

ISSN 0189-7543

NIGERIAN JOURNAL OF RURAL SOCIOLOGY



A PUBLICATION OF THE RURAL SOCIOLOGICAL
ASSOCIATION OF NIGERIA



NIGERIAN JOURNAL OF RURAL SOCIOLOGY

Vol. 16

No. 4

DECEMBER, 2016

Published by:

The Nigerian Rural Sociological Association



THE EDITORIAL BOARD

Editor-in-Chief

Kolawole Adebayo
Federal University of Agriculture, Abeokuta, Nigeria

Associate Editors

O. A. Adeokun
Olabisi Onabanjo University, College of Agricultural Sciences (Yewa Campus), Ayetoro, Ogun State, Nigeria

Grace Adebo
Department of Agricultural Economics and Extension, University of Ado-Ekiti, Nigeria

A. J. Farinde
Department of Agricultural Extension and Rural Sociology, Obafemi Awolowo University, Ile-Ife, Nigeria

L. A. Akinbile
Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan, Nigeria

Editorial Advisers

Barnabas M. Dlamini
Faculty of Agriculture, University of Swaziland, Luyengo Campus, Swaziland

A. A. Jibowo
Department of Agriculture Education, University of Swaziland, Luyengo, Swaziland

Janice E. Olawoye
Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan, Nigeria

J. A. Kwarteng
Faculty of Agriculture, University of Cape Coast, Cape Coast, Ghana

Managing Editor

O. T. Yekinni
Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan, Nigeria

Editorial Policy

The purpose of the Journal is to provide an avenue for fostering creativity, scholarship and scientific information in Rural Sociology, Agricultural Extension, Agricultural Economics, Human Ecology and other related disciplines. Attention is focused on agricultural and rural development. Priority will therefore be given to articles on rural society. The Journal will also accept methodological, theoretical, research or applied contributions in these areas. Opportunity is open to scientists and development experts within and outside the country to submit relevant papers for publication. The journal basically follows a peer reviewed process in its assessment of manuscripts.

INSTRUCTIONS TO CONTRIBUTORS

Manuscripts

Manuscripts submitted are not supposed to have been published or being considered for publication elsewhere. Papers should be between 3,000 and 5,000 words. Only electronic copy should be submitted; with 12 font size and Times New Roman font type and double line spaced. The TITLE of the paper should be followed by the names, initials and address(es) of the author(s). An ABSTRACT



of about 150 words which reports the research problem, purpose, method, results and conclusion should be provided. Keywords consisting of four to five words should be provided after the abstract. Articles should be written in English only. Research papers, review articles, case studies, postgraduate projects are welcome. Submit to the Editor-in-Chief through the journal's website <http://www.journals.rusan.org.ng>

TABLES, FIGURES and Other illustrations should be numbered consecutively and located appropriately within texts after the point of first mention. However, authors should ensure that table does not spill over to the next page. REFERENCE AND LEGENDS TO ILLUSTRATIONS should be placed appropriately within the body of the paper and authors should ensure that they are in camera ready form. Guidelines on illustrations should follow the American Psychological Association [APA] Publication Style Manual.

FOOTNOTES should be avoided as much as possible. Acknowledgements should appear after Conclusion before the reference list.

REFERENCES should be cited within the text as follows: Abiodun (2009) found that On the other hand, after stating the findings, the author's name and year of publication can be inserted; for example, income was positively correlated with educational attainment (Abiodun, 2009). The references should then appear in alphabetical order of the names of first authors in the list of references. For the reference list, the APA Publication Style Manual should be adopted. E.g. Abiodun, J. R. (2009) for single authored paper and Abiodun J. R. and Alabi, O. E. (2009) for double authored.

Reprints: These will be provided on request from authors.



CONTENT

SN	Title	Author(s)	Pages
1	Agricultural information channels used by livestock farmers in Wurno local government area of Sokoto state, Nigeria	Yakubu, D. H., John, B., Yekinni, O. T., Muhammad, M., Abdullahi, M.K. and Adisa, R. S.	6 – 13
2	Agro-forestry as a strategy for environmental conservation and sustainable peace in Sudano-Sahelian zone of northern Nigeria	Saleh, M. K.	14 – 21
3	Challenges of multi-stakeholders partnership for agricultural support services provision in rice production in Benue state, Nigeria	Ladele, A. A. and Akinwale, J. A.	22 – 28
4	Effects of farmers-pastoralist conflicts on food security in two local government areas of Kaduna state, Nigeria	Owolabi, J. O., Yusuf, U. O., Ojeleye O. A. and Omokore D. F.	29 – 33
5	Gender dimension in livestock production in Oyo state, Nigeria	Alonge, G. O., Makinde, G. E. O., Owolade, E. O., Martins, M. O. and Adegbite, O. O.	34 – 38
6	Level of utilisation of modern processing technologies among Shea butter processors in Kwara state, Nigeria	Sanusi, M. K., Tijani, S. A. and Akinsokeji, O. A.	39 – 45
7	Perceived effectiveness of the midwives service scheme among beneficiaries in Oyo state, Nigeria	Adegoke, B. A. and Fawole, O. P. and Badiru, I. O.	46 – 53
8	University of Ibadan Agricultural Extension students' perception of career prospects in rural development broadcasting	Badiru, I. O., Aboluwarin, T. O. and Adejumo, A. A.	54 – 60
9	Comparative analysis of households' wellbeing in selected states of Niger delta	Etuk, E. E. and Odebode, S. O.	61 – 68



AGRICULTURAL INFORMATION CHANNELS USED BY LIVESTOCK FARMERS IN WURNO LOCAL GOVERNMENT AREA OF SOKOTO STATE, NIGERIA

¹Yakubu, D. H., ¹John, B., ²Yekinni, O. T., ³Muhammad, M. B., ⁴Abdullahi, M. K. and ⁵Adisa, R. S.

¹Department of Agricultural Extension and Rural Development, Usmanu Danfodiyo University, Sokoto

²Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan

³Samaru College of Agriculture, Ahmadu Bello University, Zaria

⁴Department of Agricultural Extension and Rural Development, Usmanu Danfodiyo University, Sokoto

⁵Department of Agricultural Extension and Rural Development, University of Ilorin, Ilorin

Correspondent contact details: danlami_y@yahoo.com; 08069064617

ABSTRACT

This study assessed agricultural information channels used by livestock farmers in Wurno Local Government Area (LGA) of Sokoto State. A sample of 126 livestock farmers was selected purposively. Data were collected with the aid of an interview schedule. Findings revealed that majority of the farmers were males (87.3%), within 20-30 years of age (63.5%) and married (65.1%) with no formal education (67.5%). Their annual income were within ₦100,000 and ₦399,000 (46.0%) and ₦400,000 – ₦699,000 (31.0%). The major livestock produced were goats (73.0%), sheep (70.6%) and cattle (58.7%). The main channels of obtaining information by the livestock farmers were radio (85.7%), mobile phones (78.8%), extension agents (77.0%), posters and flyers (73.0%), friends and families (70.6%) and television (54.8%). Improving livestock health care was ranked 1st with a mean of 2.04 among the benefits of agricultural information. Result of the Chi-square analysis shows that information use of agricultural information channels was significantly related to age ($\chi^2=9.890$, $p<0.05$), family size ($\chi^2=9.32$, $p>0.05$) and income ($\chi^2=8.93$, $p<0.01$). Poor infrastructure and educational standard were among the most important constraints to agricultural information channels among the livestock farmers. It was concluded that the channels of information communication were affected by some socioeconomic factors such as age of the farmer, his family size and income.

Keywords: Agriculture, information, livestock, farmers and communication

INTRODUCTION

Information has been identified as an important and crucial variable in the development process. Adebayo (2006) posited that agricultural information is no doubt central in enhancing agricultural productivity and facilitating poverty alleviation among rural farmers. This makes it imperative to provide adequate, relevant and up-to-date information in order to transform agricultural production in many developing countries.

Munyua (2000) indicated that the total outcome of production by farmers is dependent on the up-take of information. According to Garforth (2001) agricultural information can be seen as an important factor which interacts with the other production factors such as land, labour, capital and managerial ability. Garforth (2001) added that productivity of these other factors can arguably be improved by the relevant, reliable and useful information and knowledge. Hence, the information supply from extension, research, education and others have become managed by agricultural organisation.

Information and communication technologies that facilitate its use, exchange, and reliability have been important aspect of agriculture and agriculture-related resources management for centuries (CTA, 2000). Agricultural development in Nigeria and other African countries has been hampered by low level of agricultural information exchange (Agwu and Chah, 2007). Arokoyo (2003) reported that in Nigeria, the national extension service is based on training and visit delivery system, traditionally, radio and telephone being the

only information channels used by the majority of extension workers. The essence of extension services is linking agricultural research centres with farmers, transmitting new techniques to the farmers and presenting farming problems to the researchers (Anonymous, 2009). New production possibilities have been disseminated to farmers. David (1977) argued that good research is a prerequisite for agricultural progress. Agricultural technologies are of no use if they are not adopted by farmers (Van de Ban and Hawkin, 1974).

A major reason for low yield and agricultural productivity could be poor and inefficient information services that convey useful agricultural information from research organisation to farmers (FAO, 2009). Livestock farmers lack adequate and efficient information on how and where to get improved health care, supply, demand, current price, transportation etc. (Pagot, 2003). In this circumstance farmers adhere to their simple techniques of farming (Kazeem, 2008).

Recently, the percentage of protein supply was estimated at about 15g/day which falls short of the estimated requirement of 35g/day and African average intake of 54g/day (Abdullahi, 2007). Therefore, there is the urgent need to increase production of livestock and its products in order to meet the protein needs of the rapidly growing population.

Livestock production in Nigeria has been in the traditional system. Pagot (2003) reported that livestock enterprises are usually distinguished as being nomadic or transhumance and modern or industrial type. Pagot (2003) further revealed that,



the classification of the production system, which allows the most coherent generalization, consists of taking account of the final objectives of the production which should be subsistence, rearing solely to build up capital and rearing for profit.

Baba (2000), reported that, Nigeria has estimated 13 million cattle, 13 million sheep, 26 million goats, 18 thousand camels and 1 million pigs. Furthermore, Aminu (2002) stated that, in 2001 Sokoto state had 2,472,250 goats, 3,570,991 sheep, and 18,448 camels. A tsetse fly free zone, which favours the production of livestock, makes Sokoto State one of the highest livestock producing states in Nigeria.

To achieve the desired increase in food production in Nigeria, it is essential that the productivity of farmers who produce the bulk of agricultural products be increased (Ogunbameru, 2005). It is generally believed that the objective of massive food production cannot be attained unless farmers adopt improved practices by uptake of information they get anywhere (Aycordo, 2000). Despite the number of research institutes and universities in the country, it has always been surprising that the technologies of Nigerian farmers remain largely unimproved (Romain, 2001). However, The Punch (2007) attributed possible reason for this as; researchers findings not properly used through information uptake by farmers there by resulting to low productivity.

Knowledge of farmers' information sources could be valuable to identify the role played by different information sources in disseminating agricultural information among the farmers (Muhammad and Garforth, 2001). This research will attempt to assess the agricultural information uptake by livestock farmers in Wurno LGA of Sokoto State, Nigeria.

The main objective of the study was to assess the agricultural information channels used by livestock farmers in Wurno LGA of Sokoto state, Nigeria. The specific objectives were to identify the channels through which the farmers obtain agricultural information, determine the perceived benefits of the agricultural information obtained on livestock production, determine the effect of socioeconomic characteristics of farmers on their information uptake and identify the constraints to the use of agricultural information channels by the farmers.

METHODOLOGY

Sokoto state is located between latitude 11°30' and 13°50' North and longitude 4°00' and 6°04' East (SOSG, 2009) with annual rainfall of between 500 and 800mm, which begins in May/June and ends in September/October. Wurno is one of the 23 local government areas of Sokoto state it was created in 1976 with its headquarters located at Wurno. It has a population of about

114,770 people (NPC, 2006). It shares borders with Kware and Raba LGAs in the East and Gwadabawa and Tangaza local government areas in the West and North respectively.

The predominant occupations of the people are livestock rearing, arable crop farming and fishing. The main livestock raised are cattle, sheep, goats, donkeys, camels, horses and poultry [National Research Institute for Animal Production, (NRIAP) 2008].

Multistage sampling procedure was used to select the respondents for this study. Three out of 11 wards were selected purposively (based on the highest population of livestock producers). Three villages were selected from Wurno ward, 1 village from Achida ward and 2 villages from Kwargaba ward using purposive sampling (based on the highest level of cattle production). One hundred and twenty six farmers were randomly sampled from the villages.

Data was obtained from the livestock farmers using interview schedule. Mean, frequencies and percentages were used to identify the channels through which the farmers obtain agricultural information; to determine the perceived benefits of the agricultural information obtained on livestock production and identify the constraints to the use of agricultural information channels by the farmers, opinion ranking was used. Chi-square test of association was used to determine the effect of socioeconomic characteristics of farmers on their information uptake.

The dependent variable Y is the use of information channels by the farmers. A farmer was scored by the number of channels he/she used in obtaining information with respect to his livestock production. The channels are radio, television, mobile phone, The Internet, newspapers, posters and fliers, friends and families, extension agents and computer.

The independent variables are age: measured in years; gender: dichotomised into male or female; educational level: measured in the highest educational attainment; marital status: dichotomised into married or single; family size: measured in number of individuals under the farmer's care; farming experience: measured in years and annual income: measured in Naira (₦).

RESULTS AND DISCUSSION

Socioeconomic characteristics

This section gives the information on personal characteristics of the farmers which include age, gender, marital status, educational attainment, family size, farming experience and annual income.

Age - The result shows that majority (63.5%) of the livestock farmers were within the age range of 20 - 39 years; only 20.4% and 16.4% were within the ranges of 40 - 59 and 60 - 79 years, respectively



(Table 1). The mean age was 37.7years. This by implication shows that livestock farming in the study area is in the hands of young people. In a study to determine the perceived causes of livestock involvement in road accident and threat to livestock production among women in Oyo State, Nigeria, Adefalu *et al.* (2013) also reported that majority of livestock farmers were still in their active age and possessed enough strength to undertake strenuous tasks associated with livestock production on free-range scale.

Gender - Table 1 also shows that majority (87.3%) of the livestock farmers were males. This is in line with the finding of FAO (2009) that males participated fully in farming activities whereas females engaged mostly in processing of the farm products in most parts of North-West Nigeria. Furthermore, it is also well known that males are mostly the owners of the factors of production and livestock farming is an activity that could be handled more effectively by males.

Marital status - Result in Table 1 shows that 65.1% of the farmers were married while only 22.2% were single. This indicates that majority of livestock farmers in the area were married. Marriage is highly valued among the farmers in the area because it ensures increase in the size of family which in turn provides more hands in the farming activities. Therefore the more the farmers, the better the chances of receiving information, especially from family and friends. Married people are more involved in community development programmes (Barker, 2003).

Family size - The result also shows that 44.4% of the farmers had less than 5 persons in their households and 28.6% had between 10 and 14 persons; with a mean of 13.9 members (Table 1). The reason behind large family size among the livestock farmers could be attributed to the

polygamous nature of the farmers and their dependence on the family as source of labour for their enterprises.

Educational attainment - Result in Table 1 shows that majority (67.5%) of the farmers had non-formal education, 12.7% acquired primary education and only 10.3% had tertiary education. This indicates that the farmers, being predominantly Muslims, acquired mainly Islamic education. Farmers in the area therefore acquired little or no western education. This could negatively affect the ability of the farmers to access information through channels like newspapers, computer and the Internet which require high skills. They were likely to depend on channels such as the radio, television, extension workers, posters, and so on, which require low skills.

Farming experience - Majority of (57.1%) of the farmers had 15 or more years of farming experience while 28.1% had between 5 and 14 years (Table 1). Mean years of experience was 20.2. This indicates that most of the farmers had been in farming for quite a long time, mostly since childhood. They were therefore likely to be capable of managing most production challenges due to the experience they acquired in the past.

Annual income from livestock enterprises - The result shows that 46.0% of the farmers generated between ₦100,000 and ₦399,000 annually, 31.0% generated between ₦400,000, and ₦699,000 and 21.4% generated between ₦700,000 and ₦999,000 (Table 1). The average annual income generated was ₦542,613. This indicates that each livestock farmer obtained about ₦1,486.60 per day (about 7.47 USD). This is above the moderate poverty level of less than \$2 per day (World Bank, 2007). Livestock rearing in the area provides not only a means of livelihood to the farmers but a means of eliminating poverty.

Table 1: Distribution of the livestock farmers based on their personal characteristics (n= 126)

Variables	Percentage
Age (Year)	
20 – 39	63.5
40 – 59	20.6
60 – 79	16.4
80 and above	1.6
	Mean Age = 37.7 years
Gender	
Male	87.3
Female	12.7
Marital status	
Married	65.1
Divorced	1.6
Widow/widower	11.1
Single	22.2
Educational attainment	
Non formal	67.5
Primary	12.7
Secondary	9.5



Variables	Percentage
Tertiary	10.3
Family size	
< 5	44.4
5 – 9	11.1
10 – 14	28.6
15 and above	15.9
	Mean Family Size = 13.9
Farming experience (years)	
< 5	14.3
5 – 14	28.6
15 and above	57.1
	Mean Experience = 20.2 years
Annual Income Generated from Livestock Rearing (₦)	
100,000 – 399,000	46.0
400,000 – 699,000	31.0
700,000 – 999,000	21.4
1000,000 and above	1.6
	Mean Income = ₦542,613.50

Livestock raised and husbandry system

The major livestock raised by the farmers were sheep (73.0%), goats (70.6%) and cattle (58.7%). Others include camels (42.9%), donkeys (23.8%) and poultry (19.0%) (Table 2). The result indicates that the livestock raised were mainly ruminants. They are usually raised mainly for meat, milk and skin. The animals are generally important sources of food and income to the farmer. Cattle, camels and donkeys are used as work animals for transportation and tillage. Poultry are sources of meat, egg and income. They are mainly raised by the female farmers.

Animal husbandry is an agricultural practice of breeding and raising livestock such as cattle, sheep, goats, camels, donkeys, and poultry. Majority of the farmers practice extensive (81.8%) and semi-intensive (74.6%) husbandry systems (Table 2). The animals, under extensive system, are largely left to roam outdoors in search of pasture. In semi-intensive, they are partially housed and fed. The major reason for the practice of the 2 systems in the area could be economic, since it is easier to raise the animals with minimal cost of feeding and housing.

Table 2: Distribution of the farmers based on livestock raised and husbandry system (n=126)

Variables	Percentage
Livestock raised	
Cattle	58.7
Sheep	73.0
Goats	70.6
Camels	42.9
Donkeys	23.8
Poultry	19.0
Husbandry system	
Intensive	41.3
Semi-intensive	74.6
Extensive	81.8

* Multiple responses

Channels of obtaining agricultural information

Result in Table 3 shows that the main channels of obtaining information by the livestock farmers include radio (85.7%), mobile phones (78.8%), extension agents (77.0%), posters and flyers (73.0%), friends and families (70.6%) and television (54.8%). Radio is the most used channel due to its low cost of maintenance and usage. Mobile phone is one of the fastest means of conversation and due to low cost of purchase, has an upper hand in acceptance. It enables the farmer

to have a feedback which is an essential element in communication. Extension agents play a significant role in updating the farmers' knowledge and keeping them informed of new production practices. Farmers tend to have more confidence and believe that the extension agents are trained to share ideas and bring innovations to them. Posters and flyers, mostly contain pictures, making the message attractive and clear, thereby catching the attention and attracting the farmers including the non-literates. They are mostly used by agro input



suppliers, such as suppliers of seeds, fertilisers and chemicals.

The use of computer and the Internet was very low, perhaps due to the low level of formal education of the farmers.

Table 3: Distribution of the farmers based on channels of obtaining agricultural information (n=126)

Variable	Percentage
Radio	85.7
Television	54.8
Mobile phone	78.6
Internet	9.5
Newspaper	46.0
Posters and Fliers	73.0
Friends and families	70.6
Extension Agents	77.0
Computer	11.1

Perceived benefits of agricultural information on livestock production

The result in Table 4 shows that improving livestock healthcare was ranked 1st with a mean of 2.04 among the effects of agricultural information as perceived by the livestock farmers. This was followed by the relative ease of obtaining good breeding stock with a mean score of 2.00 and provision of better market for livestock and other products with 1.98. The perception is a reflection of the relevance of information on healthcare, breeding stock and marketing of livestock among others. Livestock farmers often encounter problems associated with pests and diseases affecting their animals. These can lead to loss of animal products and in some cases the animals. To prevent these losses, the farmers spend a lot of money to either

prevent these diseases from affecting their animals or curing the already infected ones. Therefore any information for prevention or cure of livestock diseases is vital for the farmers.

Good breeding stock can make management of the livestock easier. Besides a faster growth rate, they are also less susceptible to attack by pests and diseases. They also perform better in terms of productivity. Where and how to acquire these breeds are important information to the farmers.

Market information enables the farmers to maximise their profits. They take their livestock or livestock products to the market when the stakes are high. Such information is commonly obtained with the use of mobile phone.

Table 4: Perceived benefits of agricultural information on livestock production

Perceived effects	Score	Mean score
Relative ease of obtaining good breeding stock	252	2.00
Improved livestock healthcare	257	2.04
Enable the use of better quality feed	231	1.83
Ensure good sanitary condition of livestock house	218	1.73
Reflects relevance of housing in livestock production	244	1.94
Provides better market for livestock and other products	249	1.98
Improves knowledge and efficiency in carrying out other husbandry practices	246	1.95

Chi-square analysis of farmers’ socioeconomic characteristics and use of agricultural information channels

Table 5 shows the Chi-square test of relationship between socioeconomic characteristics of the farmers and their information uptake. Information uptake was significantly related to age ($\chi^2=9.890$, $P < 0.05$), family size ($\chi^2=9.32$ $P < 0.05$) and income ($\chi^2=8.93$ $P < 0.01$). This implies that age, family size and income of the farmers have influence in their information uptake. Farmers of a particular age group, family size and income can have more access to agricultural information.

Age can be a barrier to information uptake in the sense that younger farmers are generally

more inquisitive than the elder ones. They (younger farmers) are more likely to explore a variety of channels such as mobile phones, computers and internet, seeking for information than the elderly.

Large family size can be an advantage to the farmer in accessing information on livestock production since each member of the family has a chance of obtaining one information or the other for the family. The pressure from large family, especially for more food, shelter and clothing can make the family head to look for more alternative means of improving the livestock production among which is seeking for valuable information on livestock production.



Income level of the farmer can determine his/her ability to use the information channels available, particularly the mass media. The higher the income level, the more the channels available for the farmer. Farmers with low level of income usually rely on the common channels of obtaining

information such as the extension agent, family and friends as well as radio. Farmers with high income levels will have access to the more sophisticated channels such as mobile phone, television, computer and the internet.

Table 5: Chi-square analysis of farmers' information uptake and personal characteristics

Variable	χ^2	df
Age	9.89**	4
Gender	4.09	2
Family size	9.32***	4
Education	6.88	6
Marital status	7.41	6
Farming experience	2.91	4
Income	89.3*	4

* p<0.01; **p<0.05; ***p<0.10

Constraints to use of agricultural information channels

The most important constraints to information uptake by the livestock farmers include poor infrastructure with a mean score of 2.27, poor educational standard with 2.17 and inadequate extension services with 2.03 (Table 6). Infrastructural facilities such as electricity supply,

good roads, good drinking water, etc. are essential in providing a better access to information. Poor educational standard can hinder information uptake since some channels of communication such as newspapers, mobile phones, computers and Internet require some level of literacy, besides some pictures alone cannot always explain everything in detail.

Table 6: Distribution of the farmers based on constraints to use of agricultural information channels (n = 126)

Variable	Score	Mean score
Inadequate extension service	256	2.03
High cost of purchasing and maintenance	249	1.98
Poor health care facility	255	2.02
Poor infrastructure	286	2.27
Poor educational standard	273	2.17

Possible solutions to the constraints

The most important solutions perceived by the farmers include: making education affordable to rural people (2.33), improvement of extension service delivery (2.15) and provision of good health care facilities (1.98) (Table 7). It is

important to know and recognize that availability and affordability of communication channels, infrastructure, health care and researchers and extension organisation is generally declining in Nigeria (Williams, 2004).

Table 7: Distribution of the farmers based on possible solutions to the constraints (n = 126)

Variables	Score	Mean score
Improving the extension service delivery	271	2.15
Subsidizing the prices of purchasing and maintaining ICTs	196	1.55
Provision of good health care facilities	249	1.98
Provision of infrastructure	212	1.68
Education should be made affordable to all rural people	294	2.33

CONCLUSION AND RECOMMENDATIONS

Through radio, mobile phones, extension agents, posters and fliers, friends and families, the livestock farmers in Wurno LGA of Sokoto State were able to improve the healthcare system of their livestock, obtain a good breeding stock, better market for livestock and other products and generally improve their knowledge and efficiency

in carrying out livestock husbandry practices. However, due to their low level of formal education, they could not utilise the benefits of computer and the Internet. The channels of agricultural information communication were controlled by some socioeconomic factors. These are the age of the farmer, the size of his family and his income level.



Based on the findings, the following recommendations were made:

1. Information channels such as the radio, mobile phone and posters should be identified by all stakeholders in agriculture, particularly livestock development, as the major channels of reaching the farmers in the process of dissemination of innovations.
2. Infrastructural facilities should be made available or improved for easy access to information by the farmers.
3. The standard of education should be improved by the governments especially at the State and local levels, for the utilization of information channels that require high level of literacy.

REFERENCES

- Abdullahi, A. K. (2007). Economic Analysis of Settlement Model for Fulani Pastoralists in Sokoto State, Nigeria. Ph.D Thesis, University of Nottingham School of Agriculture, Leicestershire, UK
- Adebayo, O. B. (2006). *The Provision of Information for Rural Development* Fountain Publications. Ibadan
- Adefalu, L. L., Usman, B., Omotesho K. F., Aderinoye-Abdulwahab, S. A. and Olateju, O. A. (2013). Perceived causes of livestock involvement in road accident: threat to livestock production among women in Oyo State; *Agrosearch* 13(2):12-19. Available at: <http://dx.doi.org/10.4314/agrosh.v13i2.2>
- Agwu, A. E. and Chah, J. M. (2007). Access and utilisation of modern information communication technologies among extension personnel in Benue State, Nigeria. In: Madukwe, M.C, Olowu, T.A., Igbokwe, E.M., Garforth, C.J., and Dube, M.P. (eds). "agricultural extension and challenges of the millennium development goals". *Proceedings of 12th annual national conference of AESON*, 4th – 7th July, pp 7-21
- Aminu, A. (2002). Survey of Livestock Population (cattle) in Sokoto metropolis. B.Sc. Thesis A project report submitted in partial fulfilment of the requirement for the award of Degree of Bachelor of Science (Honour) Agriculture; Faculty of Agriculture Usmanu Danfodiyo University, Sokoto. Pp. 1-4.
- Anonymous (2009). The essence of extension services is linking agricultural research centers with farmers" (accessed May, 22, 2012) <http://www.compulink.co.uk>
- Arokoyo, T. (2003). Information communication Technology (ICTs) in the transformation of agricultural extension: The case of Nigeria. Paper presented at the 6th consultative expert meeting of CTA's Observatory on ICTs, Wageningen, September 23rd – 25th.
- Baba, K. M. (2002). The structural Reform of Veterinary Services in Nigeria: Is privatization the answer? A paper presented at the Inter-faculty seminar series, Usmanu Danfodiyo University, Sokoto. Pp. 2-3
- Barker, C. (2003). *Culture Theory and Practice* University Press London, P25-28
- David, K. L. (1977). *Reaching the Peasant farmers: Organisation Theory and Practice in Kenya*. The University of Chicago Press U.S.A. pp. 6
- Food and Agriculture Organisation (FAO) (2009). *Virtual Extension and Communication Network: Food and Agriculture Organisation of United Nation, Research Extension and Training Division Rome, Italy*. URL <http://www.virtualcentre.org/en/librarynubshad/9070ie00.pdf> (Accessed on 9 Jan 2010)
- Garforth, P.M. (2001). The Use of mobile handsets for information delivery surveillance and decision support.
- Kazeem, O. (2008). Global Food Crisis: Any Way Out for Nigeria in Dependence of Marxism (accessed February 17, 2009) <http://www.marxist.com/food-crisi-any-way-out-for-nigeria-htm>
- Muhammad, S. and Garforth, C. (2001). Farmers' Information Sources and their Relative Effectiveness; *International Journal of Agriculture and Biology*; (4): 222-226.
- Munyua (2000). Audience and Communication Content: A Family Planning Radio messages in the Developing countries. *African Journal of Research in Education* (1):2
- Najemuddeen, G. (2006). Structure and conduct of meat (Beaf) Marketing in Sokoto Metropolis. An unpublished B. Agriculture project, to the Department of Agriculture Economics and Extensions UDUS
- National Population Commission (2006). Summing the 2 LGAs Sokoto North/South as per Federal Republic of Nigeria Official Gazette (15 May 2007). "Legal Notice on Publication of the Details of the Breakdown of the National and State Provisional Totals 2006 Census.(PDF). Retrieved from, <http://www.nigerianstat.gov.ng/nbsapps/Connections/Pop2006.pdf>.



- Ogunbameru, B. O. (2005): *Practical Agricultural Communication*. Daily Graphics Nig. Ltd p. 79.
- Pagot, J. (2003). *Animal Production in the Tropical and Subtropics*, Macmillan press limited. Pp. 435-436.
- Romain, H. R. (2001). *Crop Production in Tropical Africa* Brussels Directorate General for International Co-operation
- Sokoto State Government (2009). *Sokoto State Diary*, Directorate of Information and Culture Sokoto, Pp 12
- Technical Centre for Agricultural and Rural Cooperation (CTA) (2000). *CTA Annual Report*. CTA the Netherlands.
- The Punch (July, 2007). *The Punch National Daily News Paper July, 2007 Pg. 8*
- Van den Ban, A. W. and H.S. Hawkin (1985). *Agricultural Extension* Longman Scientific and technical U.S.A. Pp 291-297
- Williams, S. K. T. (2004). *Sources of Information on improved farming practice in some selected areas of Western Nigeria* Bulletin of Rural Economics and Sociology, 4(1), pp.31-51
- World Bank Report (2007). *Understanding Poverty*. World Development Report. *Agriculture from vision to action. A sector strategy* Washington D.C.: World Bank



AGROSILVICULTURE AS A STRATEGY FOR ENVIRONMENTAL CONSERVATION AND SUSTAINABLE PEACE IN SUDANO-SAHELIAN ZONE OF NORTHERN NIGERIA

Saleh, M. K.

Department of Agricultural Extension and Rural Development, Ahmadu Bello University, Zaria
Correspondent contact details: salequa@yahoo.com; 08032949878

ABSTRACT

Sudano-Sahelian zone of Nigeria has a history of meeting the demands of both the human and livestock population with food and fodder supplies. However, growing human population in recent time coupled with climate change has brought keen competition for the control of land resource between crop farmers and pastoralists, resulting to conflicts which in most cases end in loss of life and property, rapid reduction of fodder and crop, low productivity of land and general poverties. Approach to stem these phenomena is application of agro-forestry systems to improve soil fertility. This study was conducted in three northern states of Borno, Jigawa and Sokoto to proffer agroforestry as one of the solutions to the problem in the area. Purposive and random sampling procedures were used to select 10 communities from where 310 respondents were selected rural communities and respondents, respectively. Data collected was analyzed using descriptive statistics (frequency distribution, means and percentages). Deforestation of economic trees on their farmland was the major cause of the conflicts in the area. The farmers were aware of dwindling trend of crops, fodder and other vegetal resources over the years. Natural forest had dwindled by 37.3%, shrubs and grass by 11.5% and water by 26.9%. Also, they were aware of potentials of agro-forestry practices to improve crop and fodder production in the area. Some 37.3% stated soil erosion control, 21.9% reported as a mean of wind break and 11% pointed that agroforestry conserves groundwater. Therefore, it was recommended that state government should strictly enforce deforestation laws to minimize pressure on land resources, and sensitise and educate farmers on wood production for their various uses in the area.

Keywords: Agro-forestry, Livestock Fodder, Pasture degradation, Sudano-Sahelian zone.

INTRODUCTION

Sudano-Sahelian zone of Nigeria is a zone between latitudes 12⁰⁰' and 14⁰⁰' north. It stretches from Borno State in the north-east to Sokoto State in north-west. The zone is characterized by erratic rain fall, sandy soils, sand dunes and thorny vegetation. Arable agriculture, transhumance and nomadic grazing are the main forms of land use in the zone (Nianogo and Thomas, 2004).

The landscape in the zone reveals a large expanse of dusty land punctuated by occasional cluster of grass, shrubs and a few buttress trees (Upah, 1987). Sudano-Sahelian zone of Nigeria has an important role in animal production but has been in continuous deterioration due to over cropping and grazing. The zone has almost lost its land productivity and land degradation has been conspicuous. The degradation constitutes a serious threat to peace and tranquillity among the inhabitants as well as the environmental conditions, hitherto food and fodder production become serious problems. The zone has an estimated 67,000 hectares of land for arable farming which is currently under threat of desertification. Sudano-Sahelin Nigeria is constantly shrinking in terms of pasture land by crop farming and this situation calls for environmental management to forestall its initial conditions based on agroforestry technologies which seem to offer immediate solution. Under agroforestry systems, farmers can grow their food and fodder crops on his parcel of land.

However, farmers in the zone are yet to adopt full package of agrosilviculture agroforestry

as majority of them use natural pasture for grazing. This practice often end in conflict and crisis, especially in recent times, leading to mass violence during the recurrent insurgency in the zone where large landmass that would normally have been under crop cultivation and grazing was locked up by the insurgents. Crop farmers and pastoralists then concentrate on the limited land for farming and grazing, thereby exerting more pressure on land beyond possible recovery from the overuse. When such situation occurs, animals are forced to eat any available vegetation they see resulting to unproductive herding. Other small animals, such as sheep and goats graze on the remaining grasses, browse shrubs and trees ruthlessly. More often, pastoralists compound the situation by lopping off leaf-bearing branches and sometimes chopping down the entire trees for animal feeding (Oladipo, 2013). emphasis should be placed More so, general emphasis among the population in the Sudano-Sahelian zone is placed on food crop production, not on pasture production and so livestock are relegated to background.

Resources Inventory and Management (RIM) (2013) puts the population of cattle at 15 million, 34 million goats, 24.5 million sheep, 82 million chickens, 34 million other types of poultry, 3.5 million pigs, 1.7 million, domesticated rabbits, 0.94 million donkeys and 0.29 million constitute other types of livestock not mentioned. Over 80 percent of this population is found in the Sudano-Sahelian zone of the country (NLPD, 2005) which is located in the area of acute fodder shortage. This is an indication of a tremendous pressure on the available pastoral land of the zone. Agro-forestry



agrosiviculture practice which combines raising of trees, crop production and livestock rearing by a farmer has the capacity to reduce the crisis in the Sudano-Sahelian zone of Nigeria by bringing the three components under his farm holding. Therefore, the objectives of this study were to: identify types of livestock kept by farmers, pasture sources, status of pasture, change in land and vegetation resources, causal agents and potentiality of agro-forestry to stabilize the land resources and peaceful co-existence among crop farmers and livestock rearers in Sudano-Sahelian zone.

METHODOLOGY

The study area is the Sudan-Sahelian States of Borno, Jigawa and Sokoto States of Nigeria located in northern Nigeria between latitude 10^oN and 14^oN and longitude 4^oE and 14^oE. This zone occupies almost one-third of the total land area of the country.

The sampling frame for the study comprises both crop and livestock farming households in the five Local Government Areas (LGAs) each from Borno, Jigawa and Sokoto States. Primary data backed up by secondary data were used for this study. Two stage sampling technique was used in selecting the study area and sampled respondents. Purposive and random sampling techniques were used to select the study area and respondents. The first stage involved the purposive sampling of the three Sudano-Sahelian States of Borno, Jigawa and Sokoto due to the presence of aridity and agroforestry practices, from where five local government areas were randomly selected from each state. Simple random sampling was used to select the states and local government areas. Five local government areas were selected from Borno State, which are Kukawa, Damasak, Monguno, Benishiek and Ngala. The LGAs from Jigawa State included Kirikasama, Rigim, Kazaure, Babra and Roni. The Local Government Areas

selected from Sokoto State was Illela, Sabon Birni, Isa, Kwari and Goronyo. In the second stage, random sampling technique was employed to select 102 respondents from Borno State, 98 respondents from Jigawa State and 110 respondents from Sokoto State. Thus, a total of 310 respondents were randomly selected for the study.

Descriptive statistics, mainly frequency distribution and percentage were used to analyse the data.

RESULTS AND DISCUSSION

Cropping Pattern in Sudano-Sahelian Zone of Nigeria

The pattern of crops produced in the zone is shown in Table 1. The pattern shows that millet is produced by 43.6%, sorghum by 21.9%, rice by 13.6% and cowpea by 30.0%. Other important crops produced in the area included groundnut by 3.6%, melon 1.8%, beniseed 1.3% and other non important crops, such as Bambara nut and pumpkin by 1.2%. Millet, sorghum and cowpea were the principal crops since all farmers cultivate them. Groundnut and rice are produced as cash crops in the area. Rice production is restricted to areas fed by major and minor rivers in the area. Beniseed and melon were regarded as minor crops and only a few farmers cultivate them. The Sahelian droughts of the 1970s and the 1980s ravaged this zone and left farmers impoverished (Ati *et al.*, 2007). It has also been noted that the frequent occurrences of drought in this zone is responsible for the social backwardness and general poor quality of life especially among the less privileged ones (Alatise and Ikumawoyi, 2007). The situation is being aggravated by the increase in human population, which appears to be stressing the natural support system (FRN, 2005) and by implication resulting to competition between different groups of land users in the Sudano-Sahelian zone.

Table 1: Distribution of Respondents by Cropping Pattern

Crops	Frequency of Farmers	Percent
Millet	135	43.6
Sorghum	68	21.9
Cowpea	40	30.0
Rice	42	13.6
Groundnut	11	3.6
Beniseed	4	1.3
Melon	6	1.8
others	4	1.2
Total	310	100.0

Livestock Pattern of the Farmers

Table 2 shows that all the farmers kept one or more livestock types ranging from cattle to poultry. The pattern of livestock ownership showed that all the 310 (100%) respondents owned cattle, sheep, goat and poultry in different number. This

was closely followed by horses which were kept by 33.8% of farmers, while camels were kept by 24.8% and donkeys were kept by 21.4% of the farmers. Only farmers with smaller livestock holdings (1-10) seemed to have kept horses, camels and donkeys. Farmers with livestock holdings above 50



did not keep any of the camels. This is because equines and camels were means of burden in the area and farmers with larger livestock holdings can afford other motorized means for farm work or transportation. In terms of number, 45% of the farmers preferred to keep large herds of cattle ranging between 91 and above. Poultry forms an important component of all categories of holdings but more so with range below 40. The findings showed the importance of cattle as a source of wealth while poultry is for meeting the ceremonial need of the farmers. Farmers who kept a few

number of livestock stated that fodder scarcity and prohibitive prices of larger animals such as cattle and camels could not warrant them to keep large number of animals. It is however, interesting to note that cattle, sheep and goats which are responsible for land degradation were owned by all categories of livestock holdings by farmers. Thus, both arable and pastoralists are engaged in livestock rearing, this implied that agroforestry practices can foster peace by engaging farmers to produce fodder and fuel wood for their use.

Table 2: Distribution of Respondents by Livestock kept (n=310)

Range of Livestock*	Cattle	Sheep	Goats	Donkeys	Horses	Camel	Poultry
01-10	3.3	3.8	2.4	82.2	94.4	98.1	2.9
11-20	4.3	5.9	14.3	15.6	0.0	2.0	5.9
21-30	2.4	4.8	9.1	2.2	2.8	0.0	53.8
31-40	2.9	5.2	10	0.0	9.1	0.0	0.0
41-50	1.4	19.0	12.9	0.0	2.8	0.0	0.0
51-60	9.5	23.8	10	0.0	1.0	0.0	3.3
61-70	10.5	9.5	19	0.0	2.9	0.0	0.0
71-80	4.3	13.3	5.3	0.0	1.9	0.0	0.0
81-90	15.7	5.2	5.9	0.0	2.9	0.0	0.0
91-100	24.3	5.9	4.3	0.0	6.7	0.0	0.0
>101	21.0	3.8	3.3	0.0	10.0	0.0	0.0

*Multiple responses

Sources of pasture in the area

Table 3 shows the major sources of pasture in the area. Natural pasture is the main source of feed as reported by 100% of the respondents followed by crop residues (19.5%). Many areas of Sudano-Sahelian zone of Nigeria are unsuitable for arable crop production because of highly variable and unpredictable rainfall as well as poor soil fertility. Such conditions made ruminant production as another alternative in the face of a great mobility, as herders and their livestock in such areas wander freely. However, the stocking rate of livestock in the area exceeds the carrying capacity of the land, forcing the herders to periodically leave their villages to the more humid south during the dry periods and back to the base in the north during wet season. Herders then move the herds to cultivated areas after grain harvest in order to take advantage of the crop residues.

Decreased availability of arable land and the need to diversify income and improve soil fertility have helped to promote mixed crop-livestock integration. Manure from the animals are composted and used to fertilize cereal fields, especially for farmers without access to chemical fertilizers as commonly found in the area, while crop residues are preserved and stored to feed ruminants, especially during the dry months. A few, 5.7% supplemented their animal feed with purchased residues and concentrates, particularly during the long dry season. These categories of farmers are the nomadic group who do not practice integrated mixed crop-livestock system. Nomadic herders usually access crop residues at payment of certain token of money to crop farmers. There were 5.5% farmers who rely solely on purchased residues. This category of farmers are mainly the traders who were in the business of fattening rams and bulls for profit especially during major feasts such as *Sallah* (the Muslim *Eid el Kabir*).

Table 3: Distribution of Respondents by Sources of Fodder for Livestock

Source	Frequency	Percent
Natural pasture	310	100*
Crop residues	14	19.5
Purchased feeds only	11	5.5
Natural pasture/purchased feed	12	5.7



Perception of Agrosilviculture as Environmental Conservation and Peace Management

Farmers in the zone knew the importance of agrosilviculture as a means of environmental conservation, source of fodder, food and poles for construction. Table 4 shows that all (100%) the farmers in the zone plant trees and shrubs on their

farmland for different purposes. They indicated the benefits they enjoy from such practices: soil conservation (35.3%), for peaceful co-existence (19.0%), fodder (13.3%), medicinal purposes (10.0) and food (9.6%). Trees are prerequisites to the survival of Sudano-Sahelian zone of northern Nigeria.

Table 4: Distribution of Respondents by Benefits of Agrosilviculture

Benefits	Frequency	percent
Soil conservation	109	35.3
Peaceful co-existence	59	19.0
fruits	30	9.5
Food	30	9.6
Medicine	31	10.0
Shade	10	3.3
Fodder	41	13.3
Total	310	100.0

Changes in land use and vegetation in Nigeria

Changes in land use pattern and vegetation in Nigeria at two different periods (i.e. 1986/89 and 2013/15) was reported by National Bureau of Statistics (NBS) and presented in Table 6. The study showed increase in arable crop land area by 1.6% to 8200Km², while the natural forest decreased by 83,000Km² (35.4%). Also, built up areas had increased by 3,300Km², while shrubs and grassland decreased by 16,000Km² (11.5%). The study revealed that additional degraded areas had increased by 23,000Km² (808.4%) in 2005. This is a challenge to afforestation programme of the Federal Government of Nigeria. According to Papka(2005), there was also a decrease of 8,000Km² (26.9%) of water bodies, while more land surface and water bodies are being converted for habitation and industrial estates. The study showed that about 3300 Km² (158.7%) of the land mass and water bodies in Nigeria have been lost to this purpose. This trend showed that pasture degradation (and indeed general deforestation) of vegetation resources has become prevalent and inimical to livestock development in Nigeria. Reviewing the Land Use and Vegetation Survey of Nigeria conducted in 1996 and the Forest Resource Study of 1998, Papka (2005) stated that a great proportion of the country's estate has been lost to agricultural expansion, annual bush burning, fuel wood and timber extraction, over grazing human activities. Also reported, are the downward shift of desertification from 12⁰30' to 10⁰30' and the increase of the sand dunes from 812Km² in 1976/1978 to 4,830Km² in 2003/2005 (Papka, 2005).

The implications of the changes means more land is being lost to degradation and urban uses annually, leading to low crop production, forest resource depletion on one hand and on the

other hand, high demand for fuel wood, timber and low livestock production due to fodder shortages. Land use conflicts are often aggravated by increasing competition for land as a result of population growth and scarcity of productive land (Kirk, 1999). Momale (2003) reported 11 deaths and several hundreds of people injured with properties worth millions of Naira destroyed over land use conflicts between 1987 and 1989 in Hadejia Emirate of Sudano-Sahelian Jigawa State of Nigeria. Attributing this to the scarcity of pasture land and the subsequent ensuing conflicts in the Sudano-Sahelian zone of Nigeria, Ibrahim (2001) indicated that population pressure; economic change and natural hazard in form of recurrent drought in the area have all interacted to reduce land productivity, thereby resulting in competition for and conflict over the use of land. Conflict between crop farmers and herders in the zone exists in two forms: dispute over land ownership and conflict arising from damage to crops by livestock.

Several processes have considerably narrowed the resource base at the disposal of herders in the past few decades. Connected to encroachment into grazing lands, Mortimore (1989) reported that land law makes no special provision for grazing rights. He also observed that increase in crop cultivation; infrastructural development and population explosion as been responsible for the reduction of range land in Nigeria from 67% of the total land in 1951 to 39% in 1976; non-agricultural sectors (settlements, roads, airports, etc.) each increased from 1% to 7% during the same period. Similarly, Mohammed (1987) reported that large scale government arable farm projects and technological packages in the semi-arid areas of Nigeria have alienated the bulk of land from both the herders and arable farmers.

Table 5: Changes in Land use and Vegetation (Km²) in Nigeria

Land use	1986/1989	2013/2015	Percent changes
Arable crops	501,935	595,000	+ 1.6
Natural forest	234,300	151,000	- 35.4
Shrubs/grassland	134,000	17,400	- 11.5
Degraded areas	2,845	26,310	+ 808.4
Built up areas	2,080	5,440	+ 158.7
Water bodies	29,700	20,900	- 26.9

Source: National Bureau of Statistics, 2015

+ = Class increased between 1986/98 and 2013/15

- = Class decreased between 1986/98 and 2013/2015

Causal Agents of Environmental Degradation

Table 6 shows the farmers' view on the causes of environmental degradation in the area. The entire 310 (100%) respondents stated that deforestation was the main cause of the degradation in the area. Deforestation included cutting down of trees for fodder, food and medicine, firewood and charcoal, poles for construction and for other domestic and industrial uses which have all contributed to the present situation in the area. Already, the vegetation cover of the zone is characterized by feathery grasses interspersed with thorny trees. Oladipo (2013), citing 'World Resources 1990 and 1991 reported that the rate of deforestation in the Sudano-Sahelian zone of Nigeria in the 1980s was of the order of 400,000 hectares yearly, while reforestation was a mere 32,000 hectares which puts the zone at annual deficit of about 360,000 hectares. Optical satellite imagery and field study results conducted by FOMECU (1999) and reported by Fuwape (2005), indicated that out of the total 983,213Km² Nigeria's land mass, the actual land area under forest cover is about 256,938Km², representing 26.13%. Thus, the capacity of forest to meet required fodder and wood supplies has been drastically affected by increased deforestation. Adedoyin (1995), estimated that the total land area designated to forest reserves in the Sudan and Sahel savanna vegetation regions of Nigeria as 31,247Km² (3.2%) and 2,571Km² (0.3%) respectively.

Overgrazing and expansion of farmland were among the important causal factors reported by 21.9% of the farmers. Majority of the people in the area are either pastoralists or sedentary subsistence farmers whose agricultural activities in form of grazing, cultivation, bush-burning and irrigational practices contributed interactively to pasture degradation. Advancement in modern veterinary sciences and provision of water points have enabled bovine and other animal populations to increase in the Sudano-Sahelian zone of Nigeria. For instance, Gwandu (1991) puts the livestock population of Kebbi and Sokoto States at 14

million grazing on land mass of about 103,500Km², an indication of a tremendous animal population pressure on available pastures in the area. Expansion of cultivated areas, especially in years of good rainfall is another important human factor in pasture degradation. The extension of agricultural activities to meet the food demands of ever increasing human population as being experienced currently to the erstwhile marginally productive semi-arid zone of the extreme northern Nigeria may be having negative impact on the highly sensitive ecosystems. Destructive agricultural techniques for cash crop farming like bush burning and use of heavy farm equipment may lead to an irreversible downward trend in carrying capacity of the land and turn the Sudano-Sahelian zone into the 'dust bowl' of Nigeria.

Recurrent drought was also been pointed out by 20.9% of the farmers as another cause of current pasture degradation in the study area. The degree of the impact of a particular drought on the environment and the extent to which it may be a disaster depends on a number of factors, such as the length of the period separating the drought from a previous one, the severity of rainfall deficit relative to a given mode of land use, the level of population pressure, and agricultural and water management practices (Oladipo, 2013). In general, drought in Sudano-Sahelian zone of Nigeria causes withering of pasture by 16% and crops by 42, parched fields, prevalence of sand dunes failing water supplies and southward movement of desert-like conditions by 9% (Oladipo, 2013), implying that desertification is still ongoing process. In more extreme cases particularly during the 1973 and 1983 Sahelian drought, it means hunger, famine, starvation and death of animals. In addition to dictating the onset of political change as experienced in Ethiopia in September in 1974 (Upah, 1987). However, except in extreme times of severe persistence, drought usually cures itself by giving way to an abundant rainfall for two or more seasons as experienced recently in Sudano-Sahelian zone of Nigeria (Abaje, 2013).

**Table 6: Distribution of respondents by causal agents of degradation**

Causal Agent	Frequency	Percent*
Deforestation	310	100
Overgrazing	268	86.5
Expansion of farm land	242	78
Drought	65	20.9

* = n > 310 due to multiple responses (i.e. responses falling in more than one categories)

Importance of Agrosilviculture for Environmental Conservation and Peace Management

Agrosilviculture is a potential land use system to support food, fodder, fuel wood and other wood production and to increase the profitability of farmers. The main goal of Agrosilviculture is to optimise production per unit area while ensuring a sustained yield over time. Growing of trees on farms can help increase income, produce more fodder and food and protect the environment.

Table 7 indicated that 37.2% of the respondents stated that trees on their farmlands control soil erosion; while 19.5% reported that agro-forestry trees provided them with wood for other uses. A wide variety of products, for instance fodder, fruits, vegetables, medicine, cash crops and building construction are sustainably harvested from one land unit. By diversifying production this way, farmers minimize the risk of reduced income should one fail or the market price drops. Adedire

(2005) observed that the aggregate yield of diversified production exceeds the yield of single crop. The phenomenon arises because tree crops contribute significantly to soil improvement by supplying green manure to the soil. Some 21.9% farmers reported that trees control wind erosion in addition to reducing the rate of water run-off thereby encouraging high rate of infiltration, 11% indicated that agro-forestry trees conserve ground water

Trees increase soil organic matter and soil water-holding capacity, thereby lowering soil surface temperature and reducing evaporation of soil moisture through a combination of mulching and shading. Trees benefit livestock not only by reducing heat stress but also gains for animals which include eating and grazing for a longer period, needing less water, improving conversion efficiency of fodder, improved reproduction rates, better growth rates and high milk yields (Adedire, 2005).

Table 7: Distribution of respondents by importance of agrosilviculture for environmental conservation and peace management

Potentials	Frequency	Percentage
Soil erosion Control	116	37.3
Wind break	68	21.9
Provision of wood (Poles)	60	19.5
Ground water conservation	34	11
Reduction of conflicts	32	10.4
Total	310	100

Suggested Measures for environmental Stability in the Area

In Sudano-Sahelian zone of northern Nigeria, pastoralists have responded in a variety of ways to pasture degradation in order to reduce its ravage. Some adaptive strategies evolved over time and are usually integrated into the socio-cultural framework of the herders.

Table 8 indicated some of the responses adopted by the herders. In general, 40.5% of the respondents exploited temporary migration in the form of nomadic herding as strategic measures against pasture degradation during the dry season. During the same period there is also southward

migration into the wetter microenvironment, combining upland and lowland ecotones to exploit the vegetative growth and water points of the inland valleys of the Guinea Savannah zone. In some cases, migration into the neighbouring countries is normally undertaken. Some 29.1% farmers reported that they supplement the feed of their livestock, especially during the dry season, with crop residues and concentrates. Some forms of agrosilviculture involving planted and scattered trees on farmlands were practiced by 30.4% of the respondents as a measure against pasture degradation.

Table 8: Distribution of Respondents by Measures Adopted against Environmental Degradation and Conflicts in the Area

Measure	Frequency	Percent
Enforcement of deforestation law	81	26.1
Prayer to God	45	14.5
Tree Planting on farmlands	94	30.4
Supplementary feeds	90	29
Total	310	100

CONCLUSION AND RECOMMENDATION

There is a serious inadequacy of pastoral land in the zone. This situation naturally results into conflicts and sometimes ends in losses of life and properties. All respondents indicated that agroforestry has the capacity to rehabilitate the zone if properly practiced.

The following recommendations are stated, based on the findings of the study

1. There is a need to embark on deliberate pasture pasture in the Sudano-Sahelian zone of Nigeria to revert vegetation back to its position in order to enhance a sustainable livestock- pasture balance based on agroforestry practices.
2. There is the need to enforce grazing act of 1964 which appropriated 10.0 million hectares of forest reserve (and 98% of this was in Sudano-Sahelian zone of Nigeria), designated as grazing reserves for pasture.
3. Downward trend observed in forest land use indicates non-commitment of government at all levels to forestry development, hence the call for sensitization of the policy makers to accord true required priority to national forestry development in the Sudano-Sahelian zone of Nigeria.
4. Establishment of fodder bank by pastoralists is certainly timely and appropriate in the Sudano-Sahelian zone, especially as the land is progressively being taken over by other land uses. Agroforestry technologies introduction to the pastoralists should be gradual and with caution as faulty land selection, agronomic and husbandry practices may result in adverse consequences of non-adoption of the technologies.

REFERENCES

Abaje, I. B., Ati, O. F., Iguisi, E. O. and Jidauna, G. G. (2013). Droughts in the Sudano-Sahelian Ecological Zone of Nigeria: Implications for Agriculture and Water Resources Development, *Global Journal of Human, Social Science, Geography, Geo-Sciences and Environmental*13 (2): 1-10

Adedire, M. O. (2005). Principles and Practice of agro-forestry in Nigeria. Paper presented

at the training workshop on the implementation of agro-forestry organized by the National Special Programme for Food Security (NSPFS), Lokoja, Feb.23 – 25, 2005

Adedoyin, O. S. (1995). Nigeria forest resources assessment. Report prepared for World Wide Fund for nature. 108pp.

Alatise, M. O. and Ikumawoyi, O. B. (2007). Evaluation of Drought from Rainfall Data for Lokoja. A confluence of Two Major Rivers *.Electronic Journal of Polish Agricultural Universities*10 (1). Available from: <http://www.ejpau.media.pl/-volume10/issue1/art-05.html> (accessed: 29 September, 2016).

Ati, O. F., Iguisi, E. O. and Afolayan, J. O. (2007). Are We Experiencing Drier Conditions in the Sudano-Sahelian Zone of Nigeria? *Journal of Applied Science Research*, 3 (12), 1746-1751

FORMECU (1999). Forest resources study – Nigeria. Forest Management, Evaluation and Co-ordination Unit (FORMECU) Publication, 102pp.

Fuwape, J. A. (2005). Forest Management for Products and Services in Nigeria Ecological Zones. In: *Proceedings of the 30th Conference of the Forestry Association of Nigeria*, Kaduna, 7-11th Nov., 2005.

Federal Republic of Nigeria (FRN) (2005). Combating Desertification and Mitigating the Effects of Drought in Nigeria. The Revised National Report on the Implementation of the United Nations Convention to Combat Desertification (UNCCD) in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa.

Gwandu, A. A. (1991). The Menace of Desertification in Sokoto State. In: K.O. Ologe(ed.), *Sustainable Development in Nigeria's Dry Belt: Problems and Prospects*, NEST, Ibadan, pp. 5-18.

Ibrahim, A. (2001). Access to Conflicts on Farm and Grazing Lands in a Semi-Arid Area of Yobe State, Nigeria. In: *Proceedings of the National Workshop on Land Administration and Development in Nigeria*, March, 12-15



- Kirk, M. and Diethard, M. (1999). Socioeconomic Differentiation in Animal Keeping Societies. In: *Development and Research*. Vol. 27 : 205-215.
- Mohammed, T. A. (1987). Pastoral Fulbe economics and society in cotemporary Nigeria: The Economy of Agricultural and Livestock Development Policy Programmes. Ph.D. Thesis, University of Missouri, Columbia.
- Momale, S. B. (2003). Resource use conflicts in agricultural and pastoral areas in Nigeria. In : Gefu, J.O. (ed.) : *Land Tenure System in Nigeria*. Land Net, Nigeria.
- Mortimore, M. (1989a). The causes, rate and nature of soil degradation in the northern States of Nigeria and assessment of the role of fertilizer in counteracting the process of degradation, *World Bank Environmental Department WorkingPaper* No. 17.
- National Livestock Project Department (NLPD) (2005). Livestock Production Technologies, Federal Ministry of Agriculture and Rural Development, Kaduna
- Nianogo, A. and Thomas, I. (2004). *Forest-livestock interactions in West Africa*. Project Report on Sustainable Forest Management in Africa, Food and Agricultural Organization.
- Oladipo, E. O. (2013). A comprehensive approach to drought and desertification. *Natural Hazard* 8:235-261.
- Papka, M.P. (2005). Sustainable forestry management: opportunities and challenges for Nigeria. In: *Proceedings of the 30th Conference of the Forestry Association of Nigeria*, Kaduna, 7-11th Nov., 2005.
- Resources Inventory and Management (RMI) (2013). *Nigerian Livestock Resource*, vol. II: National Synthesis, Federal Department of Livestock and Pest control Services, Abuja.
- Upah, B. (1987). The dismal face of drought, *New Nigeria*, November 15, 8-9



CHALLENGES OF MULTI-STAKEHOLDER PARTNERSHIPS FOR AGRICULTURAL SUPPORT SERVICES PROVISION IN RICE PRODUCTION IN BENUE STATE, NIGERIA

¹Ladele, A. A. and ²Akinwale, J. A.

¹Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan, Nigeria

²Department of Agricultural Extension and Communication Technology, Federal University of Technology, Akure, Ondo State, Nigeria

Correspondence contact details: jonakinwale@yahoo.com

ABSTRACT

Recent approaches at enhancing the provision of agricultural support services to rice farmers in Nigeria involve multi-stakeholder partnerships. For effective performance, there is the need for right mix of partners' interests and resources otherwise conflicts may become inevitable. This study therefore investigated challenges in a multi-stakeholder partnership in rice production in Benue state that may predispose the system to conflicts and make it unsustainable. Using simple random sampling technique, 170 rice farmers were selected from the list of cooperative societies that participated in the scheme. Interview schedule containing respondents' level of interaction with other stakeholders (17-33), access to agric-support services (8-24) and potential sources of conflicts (mean score) was used to collect data. Data were analysed using descriptive statistics and PPMC. The result indicated that 57.1% of the farmers had high level of interaction with stakeholders. Multi-stakeholder partnership was found to have enhanced farmers' access to improved rice varieties (1.83 ± 0.42), guaranteed market (1.75 ± 0.50) and timely delivery of extension services (1.62 ± 0.63). The farmers ranked distrust as most severe source of conflicts (2.88 ± 0.41). There was a weak negative relationship between farmers' level of interaction with other stakeholders and sources of conflicts. It is evident that the enhanced delivery of agricultural support services through multi-stakeholder partnership has not been without some hitches. There is therefore need for open communication with effective feedback mechanism to reduce frictions and build trust and transparency among partners.

Keywords: Conflict, Multi-stakeholder partnership, Agricultural support services

INTRODUCTION

Rice has become a major staple crop in Nigeria. It is of prime importance compared to maize, yam and cassava (Olawale, 2010). This might be connected with rapid population growth, preference of urban lifestyle for food which requires less time to prepare, and rising household income (Ojehomon *et al.*, 2004). In fact, rice has become so popular that most Nigerian families consume the grain at least once every day. More so, with 80% of domestic rice production in the hands of smallholders, the cereal has become an important source of income for this category of farmers (Bill and Melinda Gates Foundation, 2012). Thus, there is no gainsaying the fact that rice occupies a strategic position in the national drive towards food security and poverty alleviation.

Despite high increase in consumption, the domestic rice production has not been able to meet up with demand. The consequence of this is rice importation in order to bridge the gap from the domestic rice production and consumption in the country. The issue then is that despite expansion in land area for rice cultivation, the average yield of rice in Nigeria still remains unchanged (Okuneye, 2002; Phillips, Nkoya, Pender and Oni, 2009). Factors for the shortfall include among others; uncoordinated interaction among stakeholders in rice value chain, unorganised farmers' networks, insufficient access and untimely delivery of agricultural support services, unreliable input market, inadequate improved rice varieties, low technology know-how and poor policy

environment for agricultural investment to thrive [USAID/MARKETS/NIGERIA (2010)].

There is therefore the urgent need for innovative approach to improve both downstream and upstream rice value chain. Such an approach as multi-stakeholder partnerships have been identified as an important vehicle for mobilising and sharing knowledge, expertise, technologies and financial resources to address developmental issues. Multi-stakeholder partnerships can be defined as voluntary, collaborative arrangements between actors from two or more domains of society, i.e. state, market and/or civil society, which have an institutionalised, yet non-hierarchical structure and strive for a sustainability goal (Glasbergen *et al.*, 2007). According to Omobowale *et al.* (2010), multi-stakeholder partnerships are initiated whenever private and public sector partners realise their inability to single-handedly solve the multifaceted problems confronting society. The typical goal of such value chain partnerships is the inclusion of smallholders and small and medium-sized enterprises (SMEs) into commercial chains. Such collaborative arrangements between private and public actors are increasingly popular to overcome market or government failures, and to increase efficiency in the value chain, because partners can pool their resources, knowledge and capabilities (Kolk *et al.*, 2008), and can offer advantages in terms of increased flexibility, productivity, cost reduction and innovations (Jenkins, 2007). The underlying assumption is that by pooling these resources, value chain partnerships can generate results which they could



not have achieved on an individual basis, a so called 'collaborative advantage' (Huxham and Vangen, 2000; Kolk *et al.*, 2008).

It is against this background that this work focuses on initiative involving multi-stakeholder partnership along rice value chain in Benue state, Nigeria. Actors in the arrangement are; farmers (they are responsible for growing the specified rice varieties); Benue State Agricultural and Rural Development Authority (BNARDA) (the agency responsible for technology transfer); First Bank Nigeria Limited (disbursement of agricultural loans to participating farmers); Nigeria Agricultural Insurance Corporation (NAIC); (the body that provides crop insurance); OLAM Nigeria Limited (the miller that rolled out agricultural inputs and guarantee market to farmers); Benue State Ministry of Agriculture (supply of fertilisers at subsidised prices) and USAID/MARKETS (the agency responsible for capacity building).

Nevertheless, it should be noted that the expected gains from multi-stakeholder partnership may be challenged due to unbalanced power structure, lack of trust, inadequate accountability and information asymmetry. Thus, the marriage of stakeholders of different minds and interest can breed distrust and conflicts which may serve as constraints to effective partnerships. This might be as a result of difficulty in allying resources and individuals from two or more sectors to focus on a complex issue within a developing country. Thus, there is the need to examine the nature of each identified conflicts sources in agricultural support provisions in rice production. This becomes necessary in order to expand, sustain and as well understand how the system can become stronger in the face of possible challenges.

The main objective of the study was to examine challenges to multi-stakeholder partnership in agricultural support provisions in rice production in Benue state, Nigeria. The specific objectives of the study were to:

1. ascertain the level of interaction between farmers and other stakeholders in the partnership arrangement in rice production,
2. examine the performance of stakeholders in rendering agricultural support services to the farmers,
3. identify potential sources of conflicts in multi-stakeholder partnership in rice production.

Hypothesis of the study stated in null form, that there is no significant relationship between farmers' level of interaction with other stakeholders and sources of conflicts in the partnership arrangement.

METHODOLOGY

A multi-stage sampling procedure was used for this study. Benue state was purposively selected as a result of the presence of well established multi-stakeholder partnership in rice production. There are 15 local government areas that participated in the partnership arrangement in rice production generally known as 'OLAM out-growers extension scheme' in the state. From this, 25% (i.e. 4 local government areas) were selected through simple random sampling technique. Then, proportionate sampling was used to select 50% of cooperative societies in the 4 local government areas: thus, 42 cooperative societies from the 85 identified cooperative societies were selected. Furthermore, a total of 170 rice farmers (representing 20% of the population) from the list of members of the 42 cooperatives societies were randomly selected. Farmers' mode of interaction was assessed using the knowledge-sharing platform in the partnership arrangement which is the use of "lead farmers". Lead farmers from each of the cooperatives were trained through organised workshops and field days on three major aspect of rice production (namely; pre-season activities, in-season activities and post-harvest activities) by subject matter specialist. How much knowledge was shared with other farmers by the lead farmers was used to determine the level of interaction among the rice farmers in multi-stakeholder partnership. It was on this basis that the level of interaction (premised on the degree at which the knowledge was shared) was measured on a three point scale of well shared, moderately shared and not shared for 20 items. The score of 2 was assigned to well shared, 1 to moderately shared and 0 to not shared. Rice farmers' access to the services provided by the stakeholders was measured on a three point scale of always accessible, sometimes accessible and never accessible. Scores of 2 was assigned to always accessible, 1 to sometimes accessible and 0 to never accessible. Items with the mean score of ≥ 1.25 are regarded as high access and ≤ 1.25 are regarded as low access (Dimelu *et al.*, 2014). Farmers' sources of conflicts were measured on a 3 point rating scale of severe conflict source, mild conflict source and not a conflict source. Severe conflict source was scored 2, mild conflict source 1 and not a conflict source 0. The mean of each of the item was then used to rank the sources of conflicts in order of severity. Data were analysed using descriptive statistics (means, frequencies and percentages) and Pearson Product Moment Correlation (PPMC).

RESULTS AND DISCUSSION

Farmers' level of interaction in partnership arrangement

Table 1 shows the extent to which multi-stakeholders approach has facilitated interactions



among the farmers. Results reveal that the lead farmers shared their acquired knowledge on improved practices on rice production very well on subject areas such as seed germination tests ($\bar{x}=1.76$), varietal selection ($\bar{x}=1.75$), bagging of paddy ($\bar{x}=1.75$), bird control ($\bar{x}=1.73$), insect/disease control ($\bar{x}=1.69$), plant spacing ($\bar{x}=1.67$), planting methods ($\bar{x}=1.65$), weed control ($\bar{x}=1.64$), threshing methods ($\bar{x}=1.64$) and rodents control ($\bar{x}=1.61$). Meanwhile, knowledge on land preparation ($\bar{x}=0.82$), site selection ($\bar{x}=0.47$) and record keeping ($\bar{x}=0.46$) were not well shared to the farmers. The lead farmers may have taken these aspects for granted as interview with extension

personnel indicated that they were well trained on these activities and are thus expected to step down the trainings to their members. Nevertheless, with the majority of the farmers indicating that other subjects were well shared or moderately shared is an indication that the lead farmers were able to have high level of interaction among their members and in the process disseminate the acquired knowledge to other participating farmers. This result support the findings of Alene and Manyong (2006) who found lead farmers to be technically competent in disseminating information to farmers on improved cowpea technology uptake in northern Nigeria.

Table 1: Distribution of farmers according to their interaction with lead farmers in public-private partnership (n= 170)

Activities	Well shared		Moderately shared		Not shared		Mean	SD
	F	%	F	%	F	%		
Site selection	16	9.4	48	28.2	106	62.4	0.47	0.66
Land preparation	39	22.9	62	36.5	69	40.6	0.82	0.78
Record keeping	16	9.4	46	27.1	108	63.5	0.46	0.66
Varietal selection	138	81.2	22	12.9	10	5.9	1.75	0.55
Seed germination test	142	83.5	15	8.8	13	7.7	1.76	0.58
Transplanting method	35	20.6	112	65.9	23	13.5	1.07	0.58
Planting methods	118	69.4	44	25.9	8	4.7	1.65	0.57
Spacing	122	71.8	40	23.5	4	4.7	1.67	0.56
Fertiliser application	120	70.6	9	5.3	41	24.1	1.46	0.86
Weed control	123	72.4	32	18.8	15	8.8	1.64	0.64
Disease control	129	75.9	29	17.0	12	7.1	1.69	0.60
Bird control	137	80.6	20	11.8	13	7.6	1.73	0.59
Rodent's control	121	71.2	31	18.2	18	10.6	1.61	0.67
Harvesting methods	14	8.2	142	83.6	14	8.2	1.00	0.40
Drying methods	23	13.5	135	79.4	12	7.1	1.06	0.45
Threshing methods	114	67.1	51	30.0	5	2.9	1.64	0.54
Cleaning of threshed grains	79	46.5	55	32.3	36	21.2	1.25	0.79
Drying of cleaned paddy	123	72.4	23	13.5	24	14.1	1.58	0.73
Bagging of paddy	134	78.8	30	17.6	6	3.5	1.75	0.51
Storage of paddy	117	68.8	30	17.6	23	13.6	1.55	0.72

Farmers' level of interaction in the partnership arrangement

Table 2 shows that more than half of the respondents (57.1%) had high level of interaction with the lead farmers. This supports the findings of Emodi and Dimelu (2010) that farmers had a high level of interaction with other stakeholders in rice innovation system in South Eastern Nigeria. This result implies that majority of the farmers were

reached by the lead farmers and are expected to have acquired new skills and knowledge of improved rice production practices. Also, the high level of interaction is expected to foster peer pressure among the participating farmers which will serve as motivation and influence in adopting production practices and as well as prevent individual farmers from breaching the contract terms.

Table 2: Categorisation of farmers' level of interaction in the partnership (n=170)

Level	Scores	Frequency	%	Mean	SD
Low	17.0 – 28.0	73	42.9	28.0	3.0
High	29.0 – 33.0	97	57.1		
Total		170	100.0		



Farmers' access to agricultural support services and provisions

The rice farmers' access to agricultural support services in Table 3 shows that the multi-stakeholder partnership has enhanced farmers' access to all the components of agricultural support services. For instance, farmers had high access ($\bar{x}=1.83$) to provision of improved rice varieties. The high access to improved rice varieties is anticipated as the purchase of rice paddy by OIAM is on the premise of growing the specified rice varieties. This must have invariably served as incentive for the farmers to grow the improved rice varieties as they are sure of market for their output. It is invariably expected of the farmers to experience increase in yield from the high access to improved rice varieties. This is in agreement with Buah *et al.* (2011) who found that average yield of farmers that participated in an USAID supported programme in Northern Ghana was increased by 92% as a result of enhanced access to quality seeds.

Similarly, Table 3 shows high access ($\bar{x}=1.75$) to the provision of buy-back arrangement. The result suggests that the farmers are better linked to the markets. This is a great improvement

to the current situation in Nigeria and other sub-Saharan Africa where majority of farmers lack access to reliable produce markets. Wiggis and Keats (2013) found that 25% of smallholder farmers in sub-Saharan Africa suffer from market failure as they are not linked to markets for a variety of reasons namely; remoteness from major markets and low scale of production. Further to this development, the farmers are expected to be motivated to go into rice production as they are sure that their produce will be bought by the processor. In the same vein, table 3 also show high access ($\bar{x}=1.62$) to extension services delivery in rice production. This implies that the multi-stakeholder partnership has made agricultural extension services to be more accessible to the farmers. This finding is corroborated by the submission of Nambiro, Omiti and Mugunieri (2005) that partnerships arrangement involving farmers' organisations in Kenya has increased both the awareness and access of the farmers to agricultural extension services. Thus, the farmers are expected to be more informed on modern practices and technologies in rice production.

Table 3: Farmers rating of access to agricultural support services provisions (n=170)

Agric. support services	Level of access	F	Percent	Mean	SD
Tractors for land preparation	Never accessible	85	50.0		
	Sometimes accessible	59	34.7	0.65	0.73
	Always accessible	26	15.3		
Agricultural loans	Never accessible	36	21.2		
	Sometimes accessible	65	38.2	1.19	0.76
	Always accessible	69	40.6		
Provision of improved rice varieties	Never accessible	3	1.8		
	Sometimes accessible	23	13.5	1.83	0.42
	Always accessible	144	84.7		
Fertilisers supply	Never accessible	21	12.4		
	Sometimes accessible	58	34.1	1.41	0.70
	Always accessible	91	53.5		
Herbicides supply	Never accessible	14	8.2		
	Sometimes accessible	61	35.9	1.48	0.65
	Always accessible	95	55.9		
Extension services delivery	Never accessible	14	8.2		
	Sometimes accessible	36	21.2	1.62	0.63
	Always accessible	120	70.6		
Buy-back arrangement	Never accessible	5	3.0		
	Sometimes accessible	32	18.8	1.75	0.50
	Always accessible	133	78.2		
Insurance premium/crop compensation	Never accessible	82	48.2		
	Sometimes accessible	44	25.9	0.78	0.83
	Always accessible	44	25.9		

Potential sources of conflicts in the partnership arrangement

Table 4 reveals that distrust ($\bar{x}=2.88$), breach of contract agreement ($\bar{x}=2.82$), inadequate incentives ($\bar{x}=2.78$) ranked as the most important and most critical sources of conflicts by the farmers in the partnership arrangement. This supports the

findings of Ezezika and Daar (2012) on agricultural biotechnology public-private partnerships on cowpea in Nigeria, in which they found trust and transparency among the stakeholders as the major key to successful partnerships arrangement. This is also consistent with Nijhoff (2010) who found that farmers in contract farming in Ethiopia do carry out



check on the company's reputation in keeping with terms of delivering of inputs, delivering credit and services on time, providing production support and paying purchased produce on time in order to reduce the risk of contract breach.

Also ranked in order of severity are meeting quality criteria ($\bar{x}=2.75$), poor access to credit ($\bar{x}=2.72$) and unattractive market prices ($\bar{x}=2.70$). The farmers may find the quality standards to be new and difficult to meet. This agrees with Eenhoorn (2009) that farmers often lack the knowledge to use inputs properly and may as well not realise the need for high quality.

Similarly, poor infrastructure ($\bar{x}=2.64$), poor market information ($\bar{x}=2.52$) and weak extension system ($\bar{x}=2.50$) were also ranked as severe sources of conflicts in the study area.

Meanwhile, inadequate monitoring and feedback ($\bar{x}=1.98$) and unbalance power structure ($\bar{x}=1.87$) ranked among the less severe sources of conflicts experienced by the respondents. This implies that farmers did not consider the unequal power relation as a potential source of conflicts as long as the gains of the arrangement accrued to them remain mutual.

Table 4: Potential sources of conflicts in a multi-stakeholder partnership (n = 170)

Conflicts sources	Degree of severity			Mean	SD	Rank
	Severe	Mild	Not a Constraint			
Unbalance power structure among stakeholders	32.4	22.4	45.2	1.87	0.87	11 th
Poor market information	71.8	8.2	20.0	2.52	0.81	8 th
Breach of contract agreement	90.0	2.4	7.6	2.82	0.55	2 nd
Meeting quality criteria	82.4	10.0	7.6	2.75	0.59	4 th
Weak extension system (knowledge and training)	65.3	19.4	15.3	2.50	0.75	9 th
Inadequate monitoring and feedback	33.5	30.6	35.9	1.98	0.84	10 th
Poor infrastructure (road network, electricity, storage)	70.0	24.1	5.9	2.64	0.59	7 th
Poor access to credit	78.8	14.7	6.5	2.72	0.58	5 th
Inadequate incentives	81.8	14.1	4.1	2.78	0.51	3 rd
Distrust	91.2	5.9	2.9	2.88	0.41	1 st
Unattractive market prices	81.8	6.4	11.8	2.70	0.70	6 th

Hypothesis testing

The result of Person Product Moment Correlation in Table 5 shows a significant association between level of interaction with stakeholders and sources of conflicts. The PPMC coefficient of -0.20 indicates a weak correlation between the two variables. It implies that as level of interaction among stakeholders' increases sources of conflicts reduces. It is therefore expected

that frequency of interaction would be ideal for performance with less conflicts in partners' ability to cooperate with one another. This agrees with findings of Burt (1992), Jones *et al.* (1997), Ziggers *et al.* (2010) that the more interaction between members of a network the more information each member of the network knows about all of the other members and the more constraints there are on each player's behaviour

Table 6: Pearson Product Moment Correlation showing significant relationship between farmers' level of interaction with other stakeholders and constraints to accessing stakeholders' services

	Mean	r-value	p-value	Decision
Level of interaction	27.62	- 0.2	0.004	S
Conflicts sources	28.16			

CONCLUSION AND RECOMMENDATIONS

The use of lead farmers had fostered interactive learning among the farmers as majority of the farmers experienced high level of interaction. This is premised on the fact that farmers mostly utilised other farmers within their community to access information and advice. The high level of interaction is expected to have encouraged open communication leading to enhanced access to agricultural support services as provided by the stakeholders. Distrust and breach of contract

agreement were identified as the leading sources of conflicts in the partnership arrangement. This support the fact that bringing individuals with different interests and resources can be challenging. This level of distrust may create a feeling of insecurity among the farmers and pose a danger to the sustainability of the intervention. Further to the fact that conflicts are inevitable in a multi-stakeholder partnership, use of lead farmers should be promoted. So far that the study rated distrust as critical constraint to farmers in accessing services



provided by stakeholders in the partnership arrangement, concerted efforts must be used in selecting partners who can and are willing to fulfil their obligations. Thus, local organisations should be given priority for partnership in order to foster trust and improve sustainability. Meanwhile, it should be noted that trust cannot be considered as a given and needs time to develop within partnerships that will result into social trust relationship.

REFERENCES

- Alene, D. A. and Manyong, V. M. (2006). Farmer-to-farmer technology diffusion and yield variation among adopters: the case of improved cowpea in Northern Nigeria. *Journal of Agricultural Economics* 35 (2), 203-211
- Bill and Melinda Gates Foundation (2012). Overview of the rice value chain in Burkina Faso, Ghana, Mali, Nigeria, Ethiopia, Tanzania and Uganda. Retrieved on January 16, 2013 from <http://www.inter-reseaux.org/.../ricevaluechain>
- Buah, S. S. J., Nutsugah, S. K., Kanton, R. A. L., Atokple, I. D. K. and Dogbe, W. (2011). Enhancing farmers' access to technology for increased rice productivity in Ghana. *African Journal of Agricultural Research* 6 (19), 4455-4466
- Burt, R. S. (1992). *Structural Holes: The Social Structure of Competition*. Harvard University Press, Cambridge, MA
- Dimelu, M. U., Enwelu, I. A., Attah, C. P., and Emodi, A. I. (2014). Enhancing Performance of Farmers' Cooperative in Rice Innovation System in Enugu State, Nigeria. *Journal of Agricultural Extension* 8 (2), 206 – 219
- Eenhoorn, H. and Becx, G. (2009). A study into real and perceived constraints and opportunities for the development of smallholder farmers in sub-Saharan Africa. Retrieved July 23, 2013 from <http://www.edepot.wur.nl/135088>.
- Emodi, A. I. and Dimelu, M. U. (2010). Strategies for Enhancing Rice Innovation System in Southeast Nigeria *British Journal of Management & Economics* 2 (1), 1-12
- Ezezik, O. C. and Daar, A. S. (2012). Overcoming barriers to trust in agricultural biotechnology projects: a case study of Bt cowpea in Nigeria. *Journal of Agriculture and Food Security* 1 (1), 5-10.
- Glasbergen, P., Biermann, F. and Mol, A. P. J. (eds.): (2007). *Partnerships, Governance and Sustainable Development: Reflections on Theory and Practice*, Cheltenham, UK; Northampton, USA, Edward Elgar.
- Huxham, C. and Vangen, S. E. (2005). *Managing to collaborate: The theory and practice of collaborative advantage*, Routledge, Abingdon
- Jenkins, B. (2007). 'Expanding Economic Opportunity: The Role of Large Firms', Corporate Social Responsibility Initiative Report No.1, Kennedy School of Government, Harvard University.
- Jones, C., Hesterley, W., and Borgatti, S. (1997). A General Theory of Network Governance: Exchange Conditions and Social Mechanisms. *Academy of Management Review*, 22 (1), 911-945
- Kolk, A., Van Tulder, R. and Kostwinder, E. (2008). 'Business and partnerships for development', *European Management Journal* 26 (2), 262-273
- Nambiro E., Omiti, J. and Mugunieri, L. (2005). Decentralisation and access to agricultural extension services in Kenya. Strategies and Analysis for Growth and Access (SAGA) working paper. 70p.
- Nijhoff, H. (2010). It takes two to tango: Contract farming in Ethiopia, critical issues and policy recommendations for linking up small-scale farmers with (inter) national markets. Wageningen UR Centre for Development Innovation Wageningen, The Netherlands
- Ojehomon, V. E. T., Momoh, S., Ogunremi, L. T., Tihamiyi, S. A., Wayas, J. W. and Ogundele, O. O. (2004). Rice Policy and Cognate Economic Issues. The Nigeria Memorabilia Copy Right Project Synergy, pp 76-90.
- Okuneye, P. A. (2002). Rising cost of food prices and food insecurity in Nigeria and its implication for poverty reduction. *CBN Economic and Financial Review*, 394, 1-14
- Olawale, T. (2010). Finally, The Rice Revolution is Here. This Day Newspapers, Wednesday 31st March, 2010, 12p.
- Omobowale, E. B., Kuziw M., Naylor, M. T., Daar, A. S. and Singe, P. A. (2010). Addressing conflicts of interest in Public Private Partnerships Retrieved on September 7th, 2016 from <https://bmcinthealthhumrights.biomedcentral.com/articles/10.1186/1472-698X-10-19>
- Phillips, D., E. Nkonya, J. Pender, O. A. Oni (2009). Constraints to Increasing Agricultural Productivity in Nigeria. Nigeria Strategy Support Program, NSSP Policy Brief No 4. International Food Policy Research Institute (IFPRI) Maitama, Abuja, Nigeria.
- USAID/MARKETS/NIGERIA (2010). Rice investment and processing in Nigeria: A



- review of Initiatives to Date. Retrieved December 19 2012 from <http://www.nigeriamarkets.org/files/Rice%20Market%20Research%20Executive%20Summary.pdf>
- Wiggis, S. and Keats, S. (2013). Leaping and Learning – Linking smallholders to markets. Agriculture for impact. Imperial College London. 15 Prices Gardens, South Kensington Campus, London, SW 7 INA 223p.
- Ziggers, G. W, Gagalyuk, T. and Hanf, J. (2010). Managing Network Goals: The Interplay of Network and Firm Levels. Retrieved August 31st, 2016 from <http://www.centmapress.ilb.unibonn.de/ojs/index.php/proceedings/article/viewFile/46/44>



EFFECTS OF FARMERS-PASTORALISTS CONFLICTS ON FOOD SECURITY IN TWO LOCAL GOVERNMENT AREAS OF KADUNA STATE, NIGERIA

Owolabi, J. O., Oladimeji, Y. U., Ojeleye, O. A. and Omokore, D. F.

Department of Agricultural Economics and Rural Sociology, Faculty of Agriculture, Ahmadu Bello University, PMB 1044, Zaria

Email: joowolabi@abu.edu.ng; 08065618795

ABSTRACT

This study examined the effects of farmers-pastoralists conflicts on food security in two Local Government Areas (LGAs) of Kaduna state, Nigeria. Multiple stage random sampling procedure was used to select 110 respondents. Primary data were collected using a well-structured questionnaire. Descriptive statistics and Logit regression model were employed in data analysis. In addition, United States Department of Agriculture (USDA) approach was used to measure food security status of the respondents. Result show that 62.5% of crop farmers and 53.3% pastoralists were within the age class of 39-59 years. Also, about 37.5% crop farmers and 40.0% of pastoralists had household size of between 10 and 15 people respectively. The results further reveal that 42.5% of the crop farmers and 26.67% of the pastoralists had between 11 and 30 years of farming experience. About 32.5% crop farmers and 30.0% of the pastoralists, representing 62.5% of respondents had no formal education respectively. Lack of compensation was the most critical constraint as 34.0% of crop farmers and 30.0% of pastoralists implicated it. Factors influencing conflicts include inadequate grazing land (87%), climate change (66%) and suspicion (60%). The result of logit regression analysis shows that age (-2.17), marital status (3.15) and farm size (10.91) influenced conflicts. Also, conflicts had a positive and significant effects on food security ($p < 0.05$). In order to minimise conflicts between crop farmers and pastoralists, the study recommends appropriate compensation and implementation of modern grazing technology by government so as to reduce frequent conflicts between farmers and pastoralists.

Keywords: Effects of conflicts, farmers-pastoralists, food security

INTRODUCTION

Despite Nigeria's great potential to increase agricultural productivity and food production particularly in northern regions, serious crises of conflicts in these areas have worsened the already existing challenges to production, such as climate change, poor soils and lack of access to credit and extension services. In Nigeria, for example, various violent conflict over land resources have led to decreased agricultural production, food insecurity and hunger, the clashes between various ethnic, occupational and resident groups usually result to destruction of livestock and farmland. With the destruction of crops on farmers' farmland and in some cases retaliation by the farmers by killing livestock owned by the herdsman hampers the overall food production, both in crops and meat. This implies increased hunger disease and malnutrition. The incessant resource conflicts witnessed in the tropics (Muhammed, 2008) have resulted in loss of lives, properties and environmental degradation. Furthermore, Obioha (2005) observed that persistent conflicts over land resources have caused population displacement which, as a result, changed the fabric of custom and habitual behaviour in the northeast Nigeria.

Conflict, according to Rashid (2012) appears to be an international feature of human societies, likely to occur at anytime and anywhere. For instance, a study conducted on environment induced conflict in Kwara state by Adebayo (1997) show that farmers were displaced as a result of the destructions inflicted on their crops by cattle, while only 39 per cent of the respondents were not

displaced. This resulted in a very low yield of crops in the study area. Hussein (2000) also found that, in a border between Nasarawa and Benue states, nomadic pastoralists and farmers' conflict left not less than 50 persons dead, over 10 villages sacked and over 200,00 persons both nomads and farmers displaced. In addition, In research conducted by Muhammad (2008), Fulanis have continued to clash with sedentary farming communities in Plateau, Ogun, Oyo, Sokoto, Nasarawa, Benue, Rivers, Bauchi states and federal capital territory. Also, Abbass (2012), in his study of major sources of conflict between the Fulani pastoralists and farmers shows that land related issues especially over grazing fields accounted for the highest percentage of the conflict.

Various cases of conflict in northern Nigeria involving the Fulani pastoralists and farmers conflict form significant variables in economic, in areas of stiff competition for grazing land but the degree of intensity differs from state to state depending on the ecological location and the community involved. Abbass (2012) asserts that in Bauchi State for example, areas mostly affected include Jama'are, Gamawa, Misau, Zaki and Kirfi local government areas among others. These local government recorded serious cases of conflict for survival between pastoralists and farmers, which led to loss of lives destruction of properties with the emergence of insecurity due to the continuous desire for vengeance. The conflict between these two groups has led to loss of properties worth millions of naira and the death of hundreds of thousands of lives. Despite all these, there seems to be no solutions in sight (Abubakar, 2012).



A common source of conflict (Adamu, 2007), is crop damage. Access to land is another major cause of conflicts between pastoralists and farmers depending on economic, environmental and other factors for example, increases in the herd sizes, due to improved conditions of cattle can compelled the pastoralists to search for more pastures beyond their limited range. In addition, conflicts according to Ekong (2003) tend to affect crop output by creating food shortages, which disrupt both upstream input markets and downstream output markets, thus deterring food production, commercialization and stock management. In conflict situations, food producing regions experience seizing or destroying of food stocks, livestock and other assets, interrupting marketed supplies of food not only in these Local Government Areas but also in neighbouring regions. In this study, the authors examined the degree to which the prevalence of conflicts affects food security, analysed factors promoting conflicts and identified constraints influencing farmers - pastoralists' conflicts in two LGAs of Kaduna State.

METHODOLOGY

The study was carried out in two Local Government Areas (LGAs) of Kaduna State, namely Giwa and Soba LGAs. The State lies between latitude 09° 02' and 11° 32' North of the equator and 06° 15' and 8° 50' East of the prime meridian (Kaduna State Agricultural Development Project, KSADP, (2011). The LGA is characterized by pre-dominant small scale farmers who are engaged in agricultural production and significant parts of the populations are involved in livestock keeping which depends on grazing. The nomadic Fulanis predominantly do the grazing and livestock rearing (KSADP, 2011).

Three stage sampling was used to select the respondents. Two LGAs were purposefully selected in the State due to preponderance of farmers-herdsmen conflicts. Eight communities were randomly selected from the two LGAs. Thereafter, 80 crop farmers and 30 herdsmen were also randomly selected which result to a sample size of 110 respondents. This study was carried out between April and June, 2016. Descriptive statistics such as frequencies and percentages were used to describe the socioeconomic characteristics of the respondents while Logit Regression analysis was used to analyse food security status and factors influencing conflicts among the respondents.

Logit model is useful in that it involves dichotomous dependent variables or binary choice

response variables. The dependent variable takes values that lie between 0 and 1. Specifically the model takes the implicit form as follows:

The logit regression model for crop farmers; This was represented as:

$$Y_{cp} = a_0 + a_1X_1 + a_2X_2 + \dots + a_6X_6$$

Where: $Y_{cp} = \begin{cases} 1 & \text{if the crop producer has experienced conflict with pastoralists} \\ 0 & \text{otherwise} \end{cases}$

- X_1 = Age (years)
- X_2 = Sex (male or Female)
- X_3 = Level of Education
- X_4 = Farm Size (ha)
- X_5 = Farm Distance (km)
- X_6 Marital status
- a_0 = Constant term

$a_1 - a_6$ = Coefficients to be estimated

ii. The logit regression model for pastoralists This was represented as:

$$Y_p = \beta_0 + \beta_1Z_1 + \beta_2Z_2 + \dots + \beta_6Z_6$$

Where: $Y_p = \begin{cases} 1 & \text{if the pastoralists has experienced crop producer - pastoralists conflict} \\ 0 & \text{otherwise} \end{cases}$

- Z_1 = Age (years)
- Z_2 = Marital Status
- Z_3 = Level of Education (years)
- Z_4 = Herd Size (1 tropical livestock unit x number)
- Z_5 = Sex (male or Female)
- Z_6 Period of Residency
- β_0 = Constant term

$\beta_1 - \beta_6$ = Coefficient to be estimated

Fig. 1: Household food security approach

	0 - 2.32	2.33 - 4.56	4.57 - 6.53	6.54 - 10.0
	Food insecurity			
Food security	Food insecure without hunger		Food insecure with hunger "moderate" "severe"	

Source: Oyakhilomen, 2015

RESULTS AND DISCUSSION

Socioeconomic characteristics of respondents

The result in Table 1 reveals that 11.25 % of crop farmers and 20.0% pastoralists fell within the age class of less than 20 years. Most (62.5%) of crop farmers and 53.33% pastoralists were within the age class of 39-59 years. This class constituted majority of the respondents who are in their active productive age. While more than 18.0% crop farmers and 26.7% pastoralists fell within the age class of greater than 69 years. The findings agreed with the work of Adamu (2007), in the analysis of farmers-pastoralists.

**Table 1: Distribution of respondents by their socioeconomic characteristics**

Characteristics	Farmers		Pastoralists		Pooled	
	Frequency	%	Frequency	%	Frequency	%
Age						
< than 20	1	1.25	2	6.67	3	2.72
20-29	8	10.0	4	13.33	12	10.90
30-39	20	25	6	20.0	26	23.64
40-49	16	18.75	6	20.0	22	20.0
50-59	15	18.75	4	13.33	19	17.27
60-69	13	16.25	5	16.67	18	16.23
>than 69	5	6.26	3	10.0	8	7.27
Household size						
1 – 5	24	30.0	7	23.33	31	28.18
6-10	19	23.75	8	26.67	27	24.55
11-15	11	13.75	4	13.33	15	13.55
16-20	13	11.4	7	23.33	21	19.09
21-25	10	12.5	3	10.0	13	11.89
26-30	3	3.75	Nil	Nil	Nil	Nil
> than 30	Nil	Nil	1	3.33	1	0.90
Farming/Nomads Experience						
1-10 years	22	27.5	9	30.0	31	28.18
11-20 years	19	23.75	5	16.67	24	21.89
21-30 years	15	18.75	6	20.0	21	19.09
31-40 years	11	13.75	5	16.67	16	6.8
41-50 years	8	10.0	4	13.33	12	10.90
51-60 years	5	6.25	1	3.33	6	1.9
Educational level						
No formal education	26	32.5	9	30	35	31.89
Primary education	23	28.75	5	16.67	28	25.45
Secondary education	22	27.5	7	23.33	29	26.56
Tertiary education	9	11.25	9	30.0	18	16.36
Total	80	100	30	100	110	100

It was concluded that the productive age group constitutes 67.4% of the respondents which depends largely on physical and mental labour productivity of crop farmers and herdsmen. About 37.0% of crop farmers and 39.0% of the pastoralists had household size of between 10 and 15 members per household in line with study of Basset, (1988). The result further reveals that about 33.0% of the crop farmers and 30.0% of pastoralists had no formal education, while others

attained different levels of education. The respondents have an ample experience in farming and herding with an average experience of between 10 and 15 years respectively.

Factors influencing conflicts

The result of factors influencing conflicts is presented in Table 2. Result showed that age ($p<0.05$), household size ($p<0.01$) and farm size ($p<0.01$) were factors influencing conflicts.

Table 2: Determinants of factors influencing conflicts

Variables	Coefficient	Std. Err.	t-value
Age	-.0120824	0.005	-2.17**
Education	0047281	0.026	0.18
Household	0401189	0.013	3.15***
Farm size	5368329	0.049	10.91***
Farming experienced	0029409	0.006	0.52
Extension contact	0800196	0.073	-1.09
Constant	11.02507	0.241	45.82

F-value = 38.20***; $R^2 = 0.72$; *** Significant at 1% and ** Significant at 5%

The significance of age implies that the respondents were in their active age which if properly harness could improve effective participation (Iro, 2011; Fiki. and Lee, 2004; Kehinde, 2011). This finding also corroborates

Gyong, (1998), who affirmed that one of the factors of consideration affecting conflicts is household size of farmers. The study also agrees with Sanni (2008), that the size of farm holding by members of cooperatives was generally small as



they are majorly small scale farmers having land size of about 0.1 to 5ha. The co-efficient of variation (R^2) of 0.72 implies that 72% of the variation in the factors influencing conflict was as a result of the specified socioeconomic variables and F- test which shows overall significance of the model at 1%.

Result in Table 3 shows the distribution of the respondents on their food security status across the groups of farmers - pastoralists. The result

shows that the 37.5% crop farmers and 40% pastoralists were food insecure with severe hunger in line with findings by Godswill, (2007). Whereas there were more crop farmers with food insecure without hunger than their counterparts (pastoralists) in terms of food insecurity with moderate hunger and food insecurity with severe hunger. As a whole, majority of the respondents were food insecure in line with the work of Blench, (2004).

Table 3: Distribution of respondents based on food security status

Food security status	Farmers		Pastoralists		t-stat
	Freq	%	Freq	%	
Food secured	11	13.75	4	13.33	2.21**
Food security without hunger	15	18.75	6	20.0	1.89
Food security with moderate hunger	24	17.5	8	26.67	4.15**
Food security with severe hunger	30	37.5	12	40.0	1.86**
Total	80	100	30	100	

** p<0.05; Note: The index was based on Fig. 1

Constraints perpetuating farmers – Pastoralists’ conflicts

The constraints that predispose farmers and pastoralists to conflicts in the study area are presented in Table 3. The result reveals that more than one-third (33.75%) of the crop farmers and about one-third of pastoralists (30.0%) indicated in adequate compensation as one of the major

constraints confronting the respondents. This was followed by inadequate capital (28.75%) of crop farmers and pastoralists (23.33%). Data also reveal that only 11.75% of crop farmers and 6.67% of pastoralists indicated inadequate extension services as constraint perpetuating conflicts among the respondents.

Table 4: Distribution of respondents based on major constraints

Frequency of conflict	Crop Farmers		Pastoralists	
	Frequencies	Percentages	Frequencies	Percentages
Lack of compensation	27	33.75	9	30
Inadequate capital	23	28.75	7	23.33
Inadequate information	11	13.75	7	23.33
Inadequate education	10	12.5	5	16.67
Inadequate Ext services	9	11.75	2	6.67
Total	80	100	30	100

CONCLUSIONS AND RECOMMENDATION

This study has examined the effects of farmers and pastoralists conflicts on food security in two LGAs of Kaduna State. The study revealed that both farmers and pastoralists were in their productive age with modal household size of between 10 and 15 members per household but majority had no formal education. The study concluded that farmers-pastoralists conflicts contributed significantly to the food insecurity of respondents in the study area. Factors influencing conflicts include age, household size and farm size.

The study therefore made the following recommendations:

1. Both farmers and pastoralists as well as their households should be encourage to acquire formal education as education could have multiplier effects on their mode of farming and pastoral activities.

2. In interim, farmer-pastoralists should organize themselves into groups in order to benefit from adult education in their various communities.
3. There is need for farmers-pastoralists collaboration and interaction through their community heads with representative of government and non-governmental organization.
4. Implementation of modern grazing technology by government so as to minimize frequent conflicts between farmers and pastoralists.
5. Adequate and timely compensation should be paid by the government to any victim of farmer-pastoralists conflicts
6. Adequate information about the implications of conflicts on food security should be disseminated to the farmer-pastoralists so as to avoid conflicts which



could lead to food insecurity and starvation.

REFERENCES

- Abbas, I. M. (2012). No retreat no surrender conflict for survival between pastoralists and Farmers in northern Nigeria. *European Science Journal*, 8(1): 331 -346.
- Abubakar, M. B. (2012). A Sociological Assessment of Nomadic Pastoralists and Sedentary Farmers Conflict in Katsina State (2007-2011), Unpublished M. Sc. Thesis, Department of Sociology, Ahmadu Bello University, Zaria.
- Adamu, M. M. (2007). Colonial origins of post-colonial conflicts between cattle rearers and farmers in Katsina State. In historical perspectives in Nigeria's post-colonial conflicts.
- Adebayo O. O. and Olaniyi O. A. (2008). Factors associated with Pastoral and crop farmers conflict in derived savannah zone of Oyo state, Nigeria. *Journal of human ecology*, 23(1):71-74.
- Basset, T. J. (1988). The political ecology of peasant-herder conflicts on the northern Ivory Coast. *Annals of the Association of American Geographers* 78(3):453-472.
- Blench, R. (2004). National resource conflicts in North-central Nigeria: A handbook and case studies. London: Mandarav Publishing conflicts in contemporary African society. CODESRIA Bull. pp. 3-4, pp 35-37.g
- Fiki, C. and Lee, B. (2004). Conflict generation, Management and Self-organizing capabilities in Drought-prone rural community in North-Eastern Nigeria: A case study, *Journal of Social Development in Africa*, 19(2): 25-48.
- Godswill, J. (2007). Theoretical perspectives on youth restiveness and agitations for resource control in the Niger-Delta at the sociological society 7th annual conference on the Niger- Delta crises and the most probable hypothesis held in Sharon ultimate hotel area 3, Garki Abuja, 27-28 November.
- Gyong, J.E. (1998). Conflict management: traditional methods from pre-colonial times to the present. Paper presented at the conference on enhancing peaceful co-existence in Nigeria. Organized by the centre for peace and conflict resolution National War College, Abuja, March 11-12.
- Hussein, K. (2000). Conflict between farmers and herders in the semi-arid Sahel and East Africa: A review. London: IIED/OD Group. <http://www.modernghana.com>
- Iro, I. (2011). Grazing Reserve Development: A Panacea to the Intractable Strife Between Farmers and Herders", File: Local host: conflict-20% fulani- 20% farmers fulani 8.htm.
- Kehinde, E. A. (2001), Socioeconomic and environmental factor Influencing conflict between crop producers and pastoralists in Kabba-Bunu local government area of Kogi State, Nigeria. Unpublished PhD Thesis Submitted to Department of Agricultural Economics and Rural Sociology. Faculty of Agriculture, Ahmadu Bello University Zaria.
- Muhammad, R.A. (2008). Sokoto: Causes of farmers/herdsmen clashes identified. In Daily Trust, October 13, (20)16:2.
- Ojeleye, O. A. (2015). Farm Household and Community Food Security Analysis in Kaduna State, Nigeria. Ph.D. Thesis: Department of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Zaria, Nigeria.
- Oyakhilomen, O. (2015). Technical Efficiency- Food Security Nexus in Kaduna State, Nigeria: A Case Study of Poultry Egg Farmers. *The Journal of Sustainable Development*, 14: 244 -259.
- Rashid, S. A. (2012). Land Use Conflict between Farmers and Herdsmen- Implications for Agricultural and Rural Development in Nigeria, Rural Development- contemporary Issues and practices, [http://www.intechopen.com/books/rural-development-contemporary-issues-and-practice/land-use-conflict-between-farmers-and-herdsmen-implications-for-agricultural-and-rural-development-in-Regional-Information-network-\(IRIN\),Required](http://www.intechopen.com/books/rural-development-contemporary-issues-and-practice/land-use-conflict-between-farmers-and-herdsmen-implications-for-agricultural-and-rural-development-in-Regional-Information-network-(IRIN),Required), in Nicholas N. Kittriet *al.*, eds, Seeds of True Peace: Responding to the Discontents of a Global Community, Washington, DC: Carolina Academic Press Social Sciences 4(1): 33-45.
- Sanni, S. A. (2008). Animal Traction: An Underused Low External Input Technology among Farming Communities in Kaduna State, Nigeria. *Journal of Tropi-cultural*, 26 (1): 48-52.
- Sanni, A.O. (2009). Analysis of Socioeconomic and Institutional factors affecting adoption of agricultural technology in two Local Government Areas of Kaduna State, Nigeria. M.Sc. Thesis, Agricultural Economic and Rural Sociology, Ahmadu Bello University, Zaria. Pp. 67.



GENDER DIMENSION IN LIVESTOCK PRODUCTION IN OYO STATE, NIGERIA

¹Alonge, G. O., ¹Makinde, G. E. O., ¹Owolade, E. O., ¹Martins, M. O. and ¹Adegbite, O. O.

¹Federal College of Animal Health and Production Technology, Moor Plantation Ibadan

Correspondent contact details: charislonge2007@yahoo .com

ABSTRACT

Gender is a social construct rather than a biological condition Multi stage sampling procedure was used to select a sample size of 190 livestock farmers. The result revealed that 63.2% of the respondents were males and 36.8% were females. The married males were 56.0% and 27.0% were females. At all the levels of education (primary, secondary and tertiary) males were more than females. Males who depended on livestock production as only source of income were 28.4% while the females were 7.3%. However, females who considered other livelihood sources before their livestock production activities were 19% while males were 9%. Males who were engaged in sheep, goat and cattle production were 3.7%, 23.0% and 37.0% respectively and females were 5.0%, 30.0% and 2.1% respectively. Males who self-sponsored their livestock production were 47.0% and females were 3.0.0%. Males who used intensive system of management and sourced their labour were 12.0% and 30.0% respectively while the females were 3.7% and 5.3% respectively. Livestock production as a source of income was identified by 62.1% males and 36.0% females. All the livestock activities were carried out by both genders. However, Males participated more in herding (83.2%), milking (38.3%), hoof trimming (88.1%), ear notching (92.1%), tagging (78.5%), branding (81.1%), castrating (60.0%), silage and hay making (30.0%), dehorning (86.3%), dipping (82.1%), breeding (43.3%), and medication (81.0%) while females were more engaged in feeding (29.4%) and cleaning (60.0%). Chi-square test revealed that the sex of farmers influenced livestock routine management practices. Both males and females are engaged in livestock production; however some activities are gender specific. Livestock producers will increase production if given opportunities for credit facilities.

Keywords: Gender, Dimensions, Livestock, Livestock producers

INTRODUCTION

Livestock are domesticated animals raised in agricultural setting to produce commodities such as food, fibre, labour and also for profit. Raising animals (animal husbandry) is a component of modern agriculture and has been practiced in many countries since the transition to farming from hunter-gathering lifestyles. The following outlines the functions of livestock: food supply, source of tractor power, manure production, medium of exchange, source of raw materials, means of investment, source of cash, source of security, source of social and cultural identity and it can be forms of gifts and a source of capital (FAO, 2009).

Livestock are the central means of survival for pastoral nomadic. Access to livestock and their products are indispensable for their household economics, social and cultural survival. Access to livestock by different household members in nomadic pastoral system is a complex issue. The different household members have degrees of claims to the same animals (Joeke and Pointing, 1991). The dual role of livestock as a source of subsistence and basis for wealth and prestige reflects entitlement of different household members to livestock and its products, based on their responsibilities and acquisition through several means. Men are generally associated with large animals as herd managers and are generally considered owners of cattle, with women and children having users privileges. Women, however do own livestock. Small ruminants kept by nomadic households are more the property of women than men which they acquire via gifts from their fathers and husbands at marriage through dowries and bride prices and via purchase with

proceeds from brewing, sales of milk and dairy products and wage labour (Water- Bayer, 1998).

Gender is therefore a socioeconomic variable used to analyse roles, responsibilities, constraints, opportunities and incentives of people involved in agriculture (Poats, 1991). Reddy (2005) refers to gender as a social construction rather than a biological condition. Gender refers to the social meaning of biological sex differences. Gender roles are roles that are played by both women and men which are not determined by biological factors but by the Socioeconomics and cultural environment or situation (ICA-ILO, 2001: Mollel and Mtenga, 2000). Gender affects the distribution of resources, wealth, work, decision-making, political power as well as the entitlements within the family and in public use (Welch *et al*, 2000 and FAO, 2006). Livestock production pattern differs widely among ecological zones and social politically systems in Nigeria. Traditionally men dominate livestock production and ownership of more valuable stock and the decision making in the production system. Women on the other hand are almost always responsible for poultry and small ruminants such as goats. In fact their livestock is often one of the few sources of income over which women have complete control. Although, all household members are usually involved in livestock production but gender discrimination usually deny women access to resources, rights and services.

There is usually gender difference in work roles within different systems of livestock production. This study therefore considered gender dimension in livestock production in Oyo state. It attempted to describe the socioeconomic factors responsible for gender dimension in livestock



production in the study area. It examined gender roles in livestock production activities and the opportunities derived in livestock production along gender lines in Oyo state.

METHODOLOGY

The study was carried out in Oyo state located in south west geopolitical zone of Nigeria. Multi-stage sampling procedure was used to select the sample size of one hundred and ninety livestock farmers used for the study were only ruminant famers. The first stage involved identification and purposive selection of the ten clusters where ruminant livestock producers are known to inhabit and it includes (Ipapo, Ago-amodu, Oyo West, Oyo East, Ibarapa East, Iseyin |local government area, Atiba local government, Saki west, Surulere and Ogbomoso). The second stage involved the selection of the villages where the ruminant producers settled while the third stage involved a random selection of 19 respondents from each of the identified villages making a total of 190 respondents. Before the preparation of the questionnaire in-depth interview with key informants were conducted and information obtained was introduced in to the structured questionnaire used to collect information from the

selected respondents. Data analysis involved the use of descriptive statistics such as: frequency distribution and percentage. Chi-square was used to analyse the relationship between respondents' gender and roles in livestock production.

RESULTS AND DISCUSSION

The result revealed that 63.2% of the respondents were males and 36.8% were females. The married males were 56.0% and 27.0% were females. At all the levels of education (primary, secondary and tertiary) males were more than females. Majority of the respondents were Muslim (57.4%) and 36% were Christians. Males who depended on livestock production as only source of income were 28.4% while the females were 7.3%. However, females who considered other livelihood sources before their livestock production activities were 18.0% while males were 9.0%. This shows that in the study area both men and women are engaged in livestock production however, men seem to dominate the business. This agrees with the general statement that in livestock production men seem to eclipse women in terms of ownership of more valuable stock, the decision making and the control of livestock production (FAO, 2006).

Table 1: Distribution of respondents by their socioeconomic characteristic

Variables	Male	Female	Total
Sex	63.2	36.8	100
Marital status			
Single	1.5	1.1	2.6
Married	55.7	26.8	80.5
Divorced	0.5	1.5	1.6
Separated	1.5	0.5	2.1
Widowed	3.7	6.8	13.2
Religion			
Islam	40	17.4	57.4
Christianity	19.5	17.4	36.8
Traditional	3.2	2.6	5.8
Level education			
Tertiary education	7.4	2.1	9.5
Secondary Education	5.8	7.9	13.7
Primary Education	23.7	15.8	39.5
Adult Education	26.3	11.1	37.5
Level of livelihood combination			
Livestock Production only	28.45	3.7	32.1
Others 1 st Livestock 2 nd	8.9	18.9	27.9
Livestock 1 st Crop 2 nd	14.2	7.4	21.5
Crop 1 st livestock 2 nd	6.8	4.2	11.1
Livestock 1 st Other 2 nd	4.7	2.6	7.4
Total	63.2	36.8	100

Males who were engaged in sheep, goat and cattle production were 3.7%, 23.0% and 37.0% respectively and females were 5%, 30% and 2.1% respectively. Both sexes involved in the production of sheep, goat and cattle were 8.4%, 52.6% and 39.0% respectively. Males who self-sponsored their

livestock production were 47% and females were 30%. Males who used intensive system of management and sourced their labour were 12% and 30% respectively while the females were 3.7% and 5.3% respectively. This study shows that men and women of all ages participated in livestock



production in the study area however; men owned and managed more of the cattle than females who owned and managed more of the sheep and goats.

Women involvement in small ruminant production is a source of income to them.

Table 2: Respondents livestock management systems and practices

Variables	Male	Female	Total
Type of livestock			
Sheep	3.7	4.7	8.4
Goat	22.6	30	52.6
Cattle	36.8	2.1	39
Source of finding			
Self	47.4	29.5	76.8
Family	10	5.8	15.8
Cooperative Society	4.2	1.1	5.3
Bank Loan	1.5	0.5	2.1
Types of housing system			
Intensive	11.6	3.7	15.8
Semi intensive	27.45	21.1	48.4
Extensive	24.2	12.1	35.8
Use of labour			
Hired labour	29.5	5.3	37.9
Family Labour	33.7	31.6	62.1
Total	120	70	100

Respondents who produced livestock as a source of income were 98% out of which 62.1% were males and 35.7% were females. The males who agreed that livestock production improved their standard of living were 52.1% and 26.3% were females Table 3. Also, the result of Table 3 shows that 82.1% of the respondents used their livestock as collateral for soft loans from their friends, that is they act as a buffer for the farmers during emergency financial constraints. More males (57.9%) depended on their livestock as a collateral for loan than females (24.22%). Men are

generally bread winners in most societies of the world and usually are expected to bear more family financial burden than females. They are likely to take more financial risks like using their livestock as collateral for loan. Only 30.5% of the respondents prefer livestock production as a business compared to other livelihood sources. More females 20% prefer the business than males 10.50%. This may be because; livestock owned by women is one of the few sources of income in which they have complete control.

Table 3: Opportunities derived in livestock production along gender lines

Variables	Male	Female	Total
Source of Income			
Yes	62.1	35.7	97.8
No	1.1	1.1	2.2
Improved Standard of Living			
Yes	52.1	26.3	78.4
No	11.1	10.5	21.6
Collateral for Loans			
Yes	57.9	24.2	82.1
No	5.3	12.6	17.9
Preferred Source of livelihood			
Yes	10.5	20	30.5
No	52.6	16.8	69.5
Total	63.2	36.2	100

Table 4 below presents the result of the livestock production activities along gender lines. All the livestock activities were carried out by both genders. However, Males participated more in herding (83.2%), marketing (25.3%), de-worming (58.4%) milking(38.3%, hoof trimming (88.1%), ear notching (92.1%, tagging (78.5%), branding

(81.1%), castrating (60.0)%, silage and hay making (30.0%), dehorning (86.3%), dipping (82.1%), breeding (43.3%), grooming (38.4%), delousing(50.0% and medication (81.0)% while females were more engaged in feeding (29.4%) and cleaning (60.0%).The result shows that livestock production activities, resources and opportunities



are influenced by gender, that is, by the socioeconomic and cultural dimension of being male or female in the study area.

Table 4: Percentage distribution of respondent by livestock production activities

Variables	Male	Female	Both
Feeding	24.7	29.4	45.8
Cleaning	3.6	59.5	36.9
Herding	83.2	0.5	16.3
Marketing	25.3	14.7	60
Deworming	58.4	2.6	40
Milking	38.4	15.8	45.8
Hoof Trimming	88.4	11.6	
Ear Notching	92.1	7.9	
Tagging	78.9	0.5	21.6
Branding	81.1	2.1	16.8
Castrating	59.5	0.5	40
Silage /Haymaking	30.0	0.5	64.2
Docking	77.4	1.6	21
Dehorning	86.3	1.6	16.3
Dipping	82.1	1.6	16.3
Breeding	43.2	4.7	52.1
Grooming	38.4	6.9	54.7
Delousing	50.0	6.3	43.7
Mediation	81.0	1.6	17.4

The study revealed a significant relationship between the sex of livestock farmers and the following livestock production activities cleaning, herding, marketing, milking, grooming and de-lousing. In the study area livestock production activities are influenced by gender in the study area as in table 5. This is supported by Granding *et al* (1991) who reported that among the Maasai people men are largely the decision makers in livestock production, and is in charge of general

herd management. They are in charge of watering to make sure the animals get enough water and pay hired labour when necessary. Men also, carry out most of the dipping and spraying of animals. They search for any missing animals and perform minor veterinary functions. The Maasai women on the other hand, retain the primary responsibilities for dairy-related activities. Women take care of stocks kept near the camp especially sick ones.

Table 5: Chi Square Result on Gender Distribution and Roles in Livestock Production

Variables	df	χ^2	p-value
Feeding			
Sex	5	1.214	0.61
Cleaning			
Sex	5	15.642	0.025
Herding			
Sex	3	4.346	0.042
Marketing			
Sex	5	13.456	0.05
De-worming			
Sex	3	6.129	0.851
Milking			
Sex	3	4.805	0.031
Ear notching			
Sex	3	6.149	0.148
Branding			
Sex	5	3.342	0.2
Dipping			
Sex	3	3.342	0.181
Breeding			
Sex	3	2.153	0.123
Grooming			
Sex	3	2.789	0.039



Variables	df	χ^2	p-value
Delousing			
Sex	3	7.786	0.038
Meditation			
Sex	3	7.245	0.582
Tattooing			
Sex	3	3.567	0.299

P-value \geq 0.05

CONCLUSION AND RECOMENDATION

The study established that males and females are engaged in livestock production; however some activities are gender specific. Both female and male livestock producers should be given recognition and afforded opportunities for credit facilities. Equal recognition and access to livestock production information should be made available to both genders by stakeholders in the livestock industry.

REFERENCES

Granding, B. E., de Leeuw, P. N. and de Souza, M. (1991). Labour and Livestock Management. In: Solomon, B., de Leeuw, P. N., Granding, B. E. and Neate, P. J. H. (ed) Maasai Herding: an Analysis of the Livestock Production Systems of Maasai Pastoralist in Eastern Kajiodo Districts, Kenya. *ILCA System Study 4*. Addis Ababa, Ethiopa. Pp 71-82.

Food and Agriculture Organisation (FAO) of the United Nation (2006); Women in Food Production, Food Handling and Nutrition with Special Emphasis on Africa. *Food and Nutrition Paper 8* FAO, Rome, Italy, Pp. 233.

Food and Agriculture Organisation (FAO) of the United Nation (2009). The State of Food and Agriculture Livestock in the balance http://www.fao.org/ag/aginfo/resources/en/publications/agapubs/hpai_and_beyond.pdf

ICA-ILO (2001). Gender Issues in Cooperatives. An ICA-ILO Perspective. From <http://www.ica.coop/gender/ica-ilo->

manual/background.htm1#rples (Retrieved march 29, 2007)

Joekes, S. and Pointing, J. (1991): *Women in Pastoral Societies in East and West Africa*. Dry lands. Network Programme Issue Paper 28. IIED (International Institute for Environment and Development), London, UK. 30pp

Molle,, N. M. and Mtenga, N. A. (2000): Gender Roles in the Household and Farming Systems of Techenzema Morogoro-Tanzania. *South Africa Journal of Agricultural Extension*, 29: 73-88

Poats, S. V, (1999) The Role of Gender in Agricultural Development. *Issues in Agriculture 3*. CGIAR (Consultative Group on International Agricultural Research) Washington DC. USA, Pp3

Reddy, G. (2005): With Respect to Sex: Negotiating Hijra Identify in South India (Worlds of Desire) *The Chicago Series on Sexuality, Gender, and Culture*, University of Chicago press .s

Welch, C. I., Alemu, B., Msaki, T., Sengendo, M, Kigutha, H. and Wolff, A. (2000), *Improving Household Food Security: Institutions Gender and Integrated Approaches, USA*, Basis Management Entity.

Water Bayer, (1988). Dairying by Settled Fulani Agro-pastoralist in Central Nigeria: the Role of Women and Implications for Dairy Development. *Farming Systems and Resource Economics in the Tropics 4*. Wissenschaftsverlag Vauk ,Kiel, Germany, p 328



LEVEL OF UTILISATION OF MODERN PROCESSING TECHNOLOGIES AMONG SHEA BUTTER PROCESSORS IN KWARA STATE, NIGERIA

¹Sanusi, M. K., ²Tijani, S. A. and ²Akinsokeji, O. A.

¹Nigerian Institute For Oil-Palm Research (NIFOR), Date palm Sub-station, Dutse, Jigawa State

²Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan

Correspondent contact details: sanusimk2004@gmail.com; tsarafat@yahoo.com

ABSTRACT

The study examined the level of utilisation of modern processing technology among the Shea butter processors in Kwara State. Purposive sampling techniques was used to select Agricultural zones A and C as well as Kaima and Baruteen LGAs from Zone A while random sampling techniques was used to select Ilorin West and Moro L.G.As from Zone C. Thirty respondents were randomly selected from each of the selected LGAs to give a sample size of 120 respondents. Interview schedule was used to collect the data which were analyzed with descriptive and inferential statistics. The results revealed that 88.3% of the respondents were female, 47.0% were between 40 and 50 years of age, married (86.6%), having low level of education (83.1%) and 1-10 years of experience (52.8%). The main source of information was the radio (96.6%). Level of awareness of modern processing technology was high (55.0%), with screw hydraulic (54.2%) being the most available technology while miller (54.3%) and roaster (53.3%) were the most utilised technologies. Generally, the level of utilisation of modern processing technology was low (53.8). The respondents identified lack of regular power supply (97.5%), lack of government support (75.7) and inadequate finance (72.9) as constraints. There was significant relationship between respondent's level of education ($\chi^2=25.65$, $p=0.01$), level of production ($r=0.772$, $p=0.028$), years of experience ($r=0.951$, $p=-0.009$), constraints ($r=0.724$, $p=-0.034$) and their level of utilisation. Government should provide rural infrastructures such as stable source of electricity, credit facility and good road in the study area as well as training on how to use and maintain the equipment.

Keywords: Shea butter, utilisation, processors, modern technology and awareness

INTRODUCTION

The need for Nigeria to diversify her economy from crude oil driven economy to Agricultural products have been expressed at different conferences and fora because of the dwindling price of crude oil in the world market and the politics involved. The promotion of Shea butter industry in the country could be a viable option to exploit. Nigeria is abundantly blessed with Shea trees which could be harnessed for industrial development through which the quality of life of the people will be improved especially in providing employment to a large number of people in the Shea tree belt (Garba *et al.*, 2011). It can also be a source of foreign exchange earnings for the country.

Shea butter, a fatty extract from the seed of Shea tree is the most important product from the Shea tree and is known to contain a number of ingredients that moisturizes and heals skin ailments (Matanmi *et al.*, 2011). Shea butter has many uses such as for cooking oil, in the making of chocolate and beverages, candle and as moisturizers in the cosmetic and pharmaceutical industry. It is used traditionally for the treatment of skin disorders like eczema, burns, rashes, stretch marks, acne, wrinkles, skin discolorations, itching and other skin problems.

Nigeria realising the potential of Shea butter to her economy has begun to acquire modern skills and advanced processing methods to increase the Gross Domestic Product (GDP) that accrues from the Shea butter to the nation. In order to improve and increase Shea butter production in term of quality and quantity as a long term solution

to Shea butter industry in Nigeria, it requires the generation of output increasing and quality improving technologies through various research institutes in the country such as Nigerian Institute For Oil palm Research (NIFOR) and Raw Material Research and Development Council (RMRDC).

The transformation of Shea nuts into butter is a difficult task. The process involves intensive physical labour as well as considerable amount of water and firewood. The preparation process takes several days and involves many stages. The steps in the Nigeria traditional Shea butter processing are 14 (Daniel *et al.* 2005). For the aim and objective of increasing Shea butter production to be achieved, the available modern processing technologies must be disseminated, adopted and utilised by small holder processors who are the major producer of Shea butter in Nigeria.

There are a range of technologies that have been developed to address almost all the 14 stages of the traditional processing method. With the overall objective of eliminating drudgery involved in the local processing, improve the quality and quantity of Shea butter produced in the country. The equipment such as crusher, milling machine, hydraulic press and kneader has replaced the traditional method. The crushing process, traditionally done with mortar and pestle is replaced with a hammer mill, while milling which is done using grinding stone is replaced with a modified (corn) mill. Corn mill was adapted to grind crushed roasted Shea nuts into fine paste. Kneader has been fabricated to replace the



traditional manual hand and pedalling kneading process (Daniel et al 2005).

Despite the huge and wide usage of Shea butter and the availability of modern processing technologies which can be used to improve the production and make the work more attractive to whoever want to venture into Shea butter production as well as efforts of government and Non-government agencies to promote the adoption of these technologies, the traditional method being utilised by some processors makes Nigeria processed Shea butter to fall below international standard. Consequently, the demand is decreasing and the potentials of Shea butter in alleviating rural poverty is dwindling (Ademola *et al.*, 2012). It is on this premise that an assessment of the level of utilisation of modern processing technology among Shea butter processors in Kwara State was carried out.

The general objective of the study was the assessment of the level of utilisation of modern processing technologies among Shea butter processors in Kwara State while the specific objectives were to:

1. examine the enterprise characteristics of Shea butter processors in the study area,
2. ascertain the modern Shea butter processing technologies available in the study area
3. identify the sources of information on modern Shea butter processing technologies,
4. determine the level of awareness of processors on modern Shea butter processing technologies, and
5. identify the constraints facing the processors in the use of the modern processing technologies

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

H₀1: There is no significant relationship between the personal characteristics of the respondents and their level of utilization of modern processing technologies.

H₀2: There is no significant relationship between the selected enterprise characteristics of the respondents and their level of utilization of modern processing technologies

METHODOLOGY

The study was carried out in Kwara state, Nigeria because Kwara State is one of the major producer of Shea butter in Nigeria, The state lies in the north central zone and covers an area of 74256 square km of the total area of Nigeria. Kwara state is bounded in the north by Niger state, in the south by Oyo, Osun and Ekiti state, in the east by Kogi state and in the west by Benin Republic. The state is divided into sixteen (16) local government areas.

The population of the study comprised of all Shea butter processors in Kwara state, Nigeria.

Purposive sampling techniques were used to select Agricultural zones A and C because of the large number of Shea butter processors in these zones and selection of Kaiama and Baruteen Local government areas from Zone A while random sampling was used to select Ilorin West and Moro Local government areas. from Zone C and 30 respondents from the list of registered processors with the State ADP in each of the Local government areas selected from Zone A and C to give a sample size of one hundred and twenty (120) respondents. Data were collected by using an interview schedule which was administered to Shea butter processors in the study area.

The data were subjected to descriptive statistics such as frequencies and percentages and inferential statistics such as chi-square and Pearson Product Moment Correlation (PPMC). Sources of information on modern processing technologies were measured by asking them to state their source of information and ranked based on their frequency, Level of awareness was obtained by asking the respondents to identify those that they know from the ten listed modern processing equipment. Score of 1 and 0 was assign to aware and unaware respectively. The mean value was used to categorize as high or low level of awareness. Availability of modern processing technologies was obtained with Yes = 1 and No = 0 on the list of 10 technologies available in the area and it was later ranked.

Constraints was measured with 13 likely constraints that can be encountered while using modern processing technologies on a three point scale of not constraint = 0, mild constraints =1 and severe constraints =2. The levels of utilisation was measured on a three point scale of never, sometimes and always with score of 0, 1 and 2 respectively. Mean was used to classify level of utilisation into high and low.

RESULTS AND DISCUSSION

The age distribution in Table 1 shows a mean value age of 47.5 years with 47.0% of the respondents between the age ranges of 40-49 years and 34.4% between the age ranges of 50-59 years. Most of the Shea butter processors are in their active age thus they would be energetic enough to perform the tedious activities involved in Shea butter processing. It was also observed that majority (88.3%) were females showing the dominance of women in the profession with the majority (86.6%) being married suggesting meeting of the household responsibility as the sole aim of engagement in Shea butter processing. Majority (72.6%) were Muslims with household size range of 5-8, implying high labour intensiveness of Shea butter processing



Respondents' educational status revealed that 31.4% of the respondents had primary education, 25.4% had adult education while 26.3% have no formal education. One cannot speak

utilisation level without educational attainment of the individual as low level of educational attainment may affect level of awareness of modern processing technologies and utilisation at large.

Table 1: Personal Characteristics of Shea Butter Processors

Variables	Frequency	Percentage	Mean
Age			
20- 29	2	0.9	47.5
30- 39	25	11.2	
40- 49	55	47	
50- 59	30	34.4	
60 and above	5	6.5	
Sex			
Male	14	11.7	
Female	106	88.3	
Marital status			
Single	3	2.5	
Married	103	86.6	
Divorced	3	2.5	
Widowed	4	3.4	
Widower	3	2.5	
Separated	3	2.5	
Religion			
Christianity	29	24.8	
Islam	85	72.6	
Traditional	3	2.6	
House hold size			
1-4	3	2.6	8
5-8	77	65.9	
9-12	34	29.2	
13-16	3	2.6	
Level of education			
No formal education	31	26.3	
Primary	37	31.4	
Secondary	13	11.0	
Adult	30	25.4	
Tertiary	7	5.9	

Table 2 revealed that majority (66.2%) of the respondents use calabash as a measurement for Shea butter processed and 58.4% produced 11-20 calabashes per week with a few (1.7%) producing 31- 40 implying that most of the respondents are operating at low scale.

The selling price varies with a larger proportion of respondents (49.1%) selling between ₦1000- ₦1500 per calabash, 41.6% sell between ₦2100- ₦2500 while only 0.8% sells between ₦2600- ₦3000 at the exchange rate of ₦160 per \$1US dollar. The variation in prices could be due to the cost of input used in the production. Table 2 also revealed that 48.7% of the respondents used hired labour for Shea butter processing, 39.5%

make use of their family while 11.8% used both hired and family labour. It implies that Shea butter processing is labour intensive thus processors will require additional labour in order to carry out the processing.

Majority (52.8%) of the respondents had between 1 and 10 years of experience in Shea butter processing activities while 3.8% of them had between 31 and 40 years of experience. This implies that the processors were still young in the activities thus will need additional training to improve on the activity. Majority of the respondents (66.8%) market their product at retail and 33.3% market their product at wholesale which can be as a result of low production.



Table 2: Distribution of Respondents Based on Enterprise Characteristics

Variables	Frequency	Percentage
Scale of measurement		
Calabash	80	66.7
Kilogram	40	33.3
Number Of Calabashes Per Week		
1-10	31	25.8
11-20	77	58.4
21-30	17	14.1
31-40	2	1.7
Amount per calabash (₦)		
1000 - 1500	59	49.1
1600 - 2000	8	6.6
2100- 2500	50	41.6
2600- 3000	1	0.8
3100- 3500	2	1.7
Sources of labour		
Family labour	47	39.5
Hired labour	58	48.7
Both	14	11.8
Years of experience		
1-10	28	52.8
11-20	17	32.2
21-30	6	11.2
31-40	2	3.8
Marketing channel		
Retail	75	65.8
Wholesale	38	33.3
Both	1	0.9

Sources of information on modern Shea butter processing technology

The result on Table 3 revealed that majority (96.6%) of the respondents obtained information from radio, 92.4% from television, 80.8% from Neighbours, 74.2% from Cooperatives and a least number of the respondents (57.5%) obtained information from the extension agents. This could be attributed to the low level of literate

among the respondents as most of them had primary education, coupled with lack of electricity in most of the rural areas resulting in the use of radio that can be powered through external battery. This study revealed that only few extension agents have been reaching the Shea butter processors which could be attributed to bad roads and the long distance in getting to the study area.

Table 3: Sources of information on modern shea butter processing technology

Sources of information*	Frequency	Percentage	Ranking
Radio	114	96.6	1 st
Television	109	92.4	2 nd
News paper	91	77.1	4 rd
Extension agent	69	57.5	8 th
Association	92	76.7	5 th
Cooperatives	89	74.2	6 th
Friends and family	87	72.5	7 th
Neighbours	97	80.8	3 rd

*Multiple responses

Awareness of modern processing technology

Table 4 shows that the respondents generally had a high level of awareness of modern processing technology to the extent that 98.3% of them were aware of the pre-cleaner, storage tank (94.2%) and milling machine (84.2%) while the least awareness was on heated holding tank (64.2%). The categorisation of the respondents on

their level of awareness of modern processing technology reveals that 55.0% of the processors were aware of the modern processing technologies through various sources which can be improved upon through sensitisation of the processors on the benefit of using the technologies

**Table 4: Distribution of respondents based on awareness on modern processing technology**

Modern processing technologies	Aware		Mean
	Frequency	Percentage	
Pre-cleaner	118	98.3	0.98
Crusher	100	84.0	0.83
Screw hydraulic	81	67.5	0.68
Vibrating screen	89	74.2	0.74
Roaster	79	66.4	0.66
Expeller	82	68.3	0.68
Heated holding tank	77	64.2	0.64
Storage tank	113	94.2	0.94
Milling machine	101	84.2	0.84
Kneader	83	69.2	0.69
Overall mean	7.69 (range =1-10) SD 3.04		

*Multiple responses

Availability of modern processing technologies

Table 5 shows that screw hydraulic ranked 1st (54.2%) indicating that majority of them possess screw hydraulic technology because of its importance in the processing of Shea butter. Meanwhile, there was low availability of storage

tank (36.7), pre-cleaner (41.7) and kneader (42.5). In general there was low availability of the modern processing technologies which could be as a result of the fact that the machineries required for processing are too expensive for them to afford.

Table 5: Availability of the modern processing technologies

Modern processing technologies	Available		Rank
	F	%	
Pre-cleaner	50	41.7	9 th
Crusher	62	47.9	2 nd
Screw hydraulic	65	54.2	1 st
Vibrating screen	51	42.5	7 th
Roaster	53	44.2	6 th
Expeller	56	46.7	3 rd
Heated holding tank	55	45.8	4 th
Storage tank	44	36.7	10 th
Milling machine	55	45.3	5 th
Kneader	51	42.5	7 th

**Multiple responses

Constraints faced by respondents in using modern processing technologies

Result in Table 6 revealed that 80.7% of the respondents identified lack of regular power supply as severe constraint thus ranked 1st, followed by lack of government support (48.8%) which ranked 2nd and inadequate fund (ranked 3rd) to provide alternative power supply. Most of the modern processing equipment are no longer functioning and it is too expensive to repair or replace them by the processors as respondents also lack access to credit facilities.

Mild constraints identified by the respondents were scarcity of Shea nuts (79.8%) that ranked 7th and lack of storage facility (78.2%)

that ranked 8th. This is expected as Shea butter is still gotten from the wild and there are no storage facilities to store the nut at the peak period. Effort should be made to sensitize farmers to plant Shea trees because of enormous uses of Shea butter and the processors should be trained on how to store the Shea nuts for long period. Inadequate transport facility (62.7%) was also seen as a mild constraint by the respondents. This was corroborated by the finding of Lovette (2011) which affirmed that transportation issue is widespread with high cost and limited reliable, poor roads and corrupt customs procedures in existence for anyone wanting to move Shea kernel or butter between countries or out of continent.

Table 6: Constraints to use modern processing technology

Constraints	Severe constraint	Mild constraint	Not constraints	Mean	Rank
Scarcity of Shea nuts	4.2	79.8	16.0	0.88	7th
Lack of storage facility	4.2	78.2	17.6	0.86	8th
Complexity of modern techniques	3.4	72.3	24.4	0.78	9th
Tedious processing	7.6	57.6	34.7	0.72	12th
Insufficient good quality water	11.9	55.1	33.1	0.78	9th
Inadequate transport facility	6.8	62.7	30.5	0.75	11th
Scarcity of labour to help in processing activities	6.8	48.7	40.3	0.70	13th
Inadequate finance	25.4	47.5	27.1	0.97	3rd
Unstable price of commodity	13.4	64.7	21.8	0.91	6th
High cost of processing equipment	22.7	49.6	27.7	0.94	4th
Lack of credit facilities	25.4	44.9	29.7	0.94	4th
Government aid is not adequate	40.7	35.0	23.7	1.15	2 nd
Lack of regular power supply	80.7	16.8	2.5	1.77	1st

Level of utilisation of modern processing technologies

Table 7 shows that milling machine technology (47.9%) was mostly used and ranked 1st by the respondents relative to other technologies. This may be because it is the most common modern technology in the area and probably the technology is the cheapest. Other technologies used in the study area are roaster (50% always), storage tank (47.5% always) and kneader (42.4% always) ranked 2nd, 3rd and 4th respectively. In contrast, the respondents use expeller technology always (18.3%), occasional (5.8%) and never (75.8%)

recording most unused modern shea butter processing technology, probably due to high price and unavailability in the study area.

With regards to level of utilisation of the modern processing technologies, the study revealed that most (53.8%) of the respondents do not use the modern processing technology. This could be due to the fact that they lack finance to purchase the machineries and the modern processing technology they have are not functioning well due to lack of maintenance and repair or because they lack the technical skill on how to operate these machineries.

Table 7: Level of utilisation of Modern Processing Technologies

Modern processing technologies	Always	Occasional	Never	Mean	SD	Rank
Pre-cleaner	40.0	5.0	55.0	0.85	0.97	7th
Crusher	36.7	9.2	54.2	0.83	0.94	8th
Screw hydraulic	40.0	8.3	51.7	0.88	0.95	6th
Vibrating screen	42.0	6.7	51.3	0.91	0.97	5th
Roaster	50.0	3.3	53.3	1.03	0.99	2nd
Expeller	18.3	5.8	75.8	0.43	0.79	10th
Heated holding tank	37.8	5.0	57.1	0.81	0.96	9th
Storage tank	47.5	5.8	53.3	1.01	0.94	3rd
Milling machine	47.9	9.4	57.3	1.05	0.96	1st
Kneader	42.4	11.9	54.2	0.97	0.94	4th
Mean of overall utilisation	8.73 (range=0 -20) SD 5.20					

**Multiple responses

Table 8 shows a positive correlation between level of education and utilisation of modern technology. This can be attributed to the

fact that education can help the respondent to have a good perception about the technologies hence their utilisation

Table 8: Chi square analysis of relationship between respondents' level of education and level of technology utilisation

Variables	χ^2 value	df	p-value	Decision
Educational level	25.65	8	0.01	Significant
Level of technology utilisation				

Table 9 shows a positive correlation of level of production and level of technology utilisation. This can be explained by the fact that high production level can only be achieved with

high modern processing technologies utilisation. However a negative correlation existed between respondents' years of experience and level of technology utilisation. That is the higher the



respondents' years of experience the lower the level of technologies utilisation. This could suggest that they have mastered the trade that they do not need the modern technologies or it is difficult to change their old ways of producing Shea butter or due to lack of the capacity or education to operate it.

The constraints associated with the use of modern processing technologies have a negative

relationship with the level of utilisation. The higher the constraints to use the modern processing technologies the lower the level of utilisation of the technologies. Efforts should be made to reduce the constraints identified in the study area in order to enhance the level of utilisation of modern technologies.

Table 9: Pearson Product Moment Correlation analysis of the study

Level of utilisation of modern processing technologies	r-value	p-value
Level of production	0.772	0.028*
Years of experience	0.951	-0.009*
Constraints	0.724	-0.034*

CONCLUSION AND RECOMMENDATIONS

The level of utilisation was low because majority of the respondents did not use modern processing technologies despite their high level of awareness sighting no power, lack of government support and inadequate finance to purchase and maintain existing ones as constraints. It is recommended that

Government should provide rural infrastructures such as electricity, credits, water and road in the study area to enhance the use of these technologies., Enlightenment programme should also be embarked upon to sensitize the processors on the benefit and training on how to use and maintain the equipment in the local language because of their low level of education,

REFERENCES

- Ademola, A. O., Oyesola, O. B. and Osewa, S. O. (2012). Assessment of Shea butter processing among rural dwellers in Atisbo Local Government Area of Oyo state, Nigeria. *European Journal of Business and Social Sciences* Vol. 1. No. 6: Pp. 1-8
- Alander, J. (2004). Shea butter – a multifunctional ingredient for food and cosmetics. *Lipid Technology*, 16(9): 202–205
- Carette, C., Malotau, M., van Leeuwen, M., Tolkamp, M. (2009). Sheanut and Butter in Ghana: Opportunities and Constraints for Local Processing. University of Wageningen: Wageningen. The Netherlands. Pp. 6-8
- Daniel, A. O., Olafimihan, E. Kwaya and O. Odejide. 2005. Shea nut processing: Raw Material update. *A Bi-annual publication of Raw Materials Research and Development Council* Vol. 5. No.2
- Garba, I. D., Nwawe, C N., Osiakede I. L. (2011). The Potential Of Shea Nut Tree To The Nigerian Economy. *International Journal Of Agricultural Economics And Rural Development*. Pp. 62–72. Retrieved august 28, 2011, from URL <http://www.ijaerd.latechaece-edu.com>
- Matanmi B. M., Adesiji, G. B. Olasheinde, E. M. and Oladipo, F. O. (2011). Assessment of usage of upgraded indigenous Shea butter processing technology by women processors in Kwara State, Nigeria. *Agrosearch*. Vol.11. No. 1&2: Pp. 19 – 30 <http://dx.doi.org/10.4314/agrosh.v11i1.3>



PERCEIVED EFFECTIVENESS OF THE MIDWIVES SERVICE SCHEME AMONG BENEFICIARIES IN OYO STATE, NIGERIA

Adegoke, B. A., Fawole, O. P. and Badiru, I. O.

Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan
Correspondent contact details: adegokebasirat42@yahoo.com

ABSTRACT

The Midwives Service Scheme (MSS) was established by the Federal Government of Nigeria to reverse the country's unacceptably high maternal and neonatal mortality. It has been in operation for over five years (2009) and it became imperative to review its success. This study therefore assessed the effectiveness of the Midwives Service Scheme (MSS) in Oyo state. The study was carried out in Akinyele, Lagelu and Ibarapa East Local Government Areas (LGAs). Multi-stage sampling procedure was used to select 135 beneficiaries from the study area. Data on characteristics of the respondents, benefits derived, constraints to effectiveness and perceived effectiveness of the scheme were collected through structured questionnaire administered to (135) beneficiaries of MSS in Oyo state. Data were analysed using descriptive and inferential statistics, including Chi Square, Pearson's Product Moment Correlation (PPMC). Results showed that respondents benefited to a large extent from skilled birth attendants (97.0%), Antenatal care (94.1%) and 24 hours qualified managed service (94.1%). Ambulance service was the only activity which majority of the beneficiaries (97.8%) were not satisfied with. Beneficiaries (68.1%) perceived the MSS as highly effective, while poor ambulance services ($\bar{x}=1.93$) and erratic power supply ($\bar{x}=1.79$) were the most limiting constraints faced by the beneficiaries. MSS was substantially effective in achieving its set objectives in the study area in spite of the constraints being faced. Ambulances should be made available to PHCs so as to enhance referral system.

Keyword: Effectiveness, midwives, women, child-bearing

INTRODUCTION

The health and wellbeing of the woman is closely linked to that of the family and society. Procreation is a major activity affecting the health and wellbeing of women. Having babies is a thing of cultural importance and prestige for the African woman (Nigeria world, 2011). Despite this, it could be very challenging and life threatening (Knight, 2014). Women die worldwide from pregnancy and childbirth related issues while millions also suffer from post-partum injuries. Almost all maternal deaths can be prevented, as evidenced by the huge disparities found between the richest and poorest countries. The lifetime risk of maternal death in industrialized countries is 1 in 4,000, versus 1 in 51 in countries classified as 'least developed' (WHO, UNICEF, UNFPA and World Bank, 2014).

Maternal mortality is of global concern, hence its adoption as one of the millennium development goal in the millennium summit in year 2000. Millennium Development Goal 5 focused on maternal mortality and targeted a reduction of maternal mortality rate by three quarters between 1990 and 2015 (World Health Organization, 2007). Maternal mortality remains a priority under Goal three (3) in the new Sustainable Development Goals (SDGs) agenda through 2030 (Maternal Health Task Force, u.d). Global maternal mortality ratio declined by 45% from 380 deaths in 1990 to 210 deaths in 2013 per 100,000 live births; this translates into an average annual rate of reduction of 2.6 per cent (WHO *et al*, 2014). A report by WHO in 2012 also revealed that developing countries accounted for 99% (284,000) of global maternal death, Sub Saharan Africa and Southern Asia contributed 85% of this global burden, with Sub-Saharan Africa contributing more than half of

this percentage (56%). At the country level, two countries account for one third of global maternal deaths: India at 19 % (56,000) and Nigeria at 14 % (40,000). According to Mojekwu and Ibekwe (2012), Nigeria has one of the worst records of maternal mortality in the world, second only to India whose population is eight times larger than that of Nigeria.

In a recent report, World Health Organization (WHO) classifies Nigeria as one of the 10 countries of the world that contribute about 60 per cent of the world's maternal mortality burden (WHO *et al*, 2014). Though Nigeria currently has a maternal mortality ratio of 560 per 100,000 live births, the ratio improved slightly, moving from 630 per 100,000 recorded in 2010. The North East zone of Nigeria has the highest maternal mortality rate of 1,549 per 100,000 live births (UNICEF, 2016); meaning that just over one in a hundred mothers lose their lives during childbirth. Over the years, several initiatives and programmes have been introduced to reduce mortality among mothers in Nigeria. Despite these efforts, poor maternal health indices have continued to be one of the most serious development challenges facing the country. Midwives Service Scheme (MSS) was established in 2009 to provide an emergency stop gap to the human resource shortage of skilled attendance at the level of Primary Health Care in Nigeria. The aim is to facilitate an increase in the coverage of Skilled Birth Attendance (SBA) to reduce maternal, newborn and child mortality (NPHDA, 2014). Despite the apparent successes recorded by the scheme, the MSS is not without some challenges.

Muhammed (2013) opined that for MSS to be effective, problems of lack of essential drugs,



poor/insecure accommodation facilities for midwives, non-regular payment of their remuneration and lack of water/power supply to some designated facilities for the scheme should be addressed. In Oyo state, there is a record of 262 maternal mortality per 100,000 live births annually (NURHI, 2011). This figure is alarming; hence, a programme like the MSS which is targeted at reversing the trend deserves closer attention. Therefore, it is imperative to assess the effectiveness of the MSS. In view of this, the objectives for this study are:

- 1 Determine the socioeconomic characteristics of respondents in the study area;
- 2 Identify the benefits derived from the scheme by the beneficiaries in the study area;
- 3 Determine beneficiaries' level of satisfaction with the benefits derived from the scheme in the study area and;
- 4 Identify the constraints faced by beneficiaries in accessing the benefits of the scheme

METHODOLOGY

Oyo state has a population of 5,591,589 people (National Population, Commission, 2006). It is situated in latitude 7° 24'N and longitude 3° 52'E as well as altitude 234m above sea level and covers a total of 27,249 square kilometres of land mass. It is bounded to the south by Ogun state, in the north by Kwara state, in the east by Osun state and in the west; it is partly bounded by Ogun and partly by the republic of Benin. The people of Oyo State may be divided into five zones which are: Ibadan, Ibarapa, Oyo, Oke-Ogun and Ogbomosho groupings (Oyo, 2014). Oyo state has University College Hospital (tertiary healthcare centre), several General Hospitals and Primary Health Care Facilities. Agriculture is the main occupation of the people of Oyo state. The climate in the state favours the cultivation of crops like maize, yam, cassava, millet, plantain etc.

The population of the study consisted of all beneficiaries of MSS in Oyo state. Multi-stage sampling procedure was used in the selection of beneficiaries (women who were in their reproductive age (18-45yrs) for this study. The first stage involved a random selection of sixty percent (60%) of the five (5) MSS clusters in Oyo state to give three (3) MSS clusters namely Akinyele, Lagelu and Ibarapa East Local Government Areas. Each cluster was made up of four (4) PHCs to give twelve (12). The second stage involved random selection of twenty percent (20%) of beneficiaries from each facility; this gave a sample size of one hundred and thirty five (135) beneficiaries used for the study. The women were approached during antenatal, post natal and immunization days at

MSS facilities. Data for the study were collected using a structured questionnaire and analyzed using frequency counts, percentages, means, chi square and Pearson Product Moment Correlation (PPMC). Effectiveness was measured through frequency of use and availability to the service.

RESULTS AND DISCUSSION

Socioeconomic characteristics of beneficiaries

Table 1 reveals that majority (60.7%) of the beneficiaries fell within the age category 21 and 30 years, while the mean age was 28.13. This distribution indicates that most of the respondents were young. This agrees with the report of Sule-Odu, Fakoya, Oluwole, Ogundahunsi, Olowo, Olanrewaju, Akesode, Dada and Sofekun (2008) that the mean age for child bearing in Nigeria is 27.5. The implication of this finding in the effectiveness of MSS is that these women fall within the maternal age in which risk of child bearing is minimal, this is in line with findings of Nove, Mathew, Neal and Camacho (2014) that there is highest risk of maternal mortality in women older than 30 years.

The result also showed that most (97%) of the respondents were married. This means that most of the respondents can be regarded as responsible women who respect the marriage institution and consider it essential. This is in line with Akintola (2008) that majority of rural households are married. It was also revealed that about half (50.4%) of the beneficiaries had between 7 and 12 years of formal education, 34.1% had less than 6 years of formal education and 15.6% had above 12 years of formal education. This suggests a poor level of education among women of child bearing in rural Nigeria, which may affect their knowledge on maternal and neonatal health. This finding is alarming considering the report of Hoffman and Hoffman (2014) that formal education and literacy influence reduction in maternal and child mortality rate.

The majority (54.1%) of the beneficiaries professed the Islamic faith while 44.4% were Christians and the remaining 1.5%, Traditional religion adherents. This implies that the mosque and the church can be used to sensitize the people of the benefit of MSS and knowledge of maternal and child health. It can be deduced that 46.7% of beneficiaries were into business/trading, 25.9% were tailors, 11.9% were hair dressers, and 7.4% were teachers, 2.2% were farmers while 0.7% were full-time housewives. This implies that most of the beneficiaries had means of livelihood and suggests that finance might not have been a constraint to benefitting from the MSS services.

Results also showed that majority (96%) of the beneficiaries had between one and four children. This implies that most of the respondents had previous experience(s) of child bearing. This



predisposed them to providing valid and useful information on the effectiveness of MSS and its

benefits to women and children.

Table 1: Socioeconomic characteristics of respondents (n=135)

Variables	Frequency	Percent	Mean
Age			28.13
≤ 20	9	6.7	
21-30	82	60.7	
31-40	44	32.6	
Marital status			
Single	1	0.7	
Married	131	97	
Divorced/Separated	3	2.2	
Years of formal education			10.1
≤6	46	34.1	
07-12	68	50.4	
Above 12	21	15.6	
Religion			
Christianity	60	44.4	
Islam	73	54.1	
Traditional	2	1.5	
Occupation			
Farming	3	2.2	
Business/trading	63	46.7	
Tailor	35	25.9	
Hair dresser	16	11.9	
Teacher	10	7.4	
Housewife	1	0.7	
Student	4	3	
Accountant	1	0.7	
Civil servant	2	1.5	
Number of children			5.0
0	1	0.74	
01-02	80	59.3	
03-04	50	37	
Above 5	4	2.96	

Benefits derived from MSS

Table 2 reveals that majority of the respondents benefited to a large extent from skilled birth attendant (\bar{x} =1.95) Antenatal care (\bar{x} =1.93), 24 hours qualified managed service (\bar{x} =1.90), immunization (\bar{x} =1.97), Neonatal care (\bar{x} =1.80), postnatal care (\bar{x} =1.99), health talk (\bar{x} =1.99), outreach service (\bar{x} =1.50) and infant welfare (\bar{x} =1.96). This implies that respondents had access to most of the services provided by MSS and this is corroborated by the findings of WHO (2008) cited by Mojekwe and Ibekwe (2012) that for women to benefit from these cost-effective interventions, they must have antenatal care in pregnancy, attended to by skilled health providers in childbirth and need support in the weeks after the delivery.

On the other hand, a large number of respondents did not benefit from family planning (\bar{x} =0.90), which may be due to cultural or religious beliefs. This is in line with UNICEF (2007) that discriminatory cultural attitudes and practices are barriers to reducing maternal mortality. Generally, contraceptive prevalence rate of Oyo State is 22 percent (NUHRI, 2011). Most respondents did not benefit from referral service (\bar{x} =0.16), this may be as a result of the availability of skilled birth attendance which tends to reduce the number of complications and none of the respondents benefited from ambulance service (\bar{x} =0.16). This could be an indication of the absence of ambulance service in all the PHCs hence; patients provide means of transportation when they are referred.

**Table 2: Distribution of respondents based on benefits derived from MSS**

Benefits	To a large extent	To a lesser extent	Not at all	Mean
Skilled birth attendant	97	0.7	2.2	1.95
Antenatal care	96.3	0.7	3.0	1.93
24 hours qualified managed service	94.1	2.2	3.7	1.90
Immunization	98.5	0.0	1.5	1.97
Neonatal care	89.6	0.7	9.6	1.80
Post natal care	98.5	0.0	1.5	1.99
Family planning	43.0	4.4	52.6	0.90
Health talk	99.3	0.0	0.7	1.99
Outreach	62.2	25.2	12.6	1.50
Referral service	3.7	8.9	87.4	0.16
Ambulance service	0.0	0.0	100	0.00
Infant welfare	97.8	0.0	2.2	1.96
Laboratory service	66.7	17.8	15.6	1.51

Level of satisfaction

Table 3 shows that majority of beneficiaries were highly satisfied with skilled birth attendant ($\bar{x}=1.98$) antenatal care ($\bar{x}=1.99$), 24 hours qualified managed service ($\bar{x}=1.99$), immunization ($\bar{x}=1.99$), neonatal care ($\bar{x}=1.91$), post natal care ($\bar{x}=1.96$), family planning ($\bar{x}=1.87$), health talk ($\bar{x}=1.99$), outreach ($\bar{x}=1.77$), referral ($\bar{x}=1.49$), infant welfare ($\bar{x}=1.95$), and laboratory service ($\bar{x}=1.48$). However, respondents were not

satisfied with the ambulance service ($\bar{x}=0.22$). The implication of this finding is that beneficiaries were satisfied with most of MSS services except the ambulance service and this may be because the services were never available at the PHCs.

Further analysis on Table 4 reveals that majority (71.9%) of the beneficiaries had high level of satisfaction with the Scheme. The finding indicates the success of the MSS from the perspective of the beneficiaries.

Table 3: Distribution of respondents based on level of satisfaction with MSS

Level of satisfaction	Highly satisfactory	Satisfactory	Not satisfactory	Mean
Skilled birth attendant	97.8	2.2	0.0	1.98
Antenatal care	98.5	1.5	0.0	1.99
24 hours qualified managed service	98.3	0.7	0.0	1.99
Immunization	98.3	0.7	0.0	1.99
Neonatal care	91.1	8.9	0.0	1.91
Post natal care	95.6	4.4	0.0	1.96
Family planning	86.7	13.3	0.0	1.87
Health talk	99.3	0.7	0.0	1.99
Outreach	77.8	21.5	0.7	1.77
Referral service	53.3	43.0	3.7	1.49
Ambulance service	0.0	2.2	97.8	0.22
Infant welfare	97.0	0.7	2.2	1.95
Laboratory service	64.4	19.3	16.3	1.48

Table 4: Categorization of respondents based on level of satisfaction

Level of satisfaction	Frequency	Percent	Mean	SD	Minimum	Maximum
Low	38	28.1	22.39	1.38	19.00	24.00
High	97	71.9				

Beneficiaries' responses on the perceived effectiveness of MSS

The summary of Tables 5 and 6 as found in Table 7 shows that most of the beneficiaries (68.1%) perceived MSS as highly effective. The most effective components as perceived by the respondents in Tables 6 and 7 include: use of skilled birth attendant (\bar{x} ranging from 1.90-2.00), antenatal (\bar{x} ranging from 1.93-1.99), 24 hours service ($\bar{x}=1.88$), immunization (\bar{x} ranging from

1.96-1.97), neonatal (\bar{x} ranging from 1.88-1.90), post natal (\bar{x} ranging from 1.93-1.97), family planning (\bar{x} ranging from 1.97-1.99), health talk (\bar{x} ranging from 1.97-2.0), referral (\bar{x} ranging from 1.67-1.70), infant welfare (\bar{x} ranging from 1.97-1.99), immunization through outreach ($\bar{x}=1.93$) and some components of laboratory service (urine test ($\bar{x}=1.82$), malaria parasite ($\bar{x}=1.99$) and PCV ($\bar{x}=1.74$)). The perceived least effectiveness were: delivery through outreach ($\bar{x}=0.00$), ultrasound



($\bar{x}=0.00$) and ambulance service ($\bar{x}=0.00$). otherwise may be due to availability. Perceived effectiveness of the components or

Table 5: Beneficiaries' assessment of the effectiveness of MSS services

Services	Responses			Mean
	Always	Sometimes	Never	
Skilled birth attendant				
Availability of skilled birth attendant	94.1	1.5	4.4	1.9
Regularity of skilled birth attendant	98.5	1.5	0.0	1.99
Punctuality of skilled birth attendant	100.0	0.0	0.0	2
Positive attitude towards patients	97.0	3.0	0.0	1.97
24 hours qualified managed services				
Availability of delivery service	91.9	4.4	3.7	1.88
Care if infants	91.9	4.4	3.7	1.88
Care of pregnant women	92.6	3.7	3.7	1.88
Outreach services				
Availability of delivery through outreach (at home with skilled birth attendant)	0.0	0.0	100	0.0
Availability immunization through outreach	92.6	7.4	0.0	1.93
Ambulance services				
Available	0.0	1.5	98.5	0.15
Accessible	0.0	1.5	98.5	0.15
Affordable	0.0	1.5	98.5	0.15
Laboratory services				
Urine tests	89.6	3.0	7.4	1.82
Malaria parasite test	98.5	1.5	0.0	1.99
Pregnancy test	91.9	8.1	0.0	1.84
Ultrasound scan	0.0	0.0	100	0.0
PCV (blood level check)	86.7	1.5	11.9	1.74

Table 6: Distribution of beneficiaries by their assessment of effectiveness of MSS services

Services	Highly effective	Effective	Not effective	Mean
Antenatal care				
Intermittent preventive treatment of malaria	98.5	1.5	0	1.99
Blood test to diagnose diseases and ascertain health status	94.1	5.9	0	1.94
Physical examination (BP, scan)	94.8	4.4	0.7	1.94
Provision of routine drugs	95.6	4.4	0	1.96
Prevention of mother-to-child transmission of HIV	98.5	1.5	0	1.99
Managing Common complaints	97	3	0	1.97
Distribution of insecticide treated nets	95.6	1.5	3	1.93
Immunization				
Provision of treatment toxoid for mothers	96.3	3.7	0	1.96
Childhood immunization (Polio, DPT, Measles)	98.5	1.5	0	1.99
Child survival interventions like vitamin A, de-worming	97	3	0	1.97
Neonatal Care				
Provision of warmth after birth	88.1	11.9	0	1.88
Cutting of the cord	89.6	10.4	0	1.9
Care of cord	89.6	10.4	0	1.9
Clearing of airways	89.6	10.4	0	1.9
Vaccination of baby against TB(BCG)	89.6	10.4	0	1.9
Postnatal Care				
Advice on early initiation of breast feeding (30mins after delivery)	93.3	6.7	0	1.93
Physical examination (blood pressure, urine test, PVC that is blood level check)	97	3	0	1.97
Tetanus toxoid vaccination for mother	95.6	3	1.5	1.94
Vitamin A supplementation	97.8	2.2	0	1.97



Services	Highly effective	Effective	Not effective	Mean
Family Planning counselling	97.8	2.2	0	1.97
Family Planning				
Counselling on child spacing	97.8	2.2	0	1.97
Education on family planning methods	99.3	2.2	0	1.97
Screening and test before family planning	97.8	2.2	0	1.99
Family planning service	98.5	1.5	0	1.99
Health Talk				
HIV counselling	97	3	0	1.97
Infant feeding	100	0	0	2
Pregnancy spacing/family planning	99.3	7	0	1.99
Birth and emergency plan	97.8	2.2	0	1.97
Referral Service				
Identification of Conditions that require referral (Anaemia, Swollen feet, Bleeding vagina)	71.9	26.7	1.5	1.7
Management of complications	69.6	28.9	1.5	1.68
Follow up on referral cases	69.6	28.1	2.2	1.67
Infant Welfare				
Treatment of minor ailments (Malaria, Diarrhoea)	99.3	0.7	0	1.99
Management of childhood diseases (Measles, Chicken Pox)	99.3	0.7	0	1.99
Treatment of minor injuries	98.5	0.7	0	1.97

Table 7: Categorization of respondents based on level of effectiveness

Level of effectiveness	F	%	Mean	SD	Minimum	Maximum
Low	43	31.9	88.65	4.37	67.00	92.00
High	92	68.1				

Constraints faced by the beneficiaries

The most limiting constraints to the effectiveness of the scheme as presented in Table 9 are: poor ambulance services ($\bar{x}=1.93$) and erratic power supply ($\bar{x}=1.79$). This could be because most of these facilities were in remote areas and referrals which required the use of ambulances were not available. In addition, many of them may not be connected to the national grid. Hence, when the

solar power systems break down, electricity becomes a challenge. The implication of this finding is that some services provided at night would be difficult without electricity. Considering Lawal (2012) reports that erratic power supply can harm vaccines stored for routine immunization, resulting in contamination of these vaccines which can harm rather than protect the children.

Table 8 Distribution of respondents based on constraints encountered (women)

Constraints	Serious constraint		Mild constraint		Not a constraint		Mean
	F	%	F	%	F	%	
Unavailability of essential drugs and consumables	6	4.4	23	17.0	106	78.5	0.26
Unavailability of midwives	1	0.7	6	4.4	128	94.8	0.06
Shortage of skilled birth attendants	3	2.2	3	2.2	129	95.6	0.07
Poor referral system	2	1.5	5	3.7	128	94.8	0.07
Delay at PHCs	3	2.2	6	4.4	126	93.3	0.09
Distance of PHCs	20	14.8	16	11.6	99	73.3	0.41
Language barrier	4	3.0	3	2.2	128	94.8	0.08
Attitude of midwives	1	0.7	9	6.7	125	92.6	0.08
Affordability of services	1	0.7	0	0.0	134	99.3	0.01
Poor laboratory	24	17.8	23	17.0	88	65.2	0.53
Poor ambulance service	129	95.6	3	2.2	3	2.2	1.93
Inadequate facilities/equipments	1	0.7	33	24.4	101	74.8	0.26
Inadequate water supply	3	2.2	3	2.2	124	91.9	0.10
Erratic power supply	115	85.2	12	8.9	8	5.9	1.79



Relationship between beneficiaries socioeconomic characteristics and perceived effectiveness of MSS

The Chi square analysis on Table 9 shows that none of their characteristics had significant relationship with perceived effectiveness of MSS. In addition, on Table 10, the correlation of age, number of children and years of formal education had no significant relationship with their perceived effectiveness of MSS, $r=0.047$, 0.001 , -0.080 respectively and $p=0.589$, 0.992 , 0.355 respectively. This implies that the women perceive MSS as effective irrespective of their age, religion, number of children, occupation and years of formal education.

Pearson's Product Moment Correlation result on Table 11 shows that there is no significant

relationship between benefits derived from MSS and the beneficiaries' perceived effectiveness of MSS. ($r=-0.028$, $p=0.752$) this implies that benefits derived from MSS did not influence their perceived effectiveness of MSS. This means whether respondents benefitted or not they still perceived the scheme as effective.

Table 12 result reveals that there was significant relationship between the constraints encountered by beneficiaries ($r = -0.396$, $p = 0.000$) and their perceived effectiveness of MSS. This implies that constraint encountered by respondents affected their perceived effectiveness of MSS. The higher the constraint the less the respondent perceived the effectiveness of MSS.

Table 9: Relationship between selected socioeconomic characteristics and perceived effectiveness of MSS

Variables	χ^2 -value	df	Contingency coefficient	p-value	Decision
Religion	1.896	2	0.118	0.388	NS
Marital status	0.789	2	0.059	0.789	NS
Occupation	0.121	8	0.294	0.121	NS

Table 10: Relationship between selected socioeconomic characteristics and perceived effectiveness MSS

Variables	r-value	p-value	Decision
Age	0.047	0.589	NS
No of children	0.001	0.992	NS
Years of formal education	-0.080	0.355	NS

Table 11: Relationship between benefits derived and perceived effectiveness of MSS

Variables	r-value	p-value	Decision
Benefits vs. Perceived effectiveness of MSS	-0.028	0.752	NS

Table 12: Relationship between constraint and perceived effectiveness of MSS

Variable	r-value	p-value	Decision
Constraints	-0.396	0.000	S

CONCLUSION AND RECOMMENDATION

Beneficiaries generally perceived the Midwives Service Scheme to be effective in Oyo state. However, services like erratic power supply and lack of access to ambulances hindered the effective delivery of the Scheme.

Based on these findings it is recommended that for future health interventions to be sustainable government should provide regular power supply using alternative energy sources and ensure proper management and maintenance of these resources. Efficient transportation should be put in place to improve referral system that links these PHCs to secondary health facilities.

REFERENCES

Akintola, B. (2008). Social Capital and Income Generating activities of rural women in Ondo state, Nigeria. M.Sc Thesis, Unpublished. Department of Agricultural

Extension and Rural Development, Ibadan: University of Ibadan.
 Hoffman and Hoffman. (2014). High Impact interventions reduce Maternal and Child mortality in Poor Countries. News Medical Retrieved July 26, 2015, at 10.30pm from <http://www.news-medical-net/news/20140917/High-impact-health-interventions-reduce-maternal-and-child-mortality-in-poor-countries.aspx>
 Knight, M. (2014). Conditions that threaten women's lives in Childbirth and Pregnancy. Healthtalk.org. University of Oxford. Retrieved from <http://www.healthtalk.org/peoples-experiences/pregnancy-children/conditions-threaten-womens-lives-childbirth-pregnancy>
 Lawal, F. (2012). MSS Midwives Experience in Kebbi state. *MSS Series*. Issue 3. pp 19



- Mohammed, R. A. (2013) Nigeria: Challenges of the Midwives Scheme. *AllAfrica Journal* Retrieved June 16, 2015, at 6.12pm from <http://allafrica.com/search/18/6/2013>
- Maternal Health Task Force.(2017). The Sustainable Development Goals and Maternal Mortality. Retrieved from <http://www.mhtf.org/topics/the-sustainable-development>
- Mojekwu, J. N and Ibekwe, U. (2012). Maternal Mortality in Nigeria: Examination of Intervention Methods. *International Journal of Humanities and Social Science*. 2(20), pp 136.
- National Primary Health Care Development Agency. (2014). Nigeria Midwives Service Scheme. *Global Health Workforce Alliance*. Retrieved Dec. 9, 2014, at 7.50pm from <http://www.who.int/workforcealliance/forum/2011/hrhawardsscs26/en/>
- National Population Commission. (2006). Population Distribution by sex, State, LGAs and Senatorial District: 2006 census priority Tables Vol. 3. National Population Commission, Abuja. Nigeria.
- Nigerian Urban Reproductive Health Initiative (2011). Promoting Maternal Mortality in Oyo State through Modern Family Planning/childbirth spacing. Retrieved Dec. 9, 2014 from http://www.nurhitoolkit.org/sites/default/files/tracked_files/FP%20Child%20Spacing%20Service%20Advocacy%20Kit_Ibadan.pdf
- Nigerianworld. (2011). Precious Babies, Empty Wombs: Experiences of Infertile Women in Nigeria. Retrieved Sept. 9, 2011 from <http://nigeriaworld.com/articles/2011/sep/092.html>
- Nove, A., Mathew, Z., Neal, S and Camacho, A. (2014). Maternal mortality in Adolescents compared with women of other ages: Evidence from 144 Countries. *Lancet Global Health*. Volume 2, No. 3. Retrieved from [http://dx.doi.org/10.1016/s2214109X\(13\)70179-7](http://dx.doi.org/10.1016/s2214109X(13)70179-7)
- Oyo State Official Website. (2014). The People. Retrieved Feb. 20, 2015, at 10.22pm from www.oyostate.gov.ng/about-oyo-state/the-people
- Sule-Odu, A. O., Fakoya, T. A., Oluwole, F. A., Ogundahunsi, O. A., Olowu, A. O., Olanrewaju, D. M., Akinsode, F. A., Dada, O. A. and Sofekun, E. A. (2008). Postpartum Sexual Abstinence and Breastfeeding Pattern in Sagamu, Nigeria. *African Journal of Reproductive Health* Vol. 12 (1). pp 96-100 April 2008.
- UNICEF (2007). A strategy to reduce maternal and neonatal deaths in Nigeria. Devpro Resource Centre. Retrieved August 8, 2015 at 5.20pm from <http://www.UNICEF-Depro Resource>.
- UNICEF (2016). Mother, New born and Child Health and Mortality Status. Northern States in Nigeria. Retrieved October 7, 2016 at 5.20pm from http://www.unicef.org/Nigeria/ng_publications_advocacybrochure.pdf
- World Health Organization. (2007). Maternal mortality in 2005: Estimates developed by WHO, UNICEF, UNFPA, and the World Bank. 2007.WHO. Geneva PP1-48. Retrieved July 15, 2015. pp 5
- World Health Organization, UNICEF, UNFPA, & The World Bank. (2012). Trends in maternal mortality and morbidity. *Bulletin of the World Health Organization*, 88, Maternal Mortality: 1990 to 2010 WHO, UNICEF, UNFPA and The World Bank. Retrieved Dec. 15, 2014 at 2.30pm from www.who.int/reproductivehealth/publication/monitoring/9789241503631/en/ pp 1
- World Health Organization, UNICEF, UNFPA and the World Bank. (2014). Trends in Maternal Mortality: 1990-2013, Estimate developed by WHO, UNICEF, UNFPA and The World Bank. Geneva, Switzerland. Retrieved on May 12, 2015 at 2.40pm www.who.int/reproductivehealth/publication/monitoring/maternal-mortality-2014/en/ pp 3



AGRICULTURAL EXTENSION STUDENTS' PERCEPTION OF CAREER PROSPECTS IN RURAL DEVELOPMENT BROADCASTING

Badiru, I. O., Aboluwarin, T. O. and Adejumo, A. A.
Correspondent contact details: bodebadru@gmail.com

ABSTRACT

Rural development broadcasting is crucial in the dissemination of improved technology and sustained livelihood among rural dwellers. Agricultural extension students are positioned to become future rural development broadcasters. Hence, the study examined agricultural extension students' perception on career prospects in rural development broadcasting. The study was carried out in the University of Ibadan, Oyo state. Simple random sampling technique was used to select a total of 170 respondents. Data were collected with the aid of structured questionnaire. Data analysis was done using chi-square and Pearson's Product Moment Correlation. The results showed that most of the respondents were male (51.8%), single (60.0%) with an average age of 32 years. Poor funding of agriculture by government ($\bar{x} = 1.64$), inadequate sponsorship in agricultural broadcasting ($\bar{x} = 1.58$), uncertainty of job availability in rural broadcasting ($\bar{x} = 1.56$) and poor awareness on career prospects in rural development broadcasting ($\bar{x} = 1.54$) were major constraints to students taking up career prospects in rural development broadcasting. Most (55.0%) of the respondents had favourable disposition towards career prospects in rural development broadcasting. Respondents' age ($r = -0.342$, $p \leq 0.05$), membership of campus press organisations ($\chi^2 = 0.650$, $p \leq 0.05$) and constraints to career prospects in rural development broadcasting ($r = -0.238$, $p \leq 0.05$) were significantly related to students' perception of career prospects in rural development broadcasting. Efforts should be made by various stakeholders in increasing the awareness of students on the career prospects of rural development broadcasting.

Keywords: Career prospects, rural development broadcasting, agricultural extension students

INTRODUCTION

The development of any nation can be hardly achieved without a corresponding development of its rural sector. This is because an estimated eighty percent of the world's poor are rural and are mostly involved in farming (World Bank, 2017). In addition, it is in the rural areas that the population is still growing at a higher rate amidst poor social and economic infrastructure support (Msoffe, 2009).

According to Akpabio (2005), agriculture has been described as the mainstay of economic growth in Africa. It is the single largest contributor to the wellbeing of the rural poor in Nigeria, sustaining a large proportion of the rural and total labour force. With their great potentials, no serious, active, conscious, sensitive, and organised government would want to neglect rural communities, as its lack of development results in the overall poor development of the country. The rural area is crucial because food is grown there to feed the whole nation while droughts, diseases and infestations to crops are first felt there. Even research that is meant for better farming practices is tested there.

However, the nature of life in most rural communities is that of a subsistence manner. The communities need basic life necessities, like food, shelter and clothing which are all mainly gotten from agriculture. It is therefore important that the agricultural sector be developed in order to develop the rural areas. Since information dissemination is crucial in the bid to achieve this objective, effective and efficient means of rural information dissemination must be deployed. A cost effective means of achieving this end is broadcasting.

According to Onabajo (2000), broadcasting involves the transmission of information through radio waves from a radio or television station, to the audience in far and near places, through their receivers, which help in decoding such information. Similarly, it entails the dissemination of information by an organisation (radio or television station) to a large, widely dispersed heterogeneous audience through their radio or television receivers. Over time, broadcasting has been found to be a powerful and effective medium for widespread education in rural areas. Iyer (2011) avers that rural broadcasting imparts knowledge of new technologies to rural dwellers, helps them improve their earnings and increase development. Several scholars have conceptualised rural broadcasting in different ways. For instance, Nwanne (2013) views rural broadcasting as concerted and integrated efforts to convey to rural dwellers information that would help them attain a better life in all ramifications. Also, Kumar (2003) identifies rural broadcasting as an avenue for participatory communication and as a tool relevant in both economic and social development while Chapman *et.al* (2003) opine that rural broadcasting provides a set of participatory communication techniques that support agricultural extension efforts by using local languages to communicate directly with farmers and listener groups.

Rural broadcasting therefore, represents one of the best ways of reaching the rural people with development messages. It can also be referred to as rural development broadcasting. The rationale behind rural development broadcasting is to ensure that development oriented messages are communicated to the rural people. The use of the



mass media to reach large farm audiences have for long been an essential component of agricultural communication in Nigeria. This is particularly more important in these times of declining number of village extension agents who are mostly employed by the government.

In Nigeria, the broadcasting industry is liberalised and have a high number of sponsored broadcasts in relation to public service broadcasts. Therefore, the sponsors as well as the broadcasters are crucial in determining the messages that will eventually be disseminated to the audience. The broadcaster is even more important because of their role in designing the message and searching for potential sponsors of such messages. Considering this gate keeping role of the broadcasters in the information dissemination model, graduates of agricultural extension should ordinarily step in to fill the existing gap by exploiting the opportunities provided by the broadcast media to improve agriculture and the rural areas. Moreover, considering the unemployment situation in Nigeria especially in the formal sector of the agricultural industry, there is the need to research into the possibility of creating jobs for the numerous agricultural extension graduates being turned out of Nigeria's tertiary institutions yearly and at the same time solving the existing problem of agricultural information deficit. This is highly ingenious but could only be achieved if the potential agricultural extension graduates are inclined to take up the challenge. It is therefore important to ascertain the willingness of these students by researching into their perception of career prospects in rural development broadcasting. Specifically, the study was designed to:

1. describe the personal characteristics of respondents,
2. identify the constraints to students' career interest in rural development broadcasting;
3. examine the relationship between the personal characteristics of the students and perception of career prospects in rural development broadcasting and;
4. ascertain the relationship between constraints to students' career interest in rural development broadcasting and perception of career prospects in rural development broadcasting.

METHODOLOGY

The study was carried out at the University of Ibadan, Oyo State, Nigeria. The University of Ibadan was established in 1948. It is located in the northern part of the Ibadan metropolis, some eight kilometres from the traditional centre of Oja Oba and Mapo. The University's Department of Agricultural Extension and Rural Development was established in 1976 and is considered as the flagship of Agricultural

Extension teaching and research in Nigeria. The University is surrounded by a large number of broadcast media houses including the oldest radio and television houses in Africa. It also has its own radio station known as Diamond 101.1 FM.

The population of the study consisted of Agricultural Extension and Rural Development students of the University of Ibadan in the 2013/14 academic session. The data used for the study were obtained from primary source through the use of a well-structured questionnaire. Students in the final year undergraduate (500 level), Masters of Science (M.Sc.) and Doctor of Philosophy (Ph.D.) classes were purposively selected due to their potential readiness for the labour market. Sixty percent (60%) of students in each of the classes (17 out of 29 in 500L, 83 out of 138 in M.Sc. and 70 in Ph.D) were randomly selected to give a total number of one hundred and seventy (170) respondents. Descriptive tools such as frequency counts and percentages were used in making sense out of the data, while inferential statistical tools like chi-square and Pearson's Product Moment Correlation (PPMC) were used to further analyse the data collected.

Constraints to students' career interest in rural development broadcasting was measured by asking respondents to tick from a list of factors that could mitigate against their career interest in rural development broadcasting using a 3 – point scale of not a constraint scored 0, minor constraint, 1 and major constraint, 2. Using a benchmark of 1, factors with mean scores of 1 and above are considered serious constraining factors.

Perception of career prospects in rural development broadcasting was measured by using 30 attitudinal statements rated on a 5-point Likert-type scale. Positive statements were scored as Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2 and Strongly Disagree = 1 while, it was reversed for negative statements. The expected maximum score was 150 while the minimum score was 30. The mean score of 130.6 was used to categorise the respondents into favourable and unfavourable perception scores such that scores above 130.6 were considered favourable and those below, unfavourable.

RESULTS AND DISCUSSION

Respondents' personal characteristics

The results in Table 1 show that more than half of the respondents (51.8%) were male, which implies that gender balance is gradually being achieved in the field of Agricultural Extension and Rural Development when compared with the findings of Oladeji and Thomas (2010) that across universities, the ratio of male to female respondents is skewed toward the male. This could also be as a result of the laborious nature of agricultural operations which are very tedious for the female to



handle. Hence, the commonly held notion that agriculture is mainly for males because of the drudgery associated with it (Agbebaku, 2004) no longer holds. The mean age was 31.8 years, an indication that the presence of a mature and vibrant group of people who are ripe for the employment market and will be interested in available career opportunities. The majority (60.0%) of the respondents were single. This is expected as a large number of them are unemployed students who do not have the means to sustain a family yet. The modal level of study was M.Sc. (64.7%) which emphasises the role of the University of Ibadan as a postgraduate institution. Furthermore, the level of

education is sufficient enough to enhance rural broadcasting in line with the assertions of Badiru (2013) that high educational attainment, if properly channelled, could be a great potential for turning the rural development broadcasting sector around. The result further shows that a few (2.9%) were members of press organisations. This is quite discouraging as membership of press organisations could enlighten and thus, predispose the respondents to nursing a career ambition in rural development broadcasting. The fact that press organisations are usually for undergraduate students may also be responsible for this.

Table 1: Distribution of respondents by personal characteristics

Variable	Frequency	Percent
Age		
Less or equal to 25	34	20.0
26-30	62	36.5
31-35	27	15.9
36-40	21	12.4
Above 40	26	15.3
Sex		
Male	88	51.8
Female	82	48.2
Marital status		
Single	102	60.0
Married	68	40.0
Level of study		
500 level	23	13.5
MSc	110	64.7
PhD	37	21.8
Membership of campus press organisations		
Not a member	165	93.5
Member	5	2.9

Respondents’ perception of career prospects in rural development broadcasting

Results in Tables 2 and 3 show that agricultural extension students had favourable disposition towards taking up rural development broadcasting as careers. Specifically, Table 2 shows that they responded positively to most of the issues raised in respect of their perception of the career prospects of rural development broadcasting. For instance, most of the respondents (87.7%), perceived that agricultural extension graduates can become producers of agricultural broadcasts, another 87.1% felt that the services of rural development broadcasters are needed in the broadcasting industry, while a dominant proportion (78.2%) believed that agricultural extension graduates can work as editors in the media houses. Furthermore, most respondents (75.9%), also opined that graduates of agricultural extension and rural development can work as freelance

broadcasters and the majority (72.9%) also perceived that graduates of agricultural extension can become agricultural broadcasters. This overwhelming favourable disposition could be as a result of the students’ exposure to theoretical and practical courses on communication, which might have predisposed them to the career prospects.

Overall, Table 3 shows that a larger proportion of the respondents (55.0%) were favourably disposed to career prospects in rural development broadcasting. This is an indication that many of the students were ready to pursue careers in rural development broadcasting if the environment is conducive enough. However, the fact that a considerable proportion (45%) had unfavourable disposition to taking up rural development broadcasting as a career suggests that more needs to be done in enhancing students’ interests as regards to career prospects in rural development broadcasting in the study area.

**Table 2: Distribution of respondents based on their perception of the career prospects of rural development broadcasting**

Perception statements	SA	A	U	D	SD
Having background in agricultural science makes one capable of becoming a rural development broadcaster.	32.9	32.4	8.2	18.8	7.6
Different disciplines in agricultural science always need rural development broadcasters to showcase their findings.	37.6	45.9	9.4	5.9	1.2
Agricultural science graduates don't have ability to work as editors in the media industry.	4.7	14.1	21.2	44.7	15.3
Rural Development Broadcasters' work is needed in a media.	40.0	47.1	11.2	1.8	0.0
I can go extra mile to take rural development broadcasting as career.	18.8	31.8	32.9	14.1	2.4
Rural development broadcasting is not needed in the transfer of information from research to farmers.	2.9	6.5	4.1	42.4	44.1
It is not necessary for a rural development broadcaster to have a background in agricultural science.	5.3	21.2	10.0	40.0	23.5
Agricultural science graduates can work as editors in the media industry.	24.7	53.5	14.7	6.5	0.6
Agricultural science graduates can become producers of agricultural programmes.	46.5	41.2	7.6	3.5	1.2
Rural development broadcasters are not needed by different discipline of agriculture science to showcase their findings.	3.0	20.0	8.2	34.7	34.1
The services of rural development broadcasters are not relevant in the media industry.	4.1	4.7	10.0	45.9	35.3
Agricultural science graduates cannot work as producers of agricultural programmes.	3.5	8.2	4.7	31.8	51.8
Rural development broadcasting remains relevant in the transfer of information from research to farmers.	53.5	43.5	0.6	1.8	0.6
Rural development broadcasters' efforts promote general rural development.	0.6	44.7	47.1	7.1	0.6
Agricultural science graduates can work as rural development broadcasts scriptwriters.	40.6	42.9	14.1	1.8	0.6
Rural development broadcasting is a means of providing service to the rural community.	44.1	48.2	6.5	1.2	0.0
Rural development broadcasters' efforts promotes sustainable production.	35.9	55.9	5.3	2.4	0.6
I can't take extra courses to possess the skills to become a rural development broadcaster.	10.6	8.2	24.7	37.1	19.4
Rural development broadcasters' efforts don't have any significant effect on rural development.	5.9	7.1	7.6	38.2	41.2
A graduate of agricultural extension and rural development can become agricultural broadcaster.	12.9	60.0	18.2	7.1	1.8
I like rural development broadcasting as a career.	24.7	41.2	25.9	8.2	0.0
Graduates of agriculture can work as freelance broadcasters.	18.8	57.1	18.8	4.7	0.6
Graduates of agriculture cannot work as advertisers.	9.4	14.7	14.7	42.4	18.8
Agriculture science graduates don't have the ability to work as rural development broadcasts scriptwriters.	5.9	10.6	14.1	42.4	27.1
I don't like rural development broadcasting as a career.	3.5	9.4	30.0	35.9	21.2
Graduates of Agriculture can work as advertisers.	20.0	56.5	14.1	8.2	1.2
Graduates of agriculture don't have the ability to work as freelance broadcasters.	2.9	11.2	19.4	50.0	16.5
Rural development broadcasting helps to reduce poverty in rural areas.	22.4	58.8	7.6	8.2	2.9
Rural development broadcasters can only work as a full time staff.	7.6	12.4	23.5	45.9	10.6
A graduate of agricultural extension and rural development cannot become agricultural broadcaster.	4.1	9.4	6.5	42.4	37.6

Table 3: Categorisation of the respondents' perception of the career prospect in rural development broadcasting

Category	Freq.	%	Mean	Standard deviation
Unfavourable 99 – 130.5	77	45.0	130.6	12.3
Favourable 130.6 – 150	93	55.0		

Constraints to students' career interest in rural development broadcasting

The most prominent constraint to students' interest in rural development broadcasting as a career according to Table 4 was that of poor funding of agriculture by government ($\bar{x} = 1.64$). As a result of this, agriculture is not featured prominently in the media and is rarely portrayed glamorously when featured. This finding is in line with Umeh and Odum (2011) that poor funding of agriculture by the government has led to a decline in the number of youth in agriculture. Another major constraint was lack of continuity in agricultural or rural development broadcasts due to inadequate sponsorship ($\bar{x} = 1.58$). This is not surprising as most sponsors are profit oriented and as such may not be willing to invest in rural development broadcasts compared to sports and entertainment which are considered to have more

potential audience, hence, greater sources of profit. This finding is in accordance with Badiru and Adekoya (2014) that rural development broadcasts are mostly sponsored by the public sector which renders their sponsorship unsustainable. Uncertainty of available jobs in the media ($\bar{x} = 1.56$) and poor awareness of the career prospects in rural development broadcasting ($\bar{x} = 1.54$) were other major constraints to taking up career in rural development broadcasting among graduates of agricultural extension and rural development. These are indicators that most people are still left in the dark regarding the career prospects and opportunities inherent in rural development broadcasting. This finding is consistent with Arnold and Place (2010) that extension continues to be the "best kept secret" and lacks recognition among students.

Table 4: Distribution of respondents by constraints to interest in taking rural development broadcasting as a career

Constraints	Not a constraint	Minor constraint	Major constraint	Mean
Poor awareness of the career prospects in rural in rural broadcasting	6.5	32.9	60.6	1.54
Perceived poor educational background in broadcasting	8.8	50.0	41.2	1.32
Unattractive salary of rural development broadcasters	5.9	37.1	57.1	1.51
Uncertainty of job availability in rural development broadcasting	7.1	30.6	62.4	1.56
Lack of continuity due to inadequate sponsors	5.9	30.0	64.1	1.58
Poor recognition of rural development by government	7.6	33.5	58.8	1.51
Poor funding of agriculture by government	6.5	22.9	70.6	1.64

Relationship between selected personal characteristics and respondents' perception of career prospects in rural development broadcasting

Table 5 shows that there was a significant relationship between age and students' perception of career prospects in rural development broadcasting ($r = -0.342$, $p \leq 0.05$). This is an indication that age has influence on individuals' disposition toward taking up career in rural development broadcasting. It suggests that younger graduates are more inclined to taking up career in

rural development broadcasting than the older ones. Similarly, the Table reveals a significant relationship between membership in campus press organisations and students' perception of career prospects in rural development broadcasting ($\chi^2 = 0.650$, $p \leq 0.05$). This is expected to influence students' disposition towards taking up career in rural development broadcast as exposure to campus press activities could broaden their horizon and facilitate the acquisition of requisite skills in broadcasting among the students.

Table 5: Pearson Product Moment Correlation analysis showing the relationship between respondents' selected personal characteristics and perception of career prospects in rural development broadcasting

Variable	r-value	P-value	Decision	
Age	-0.342	0.024	Significant	
Characteristics	Chi-square value	df	p-value	Decision
Membership of campus press organisation	0.650	1	0.040	Significant



Relationship between constraints to students' interest and perception of career prospects in rural development broadcasting

Table 6 reveals that there was a significant relationship ($r=-0.238$, $p\leq 0.05$) between constraints to students' interest in taking rural development broadcasting as a career and perception of career prospects in rural development broadcasting. It thus

means the higher the constraints, the less perceived prospects of a career in rural development broadcasting among young graduates. This further suggests that the challenges militating against students' interest in rural broadcasting could discourage them from taking up career in rural development broadcast.

Table 6: Relationship between constraint to students' interest and perception of career prospects in rural development broadcasting

Variables	r-value	p-value	Decision
Constraints vs. perception	-0.238	0.002	Significant

CONCLUSION AND RECOMMENDATIONS

Agricultural extension students of the University of Ibadan were favourably disposed to career opportunities in rural development broadcasting. However, poor funding of agriculture by government, lack of continuity in agricultural or rural development broadcast due to inadequate sponsorship, uncertainty of available jobs in the media and poor awareness of the career prospects in rural development broadcasting were major challenges militating against the actualisation of this potential. Meanwhile, students' age and membership of campus press organisations as well as the highlighted constraints to rural development broadcasting all influenced students' dispositions towards taking up career opportunities in rural development broadcasting. Hence, it is recommended that genuine definition of the career pathways in rural development broadcasting is essential in eliminating uncertainties in rural development broadcasting and lack of readiness to make decision on the part of the students. In addition, government should increase its funding of agriculture in general, while appropriate mechanisms should be put in place by all stakeholders to enhance the sponsorship of rural development broadcasts by both governmental and non-governmental agencies.

REFERENCES

- Akpabio, I (2005). "Women and Agricultural Development "in Nwachuku, I. and Onuekwusi, G. C. (eds) *Agricultural Extension and Rural Sociology*. Snap press Ltd. Pp 1 – 2.
- Arnold, S. and Place, N. (2010). What influences agents to pursue a career in extension? *Journal of Extension*. 48. 1: 1. Retrieved June 15, 2011 from <http://www.joe.org>
- Badiru, I. O. and Adekoya, A. E. (2014). Private Sponsorship of Rural Development Broadcasts on Radio in Southwest Nigeria *Journal of Agricultural Extension* Vol.18 (1), Pp 109-120.
- Blait, S., Calvelo R. M., and Masias, L. (1996). *Communication for development for Latin America: A regional experience*. FAO, Rome Italy. Pp 1 – 10.
- Chapman, R., Blench, R., Kranjac-Berisavljevic, G. and Zakariah, A. B. T. (2003). "Rural Radio in Agricultural Extension: The Example of Vernacular Radio Programmes on Soil and Water Conservation in Northern Ghana"; *Agricultural Research & Extension Network*; Network Paper No. 127 January 2003 ISBN 0 85003 640 2.
- Iyer, R. (2011). Community radio contributes toward development of Rajasthan rural women <http://www.topnews.in/law/community-radio-contributes-towards-development-rajasthan-rural-women-253727>. Accessed 8/11/2013.
- Kumar, K. (2003). *Mixed Signals-Radio Broadcasting Policy in India*. Economic and Political Weekly, Vol xxxviii, no 22, pp 2173-2181
- Msoffe, E. K. (2009). Accessibility and use of family planning information (FPI) by rural people in Kilombero district, Tanzania. Vol 19, No 2
- Nwanne, B. U. (2013). Perspectives on community media and rural development in Nigeria. *Global Journal of Arts, Humanities and Social Sciences* Vol.1, No.4, pp.53-60
- Oladeji, O. J. and Badiru I. O. (2007). Employment prospects of agricultural extension and rural development graduates in the broadcasting industry of southwestern, Nigeria. *Research journal of applied sciences*.2 (3) 319 – 322 @ Medwell Journals
- Oladeji, J. O. and Thomas, K. A. (2010). Assessment of agricultural practical year training programmes of Nigerian universities in the south western states. *The Nigerian Journal of Rural Extension and Development*. Vol 3, pp.28-34



- Onabajo, O. (2000). *Foundation of Broadcast Journalism*. Lagos: Gabi Concept Ltd.
- Umeh, G.N. and Odom C.N., (2011). Role and constraints of youth associations in agricultural and rural development: Evidence from Aguata L.G.A of Anambra State, Nigeria. *World Journal of Agricultural Science* 7 (5): pp 515-519
- Van, C. L. and Fortier, F. (2000). National Agricultural and Rural Knowledge and Information System NARKIS): a proposed component of the Uganda National Agricultural Advisory Service (NAADS) FAO. Pp 22
- World Bank (2017). Agriculture and Food: overview. World Bank Group. Retrieved from www.worldbank.org/en/topic/agriculture/overview



COMPARATIVE ANALYSIS OF RURAL HOUSEHOLDS' WELLBEING IN SELECTED STATES OF THE NIGER DELTA ZONE OF NIGERIA

Etuk, E. E. and Odebode, S. O.

Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan

Correspondent contact details: ekalizzy@yahoo.com

ABSTRACT

The wellbeing of a household is determined by the level of utility accessed by individual members of that household. This study examined the level of household wellbeing in rural communities of selected Niger Delta states. Multistage sampling procedure was used to select respondents for the study. A total of 454 respondents were selected from the four sampled local government areas of Akwa Ibom (Ibena and Ibesikpo Asutan) and Abia state (Ukwa west and Ikwuano) oil and non oil communities. Quantitative data was collected using interview schedule, while qualitative data was collected through focus group discussions and in-depth interviews. Data were analyzed using descriptive and inferential statistics. About 37.4 (OPC) and 26.8% (NOPC) households always had access to material living conditions, while access to quality of life were 46.6 (OPC) and 38.9% (NOPC). Most severe constraint faced by households in OPC was poor access to poverty alleviation programmes (422), and unavailability of credit in NOPC (483). The result also indicated that majority of the households in both communities had low levels of wellbeing and consequently fell below the community poverty line. The study recommends that efforts to improve household wellbeing in the study area should focus on improving agricultural activities as it was discovered that these activities were still the dominant livelihood activities in the communities. These farm activities form the base for household food supply, capital for other livelihood activities and overall wellbeing.

Keywords: Household well-being, Oil producing communities, Poverty

INTRODUCTION

The wellbeing of a household is determined by the level of utility reached by individual members of that household. This level of utility is a function of goods and services that they consume and their perception of what is considered useful to them. Ravallion (2000) noted that households generally favour adequate food, improved access to education, health care, housing and clean water amongst others. Wellbeing is generally viewed as a description of the state of people's life situation (McGillivray 2007). It is said to be a judgment about satisfaction with one's overall life or with certain domains, or the extent to which life has meaning or purpose or having what you need for life to be good. The basic assumption of any approach to well-being analysis is that there are important dimensions of well-being that economic resources are not able to capture.

In essence, it can be said that the wellbeing of people is dependent on exploration of environmental resources and these exploration activities continue to disclose multifaceted implications in spite of improvement in technology adopted in carrying them out. The discovery and exploration of crude oil and natural gas deposits in Nigeria in the past fifty (50) years has immeasurably increased the wealth of the nation but not without its overwhelming environmental impacts. The industry has brought economic benefits to the multinational corporations and the Nigerian government, but has brought on the indigenous people of the Niger Delta environmental problems, ecological degradation, health hazards and poverty (Hassan, Olawoye and Nnadozie, 2002).

The exploration of oil in the Niger delta region can be said to be ambivalent in nature. On one hand it had beneficial effects, creating job opportunities, educational and infrastructure development in some areas and on the other hand brought devastation and loss of agricultural biodiversity and livelihood corroborating the report of the World Bank in 2005 that although the Niger Delta region had the agricultural potential to feed the whole of West Africa, unfortunately the extraction and production of oil has endangered the local communities. This loss of livelihood of course has major implications for the level of wellbeing of the household and in fact that of the community at large.

Decades of oil exploration activities in the Niger Delta region is also reported to have caused deterioration of economic, social and political structures in the region. Social tension, conflict and kidnapping have become a flourishing business with severe implication for fishing and farming which are a daily part of the lives of the Niger Delta people as well as for future development prospects in the region (United States Energy Information Administration, 2010; Agyei, Gordon and Addei, 2012).

It is against this backdrop that this study examined the following objectives:

1. Identify the socioeconomic characteristics of households in oil and non-oil producing rural communities of the Niger Delta
2. Determine the level of wellbeing of households in oil and non-oil producing rural communities of the area.

Hypotheses of the study, stated in null form, are as follows;



1. There is no significant relationship between selected socioeconomic characteristics of households in rural communities of the Niger Delta and their level of wellbeing
2. There is no significant difference in the level of wellbeing of households in oil and non-oil producing rural communities of the Niger Delta.

METHODOLOGY

A multistage sampling procedure was used to select respondents for the study. Abia and Akwa Ibom States were purposively selected being the least and highest oil producing states respectively. The states were stratified into oil and non-oil producing local government areas (LGAs) and 30% of LGAs in each stratum was randomly selected to give Ibeno and Ibesikpo Asutan in Akwa Ibom as well as Ukwa West and Ikwuano in Abia States respectively. Using proportionate sampling technique, 20% of oil producing communities and 10% of non oil producing communities were randomly sampled from selected LGAs. Heads of households were systematically chosen to give 454 respondents (219 and 235 households from oil and non oil communities respectively). Structured interview schedule was used to collect data on respondents' socioeconomic characteristics and wellbeing. Data were analysed using descriptive statistics, Pearson product moment correlation and t-test.

RESULTS AND DISCUSSIONS

Respondents' socioeconomic characteristics

The respondents' socioeconomic characteristics considered in the study were: age, household size, marital status, sex, estimated monthly income and educational qualification.

Age - Table 1 shows the mean age of respondents to be 42 years across respondent categories. The results also showed the mean age of respondents in oil producing communities to be 44 years and that of respondents in non oil producing communities was 40 years. This suggests that there is a predominance of mature and productive household heads in the study area. Since majority of the household heads fall within the middle age, it is an indication that they are within the active working age of the communities. This result implies the level of maturity and readiness of household heads to bear risks and cater for their households' wellbeing. The result is consistent with the findings by Udofia (2005) and Rathmen *et al* (2002) who observed that the farmers are in the active ages of between 30 and 50 years.

Sex - Overall, the respondents for the study consisted of 54.8% male and 45.3% female in oil producing communities as well as 60.0% male and 40.0% female in non oil producing

communities as shown in the Table 1. The implication of this is that both sexes contribute to household wellbeing as head of households. Traditionally in the Niger Delta region, women are viewed as the subordinate sex, however prevailing conditions of death, separation, migration of males and economic hardship has made quite a number of households to be headed by women. Research has shown an increase in female headed households both in developed and developing countries (Bumpass and Riley, 1995) in Buvinic (1991). It might also be due to momentous change in household structures as control over resources has shifted gradually away from men to women (Silberschmidt, 1999; 2001). This position is supported by Bigombe and Gilbert (2012) who documented that with rampant unemployment and dwindling resources, men's central roles as breadwinners has been redefined making it impossible for most men to fulfil these roles.

Therefore data should be disaggregated by sex and gender issues mainstreamed into policies and programmes. Specific programmes could thus be targeted at women and other vulnerable groups in order to avoid their continual marginalization or their opinions not being heard due to the patriarchal system of our society.

Marital status of respondents - Result in Table 1 shows that majority of the respondents in oil producing communities (79.0%) and (82.6%) in non oil producing communities were married. The incidences of divorce (2.7%) and (2.6%) and widowhood (7.3%) and (4.7%) were very low in oil and non oil producing communities. This indicates a high level of homogeneity in the distribution of marital status of household across the communities due to similarities in cultural practices.

The fact that majority of the household heads in both oil and non oil producing communities were married is an indication that they are responsible and mature adults who are ready to contribute to their household wellbeing.

This result shows that among the respondents across all communities, the institution of marriage is held in high esteem and leads to a high level of emotional and psychological wellbeing. This is supported Fakoyode *et al* (2011) which states that over 80% of rural households are married.

Educational qualification - The result showed no clear difference in the qualification of respondents as majority (89.0%) of the respondents had one form or another of education in both oil and non-oil producing communities of the study area. This result to some extent is similar to the findings of Oyesola *et al* 2012) and Oladeji (2010) asserting that majority of rural workforce had secondary education

The results thus revealed that a larger percentage of the respondents have one form of



education or the other and this can expose them to information that will improve their household wellbeing and development. This finding corroborates Babatude *et al.*, (2008) who reported that the education of a household head had a positive influence on the wellbeing of most rural households in Nigeria.

Household size - The results showed no difference in the mean household size (6) of respondents in both oil and non-oil producing communities as majority (52.58%) While a large household size implies a sufficient supply of household labour for livelihood activities as supported by the findings of Ironkwe, Ekwe, Okoye and Chukwu (2009) who reported that most rural families in Nigeria have large household sizes between 6 to 10 persons, a large household size could mean over dependency on household

resources resulting in a negative effect on the wellbeing of the household.

Estimated monthly income - Result in Table 1 indicated that the estimated monthly income of households for 41.3% of respondents in oil producing communities was between N 21, 000 to N 40, 000, while 40.6% of their counterparts in non-oil producing communities also earned the same amount monthly. The low-income level suggests that a greater percentage of households in the study area find it difficult to meet their daily household obligations. As such savings and investments become impossible leading to a cumulative effect of un-sustainability of households and low level of wellbeing. This result is consistent with (Etim, 2010) who reported that rural household's income was notoriously subject to seasonal variability especially in Nigeria.

Table 1: Respondents socioeconomic characteristics

Variables	Oil producing		Non-oil producing	
	Frequency	Percent	Frequency	Percent
Age				
<30	25	10.3	32	14.1
31-40	97	42.2	77	34.8
41-50	61	26.5	65	29.2
51-60	39	16.1	39	19.1
>60	13	5.6	6	3.0
Sex				
Male	120	54.8	141	60.0
Female	99	45.3	94	40.0
Marital status				
Married	173	79.0	194	82.6
Others	46	21.0	41	17.4
Education				
No formal	24	11.0	25	10.6
Primary	71	32.4	80	34.1
Secondary	73	33.3	67	28.5
Tertiary	30	13.7	54	23.0
Vocational	21	9.6	9	3.8
Household size				
1-4	75	31.8	62	27.5
5-8	113	48.1	123	57.1
9-12	33	14.3	30	13.3
13-17	8	3.2	2	1.1
>17	6	2.8	2	1.1
Estimated income (,000)				
<20	69	29.4	61	27.9
21-40	97	44.3	89	40.6
41-60	42	17.9	53	24.2
>60	27	11.5	16	7.3

Wellbeing

Material living conditions

Income and wealth: Table 2 indicated 62.8% and 59.6% sometimes experienced tough times and inability to save in oil and non-oil producing communities respectively. This result implies that although income and wealth is

important for household wellbeing, majority of households (19.4% and 28.4%) in the study area had difficulties meeting their basic needs of food, clothing and shelter.

Jobs and earnings: In terms of jobs and earnings the result was 37.8% and 30.2% for households in oil and non-oil producing



communities respectively. The fact that majority of households in the study area always experienced issues that suggested they could not afford what they want as at when they want it, is an indication that many household members of working age in both oil and non-oil producing communities are jobless with serious negative implications on their wellbeing.

Housing: For housing, majority (55.1%) of households indicated ‘Always Experienced to questions around the quality and type of housing materials used for construction in oil producing

communities. The percentage of households that indicated same was 51.8% in non-oil producing communities. This implies that housing and its facilities are more conducive in non-oil producing communities than in oil producing communities. Such dense living conditions are often a sign of inadequate water and sewage supply as was observed during the study during transect walks through the communities. This is in tandem with OECD (2013) who posited that overcrowded housing may have a negative impact on physical and mental wellbeing.

Table 2: Distribution of households’ material wellbeing based on oil and non-oil producing communities

Material living conditions	Oil	Non-oil
Income and wealth		
Always	19.4	28.4
Sometime	59.6	62.8
Never	13.1	8.2
Jobs and earnings		
Always	37.8	30.2
Sometimes	44.4	52.9
Never	17.9	17.0
Housing		
Always	55.1	51.8
Sometimes	35.1	35.0
Never	9.8	12.1

Quality of life

Quality of life represents the subjective aspect of the wellbeing of the respondents. It gives a picture of how the respondents feel about their lives. It is a self-reported or personal judgment about one’s life circumstances. Quality of life wellbeing domain takes into consideration several dimensions such as; health, work/life balance, education/skills and social connections. Others are civic engagement, environmental quality, personal security and life satisfaction.

Health status: the series of questions under this domain provides detailed information about self-reported healthcare and nutrition statistics of household members within the survey sample. The result shows little difference in the percentage (39.3%) and (31.7%) of respondents in oil and non-oil producing communities under the health dimension of wellbeing indicators. The implication of this finding is that irrespective of location, good health is one of the most important things to people with benefits such as increased productivity, wealth, reduced health care costs, good social relations and of course a longer life and wellbeing.

Work/life balance: The results of the survey as shown in Table 3 revealed that the percentage of respondents who indicated ‘Always Experienced’ under the work/life balance dimension was (45.6% v 40.2%) for oil and non-oil producing communities respectively. This overall result implies that a suitable balance between work

and daily living is a challenge that all household members face. There is always the balancing act and daily juggling of activities. Evidence suggests that long work hours impair personal health, increase stress and reduce overall wellbeing (Burke and Cooper 2008). This corroborates Marmot and Brunner (2005) and Auer and Elton (2010) that the amount and quality of leisure time is important for people’s overall wellbeing.

Education and skills: The results showed that the percentage of respondents who indicated ‘Always Experienced’ to the questions under education and skills was 51.1% in oil producing communities and 45.4% in non-oil producing communities. The implication of this result is that households in both communities place a high value on education and skills which they access even under unfavourable conditions for their wellbeing.

Social connections: Humans are social creatures, the frequency of our contact with other people and the quality of our personal relationships are therefore essential determinants of our wellbeing. Results from Table 3 under this dimension showed (42.3%) and (33.6%) for oil and non-oil producing communities. Perhaps this difference could be because households in oil producing communities form social groups which they use as pressure groups in their dealings with oil multinationals in the area.

The Discussions during the FGDs buttressed the findings that respondents in oil producing communities had more social groups



because they use these groups for collective bargaining with the multinationals and other government agencies.

"You cannot go as an individual to Shell. They will not even allow you in to their office not to talk of listening to you. But when we go as a group, they will attend to us because if they don't then we will take another action"
(Youth FGD Owaza community)

Civic Engagement: Table 3 showed that the percentage of 'Always Experienced' responses for households in oil and non-oil communities were; 51.7% and 38.7% respectively. The implication of this result is that civic engagement matters, as having a political voice in the society where people live allows them to have a say in political decisions that affect their lives and wellbeing. Similarly, good governance is needed to translate people's voice into policies that support their aspirations for a good life.

'Unfair and poor handling of royalties is an issue that has continued to breed communal clashes in our communities. A case in point is the recent communal clash at Umuokwor - Asa Community in 2011 that claimed lives and property worth millions of naira. So, we come together to form social groups through which we can make our grievances known' (In-depth interview with key informant in Ukwa west)

Environmental quality: The quality of the environment where people live and work is important but it also matters for people's health and wellbeing. The result of the study as shown in Table 3 revealed that 58.0% and 32.3% of households in oil and non-oil producing communities indicated 'Always experienced to the questions in this dimension. The result indicates a better quality of environment in the non-oil producing communities. This result agrees with the findings of Etuk (2012) that the quality of the natural environment in oil producing communities has been degraded and this degradation has an inverse relationship with the wellbeing of the people.

Personal security: In Table 3, it was shown that majority (53.6%) of respondents in oil producing communities ticked 'Always Experienced' to the items under personal security when compared to 40.6% of households in non-oil

producing communities. This difference could be attributed to the civic unrest and other conflicts prevalent in oil producing communities with consequent implication that households live in fear which affects their overall wellbeing. This result was corroborated during the FGDs when participants noted that;

"The presence of multinationals has brought about several vices to the oil producing communities. Kidnappings, robbery, prostitutions and destruction of properties are daily being perpetuated in our communities" what can we do but to pray to God to keep us safe".
(FGD women, Ibeno community)

The implication is that personal security is a core element of the wellbeing of individuals and households and one of the biggest impacts of insecurity on people's wellbeing appears to be through the feeling of vulnerability that it causes. The finding of Robert (2012) that personal security is important to wellbeing agrees with this result.

Overall life satisfaction: It is also important to consider how people feel about their lives and experiences. Table 3 showed the percentage response for life satisfaction as a measure of wellbeing was 55.0% and 44.8% in oil and non-oil producing communities respectively. This result implies that although respondents were satisfied in very few aspects of their lives, their responses to items on happiness and a brighter future shows their resilience and belief in the power of positive feelings despite their prevailing economic conditions.

Categorisation of households indicate that in oil producing communities, 51.6% of households had a low level of wellbeing, while 54.0% of households had a low level of wellbeing in non-oil producing communities. The result indicates a general low level of wellbeing across the study area which perhaps reflects the state of rural communities in Nigeria at large. In as much as measuring feelings can be subjective, it is nevertheless a useful complement to more objective data when comparing quality of life across communities. Subjective data provides a personal evaluation of individuals' health, education, income and personal fulfilment. It captures a reflective assessment of which life circumstances and conditions are important for wellbeing.

Table 5.13b: Distribution of households' quality of life wellbeing based on oil and non-oil producing communities

Quality of life	Oil %	Non-oil %
Health		
Always	39.3	35.7
Sometimes	39.7	39.2
Never	21.0	21.2
Work/life balance		
Always	45.6	40.2
Sometimes	36.8	41.2
Never	16.6	18.7
Education/skills		
Always	51.1	45.4
Sometimes	36.1	44.0
Never	9.1	11.0
Social connections		
Always	42.3	33.6
Sometimes	41.8	50.0
Never	16.7	13.5
Civic engagement		
Always	51.7	38.7
Sometimes	31.0	46.1
Never	14.3	15.2
Environmental quality		
Always	58.0	32.3
Sometimes	32.2	43.6
Never	10.0	24.2
Life satisfaction		
Always	55.0	44.8
Sometimes	33.0	43.4
Never	12.1	11.9
High	48.4	46.0
low	51.6	54.0
Total	100.0	100.0

Hypotheses testing

Hypothesis 1: This was a test of relationship between selected socioeconomic characteristics (age, sex, marital status, household size, educational attainment and estimated monthly income) of households in oil and non-oil producing rural communities and their wellbeing.

Relationship between socioeconomic characteristics of households and wellbeing

Results from the test of relationships between socioeconomic characteristics of the respondents and wellbeing are presented in Table 4a. From the results, age of the respondents had no

role to play in the wellbeing of the entire household as it was not significantly related ($r=0.039$, $p>0.05$). The finding implies that wellbeing is not necessarily a function of how old a person is as any household member can contribute to the overall wellbeing of the household. The result also shows that the household size ($r=-0.144$, $p<0.05$) and estimated monthly income ($r=0.104$, $p<0.05$) were significantly related to household wellbeing. This implies that for households, the smaller the household size, the better their wellbeing as there would be less people to cater for by the household head.

Table 4a: Relationship between socioeconomic characteristics and household wellbeing

Variables	Oil producing			Non-oil producing			Overall		
	r	p	D	r	p	d	r	p	D
Age	0.105	0.121	NS	-0.021	0.750	NS	0.039	0.411	NS
Household size	0.051	0.450	NS	-0.152	0.020	S	-0.144	0.015	S
Estimated income	0.258	0.000	S	0.031	0.045	S	0.104	0.032	S

r=correlation coefficient, p=significance level, D=decision

Table 4b shows the relationships between marital status, educational level and the wellbeing of the respondents. The table indicates a significant

relationship exists between the marital status ($\chi^2=13.12$) and their wellbeing. This result shows that among the respondents the institution of marriage



is held in high esteem and leads to a high level of emotional and psychological wellbeing. On educational level, there was a significant relationship with wellbeing ($\chi^2 = 15.25$, $P < 0.05$) implying that education and skills are necessary for improved wellbeing. The results also showed that

sex ($\chi^2 = 1.44$, $p > 0.05$) is not significantly related to wellbeing. The implication of this is that household members irrespective of sex are responsible and contribute to the sustenance and wellbeing of their households.

Table 4b: Relationship between socioeconomic characteristics and household wellbeing

Variable	Oil producing				Non oil producing				Overall			
	χ^2	df	p	D	χ^2	df	p	D	χ^2	df	p	D
Marital status	12.35	3	0.006	S	15.33	4	0.002	S	13.12	4	0.004	S
Sex	2.65	1	0.103	NS	0.01	1	0.928	NS	1.44	1	0.230	NS
Educational level	16.68	3	0.008	NS	17.36	5	0.00	S	15.25	5	0.01	S

χ^2 = chi-square value, p = significance level, df = degree of freedom, D = decision

Hypothesis 2: This was about test of difference in the level of wellbeing of households in oil and non-oil producing rural communities of the study areas.

Test of differences in the level of wellbeing of households in oil and non-oil producing communities

The data was analysed for any difference in well-being between oil and non-oil producing communities of the study area using t-test. The result, as shown in Table 5, shows that there is no significant difference in the level of well-being for households in oil and non-oil producing communities ($t = 0.011$, $p = 0.991$).

Table 5: t-test showing differences in their well-being in the study area

Group	N	Mean	SD	t-value	df	p-value	Decision
Oil producing	219	84.87	10.65	0.011	452	0.991	NS
Non-oil Producing	235	84.86	13.04				

CONCLUSION AND RECOMMENDATION

The study concluded that most of the respondents were in their economically active and productive years and earned a monthly income that was barely sufficient for their relatively large household size hence a high dependency ratio. The study also revealed that respondents with higher level of educational attainment had a high level of wellbeing. Efforts should therefore be made for schools to be properly equipped and skill acquisition centres built in the communities for improved wellbeing.

The study revealed that there was no significant difference in level of wellbeing in oil and non-oil producing communities as majority of the households in both communities had a low level of wellbeing. There is therefore an urgent need to ensure proper monitoring of wellbeing in the study area. Material living conditions and quality of life are important dimensions of wellbeing that would help in identifying areas strengths and weaknesses of rural households. This may help in the design of intervention programmes for the benefit of both households and the environment.

REFERENCES

Agyei, G., Gordon, J. and Addei, I. (2012). Offshore Oil Industry Activities and Fishing in Ghana: Community

Perceptions and Sustainable Solutions. *Current Research Journal of Social Science*. Vol 4(3). Pp 186.

Auer, J. and Elton. (2010). *Work, Life and Health Study*. Center for work + life. Hawke Research Institute. University of South Australia. Retrieved July 1st, 2013 from <http://www.unisa.edu.au/hawkeinstitute/cwi/default.asp>

Babatunde, R. O. E., Olorunsanya and A. Adejola (2008). *American- Extension Journal of Agriculture and Environmental Science*. 3(6) Pp 900-905.

Bigombe, B. and Whadiagala, G. (2012). "Major Trends Affecting Families in Sub-saharan Africa. <http://www.un.org/esa/socdev/family/publications/mtbigombe-pdf> 17-02-2012 12:05 GMT

Bumpass, L and Kelly R. (1995). Redefining single-parent families: cohabitation and changing family. *Demography*. vol. 32(1). Retrieved on May 1st 2014 from www.ssv.wisc.edu/cde

Burke, R. and Cooper, C. (2008). *The long working hours culture: causes, consequences and choices*. Bingley. Emerald

Buvinic, M. (1991). The vulnerability of households headed by women: policy, questions and options for Latin America and the Caribbean. Economic commission



- for Latin America and the Caribbean. United Nations. Retrieved on 23rd April, 2013 from www.ssc.wisc.edu/cde.
- Etim, I. (2010). The Tragedy of the Commons: Alleviating the Tragedy by managing the Commons in Nigerian Waters. Presented at the 27th Inaugural Lecture of the University of Uyo held on Thursday 27th May, 2010 at the University of Uyo, Town Campus
- Etuk, E. E. (2012). Livelihood Diversification Of The Rural Dwellers In The Oil Producing Areas Of Ibeno And Eastern Obolo Local Government Areas Of Akwa Ibom State. Unpublished Msc Thesis. Department of Agricultural Extension and Rural development. Faculty of Agriculture and Forestry. University of Ibadan. Nigeria.
- Fakayode, S., Ogunlade, I., Ayinde, O. And Olabode, P. 2010. Factors Affecting Farmers Ability to pay for Irrigation Facilities in Nigeria: The case study of Oshin Irrigation Scheme in Kwara State. *Journal of Sustainable Development in Africa*. Vol 12(1)
- Hassan, C., Nnadozie, K. and Olawoye, J. (2002). Impact of International Trade and Multinational Corporations on the Environment and Sustainable Livelihoods of Rural Women in Akwa-Ibom State, Niger Delta Region, Nigeria.
- Ironkwe, A., Ekwe, K., Okoye, B. and Chukwu, I. (2009). Socioeconomic Determinants of Cassava Producers among Women in Ebonyi State. *Journal of Rural Sociology*. Vol 9 (1). August. Pp 65
- Marmot, M. and Brunner, E. (2005). Cohort Profile. The Whitehall 11 Study. *International Journal of Epidemiology*. Vol 34. Pp 251-256
- McGillivray, M. and Clarke, M. (2007). Human wellbeing: concept and measures. In mark McGillivray and mallow Clarke eds. *Understanding human wellbeing*. Basingstoke. Palgrave.
- OECD (2013). How is life? Measuring Wellbeing for Development and Policy Making. Retrieved February 25th 2014 from URL <http://www.oecd.org/site/worldforum/OECDWorld>
- Oladeji, J. T. (2010). Fuel Characterisation of Briquettes produced from corncobs and rice husk residues. *Pacific Journal of Science and Technology*. Vol 11(1). Pp 101-103
- Oyesola, O. B. and Ademola, A. O. (2012). Gender analysis of livelihood status among dwellers of Ileogbo Community in Aiyedire Local Government Area of Osun State, Nigeria. *American Journal of Human Ecology*, 1(1and2), 23-27.
- Rathman, S. A. and Alamu, J. F. (2003). Estimating the women interest in agriculture: The application of logit regression model. *Nigerian Journal of Scientific Research*, 4: 45-49.
- Ravallion, M. (2001). Measuring Aggregate Welfare in Development Countries. How well do National Accounts and Surveys Agree? World Bank Working paper. Washington D.C. Pp 2665.
- Robert, M. (2012). Why personal security should be part of the post-2015 development agenda. International Peace Institute. New York. Retrieved December 5th 2015 from <http://www.theglobalobservatory.org/2012/11/>
- Silberschmidt, M. (2001). "Disempowerment of Men in Rural and Urban East-African: Implications for Male Identity and Sexual Behavior", *World Development* 29, (4) 657-71
- Udofia, O. (2005). Effects of Oil Spillages on Small Scale Fisheries farmers in Akwa Ibom State. Department of Fisheries and Aquaculture. University of Uyo. Nigeria
- USEIA (United States Energy Information Administration) (2010). International Energy Outlook. Office of Integrated analysis and Forecasting. US Department of Energy. Washington DC. Retrieved from <http://www.eia.gov/oiarf/ieo/index.html>