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Effect of High Population Density on Rural Land Use in Federal Capital Territory, Abuja – Nigeria

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Abstract
The study investigates the effect of high population density on rural land use in rural Federal Capital Territory (FCT) of Abuja, Nigeria. The main purpose is to look at the available land space of FCT and the area earmarked for farmers especially the rural people and how this land has been lost to other human activities such as settlement, agriculture, transportation and grazing due to population pressure; with a view to bringing to the notice of the FCTA (Federal Capital Territory Administration), the negative effect of this on food and fruits supply from the rural areas. This it is hoped will help to expedite action to checkmate the trend. The study adopts a cross-sectional survey design. A total of 150 out of the 200,020 farmers randomly selected using the purposive sampling technique constitutes the study sample. The instrument used for data collection was the structured questionnaire, and data collected were analyzed using the quantitative approach. Findings indicate that a greater percentage of the land mass in FCT is eaten up by settlement and other human activities due to the pressure of population. This leads to reduction in food crop production and increased starvation and hunger in urban FCT. It is therefore recommended amongst others that government should provide low cost houses in designated areas to reduce lost of farmland to settlement and other activities due to high population density.

Keywords: population, population density, rural, land, land use,

INTRODUCTION

Peasant farming in the Federal Capital Territory (FCT) aims chiefly at food crop production for domestic consumption and internal exchange. It does not in any way involve the use of mechanical power rather, it has been developed and practiced over the years, and the returns from its method of production are fully understood. Land is generally regarded as an important factor of agricultural production and it is acquired mainly through inheritance and leasehold. A very large majority of the farmers acquire it through the former method (Ola, 2001).

Land is leased only to non-members of the family as well as non-members of the community. The most preferred areas for farming are the upper parts and the bottom slopes. The former is well drained and the latter, poorly drained. Different crops whose specific requirements are met by the nature of the terrain are planted in these locations (Ola, 2001).

Two systems of crop production are commonly practiced i.e. bush fallowing and permanent cultivation. The former, which is also known as shifting cultivation, is one by which farmlands are abandoned for new ones after a period of cultivation (Ola, 2001). It is thus a system by which farmlands are rotated rather than crops. Its main determinant is the ratio between the length of time the soil will sustain cultivation with satisfactory yields and the restoration of its fertility (Abumere, 1991).

Permanent cultivation on the other hand, is practiced mainly in the fadama. Fadama areas have distinct physical, micro-climatic and ecological characteristics, and these make fadama farming quite different from adjacent uplands. The crops that are commonly produced during the rainy season are rice, sugar cane, banana and plantain. Some of those produced through small-scale irrigation during the dry season are tomatoes, okra, maize and pepper. After this, the land is either utilized to grow vegetables or left to fallow for about six months. Dutse-Alhaji area has one of the highest numbers of years of continuous cultivation of fadama for rice production in the FCT. These two farming systems can be said to represent an equilibrium that is established between the people and this ecological zone. This equilibrium is, however, not in any way static, because the on-going induced changes in the FCT have significantly affected many facets of this economic activity (Agboola, 1998).

The number of years of cropping on a given farmland depends mostly on the soil's inherent fertility. It also determines the cropping pattern that is adopted by a farmer from virgin land, to when it is abandoned to fallow. Furthermore, the choice of crops to be planted on it in a given year depends on its fertility status.

The most fertile soils are usually reserved for cash crops such as yam, and groundnut. The average number of years of cropping is four, with a range of between two and seven years. On soils that have been previously under fallow, the period could be as low as two years e.g. Orozo, Tunga-Maje, Dobi, Pandagi and Kwali areas. On the other hand, this could be from three to seven years in virgin land. This is true of Yaba area, with its very low man-land ratio. Farmlands are left to fallow for a period of an average of six years. However, there are considerable variations in the period from one locality to another. Wako area has the longest fallow period of over ten years while Gwagwalada, Gwagwa, Karmo and Karu- Nyanya have the shortest fallow period of one to two years. These are local example of where increasing population has adversely affected the efficiency of shifting cultivation by reducing fallow periods (Agbo, 2010).

DEFINITION OF TERMS

Population is the total number of people who live in a specified area or territory such as a country, province, ethnic territory or a town. Population occupies a unique and dominant position in the intricate relationship that exists between the environment (land) and development. It is also a count of number of residents within a political or geographical boundary.

Density is the ratio of one quantity to that of another Quantity. ***Population Density*** therefore is the total number of people found per square kilometer in a given area or occupying a unit land area.

Population Density is a measurement of population per unit volume. It is frequently applied to living organisms and particularly to humans. Population density is population divided by total land area or water volume as appropriate. For humans, population density is the total number of people per unit area, usually quoted per square kilometer or square mile.

Land refers to soil material in the top layer of the surface of the earth in which plants can grow. It is the solid part of the earth's surface not covered by water used for agriculture and other human activity.

Land Use is used to refer to the work that the land is put to use. It can be rural land use or urban land use. Rural land use can be majorly that of agriculture and other related uses.

Rural means living or characteristic of farming or country life. It is also relating to the countryside as opposed to the city. ***Rural land use*** here can be majorly that of agriculture and countryside life style. No sign of urbanization.

RESEARCH PROBLEM

Population pressure on resources is an important and critical developmental issue. According to R.K Udo, population pressure on resources (land) has been at the centre of population debate and is the major cause of both the resource (land) crisis and climate change. The population debate itself has a long history dating back to ancient Greece and the epic treatise. And essay on the principle of population by Rev. Robert Malthus in 1778. In 1955, there was a major assessment of the impact of population on the environment at a symposium at Princeton University United States of America. The papers presented later appeared in print under the graphic and appropriate title "Man's Role in Changing the Phase of the Earth, Proceedings of a Symposium". The volume was edited by William L. Thomas Jr., and its contents greatly influenced research and thinking on the subject for many years up to and beyond the 1972 UN Conference on Human Environment at Stockolm. Several other conferences such as UN Conference on Environment and Development (UNCED), referred to as the Earth Summit, took place at Rio de Janeiro from June 2 – 14, 1992. That was two years after the Scientific Meeting at Clark University. Nigeria was one of the 180 countries that participated in what turned out to be the largest international meeting to discuss the state of the world environment. For many countries that conference marked the turning point in their determination to grapple with the serious problems posed by population pressure on land.

In the process of creating development, the human beings have turned out to be the most dynamic agent of transformation and destruction of land (Ola, 2001). It is the continued growing demand for land by an ever increasing population (population pressure) that has created this problem in the rural areas of Federal Capital Territory (FCT) of Abuja.

OBJECTIVES OF THE STUDY

The main purpose of the study is to determine the effect of high population density on rural land use in Abuja. In specific terms, the study aims:

- To investigate how population density has affected rural land use in Abuja in terms of settlement.
- To find out whether population density has any impact on rural land use in Abuja in terms of agricultural practices.
- To find out how population density has affected rural land use in terms of transportation in the FCT.
- To find out the effect of population density on rural land use in terms of grazing and others in rural FCT.

RESEARCH QUESTION

The following are the research questions are raised:

1. How has high population density affected land use in rural FCT in terms of settlement?
2. How has high population density affected land use in rural FCT in terms of Agriculture?
3. How has high population density affected land use in rural FCT in terms of Transportation?
4. How has high population density affected land use in rural FCT in terms of grazing and other factors?

SIGNIFICANCE OF THE STUDY

The rapid growth of population in the recent past in the FCT has accelerated all facets of resource exploitation especially land, as such the significance of this study cannot be overemphasized. The study will not only enlighten the populace on the potential climate change, but it will also bring to the notice of the FCTA (Federal Capital Territory Administration) the negative effect of this on food and fruits supplied. In addition it will provide insight on the need to expedite action in curtailing the current trend of influx of people into the rural FCT depleting agricultural land use.

METHODOLOGY

Research Design: The rapid growth of population in the recent past has accelerated all facets of resource exploitation especially land in the study are. This study investigated the effect of high population density on rural land use in Abuja. There are 200,020 farmers in the study area (NPC, 2006). A cross-sectional survey design was used for the study. This study is a form of quantitative approach. The quantitative approach is the use of statistical methods for data analysis to study random samples in order for the findings to be generalized beyond the samples to the population (Fraenkel & Wallen, 2003).

Sample and Sampling Procedure: The study covered five Area Councils of the FCT instead of six. Purposive random sampling technique was used to select 150 farmers. The respondents were 100 male and 50 female farmers. The reason for this choice is the high impact of women in rice production in the Dutse Alhaji area as observed by Ola (2001). Time was another constrain that did not allow the researchers to take more than the number of farmers sampled for this study.

Research Instrument: A structured questionnaire was the instrument used for data collection. This was developed based on the research question. The questionnaire was made up of sections A – E. This was to enable the researchers elicit information on the effect of high population density on land use especially for developmental purposes. The instrument was subjected to content validation by three experts in the School of Arts and Social Sciences of FCT College of Education, Zuba, Abuja. The instrument was assessed for reliability using Cronbach Alpha which yielded 0.75 indicating high reliability. The research questions were answered on individual item basis using 2.50 and above as high or important while below 2.50 were rejected or not important

RESULTS

Table 1: Effects of high population density on land use in rural FCT

Area Council (land mass)	Settlement	Agriculture	Transportation	Grazing	Others
Abaji (992 km^2)	446 (45%)	257 (26%)	148 (15%)	99 (10%)	40 (4%)
Bwari (914 km^2)	704 (77%)	92 (10%)	119 (13%)	73 (8%)	18 (2%)
Gwagwalada (1,043 km^2)	678 (65%)	208 (20%)	104 (19%)	42 (4%)	10 (1%)
Kuje (1,644 km^2)	921 (56%)	493 (30%)	164 (10%)	66 (4%)	0 (0%)
Kwali (1,206 km^2)	482 (40%)	386 (32%)	145 (12%)	169 (14%)	24 (2%)

(Source: Field Survey, 2013)

From the table above, Area Councils like Kuje and Kwali are far away from the City Centers and are the ones that agricultural lands are still large with 32% in Kwali and 30% in Abaji. Others have a greater percentage of their land mass eaten up by settlement. The total land area for each Area Council is however fixed. The pressure of population on available land is therefore increasing and FCT is an area where more than 60% of the rural populace obtains their living from tilling the ground.

Apart from settlement, the available land for agriculture are also engaged by other human activities the consequences of this is drought, soil erosion and desert encroachment which on a long run will result to climate change. Generally, rural areas of FCT with high population densities experiences pressure of population on available land and as such fallow periods are reduced and in many cases land is cultivated every year.

CONCLUSION AND RECOMMENDATION

Based on the findings from this study, it can be concluded that there is great pressure on rural land in the FCT with most of the farmlands giving way or being lost to settlement. Also the turnout of food crops is greatly reduced which (in the long run) may result in starvation and hunger in urban FCT.

Based on the findings above, the following recommendations are made to assist government and individuals in rural FCT:

- There is need for Nigerian government to provide low cost houses for the rural area to reduce lost f farmland to settlement and other activities that resulted due to high population density.
- Government should make lives in the rural areas attractive so that influx of people into Abuja will be greatly reduced.
- There is need for government to reshape land sales to enable parcels of land to be kept for agriculture in all the various areas of the Councils.
- Federal government should monitor land in all the spheres of government especially for roads, grazing and others.

LIMITATION OF THE STUDY

This study is however limited due to constraints encountered during the course of the study. One of the limitations is that of the use of purposive sampling which drastically narrow the scope the study. This is as a result of the constraint of time and financial resources.

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