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ORIGINAL ARTICLE

Farmers Response to Urban Land Use Encroachment on Agricultural Land in Afikpo North Local Government Area, Ebonyi State, Nigeria

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ABSTRACT
The level of encroachment of urban land use on agricultural land is currently a call for concern. This study evaluated the response of farmers to encroachment of urban land uses on agricultural land in Afikpo North LGA, Ebonyi state, Nigeria. Multi-stage sampling techniques were used to collect data from 160 farmers using structured questionnaire. Both descriptive and inferential statistics were used to realize the objectives. The result on the socio-economic characteristics of the respondents showed a mean age of 36 years. Majority (61.2%) of the respondents were male and are married (47.5%) with secondary education (50.6) and a mean household size and farming experience of 8 persons and 10 years respectively, with average farm size of 7 hectares. The result also showed arable crop production and residential areas among others as the major agricultural land use pattern and urban land use encroachment on agricultural land respectively. Again, the result showed changing from one form of farming to another as some strategies adopted against urban land use encroachment in the study area. The result of the multiple regression analysis revealed significant relationship between farmers' socio-economic characteristics and their response to urban land use encroachment on agricultural land as all independent variable were positive and some statistically significant at different (1%, and 5%) levels of probability. The study further identified institutional factors as the major constraints to farmers' response to urban land use encroachment on agricultural land in the study area. Finally, the study recommends that government should introduce technologies and advanced farming techniques to cushion the effects of urban land use on agricultural lands amongst others.
Keywords: *Urban Land Use, Encroachment, Agricultural Land, Afikpo North.*

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INTRODUCTION

Land is a fundamental factor in production. It is the source of livelihood and means of income or life insurance for rural farming community. Growth and development of the farmers is surely dependent on farm land. Despite the tremendous changes in socio-economic and technological development all over the world in recent decades, agriculture still remains a crucial sector in human endeavour. Rapid urban growth and development has been noted as an important driver of environmental change resulting from population growth, especially in developing countries [1, 2, 6, 7]. This has been associated with severe environmental, social and economic consequences, including climate changes, depletion of agricultural resources and deforestation [4, 8, 9, 10, 12, 19] . In developing countries generally and Nigeria in particular, in view of the increasing pace of urbanization, the extent and severity of the diversification and intensification of underlying processes and the impact of city expansion are bound to increase, particularly in the hinterland areas of small and medium-sized cities.

Ebonyi state especially Afikpo North Local Government Area from historical perspective was made up of rural communities which depended primarily on agricultural production, but now is rapidly becoming

urbanized [2]. This is as a result of increased influx of people and other developments that have taken place and still taking place since her creation in 1st October, 1996 [15]. This has influenced the rate of growth and development taking place in Afikpo North Local Government Area. Afikpo North was predominantly a rural and agricultural area. It was sparsely populated with a vast area of fertile agricultural land. Generally, access to agricultural land was through inheritance. However, non-indigenes and indigenes who reside in different communities in Afikpo North who did not have sufficient land acquire land for farming purpose through buying, leasing and borrowing. Land then was not commercialized. The creation, growth and development of Ebonyi state has brought about significant changes in traditional farming and land tenure system in the local government. One consequence of the development has been the progressive encroachment of urban land use on agricultural land from time to time, the government also takes over land from the farmers for other developmental projects without a commensurate effort to increase production through technologies and mechanization. Lands in different communities in Afikpo North have been highly commercialized. The various urban land uses that have encroached upon agricultural land include commercial, constructional, residential, educational, medical, religious, and recreational development [2]. These developments have taken place and are still taking place on land hitherto used for agricultural production. The conversion of agricultural land to urban land use activities is a potential threat to agricultural production [15-18]. All these developments have reduced agricultural land in the area and have caused the farmers to face the problem of urbanized status such as reduced farm lands, increased demand for food products and energy. The encroachment on agricultural land by urban land users has several consequences.

First of all, it is observed that the analysis of the interaction between man and the environment has been partial to the extent that man's role in the relationship is conceived merely as a modifier of environmental variables and as a passive recipient of the effects of urban encroachment. We argue here that farmers and communities respond to the adversities mediated by the process of urban encroachment, though with different levels of success. An assessment of the response of farmers will help to identify objects of positive policy and to formulate programs aimed at strengthening farmers and communities to be able to respond satisfactorily to the inevitable consequences of city growth. While research in the field has continued to focus on the environmental consequences of urbanization and the ecological footprints of cities, The need to understand farmers response to the impact of urban land use encroachment on agricultural land is important both for scientific and for practical purposes and how farmers in the communities respond to this problem is the focus of this study.

Also the response of farmers to the encroachment of urban land uses on agricultural land is yet to be examined extensively in academic research, especially in Afikpo North Local Government Area of Ebonyi State. The main purpose of this study is to remedy this deficiency.

The broad objective of the study was to analyze the response of farmers to encroachment of urban land uses on agricultural land in Afikpo North Local Government Area of Ebonyi State, Nigeria. However, the specific objectives were; to: describe the socio-economic characteristics of the farmers in the study area; determine major agricultural land use pattern of the farmers; examine type of urban land use encroachment on agricultural land of the study area; assess the farmers response to urban land use encroachment in their agricultural land; determine the relationship between the farmers socio-economic characteristics and their response to urban land use encroachment on the agricultural land; Identify the problems/consequences of urban land use encroachment on agricultural land in the study area; identify constraints to farmers response to urban land use encroachment on their agricultural land. The null hypothesis (H_o) There is no significant relationship between the farmers' socio-economic characteristics and their response to urban land use encroachment to agricultural land in the study area was tested at 5% level of probability.

MATERIAL AND METHODS

The study was carried out in Afikpo North Local Government Area of Ebonyi State, Nigeria. From the center of Afikpo town to Abakaliki which is the state capital is 59km. It is within latitude 450E, and longitude 600N of Ebonyi State land mark. Afikpo North Local Government Area of Ebonyi state is situated at North-East boundary of Abia state. Based on three (3 percent) increase projection by NPC, the population of Afikpo North is estimated to be 276230 as at 2018, [14].

Multi-stage purposive and random sampling techniques were used to select 160 respondents for the study. Out of the seven communities that made up Afikpo North Local Government Area, five communities that are prone to urban encroachment were purposively selected. From each of the five selected communities, two villages were randomly selected to give a total of 10 villages. And finally, there was a selection of 16 farmers from each of the 10 selected villages to give a sample size of 160

respondents for the study. Data were collected from primary source using a well-structured questionnaire and analysed with the aid of both descriptive and inferential statistics. Descriptive statistics such as percentages, frequency distributions and averages, were used to achieve objective i, ii, iii, iv and vi while objective v and vii were achieved using multiple regression and factor analysis respectively.

RESULTS AND DISCUSSION

The results and discussion were based on the specific objectives of the study

Socio-economic characteristics of the farmers

The result on age of the respondents revealed that the mean age of the respondents was 36 years, with majority (63.8%) within the age group of 21-40 years. This implies that the respondents were still within the active and economic age. This result is not in line with the findings of Ogunwale [15]; Ezedinma and Oti [11] who reported that the mean age of farmers in Nigeria were between the ages of 45-48 years and also was not in agreement with the findings of Iorlamen, Abu and Lawal [13] who found that majority of the food secured farmers in Benue state fell within the age bracket of 41-60 years. This could be associated to the area of study since majority of the encroached agricultural lands are farmed by the youth whose farm sizes are small and large farmers relocated to the interior villages where they will have more access to land.

Result on gender showed that majority (61.2%) of the respondents were male against female (38.8%). This implies that male farmers have more access to land than female. The implication could be due to the cultural and religious background of most African communities that still put women's enterprise under their husband's care as a form of submission. This finding on gender agreed with that of Bamire [3] on the effect of tenure and land use factors on food security among rural household in the dry savannas of Nigeria, where majority (92.5%) of the respondents were male.

The result on marital status revealed that majority (47.5%) of the respondents were married. This means that a high proportion of the farmers had family responsibilities and would likely use land more intensely. This is in conformity with Oluwatayo [17] who opined that about 63% of the farmers in rural areas in Nigeria were married.

The result on educational status of the farmers revealed that majority (50.6%) of the farmers had completed secondary education, and only 16.3% had no formal education. This implies that illiteracy is not likely to be a major constraint to suitable response to urban encroachment to agricultural land. This result is in line with the study of Odemero, [15] who opined that illiteracy is not a major constraint to Fadama III development in the study area.

The result on religion showed that most of the farmers (54.4%) were Christians, while 31.7% and 25.8% were traditionalist and Muslim respectively. The result implies that the Christian farmers are more in number than other forms of religion such as traditional and Muslim in the study area.

The result on household size indicated an average household size of 8 persons with majority (55.6%) between 6-10 persons per household. The large household size could be assumed to be the source of labour, skills and strong social capital to adapt to changing situations.

The result on farm size also showed an average of 7 hectares per household, with majority (43.1%) between 4.1-8 hectares. This implies that majority of the farmers in the study area are large scale farmers.

The result on annual income showed a mean annual income of ₦174,375 with majority (50.6%) earning between ₦100001- N200 000. This showed that most of the farmers are low income earners and may not meet up with some adaptive measures.

Result on occupation showed that majority of the respondents (61.3%) engaged in full time farming activities. The result further showed that civil servants, trading, farming and artisans were 19.4%, 11.9% and 7.5% respectively.

The result on farming experience revealed that majority (47.5%) of the respondents have farming experience of 6-10 year, with an average farming experience of 10 years. This implies that, the respondents were experienced farmers.

Finally, the result on membership of Cooperative Society showed that majority (67.5%) of the respondents belong to farmers' cooperative society while 32.5% do not belong to cooperative society. Social participation enhances farmer's local production activities. Successful and enduring local associations create relationships with a common purpose and promote shared interests, but could also provide emotional and practical support, information and resource sharing, building of community members' capital to mitigate and respond to natural and man-made hazards. This result is not in line with Bamire [3] that about 70% of the respondents do not belong to any farmers association. But due to the

nature of this study, the a priori was met since the study area has been encroached by urban activities some cooperative societies are expected to exist in the area.

Table 1: Percentage distribution of the farmers according to their socio-economic characteristic

Parameters	**Frequency**	**Percentage**	**Mean**
Age (years)			
≤20	9	5.6	
21-40	102	63.8	36
41-60	49	30.6	
Gender			
Male	98	61.2	
Female	62	38.8	
Marital Status			
Married	76	47.5	
Single	41	25.6	
Divorced	16	10	
Widow	20	12.5	
Separated	4	2.5	
Widowed	3	1.9	
Educational Status			
No formal Education	16.3	26	
Primary Education	20	12.5	
Secondary Education	81	50.6	
Tertiary Education	33	20.6	
Religion			
Christianity	87	54.4	
Muslim	27	16.8	
Traditional	46	28.8	
Household size			
1-5	46	28.7	
6-10	89	55.6	8
11-15	10	6.3	
16-20	10	6.3	
Above 20	5	3.1	
Farm Size (ha)			
0.1-4	48	30	
4.1-8	69	43.1	7
8.1-12	13	8.1	
12.1-16	19	11.9	
Above 16	11	6.1	
Annual farm income			
≤100 000	46	18.1	
10 0001-200 000	69	50.6	174 375
200 001-300 000	15	10	
300 001-400 000	20	15.2	
Above 400 000	10	6.3	
Primary Occupation			
Farming	98	61.3	
Civil servant	31	19.4	
Trading	19	11.9	
Farming & Artisans	12	7.5	
Years of farming Experience			
1-5	30	18.8	
6-10	76	47.5	10
11-15	26	16.3	
16-20	16	10	
Above 20	12	7.5	
Members of Cooperative Society			
Yes.	108	67.5	
No.	52	32.5	

Source: Field Survey, 2018.

Major Agricultural Land Use pattern adopted by the farmers before the Urban land use Encroachment.

Different agricultural land use pattern adopted by farmers before the urban land use encroachment were also analyzed and presented in the Table 2.

Table 2: Percentage distribution of the respondents according to major agricultural land use pattern adopted before the urban land use encroachment.

Agricultural land use pattern	*Frequency	Percentage
Shifting cultivation	50	31.3
Arable crop production	82	51.3
Bush fallow system	49	30.6
Perennial crop plantation	40	25.0
Fish farming	66	41.3
Game reserve area	23	14.4
Plantation of economic trees	52	32.5
Continuous cropping	39	24.4
Range land	28	17.5
Crop rotation	42	26.3
Grazing land	33	20.6
Animal production	79	49.4
Farm storage	43	26.9

Source: Field Survey, 2018.

The result of the analysis presented in Table 2, showed that arable crop production (51.3%), animal production (49.4%), fish farming (41.3%), economic trees plantation (32.5), shifting cultivation (31.3), bush fallow system (30.6), farm storage (26.9), crop rotation (26.3), perennial crop plantation (25.0), continuous cropping (24.4), and grazing land (20.6) were the major agricultural land use pattern adopted in the study area before urban encroachment. The minor agricultural land use pattern adopted were range land (17.5) and game reserve areas (14.4).

Urban Land use Encroachment on agricultural land in the study area.

The various urban land use encroachment on agricultural lands in the study area as identified by the farmers were shown in Table 3.

Table 3: mean score on urban land use encroachment on agricultural land in the study area

Urban land use encroachment	$\overline{X}$	Remarks
❖ Commercial activities such as expansion of market place	2.6	Accepted
❖ Construction of Roads	2.8	Accepted
❖ Expansion of residential areas	3.1	Accepted
❖ Educational activities such as building of school	2.9	Accepted
❖ Medical activities such as building of hospitals	3.0	Accepted
❖ Religious activities such as building of churches	2.6	Accepted
❖ Building of recreational centres	2.5	Accepted
❖ Water reservoirs development	2.2	Rejected
❖ Acquisition of land as government reserve areas	2.9	Accepted
❖ Building of government headquarters such as LGAs	3.0	Accepted
❖ Acquisition of land by the armed forces such as police	2.3	Rejected
❖ Tourism development	2.4	Rejected
❖ Industrial development	2.3	Rejected

Source: Field survey, 2018.

From Table 3; it was observed that expansion of residential areas (= 3.1), building of government headquarters such as LGA (X=3.0), Medical activities such as building of hospitals (x=3.0), acquisition of land as government reserved areas and estates (X=2.9), educational activities such as building of schools (X =2.9), construction of roads (X = 2.8), religious activities such as church building(X=2.6), commercial activities such as expansion of market place (X=2.6), and building of recreational centres (x =2.5), were urban land use encroachment pattern on agricultural land in the study area. The urban encroachment on

agricultural land is one of the most important phenomena which attract attention and have received a great interest from scientific research in recent times because of its negative effects on agricultural land.

Farmers Response to effect of urban land use encroachment on Agricultural land

There were various strategies adopted to mitigate urban land use encroachment on agricultural land as presented in Table 4.

Table 4: Frequency Distribution on Farmers Response to Effect of Urban Land Use Encroachment on Agricultural Land

Items	*Frequency	Percentage
❖ Intensification of the use of remaining farm plot	62	38.8
❖ Acquisition of new farm plots in further outlying rural areas	46	28.8
❖ Turning farming into part time business	53	33.1
❖ Engage in off-farm activities	48	30.0
❖ Production of specialized crops	56	35.0
❖ Changing crops grown and the purpose of growing them	60	37.5
❖ Relocation to the rural areas where there is farm land	51	31.9
❖ Adoption of new farming techniques such as the use of irrigation	68	42.5
❖ Changing from one form of farming to another such as crop farming to animal production	71	44.4
❖ Changing from crop farming to agribusiness	65	40.6
❖ Changing agricultural production in line with new demands such as poultry/fish production	49	30.6

*Multiple Response Recorded

Source: Field Survey, 2018.

After careful examination of the results, it was observed that change from one form of farming to another such as crop farming to animal production (44.4%), adoption of new farming techniques such as the use of irrigation (42.5%), changing from crop farming to agribusiness (such as marketing /distribution, farm input supply, etc) (40.6%), intensification of the use of remaining farm plot (38.8%), changing crops grown and the purpose of growing them (37.5%), production of specialized crops (35.0%), turning farming into part time business (33.1%), relocation to the rural areas where there is farm land (31.9%), changing agricultural production in line with demands such as poultry/fish production (30.6%), engaged in off-farm activities (30.0%) and acquisition of new farm plots in further outlying rural areas (28.8%), were the adopted strategies to urban land use encroachment in the study area. This implies that rapid urbanization, population pressure, governmental activities, industrial and commercial needs of a fast growing city have affected the land use system in Afikpo North LGA, negatively.

Therefore, pressures of urbanization have negative implications on predominantly poor farming communities in Afikpo North LGA. Though, urbanization is necessary but not to extent of denying the rural folks of their main source of livelihood.

Multiple regression analysis of the relationship between the farmers' socio-economic characteristics and their responses to urban land use encroachment on agricultural land.

Multiple regression analysis was used to analyze the relationship between the farmers' socio-economic characteristics and their response strategies to urban land use encroachment on their agricultural land and the result was presented in Table (5).

The result of the multiple regression analysis showed that the coefficient of the multiple determination (R^2) was 0.865 (86.5%) and adjusted R^2 was 0.821, this means that about 86.5% variation on the dependent variable was influenced by the combined effect of the independent variables (x_1- x_{11}) and the remaining 13.5% change in the dependent variable was caused by those variables that are relevant to the dependent variable (Y), but were not included in the regression model, since they are not the subject of the study. The high value of R^2(86.5%) signifies that the independent variables (x_1 - x_{11}) had significant effects on the dependent variable and that important variables were not omitted from the regression model used. This was confirmed by the positive coefficients of all the independent variables. The closeness of R^2(86.59%) to adjusted R2(82.1%) in numerical value implies that explanatory power of the regression model employed was not exaggerated and the overall significant relationship between farmers socio-economic characteristics and their response to urban land use encroachment on agricultural land in the study area was shown by the low value of the standard error of the estimates (0.71541).

Table (5) Multiple regression analysis on the relationship between the farmers socio-economic characteristics and their responses to urban land use encroachment on the agricultural land

Variable code	Derivable name	Regression coefficient	Std error	t-value
Constant		1.658	0.686	2.416***
x_1	Age	0.015	0.017	0.878
X_2	Gender	0.269	0.235	1.147
X_3	Marital Status	0.460	0.080	5.748***
X_4	Annual income	0.033	0.068	0.482
X_5	Household size	0.054	0.073	0.738
X_6	Membership of cooperative society	0.060	0.023	2.679***
X_7	Religion	0.003	0.015	0.235
X_8	Farming Experience	0.048	0.095	0.505
X_9	Farm size	0.112	0.67	1.658**
X_{10}	Level of Education	0.001	0.034	0.024
x_{11}	Other occupation	0.355	0.217	1.635**

Source: Field Survey, 2018.***, **Statistically significant at 1% and 5% levels of probability respectively.

The coefficient of age (x_1) was positively signed and statistically not significant at 1%, 5% and 10% levels of probability. This implies that an increase in age will increase the farmers' response to urban land used encroachment on agricultural land. This may be because older farmers must have acquired enough experience on the best responds strategy. This is in l ine with the findings of Twerefou *et al.,* [20] who reported that an increase in age increased the probability of having right to urban land use and transfer of agricultural land.

The coefficients of gender (x_2) and marital status was found to be positive and while gender was not significant at 1%, 5% and 10% levels of probability, marital status was found to be significant at 1% level of probability. This implies that married people respond more to urban land use encroachment on agricultural land in Afikpo North Local Government Area than the single.

Furthermore, the coefficient of annual income (x_4) was found to be positive and not significant at 1%, 5% and 10% levels of significance. This implies that, an increase in annual income increases the response of farmers to urban land use encroachment on agricultural land in the study area. Household size of the respondents was found to be positively related to the response to urban land use encroachment on agricultural land and was not significant at 1%, 5% and 10% levels of probability. This implies that larger families device more means to respond to urban land encroachment on agricultural land since their number can lead to more suggestions on the best way to solve the problems of urban land use encroachment on agricultural land.

The coefficients of membership of cooperative society (x6) and Religion (x7) were positively related to urban land use encroachment on agricultural land. While membership of cooperative society was significantly associated with response to urban land use encroachment on agricultural land; religion was not significant. The coefficient of years of farming experience was positive and not significant at 1%, 5% and 10% levels of probability. This suggests that the more experienced the farmers were, the more likely they are to respond to urban land use encroachment on agricultural land. The a priori expectation was met because farming experience was expected to correlate positively with response to urban land use encroachment on agricultural land in the study area. Farm size was found to be positively signed and significant at 5% level of probability. This implies that increasing the size of the farm increases the probability of responding to urban land use encroachment on agricultural land. This implies that if farmers have access to large expanse of land, it could influence farming activities, which could bring more income to empower the farmers to adopt practices that will sustain land use.

Educational level of respondents was found to be positively related to response to urban land use encroachment on agricultural land. This implies that increased level of education will increase the likelihood of farmers investing in mitigation measure to urban land use encroachment on agricultural land. In addition, increase in education provides opportunities to response to urban land use encroachment on agricultural land which could increase farmers' capability to acquire more land through purchase for farming activities. Coefficient of other occupation (x_{11}) bore positive sign and was statistically significant at 5% level of probability. This implies that there is positive relationship between other occupation and response to urban land use encroachment on agricultural land. The a priori

expectation was met. This also means that the decision to respond positively to urban land use encroachment also depends on other occupation of the farmers.

To justify the result, the test of hypothesis (**H_{01}**)which states that there is no significant relationship between the farmer's socio-economic characteristics and their response to urban land use encroachment on agricultural land in the study area showed that the f-cal (95.470) > f-tab(3.45) at 5% level of probability. Hence the null hypothesis was rejected while its alternative was accepted. This implies that the farmer's socio-economic characteristics significantly affected their response to urban land use encroachment on agricultural land in the study area.

Finally, the regression equation is shown as:

$Y=1.66+0.02X_1+0.27X_2+0.46X_3+0.03X_4+0.05X_5+0.06X_6+0.00X_7+0.05X_8+0.11X_9+0.00X_{10}+0.36X_{11}$

(0.6) (0.0) (0.2) (0.0) (0.1)(0.1) (0.0) (0.0) (0.1) (0.6) (0.0) (0.2)

Problems caused by Urban land use Encroachment on Agricultural land

Mean score was used to analyze problems caused by urban land use encroachment on agricultural land and result shown in Table (6)

Table (6): Mean score on problems caused by urban land use encroachment on Agricultural land.

Items	Mean($\bar{X}$)	Remarks
❖ Reduce farm plot	3.1	Accepted
❖ Reduced fallow period	2.8	Accepted
❖ Changes in traditional farming system	3.2	Accepted
❖ Land tenure system	2.6	Accepted
❖ Changes in crop grown, values & culture	2.7	Accepted
❖ Land speculation and increased land price	2.5	Accepted
❖ Conflict within family	2.9	Accepted
❖ Land degradation and loss of soil fertility	3.0	Accepted
❖ Distant location of new farms from road & residences	2.7	Accepted
❖ Trespass on land	2.5	Accepted
❖ Farm fragmentation	2.9	Accepted
❖ Increased in service charges	2.5	Accepted
❖ General disruption of rural community	3.1	Accepted

Source: Field Survey, 2018.

The result in Table (7) showed that changes in traditional farming system (X=3.2), reduced farm plot (X=3.1), general disruption of rural community (X=3.1) and land degradation and loss of soil fertility (X=3.0), conflict within family (X=2.9), farm fragmentation (X= 2.9), reduced fallow period (X=2.8), changes in crop grown, values and culture (X= 2.7), distant location of new farms from roads and residences (X= 2.7), land tenure system (X= 2.6), land speculation and increased land price (X=2.5), trespass on land (X=2.5) and increase in service charge (X=2.5).Were the major problems caused by land use encroachment on agricultural lands.

The major consequence of urban land use encroachment in Afikpo North LGA is the increasing demand for land, either as a result of land speculation or development. Therefore, improvement in the socio-economic status of urban dwellers will result in proper utilization of urban land available and end unnecessary encroachment.

Constraints to Farmers responds to Urban Land Use Encroachment on their Agricultural Land.

Factor analysis was used to determine the constraints to farmers responds to urban land use encroachment on agricultural land in the study area and was presented in Table (7).

After critical examination of the result in Table (7) on factor analysis with Kaiser's rule of thumb, the factors that limit the farmers' responses to urban land use encroachments on their agricultural land were categorized into institutional factor, infrastructural factor and knowledge factor.

Factor 1, was named institutional factor because factors under it that were highly loaded with strong coefficients are institutional factors such as lack of money to adopt new technology (0.791), lack of access to credit (0.926), lack of information (0.914), government policies (0.754), political instability (0.526) and non-implementation of land use act (0.914). According to Eboh [9] institutional restriction becomes a constraint by not supporting and facilitating the infrastructure delivery to promote sustainable urban development. Lack of funding is a major constraint that has impeded the implementation of land use pattern.

Table 7: Constraints to Farmers responds to Urban Land Use Encroachment on their Agricultural Land.

	Constraints	Factor 1	Factor 2	Factor 3
		Institutional factor	**Infrastructural Factor**	**Knowledge factors**
X_1	Lack of money to adopt new technology	0.791	0.285	-0.328
X_2	Lack of technical know-how	-0.147	0.016	0.742
X_3	Low level of education	0.050	0.252	0.650
X_4	Lack of subsidy	-0.022	0.049	0.643
X_5	Lack of access to credit	0.926	0.094	0.082
X_6	Lack of information	0.914	0.165	0.131
X_7	Government policies	0.754	0.027	-0.378
X_8	Lack of necessary equipment	0.205	0.812	-0.72
X_9	Political instability	0.526	0.094	0.082
X_{10}	Non implementation of the use act	0.914	0.165	0.131

Source: Field Survey, 2018.

Factor 2, was named "infrastructural factor", because the factors that loaded high under it were related to infrastructure such as: lack of necessary equipment (0.812). According to Carey [5] infrastructure especially road network provides substantial benefits to highway users, in terms of reduction in travel time, increased access to outlying locations and reduction in vehicle operating costs.
Factor 3, was named "knowledge factor" because some variables that loaded high under it are related to knowledge such as: lack of technical know-how (0.742), low level of education (0.650) and lack of subsidy (0.643). This is a limitation in the required knowledge as well as addressing or ensuring the effective control of urban development and management of land use pattern and urban land use encroachment on agricultural land.

CONCLUSION

Based on the findings of the study, it was concluded that changing from one form of farming to another such as crop to animal production; intensification on the use of the remaining farm plot amongst others were adopted strategies to respond to urban land use encroachment in the study area. The result also revealed that there is significant relationship between farmers' socio-economic characteristics and their response to urban land use encroachment on agricultural land as some of the independent variables were positive and significant at different(1% and 5%) probability levels. Again, the study also identified institutional factor, infrastructural factor and knowledge factor as the major constraints to farmers' response to urban land use encroachment on agricultural land in the study area. Finally, the study also identified change in traditional farming system, reduced farm plot amongst others as problems caused by urban land use encroachment on agricultural land.

RECOMMENDATIONS

Based on the findings, the study recommends that government should introduce technologies and advanced farming techniques to cushion the effects of reduced farm size and farm fragmentation.
Developmental plans should be drawn for urban areas by capital territory development authority, with an adequate provision made for agricultural development to avoid trespass on land; there is need for sensitization of public and land owners on land management issues to avoid family and other conflicts on land; Agricultural friendly government policies and policy orientation must be put in place to solve the problem of land speculations and high price of land.

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