Adaptation of Arable Crop Farmers to Climate Variability in Rain Forest and Derived Savanah Ecosystems of Nigeria

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CLIMATE IMPACT RESEARCH CAPACITY AND LEADERSHIP ENHANCEMENT IN SUB-SAHARAN AFRICA

INTRODUCTION

Small holder arable crop farmers in Sub-Saharan Africa (who produce the bulk of food consumed) depend heavily on rainfall for their farming activities even though they have to contend with the vagaries of climate variability. This is more so, that small holder farmers engage in land preparation which aggravates climate variability; such as deforestation, bush burning and combustion of fossil fuel.

IPCC WG5 (2014) predicted that rural areas (and hence, the small holder farmers) will experience enormous impacts on water availability and supply, food security, infrastructure, and revenue from agriculture, including changes in the areas of food and non-food crops production the world over. Africa produces cassava more than the rest of the world combined (Ayinde *et al*, 2015), hence the focus is on cassava-based farms.

Dasgupta (2014), opined that regions with low adaptive capacity as a result of geographical location, dependence on natural resource based livelihoods and agriculture experience considerable impacts of climate change. Climate change is projected to undermine food security by the mid-21st century and beyond, in tropical and temperate regions. Climate change without adaptation is projected to negatively impact production of arable crops due to local temperature increases of 2°C or more above late-20th century levels. Meanwhile, due to cultural belief about decision making, women (who are responsible for bulk of agricultural value chain activities), are likely to be under-utilised in decision making towards entrenching effective adaptation strategies in climate variability in their day-to-day activities (Ziervogel and Calder, 2003).

Effectiveness of adaptation can thus, be enhanced through complementary actions across levels, including international cooperation since evidence suggests that outcomes seen as equitable can lead to more effective cooperation (Dasgupta, 2014),.

Some of the economic consequences of climate variability are:

- Significant lower yield and revenue, thereby threatening farmers' livelihood.
- Abandonment or significant reduction of arable farming activities at the expense of other farming activities and other livelihood options.
- Out-migration of successor farming generation (youths) as a result of the vagaries of climate variability, causing reduction in the magnitude of arable farming activities.
- Further impoverishment and incapacitation of vulnerable groups e.g. women, youth and women-headed households, once there is continuous reduction of investment in agriculture.

However, the sustainable Development Goals (SDGs) and 2015 New Climate Agreement must ensure that women are equal partners in building resilient communities and tackling challenges brought on by climate change (Arrow, 2015). Hence, it becomes expedient to test the veracity of previous assertions above on climate variability and issues of adaptation as well as their effect on livelihood options of arable crop farmers in this region.

OBJECTIVES

a. Describe socio-economic characteristics of the selected arable crop farmers in the study area;
b. Determine the perception of arable crop farmers in the study area on climate variability;
c. Examine the effects of climate variability on these farmers, their farming activities and vulnerable groups (women and youth most especially).
d. Identify areas where climate variability has resulted into changing livelihoods of farmers in the rural areas.
e. Identify the adaptation strategies and capacity building programmes put in place by the government to ameliorate the effects of climate variability on the small holder arable crop farmers
f. Describe locally organised climate change/variability adaptation strategies and capacity building programmes of Non-governmental Agencies (NGOs) and Community-based Organisations (CBOs) in response to climate variability so as to actively engage the participation of youth to engender sustainable farming in the country.

HYPOTHESES

Ho_1: There is no significant relationship between climate variability and farm activities of the cassava farmers in the study area
Ho_2: There is no significant relationship between climate variability and changing livelihoods of the cassava farmers in the study area.

METHODOLOGY

Study Population: Cassava-based farmers in 2 agro-ecological zones of Nigeria; rain forest and derived savannah whereby random sampling technique was used to choose Ogun and Kwara States respectively
Sampling Frame: List of cassava-based farming households covered by Ogun State Agricultural Development Programme (OGADEP) and Kwara State Agricultural Development Programme (KWADEP); existing structures.
Instrument for Data Collection: Questionnaire/Interview guide
Sampling Techniques: Multi-stage & simple random sampling techniques.
Sample Size: 400 Cassava-based farmers.

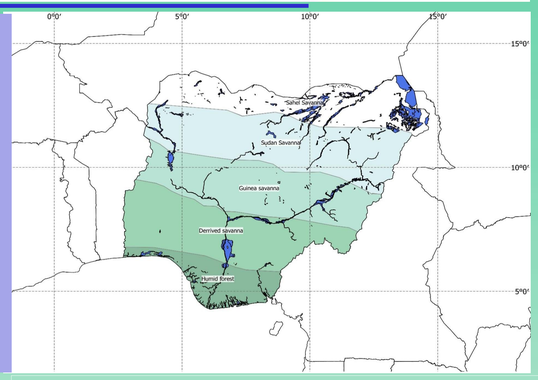

Figure 1: Nigeria biomes working map

ANALYTICAL PROCEDURE

Descriptive statistics: To describe the effect of climate variability on farming activities, adaptation strategies evolved by farmers, capacity building techniques for vulnerable groups and the adaptation strategies put in place by government tiers.
Perception Index: Constructed to determine the perception of farmers on climate variability following Ayinde *et al.* (2013) through a simple 3-step procedure.

RESEARCH UPDATE

- **Pre-test of survey instrument done**
- **Survey activities ongoing; midway**

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