Pattern and Trend of Rice Production in the Federal Capital territory, Abuja Nigeria

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ABSTRACT
Stable food such as rice, millet and sorghum crops are of considerable importance for food security. Of all the staple crops, rice has risen to a position of prominence. In some areas there is a long tradition of rice growing, but for many, rice has been considered a luxury food for special occasions only. However, rice production falls short of the demand, the country therefore depends heavily on rice importation of over 5 million tons annually, equivalent to over $US 800 million in scarce foreign exchange. The study therefore aimed at the evaluation of the pattern of rice production in the federal Capital Territory, Nigeria. The study relies essentially on secondary data hence data on rice yield were obtained from Abuja Agricultural Development Project (AADP) and rainfall and temperature from NIMET all in the Federal Capital Territory. The data obtained were subjected to descriptive statistic such as bar charts, pie charts and line graphs. This study is in agreement with Akande (2008) that since the 1980s till date, rice output and yield has increased, suggesting extensive rice cultivation and an unchanging preference for rice consumption. The result also shows that the trend of rice production in the FCT is increasing which implies there is a positive linear trend along with cultivated area which means that there is room for future increase and even production of rice for export. The implication of this is that the rapid population increase as observed in the FCT recently can be adequately fed and hence the food security in the territory is not threatened.

Key Words: Trend, Pattern, Production, Food Security

Introduction
The impact of climate change can be vast. In Nigeria, this means that some stable ecosystems such as the Sahel Savanna may become more vulnerable because warming will reinforce existing patterns of water scarcity, increasing the risk of drought. The country’s aquatic ecosystems, wetlands and other habitats will create overwhelming problems for an already impoverished populace, (Building Nigeria’s Response to Climate Change) (BNRCC, 2008). Climate change is already happening and it represents one of the greatest environmental, social and economic threats facing the planet.

Rice producing areas will need to adapt to changing conditions, such as investing in drought-tolerant or heat-tolerant varieties. Scientists estimate that, warming of up to about 30 Celsius degrees could increase global agricultural potential, but that further cooling is likely to decrease this potential (Mastrandrea et al., 2008). Ghahraman et al (2008) revealed that although some climatic parameters have been shown to have a distinct trend globally, rainfall behavior varies depending on the location, and in this case the FCT might just have a peculiar scenario.

Nigeria is the most populous country in Africa, with a population of over 140 million people, with 1,405,201 in the FCT (Census, 2006). Its domestic economy is dominated by agriculture, accounting for about 40% of the Gross Domestic Product (GDP) and two-thirds of the labor force. Agriculture supplies food, raw materials and generates household income for majority of the people. The external sector is dominated by petroleum, which generates about 95% of Nigeria’s foreign exchange earnings while agriculture contributes less than 5% (Akande, 2008). Nigeria is currently preoccupied with the challenge of diversifying the structure of its economy which is evident in the downward revision of the dollar
benchmark of the nation’s budget in 2015 to 83 dollars due to the fall in crude oil price from above 100 to 77 dollars in 2014.

Stable food such as rice, millet and sorghum crops are of considerable importance for food security. Of all the staple crops, rice has risen to a position of preeminence. Nigerian Institute of Social and Economic Research states that since the mid-1970s, rice consumption in Nigeria has risen tremendously, to about 10% per annum due to changing consumer preferences (Akande in NISER, 2008).

Rice has therefore become one of the most important cereal crops in Nigeria. It gives about 70% of the total calorie supply needed in diets (Maclean et al., 2002). Rice consumption is increasing rapidly in Nigeria because of urbanization,(Akande in NISER, 2008) due to relative ease of preparation, and convenience in storage. In some areas there is a long tradition of rice growing, but for many, rice has been considered a luxury food for special occasions only.

CIDA, IITA, (2008) opined that other factors such as age and gender also affect preference for rice. However, rice production falls short of the demand, the country therefore depends heavily on rice importation of over 5 million tons annually, equivalent to over $US 800 million in scarce foreign exchange. In 2007, the Federal Government of Nigeria raised the tariff on rice importation to 75% to “protect local producers against massive imports of rice”. This policy is stimulating interest in the domestic production of rice.

Rockstrom et al. (2003) said that about 95% of current world population growth occurs in tropical developing countries (Nigeria inclusive), and their rural economy is based on agriculture. In Sub-Saharan Africa, rain-fed agriculture has been the dominant source of food production and it is likely going to remain so for the next foreseeable future since more than 95% of the world’s agricultural farmland is under rain fed agriculture (FAO, 2000, Rosengrant et al., 2000), and crop production is largely determined by climatic (rainfall, and temperature) factors.

World population grows at 3% annually; while yields of major crops grow at only 1% a year (FAO, 2006, adapted by Hassan, 2008). The Malthusian theory of population growth and agricultural production could be evident in the FCT with the Geometric influx of people seeking “Greener Pasture” into the FCT. For how long will the current weather conditions support rice production to be able to cater for the teeming population?

In views of the rapid population growth in the FCT and its attendance consequent on food security, this study is essentially to evaluate the pattern of production of rice in the study area.

THE STUDY AREA

The study area, the Federal Capital Territory, covers a land mass of 8,000 square kilometers (km\(^2\)) (Abuja master plan, 2000). It is bordered by four states Kaduna, Nassarawa, Kogi and Niger, it lies between \(8^\circ 25'\) and \(9^\circ 25'\) (fig 1.0) North of the equator and longitudes \(6^\circ 45'\) and \(7^\circ 45'\) east of the Greenwich meridian. It is located in the middle belt of Nigeria (Fig: 1); its size is equivalent to 0.87% of Nigeria, (Mabogunje, 1977).

The FCT has 6 area councils namely, Kuje, Gwagwalada, Bwari, Abaji, AMAC, and Kwali. The federal Capital Territory is central to Nigeria in administrative, geographical, and lying just above the hot and humid low lands of the Niger/Benue trough but below the drier parts of the country lying to the north. It lies north of the wide alluvial plains formed by the confluence of the Niger and the Benue rivers. The jema’a platform, a continuation of the Jos plateau extends well into the middle of the territory. The city is located in a scenic valley of rolling grasslands.
The climate of the FCT is that of the hot humid tropical type. Relative humidity is not as high as in the southern part and temperatures are not as high as in the far north (Balogun, 2001). Some of the climate characteristics are discussed below. Since scientific recordings began, temperatures have been on the increase in the last two decades of the 20th century. Temperature also rose sharply from about 1910 to the 1940s, although at a much lower average level than in the 1980s and 1990s (Hassan, 2008). The FCT records its highest temperatures during the dry season when there are few if any clouds. Changes in temperatures of as much as 1.7°C have been recorded between the highest and lowest temperature in a single day, during the rainy season the maximum temperature is lower due to dense cloud cover. Diurnal annual range is also much lower, sometimes no more than 7°C in July and August. Generally the temperature ranges between 30.4°C and 35.1°C. During the dry season, relative humidity falls in the afternoon (Abuja Master Plan, 2000).

Two main factors strongly influence temperature patterns in the FCT; these are cloud cover and elevation. The cloud covers is much less or completely absent during the dry season, hence the high temperatures at this time of the year. As a result of differences in elevation between the north and south, the latter has higher temperatures throughout the year than the former. Furthermore the western flank is part of the Niger-Benue trough which is a heat trap. This therefore account for the relatively higher temperature in this part of the FCT (Hassan, 2008).

Precipitation in FCT like elsewhere in the tropics consists almost entirely of rainfall. It is the most variable element of tropical climate. Due to its varied nature, rainfall has been greatly used in the delimitation of climatic regions in the tropics in which lies FCT, and since other climatic elements are much more
uniform, rainfall is particularly important to agriculture in the FCT because agricultural practices are mostly rain-fed (Hassan, 2008).

The onset of the rainy season is in the middle of March and ends in the middle of October in the north and early November in the south of the FCT. The mean annual rainfall ranges between 1,145mm to 1631.7mm, as a result of its location on the windward side of the Jos Plateau; this therefore gives rise to frequent rainfalls and a noticeable increase in the mean annual total from the south to the north (Master plan, 1978; Adakayi, 2000; and Hassan, 2008). The beginning and end of the season is characterized by frequent occurrence of squalls (windstorms), accompanied by thunder and lightning, followed by strong winds and rainfalls of high intensity, but may last just thirty minutes and then followed by drizzles that could last hours. This condition is then replaced by a few days of bright clear skies (Mabogunje, 1979, Abuja Master Plan, 2000).

The FCT is located between the zone of double rainfall maxima of the southern parts of the country, and that of single rainfall for the far northern parts. Thus a large portion of the FCT experience a double maxima, though not noticeable every year. Relief rainfall is also another feature of the FCT (Adakayi and Hassan 2003). A drainage system consists of all the bodies of water, including rivers, lakes and groundwater, through which water flows. Four major rivers flow southward into the Niger/Benue trough either through the federal capital territory or adjacent to it. The Gurara River flows through the territory along its western flank. Its watershed drains most of the territory into the Niger River. To the west and north of the territory lies the River Kaduna. Other than the Benue it is the largest tributary to the Niger River (Abuja master plan, 2000). All streams and rivers within the territory experience flash floods during the rainy season (Adakayi, 2000).

Runoffs begin soon after the start of rainfall leading to violent flash floods because of the existence of impermeable layer of soil close to the ground surface. In valley bottoms, the water table is closer to the surface and water logging occurs e.g. in Kwali and west of Abaji (Hassan, 2008).

Due to the types of parent materials that underlay the FCT, the FCT has the following types of soils; Gleysols (very fertile and found in Abaji), Comb sols, Litho sols (in wooded lands), Luvisols of loamy nature (very fertile), Sandy and Sandy-Loam soils (Alhassan, 2000). The FCT has two geological regions; the Pre-Cambrian Basement Complex and the Sedimentary rocks, and they both have very strong influence on the morphological characteristics of the local soils. (Balogun, 2001)

Methodology
The study rely on essentially on secondary data hence data on rice yield were obtained from Abuja Agricultural Development Project (AADP) in the Federal Capital Territory and the data obtained were subjected to descriptive statistic such as bar charts, pie charts and line graphs.

Discussion of Results
Rice Yield in the FCT
Rice is cultivated in Abaji and also along the flood plains of River Gurara in the western part of the FCT. Of the total land area in the FCT, 20,605,000 Ha is used in cultivating RiceAkande (2000). In 1999 18,000 Ha was used to produce 35.91 thousand Metric tons of rice while the area under cultivation fall in 2001 to a low of 7.51 thousand Ha producing 15.987 thousand Metric tons. During the period of study (1983-2009), the average national yield was 1.47 tons per hectare while that of the FCT was 2.02 tons per hectare. Significant improvement in rice production in the FCT started in 2002 and continued steadily since then. This study is in agreement with Akande (2000) that since the 1980s till date, rice output and yield has increased, suggesting extensive rice cultivation and an unchanging preference for rice consumption.
Fig 2: FCT Rice Cultivated Area by ‘000ha
Figure 3 presents the area used in the cultivation of rice by ‘000 hectare in the FCT within the study period. The area under cultivation decreased from 1999 to 2001 and start steady increase to 2009.

Fig 4: FCT Rice Yield In Tons (‘000)/Ha (‘000)
Figure 4 gives a pictorial comparison between the area of rice cultivated and the production of rice on these lands. The result shows clearly that the increase yield in metric tons of rice is directly proportional to the cultivated area.
**Fig 5:** Scattergram with Trend Line for Rice Production in the FCT 1999-2009
Figure 5 shows that the trend of rice production in the FCT is increasing which implies there is a positive linear movement.

**Fig 6:** Scattergram with Trend Line for Rice Cultivated Area in the FCT 1999-2009
Figure 6 shows that the trend of rice cultivated area in the FCT is increasing which means that there is room for future increase and even production of rice for export.
Conclusion
In the Federal Capital Territory, it can be deduced that the rice production has significantly increased as shown in the result. This is as a result of the population increase which has consequently the number of area under cultivation and this has led to higher yield. The implication of this is that the rapid population increase as observed in the FCT recently can be adequately fed and hence the food security in the territory is not threaten.

References
BNRCC (2008): Building Nigeria’s Response to Climate Change (BNRCC), Vulnerability, impacts and adaptation to climate change in Nigeria