

WOMEN FARMER'S RESPONSIVENESS TO CLIMATE CHANGE ISSUES IN KOGI STATE OF NIGERIA

By

Dr. Lawal Mohammad Anka & Dr Sani Hamza

ABSTRACT:

The Study Examines & Assess the level of knowledge, effects and observable facts, techniques to climate change issues among Women Farmers in Lokoja Local Government Area in Kogi State of Nigeria. A total of 180 sample size was selected divided into three wards using simple random Methods. Interview was conducted in the Study Area to obtain Satisfactory results. Data was analyzed using the relevant Staistical tools & Techniques to draw up Conclusions. Findings From this research Study revealed that 42.2% of the farmers had knowledge on Climatic Conditions. A large proportion 30.5% of the Farmers get information on climate change through Mass Media, 11.6%, 23.8% and 26.1% obtain information through Radio, Social organization and Internet respectively. Opinion regarding perceived adverse effects of climate change have shown that majority 40.5% of the respondents perceived increased excessive heat, others include increased flooding 8.3%, increased soil erosion 6.1% increased wind 26.6%, poor crop performance 18.3%. Perception of respondents regarding adaptation strategies to cope with climate change have shown that majority 38.8% respondents adjust the date of planting, others are 25.5% use of irrigation facilities, 22.2% Diversification of Farming activities, 18.3% increased used of Farm Inputs. It is recommended that the Ministry of Agriculture should pursue vigorously public enlightenment on climate change, seminars/workshops on climate change should be organized more frequently by various NGOs in the area.

KEY WORDS: Climate Change, Responsiveness, Adverse effects, Adaptation strategies.

Dr. Lawal Mohammad Anka is Director Planning Research and Statistics, Zamfara Agricultural Development Project P.O. Box 422, Gusau, Zamfara State, Nigeria. E-mail: lawal550@gmail.com

Dr Sani Hamza is Deputy Director Adaptive Research Zamfara Agricultural Development Project P O Box 422 Gusau Zamfara State Nigeria Email: shgusau@yahoo.co.uk

1. INTRODUCTION

In underdeveloped Areas of Less Developed Countries especially the disadvantage areas are dependent on natural resources for their livelihood. Those who are saddled with the responsibility to protect water, food, and fuel for cooking and heating have to face serious problems due to lack of access and choices in taking decision.

It is Important to note that women are not susceptible to Climate Change but they can also play a very good role towards adaptation and reducing the severity in difficult circumstances.

Poor quality of water affects Women roles and responsibilities as custodians of household tasks. Agricultural Production is also affected by poor quality of Water because it is needed to irrigate our Crops so as to Sustain dry season farming in general.

Participation of Women in Climate Change activities must be sustained. It is unfortunate to note that women participation in leadership and decision making is very discouraging. There is need to empower women so that they can address climate change issues independently.

Women in leadership positions have made an impact in disaster management, Environmental issues and natural resource management. It is Very Important to evaluate physical harm done to women as a result of vulnerability due to negative problems of climate change.(www.un.org)

1.1 Problem Statement

Women are faced with the challenges of gathering firewood and water to cook which exposed them to black carbon that is

detrimental to their health and as a result of climate change. The implication of women being at risk of the effects of climate change is evidence in the percentage of death recorded in Nigeria. Women experience unequal access to resources and decision making process with limited mobility in rural areas. It is thus important to identify gender sensitive strategies that respond to these crises for women. Vulnerability assessments and emergency response plans to take account's women are included in decision making where strategies, and action plans offers opportunities to enhance pathways to empowerment. In view of the adverse effects of climate change to women Farmers in Kogi State of Nigeria; there is a need for awareness campaign, on perceived effects and adaption strategies to assist them in coping with climate change problems & challenges

1.2 **Objectives:**

The overall objectives of the study was to assess the knowledge, perceived effects and adaptation strategies to climate change among Women Farmers in Lokoja Local Government Area in Kogi State of Nigeria. The specific objectives were to:-

1. Identify the sources of information and awareness on the causes of climate change.
2. Determine the level of knowledge and perceived effects on climate change.
3. Identify the adaptation measures/strategies used by Women Farmers to cope with climate change in the study area.

1.3 **Research Questions:**

The research paper is interested in providing answers to the following questions:-

1. Are there any adaptation Strategies initiated to solve the Problems of Climate Change in the Study area.?
2. What is the general perception of Women Farmers on the causes and perceived effects of Climate Change?
3. Are there any Adaptation Strategies/Corrective Measures taken to address climate change issues?

2.0 **REVIEW OF LITERATURE:**

Various scientists have studied the different components of climate change to some extent. The causes of climate change have been scientifically studied and showed that industrialization, urbanization, water pollution, deforestation and transportation are among the highest contributors (IPCC, 2007, Hengeveld, et al, 2005, Nwafor, 2007 Odjugo, 2009). Other researchers have concentrated on the effects of climate change and revealed that it has started impacting and will continue to impact on human health, ecological flooding, desertification, aggravation of coastal and gully erosion and extreme weather conditions among others (IPCC, 2007, Ayuba, et-al, 2007, Adjugo, 2009). Some research efforts have also been focused on mitigation and adaptation to climate change and the few studies in this area show that while climate change is

caused more by developed countries, the developing nations will suffer more of the effects because of their high level of vulnerability and low level of adaptation measures due to poverty and low technological development (Abidun and Olabimpe, 2007, Nwafore 2006, Anka and Lohana, 2016, Anka, 2015, Odjugo, 2010).

IJSER

3.0 **METHODOLOGY:**

Methodology is defined as a particular or a set of Procedure carried out to achieve a goal. It is a system of methods and principles of doing Something or carrying out research or investigation in order to identify a problem.

3.1 **Bas Information About the Study Area:**

i. **Kogi State of Nigeria:**

Is a state in the central region, created on 27th August, 1991. It is popularly known as Confluence State because two or more flowing bodies of water join together to form a single channel. Agriculture is the main part of the economy and the state has coal steel and other mineral resources. The main ethnic groups are Igala, Ebira and Okun with a population of 3,595,796 (2005 estimate) it has a population density of 70Km² (180/Sq.m) and GDP per capital of \$1,386

ii. **Lokoja Town:**

Is also a Local Government Area of Kogi State with an area of 3,180Km² and a population of 228,570 (2011 projection). It is bounded by Niger State in the North and East upstream from the capital until the border with Kwara State and this include the city of Lokoja.

iii. **Population for the Study:**

The Population for this research consisted Women Farmers in Lokoja Town in Kogi State of Nigeria.

iv. **Sample Selection:** The researchers selected 180 sample divided into three wards. The selection of the above Sample Size

allows the research scholars to use some statistical techniques for data analysis. The above selection was because of their active engagement in Agriculture and Livestock Production for improvement of their livelihood.

v. **Data Collection:**

During the period of 7 – 21 February, 2016 the researchers collected data from their key and sample respondents in the study through face to face interview method to know the socio-economic characteristics of the population such as occupation, religion, date of birth, average family size, educational level, membership of social organization, Annual income level, credit received and Land tenure system practiced.

vi. **Data Analysis:**

Descriptive statistics implies a simple quantitative summary of data set that has been collected. It help the research scholars to understand the situation very well. This will help in arriving at a positive conclusion.

4.0 **RESULTS AND DISCUSSION**

Demographic Characteristics of Respondents N = 180

Table 1

4.1 **Age of Respondents:**

The table revealed that majority 33.3% of the respondents were in the age range of 21 – 30 years. This was followed by 32.2%, 17.7% of them whose ages range from 31 – 40 and above 41 years respectively; while the remaining 16.6% were between the age range of 10 – 20 years. This implies that majority of the respondents are still within their middle, active and productive ages and hence are active in crop, livestock and Fishery Farming.

4.1.2 **Marital Status:**

Also, revealed that majority 41.6% of the respondents were married while 35.5%, 8.8% and 13.8% were single, divorced and widowed respectively. The implication is that Women Farmers had tendency to engage helping hands through marriage to provide family labour required for Crop, Livestock and Fishery Farming. The above findings are in line with Nwalieji and Uzuegbnam, 2012 who reported that 70.0%, 20.0% and 4.0% were single, widowed and divorced respectively.

4.1.3 **Family Size:**

The table shows that 30% of the respondents had household size between 11 – 20, while 27.2% and 22.7% had above 20 and 6 – 10 persons respectively and finally, 20% of the respondents had between 1 – 5 people.

4.1.4 **Educational Level:**

Shows that a greater proportion 34.4% of the respondents attended secondary school while 13.3%, 5.5%, 17.7% completed Quranic education, Adult education and Primary education respectively. About 18.8% had completed higher education in different Institutions of learning in the study area. This shows that majority of Women Farmers were literate and possess significant educational experience that can be helpful in the study of climate change and their adaptation strategies.

4.1.5 **Occupation of Respondents:**

Shows that majority of the respondents 44.4% are engaged in crop farming. While 31.6% and 23.8% are engaged in livestock and fishery farming respectively. This implies that Women Farmers are actively involved in crop, livestock and fishery farming. This active involvement would enable them observe changes and variability in the pattern of climate which according to IPCC 2007 should be at least for a period of one decade.

4.1.6 **Number of Social Organization Belong:**

The above table shows that majority 38.8% of the respondents did not belong to any social organization. While, 12.7%, 16.6%, 9.4% and 22.2% had 1 – 2 person, 2-4 persons, 3-5 persons and above 5 persons that belong to different social organizations respectively in the study areas.

4.1.7 **Annual Income Level:**

The table shows that majority of the respondents, 30.5% had between N500,000 – N800,000, while 15%, 30% and 19.4% had below N300,000 and N300,000 – N500,000 and above N800,000 respectively. The above findings are in line with Anka and Lohana, 2016 who reported 82.5% and 72.5% had below N500,000 as their annual income. While 12.5% and 21.2% had Income between N500,000 – N1,000,000 and above N1,000,000 respectively in the study area.

4.1.8 **Annual Credit Received:**

The above table shows that 54.4% of the respondents received between N50,000 to N100,000 from credit agencies. While, 24.4% and 21.1% received between N100,000 to N300,000 and above N300,000 respectively.

4.1.9 **Land Tenure System:**

Revealed that majority 37.2% of the respondents had Farm land inherited. While 16.1%, 18.8% and 12.2% had purchased, leased and hired land respectively. Finally, 15.5% reported the land belong to family and community in the study area.

4.2 **INFORMATION ON FARM ENTERPRISE:**

Data presented in Table 4.2 revealed that 30% of the Women Farmers are engaged in Crop production in the study area. Similarly, 17.2%, 7.7% and 16.1% were engaged in Animal Production, vegetable production and irrigation farming respectively.

Table 2: Distribution of Respondents According to Farm Enterprise

Variables	Frequency	Percentage
Crop production	52	28.8
Animal production	31	17.2
Vegetable production	14	7.7
Irrigation Farming	29	16.1
Poultry Farming	54	80
Total	180	100

Source: Survey Data, 2016

4.3 Women Farmers Awareness and Perception of Climate Change:

Table 3 reveals that 42.2% of the Farmers are aware of change in climate while 57.7% reported lack of awareness. Also, a large proportion 30.5% of the Farmers get information on climate change through the Mass Media. Similarly, 11.6%, 23.8% and 26.1% obtain information through Radio/TV, Social organization / NGOs and Internet respectively. Only few farmers 7.7% get information from extension service. The implication is that there is poor information dissemination on climate change through the extension service to the Farmers. This is buttressed by the fact that none of the farmers seems to be aware of what causes climate change. Unfortunately therefore, the farmers may be unconsciously contributing to global warming and climate change through indiscriminate burning of bushes and felling of trees without replacement.

Results also show that 21.6% of the respondents reported Rainfall pattern to be the elements that change. Similarly, 22.2% relative humidity 5.5% sunlight 36.6% Temperature and Finally 13.8% wind. The above findings are in concurrence with Ugwoke, et al, 2012 who reported 48.33% of the farmers get information on climate change through their various social organizations. Only few of the Farmers get information from Mass Media 31.67% and extension service.

Table 3: Women Farmers Awareness on Climate Change

Variables	Frequency	Percentage
Awareness of Climate Change		
Yes	76	42.2
No	104	57.7
Source of Awareness / Information		
Mass Media	55	30.5
Extension Workers	14	7.7
Radio /TV	21	11.6
Social Organization / NGOs	43	23.8
Internet	47	26.1
Awareness of Elements That Change		
Rainfall pattern	39	21.6
Relative humidity	40	22.2
Sunlight	10	5.5
Temperature	66	36.6
Wind	25	13.8

Source: Survey Data, 2016

4.4 **KNOWLEDGE / PERCEPTION OF CLIMATE CHANGE BY RESPONDENTS:**

Table 4 shows that the major indicators of climate change as perceived by the respondents include: high temperature 17.7%, Erratic rainfall 38.8%, Rising level of floods 10%, and Increased incidence of pests and diseases 33.3%. This implies that the respondents were aware of climate change events in the area. Some of the climate change indicators identified by the respondents such as erratic rainfall and increased incidence of pest and diseases are capable of reducing farm yields and adding to the production cost. Increased pest and disease infestation could be as a result of increased rainfall intensity, high humidity and warmer environment. Farmers' knowledge of climate change indicators will help them adopt some adaptation measures.

Table 4: Knowledge and Perception on Climate Change

Variables	Frequency	Percentage
High Temperature	32	17.7
Erratic Rainfall	70	38.8
Rising Level of Floods	18	10
Increase of Pest and Diseases	60	33.3
Total	180	100

Source: Survey Data, 2016

4.5 **PERCEIVED ADVERSE EFFECTS OF CLIMATE CHANGE:**

Table 5 shows that majority 40.5% of the respondents perceived increased Excessive heat as one of the effects of climate change. Others include increased flooding 8.3%, increased soil erosion 6.1%, increased wind 26.6%, poor crop performance 18.3%. The above findings are in line with the assertion of Wiggins and Wiggins (2006) that climate change may result in significant environmental threats, like rising temperature and drought, increased likelihoods of hazards such as floods, landslides and severe cycloids. The above findings are further supported by Odujogo, 2013 who reported increasing temperature 22%, changes in rainfall pattern 14%, flood problems 10%, draught 9% and increased erosion 8% are the major adverse effects of climate change.

Table 5: Distribution of Respondents According to Perceived Adverse Effects:

Variables	Frequency	Percentage
Increased Flooding	15	8.3
Excessive Heat	73	40.5
Increased Soil Erosion	11	6.1
Increased Wind	48	26.6
Poor Crop Performance	33	18.3
Total	180	100

Source: Survey Data, 2016

4.6 ADAPTATION STRATEGIES TO COPE WITH CLIMATE CHANGE:

Table 6 revealed that majority 38.8% of the respondents adjust the date of planting as adaptation strategies to cope with climate change in the study area. Others are 25.5% use of irrigation facilities, 22.2%. Diversification of farming activities, 18.3% increased used of farm inputs. The above findings are in concurrence with Adegbite, 2013 who reported adaptation and mitigation are key in climate change debate. Mitigation tackles the causes of climate change while adaptation tackles the effects of the phenomenon. A successful adaptation can reduce vulnerability by building on and strengthening existing coping strategies.

Table 6: Adaptation Strategies

Variables	Frequency	Percentage
Use of Irrigation	46	25.5
Adjusting date of planting	61	33.8
Diversification of Farming Activities	40	22.2
Increased Used of Inputs	33	18.3
Total	180	100

Source: Survey Data, 2016

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary:

The overall objectives of the study were to assess the knowledge perceived effects and adaptation strategies to climate change among Women Farmers in Lokoja Local Government in Kogi State of Nigeria. A total of 180 samples size was selected divided into three wards, 60 samples each. Data was collected from sample respondents in the study area on their socio-economic backgrounds. Descriptive statistics such as Arithmetic mean and simple percentages were used to analyze the data. Results of the study were interpreted to arrive at conclusions.

5.2 Conclusions:

The major conclusions drawn from this paper were as follows:-

- (a) Results of the study regarding awareness and perception reveals that 42.2% of the farmers are aware of change in climate. While 57.7% reported lack of awareness. Also, a large proportion 30.5% of the farmers get information on climate change through Mass Media. About 11.6%, 23.8% and 26.1% obtain information through Radio/TV, social organization/NGOs and Internet respectively.
- (b) Opinion regarding perceived Adverse effects of climate change have shown that majority 40.5% of the respondents perceived increased excessive heat as one of the effects of climate change. Others include increased flooding 8.3%, increased soil erosion 6.1%, increased wind 26.6%, poor crop performance 18.3%.

- (c) Perception of respondents regarding adaptation strategies to cope with climate change revealed that majority 38.8% of the respondents adjust the date of planting, others are 25.5% use of irrigation facilities, 22.2% Diversification of Farming activities, 18.3% Increased used of Farm Inputs.

5.3 **RECOMMENDATIONS:**

On the basis of the above conclusions we recommend the followings.

- (a) Majority of Women Farmers in the study area have poor global knowledge of the causes, effects and remedial measures of climate. It is recommended that both the Ministry of Agriculture and Environment should pursue vigorously public enlightenment on climate change using Media like TV, Radio and Printed materials such as newsletters, leaflets bill boards, etc.
- (b) Seminars and workshops on climate change should be organized more frequently by various NGOs and other Private Sector Agencies. Such seminars and workshops should be free to Women participants and communiqué of such Conferences be repeatedly published or broadcast on different Mass Medias; such knowledge will also help them to adapt to the effects of climate change.
- (c) Women Extension Workers in Kogi State should be trained in the use of ICT to facilitate timely and effective

communication of climate change related issues to the Women Farmers.

- (d) Kogi State Government and NGOs should provide agricultural loans and subsidies, small scale Women Farmers to cope with the effects / impacts of climate change.
- (e) There is need for increased research and innovation in Agriculture to find out more sustainable ways of adaptation to climate change.
- (f) Women farmers engaged in Livestock production in the study area should be encouraged to diversify to crop production so as to increase their income as well as raise their living standards.
- (g) The Paper recommends that there is need to constitute a committee that include highly skilled staff under Lokoja Local Government Agric Department to provide information and support to Women Farmers.

REFERENCES

- Abiodun, A. and Olabimpe, A. (2007) Agriculture in Africa
Adaptation Strategies to Climate Change Among Rice Farmers in Hadeja
and Kazaure Local Government Areas, Jigawa State, Nigeria.
A paper to be presented at International Conference on Science
Tech. Innovation Policy and Management (STIPM 2016)
organized by IST & Dev. MUET Jamshoro 16-17 November,
2016.
- Adegbite, I. (2013) Climate Change Perennial Crude Oil Theft
Agents on Climate Change Issues in Zamfara Agric Development Project,
Zamfara State, Nigeria. Paper accepted for Publication,
Pakistan Journal of Agriculture, Agric Engineering and
Veterinary Science, Sindh Agriculture University Tandojam,
Pakistan. And the Quest for Sustainable Development in
Nigeria International Journal of Sustainable Development
Canada www.ssrn.com/linkOIDA
- Anka, L.M. 2015 Analysis of Training Needs of Extension of
Training needs of Extention Agents on Climate Change
Issues in Zamfara Agricultural Development Project
ZADP Nigeria Pakistan journal of Agriculture, Agric Engr
& Vet Sciences Vol 32 No 1 2016 pp 66-74
- Anka, L.M., and Lohana, K. (2016), Knowledge, Perception and
Adaptation Strategies to Climate Change Issues Among
Rice Farmers in Hadeja & Kazaure LGS's Jigawa State
Nigeria a Paper to be presented at the Firt International
Conference organized by Inst of Science Tech & Dev
MUET Jamshoro Pakistan 4-6 Nov 2016

Ayuba, H.K., Maryah, U.M., Gwary, D.M. (2007) Climate Change
Change Climate Change on Rice Production in Anambra
State of Nigeria. Journal of Agricultural Extension Vol.
16 No. 2 December, 2012 pp 81 – 91. Environment
degradation. Risk and Adaptation Assessment,
Teddington, UK Tear Fund.

For Sustainable development. The Nigerian perspective. Environment
and Development Policy Centre, Enugu pp. 372 - 385

Hengeveld, H., Whitewood, B., Fergusson, A. (2005) An Introduction
to Climate: A Canadian Perspective Canada Environment
pp 7-27

IPCC 2001 Intergovernmental Panel on Climate Change Impact,
Adaptation and Vulnerability Contribution of Working Group
II of Intergovernmental Panel on Climate Change third
Assessment Report of IPCC Cambridge University Press,
London. In Nigeria. Academic Journals Vol. 8 No. 26 pp
1203-1211 July, 2013 www.academicjournals.org/SRE

IPCC (2007) Climate Change Impacts Adaptation and Mitigation and
Adaptation to Global Warm up. Proceedings of the
International Conference on Climate Change and
Economic Sustainability held at Nnamdi Azikiwe
University, Enugu, Nigeria 12 – 14 June.

Nwafor, J.C. (2007) Environmental Impact Assessment For
Sustainable Development. The Nigerian
Perspective. Environment & Development Vol ii No 7 pp
375-385

- Odjugo, P.A.O. (2005) The Impact of Gas Flaring on Rainwater on Rainwater Quality and Human health in Delta State. Knowledge & Development Vol ii No 7 pp36-46
- Odjugo, P.A.O. (2009) Quantifying the Cost of Climate Change Impact in Nigeria. Emphasis on Wind and Rainstorm. Journal of Human ecology Vol 28 No 2 pp 93-101
- Odjugo, P.A.O. (2010) Shift in Crop Protection as a Means of Adaptation to climate Change in Semi arid region of Nigeria. Journal of Metrology & Climate Change Vol 8 No 1 pp 1-6
- Odjugo P O A (2013) Analysis of Climate Change Awareness in Nigeria. Academic Journals Vol 8 No 26 pp 1203-1211 July 2013 www.academicjournals.org/SRE
- R.N. (2012) Crop Farmers Perception and Adaptation to Climate Change in Orlu Agric Zone of Imo State of Nigeria. Journal of Agric Extension Vol. 16 No. 2 December, 2012.
- Ugwoke, F.O., Nnadi, F.N., Anaeto, C.F., Ajoo, and Nwakwasi, Vulnerability Contribution to Working Group II Fourth Assessment Report of IPCC. Cambridge University Press U.K.
- Wiggins, S. and Wiggins, T. (2006) Climate Change and Environmental Degradation. Risk & Adaptation Assessment, Teddington UK Tear Fund Women Gender, Equality and Climate Change [Http// www.un.org/womenwatch/feature/ climate_ Change/](http://www.un.org/womenwatch/feature/climate_Change/)

World Bank (2010) Climate Change and World Bank www.worldbank.org.

IJSER