



Small-Scale Cassava Farmers Awareness of Climate Change in Kogi State, Nigeria

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Abstract – With the approval of the adoption of the National Policy on Climate Change and Response Strategy (NPCC-RS) as a National Document for implementing climate change activities in the country, providing government with relevant information to aid them in achieving a framework for tackling environmental challenges occasioned by global changes in the climate is the responsibility of all and in achieving this, there is the need to undertake numerous activities in the area of adaptation and awareness creation to ensure the implementation of the UNFCCC policies. The broad objective of this study was to survey the awareness of small-scale cassava farmers on climate change. The study was conducted in Kogi state which is situated in the North Central Nigeria with total respondents of 186 which were randomly selected using the ADP delineation. The average number of years lived by respondents in the community was 29 years with an average farming experience of 14.29 years. The population for the study included all cassava farmers. Data for the study were collected using a structured questionnaire which was validated by pilot testing and by passing the research instrument through a cream of erudite scholars in the college of Agricultural Economics and Extension, University of Agriculture, Makurdi. The study unveiled that majority (51.6* above) of the respondents were aware of climate change. Respondents perceived human activities to be major causes of climate change. The major sources of information on climate change were from radio, friends and family members. It is evident from the study that the people are aware of climate change but also recommend that further study on their knowledge level is necessary.

Keywords – Small-Scale, Awareness, Climate Change, Environment.

I. INTRODUCTION

Recent events such as the unprecedented heat wave in Russia, flooding in Pakistan, oil spill in the Gulf of Mexico and the noticeable seasonal patterns in Nigeria all point a rapidly evolving climatic and environmental trend many of which cannot be divorced from global warming for which the operations or products of the oil and gas industry have been partly held responsible (NNPC, 2014). Climate change is an environmental, social and economic challenge on a global scale (Mendelsohn, Dinar, and Williams, 2006; Ejembi and Alfa, 2012).

Given the fundamental role of agriculture in human welfare, concern has been expressed by federal agencies and others regarding the potential effects of climate change on agricultural productivity. Interest in this issue has motivated a substantial body of research on climate change and agriculture over the past decade (Fischer, Shah, Tubiello, and Van Velhuizen, 2002; Ejembi and Alfa, 2012).

It is evident that climate change will have a strong impact on Nigeria, particularly in the areas of agriculture; land use, energy, biodiversity, health and water resources. Nigeria, like all the countries of Sub-Saharan Africa, is highly vulnerable to the impacts of Climate Change (IPCC 2007; NEST 2004). It was also, noted that Nigeria specifically ought to be concerned by climate change because of the country's high vulnerability due to its long (800km) coastline (with its confluence in Kogi State) that is prone to sea-level rise and the risk of fierce storms (Ejembi and Alfa, 2012)

Cassava production in Nigeria is by far the largest in the world, a third more than the production in Brazil and almost double the production of Indonesia and Thailand. Cassava transformation in Nigeria is the most advanced in Africa (IFAD, 2004). The Food and Agriculture Organization of the United Nations (FAO) estimated 2002 cassava production in Nigeria to be approximately 34 million tonnes (FAO, 2004). According to National Fadama Development Project (2009), Kogi State is the second largest producer of cassava in Nigeria with a production of 2.854 million metric tonnes. Farmers produce cassava for family food and income. IITA (2004b) corroborated this ranking by noting that Benue and Kogi State in the North Central Zone are the largest producers of cassava in Nigeria. IFAD (2004) showed that on a per capita basis, the North Central Zone is the highest producing state at 0.72 tonnes/per person in 2002, followed by the South East Zone (0.56), South-South (0.47), South-West (0.34), North-West (0.10) and North-East (0.01). National per capita production of cassava is 0.32 tonne/per person. IITA (2004) noted that poverty reduction can be attained in Sub-Sahara Africa by improving the technical and economic efficiencies of food production in crops such as cassava.

IFAD (2004) showed that the growing demand for cassava which will spur rural industrial development and contribute to the economic development of producing, processing and trading communities and well-being of numerous disadvantaged people in the world has prompted the development of the Global Cassava Development Strategy. The Strategy suggested that industry analysis in cassava producing countries should be undertaken to indicate current status, strengths, weaknesses and issues for attention and action needed to resolve pressing constraints and take advantage of markets and business opportunities as well as to encompass findings of committed national experts. This study rises up to this demand.

The broad objective of the study was to survey the awareness of small-scale cassava farmers on climate change. Specific objectives of the study were to determine; the socioeconomic characteristics of the respondents in the



study area; their sources of information and awareness of climate change among small-scale cassava farmers in Kogi state.

II. AREA OF STUDY

Kogi state is the study area. It is situated in the North Central Nigeria with an average maximum temperature of 33.2°C and average minimum of 22.8°C. Lokoja, the State capital is generally hot throughout the year. The State has two distinct weather, viz dry season, which lasts from November to February and rain season that lasts from March to October. Annual rainfall ranges from 1016mm to 1524mm. The vegetation of the state consists of mixed leguminous (guinea) woodland to forest savannah. Wide expanse of fadama in the river basin and long stretches of tropical forest in the Western and Southern belt of the state. It has a total land area of 28,313.53 square kilometres and a projected population of 3.3 million people. It lies within latitudes 7°14'N and 7°49'N and longitudes 6°45'E and 6°67' with a geological feature depicting young sedimentary rocks and alluvium along the riverbeds, which promotes agricultural activities. The state features ferrasols soil type and famous hills like Osoyo Hills, which spread from Edo State to the western part of Kogi State and Aporo Hill on the eastern part. Another famous mountain is Mount Patty, which lies in Lokoja and stands at about 750 metres above sea level (www.kogistate.org).

III. POPULATION AND SAMPLE SELECTION

The population for the study included all cassava farmers in Kogi State. Multistage sampling technique was used to select respondents for the study. In stage 1, two out of the four agricultural zones (which are Ayetero, zone A Headquarter, Ayangba, zone B Headquarter, Kotonkarfe zone C Headquarter and Aloma zone D Headquarter using the ADP delineation in Kogi State) were selected using a simple random selection technique. Stage 2 involves a selection of four blocks per zone using simple random technique. This means a total of 8 blocks were selected (i.e 8 blocks from 2 zones). In stage 3, three cells from each of the block were selected using simple random selection technique. This brought the total number of cells selected to 24 cells. Stage 4 involved selection of seven (7) farmers from each of the 24 cells. This means that a total of 168 respondents (Cassava farmers) were used for the study.

Method of Data Collection

Data for the study were collected using a structured questionnaire/ interview schedule. The questionnaire/ interview schedule were divided into three sections. Each section covered each of the objectives.

Validation of Research Instrument

The data for the study were validated by pilot testing and by passing the research instrument through a cream of erudite scholars in the college of Agricultural Economics and Extension, University of Agriculture, Makurdi to ensure that it possesses both face and content validity.

Measurement of Variables

Section A garnered information on socioeconomic characteristics of respondents, section B determined respondents' sources of information on climate change. Respondents indicated their sources of information from list of sources, such as, radio, television, extension agents etc, with the options of 'Yes' or 'No'. The results of respondents were presented in bar chart, while section C of the interview schedule was to determined respondents' awareness of climate change. Respondents were asked questions such as 'Have you heard of climate change before now? Do you think it is real? With the options of 'Yes' or 'No', while

Data Analysis

Objective one which is to determine the socioeconomic characteristics of respondents were realized using percentage and mean, Objective two which were to determine respondents' sources of information on climate change were realized using frequency and bar chart, while objective three which was to determine the awareness of respondents was done using percentage, mean.

IV. RESULTS

The findings of the study are presented under the following headings;

Socioeconomic Characteristics of Respondents

Data in Table 1 show that greater proportion (27.4%) of the respondents were between 40-49 years with an average age of 39.07 years. This indicates that the respondents were predominately in their middle age and hence are in their high productive stage. It also indicates that married persons predominated in agricultural activities in the study area. The mean household size of the respondents was 7 persons which implies that the respondents had fairly large household size which could possibly serve as source of farm or family labour. The mean number of years of 29 years is an indication that the respondents have lived in the study area for sometimes and should have a better understanding of the climate condition of the study area. The mean score of 14.29 years is an indication that a greater number of the respondents have been practicing agriculture and could therefore have noticed significant changes in the climate as it affects their farming activities.

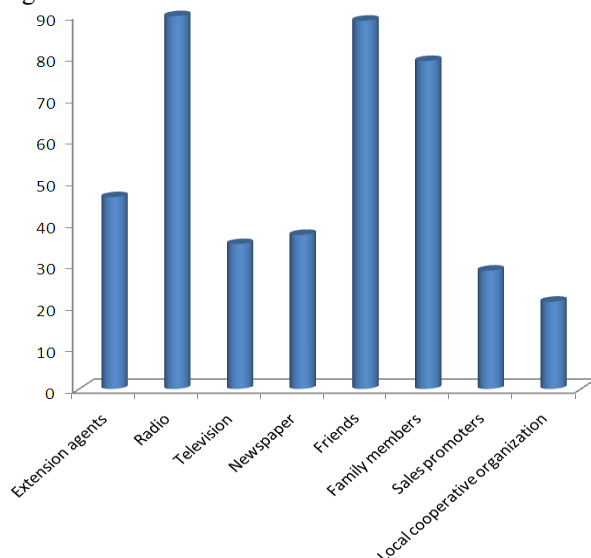
Table 1: Percentage Distribution of Socioeconomic Characteristics of Respondents

Socioeconomic Characteristics	%	Mean
Age (years)		
20-29	21.5	39.1
30-39	26.3	
40-49	27.4	
50-59	22.6	
60 and above	2.2	
Sex		
Male	64.0	
Female	36.0	
Marital Status		
Single	32.3	
Married	61.3	
Divorced	2.7	
Widow	3.8	

Household Size		
1-5	46.8	7
6-10	47.8	persons
11-16	5.5	
Mean no of years lived in the community 29 years		
Years of Farming Experience		
1-9	23.6	
10-19	27.6	
20-29	24.9	
30-39	18.6	14.29
40-49	3.0	
50-59	1.2	
60-69	1.1	
Type of Farm		
Crops	98.4	
Livestock	1.1	
Others	0.5	
Educational Qualification		
No Formal Education	73	39
Primary School Education	35	19
Secondary School Education	37	20
Diploma	20	11
First Degree	15	8
M.Sc.	2	1
Ph.D.	4	2

Sources of information on climate change

It is evident from figure 2 that mass media (radio), family members and friends were the major sources of information on climate change. The reason for this could possibly be due to the advantages the mass media has in reaching large audience at a faster rate. The implication of this finding to extension service is that in order not to lose sight of their major role of working with the rural people along lines of immediate and interests which involves enhancing their living standard and improving their immediate surroundings, there is the need to train and retrain field extension workers on the dangers been imposed by climate change on agriculture and human health and also emerging adaptation measures on climate change.



Sources of information on climate change

Awareness of Climate Change

The results in Table 3 show a higher percentage (50% above) response which is an indication of better level of awareness, even though, during the interview section with some of the respondents revealed that the word ‘climate’ does not exist in their local dialect. They agreed that there are notable changes in the environment especially as it regards farming. These changes according to them are mainly caused by over population and increased industrial activities.

Table 2: Respondents Awareness of Climate Change

Statement	Yes%	No%
Have you heard of climate change before now?	92.5*	7.5
Do you think climate change is real?	76.9*	23.1
Do you think that climate Change affects your farming activities?	96.9*	23.1
Have you noticed any change in your environment in the past five years?	90.9*	9.1
If there is any change, Could it be as a result of climate change?	90.9*	9.1
Climate change can cause crop failure	74.2*	25.8
Climate change can cause an increase or decrease in seasonal rainfall	88.2*	11.8
Climate change can cause an increase in pest and disease infestation	71.5*	28.5
Did it rain at the right time in the last planting season?	51.6*	48.3

V. CONCLUSION

Majority (51.6* above) of the respondents were aware of climate change. Respondents perceived human activities to be major causes of climate change which include: burning of fossil fuel by industries, use of generator to generate electricity by many households, burning of firewood for cooking, bush burning, cutting down of trees and burning of fossil fuel from vehicles, machines (motorcycles). The major sources of information on climate change were from radio, friends and family members.

RECOMMENDATIONS

It is evident that the people are aware of climate change therefore government should support rural farmers by providing inputs such as improved seeds, irrigation facilities etc. for better adaptation, recommend that further study on their knowledge level is needed.

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