	42 (31.1)	23 (17.0)	1.35	0.75625
Increased self sufficiency	69 (51.1)	54 (40.0)	12 (8.9)	1.42	0.65182
Improved standard of living	33 (24.4)	37 (27.4)	65 (48.1)	0.76	0.82142
Provision of an alternative way of getting income.	26 (19.3)	79 (58.5)	30 (22.2)	0.97	0.64578
Helped reduce crime among youths	30 (22.2)	93 (68.9)	12 (8.9)	1.13	0.54362
Reduced poverty rate	21 (15.6)	42 (31.1)	72 (53.3)	0.62	0.74179
Reduced cost of production through subsidized inputs	19 (14.1)	89 (65.9)	27 (20.0)	0.94	0.58288
Provision of market for farm produce.	26 (19.3)	56 (41.5)	53 (39.3)	0.80	0.74112
Eased hardship	80 (59.3)	46 (34.1)	9 (6.7)	1.52	0.57225
Reduced restlessness	37 (27.4)	79 (58.5)	19 (14.1)	1.13	0.63246
Provides a sense of belonging	80 (59.3)	46 (34.1)	9 (6.7)	1.52	0.62090

Source: Field survey, 2016

Level of participation in the processes involved in community development

The results in Table 5 shows that respondent participated more actively in the execution of plan (mean=2.43) which is closely followed by preparing for action (mean=1.89) and then monitoring (mean=1.88), situation analysis (mean=1.79), development of objectives (mean=1.57), evaluation (mean=1.46) and reconsideration (1.38). This corroborates the study of Udensi *et al.* (2013) who stated that challenges to their participation in community development programmes includes: inadequate awareness, non-inclusion of youths in the planning stage, monopolizing the planning process and decision making structure at the local level by initiators and facilitators of community development programme will alienate citizens.

Table 5: Distribution of respondents based on their level of participation in process involved in community development programme

Development process	High F (%)	Moderate F (%)	Low F (%)	Mean	Standard deviation
Situation analysis	14 (10.4)	79 (58.5)	42 (31.1)	1.79	0.76
Development of objectives	22 (16.3)	34 (25.2)	79 (58.5)	1.57	0.76
Preparing for	13 (9.6)	95 (70.4)	27 (20.0)	1.89	0.53

Development process	High F (%)	Moderate F (%)	Low F (%)	Mean	Standard deviation
action					
Execution of plan	79 (58.5)	36 (26.7)	20 (14.8)	2.43	0.73
Monitoring	21 (15.6)	78 (57.8)	36 (26.7)	1.88	0.64
Evaluation	12 (8.9)	38 (28.1)	85 (63.0)	1.46	0.65
Reconsideration	12 (8.9)	28 (20.7)	95 (70.4)	1.38	0.64

Source: Field Survey, 2016

Categorisation of respondents based on their level of participation

Table 6 shows that the mean of the categorisation of the level of participation in the processes is 12.437. About 25.9% of the respondents have low level of participation while 74.1% have high level of participation.

Table 6: Categorisation of respondents based on their level of participation in the process involved in community development programme

Level of participation	Frequency	Percentage	Minimum	Maximum	Mean	Std deviation
Low level (below mean)	35	25.9				
			7.00	21.00	12.437	2.63616
High level (mean and above)	100	74.1				

Source: Field Survey, 2016

Relationship between the factors affecting participation and level of participation in development programmes

The result in Table 7 shows that there is significant relationship between social constraints, personal constraints and level of participation. This supports Brennan *et al* (2007) who said that factor such as social constraint militates against youth participation in community development. This study also reveals that lack of incentives, bureaucratic process, political constraints, financial constraints, lack of awareness and lack of technical skills have no significant effect on the level of participation of youths. This negates the findings of Effiong (2012) who posit that inadequate funding hampers the execution of major developmental projects in the community. Most youth organizations depend on voluntary donations by members or other organizations for the execution of their projects. Poor leadership within the organization is another major factor affecting youth participation in rural development.

Table 7: Regression analysis that shows the effect of factors that influence the participation of youths in community development

Factors	beta	t	P
Lack of incentives	-0.017	-0.145	0.885
Bureaucratic process	-0.064	-0.676	0.5
Political constraints	-0.008	-0.076	0.939
Social constraints	-0.302	-2.772	0.006
Personal constraints	0.258	2.227	0.028
Financial constraints	0.159	1.543	0.125
Lack of awareness	-0.038	-0.295	0.768
Lack of technical skill	-0.896	0.826	0.41

Source: Field survey, 2016

R= 0.413
R^2 = 0.170;
Adjusted R^2 =0.118
P≤ 0.05- significant (S); P > 0.05 – Not Significant (NS)

CONCLUSIONS AND RECOMMENDATIONS

The study revealed that despite all the constraints that affect participation, there is still a high level of participation of youths in the community development process. The study also showed the benefits derived in participation which includes improved standard of living, reduced dependency on the government, better utilisation of resources available in the community, increased self sufficiency. Government, local leaders and youth leaders should endeavor to form an interaction session in which all stakeholders will be involved to discuss the pertinent needs of all involved and to identify roles of stakeholders.

Also, training in the form of participatory seminars and workshops would help the youths to be more proactive.

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FACTORS ASSOCIATED WITH GROUP COHESION AMONG BEEKEEPERS IN OYO STATE, NIGERIA

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ABSTRACT

The success of the participatory approach to extension in Nigeria is threatened by poor willingness among farmers to sustain active membership of groups particularly in the absence of ongoing developmental projects on which to converge. The objectives of the study were to identify beekeepers' reasons for association membership; ascertain the level of satisfaction of members; assess the level of group cohesion, andidentify the constraints to cohesion. A two-stage random sampling technique was used to select 151 respondents across beekeepers' associations in the state. Data were obtained through a structured questionnaire. Descriptive statistics and the Pearson's Product Moment Correlation were used to analyse data collected. The results revealed that all the beekeepers' associations were not limited by size, membership was open, and the average membership size was 31. Opportunity to share information was the most important reason why beekeepers joined the associations (Mean Score=3.46). The study concluded that though membership satisfaction was low (Mean score =2.59), the level of cohesion was fair (Means Score=3.61). Members' satisfaction, mode of group formation and age of the associations significantly influenced group cohesion at p<0.01. The study recommended that the moderate level of cohesion could be improved through training of members on group dynamics.

Keywords: Group cohesion, Membership satisfaction and Beekeepers

INTRODUCTION

Apiculture is an age-long cottage industry involving the maintenance of bee colonies for the production of honey and bee wax. It is an aspect of agriculture which though neglected in Nigeria provides means of livelihood for a considerable proportion of rural dwellers. With its ancient roots in the Middle-East, apiculture has evolved over the years, into a modern commercial agricultural activity. Honey is a sweet, viscous, golden substance produced by bees from the nectar of flowering plants. It is food for man (often used as a healthier alternative to sugar). Aside from its prominence in traditional health care, honey is widely used as raw material in breweries, pharmaceuticals, cosmetics industries etc.

Honey production has been identified in many parts of the world as one of the most lucrative enterprises. In the United States, for example, about 109,799,366.60kg of honey worth $24,200,000.00 is produced each year (Famuyide et al. 2004). Ethiopia is the ninth highest producer of honey in the world and the largest producer and exporter of honey and bee wax in Africa producing 44,000 tons' valued at $76.6M(Canadian statistics, 2003).. This statistics shows that beekeeping is a primary source of revenue and foreign exchange. In Nigeria, annual honey production is estimated at over 2000 tons, while the price ranges from N100,000 ($278) to N200,000 ($566) per ton (Folayan and Bifarin, 2013). The demand for honey is far above the supply in most parts of Nigeria (Oyo State inclusive), and this has resulted in wide adulteration. Production levels and Earnings can be increased with improved beekeeping practices and marketing in Nigeria.

As with other aspects of agriculture in Nigeria, bee-keeping is dominated by several small-scale producers. Their scale of operation and their level of access to production resources and marketing opportunities is a major impediment to their output. A strategy to ameliorate these challenges is the establishment of vibrant economic interest groups that can assist the farmers to maximise the benefits of economies of scale and also strengthen their bargaining powers (Omotesho et al., 2016).

Recent years have witnessed the increased formation of farmers' cooperatives, farmers' associations, farmers' unions, etc. These farmers' groups are self-help groups that can enable farmers to accomplish as a group, tasks, goals, and functions that might prove difficult for individual farmers to achieve (Ofuoku and Chukwuji, 2012). According to Ofuoku et al.(2008), in such groups, members harness their financial resources for the benefit of members. Membership of groups also enhances farmers' access to agricultural information. Ofuoku and Urang (2009) opined that extension activities are now carried out in groups as a result of the inadequacy of field extension agents. It is important to note that the levels of achievement in farmer-groups depend largely on the degree of cohesion among its members. Therefore, there is a need to strengthen group cohesion and cooperation among farmers' associations in order to achieve the purpose of group formation.

Cohesiveness is the degree to which members of a group desire to remain in the group. That is measured by how closely the members interact or the resultant effect of all forces acting on the members to make them remain in the groups

(Ogionwoand Eke, 1999). Cohesiveness is central to groups. It is considered vital in the group decision-making, goal attainment, identity and member satisfaction. Cohesion is often viewed from a practical perspective, as inter-personal attraction among members or to the group. It is in a sense, attraction to togetherness as opposed to attraction to the individuals who make up the groups.

Cohesion among groups is a critical determinant of success hence group-centred programs use a positive group setting and stress interaction, focusing on cohesion as one of the necessary steps toward change. As stakeholders of agriculture development programs, they must build constructive interaction, cohesion, acceptance, positive feedback, and a supportive group environment into the program design. This is important to make diffusion of innovations easier, reach a larger number of farmers within a limited time and ease the job of extension agents.

Though beekeepers in Oyo State have established associations in every Local Government Area in the State, not much has been achieved by the groups. The failure of many farmer groups in the country has been linked to low levels of willingness among farmers to sustain active membership of groups particularly in the absence of ongoing developmental projects on which to converge. It has been reported that many farmer-groups are ad-hoc groups hurriedly put together to access benefits from government or donor agencies(Kolade and Trudy, 2014). The few that have survived over time continue to be threatened by corruption and leadership issues resulting in low level of cohesion in many groups. In addition, the level of organisation and cooperation within many farmers' groups in Nigeria has been adjudged unsatisfactory in spite of the importance of groups to the economic advancement of farmers. Varied levels of satisfaction have been reported among members of farmers' groups with implications for farmers' commitment to the groups. It is against this background that the study carried out an analysis of the factors associated with group cohesion among beekeepers in Oyo State, Nigeria.

The Specific objectives of the study were to:
1. describe the group characteristics of bee keepers' associations in Oyo state;
2. examine the reasons for membership of the associations;
3. assess the level of satisfaction of bee keepers with their membership of the associations;
4. determine the level of cohesion among members of the associations; and
5. identify the constraints to cohesion among the associations.

The hypotheses of the study were stated in null form as follows;

H_01: There is no significant relationship between group characteristics and level of cohesion within the association
H_02: There is no significant relationship between members' satisfaction and the level of cohesion within the association.

METHODOLOGY
Study area - The study was carried out in Oyo State, south western Nigeria. The state is one of important honey producing areas in Nigeria.The state shares an international boundary with the Republic of Benin. Oyo state is mainly agrarian and inhabited by the Yoruba ethnic group. The state covers approximately $28,454km^2$. The equatorial climate is notably characterised with dry and wet seasons and a relatively high humidity. Average daily temperature ranges between 25°C and 35°C almost throughout the year. The climatic condition of the state favours the cultivation of crops like maize, rice, yam, cassava, millet, plantain, cocoa, palm produce and cashew.

Sampling procedure and sample size - The population for the study was made up of of all registered bee keepers' associations in Oyo State. Beekeepers association is the umbrella name in Oyo State with 33 different chapters in each of the local governments. The list of the chapters in each local government and their members was obtained from the Oyo State Ministry of Agriculture and used as the sampling frame for the study. A simple random sampling technique was used to select 15 percent of the members of each of the 33 beekeepers' associations in the study area. Afijio (5), Akinyele (4), Atiba (6), Atisbo (3), Egbeda (7), Ibadan North (3), Ibadan North-east (3), Ibadan North-west (3), Ibadan South-east (4), Ibadan South-west (4), Ibarapa Central (6), Ibarapa East (6), Ibarapa North (4), Ido (6), Irepo (3), Iseyin (5), Itesiwaju (4), Iwajowa (4), Kajola (3), Lagelu (3), OgoOluwa (3), Ogbomosho North (6), Ogbomosho South (5), Olorunsogo (4), Oluyole (5), Oorelope (5), OnaAra (4), Orire (4), Oyo East (6), Oyo West (5), Saki East (6), Saki West (4) and Surulere (8).This gave a total sample size of 151.

Data collection and analysis - The instrument for data collection was a structured questionnaire. Descriptive statistics were used to present the findings of the study. Likert scale was used to assess respondents' reasons for membership, the level of satisfaction of members; the level of cohesion among members of the associations; and the constraints to cohesion among the associations. Individual cohesion score was generated by summing the cohesion perception statements and dividing by the number of the number of the statements. The mean level of cohesion score was generated by dividing sum of individual cohesion score by the sample size.

Pearson's Product Moment Correlation (PPMC) was employed to test the hypotheses of the study.

RESULTS AND DISCUSSION

Result in Table 1 shows some striking similarities in the characteristics of the beekeepers' associations in the study area. The table shows for instance that membership of all the groups wasnot limited by number, membership for all of them were open, and they all held regular monthly meetings. All the groups had annual membership subscription of ₦2,400 and none of the groups benefited from extension services. This close similarity among the groups is likely due to the fact that all the groups belong to an umbrella body which regulates their activities to some extent. Majority of the respondents (96%) indicated that their groups emerged from felt need while a few (4%) emerged from past developmental projects. For most of the groups (68.2%) leaders' emergence was by election conducted by the umbrella body of the association while 31.8 percent of the respondents indicated that the mode of leaders' emergence in their groups was by selection. The average membership size of the associations was 31 members.

Table 1: Group Characteristics of Beekeepers' Associations

Variables	Frequency	Percentages	Mean
Limitation of membership by size			
No	151	100	
Nature of membership			
Open	151	100	
Frequency of meeting			
Monthly	151	100	
Mode of emergence of group			
Through felt needs	145	96	
For benefits from developmental projects	6	4	
Leaders mode of emergence			
Selection	48	31.8	
Election	103	68.2	
Extension contact (past 6months)			
None	151	100	
Annual membership subscription per member (N)			
2,400.00	151	100	
Membership size			
< 25	62	41.1	
25-34	26	17.2	
35-44	40	26.5	**30.8**
>44	23	15.2	

Source: Field Survey, 2017

As shown in Table 2 the most important reason why beekeepers joined the associations was to increase their access to information. This finding agrees with the report of Ofuoku and Urang (2009) that famers join farmer-groups to have access to timely information. This implies that beekeepers, like arable crop farmers, understand the importance of having up to date information on agricultural production, marketing etc. and rely very much on farmer-to-farmer interaction for this information. This finding further underscores the importance of farmer-groups in the dissemination of agricultural information. To obtain fair or efficient price for product and input as well as to address common issues collectively were rated 2nd and 3rd respectively as reasons for membership in beekeepers' association. To share risk was ranked least among the reasons for membership in beekeepers' association. This implies that members do not join the association to share burden of risks together which according to priori expectation should be the case.

Table 2: Reasons for Membership of Beekeepers' Associations

Reasons	S.D F(%)	D F(%)	A F(%)	S.A F(%)	Score	MS	R
To share information.	0(0.0)	1(0.7)	80(53)	70(46.4)	522	3.46	1st
To obtain fair or efficient price for product and input.	0(0.0)	0(0.0)	86(57)	65(43)	518	3.43	2nd
To address common issues collectively.	0(0.0)	1(0.7)	85(56.3)	65(43)	517	3.42	3rd

To benefit from increased market access.	0(0.0)	2(1.3)	87(57.6)	62(41.1)	513	3.40	4th
To improve product or services quality.	0(0.0)	2(1.3)	90(59.6)	59(39.1)	510	3.38	5th
To have access to goods and services needed.	0(0.0)	0(0.0)	97(64.2)	54(35.8)	507	3.36	6th
To benefit from increased bargaining power for selling and buying.	0(0.0)	2(1.3)	93(61.6)	56(37.1)	507	3.36	6th
To pool resources and skills.	0(0.0)	2(1.3)	94(62.3)	55(36.4)	506	3.35	7th
To conduct business activities, they could not independently perform.	7(4.6)	32(21.2)	76(50.3)	36(23.8)	443	2.93	8th
To share risk.	52(34.4)	57(37.7)	34(22.5)	8(5.3)	300	1.99	9th

Source: Field Survey, 2017

Table 3 shows the mean scores of respondents' satisfaction with membership of beekeepers association. The result shows that the mean score of increased market access (2.18) was the least and this could infer that beekeepers association in Oyo State had not effectively linked its members to markets for their products and services.

Table 3: Respondents Satisfaction with Membership of Beekeepers' Association

Reasons	V.D F (%)	D F (%)	S F (%)	V.S F (%)	MS
Membership allows me to conduct business activities, I could not independently perform.	1 (0.7)	9 (6)	97 (64.2)	44 (29.1)	3.46
Sharing and receiving of information.	1 (0.7)	2 (1.3)	98 (64.9)	50 (33.1)	3.30
Sharing of production risks.	2 (1.3)	3 (2)	100 (66.2)	46 (30.5)	3.26
Collectively addressing common issues.	1 (0.7)	6 (4)	101 (66.9)	43 (28.5)	3.23
Improving the quality of product and services.	0 (0.0)	4 (2.6)	109 (72.2)	38 (25.2)	3.22
Accessing goods and services needed.	0 (0.0)	0 (0.0)	120 (79.5)	31 (20.5)	3.21
Pooling of resources and skills.	0 (0.0)	5 (3.3)	113 (74.8)	33 (21.9)	3.19
Increased bargaining power for selling and buying.	1 (0.7)	12 (7.9)	105 (69.5)	33 (21.9)	2.43
Fair and efficient pricing for products and inputs.	0 (0.0)	4 (2.6)	124 (82.1)	23 (15.2)	2.43
Increased market access.	1 (0.7)	57 (37.7)	67 (44.4)	26 (17.2)	2.18

Source: Field Survey, 2017.
VD=Very Dissatisfied, D=Dissatisfied, S=Satisfied, VS=Very satisfied

Results in Table 4 reveals that the overall level of satisfaction of members was low (mean 2.59). More (69.5%) of the members indicated low levels of satisfaction, and none indicated high level of satisfaction. This implies that more of the members were not satisfied based on their expectations from the group.

Table 4: Distribution of Respondents based on Level of Satisfaction with Membership of Beekeeper's Association

Level of Satisfaction	Frequency	Percentage	Mean
Low (≤ 2)	105	69.5	**2.59**
Moderate (2.1-3.0)	46	30.5	
High (>3.0)	0	0	

Source: Field Survey, 2017

As shown in Table 5, members agreed with majority of the Likert statements. The result is an indication of cohesion among the members although the mean scores are not high. The members however held that members had divergent opinions on many beekeeping issues (mean, 1.23), did not undertake joint price fixing (mean, 1.44) and did not share visits and gifts (mean 2.84).

Table 5: Members' perception of cohesion among members of beekeepers' associations

Statements	S.D F (%)	D F (%)	I F (%)	A F (%)	S.A F (%)	MS
Members have similar perceptions beekeeping.	118 (78.1)	32 (21.2)	0 (0.0)	1 (0.7)	0 (0.0)	1.23
Members have a strong sense of belonging.	0 (0.0)	0 (0.0)	1 (0.7)	117 (77.5)	33 (21.9)	3.21
We have joint ownership of assets.	0 (0.0)	69 (45.7)	0 (0.0)	49 (32.5)	33 (21.9)	3.30
Members work together towards the group goals.	0 (0.0)	2 (1.3)	6 (4)	86 (57)	57 (37.7)	3.31
I have a strong sense of responsibility to my group.	1 (0.7)	2 (1.3)	0 (0.0)	84 (55.6)	64 (42.4)	3.38
We have a high rate of success in our collective endeavors.	0 (0.0)	18 (11.9)	11 (7.3)	67 (44.4)	55 (36.4)	3.05
Membership is in my best interest.	0 (0.0)	1 (0.7)	2 (1.3)	109 (72.2)	39 (25.8)	3.23
I share and receive gifts and visits from members often.	14 (9.3)	54 (35.8)	27 (17.9)	54 (35.8)	2 (1.3)	2.84
I belief strongly in the group's norms and values.	0 (0.0)	4 (2.6)	6 (4)	113 (74.8)	28 (18.5)	4.09
I derive economic benefits from the group.	1 (0.7)	4 (2.6)	13 (8.6)	115 (76.2)	18 (11.9)	3.26
I derive social benefits from my group.	0 (0.0)	3 (2)	16 (10.6)	123 (81.5)	9 (6)	3.91
I am committed to the achievement of the group goals.	0 (0.0)	0 (0.0)	2 (1.3)	86 (57)	63 (41.7)	3.40
Our group goals are often met.	0 (0.0)	62 (41.1)	11 (7.3)	58 (38.4)	20 (13.2)	3.04
Intra-group communication is strong.	0 (0.0)	10 (6.6)	12 (7.9)	114 (75.5)	15 (9.9)	3.89
I am proud to associate withmy group.	0 (0.0)	2 (1.3)	5 (3.3)	101 (66.9)	43 (28.5)	3.23
We organize and carry out joint group tasks.	0 (0.0)	65 (43)	1 (0.7)	72 (47.7)	13 (8.6)	3.22
We jointly fix prices of our products.	96 (63.6)	49 (32.5)	1 (0.7)	5 (3.3)	0 (0.0)	1.44
We carry out joint purchase of inputs.	0 (0.0)	9 (6)	2 (1.3)	136 (90.1)	4 (2.6)	3.89
We engage in joint marketing of our products.	0 (0.0)	69 (45.7)	1 (0.7)	73 (48.3)	8 (5.3)	3.13
Production and other bee keeping information is freely shared in the group.	0 (0.0)	0 (0.0)	1 (0.7)	120 (79.5)	30 (19.9)	3.19

Source: Field Survey, 2017

With an overall mean of 3.61, Table 6shows that the level of cohesion among the members was moderate with over 80% falling within the low to moderate class. Only 19.9 percent indicated a high level of cohesion

Table 6: Group Level of Cohesion

Level of Cohesion	Frequency	Percentage	Mean
Low (<3)	62	41.1	
Moderate (3.00-3.99)	59	39.1	**3.61**
High (≥4)	30	19.9	

Source: Field Survey, 2017

Table 7 shows that four of the ten identified challenges to high cohesion among members were severe. Based on the mean score of 3.95, the most severe of the challenges was the inadequacy of resources with which the association could carry out activities of the groups. Political interference, low level of members' commitment and unrealised expectations were also severe constraints to group cohesion.

Table 7: Challenges to Group Cohesion among Members of Beekeepers' Association

Challenges	N.C F (%)	N.S F (%)	M.S F (%)	S F (%)	V.S F (%)	M.S	Rank
Difficulty in building trust among members.	80 (53)	32 (21.2)	31 (20.5)	8 (5.3)	0 (0.0)	1.78	6th
Ineffective communication.	105 (69.5)	24 (15.9)	21 (13.9)	1 (0.7)	0 (0.0)	1.46	9th
Undue personal interests.	70 (46.4)	48 (31.8)	22 (14.6)	11 (7.3)	0 (0.0)	1.83	5th
Poor level of financial accountability.	84 (55.6)	40 (26.5)	16 (10.6)	10 (6.6)	1 (0.7)	1.68	7th
Poor leadership and organizational challenges.	100 (66.2)	35 (23.2)	6 (4)	10 (6.6)	0 (0.0)	1.51	8th
Unrealized expectations.	32 (21.2)	72 (47.7)	29 (19.2)	18 (11.9)	0 (0.0)	2.21	4th
Inadequate resources.	2 (1.3)	2 (1.3)	18 (11.9)	109 (72.2)	20 (13.2)	3.95	1st
Political interference.	2 (1.3)	12 (7.9)	16 (10.6)	100 (66.2)	21 (13.9)	3.83	2nd
Low level of commitment among members.	35 (23.2)	4 (2.6)	43 (28.5)	56 (37.1)	13 (8.6)	3.05	3rd
Wrong membership composition.	135 (89.4)	7 (4.6)	9 (6)	0 (0.0)	0 (0.0)	1.17	10th

Source: Field Survey, 2017

It is evident from Table 8 that there is a significant relationship between group members' level of satisfaction and the group level of cohesion. This positive coefficient implies that the relationship is direct, meaning that group cohesion increases with the level of satisfaction of members. Ogionwo and Eke (1999) reported that as groups satisfy the needs of its members, the more cohesive the group will be. This position was also affirmed by Ofuoku and Urang (2009).

Table 8: Correlation analysis showing relationship between level of satisfaction of members and level of group cohesion

	Level of Satisfaction	Level of Cohesion
Level of Satisfaction	1	0.523***
Level of Cohesion	0.523***	1

***. Correlation is significant at the 0.01 level (2-tailed)

The result of correlation analysis in Table 9 reveals that the age of the associations (r=-0.278, p<0.01) and associations' mode of formation (r=-0.241, p<0.01) were significantly related to the level of group cohesion. However, membership size and leader's mode of emergence were not significantly related to group cohesion. The negative coefficients is an indication the variables were inversely related. For instance, group cohesion decreased with age. This implies that the older groups showed less cohesion compared to the younger groups. It is possible that membership zeal dwindles with an increase in the length of membership particularly when members have not fully realised their reasons for joining the associations. Ofuoku and Urang (2009) asserted that farmers would remain in their various groups if their needs were satisfied by the group. Also, the negative relationship that existed between mode of group formation and level of cohesion indicates that groups that were formed as a result of felt needs had a higher level of group cohesion that those that were not established to participate and benefit from developmental projects. These findings, however, disagrees with Lewler *et al.*, (2008) in which it was reported that group cohesion decreases with increase in group size.

Table 9: Correlation Analysis Showing the Relationship between Group Characteristics and the Level of Cohesion

Group characteristics	r – value	p – value
Age of the association	-0.278***	0.001
Membership size	-0.052	0.528
Mode of formation	-0.241***	0.003
Leaders mode of emergence	0.089	0.276

Source: Field survey, 2016
***. Correlation is significant at the 0.01 level (2-tailed).

CONCLUSION AND RECOMMENDATIONS

The study concluded that the level of group cohesion among beekeepers in Oyo State was moderate and significantly influences by level of members satisfaction, age and mode of the emergence of the associations.

Based on the findings of the study, the following recommendations are put forward;

1. Leaders of beekeepers' associations should be trained on the importance and modalities of joint bargaining, pricing, and enhancement of markets for their members. This will increase members satisfaction and hence cohesion among members.
2. Extension agencies should strengthen the groups by educating beekeepers on the importance of their commitment level to the realisation of their reasons for membership.
3. The Government and other stakeholders should ensure that developmental programs engage genuine farmers' groups as opposed to ad-hoc political groups.
4. Microfinance institutions should support beekeepers' associations in Oyo State towards the provision of adequate and timely of resources for members.

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PERCEIVED EFFECTS OF QUARRY ACTIVITIES ON COCOA PRODUCTION IN YEWA NORTH LOCAL GOVERNMENT AREA OF OGUN STATE, NIGERIA

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ABSTRACT
There had been an increase in the number of quarries in Nigeria in the 19th centuries. The activities of the quarries have detrimental effects on the environment and more importantly on permanent crops; most especially cocoa which is a major commercial crop in the study area. Therefore, this study determined the perceived effects of quarry activities on cocoa production in Yewa north local government area of Ogun State, Nigeria. A multi-stage sampling procedure was used in selecting 120 cocoa farmers in the study area. Data collected were analyzed using descriptive statistical tools like mean, percentage, frequency counts, standard deviation and inferential statistics like Chi-square, PPMC and t-test. All (100%) of the farmers were married, with mean age of 53 ±8.4years. However, 42.5% of the cocoa farmers have a household size of between 5 and 6, while 86.7% of them had formal education with majority finishing secondary school. Environmental problems identified as being severe by respondents were soil erosion, air pollution and massive deforestation, while problems associated with quarry activities were rock blasting, rock powdering and transportation. There is significant difference in the yield of cocoa production before and after the establishment of the cement industry in 2011 in the study area (t=-20.851, p=0.0000). Environmental mitigation measures should be promulgated among communities and quarry industries.
Keywords: Quarry activities, cocoa production, environmental problems

INTRODUCTION

Overcoming hunger remains one of the most daunting challenges facing humanity. The threat of starvation looms most seriously over Africa, where an estimated 33 percent of the population largely children and women suffer from hunger (USAID, 1994). Moreover, per capital food production in Africa has steadily declined by 33 percent over the past 25 years (FAO, 2012). Hunger and famine in some African regions have been particularly debilitating and widespread (Thrupp and Megateli, 1999). Environmental problems have become a key issue globally. The environment and its significance on human life have increasingly come to national and international dimension. Industrial pollution is a major environmental problem in Nigeria. It arises from lack of proper control of pollutant from industries. Increased development of land for industrial use received greater impetus in the post-independence era when national industrial policy revolved around import substitution as a panacea for unfavourable terms of trade that Nigeria faced which featured industries in textile, breweries, leather, tanning, pulp and paper, detergent, steel and quarry activities, all of which have implications for overall quality in the affected areas. Most industries that have the potential of seriously degrading the environment are largely urban-based (Magbagbeola, 2001).

Ideally, the citing of industries should achieve a balance between socio-economic and environmental considerations. Relevant factors are availability and access to raw materials, the proximity of water sources, a market for the products, the cost of effective transportation, and the location of major settlement, labour and infrastructural amenities. In developing countries such as Nigeria, the citing of industries is determined by various criteria, some of which are environmentally unacceptable and thus pose serious threat to public health (UNEP, 1990).

The ministry of Solid Minerals in the country issued licenses for quarry activities in the study area, to exploit approximately 135 million tone tons of limestone deposit in the state (OMICC, 2000). Of these deposits, the Yewa area of the state has more than 80% of the deposit. This necessitated the concentration of many prospecting companies within the region. Coincidentally, this area is regarded as one of the food basket of the state which provides staple such as maize, cassava, yam, vegetables, and tree crops such as cocoa, oil palm, cashew and timber products with prospects for international market.

Cocoa (*Theobroma cacao*) was introduced to West Africa sub region from Brazil and into Nigeria from Fernando Po in the year 1874 (Adegeye, 1996). It was first cultivated in the western region of Nigeria in 1890. Its cultivation gained prominence rapidly in Nigeria such that by 1965, Nigeria became the second largest producer of cocoa in the world (Adegeye, 1996). Cocoa is produced mainly in the rainforest area of the country, known as cocoa belt. The main producing states are Ondo, Ekiti, Oyo, Osun, Ogun, Edo, Delta, Cross Rivers and Akwa Ibom. According to Adegeye (1996), over 50% of the total quantity of cocoa produced for export or utilised locally per annum comes from Ondo State.

The discovery and exploitation of petroleum, the black gold led to decline in the

importance attached to the golden crop cocoa. Nevertheless, cocoa still remains the second largest foreign earner after petroleum (Adegeye, 1996). In Nigeria, cocoa has been the main agricultural stake of the national economy until early 1970s when crude oil was discovered in the country in commercial quantity. However, cocoa has remained a valuable crop and major foreign exchange earner among agricultural commodity exports of the country (Akinbola, 2001; Ogunleye and Oladeji, 2007).

Nigeria's cocoa production output has however declined from over 300,000 to 100,000 tones with average annual rate of 8.3% decline during 1992-1996 to 1.8% during the 1997-2001 and 1.2% during 2002-2006 (Adegeye, 1996). Despite the dwindling production of cocoa in Nigeria, the crop still contributes to nation's economic development. In terms of foreign exchange, no single agricultural export commodity has earned more than cocoa. Apart from providing exchange to the exporting countries, cocoa is a means of conserving foreign exchange. This is achieved by producing cocoa based products, for instance cocoa-butter, cocoa cake, cocoa powder, cocoa wine and so on, locally instead of importing them. In recent years, Nigeria has lost her leading role in exportation of cocoa. This was due to downward trend in cocoa production (Adegeye, 1996). A number of reasons have been given for the decline in cocoa production and inability of cocoa industry to increase output. Some of these reasons include small farm holdings, transportation mode, unavailability of human labour, low capital and variation in climatic factors.

The world is changing rapidly and agriculture has become more complex, more intensive and demanding on the land. However, there are some other sectors of the economy that compete for land with the agricultural sector particularly the industrial sector. The industrial sector does not only compete for land with agricultural sector but also harms agriculture. The modern industrial version of alchemy, which transforms the harmless natural elements into a pervasive toxic burden, harms agriculture. Air, soil and water pollution frequently reduces agricultural yields, lower health status, increase the prices that consumers of agricultural products must pay and alter the returns accruing to owners of agricultural inputs and increase morbidity pattern of the population (Adams and Croker, 1991 and Somorin, 1998)

However, the various quarry activities, such as rock blasting, rock crushing, rock grinding, rock powdering and transportation have adverse effect on the environment and which will have resultant effects on the agricultural production. There is paucity of information on the perceived effect of cement factory activities on agricultural

production of erstwhile agrarian communities. Although several environmental related studies have been conducted on industrial pollution, it is necessary that the perception of the people is sought on the environmental pollution that is usually associated with quarry activities and the effect on cocoa production in the study area. Therefore, the study determined the perceived effects of quarry activities on cocoa production in Yewa North Local Government Area of Ogun State.

The specific objectives are to;
a. identify the socio-economic characteristics of cocoa farmers in Yewa North LGA.
b. determine perceived effects of quarry activities on cocoa production in the study area
c. ascertain the perceived environmental problem associated with quarry activities in the study area

Hypothesis of the study stated that there is no significant difference in the level of cocoa production before and after the establishment of quarry factories in the study area

METHODOLOGY
Study area - The study was conducted in Yewa North Local Government area of Ogun State. Yewa North local government is one of the twenty local government areas in Ogun State. It is located to the west of Ogun State bordering the Republic of Benin. Its headquarters is Ayetoro and it has an area of 2,087km2 and a population of 183,844 (NPC, 2006). It shares boundary with Abeokuta North, Yewa South, Imeko-Afon local government and Republic of Benin in the north-east, south, north-west and west respectively. The study area is also blessed with mineral deposits such as limestone, clay and kaolin which remain untapped until recently when attention in being drawn to them (OMICC, 2000). Five of the fourteen major communities in Yewa North Local Government Area have limestone deposits in commercial quality and they are also involved in cocoa production. These communities are Ibese, Komi-Oba, Imasai, Igbogila and Igua.

Sampling procedure and sample size - Five (5) communities that have limestone deposits and are prominent in cocoa production were purposively selected out of the fourteen (14) major communities in the study area. These include Ibese, Imasai, Komi-Oba, Igbogila and Igua. Thereafter, Ibese was purposively selected because Dangote cement factory is located at Ibese. Three of the remaining four (4) communities were randomly selected, which are Igbogila, Imasai, and Komi-Oba. These communities have their cocoa farm

close to where Dangote cement factory activities take place.

Thirty (30) cocoa farmers were selected from each of these four (4) communities using snow ball technique to give one hundred and twenty (120) cocoa farmers.

Measurement of variables

The dependent variable is the level of cocoa production; measured by the yield. Respondents were asked to indicate their cocoa farm annual yields in kilogram from the year 2010 (the period the quarry was established) to 2015 (study period). Student t-test was used to test the significant difference in the cocoa production (yields) before and after the establishment of quarry factories in the study area.

RESULTS AND DISCUSSION

Personal characteristics - Table 1 shows that majority (59.2%) of the farmers were between the ages of 46 and 61 years. The mean age was 52.9 ±8.4years. This implies that many of the farmers were old, while more than half (53.4%) still fell within the active ages. This result corroborates the findings of Onasanya (2007) that farmers are in their active ages when they are within the age range of 20-50 years. The implication of this result is that the youth in the study area are not much involved in cocoa farming. As time goes on, there could be decline in cocoa production in the study area as youths are not interested in cocoa farming. Table 1 also reveals that majority (98.3%) of the cocoa farmers in the study area were male. This implies that men are more dominant in cocoa production; this is because cocoa farming is somehow tedious and very few female can afford to take the task.

Table 1: distribution of cocoa farmers based on socioeconomic characteristics

Variable	Frequency	Percentage	Mean
Age			
38 – 45	26	21.7	
46 – 53	38	31.7	52.9
54 – 61	33	27.5	
62 – 69	22	18.3	
70 – 77	1	0.8	
SD = 8.4			
Sex	118	98.3	
Male			
Female	2	1.7	
Marital status			
Married	120	100.0	
Household size			
3 – 4	15	12.5	
5 – 6	51	42.5	6.3
7 – 8	47	39.2	
9 – 10	7	5.8	
SD = 1.5			
Education Status			
No formal education	16	13.3	
Primary education	41	34.2	
Secondary education	62	51.7	
Tertiary education	1	0.8	
Occupation			
Farming	83	69.2	
Trading	18	15.0	
Artisan	17	14.2	
Clergy	1	0.8	
Civil servant	1	0.8	
Farming experience			
10 – 19	26	21.7	
20 – 29	46	38.3	26.6
30 – 39	23	19.2	
40 – 49	25	20.8	
SD = 9.7			

Variable	Frequency	Percentage	Mean
Farm locations			
1-2	79	65.8	
3-4	29	24.2	2.3
5-6	11	9.2	
7-8	1	2.8	
SD = 1.3			
Farm size			
1-2	30	25.0	
3-4	47	39.2	
5-6	36	30.0	3.9
7-8	6	5.0	
9-10	1	0.8	
SD = 1.7			

Source: Field Survey, 2016

Table 1 also revealed that all the cocoa farmers were married. This result corroborates Onasanya (2007) that reported that 94.6% of the farmers in Ogun State were married and that of Dipelu (2003) that reported that 89.2% of the farmers in Ogun State were married.

Almost half (42.5%) of the cocoa farmers in the study area had between 5-6 members in their households. With the mean score of 6.3 household size, it implies that most of the cocoa farmers in the study area have more than three members to cater for in their households. This corroborates the findings of Oyesola and Oladeji (2002) that 59.59.8% of agro-pastoralists in Ogun State had between 4 and 9 children in their households. The implication of this result is that the more the members in the household, the more readily available are family labour who will assist the farmers on their farms, which could lead to increase in agricultural production. Also, the more the household members, the more the responsibilities on the part of the farmers.

Table 1 also reveals that only 13.3% of the cocoa farmers in the study area do not have formal education. The remaining had one form of formal education or the other. This implies that cocoa farmers in the study area are well educated and this could have assisted them to have knowledge about the effect of environmental pollution on their crop. The result corroborates Akinbile (2007) that reported that only 10.6% of the household heads in Yewa North Local Government Area do not have formal education. Table 1 also shows that majority

(69.2%) of the cocoa farmers in the study area are not into any other occupation, that is they are solely engaged in farming. This corroborates the findings of Agbelemoge (2003) that farmers in south-west of Nigeria have no other occupation.

Table 1 further reveals that majority (57.5%) of the cocoa farmers were within 20 – 39 years of farming experience, with mean of 26.6 ±9.7. This implies that they have been in cocoa farming for long, They must have gathered enough experience related to cocoa production so as to be able to attribute whether their level of production now is being affected by the environmental problems associated with quarry activities or not.

Table 1 also shows that majority (65.8%) of the cocoa farmers in the study area have between 1-2 cocoa farm locations. However, the table reveals that majority (69.2%) of the cocoa farmers in the study area had between 3-6 hectares of farm landwith mean of 3.9 ±1.7 hectares. This finding corroborates that of Adegeye (1996) who attributed small holdings as one of the reasons for inability of the cocoa industry to increase output.

Environmental problems associated with quarry activities

Result of analysis on Table 2 shows that air pollution ($\bar{x}$ = 2.96), massive deforestation ($\bar{x}$ = 2.95) and soil erosion ($\bar{x}$ = 2.92) were the most severe environmental problems faced by the cocoa farmers in the study area that are associated with quarry activities.

Table 2: Distribution of severity of listed environmental problems of quarry activities

Environmental factors	Highly severe		Moderately severe		Not severe		Mean
	F	%	F	%	F	%	
Land degradation	100	83.3	20	16.7	0	0.0	2.83
Soil erosion	110	91.7	10	8.3	0	0.0	2.92
Water contamination	102	85.0	18	15.0	0	0.0	2.85
Air pollution	116	96.7	4	3.3	0	0.0	2.96
Bush burning	108	90.0	10	10.0	2	1.7	2.88
Massive deforestation	115	95.8	5	4.2	0	0.0	2.95

Environmental factors	Highly severe		Moderately severe		Not severe		Mean
	F	%	F	%	F	%	
Grand mean							2.90

Source: Field Survey, 2016

This implies that the heavy vehicles used by the quarry companies had adverse effect on the environment. The finding corroborates that of Onasanya (2007) who reported that air pollution is the most prominent problem in cement production in Ogun State.

Quarry activities

Table 3: Distribution of severity of listed quarry activities

Environmental factors	Highly severe		Moderately severe		Not severe		Mean
	F	%	F	%	F	%	
Rock blasting	113	94.2	7	5.8	0	0.0	2.94
Rock crushing	100	83.3	12	10.0	8	6.7	2.76
Rock grinding	100	83.3	3	2.5	17	14.2	2.69
Rock powdering	108	90.0	2	1.7	10	8.3	2.82
Transportation	99	82.5	18	15.0	3	2.5	2.80
Grand mean							2.80

Source: Field Survey, 2016

Result of analysis on Table 3 shows that rock blasting ($\bar{x}$ = 2.94), rock powdering ($\bar{x}$ = 2.82) and transportation ($\bar{x}$ = 2.80) were the most dangerous quarry activities affecting the production of the cocoa farmers in the study area. This implies that the dust from the above activities have adverse effect on the cocoa production in the study area.

Hypothesis testing
Test of difference between cocoa yield before and after the establishment of quarry industries

Table 4 shows that there exists a significant difference between cocoa yield before (t=-20.851, p=0.000) and after the establishment of quarry industries.

Table 4: Result of test of difference between cocoa yield before and after the establishment quarry industries

Variables	Mean	Sd	t value	Df	p value	Decision
Yield 2010 Yield 2011-2015	-873.292	458.78974	-20.851	119	0.0000	Significant

Source: Field Survey, 2016

This implies that cocoa production was consistent decrease in the production cocoa yield after the establishment of quarry factories. This means that the establishment of quarry industries in the study area has direct negative influence on cocoa production in particular and on farming in general.

CONCLUSIONS AND RECOMMENDATIONS
The study concluded that:
- Cocoa farmers in the study area are predominantly educated.
- Majority of the cocoa farmers in the study area are old
- Majority of the cocoa farmers perceived quarry activities in the area as having negative effects on their production?
- There exists a significant difference between the cocoa yield before and cocoa yield after the establishments of quarry industries.

Based on the findings of this study, the following recommendations are proposed in ensuring that cocoa farmers remain productive and maintain a better conserved environment:
- The agricultural development agency in the state and Cocoa Development Unit should encourage the cocoa farmers in the study area to adopt improved technologies in cocoa production. This will go a long way in sustaining cocoa farming and other agricultural activities in the area.
- There should be an avenue through which the communities in the study area can demand a check on the use of resources in their environment.
- Environmental mitigation measures should be promulgated among communities and quarry industries.

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DETERMINANTS OF AGRICULTURAL EMPLOYEE'S JOB PERFORMANCEIN COCOA RESEARCH INSTITUTE OF NIGERIA, IBADAN, OYO STATE, NIGERIA

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ABSTRACT

The study examined the determinant of job performance in Cocoa Research Institute of Nigeria, Ibadan, Oyo State, Nigeria. Multistage random sampling was used to select 93 out of 600 respondents for the study. Data were collected using a well-structured questionnaire and analysed using descriptive and inferential statistics. Results reveal that the mean age of the employees was 33yearswith standard deviation of 10.9 majority (50.5%)were male, 43.0% had B.Sc., and 74.2% of the employees were married. Major factors affecting employee's job performance were: inadequate resources ($\bar{x}$= 3.70), poor selection of staff ($\bar{x}$= 3.61), poor leadership ($\bar{x}$= 3.53), inadequate and improper budgetary allocation ($\bar{x}$= 3.52), discrimination ($\bar{x}$= 3.49), and lack of transparency ($\bar{x}$= 3.42). Major job performance indicators were: training oversea ($\bar{x}$= 4.27), delight in their current job ($\bar{x}$= 4.18) and employees find enjoyment in their job ($\bar{x}$= 4.10). The results also show that coefficient value of challenges (-0.095), age (-0.027), year of experience (0.083) and income (-0.019) were variable influencing employee's job performance. The study concluded that the economy of the country and inadequate resources and training overseas had great effect on the job performance of the employees. Availability of resources and oversea training of staff should be encouraged by management of the institution.
Keywords: Challenges, agricultural employees, Job performance and research institute

INTRODUCTION

Employees are considered important assets for good and effective performance in any organization. Indeed, Guest (1997) as cited by Armstrong (2009) stated that improved performance is achieved through the employees in the organization. Performance can be simply put as an output which is the combination of ability of an employee, available resources and motivation which become the key components of most management work (Torrington *et al.,* 2008). In this respect, when the full potential of human resource is unlocked, an organization can achieve unlimited output, efficiency and effectiveness (Milliman *et al.,* 2008). It is important however, to note that not all employees are equal in discharging their responsibilities (Armstrong, 2000). Some employees have the highest capability regardless of the incentive, while others may have an occasional jump-start. Nonetheless, if all employees are handled effectively, greater productivity can be obtained which will increase employee's morale (Truong, 2012).Better performance can be generated for employee's behaviour or attitude towards organisational goal achievement.

Job performance is one of the most important dependent variables among the employees and has been studied for a long decade. Borman and Motowidlo (1993) identified two types of employee behavior that are necessary for organizational effectiveness: task performance and contextual performance. These are the behaviors that are directly involved in producing goods or service, or activities that provide indirect support for the organization's core technical processes (Borman and Motowidlo, 1997 and Werner, 2000). Also, job performance portray employees attitude about their jobs. That is attitude of the employees could affect attainment of organisational goals. This factors has heavy weight on the job itself, promotion opportunities, support from supervisors and relationship with co-workers can reduce the rate at which employees are satisfied with their job. In other words, if all these factors are in operation it will directly affect the productivity of the organization(Ahmad *et al.*, 2002). Based on this background the study examined the determinants of Job performance in Cocoa Research Institute of Nigeria, Ibadan and Oyo State, Nigeria. The study considered the significant relationship between challenges affecting the employees and their job performance in the study area.

METHODOLOGY

Study area - This study was carried out at the Cocoa Research Institute (CRIN) Idi-Ayunre, Ibadan, Oyo state, Nigeria. It was established on the 1st December, 1964 as a successor autonomous research organization to the Nigerian Substation of the defunct West African Cocoa Research Institute (WACRI) by Nigeria Statute, Act No. 6 of 1950. Cocoa Research Institute of Nigeria has approximately 980 employees in total with about 600 employees working currently at the headquarters in Ibadan, while the rest are distributed across the country. Cocoa Research Institute now has the mandate to conduct research on five crops, namely: Cocoa, Kola, Coffee, Cashew and Tea throughout the country.

The population of this study comprise of agricultural employees of Cocoa Research Institute (CRIN) Idi-Ayunre in Ibadan, Oyo State, Nigeria. Multistage random sampling techniques were used to select the respondents form the study area. Out of the 600 employees working at the studied organisation, 15% was randomly selected for the study which amount to 93 respondents. The data for the study were obtained using a structured questionnaire. The questionnaire was structured into sections to generate information about personal characteristics and challenges/ faced by the respondents in the study area. Employee's job performance was measured using 5 points Likert rating scale of: Strongly agree =5, agree = 4, undecided= 3, disagree = 2 and strongly disagree =1 and was further categorised into two level of performance as high and low. Descriptive and inferential statistics were used for data analysis. Descriptive statistics included frequencies, percentages, mean and standard deviation. Regression analysis was used to determine factors that affect employees' job performance.

RESULTS AND DISCUSSION
Personal characteristics of respondents
- The mean age of the respondents was 33.4 years. Majority (50.5%) of the employees were within the age range of less than or equal to 30 years. It can be inferred from this result that many of the employees are still in their active and productive working age and the results is in line with the findings of Isaac (2011), who reported that most of the agricultural employees in south-western Nigeria arein the age range of 20 – 40 years. On respondent's sex, more than half (50.5%) of the respondents were male, while 48.4% were female. This result is similar to Banmeke (2010) who found that there were more male employees than female employees in research institutes in Southwest Nigeria. Also, the results show that less than half

(43.0%) of the employees had B.Sc., while 28.0% had OND and HND certificates. Only few(10.0%) had masters and PhD degree. Based on this result , respondents in the studied organization had one qualification or the other. Theresultfurther shows that 74.2% of the employees in the study area were married, while 22.6% were single which implies that most of the employees in the research Institute were of marriageable age. This supports the opinion of Fapojuwo (2010) that great importance is still placed on the institution of marriage.

It is worthy to note that majority (69.9%) of the employees were Christians, while 30.1% were Muslims. This implies that more Christians are in the employment of the Institute. Furthermore, the employees' monthly income result reveals that 37.6% of the employees earned within the range of ₦50,000 - ₦99,000 per month and 24.7% earned above ₦100,000 at the end of the month.

On the other hand,50.5% of the employees had less than or equal to 5years of working experience, 26.9% had 6-10 years of working experience, 14% had 11-15 years of working experience and 8.6% had above 15 years of working experience. This implies that many of the respondents still have the opportunities of serving the organization for more years. This result is supported by Adeniji (2010) who reported that majority of workers in research institutes had less than 10 years of working experience. Also, the result shows that 63.4% of the employees were senior staff, 11.8% middle level staff, while 24.7% of the employees are junior staff. This result implies that there was more senior staff in the institute than middle level and junior staff. That is 55.9% of the employees were non-researchers, while 41.9% of the employees were researchers. Also, the result reveals that 68.8% of the employees had a family size less than or equals to 5 persons.

Table 1: Distribution of respondents by personal characteristics (n= 93)

Variables	Frequency	Percentages	Mean
Age(years)			
≤ 30	47	50.5	
31 – 40	17	18.3	33.4 years
41 – 50	23	24.7	
Above 50	2	2.2	
Sex			
Male	47	50.5	
Female	45	48.4	
Educational status			
OND/NCE	26	28.0	
HND	17	18.3	
B.Sc.	40	43.0	
MSc/PHD	10	10.8	
Marital status			
Single	21	22.6	

Variables	Frequency	Percentages	Mean
Married	69	74.2	
Widow	3	3.2	
Religion			
Christianity	65	69.9	
Islam	28	30.1	
Monthly income (Naira)			
< 50,000	11	11.8	
50,000 – 99,000	35	37.6	₦87,284.12
Above 100,000	23	24.7	
Working experience (Years)			
≤ 5	47	50.5	2.3 years
6 – 10	25	26.9	
11 – 15	13	14.0	
Above 15	8	8.6	
Rank			
Senior staff	59	63.4	
Midlevel staff	11	11.8	
Junior staff	23	24.7	
Position			
Researcher	39	41.9	
Non-researcher	52	55.9	
Family size			
≤ 5 persons	64	68.8	
5 – 10 persons	13	14.0	1 person
Above 10 persons	3	3.2	

Source: Field survey, 2016

Challenges affecting employee's job performance

The challenges affecting job performance of the employees were explored. From the findings, some of the challenges that affect employees' job performance were inadequate resources available to carryout daily tasks by the employees ($\bar{x}$=3.70), poor selection or pairing of team members ($\bar{x}$=3.61), gossip between workers ($\bar{x}$=3.58), poor leadership from the top management ($\bar{x}$= 3.53), inadequate and improper budgetary allocation for welfare services ($\bar{x}$=3.52). This finding is in agreement with Manzini and Gwandure (2011), who asserted that employees' welfare has been one of the things used by many organizations as strategy of improving performance of their employees. More so, perceived employee discrimination within the organization ($\bar{x}$= 3.49), lack of transparency within the organization ($\bar{x}$= 3.42), technology operated within the organization is outdated ($\bar{x}$= 3.39), lack of role clarity ($\bar{x}$= 3.38) and personality or ego clashes between employees ($\bar{x}$= 3.35). Also, stress level within the organization is high ($\bar{x}$= 3.35), lack of clarity about accountability ($\bar{x}$= 3.25), employees are being bullied ($\bar{x}$= 3.23), work objectives are unrealistic and difficult to achieve ($\bar{x}$= 3.19).This implies that the organisation suffers from inadequate resources available to carryout daily tasks by the workers in the organisation.

Table 2: Distribution of factors affecting job performance of the employees (n= 93)

Statements	Mean	S.D
There is inadequate resources available to carryout daily tasks	3.70	1.25
Poor selection or pairing of team members	3.61	1.34
Gossip between workers is a challenge faced within the organization	3.58	1.45
There is poor leadership from the top management	3.53	1.40
Inadequate and improper budgetary allocation for welfare services.	3.52	1.33
There is perceived employee discrimination within the organization	3.49	1.46
There is lack of transparency within the organization	3.42	1.42
The technology operated within the organization is outdated	3.39	1.43
Lack of role clarity	3.38	1.41
There is personality or ego clashes with my colleagues	3.35	1.45
The stress level within the organization is high	3.35	1.43
Lack of clarity about accountability	3.25	1.35
Employees are being bullied within the organization	3.23	1.39
My work objectives are unrealistic and difficult to achieve	3.19	1.58
My organization does not communicate well	3.13	1.48
The management of CRIN does not care about the health of the staff so provision of health care services is of no priority	3.12	1.57
I experience depleting health conditions	3.01	1.39
Heavy workload is a challenge am facing in the organization	2.97	1.46
The management of CRIN does not care about the convenience of the staff so provision of transportation to and from the office is not available	2.88	1.53
I don't receive feedback on my performance	2.84	1.44
I do not fully understand my organizational goals and objectives	2.81	1.51

Source: Field survey, 2016

Level of job performance

Table 3 present levels of employees' job performance in the study area. Major performance indictors identified were: Training oversees enhance job performance ($\overline{x}$= 4.27).This result is in line with the assertion of Lam *et al.,* (2002) who said that employee will be motivated through training because management considers them as partners in contributing to organizational success and increase productivity. Also, employees like their current job ($\overline{x}$= 4.18), employees find enjoyment in their job ($\overline{x}$= 4.10), employees feel fairly well satisfied with their job ($\overline{x}$= 4.05), employees often think the job is very good ($\overline{x}$= 4.04), employees are contented with their job ($\overline{x}$= 3.97), disharmony among staff have negative impact ($\overline{x}$= 3.39) and employees are losing interest in their job ($\overline{x}$= 2.53). This result implies that majority (80.6%) of the employees had high level of job performance despite their enormous challenges while few (18.3%) had low level of job performance as indicated in Table 4.

Table 3: Distribution of employees' level of job performance (n=93)

Statement	Mean	SD
Training oversees will enhance my job performance	4.27	1.22
I like my current job	4.18	1.11
I find enjoyment in my job	4.10	1.26
All in all I feel fairly well satisfied with my job	4.05	1.20
I often think my job is very good	4.04	1.27
I am contented with my job	3.97	1.37
Disharmony among staff have negative impact on my job	3.39	1.34
I am losing interest in my job	2.53	1.28

Source: Field survey, 2016

Table 4: Overall job performance

Level of job performance	Frequency	Percentage
Low Job performance	17	18.3
High job performance	75	80.6

Source: Field survey, 2016

Determinants of employee's job performance
The result of regression in table 5 shows that age of the employees had coefficient (0.027) and significant at 5 percent level of probability. The coefficient in age indicates that economic age of the respondents which tends to increase employees level of performance. Years of experience was found to have a positive coefficient (0.083).This results also corroborate the earlier finding that is since the employees are vibrant and young which

as make the gain experience over the time as they grow. This result is in line with the assertion of Abiona *et al.* (2014) who assert that the lesser the age of workforce in organization the better the performance. Income also found to have a coefficient of (-0.019), challenges (-0.095) and also significant at 5 percent level of probability. This implies that increase in their income will increase their performance at given task.

Table 5: Determinant of employee's job performance

Variables	Coefficients	Std. Error	t	sig
(Constant)	39.505	8.197	4.820	.000
Age in years	-.027	.075	-.353	.725
Sex	-1.482	1.344	-1.103	.274
Educational status	-.269	.544	-.494	.023
Marital status	.703	1.052	.669	.506
Religion	-2.928	1.488	-1.967	.053
Income	-.019	.596	-.033	.024
Years	-.083	.175	-.473	.037
Rank	-1.449	1.042	-1.390	.168
Position	-2.966	1.867	-1.58	.016
Family size	.350	.302	1.156	.251
Factors	.095	.042	2.235	.028

Source: Field survey, 2016

CONCLUSION AND RECOMMENDATIONS
It can be concluded that inadequate resources was the main factor affecting the job performance of the employees irrespective of their status in the studied organisation. The overall level of job performance of the employees was very high in respective of various constraints that are attached to their work. It was also concluded that overseas training was not a priority in the study area. Therefore, the study recommends that;

1. Availability of resources that will spur employees to perform excellently must be provided.
2. Management should provide consistent local training programme that will assist both old and newly recruited employees as a way of imparting and improving knowledge and skills to climb the organizational ladder.
3. Management should consider the need to pay wages and salaries as well as benefits such as grants and award.
4. Management should put individual perception and behaviour into consideration as regards employee's welfare.

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INFLUENCE OF LABOUR USE ON OIL PALM PPRODUCTION IN OKITIPUPA LOCAL GOVERNMENT AREA OF ONDO STATE, NIGERIA

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ABSTRACT
The study assessed labour influence on oil palm production in Okitipupa Local Government Area of Ondo state. Specifically it examined the socio-economic characteristics of farmers, determined the man-hour labour used for production activities in oil palm and palm oil production, determined the influence of labour usage on oil palm production in the study Area. The study also determined other factors that influenced the output of oil palm among 120 farmers who were randomly selected from five towns in the study area.. Data was collected with structured questionnaire. Multiple regression was applied to determine the influence of labour usage on oil palm and palm oil production. Three functional forms of regression models were used namely: Linear, semi-log and Cobb Douglass functions. The majority of the respondents were in the range of 41-50 years. The mean age was 37 years and 71.7% of them were male. About 18% of the respondents used family labour in carrying out farm activities, 78.3% used hired and family labour, while 3.4 % made use of hired labour only on the farm. The average man-hour family labour used is 1703 and 8364 man-hour of hired labour was used. Out of the three functional forms; Cobb Douglas functional form was selected as the lead equation, with R^2 of 0.44. Labour usage had a coefficient of 0.055 and was statistically significant. Level of experience had a negative coefficient of -0.123 while educational level had a coefficient of 0.07. This shows increase in labour by a unit will increase output by 5.5%. It was recommended that credit facilities should be made available to the farmers to enable them pay for hired labour since it outweighs family labour usage.
Keywords: Labour- supply, oil palm production, farmers, and income

INTRODUCTION

Agriculture in the context of the nation's economy is tied to various sectors and is essential for generating broad-based growth necessary for development. Agriculture is fundamental for the sustenance of life and is also the bed rock of economic development. It functions in the provision of adequate and nutritious food for human development and raw materials for industries. In spite of the great roles played by agriculture in the economy of any nation, it cannot play these roles if there is absence or inadequate supply of labour. The supply of labour is very crucial in Nigerian agriculture where farmers are largely dependent on the use of local farm implements which are energy sapping. These crude implements not only frustrate farmers but create unnecessary expenses and slow down the farming processes (Abutu, 2014).

The production of oil palm and palm oil can only succeed when there is timely and adequate supply of labour in the production line. It is an enterprise that requires high level of labour because of its many production stages and several by-products which can be further processed into different final products. The situation is more worrisome with smallholder farmers who lack adequate capital to finance their farm operations and this has inhibited them from realizing optimum income. Labour supply has been identified as one of the most important input in oil palm and palm oil production in Nigeria. The wages of hired labour make up the largest single item of expenditure on most farms. The cost of using hired labour is high and so as the production and yield (Bello, Bello, Essien and Saidu (2015)

The supply of labour in the oil palm enterprise has been faced with many challenges which has either increased the cost of production or made the production process difficult and delayed beyond the expected turnaround time. This labour issue cuts across all other food and tree crops in Nigeria. According to Odeleye (2015) "Of all the production inputs in a rain fed farming economy, human labour is now becoming crucial and limiting". In Nigeria, farm labour supply especially for planting, weeding and harvesting still constitutes serious bottlenecks. The crucial importance of labour in oil palm and palm oil production is not limited to smallholder farmers alone but also affects commercial farms. The output of oil palm is affected by several factors which is imperative to research. In view of this, it is necessary to conduct research and ascertain the socio-economic characteristics of the farmers, determine the factors that influence the output of oil palm, determine the man-hour labour requirement for production in oil palm and palm oil production activities and determine the influence of labour usage on oil palm and palm oil production in the study area.

METHODOLOGY

The study was carried out in Okitipupa Local Government Area of Ondo state, Nigeria. Okitipupa Local Government Area (LGA) is one of

the 18 LGAs in Ondo State. It lies between $50^0\ 45''$ and $80^0\ 15''$ North of the Equator and $4°35''$ and $4°50''$ E longitude within the tropical rainforest zone of Nigeria. The rainforest is highly favourable to oil palm production because of the heavy amount of rainfall available for greater parts of the year. It covers a total land area of 636 sq. km and has an estimated population of 233,565 people. An isohyperthermic soil temperature regime prevails in the area with total annual rainfall often exceeding 2000 mm, while the soil temperature has a narrow range of 27 to 28°C (Esu. Akpan-Idiok, Otigbo, Aki, and Ofem 2014). It is bounded in the East by Irele local government while to its west lies part of Odigbo Local Government and the Atlantic Ocean. To its North lies Odigbo Local Government while it is bounded in the South by Ilaje Local Government. The inhabitants of the local government area are mainly Yoruba of Ikale ethnic group and Yoruba language is widely spoken. The area is mainly agrarian in nature; with the cultivation of cash and food crops.

Okitipupa LGA was purposively selected from the 18 LGA in the state because of the high prevalence of oil palm farms in the area. From the list of the rural communities in Okitipupa local government area, five communities were randomly chosen. The selected communities are; Ilutitun-Oshoro, Ikoya, Iju-odo, Ayeka and Okitipupa. Twenty four farmers were selected systematically from the list of oil palm farmers in each of the five communities to give a sample size of 120 farmers.

Primary data were used in the study; the primary data were obtained through the use of well-structured questionnaire administered to the respondents. The analytical tools used in this study were descriptive statistics and multiple regression analysis. The descriptive statistics used were frequency distribution, percentages and mean. The multiple regression technique was applied using three functional forms namely; linear, semi-log and Cobb- Douglas. The best of fit was selected after considering the levels of estimated error, magnitude of R^2, number and signs of estimated regression coefficients. The functional forms are stated as follows;

I. Linear function

$$Y= a+b_1X_1 + b_2X_2 +b_3X_3 + b_4X_4+b_5X_5+U$$

II. Double Log Function

$$\ln Y= a+b_1\ln X_1 +b_2 \ln X_2 + b_3 \ln X3 + b4\ln X_3 +b_5\ln X_5+U$$

III. Semi Log Function

$$Y= a+b1\text{Log } X1 +b2 \text{ Log } X2 +b3 \text{ Log } X3 +b4\log X_4 +b_5\log X_5 +U$$

Where

Y= Level of output per year

X_1= Annual labour Usage (in man-hour)

X_2= Level of Experience

X_3= Education level

X_4= Age

X_5= Farm Size

U= Error term

Measurement of variables

Output: Measured in tonnes of palm fruit and the exact tonnage was plugged into the equation

Labour Usage: Measured in man-hour and plugged the value was plugged into the equation directly

Experience: Measured in exact years the farmers has been involved in oil palm farming

Educational level: Measured in number of years spent to acquire the highest educational level assuming no class was repeated

Age: Measured in the exact chronological age of the farmers.

Farm Size: Measured in hectares

RESULTS AND DISCUSSION
Socioeconomic characteristics

Age - Table 1 show that 41.7% of the respondents were between the ages of 41 and 50 years which represents the highest proportion of the respondents. This is followed by the respondents in the age category of 31-40 years which accounted for 28.4 % of the farmers. This contradicts the finding of Alfred, Odefadehan and Adeyo (2014) where the farmers in the age range of 31-40 years were only 4.4 %. This is closely followed by respondents in the age category of 21-30 years which accounted for 26.7 %. The age category of 51-60 and 61 and above both had 1.7% respondents each. The average age of the farmers was 37 years. This average age indicates that these farmers are in the productive age stage.

Table 1: Age distribution of respondents

Years	Frequencies	Percentages	
21-30	32	26.7	
31-40	34	28.4	
41-50	50	41.7	
51-60	2	1.7	
61 and above	2	1.7	
Total	**120**	**100**	**Mean= 37**

Source: Field Survey, 2016

Gender - Table 2 shows that 71.7% of the respondents were male and 28.3% of them were females. It shows that majority of the oil palm farmers were male. The fact that ownership of land is mostly vested on men in Africa which could be a factor that made it difficult for women to own oil palm plantation. This is consistent with the findings of Raufu, Kibirige and Singh (2015) in their study of the perceived effect of climate change on cocoa production in South-Western Nigeria where it was discovered that 70.0% of the farmers were male.

Table 2: Gender distribution of respondents

Gender	Frequency	Percentage
Male	86	71.7
Female	34	28.3
Total	120	100

Source: Field Survey, 2016

Marital status - Table 3 shows that 68.3% of the respondents were married, 28.3% were single and 1.7% were divorced and also widowed. This implies that majority of the oil palm farmers in Okitipupa LGA were married. Being married by most of the farmers could be attributed to the fact that in African society any person that is unmarried after a certain age would be regarded as a deviant from the culturally acceptable way of life. Being married could also assist in the supply of family labour in the oil palm enterprise.

Table 3: Distribution of respondents by marital status

Marital Status	Frequency	Percentage
Married	41	68.3
Single	71	28.3
Divorced	1	1.7
Widow	1	1.7
Total	**60**	**100**

Source: Field Survey, 2016

Household size - Table 4 shows that 61.7% of the respondents had household size of 6-10, while 35% had household size in the category of 1-5 members. About 3% was in the category of household size of 11members and above. This shows that majority of the farmers sampled had a medium household size with only 6-10 members. The average household size of 7 people shows that the farmers had medium sized family. This trend possibly could result from the fact that most of the farmers were married and need family labour to assist in their work. This contradicts the findings of Fasina and Odefadehan (2014) in which the average household size of respondents was 5 in a study of the use of mobile phone by farmers in Ondo state Nigeria. This difference could be explained by the need of higher level of labour specifically for large plantations especially in cash crop production like oil palm. The need of family labour could be responsible for the larger size in household size of oil palm farmers compared to categories of farmers.

Table 4: Distribution of respondents by household size

Household size	Frequency	Percentage
1-5	42	35
6-10	74	61.7
11 and above	4	3.3
Total	**60**	**100**

Mean= 7.0
Source: Field survey, 2016

Educational level - Table 5 shows that a greater percentage of the respondents (56.7%) had secondary school education, 21.6% attained tertiary education level, 17.5% had primary school education, and 4.2% of the respondent had no formal education. Therefore it can be deduced that a good number of farmers in the area were literate. This hopefully will enhance the rate of acceptance of technological innovation and as such encourage extension agents to introduce new techniques. According to Nmadu, Sallawu and Omojeso (2015), sex and level of education of the farmers were among the variables that affected adoption decisions of cocoa farmers in Ondo state.

Table 5: Distribution of respondents according to educational level

Education level	Frequency	Percentage
No formal education	5	4.2
Primary education	21	17.5
Secondary education	68	56.7
Tertiary education	26	21.6
Total	**120**	**100**

Source: Field Survey, 2016

Farming experience - Table 6 shows that 70% of the farmers had 11-20 years of farming experience, 25% of the farmers had 1-10 year of farming experience, 3.4% of the farmers had 21-30 years experience and 1.6% of the farmers had 31-40 years of experience. The farmers' average farming experience was 13 years. This shows that these farmers are not new in the cultivation of oil palm. This result is similar to the findings of Ajieh (2013), where the average farming experience in years of oil palm farmers in Ondo state was 14 years.

Table 6 Distribution of respondents by farming experience

Experience in year	Frequency	Percentage
1-10	30	25
11-20	84	70
21-30	4	3.4
31-40	2	1.6
Total	120	100

Mean= 13.0
Source: Field Survey, 2016

Farm size - Table 7 shows that 57.0% of the respondents own between 11-20 acres of farm land, 20.0% of them own 1-10 acres of plantation, 18.0% had 21-30 acres of farmland, while 5% had above 30 acres of farm land. The average farmland size of about 16 acres shows that oil palm farming is practised on large land area compared to food crops arable farming. It can be said that it is beyond subsistence form but commercial in nature. This shows that these farmers have farms that are above the average national farm size of 1.8ha/farming household (FAO, 2018).

Table 7 Distribution of the respondents according to farm size

Farm size (acres)	Frequency	Percentage
1-10	24	20
11-20	68	57
21-30	22	18
Above 30	6	5
Total	**120**	**100**

Mean= 15.8
Source: Field Survey, 2016

Sources of labour - Table 8 shows that majority (78.3%) of the respondents used both hired and family labour for their farming, 18.3% used family labour for their farming activities, while 3.4% made use of hired labour only. This implies that majority of the farmers interviewed used hired labour on their farm. Family labour is however used to complement the hired labour available in order to meet the labour supply needed on the farm.

Table 8: Distribution of the sources of labour used by respondents

Type of labour	Frequency	Percentage
Hired labour only	4	3.4
Hired and family labour	94	78.3
Family labour	22	18.3
Total	**120**	**100**

Source: Field Survey, 2012

Distance from farm to home - Table 9 shows that 75% of the respondent stayed between 11 and 20 kilometres away from their farms. Up to 23.3% stayed within distance of 1-10 kilometres

from the farm, while 1.7% stayed above 20 kilometres away from the farm. The average distance of about 13km to the farms shows that farmers would need a form of mobility i.e. motorcycle in order to be effective. Trekking such a distance to and fro would amount to loss of time and energy that could be channelled to productive activities on the oil farm.

Table 9: Distribution of respondents according to distance from farm to their homes

Distance (km)	Frequency	Percentage
1-10	28	23.3
11-20	90	75
Above 20	2	1.7
Total	120	100

Mean = 12.8
Source: Field Survey, 2016

Problems encountered in oil palm farming - Table 10 shows that majority (96.7%) were facing inadequate funds in hiring labour, 73.3% claimed that weather change is a problem, 81.7% was confronted with inadequate infrastructure, unfavourable market and price instability each , while 70.0% regarded unfavourable government policies as a challenge.

Table 10: Distribution of respondents by problems encountered in oil palm production

Problems encountered	Frequency	Percentage
Inadequate funding	58	96.7
Weather change	44	73.3
Inadequate infrastructure	49	81.7
Unfavourable extension service	36	60
Unfavourable market and price stability	49	81.7
Unfavourable government policies	42	70

*multiple responses
Source: Field Survey, 2016

Labour requirements for the production of oil palm and palm oil production - The activities involved in oil palm production include; land clearing, planting of seedling, fertiliser application and harvesting while those in palm oil production are; fermentation, boiling, pounding/digesting, and matching/clarification of oil palm fruits and skimming of palm oil.

In Table 11, the overall average man hour of family labour used in the production of oil palm and palm oil was 213 man-hour compared to 1046 man-hour of hired labour. This implies that more of hired labour is used in oil palm and palm oil production. The highest man hour family labour and hired labour was used for harvesting.

Table 11: Labour requirements for production activities in oil palm and palm oil production

Activities	Family labour (Man hour)	Hired labour(man-hour)
Land clearing	430	714
Planting	148	626
Fertiliser application	61	346
Harvesting	519	3268
Fermentation	170	211
Boiling of oil palm fruits	151	1228
Pounding of palm fruits(Digesting)	181	1839
Matching, mixing with warm water (Clarification) and skimming	43	132
Total	1703 (Mean =213)	8364 (Mean= 1046)

Source: Field Survey, 2016

Influence of labour usage on oil palm and palm oil production in the study area

The R^2 of Cob-Douglas functional form was 0.44, showing that the variation in the explanatory variable has combined effect of 44 percent on the variation of the dependent variable.

Hence Cob-Douglas functional form was selected as the lead equation.

$Y = 2.16 = 0.055\text{Log } X_1 - 0.123\text{Log}X_2 + 0.070\text{Log}X_3 - 0.441\text{Log}X_4 + 0.112\text{Log}X_5$
(6.943) (0.001)   (-0.939) (0.206)
        (0.816)   (0.025)

$R^2 = 0.44$; F-value = 14.486

The estimated regression function was evaluated in terms of the statistical significance of R^2 as indicated by F-value, the significance of the coefficients as given by the t-values, the sign of the coefficients, and the magnitude of the standard error. However, based on the statistical and economic criteria, the Cobb- Douglas form was selected as the lead equation for having the largest coefficient of determination (R^2) as shown in Table 12.

The coefficient of determinations (R^2) indicates that 44% of the variability in output of oil palm and palm oil production is explained by the independent variables (labour usage, level of experience, education level, age and farm size). According to Table 12, the labour usage in man days (X_1) in the study area has a coefficient of 0.055 as shown in the table 12 and is statistically significant at 5%. This is in line with our a priori expectation that labour use would be significant with output of oil palm and palm oil production.

Every unit increase in labour usage will increase output by 5.5%. Farm size is significant at 10% with coefficient of 0.112. This reveals that a unit increase in the land under cultivation will lead to 11 percent increase in output.

The level of experience of palm oil producers in the study area however has a negative coefficient of -0.123 and is not statistically significant; this shows that the higher the experience the lower the output. Likewise the age of the respondents has a negative coefficient but not statistically significant. The negative coefficient of the experience of the farmers is contrary to our apriori expectation and such could be attributed to reluctance in accepting new innovations as the farmers stays longer in the enterprise. There are possibilities of regarding themselves as authority in oil palm and palm oil production as years passed by. New and inexperienced farmers could be easier to convince on innovations.

Table 12: Regression results of the influence of labour and other variables on oil palm and palm oil production

Functional forms Variables	Linear Coefficient/t-value	Semi Coefficient/t-value	Cob-Douglas Coefficient/t-value
Constant	2918.21 (0.905)	-8616.607 (-1.479)	2.161 (6.943)
Labour usage (in man days)	9.191 (5.754)	2743.613 (3.919)	0.055* (0.001)
Years of experience	-45.619 (0.489)	-209.928 (-0.197)	-0.123 (-0.939)
Education level	698.217 (-0.756)	1907.543 (-0.688)	0.070 (-0.206)
Age	-1.325 (2.711)	-0.568 (2.135)	-0.441 (0.816)
Farm Size	0.968 (1.942)	0.322 (2.215)	0.112** (0.025)
R^2	0.383	0.226	0.441
Adjusted R^2	0.35	0.182	0.407
F-value	11.61	5.458	14.486

Source: Field Survey, 2016
N=120
* Significant at 5%,   **Significant at 10%

CONCLUSION AND RECOMMENDATION

Conclusively, the study reveals that the main source of labour in oil palm and palm oil production is hired labour. Labour and farm size are important determinants in the output of oil palm.. It is recommended that farmers should come together to form cooperative society in order to benefit from credit facilities. This will make funds to pay for hired labour easily available. In addition policies that will make it easy for women to own land should be enacted.

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PERCEPTIONAL ANALYSIS OF RISK-CAUSING FACTORS ON FARMERS' ADOPTION BEHAVIOUR TOWARDS SUSTAINABLE FOOD CROP PRODUCTION TECHNOLOGIES IN NIGERIA

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ABSTRACT

The study investigated the perceived risk-causing factors that affect adoption behaviour of crop farmers towards production technologies. The study was carried out in Delta State, Nigeria. With the aid of an interview schedule, 120 food crop farmers were multistage-randomly sampled. The study identified risk-causing factors as; production risk, price or market risk, financial and credit risk, institutional risk, technology and personal risks. The study showed that among the risk-causing factors ascertained, it is the economic and financial factors that were found to be regular factors, while environment, production and institutional factors were occasional factors. The farmers have high adoptive behaviour for improved land preparation ($\bar{x}$= 2.47), planting of early season crops ($\bar{x}$=2.7), Use of improved processing techniques ($\bar{x}$=2.34), and crop rotation ($\bar{x}$=2.33). Low adoptive behaviour was exhibited for chemical pests control device ($\bar{x}$=1.01), use of modern packaging techniques ($\bar{x}$=0.74), biological control of pest ($\bar{x}$=0.31), use of modern harvesting equipment ($\bar{x}$=0.37), and the use of modern storage technologies ($\bar{x}$=0.51). Further result of the study showed that the farmers perceived some risk-causing factors as having high and significant effects on their adoption behaviour towards production technologies. More than 50% of the identified risk-causing factors were perceived by the farmers to have effect on their adoption behaviour. The study subsequently recommends that more extension agents should be employed by the government, and farmers should have access to credit and capital opportunities.

Keywords: Risk-causing factors, farmers, adoption behaviour and agricultural extension

INTRODUCTION

Agricultural risks are prevalent throughout the world and are a source of great concern among rural farmers in the developing countries who are characterised by scattered small land holdings, family labour, negligible capital investment, little or no savings or storage facilities (Okuneye, 2002). On a daily basis, farmers are confronted with challenges that affect their output, income and which technologies to use. Consequently, decisions or events are often not known with certainty until they occur.

Risk is the possibility of adversity or loss consequent to decisions taken over an event. Most of agricultural decisions are taken in the environment of risks and uncertainty. Explicitly, farmers have to make decisions now that will affect their production later. In making decisions, the farmers may not be aware of certain factors such as government policies, weather variability, changes in technology and some others that make it difficult for them to predict the future with certainty.

Farmers are unable to take actions which will ameliorate their level of poverty because they are poor. If poor people are risk-averse to the extent that they are unwilling to invest in the acquisition of modern assets because that involves risk taking, they will remain poor (Mosley et. al., 2003). If farmers must be assisted to increase production for the ever-increasing population, a study assessing the risk-causing factors in food farmers' adoption behaviour toward production technologies is imperative.

The study specifically examined the farmers' socio-economic characteristics; identified risk-causing factors faced by the farmers, ascertained the farmers' perception of the risk-causing factors and determined the effect of risk-causing factors on farmers' adoption behaviour.

METHODOLOGY

The study was carried out in Delta State, Nigeria. A multistage sampling technique was used to collect the data for the study. For the first stage, two local government areas (LGA) were purposively selected for their high level of food crop production (Ughelli South and Udu). At the second stage, three communities were selected from each of the two LGAs (Otujeremi, Okwagba and Ekakpamne from Ughelli South; Ubogo, Ukpiovwin and Ujevwu from Udu LGA) and lastly, 20 farmers were selected from each selected community giving a total of 120 respondents. Data were collected using a validated interview schedule. Data was analysed using both descriptive and inferential statistics.

RESULTS AND DISCUSSION

The respondents were made up of 55% female and 44% male (Table 1). The prevailing tradition in the study area was that more of female than male are into farming. The average age of the respondents was also found to be 47 years. About 60% of the respondents had one form of formal education or the other, while a larger percentage (95%) had been in farming enterprise for not less

than five years. Level of farmer education and years of farming would enable the respondents to

be able to interpret risk-causing factors as they affect their farming enterprises.

Table 1: Socioeconomic characteristics of respondents (N = 120)

Socioeconomic characteristics	Options	Frequency	Percentage	Mean
Sex	Male	54	45	
	Female	66	55	
Age (years)	20 29	17	14.2	
	30-39	17	14.2	
	40-49	37	30.8	47
	50 – 59	20	16.7	
	≥60	29	24.2	
Marital Status	Single	23	19.2	
	Married	63	52.5	
	Divorced	3	2.5	
	Widowed	24	20.0	
	Separated	7	5.8	
Educational status	No formal education	38	31.7	
	Adult education	10	8.3	
	Primary education	19	15.8	
	Secondary education	35	29.2	
	Tertiary education	18	15.0	
Religion	Christian	89	74.2	
	Muslim	-	-	
	Traditional	31	25.8	
Household size	< 5	15	12.5	
	5 – 9	91	75.8	6
	≥ 10	14	11.6	
Farming experience (years)	< 5	6	5.0	
	5 – 9	28	23.3	
	10 -19	32	26.7	16
	20-39	45	37.5	
	≥ 40	9	7.5	
Farm size (ha)	< 1	40	33.3	
	1.0 – 2.9	59	49.2	1
	≥3	21	17.5	
Acquisition of farm land	Family	38	31.7	
	Inherited	31	25.8	
	Leased	7	5.8	
	Borrowed	20	16.7	
	Purchased	24	20.0	
Total		120	100	

Source: Field Survey, 2012

The respondents used either hired or family labour or both to carry out their farming activities but only a negligible percentage (11.7%) had access to credit (Table 2). This finding is similar to the finding of Akinnagbe and Adonu (2014), where their study of credit sources and use by farmers in Nsukka local government area of Enugu state revealed that only 11 percent of the farmers had access to credit always. The farmers

were involved in crop production, processing and marketing. Farmers experience one form of risk or the other in carrying out these activities despite the avalanche of information channels at the farmers' disposal. Agriculture is an inherently risky business; some risks are everyday business risks; some risks are brought on by natural disasters (USDA, 2017)

Table 2: Farming activities of respondents (N = 120)

Farming activities		Frequency	Percentage (%)
Labour used	Family	49	40.8
	Hired labour	18	15.0
	Both	53	44.2

Farming activities		Frequency	Percentage (%)
Access to credit facilities	Yes	14	11.7
	No	106	88.3
Source of capital	Personal saving	87	72.5
	Loan from commercial banks	2	1.7
	Cooperatives	14	11.7
	Esusu	17	14.2
Farming activities practiced	Producers	46	38.3
	Marketers	12	10.0
	Producers & Processors	12	10.0
	Producers & Marketers	30	25.0
	All	20	16.7
Varieties of seedlings grown	Local	60	50.0
	Improved varieties	4	3.3
	Both	56	46.7
Place of purchase of seedlings	ADP	1	0.8
	Personal farm	18	15.0
	Market	42	35.0
	Personal farm & Market	59	49.2
Source of Agric. Information	Publication	10	8.3
	Television	4	3.3
	Radio	4	3.3
	Extension agents	4	3.3
	Farmers association/group	15	12.5
	Friends/family	55	45.8
	Combined	28	23.3
Contact with extension agents	Monthly	4	3.3
	Fortnightly/two weeks	1	0.8
	Weekly	1	0.8
	Occasionally/sometimes	26	21.7
	No contact	88	73.3
Visit outside community	Monthly	15	12.5
	Fortnightly/two weeks	6	5.0
	Weekly/once	25	20.8
	Occasionally/sometimes	21	17.5
	None at all	4	3.3

Source: Field Survey, 2012

The study showed that out of the risk-causing factors ascertained among the farmers, it is the economic and financial factors that were found to be regular factors (Table 3), while environmental, production and institutional factors were occasional factors. In all, the risk causing factors, as perceived by the farmers, were just occasional in nature (mean=1.96). The factors that are just occasional, might therefore not be having as much impact on the adoption behaviour of the farmers towards production technologies as those that were perceived as regular factors.

Table 3: Type of risk-causing factors faced by respondents

Type of risking-causing factors	R F (%)	O F (%)	R F (%)	N F (%)	Means	Grand Means	Remarks
1. Environmental							
Climate variability	22(18.3)	82(68.3)	12(10.0)	4(3.3)	2.02		
Poor soil type	57(47.5)	46(38.3)	8(6.7)	9(7.5)	2.56		
Soil degradation/vulnerability	14(11.7)	73(60.8)	15(12.5)	18(15.0)	1/69	1.63	Occasionally
Inadequate rainfall	0 (0)	14(11.7)	28(23.3)	78(65.0)	0.47		
Excess heat	4(3.3)	66(55.0)	29(24.2)	21(17.5)	1.44		

Type of risking-causing factors	R F (%)	O F (%)	R F (%)	N F (%)	Means	Grand Means	Remarks
2. Economic							
Cost of inputs	95(79.2)	19(15.8)	4(3.3)	2(1.7)	2.73		
Lack of infrastructure	75(62.5)	40(33.3)	2(1.7)	3(2.5)	2.56	2.68	Regularly
Poor access to technologies	95(79.2)	20(16.7)	4(3.3)	1(0.8)	2.74		
3. Production							
Lack of labour	28(23.3)	70(58.3)	10(8.3)	12(10.0)	1.95		
Lack of storage facilities	83(69.2)	20(16.7)	12(10.0)	5(4.2)	2.51	2.16	Occasionally
Pest/diseases	28(23.3)	72(60.0)	15(12.5)	5(4.2)	2.03		
4. Financial							
Lack of access to credit	98(81.7)	16(13.3)	3(2.5)	3(2.5)	2.74		
Lack of access to insurance services	99(82.5)	12(10.0)	5(5.0)	3(2.5)	2.74	2.66	Regularly
Lack of capital	67(55.8)	49(40.8)	1(0.8)	3(2.5)	2.50		
5. Institutional							
Government policies/Programmes	64(53.3)	31(25.8)	9(7.5)	16(13.3)	2.19		
Lack of access to land	29(24.2)	35(29.2)	4(3.3)	52(43.3)	1.34		
Poor access to extension services	83(69.2)	26(21.7)	4(3.3)	7(5.8)	2.54	1.98	Occasionally
Lack of access to information	41(34.2)	60(50.0)	9(7.5)	10(8.3)	2.10		
Lack of security	57(47.5)	59(49.2)	1(0.8)	3(2.5)	2.42		
Legislation/Laws	6(5.0)	56(46.7)	22(18.3)	36(30.0)	1.27		
6. Social and Cultural							
Traditional/Cultural beliefs	8(6.7)	60(50.0)	27(22.5)	25(30.0)	1.27		
Social status/Background	28(50.0)	48(23.3)	19(15.8)	25(20.8)	1.66	1.42	Rarely
Nom	2(1.7)	50(41.7)	33(27.5)	35(29.2)	1.16		
7. Personal							
Old age of the farmer	10(8.3)	41(34.2)	18(15.0)	51(42.5)	1.08		
Poor educational level	24(20.0)	37(30.8)	21(17.5)	38(31.7)	1.39		
Lack of knowledge/awareness	67(55.8)	14(11.7)	10(8.3)	29(24.2)	1.55	1.21	Rarely
Lack of experience	10(8.3)	41(34.2)	18(15.0)	51(42.5)	1.08		
Ignorance	10(8.3)	51(42.5)	24(20.0)	35(29.2)	1.03		
Lack of interest	8(6.6)	47(39.)	16(13.3)	49(40.8)	1.13		
Grand Mean						1.96	Occasionally

Source: Field Survey, 2012
Scale: regularly (R) = 3, Occasionally (O) = 2, Rarely (R) = 1, Never (N) = 0
Total Grand Mean: 1.96
Keys for Decision Scale: Regularly (2.6 – 3.0), Occasionally (1.6 – 2.5), Rarely (≤1.5)

Further findings from the study show that risk-causing factors, as perceived by the farmers, affect their adoption behaviour. Inaccessibility to credit and shortage of infrastructural facilities were the factors the farmers rated as the most impactful on their adoption behaviour (4.5 and 4.4 respectively). More than 50% of the identified risk-causing factors were perceived by the farmers to have effect on their adoption behaviour as shown in Table 4.

Table 4: Respondents perception of the risk-causing factors affecting adoption behaviour towards production technologies

S/N	Perception statement	SA F (%)	A F (%)	U F (%)	D F (%)	SD F (%)	Mean
1.	I generally see risk in farming activities as normal event of life	58 (48.3)	39 (32.5)	5 (4.2)	17 (14.2)	1 (0.8)	4.1
2.	I prefer to manage risk in farming in my own native way rather than using modern measures against it.	19 (15.8)	40 (33.3)	14 (11.7)	42 (35.0)	5 (4.2)	3.2
3.	I believe that risk is associated with negative outcomes not within my control	12 (10.0)	46 (38.3)	16 (13.3)	38 (31.7)	8 (6.7)	3.1
4.	The inability to give up traditional/cultural beliefs is a problem	7 (5.8)	61 (50.8)	7 (5.8)	40 (33.5)	5 (4.2)	3.2
5.	I am not aware or I am ignorant of risk in farming	4 (3.3)	20 (16.7)	5 (4.2)	65 (54.2)	26 (21.7)	2.2

6.	The rural environment in which I live and operate does not facilitate effective communication and diffusion of agricultural information	52 (43.3)	46 (38.3)	14 (11.7)	2 (2.5)	5 (4.2)	4.1
7.	The production technologies which I see as taking risk is too expensive	27 (22.5)	68 (56.7)	17 (10.0)	12 (10.0)	1 (0.8)	3.9
8.	The production technologies which I see as taking risk requires excessive labour during application	16 (13.3)	38 (31.7)	17 (14.2)	44 (36.7)	5 (4.2)	3.1
9.	The programmes/policies of Government aimed at expanding farmers production and Agricultural development as failed	58 (48.3)	43 (35.9)	12 (10.0)	6 (5.0)	1 (0.8)	4.2
10.	The new production technologies are compatible with the existing practices/processes on my farm.	11 (9.2)	51 (42.5)	17 (14.2)	34 (28.3)	7 (5.8)	3.2
11.	Most farmers are illiterate who lack adequate knowledge of modern farming techniques.	45 (37.5)	46 (38.3)	4 (3.3)	20 (16.7)	5 (4.2)	3.8
12.	The unavailability of capital or access to credit for me to practice modern production.	72 (60.0)	43 (36.0)	3 (2.5)	0 (0.0)	2 (1.5)	4.5
13.	The acute shortage of infrastructural facilities (poor road, lack of market and transportation, electricity etc) is a problem	69 (57.5)	40 (33.3)	6 (5.0)	5 (4.2)	0 (0.0)	4.4
14.	The benefit of taking risk, that is applying modern production technologies is in the future	24 (20.0)	40 (33.3)	10 (8.3)	28 (23.3)	18 (15.0)	3.1
15.	The lack of, or access to the technology is a major problem	40 (33.3)	66 (55.0)	7 (5.8)	3 (2.5)	4 (3.3)	4.1

Source: Field survey
Scale: Strongly agree (SA) = 5, Agree (A) = 4, Undecided (U) = 3, Disagree (d) = 2, strongly disagree (SD) = 1
Keys for decision: where, ≤ 1.5 = SD, 1.6 -2.4= D, 2.5 – 3.4= U, 3.5 – 4.4= A and ≥ 4.4 = SA.

Table 5 shows the respondents' adoption category of crop production technologies. It was found that generally, 50% of the respondents were high adopters (≥ 1.59), while the same percentage was for low adopters (<1.59). This finding indicates that the risk-causing factors have high effect on the respondents' adoption behaviour towards the production technologies in the study area.

Table 5: Respondents distribution on adoption of production technologies (N = 120)

Innovation/Production Technologies	R F (%)	O F (%)	R F (%)	N F (%)	Means	Remark
Improved land preparation/Tillage practices	63(52.5)	52(43.3)	3(2.5)	2(1.7)	2.47	HA
Use of improved crop varieties	35(29.2)	30(25.0)	9(7.5)	46(38.3)	1.45	LA
Planting of early season crops	87(72.5)	30(25.0)	3(2.5)	0(0)	2.70	HA
Planting of indigenous varieties	85((70.8)	25(20.8)	9(7.5)	1(0.8)	2.62	HA
Appropriate planting time/date	80(66.7)	35(29.2)	3(2.5)	2(1.7)	2.62	HA
Appropriate row spacing	76(63.3)	30(27.5)	9(7.5)	2(1.7)	2.53	HA
Use of herbicides	33(27.5)	39(32.5)	8(6.7)	40(33.3)	1.54	LA
Use of insecticides (chemical) to control pest in crop production	16(13.3)	30(25.0)	13(10.8)	61(50.8)	1.01	LA
Use of biological method to control pest in crop production	2(1.7)	10(8.3)	11(9.2)	97(80.0)	0.31	LA
Use of mechanical method to control pest in crop production	37(30.8)	55(45.8)	12(10.0)	16(13.3)	1.94	HA
Use of organic fertiliser/manure	17(14.2)	65(54.2)	8(6.7)	30(25.0)	1.57	HA
Use of inorganic fertiliser	8(6.7)	31(25.8)	12(10.0)	69(57.5)	0.82	LA

Innovation/Production Technologies	R F (%)	O F (%)	R F (%)	N F (%)	Means	Remark
Use of improved method of fertiliser application	16(13.3)	26(21.7)	10(8.3)	68(56.7)	0.92	LA
Use of modern farm implement	7(5.8)	30(25.0)	16(13.3)	67(55.8)	0.81	LA
Crop rotation practice	55(45.8)	54(45.0)	7(5.8)	4(3.3)	2.33	HA
Mulching of crops	43(35.8)	64(53.3)	7(5.8)	6(5.0)	2.20	HA
Use of modern processing facilities	56(46.7)	53(44.2)	7(5.8)	4(3.3)	2.34	HA
Use of improved storage facilities	4(3.3)	16(13.3)	17(14.2)	83(69.2)	0.51	LA
Use of modern harvesting equipment	3(2.5)	9(7.5)	16(13.3)	92(76.7)	0.37	LA
Use of modern packaging techniques	8(6.6)	23(19.2)	16(13.3)	73(60.8)	0.74	LA
Grand Mean					1.59	HA

Source: Field survey, 2012
Key for Decision Scale: Regularly (R) = 3, Occasionally (O) =2, Rarely (R) = 1, Never (N) = 0
Grand mean: 1.59
High adoption (HA) = $\geq$ 1.59, Low adoption (LA) = <1.59

The respondents were found to be high adopters of technologies that did not involve much capital outlay, while they were low adopters in technologies with high capital outlay. This may be due to the risk-causing factors as shown in Table 6. The finding indicates that risk-causing factors have high effect on the respondents' adoption behaviour towards the production technologies. This corroborates Ukpong (1993) who found that, the number of programmes or policies introduced by Nigeria Government to increase agricultural activities has been minimal as a result of farmers' inadequate equipment against risks and uncertainties.

Table 6: The effect of the risk-causing factors on the respondents adoption behaviour towards the production technologies (N = 120)

Type of risking-causing factors	High Effect F(%)	Moderate Effect F(%)	Low effect F(%)	No effect F(%)	Means
1. Environmental					
Climate variability	77(64.2)	26(21.7)	9(7.5)	8(6.6)	2.43
Poor soil type	80(66.7)	38(20.8)	11(9.2)	4(3.3)	2.51
Soil degradation/vulnerability	47(39.2)	47(39.2)	16(13.3)	10(8.3)	2.09
Inadequate rainfall	21(17.5)	9(7.5)	16(13.3)	74(61.7)	0.8
Excess heat	18(15.0)	40(33.3)	31(25.8)	31(25.8)	1.38
2. Economic					
Cost of inputs	97(80.0)	15(12.5)	5(4.2)	3(2.5)	2.72
Lack of infrastructure	98(81.7)	15(12.5)	5(4.2)	2(1.7)	2.74
Poor access to technologies	105(87.5)	14(11.7)	1(0.8)	0(0)	2.87
3. Production					
Lack of labour	80(66.7)	25(20.8)	11(9.2)	4(3.3)	2.51
Lack of storage facilities	94(78.3)	19(15.8)	7(5.8)	0(0)	2.73
Pest/diseases	56(46.7)	37(30.8)	25(20.8)	2(1.7)	2.23
4. Financial					
Lack of access to credit	94(78.3)	22(18.3)	2(1.70	2(1.7)	2.73
Lack of access to insurance services	76(63.3)	29(24.2)	8(6.7)	7(5.8)	2.45
Lack of capital	104(86.7)	15(12.5)	1(0.8)	0(0)	2.86
5. Institutional					
Government policies/Programmes	22(18.3)	23(19.2)	23(19.2)	52(43.3)	1.23
Lack of access to land	65(54.2)	31(25.8)	5(4.2)	19(15.8)	2.18
Poor access to extension services	77(64.2)	34(28.3)	6(5.0)	3(2.5)	2.54
Lack of access to information	62(51.7)	45(37.5)	11(9.2)	2(1.7)	2.39
Lack of security	72(60.0)	35(29.2)	10(8.3)	3(2.5)	2.45
Legislation/Laws	15(12.5)	14(11.7)	50(41.7)	41(34.2)	1.03
6. Social and cultural					
Traditional/Cultural beliefs	7(5.8)	17(14.2)	52(43.3)	44(36.7)	0.89
Social status/Background	47(39.2)	27(17.5)	32(26.7)	14(11.7)	1.89
Nom	6(5.0)	21(17.5)	52(43.3)	41(34.2)	0.93

Type of risking-causing factors	High Effect F(%)	Moderate Effect F(%)	Low effect F(%)	No effect F(%)	Means
7. Personal					
Old age of the farmer	28(23.3)	27(22.5)	18(15.0)	47(39.2)	1.30
Poor educational level	51(42.5)	20(16.7)	10(8.3)	39(32.5)	1.69
Lack of knowledge/awareness	77(64.2)	27(22.5)	7(5.8)	9(7.5)	2.43
Lack of experience	70(58.3)	27(22.5)	9(7.5)	20(16.7)	2.13
Ignorance	70(58.3)	26(21.7)	13(10.8)	11(9.2)	2.29
Lack of interest	52(43.3)	39(32.5)	10(8.3)	19(15.8)	2.03
Total Grand Mean					2.08

Source: Field Survey, 2012
Scale: regularly (R) = 3, Occasionally (O) = 2, Rarely (R) = 1, Never (N) = 0
 Grand Mean : 2.08
Keys for Decision Scale: Low effect < 2.08), High effect ($\geq$ 2.08)

Findings on the correlation between effects of risk-causing factors and adoption behaviour of the respondents (Table 7) show that personal risk-causing factors have high correlation with respondents' adoption behaviour. So also, financial risk-causing factors have a negative but significant relationship with the respondents' adoption behaviour towards the production technologies, implying that, increase in financial risk-causing factors result in decrease in the respondents' adoption behaviour towards the production technologies. This could engender the respondents' refusal to adopt technologies that are high in capital outlay and are sophisticated.

Table 7: Correlation matrix showing the relationship between the effects of the risk-causing factors on the respondents' adoption behaviour towards the production technologies

	Adoption score	Environ.	Econ.	Prdn.	Finan.	Institu.	Sociocul	Person.
Adoption Score	1							
Environmental	0.033	1						
Economic	-0.0.21	0.138	1					
Production	-0.022	0.244**	0.367**	1				
Financial	-0.250**	0.069	0.428**	0.228*	1			
Institutional	0.153	0.029	0.125	0.190*	0.176	1		
Social & Cultural	-0.096	0.114	-0.031	0.132	0.132	0.273**	1	
Personal	0.526**	0.146	0.077	-0.076	0.058	0.082	0.001	1

Source: Field Survey, 2012
** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

CONCLUSION AND RECOMMENDATIONS
        The study has established that access to income, credit facilities, extension services and some other socio economic variables are important risk-causing factors affecting the adoption behaviour towards production technologies. Where there are financial risk-causing factors, farmers become hesitant in adopting sophisticated technologies, which might be of more effective use. Risk-causing factors are found to be having more effect among farmers with low level of education, low capital and those with less access to credit. It was therefore, recommended that in reducing risk-causing factors, farmers must be guaranteed access to credit, exposed to adult literacy and extension information.

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VULNERABILITY OF RURAL HOUSEHOLDS TO RISKS ASSOCIATED WITH QUARRY ACTIVITIES IN OYO STATE, NIGERIA

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ABSTRACT

Economic and environmental pressure are being exerted on rural communities and their households due to the increase in quarry activities that is being necessitated by increase in demand for crushed rock, gravel and sand in road and building construction. This study therefore examined the vulnerability of rural households to risks associated with quarry activities in Oyo state Nigeria. Multi-stage sampling procedure was used to select respondents in Oluyole Local Government Area. A total of 143 households were sampled from communities that were within five kilometre radius of quarry site in the area. Qualitative and quantitative data were collected for the study. Qualitative data collected were used to buttress discussion of the quantitative data, which was analysed using descriptive statistics, Pearson Product Moment Correlation and ANOVA at p=0.05. The mean age of the respondents was 42.5 years. More than half (61.5%) were male, while 83.2% were married and 44,8% and 2.8% had primary and tertiary education respectively. Majority (73.4%) of the respondents engaged in crop farming as their major livelihood activity. Quarry activities were perceived by 97.9%, of the respondents to have caused decrease in crop production due its effect on livelihoods and the environment. Thus majority (77.7%) of the respondents indicated high level of vulnerability of the residents to risks ensued by quarry activities. Diseases such as chronic cough, acute malaria, catarrh and shock due to blasting of rock were highly severe in the study area. Quarry activities in the area have led to migration of people from the communities for health and economic reasons. There is significant relationship between the educational level, household size of respondents and vulnerability to risks associated with quarry activities. Also, significant relationship exists between respondents' livelihood and their vulnerability to risks. Safety net should be provided for people in quarry activity areas across the country so as to reduce the negative effects of the activities on the livelihoods of the people, thereby reducing their vulnerability to associated risks.

Keywords: Quarry activities, vulnerability, risks, rural households

INTRODUCTION

Quarry activities are concerned with the extraction of non-fuel and non-metal minerals from rock (Ukpong, 2012). In Nigeria, there has been increasing demand for crushed rock, gravel and sand in the road and building construction sector in the recent times. This has invariably increased quarrying activities and exerted pressure on the host communities which are mostly rural, whose major economic activity is agriculture. In addition to the significant role being played by rural communities and their households in agricultural production, they are also major stakeholders in the extraction of rocks deposited in their localities. Madhumitha, Bezalel, Devakumar, Kaveri, and Rajagopal (2009) and Oguntoke, Aboaba and Gbadebo (2009) in their studies have established that exploitation of solid minerals comes with various associated hazards and conflicts over natural recourses, which as invariably generated concern in the development world.

Negative environmental effects of quarry activities include noise, dust, effects on fauna/flora/landscape and water resources. Quarry activities pollute air, water and soil, affect the health of people and animals, reduce crop yield and damage buildings (Madhumitha, *et al.* 2009). The destruction of infrastructure, erosion of livelihoods, damage to the integrity of ecosystems and architectural heritage, as well as injury, illness and death of people are some of the direct outcomes of quarry activities in local communities (Oguntoke *et al.* 2009). Many of such effects are noticed directly on households' livelihoods and the environment in which they live. Thus, households are exposed to various associated risks. The exposure of rural households to risks associated with quarrying activities and operations brings about severe shocks that often cause welfare loss, consequently making such households vulnerable to 'secondary-risks' such as diseases and economic hardship. It has been well documented that people that experience shock try to manage uncertainty and welfare loss using a variety of *ex-ante* and *ex-post* risk management strategies (World Bank, 2000). But these strategies are of short-term positive effects, fragile and considered to be economically damaging. They also undermine developmental efforts and subject the affected individual household to spiral downturn of permanent poverty. Vulnerability, which is defined as the likelihood of a shock to cause a significant welfare loss (Okunmadewa, 2003), is a forward-looking and dynamic view of poverty (World Bank, 2003). The vulnerability of people in rural communities in the proximate of quarry operations, could therefore be explained in terms of the various degree of hazards exposed to, which in addition to the relative poverty situation in rural area, have long-term negative consequences on rural households. As a result rural households could invariably be subjected to become poor or poorer as the case may be due to the effects of quarry

activities on their livelihoods and environment. This study therefore examined the extent of respondents' vulnerability to the risks associated with quarry activities in the study area. The components of vulnerability considered in this study are exposure, sensitivity and resilience of rural households to risks that ensue from quarry activities.

The objectives of the study include to;
1. describe the livelihood activities of the respondents in the study area,
2. identify types of quarry activities operating in the study area,
3. identify the personal characteristics of respondents in the study area.
4. ascertain the extent of respondents' vulnerability to the risks associated with quarry activities across the study area in terms of exposure, sensitivity and resilience,

The hypotheses of the study, stated in null form, are as follows;
- there is no significant relationship between respondents personal characteristics and their vulnerability to risks associated with quarry activities.
- there is no significant relationship between respondents livelihood activities and their vulnerability to risks associated with quarry activities.

METHODOLOGY

The study was conducted in Oyo State, Southwest Nigeria. The State covers a total of 27,249 square kilometres of land mass and it comprises of 33 Local Government Areas. Oyo State is bounded in the south by Ogun State, in the north by Kwara State, in the East by Osun State, while in the west it is partly bounded by Ogun State and partly by the Republic of Benin, The landscape consists of old hard rocks and dome shaped hills. Agriculture is the predominant source of livelihood of people in Oyo State Major food crops produced in the area include maize, cassava, yam, plantain and banana, while oil palm, cocoa, orange, mango and, cashew constitute cash crops in the state. Oyo State is endowed with solid minerals resources deposited in different parts of the state. Among the solid minerals found in the area are iron ore, gold, columbite, nickel, dolomite, tourmaline, tantalite, beryl, limestone and granite. Oluyole Local Government Area (LGA) was purposively selected, being the LGA with highest level of quarry activities in the state.

Quarry sites in Oluyole Local Government Area were identified, while the communities within five kilometres radius of identified quarry sites were randomly selected. Households in each of the selected communities were identified, from which a total of 143 households were sampled proportionate to size of the identified communities, and household heads were interviewed. Focus Group Discussion (FGD) and structured questionnaire were used to collect qualitative and quantitative data for the study. Qualitative data collected were used to buttress discussion of the quantitative data, while quantitative data were analysed using descriptive statistics, Pearson Product Moment Correlation and ANOVA at $P \leq_{0.05}$

RESULTS AND DISCUSSION

Personal characteristics of respondents - The result on Table 1 shows that 53.9% of the respondents were between the ages of 30 and 59 years. The mean value and standard deviation of respondents' age was 42.5±1.35 years, which implies that more than half of the respondents were in their productive age. It is thus expected that livelihood activities of the people in the area should be high if there is a relative access to livelihood assets by the group of people that are in their active productive age. Such access in a way could enhance household's ability to mitigate the risks associated with quarry activities, thereby reducing the effects of quarry activities on the household vulnerability. However, in a situation where people's access to livelihood assets is denied or hindered in the face of development process and encroachment on people and household's livelihood assets such as farmland or river, there is likelihood of the affected individuals and households becoming poor or poorer, thus increasing households' vulnerability. As expressed by Shahbaz (2008) limited access to source of livelihood could increase level of defencelessness and exposure to shocks thereby increasing people's vulnerability to risks.

The result in Figure 1ashows that more than half (61.5%) of the respondents were male, while 38.5% were female. Among the female respondents were those that were household heads as a result of the death of the male household heads, while other female respondents were those that assumed the position of household head by virtue of the male household heads that have moved out of the community to establish farms elsewhere. Also, some have engaged in other livelihood activities aside farming due to the effects of quarry on their livelihood activities in the area. This was also revealed during FGDs in some of the sampled communities.

The result in Figure 1b shows that majority (83.2%), of the respondents were married, while 12.6% and 3.5% were widowed and single respectively. This implies that negative effects or otherwise of quarry activities on a family member could have direct or indirect consequences on other

members of the family in social or financial terms

as a result of their marital status.

Table 1: Distribution of Respondents by Age

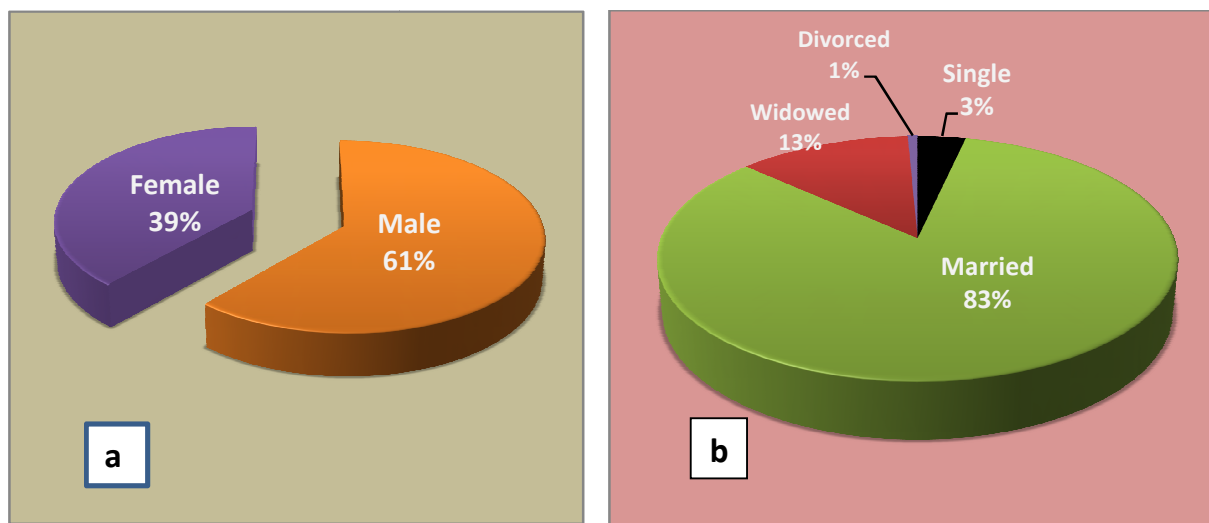| Age	Freq (%)	
< 30 years	2 (1.4)	
30 – 39 years	22 (15.4)	
40 – 49 years	34 (23.8)	
50 – 59 years	43 (30.1)	
60 – 69 years	29(20.3)	
70 and above	13(9.1)	
Total	143 (100.0)	
Mean		42.5
Std. var		1.351

Source: Field survey, 2015

Figure 1: Distribution of Respondents by (a) Sex and (b) Marital Status

Educational level of respondents - The findings on Figure 3 reveal that a relatively large proportion (44.8%) of respondents had only primary education, while 33.5% had no formal education. Only 2.8% had tertiary education. This implies that the educational level of respondents is relatively low. This could have significant influence on the ability of the respondents to take advantage of innovations and opportunities in agricultural production as well as their capability to diversify their livelihood activities in the face of the effects of quarry activities in their area. According to Phillip and Rayhan (2004), high level of illiteracy is a serious problem in improving the livelihoods of people, because those without formal education have limited opportunity of making use of improved production technologies. This assertion follows that the relative high level of poverty among rural households as admitted by Nishara, (2003), can be attributed to the low literacy level that characterises rural communities. This is becauseeducational attainment has been considered as one of the indicators of household vulnerability index and poverty.
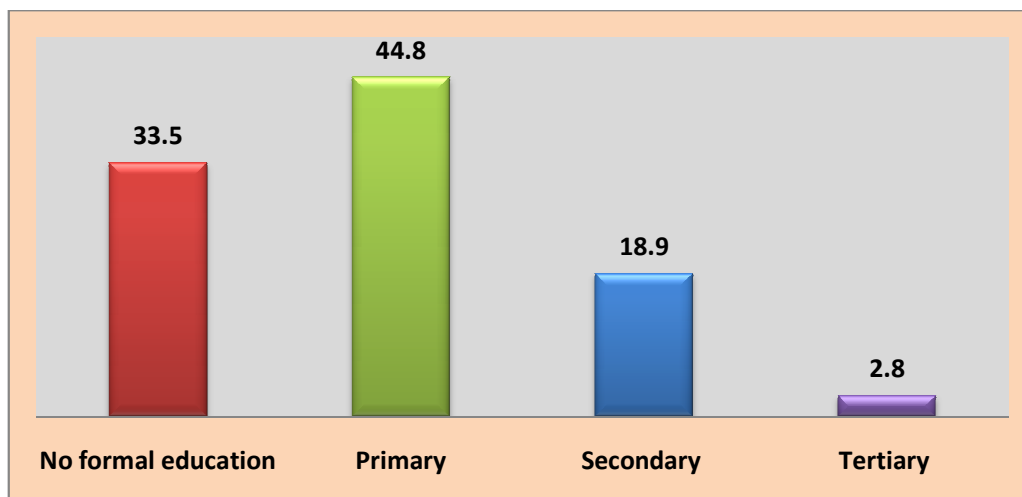
Figure 3: Educational level of Respondents

Livelihood activities engaged in by respondents

The findings on Table 3 show that majority (73.4%) of the respondents were engaged in crop farming as their major livelihood activity across the sampled communities, while 23.1%, and 8.4% of the respondents engaged in processing of farm produce and marketing of farm produce respectively. This implies that majority of the people in the study area engaged in agriculture related livelihood activities. Among other activities engaged in by the respondents in the study area were hunting (7.0%), livestock rearing (4.2%) and fishing (3.5%) activities while only 2.1% were engaged as quarry labourers. This implies that the effects of quarry activities on the environment and land resources upon which agricultural production is based will invariably have serious deleterious effects on larger categories of people engaging in agricultural related activities as their major source of livelihoods. The findings also imply that quarry activities do not provide the expected employment opportunities to rural household members of communities where quarry companies were located. It was revealed during FGDs in some sampled communities in the LGA that some local persons that were employed at the commencement of the quarry operation in the area were later laid off by the quarry authority without genuine reasons for such action. As explained by a discussant

"our expectation was high at the commencement of quarry operations in this area, with the hope that some members of communities in this area will be employed as quarry workers, having the idea that quarry activities will definitely affect our farming activities".

The discussant went further that;

"the effects of quarry activities have reduced faming activities and the earnings from it. We see this situation as an important reason for the quarry company to engage our people in quarry operations where they can be earning some living to manage the effects of quarry activities on our livelihoods in this area".

A female respondent during the FGD admitted that

"if those that were engaged by the quarry company were not laid off, it would have contributed to the quality of life of some households in this area, and their employment would have been considered as part of benefits to be derived by the local community from quarry operators".

Table 2: **Distribution of respondents by Livelihood activities**

*Livelihood activities	Freq / %
Crop farming	105 (73.4)
Livestock rearing	6 (4.2)
Processing of farm produce	33 (23.1)
Fishing	9 (3.5)
Marketing of farm produce	12 (8.4)
Hunting	10 (7.0)
Hired labour	5 (3.5)
Gathering of non-timber forest product	3 (2.1)
Artisans	3 (2.1)
Quarry labourer	3 (2.1)

*Livelihood activities	Freq / %
Transporters	6 (4.2)

Source: Field survey, 2015

Respondents' perceived effects of quarry activities on their vulnerability to risks associated with quarry activities.

Respondents' perceptions of their vulnerability to risks that ensue from quarry activities are shown on Table 4. Respondents' vulnerability in the study area was considered in terms of their exposure, sensitivity and resilience (the adaptive capacity to cope with or mitigate the effects) as well as the health risks associated with quarry activities. Across all the sampled communities, majority of the respondents agreed to virtually all the statements that bordered on their exposure, sensitivity and resilience to the effects of quarry activities.

The result shows that 97.9%, of the respondents agreed that there has been decrease in crop production as a result of quarry activities. This has invariably affected people's income and hence their purchasing power of basic necessities has reduced. Also 96.3% agreed that lack of monitoring of quarry activities by relevant agencies has contributed to the extent of the effects of quarry activities in the study area. Respondents were of the opinion that proper monitoring and regulation of quarry activities by government regulatory agencies would have reduced the effects on people's livelihoods and the environment in the study area. In the same vein, majority (94.4%) of respondents agreed that proximity of communities to quarry site could be a serious factor for exposure of people to risks associated with quarry activities in the area, thereby making them vulnerable to such risks.

Also, in terms of sensitivity of respondents to the effects of quarry in the study area, 73.5% of the respondents disagreed that they could still make reasonable income from their livelihood activities, while 72.9% also disagreed that they could live comfortably in terms of consumption and welfare, in spite of the effects of quarry activities in the area. Meanwhile, 74.7% and 84.5% agreed that the rate at which quarry activities were being carried out and the low financial capacity of the people in the area respectively, could increase the degree to which people were affected by quarry activities in the area. The implication of this is that there is high degree of effect of quarry activities on people's lives, with less ability on the part of the people to cope with the effects. Thus, it could be said that their vulnerability to effects of quarry activities is high. Corroborating this finding, Shahbaz (2008) in his assertion states that lack of access to livelihood assets by rural people may have serious impact on their level of vulnerability to risks, because limited access to source of livelihood could increase level of defencelessness and exposure to shocks and stress.

The trucks generate heavy dust particles that affect people, plants and animals in the area. Exposure of people, plant and animal to the persistent dust particulates has had serious implications on their vulnerability. Flyrock (the rock fragment propelled beyond the blast area by the force of an explosion)as explained by respondents in the study area has been one of the incidents in quarry operations that often cause injuries to people and damage properties. According to Mohamad, Armaghani and Motaghedi (2013), flyrock has been the cause of most injuries and damages to properties in quarry and surface mining activities. At Lamulo, and Orile-Koka communities in the LGA, flyrock was reported to have caused injuries to some residents of the communities, while houses have also being damaged by flyrock as shown in Plate 1

Plate 1: An inhabited house whose dilapidation was caused by flyrock and vibration at Lamulo village, located few meters from a quarry site in Oluyole LGA. Oyo State

The inference could be drawn from this finding that people living in quarry activity areas are prone to various environmental and health risks, coupled with lack of good health facilities and services in the rural areas. People are thereby vulnerable to adverse health hazards of quarry operations. Accessibility of people to good health facilities and services in environmentally vulnerable and prone areas should therefore be of concern to respective governments, organisations and individuals in the face of developmental process.

Table 3: Respondents perceived effects of quarry activities on their vulnerability to risks associated with quarry activities

Statements Exposure	Degree SA	A	U	D	SD	WMS	*Rank
Farm lands were directly affected by quarry activities resulting in decrease in production.	293 (87.2)	36 (10.7)	0 (0.0)	7 (2.1)	0 (0.0)	4.83	1st
Lack of adequate monitoring of quarry activities by relevant government agencies exposes people to advert effects of quarry activities.	239 (71.1)	78 (25.2)	8 (2.4)	9 (2.7)	2 (0.6)	4.62	2nd
Lack of access to financial credit facilities could aggravates the effects of quarry activities on people.	187 (55.7)	120 (35.7)	17 (5.1)	12 (3.6)	0 (0.0)	4.42	4th
Large house size could contribute to inability of people to adequately manage the ensued financial problem associated with the effects of quarry activities.	130 (38.7)	114 (33.9)	72 (21.4)	13 (3.9)	7 (2.1)	4.03	10th
Relative low income from livelihood activities in this area could aggravates the effect of quarry activities on the people.	127 (37.7)	161 (47.9)	33 (9.8)	14 (4.2)	1 (0.3)	4.13	8th
Lack of adequate livelihood assets could worsen the effects of quarry activities on households	158 (47.0)	156 (46.4)	15 (4.5)	3 (0.9)	4 (1.2)	4.34	5th
Proximity to quarry site contribute to the severity of the effect of its activities on households.	219 (65.2)	98 (29.2)	7 (2.1)	5 (1.5)	2 (0.6)	4.52	3rd
Sensitivity							
Low financial capacity of household head could make it difficult to cope with the effects of quarry activities on livelihood outcomes.	143 (42.6)	141 (41.9)	21 (6.3)	14 (4.2)	17 (5.0)	3.84	15th
Adequate knowledge of environmental regulations could help in curbing the environmental effect of quarry activities.	89 (26.4)	103 (30.6)	22 (6.5)	39 (11.6)	83 (24.7)	4.11	9th
I could still make reasonable income from my livelihood activity in spite of quarry activities in this area.	30 (8.9)	19 (5.7)	40 (11.9)	122 (36.3)	125 (37.1)	2.09	21st
My family could still live relatively comfort in terms of consumption and welfare, despite the effects of quarry activities.	17 (5.1)	38 (11.3)	36 (10.7)	155 (46.1)	90 (26.8)	2.21	20th
The rate at which quarry activities are being carried out could increase its effects on livelihoods and reduce the capability to recover the effects.	160 (47.6)	91 (27.1)	22 (6.5)	57 (17.0)	6 (1.8)	4.02	11th
Resilience (adaptive capacity)							
I have engaged in other livelihood activities in order to cope with the effect of quarry activities.	82 (24.4)	152 (45.2)	10 (3.0)	32 (9.5)	60 (17.8)	4.18	7th
My family consumption has reduced to cope with financial shortfall resulting from effects of quarry activities	76 (22.6)	163 (48.5)	31 (9.2)	43 (12.8)	23 (6.8)	3.76	16th
My children education was affected due to lack of financial capability.	104 (31.0)	23 (6.8)	47 (14.0)	95 (28.3)	66 (19.6)	3.22	19th

Statements Exposure	Degree SA	A	U	D	SD	WMS	*Rank
I have to trek long distance to establish another farm that is free from quarry pollution.	87 (25.8)	94 24.9	26 (7.7)	73 (21.7)	56 (16.6)	3.93	13th
Sending children to stay with relations in other community/city could help to reduce family expenses in order to manage the effects of quarry activities.	60 (17.9)	61 (18.1)	44 (13.1)	120 (35.6)	51 (15.2)	3.47	18th
Lack of good health care facilities in this area has caused people to travel long distance to seek medical attention for diseases associated with quarry activities.	117 (34.7)	103 (30.6)	10 (3.0)	77 (22.9)	29 (8.6)	4.22	6th
Due to non-availability / poor health facilities, people have taken to traditional method of treatment.	87 (26.4)	91 (27.0)	7 (2.1)	98 (29.1)	53 (15.7)	3.97	12th
Forming a pressure group in order to ensure compliance with environmental regulations with respect to quarry activities could reduce the effects of quarry activities.	65 (19.3)	79 (23.5)	61 (18.2)	53 (15.7)	78 (23.2)	3.88	14th
Reduction in hired labourer could reduce farm expenses in order to manage low income resulting from the effect of quarry operation on livelihood.	62 (18.4)	61 (18.2)	62 (18.4)	95 (28.2)	56 (15.2)	3.50	17th

Source: Field survey, 2015

Level of vulnerability of respondents

The result shows the level of vulnerability with percentage of respondents whose scores were below and above the mean value of 84.6. The result reveals that majority (77.7%) of the respondents indicated high level of vulnerability with scores above mean value, while 22.3% below the mean value indicated low vulnerability level as far as effects of quarry activities is concerned. This implies that the residents of communities in the study area were highly vulnerable to the associated risks that ensued from quarry activities. The result can further be explained that the people in the study area perceived themselves to behighly exposed to adverse effects of quarry operation with less resilience to cope or manage the effects.

Table 4: Level of vulnerability of respondents

Level vulnerability		Range of score	Freq	%
Low		56 - 84	75	22.3
High		85 - 105	261	77.7
Minimum score	56.00			
Maximum score	105.00			
Mean score	84.6			
Std dev	11.0			

Source: Field survey, 2015

Perceived Health risks associated with quarry activity

The result on Table 5 shows that there was a high level of severity of most of the diseases associated with quarry operations as indicated by respondents in their responses to questions on severity of quarry related diseases in the area. Diseases such as chronic cough, acute malaria, catarrh and shock due to blasting of rock were said to be highly severe as indicated by 60.0%, 67.4%, 64.6% and 64.0% of respondents respectively in the communities. Also, more than half of the respondents comprising 63.0%, 61.8%, and 64.25% indicated that malaise (a general feeling of discomfort, illness, or unease), nasal infection and hearing impairment respectively were highly severe.

It was gathered during FGD conducted in the sampled communities that air pollution arising from stone dust emitted by crushing of rock and haulage of quarry products is a major problem for the inhabitants of communities near quarry sites. In three particular communities in Oluyole LGA namely; Aba Bale-Ajogbobi, Dale and Akilapa located along the road leading to multiple quarry sites, discussants lamented that diseases affecting people in the area were attributed to persistent exposure to polluted air from dust generated by quarry trucks. Regrettably, people of these communities admitted that many lives have been

lost due to air pollution related diseases leading to respiratory diseases as a result of inhalation of dust. Corroborating the findings of this study, Madhavan and Raj (2005) report that the dust particles emitted into the air during periods of clearing of vegetation, blasting, loading and haulage of quarry products by heavy trucks impair visibility and cause cardiovascular diseases such as silicosis, tuberculosis and bronchitis which could lead to pulmonary fibrosis and premature death of the people within the vicinity of quarry operations from time to time.

It was observed that in many of the sampled communities, there was no primary health or maternity centers providing health services to people in the area. During FGDs in the sampled communities, discussants explained lack of health facilities as a major challenge with respect to series of health problems associated with quarry activities in their area. Non-availability of health facilities and services in those communities made people stay off their livelihood activities for many days longer than necessary when they take ill. While some people have to travel long distance to access treatment for their ailment, others have resulted to making use of herbs and local concoction to treat their ailments. By implication people in the study area were vulnerable to health risks associated with quarry activities.

Table 5: Perceived Health risks associated with quarry activity

Types of disease in the community that may be associated with quarry activities	Level of severity in the community				
	Less severe	Moderately severe	Highly severe	WMS	*Rank
Chronic cough	5 (1.5)	128 (44.0)	202 (60.0)	2.02	3rd
Acute malaria	17 (5.1)	86 (25.5)	227 (67.4)	1.45	6th
Catarrh	8 (2.4)	104 (31.0)	217 (64.6)	2.58	1st
Sinusitis – (allergies & chemical or particulate irritation of the sinuses).	68 (20.2)	75 (22.3)	50 (14.9)	0.29	15th
Gastro-intestinal infection	71 (21.1)	98 (29.2)	59 (17.6)	1.14	9th
Fungal dermatitis – (chronic, itching, inflammatory skin disease associated with asthma)	6 (1.8)	91 (27.1)	181 (53.8)	0.12	16th
Malaise (a general feeling of discomfort, illness, or unease)	15 (4.5)	76 (22.6)	212 (63.0)	0.96	10th
Hypertension	11 (3.3)	53 (15.8)	151 (44.9)	1.70	5th
Silicosis	6 (1.8)	73 (21.7)	25 (7.5)	0.68	13th
Nasal infection	25 (7.4)	92 (27.3)	208 (61.8)	1.38	7th
Shock	15 (3.9)	81 (24.1)	215 (64.0)	2.45	2nd
Hearing impairment	9 (2.7)	105 (31.3)	216 (64.2)	1.71	4th
Asthma	16 (4.8)	65 (19.3)	58 (17.2)	0.76	12th
Pharyngitis-which may be cause by smoke or dust pollution (inflammation of the pharynx)	14 (4.2)	52 (6.5)	44 (13.1)	0.77	11th
Diarrhoea	15 (4.5)	19 (5.7)	73 (21.7)	0.33	14th
Eye problem due to dust particle	8 (2.4)	101 (30.0)	227 (67.4)	1,35	8th

Source: Field survey 2015

Test of Hypotheses

Ho$_1$: There is no significant relationship between respondents' personal characteristics and their vulnerability to risks associated with quarry activities.

The result on Table 6shows that there is significant relationship between the educational level, household size of respondents and vulnerability to risks associated with quarry activities. This implies that the level of education attained by individual respondents could be a factor in the extent to which an individual could manage or cope with the effects of quarry activities, while household size could be a differential factor among households with respect to the level at which household's livelihoods were affected by quarry activities in the area.

Table 6: Analysis of relationship between respondents' personal characteristics and vulnerability to risks associated with quarry activities

Variable	χ^2	Df	p-value	Decision
Age	0.004	6	0.10	NS
Sex	0.510	3	0.70	NS

Variable	χ^2	Df	p-value	Decision
Marital	1.570	3	0.65	NS
Educational level	0.270	4	0.009	S
Household size	19.0	6	0.004	S

$H_0 2$: There is no significant relationship between respondents' livelihood activities and their vulnerability to risks associated with quarry activities.

The result Table 7 shows that there was a significant relationship between respondents' livelihood and their vulnerability to risks. This implies that effects of quarry activities on livelihoods of people in the area exposed them to various risks associated with quarry activities. The degree of exposure and sensitivity of people's livelihoods coupled their resilience to cope/manage the effects resulted in high level of people's vulnerability to risks associated with quarry operations in the study area.

Table 7: Analysis of relationship between respondents' livelihood activities and vulnerability to risks associated with quarry activities

Variable	χ^2	df	p-value	Decision
Livelihood activities	-0.03	1	0.001	Sig.

Conclusion and Recommendations

Quarry activities have negative effects on the livelihoods of respondents in the study area. The effects have resulted in low crop yield and income of respondents. The level of respondents vulnerability to risks associated with quarry activities was high. Respondents were exposed to various health, economic and social risks due to quarry activities in the study area. Respondents' livelihoods were highly sensitive to the effects of quarry activities in the area with respect to the rate at which people's livelihoods were exposed to the effects, and the resilience of the affected individuals to manage, cope and/or recover from the accumulated negative impact of the effects. Empirically, significant relationship exists, though negative between the respondents' livelihood activities and their vulnerability to risks associated with quarry activities in the study area.

Based on the findings of this study, it is therefore recommended that;

➢ Socio-economic and environmental impact baseline study should be extensively carried out and the report adequately analyzed and the recommendations strictly adhered to, so as to identified the short and long term effects and impacts of quarry activities on the environment and people living in the area of the quarry activities.

➢ Safety net should be provided for people in quarry activity areas across the country so as to reduce the negative effects of the activities on the livelihoods of the people.

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STRATEGIES FOR RESETTLEMENT OF INTERNALLY DISPLACED PERSONS (IDPS) IN FARMING COMMUNITIES OF RIVERS STATE, NIGERIA

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ABSTRACT

This study explored the strategies for resettlement of Internally Displaced Persons (IDPs) in farming communities of Rivers State. Simple random sampling technique was used to select three (3) out of the five (5) areas affected by displacement. Sixty five respondents were selected using a snow-ball technique from each of the 3 selected areas to give a total sample size of one hundred and ninety- five (195) respondents. Data for the study were collected with the aid of an interview schedule and analyzed with the use of frequency, percentage, and mean. The main causes of displacement expressed by the respondents include: boundary clashes with neighbouring community (mean = 3.45), lingering community leadership tussles (mean = 3.28), armed cult attacks and activities (mean = 2.68). The resettlement needs of the displaced persons include: relief food supplies on return for at least 6 months (mean = 3.46), provision of tools and implements for bush clearing in abandoned homes (mean = 3.35), reconstruction and rebuilding of houses destroyed during displacement (mean = 3.18). Strategies for resettlement of displaced persons in the study area include: distribution of resettlement start-up packages (mean = 3.60), assessment and declaration of safe areas for resettlement (mean = 3.46), need and situation analysis of returnees (mean = 3.33). Governments, non-governmental organizations should increase effort in properly identifying displaced persons, raising awareness to their plight, and facilitating the work of protection and assistance for IDPs.

Keywords: Resettlement strategies, Internally Displaced Persons, farming communities

INTRODUCTION

In many parts of the world, wars, communal clashes, ethnic violence, natural and man-made disaster are recurrent. The occurrence of the foregoing phenomena results in loss of human lives, properties, means of livelihood and displacement of the population. One of the contemporary challenges facing the Nigerian state is how to provide succor to the internal displaced persons (IDPs), occasioned by incessant violent attacks perpetrated by various armed groups and other forms of crises in various parts of the country. Since the end of the Nigerian civil war, there have been several civil strife, agitations and violent clashes leading to loss of hundreds of thousands of human lives, destruction of properties worth millions of naira and the attendant displacement of millions of people from their homes to safe areas. Obviously, the most affected persons are vulnerable groups such as children, aged and women who are exposed to severe socio-economic and political challenges (Durosaro and Ajiboye, 2011).

Although, there is no existing accurate official record on the total figure of persons displaced by the Boko Haram insurgents, it is reported that in 2013 alone, 300,000 people fled the states of Bornu, Adamawa and Yobe, out of which seventy percent of them are said to be women and children (Human Right Watch (HRW), 2014). It is also on record that in 2013 alone, 470,500 persons were displaced across communities in some parts of Nigeria due to Boko Haram insurgency and other humanitarian emergencies (HRW, 2014). Besides, available statistics shows that Nigeria has the highest number of displaced persons in Africa which is estimated at 3.3 million people as at the year 2014 (Nigerian Red Cross (NRC), 2014). The figure includes those displaced as a result of Boko Haram insurgency, communal conflicts, flood disasters and incessant clashes between farmers and Fulani herdsmen in the northeast. On a global scale, Nigeria is ranked behind Syria, with 6.5 million IDPs and Colombia with 5.7 million (NRC, 2014). Statistics from HRW (2014) asserts that the IDPs figures have risen unprecedentedly in the preceding years due largely to increasing number of Boko Haram attacks, heavy–handed counter-insurgency and ongoing inter-communal violent conflicts in some communities across the country (Petraeus and Amos, 2006). For instance, the clashes between farmers and Fulani herdsmen in states of Benue, Taraba, Zamfara and Kaduna displaced 100,000 persons in 2014 (National Emergency Management Agency (NEMA), 2015). Over the years, the growth of IDPs figure in Nigeria is quite alarming. As at April, 2015, Internal Displacement Monitoring Centre (IDMC) estimates that 1,538,982 people were forced to flee their homes in Nigeria. This figures include people displaced as a result of brutal attacks by Boko Haram insurgency, the government led counter-insurgency operations against the group, ongoing inter-communal clashes. The biggest rise in the number of IDPs was recorded in Borno state, one of the Northeastern states ravaged by Boko Haram insurgency, followed by Adamawa, and Yobe states. As at April 2015, Displacement Tracking Matrix (DTM) assessment, set up by the Internal Migration Organization (IMO) identified 1,491,706

IDPs in states of Adamawa, Bauchi, Born, Gombe, Taraba and Yobe with about six percent of this figure attributed to inter communal clashes while the remaining ninety four percent of these figure is caused by Boko Haram insurgency. NEMA recorded an additional 47,276 IDPs in Plateau, Nasarawa, Kaduna, Kano, and Abuja Federal Capital Territory (FCT), in February, 2015 (NEMA, 2015). This brings the total number of registered internally displaced persons in 2015 to 1,538,982 in Northeastern states. The above figures may have soared due to other forms of disaster in the affected states in the North. The situation in the southern states of Nigeria is not different as many farming communities are affected with the attendant displacement of the rural population leading to serious humanitarian crisis.

In response to the above situation, governments in Nigeria and some non-governmental organizations have made efforts to address the plights of displaced persons. Such efforts include the provision of temporary camps for the displaced persons especially in the northern parts of Nigeria, supply of relief materials, social welfare services and other emergency supplies. However, in the southern states of Nigeria, there are no officially established camps rather displaced persons find refuge in neighbouring communities. Consequently, these individuals are faced with severe socio-economic problems, health and environmental challenges, loss of livelihoods, insecurity, inadequate foods and good drinking water, overcrowding, poor living and sanitary conditions, social discriminations, sexual harassment, child labour, early marriage and its attendant teenage pregnancy, intimidation, humiliation and other forms of social exclusions in their host communities.

In view of the above situations, there is a conscious and continual search for an enduring solution to the problems of the displaced persons. This may likely be achieved through appropriate plan for resettlement of the affected population using appropriate strategies. Against this background, the study explored the strategies for resettlement of Internally Displaced Persons (IDPs) in farming communities in Rivers State. In specific terms, the study described the socio-demographic characteristics of the displaced persons in Rivers State, ascertained the causes of displacement of persons in the study area, identified the resettlement needs of the respondents and explored the strategies adopted for the resettlement of the displaced persons in the study area.

METHODOLOGY

The study was conducted in Rivers State, Nigeria. Rivers State lies on latitude $7^0 00^1$ east and longitude $4^0 75^1$ north and bounded in the north by Abia and Imo States, in the south by the Atlantic ocean, in the east by Akwa Ibom State and in the west by Bayelsa and Delta States. The population of the study was composed of all persons displaced from their homes and communities for one reason or the other. Simple random sampling technique was used to select three (3) out of the five (5) areas affected by displacement in Rivers State, and 65 respondents were selected using a snow-ball technique from each of the 3 selected areas to give a total sample size of one hundred and ninety- five (195) respondents. The instrument for data collection was a structured interview schedule designed in two sections and validated by the researchers. Section A sought for responses on the socio-demographic characteristics of the respondents. Section B was divided into three parts. Part 1 contained 20-item clusters on possible causes of displacement of persons; Part 2 contained 17-items clusters on the resettlement needs of the displaced persons while Part 3 contained item-statements on possible strategies for resettlement of displaced persons. Responses to each of the items in Sections B were measured using a 4-point Likert-type rating scale of agreement, where Strongly Agree (SA) =4; Agree (A) = 3; Disagreed (D) =2 and Strongly Disagree (SD) =1. The values of the scale (4, 3, 2 and1) were summed up to obtain 10. The mean value of the sum gave 2.50, which became the benchmark for accepting any item as possible causes of displacement of persons, resettlement needs of the displaced persons and strategies for resettlement of displaced persons. Data were analyzed with the use of frequency, percentage, and mean.

RESULTS AND DISCUSSION

Socio-demographic characteristics – Result on Table 1 shows that the majority (65.8%) of the internally displaced persons are males and 34.2% are females. This implies that in the study area, males are more affected by displacement than females. This might be linked to the fact that males rather than females cannot condone acts of aggression and consequently may fight back or forced to abandon their communities for safety. Majority of the respondents (67.5%) were within 20-39 years age followed by those within 30-39 years of age (30.0%). This indicate that majority of the displaced persons in the study area were young adults. This is obvious since these categories of the population are prone to aggression, group action and counter-action tantamount to break down of law and order. The trend could result in wastage and reduction in human capacity development critical to support rural labour, output and productivity. Results in Table 1 further revealed that majority of the respondents were married (60.8%). This places on them family responsibilities that increase pressure for their return and reunification with their family members.

It was also found that majority of respondents 40% had a minimum of primary education while 29.2% had no formal education indicating that majority of the displaced persons could have low capacity for paid skills and livelihood interests as a result of their level of education. Majority of them (49.2%) were involved in trading. This agrees with Nwaogwugwu and Orlunwu (2016) that found trading as a means of livelihood among agrarian migrants. Results on household size indicate that 47.5% and 37.5% of the respondents respectively had household sizes of 1-3 persons and 4-6 persons respectively. This indicates that the displaced persons are young family people. On the duration of displacement, the result shows that majority of the respondents (86.4%) have been displaced for 1-5 years ago. This might be the reason why in the last two years government in Rivers State has deemed internal displacement of persons as an emergency situation for urgent attention to pave way for development in the affected communities.

Table 1: Socio-demographic characteristics of the respondents

Variables	Frequency	Percentage
Gender		
Male	79	65.8
Female	41	34.2
Age category		
20-29 years	81	67.5
30-39 years	36	30.0
40-49 years	3	2.5
50-59 years	0	00.0
60-69 years	0	00.0
70 years and above	0	00.0
Marital Status		
Married	73	60.8
Single	47	39.2
Divorced	0	00.0
Widowed	0	00.0
Educational Level		
Non-Formal Education	35	29.2
Primary Education	47	40.8
Secondary Education	27	22.5
Tertiary Education	9	7.5
Occupation		
Fishing	21	17.5
Farming	26	21.7
Civil Service	14	11.7
Trading	59	49.2
Household Size		
1-3 persons	57	47.5
4-6 persons	45	37.5
7-9 persons	18	15.0
10 persons and above	0	00.0
Duration of displacement		
1-5 years	91	86.4
6-10 years	27	12.7
11-15 years	2	0.9
16-20 years	0	00.0
21 years and above	0	00.0

Source: Field Survey, 2017

Causes of displacement of person - Entries in Table 2 show the main causes of displacement of persons in the study area. The result shows that boundary clash with neighbouring community (mean = 3.45) was a major cause of displacement. This is obvious since actions associated with boundary clashes are characterised with wanton destruction of life and properties in most Nigerian communities. Also, lingering community leadership (mean = 3.20) was indicated as a cause of displacement. The finding is evidenced by the level of destruction occasioned by tussles for the control of either political power or traditional stool in which many individuals either

lose their lives or abandon the communities. The result on Table 2 indicates that land takeover and quit notice by government (mean = 3.03) was among the causes of displacement of persons in the study area. This arises on the heels of government acquisition of community lands for siting of projects and eviction of residents in such lands. Often times, adequate provisions are not made for relocation and resettlement of the affected families and communities resulting in displacement, destitution and misery. The finding is in line with the account of Centre on Human Rights and Evictions and the Social and Economic Right Action Centre in 2008 which suggest that over 2 million people were forcibly evicted as a result of land takeover and quit notice by government. The death of bread winner (mean = 2.99 was indicated as a cause of displacement in the study area. This finding gives credence to the fact that vulnerability of certain segment of the population is occasioned by the death of a breadwinner. This gives rise to orphanage, widowhood and destitution with daunting evidences in Nigerian society, especially where social security apparatus are inadequate to cater for these vulnerable members of society. Furthermore, man-made disaster (mean = 2.95) is found as causing displacement. The finding may be as a result of abuse and wrong use of resources in the environment consequent upon flooding, erosion, fire outbreak, etc. leading to displacement. Also, Fulani herdsmen attack (mean = 2.90) was found to be possible causes of displacement. Incidences associated with destructive activities and clashes between Fulani herdsmen and farmers in various communities in Nigerian could give rise to national emergency. This finding is valid in line with NEMA (2015), which states that Fulani herdsmen attacks displaced over 100,000 persons in 2014. It was also found that insecurity of life and properties (mean = 2.85) caused displacement in the study area. This finding corroborates earlier accounts that thousands of persons are killed and/or displaced as a result of reoccurring inter-communal conflicts and politically motivated violence leading to consistently large waves of internal displacement (NRC, 2014). Arbitrary arrest and detention of persons (mean= 2.74) is indicated as another cause of displacement of persons. This finding might be linked to the heavy militarization in the study area since the emergence of armed activities by the youths in the oil rich Niger Delta region in which the study area is located. Furthermore, the result revealed that deprivation and neglect by family members (mean = 2.72) is among the causes for displacement of persons in the study area. This finding attests to the poor conditions of most households in the study area. Also family land disputes (mean = 2.68) is indicated as one cause of displacement. Land holdings and tenure issues has been age-long with far reaching consequences on the vulnerable members of the family. Contest for fair share in family land holding in many farming communities has been disastrous. Demolition exercise as a result of government projects (mean = 2.65) was indicated to lead to displacement. This finding confirms the view of Robinson (2003), who expanded the scope of the causes of displacement to those displaced as a result of development projects.

Table 2: Causes of displacement of persons as expressed by the respondents

Items	Mean score	Remark
Boundary clash with neighbouring community	3.45	Accept
Lingering community leadership	3.28	Accept
Land takeover and quit notice by government	3.03	Accept
Death of a bread winner	2.99	Accept
Man-made disaster	2.95	Accept
Fulani herdsmen attack	2.90	Accept
Insecurity of life and properties	2.85	Accept
Arbitrary arrest and detention	2.74	Accept
Deprivation and neglect by family members	2.72	Accept
Armed cult attacks and activities	2.68	Accept
Inter-state war	2.65	Accept
Family land disputes	2.63	Accept
Demolition exercise as a result of government projects	2.60	Accept
Forcible return to place of danger and violence	2.38	Reject
Natural disaster	2.32	Reject
Violation of fundamental human rights	2.22	Reject

Source: Field survey, 2017

Note: Items with mean score ≥ 2.50 implies acceptance while items with mean score ≤ 2.50 implies rejection.

Resettlement needs of internally displaced persons - Results of the resettlement needs of internally displaced persons in the study area are presented in Table 3. It was found that recovery of properties and possessions lost during displacement (mean = 3.05) was among the resettlement needs among displaced persons in the study area. This is because during crisis, properties are consciously targeted for destruction. Those possessions represent their investment in which they build their livelihoods and of course their intended legacy. Results further show that rebuilding of livelihood (mean = 2.95) was among their resettlement needs. The finding is valid because they have been deprived of their homes and sometimes their land and livelihoods which results in their lack of access to necessities of life such as food, water and shelter (Egwu, 2011).Results in Table 3 also reveal that relief food supplies on return for at least 6 months (mean = 2.85) was among their resettlement needs. Access to food is critical to such people whose livelihoods have been destroyed in the course of displacement. Also, provision of reunification of members of the family separated by displacement (mean = 2.77) was found to be a resettlement need of displaced persons in the study area. It is obvious that in such critical conditions preceding displacement, loss of persons and death could be taken for granted. Because of the bond of relationship that exists among family members, reunification becomes paramount as members of the family and community begin to return home. Results in Table 3 indicate reconstruction and rebuilding of houses destroyed during displacement (mean = 2.63) as a resettlement need. This is because shelter is one of the basic needs of man. Since abandoned homes could be dilapidated within the period of displacement, it becomes necessary for such facilities to be rebuilt. It was found that the supply of farm inputs (seeds, livestock, tools) (mean = 2.61) was indicated by the respondents as their resettlement need. Farm inputs are prerequisite for restarting their livelihoods especially those whose major means of living is farming. The finding is in line with Egwu (2011) who noted that assessment of the appropriate quantities of seeds and farm implements to jump start their farming activities become very paramount. Results in Table 3 also reveal that special welfare services for the vulnerable (mean = 2.53) was a resettlement need as indicated by the respondents. Vulnerable group which include children, the sick, aged persons, pregnant women, etc. were often the most in need of humanitarian aids. Also, provision of household items (utensils, etc.) (mean = 2.50) was found to be among the resettlement needs. This might arise since these items may have been lost or damaged due to abandonment over time. Furthermore, results in Table 3 show that repair and rehabilitations of boreholes and other essential amenities (mean = 2.50) is indicated as resettlement need. It is critical since community facilities are pillaged and vandalized during periods of lawlessness and crisis. Also, facilitating replacement of lost document in the course of displacement (mean = 2.50) was indicated by the respondents as their resettlement need. This might be as a result of the importance of documents in certifying claims of members and groups in the society.

Table 3: Respondents' rating on the Resettlement needs of internally displaced persons in the study area

Items	Mean score	Remark
Recovery of properties and possessions lost during displacement	3.05	Accept
Rebuilding of livelihood	2.96	Accept
Relief food supplies on return for at least 6 months	2.85	Accept
Provision for reunification of members of the family separated by displacement	2.78	Accept
Reconstruction and rebuilding of houses destroyed during displacement	2.63	Accept
Supply of farm input (seeds, livestock, tools)	2.61	Accept
Special welfare services for the vulnerable	2.53	Accept
Provision of household items (utensils, etc.)	2.50	Accept
Repair and rehabilitation of boreholes and other essential amenities	2.50	Accept
Facilitating replacement of lost document in the course of displacement	2.50	Accept
Supply of temporary shelter materials	2.40	Reject
Provision of tools and implement for bush clearing in abandoned homes	2.33	Reject
Reparation of lost properties and cost	2.32	Reject
Restitution of properties lost during displacement	2.24	Reject
Compensation for loss during displacement	1.84	Reject

Source: Field Survey, 2017

Note: Items with mean score ≥ 2.50 implies acceptance while items with mean score ≤ 2.50 implies rejection.

Strategies for resettlement of internally displaced persons - Results on the strategies for resettlement of internally displaced persons are presented in Table 4. It is revealed that provision for freedom to choose alternative resettlement in any other part of the state or country (mean = 3.44) was indicated by the respondents. The finding is in line with the fundamental human right. The right of choice of residence is important to avoid coercing threatened and vulnerable members of the society to return to unsafe areas. Results also revealed that need and situation analysis of returnees and returning areas (mean = 3.41) was among the strategies for resettlement of displaced persons. This finding is critical to ascertain and generate appropriate data about the status of the returnees, security state of the areas for return and the state of infrastructure to accommodate the returnees. Furthermore, it was indicated that provision of counselling and community-based initiatives for returnees (mean = 3.38) was an accepted strategy for resettlement. This becomes necessary in view of the fact that the affected persons have had their psyche diminished and demoralized. They likely need counselling to give them a sense of self direction and belonging. The finding show that mobilization of displaced persons to return home by political leader, radio campaigns and orientation agencies (mean = 2.95) is a resettlement strategy. The finding is valid since awareness is critical for the affected person and other members of the society to appreciate measures put in place for resettlement. It was also found that documentation and registration of returnees (mean = 2.79) was a strategy. This finding is relevant because it offers a necessary data bank for tracking of persons and provides information for future planning and reference for government and non-governmental organization. The absence of such documentation may likely prove counter-productive and in line with Egwu (2011) has created a serious problem in the response and management of victims of internal displacement with government adopting transient and unsustainable measures. The result in Table 3 indicated coordination and monitoring of return, resettlement and reintegration exercises (mean = 2.72) as a strategy. This finding is likely to provide a springboard for the evaluation of the resettlement exercise and set precedence for future engagements in similar or related situations.

Table 4: Respondents' rating on the strategies for resettlement of internally displaced persons

Items	Mean score	Remark
Provision for freedom to choose alternative resettlement in any other part of the state or country.	3.44	Accept
Need and situation analysis of returnees and returning areas.	3.41	Accept
Provision of counseling and community based initiative.	3.38	Accept
resettlement in any other part of the state.		Accept
Mobilization of displaced persons to return home by political leader, radio campaigns and orientation agencies,	2.95	Accept
Documentation and registration of returnees.	2.79	Accept
Coordination and monitoring of return, resettlement, and reintegration exercise.	2.72	Accept
Distribution of resettlement startup packages.	2.42	Reject
Reconstruction of community access roads and other social amenities.	2.40	Reject
Enforcement of legal framework in respect of right andprivileges of returnees.	2.31	Reject
Family tracing and unification support systems.	2.15	Reject
Assessment and declaration of state areas for resettlement.	2.07	Reject

Source: Field Survey, 2017.
NOTE: Items with mean score ≥ 2.50 implies acceptance while items with mean score ≤ 2.50 implies rejection.

CONCLUSION

Based on the findings of the study, it is concluded that the main resettlement strategy is the provision for freedom to choose alternative resettlement in any other part of the state.

RECOMMENDATIONS

1. Based on the findings it is recommended that Governments, non-governmental organizations should increase effort in properly identifying displaced persons, raising awareness to their plight, and facilitating the work of protection and assistance for IDPs.

2. Government in Nigeria should develop a national policy framework for the treatment of incidences of displaced persons.

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