



Examining the Impact of Climate Change on Selected FCT Farmers

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Abstract

Since Climate Change became a global challenge, farmers appear to be the worst hit with its consequences impacting food and agriculture. In a sample representation from populations in six communities of Federal Capital Territory (FCT-Abuja), Nigeria's capital city, the North-Central zone, adopted as case studies, the study examined the impact of climate change on rural farmers. The study provided primary insight into Climate Change impacts on rural farmers using Climate Change Theoretical Models and qualitative data gathering and analysis methods through Focused Group Discussions (FGDs) and Key Informant Interviews (KIIs). The study found that FCT rural farmers lost their yam produce to the hotness of weather conditions, and recorded poor grain yields as a result of inadequate rainfall arising from Climate Change. Also, it established that rural farmers in FCT-Abuja lost their livestock farming to the hotness of weather that resulted in the dryness of pasture for grazing. Therefore, the paper concludes that in the Abuja area of Nigeria, climate change threatens the food security and livelihood of farmers, disproportionately affecting them and deepening their already precarious social existence. Hence the study recommended that state and non-state actors train rural farmers on the most effective Climate Change mitigation and adaptation methods using indigenous languages as a language of instruction for better understanding of the issues through agricultural extension programmes.

Keywords: Climate change, Mitigation, Adaptation, Rural, Farmers, Agriculture

Introduction

Since Climate Change became a global challenge, farmers appear to be the worst hit with its consequences impacting food and agriculture. Supporting this narrative are studies that have shown that global warming is resulting in

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excessively hot weather conditions that are disrupting nature and the environment. This pattern in the change of weather conditions arising from Climate Change is impacting crop production and agriculture in many communities (Deressa et al, 2008). However, predominantly agricultural communities that depend solely on climate for the viability of their farm produce bear Climate Change impact the most when their mitigation and adaptation capacity becomes insufficient (SPORE, 2008; Apata et al, 2009).

Many communities in Nigeria that rely on weather conditions for their agricultural practice are at risk of climate change impact (Dinar et al, 2006). In addition to this narrative, Kurukulasuriya and Mendelsohn (2006), point out that global warming is impacting agricultural productivity resulting in a reduction in food production.

The impact of Climate Change on rural farmers and agriculture is seen in the narrative from northern Nigeria where farmers are recounting how changes in weather conditions particularly changes in rainfall patterns are making them record poor yields (Mawa, 2023). Corroborating this is the Adams et al, (1988), assertion that Climate Change impact on agriculture has continued to manifest in many communities.

Similarly, BNRCC (2008), points out that climate change is likely to pose a significant threat to food security globally with agriculture likely to be the worst hit. It is in line with this that Mawa (2023), argues that if Climate Change continues to impact agriculture, resulting in hunger and poverty among farmers, the Nigerian state may face food insecurity, worsening hunger and malnutrition.

It has been established from the above studies that many rural farmers in Nigeria are battling with Climate Change impact. However, within the context of selected communities as case studies, it would be safe for the study to say that Climate Change interventions should not only be about sensitization. But concentrating efforts on improving the rural farmers' capacity on effective methods of mitigation and adaptation. Although some persons may not agree with this, however, key lessons from investigating the impact of Climate Change on rural FCT-Abuja farmers will provide a basis for our analysis in Nigeria on how Climate Change impacts rural farmers and agriculture.

Objectives of the Study

- (1) To examine the impact of Climate Change on rural farmers
- (2) To examine the impact of Climate Change on Agriculture.

Theoretical Framework

Climate Change Models: These are theoretical models that describe and assess the impact of climate change on agriculture, particularly on crop production. Smit et al. (1988), explained the model by using crop yield analysis, spatial analysis, and agricultural systems to point out Climate Change impact on crop yield and agriculture. In their illustration, the crop yield analysis examined how the changes made in the environment are having on crop productivity. The spatial analysis investigated the impact of Climate Change and its suitability for agriculture, while the agricultural systems examined Climate Change impact on numerous agricultural enterprises including prices of agricultural commodities and patterns of trade.

Du Toit et al. (2001) used the agro ecological zoning (AEZ) model to analyze the impact of Climate Change on agriculture and how it affects land in production. Mendelsohn et al. (1994), using the same AEZ model described how changes in temperature and rainfall arising from Climate Change impact agriculture and crop production. They described how changes in crop yields can be linked to Climate Change impact that happens from different activities on the environment.

It is based on the theoretical models' analysis of Climate Change impact on agriculture and crop yields that informs its adoption as a theoretical model of analysis.

Climate Change Impact on Agriculture, FCT Rural Communities

According to Mendelsohn et al. (1994), Climate Change impact on agriculture has direct consequences on the farmers' revenue and income. In addition, their study gives a primary insight into how farmers are struggling to survive under the challenges of Climate Change impact on agriculture. In a similar narrative, Adams et al. (1990), point out that agriculture, food production, and distribution will encounter intense pressure as a result of high temperatures in weather conditions arising from Climate Change.

Women farmers at Jiwa, Kuje, and Abaji communities of FCT-Abuja continue to lament how a change in weather conditions is affecting their agricultural produce resulting in poverty and hunger (Mawa, 2023). One of the women farmers, said women farmers in the last 13 years have been confronted with economic crisis arising from poor agricultural yield as a result in a change in weather condition that has disrupted rainfall pattern. Other women farmers in

affirmatives attributed their poverty to changes in weather conditions that are disrupting rainfall patterns resulting in poor agricultural yield and pushing them into hunger and poverty.

Farmers at the Kwaita community in Kwali Area Council of Abuja revealed how they lost an enormous part of their farm produce to excessive weather conditions. Mr. Alkali Obadan, the leader of the farmers estimated their loss due to high temperature to be about 65%. A figure he said was arrived at after examining the loss recorded by farmers in the community (Mawa, (2023)). The farmers disclosed that in the last 10 years, they began experiencing high temperatures that come with excessive hot weather conditions.

At Yaba community in Abaji Area Council of Abuja, farmers recounted how they lost an enormous portion of their farm produce to high temperatures with those who farm Yam being the worst hit. In their narrative, in the last 12 years, farmers in the community have been struggling with excessive changes in weather conditions that are resulting in poor agricultural yield with Yam and Grain farmers being the most affected. Recounting their experiences, the farmers say there is a sharp change in weather that has altered the pattern in rainfall, resulting in stunted growth of crops leading to poor yield. Many of the farmers pointed out that the development is resulting in hunger and poverty among them.

Farmers in the Baragoni community in Bwari Area Council of Abuja, attribute their poor agricultural yield to climate change. In their explanation, they say climate change brought excessive hot in weather conditions that have altered rainfall patterns. They pointed out that in the last few years, they did not experience a drastic change in weather conditions, resulting in poor harvests that are pushing them into hunger and poverty (Mawa, 2023).

Nowhere did climate change impact manifest prominently among rural farmers like in the Chibiri community at Kuje Area Council of Abuja. Virtually all the farmers in the area painted gory narratives of how Climate Change is impacting them, with many of them attributing their poverty to poor agricultural yields as a result of a change in weather conditions (Mawa, 2023). The farmers disclosed how a rise in temperature has affected agriculture, resulting in their struggle to harvest 100 tubers of yam at the end of the planting season. A situation they said poses a huge threat to their income and livelihoods.

Farmers narratives at the Dobi community in Gwagwalada Area Council of Abuja, appear to be most pathetic. In different accounts, they narrated how they

lost an enormous portion of their yam harvest to climate change. According to them, excessive hot weather conditions are resulting in the decay of their yam in storage facilities. This is even as the farmers in uniform voices affirmed that climate change is having a terrible impact on them, they pointed out that it brought a change in rainfall patterns that are resulting in low harvests, which is pushing them to hunger and poverty Mawa, (2023).

Thomas (2022) who examined climate impact in North-Central Nigeria pointed out that rural communities in FCT-Abuja are among those that are the most hit. He warned that the government not paying attention to mitigation and adaptation action has implications for food insecurity and the local economy. His study found that rural farmers in FCT-Abuja depend largely on adequate rainfall for crop yield and agricultural viability. He pointed out that a noticeable change in rainfall patterns in the last 10 years poses a greater threat to FCT-Abuja rural farmers and the country at large if no effective mitigation and adaptation action is implemented.

Methodology

The study adopted Kwaita, Yaba, Baragoni, Chibiri, Dobi, and Jiwa communities of FCT-Abuja as case studies. Qualitative methods of Focused Group Discussion (FGDs) and Key Informant Interviews (KIIs) were used for data gathering and analysis. The FGDs and KIIs discussions were focused on the impact of Climate Change on rural farmers and agriculture in line with the research objectives. Also, desktop research was employed to review relevant literature.

Study Sample

The Federal Capital Territory (FCT-Abuja) is estimated to have about 3.6 million population covering 7,650 kilometers of land mass with six Area Councils. The study held focused group discussions among 72 participants, 12 from each of the six selected communities. 12 government officials, two from each of the six Area Councils, four environmental scientists, and two soil scientists were interviewed. Overall, 90 participants took part in the study.

Result and Discussion

No doubt, the six case studies examined do not represent the entire FCT-Abuja communities and Nigeria, however, the study gives an understanding of primary accounts of climate change's impact on rural farmers. The study found that rural farmers in FCT are impacted by climate change and are struggling under changes in weather conditions. This means that part of the factors

responsible for the food shortage and hike in the price of food items Nigeria is currently facing has its link to climate change impact that is resulting in poor crop yield.

All 72 participants (rural farmers) in the Focused Group Discussions (FGDs) said they are impacted by climate change which is affecting their crop yields resulting in hunger and poverty. Out of the 72 farmers, 68 say they lost about 65% of their yam and grain to hotness in weather conditions which resulted in the decay of their yams in the storage facilities and stunted growth in their grain as a result of inadequate rainfall.

57 out of the 72 farmers say excess weather condition is affecting their livestock farming. According to them, many of their livestock are dying because they can no longer get green grass and adequate water to feed them. They say their streams are drying and green grasses withering away. 55 of them attributed the hardship and poverty they currently face to climate change that brought hotness in weather conditions that are resulting in poor crop yields. According to them, in the last five years, they have witnessed excessive hotness in weather conditions that are affecting their crops and livestock pushing them into poverty and hunger.

All the 12 officials from the Local Council Environmental Department that were interviewed, say climate change impact on the rural farmers in FCT-Abuja is visible. According to them many of the farmers they have interfaced with are losing their yams and grains to excessively hot weather conditions.

The four environmental experts and two soil scientists that were interviewed said that climate change's impact on agriculture in FCT-Abuja rural communities is huge with the farmers being the worst hit. They however warned that if the government does not immediately roll out adaptation and mitigation intervention action, FCT and Nigeria in general will experience a food crisis.

Conclusion

The objective of the study is to provide an understanding of how Climate Change is impacting rural farmers and agriculture using selected FCT-Abuja as case studies. No doubt, climate change impact on FCT-Abuja rural farmers is real and that is affecting and threatening their means of livelihood.

Climate Change impact is responsible for the poor yield harvest by FCT-Abuja rural farmers as it leads to a shortage in rainfall that is affecting grain yield,

livestock farming and excessive weather conditions that are making yam tubers decay in storage facilities.

Furthermore, Climate Change impact has further widened poverty and inequality gaps among male and women farmers FCT. Many of the women farmers who depend solely on adequate rainfall and good weather conditions for their agricultural practice are now poorer as a result of the change in rainfall patterns and excess hotness in weather conditions that are impacting agricultural practices.

Recommendations

The study provides the following recommendations

- (1) State and non-state actors' interventions on improving agriculture, should prioritize training rural farmers on the most effective Climate Change mitigation and adaptation methods using indigenous languages as a language of instruction for better understanding of the issues through agricultural extension programmes.
- (2) The Ministry of Agriculture in collaboration with FCT Area Council Authorities should set up special intervention programmes targeted at training rural farmers on Climate Change mitigation and adaptation.

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