



Effect of Urban Expansion on Food Security in Oyi Local Government Area, Anambra State, Nigeria.

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ABSTRACT

The level to which the urban areas are fast expanding due to population upsurge among other accompanying indicators is alarming. The expansion of the urban areas into the fringes is not without implications on food security. Notably, when there is expansion in the suburbs, agricultural lands are mostly converted to other uses. These uses decrease land for agricultural development hence the perceived negative implications on food security. Along this line, the paper assessed the effect of urban expansion on food security in Oyi Local Government Area (LGA) with particular reference to peri-urban areas. Ogbunike and Nwelle-Ezunaka areas which are suburbs were purposively selected for the study. Data were collected using copies of questionnaire. Findings from 400 respondents revealed unanimous acknowledgment of encroachments by physical development. Uncontrolled urban spread primarily affected transportation routes (14%), periphery (10%), and community centers (76%). Agricultural lands (46%) were the most easily converted to other uses, impacting food security. High population growth (74%) in the past 35 years resulted in increased demand for land (65%) and land speculation (35%). Poor land use planning (53%) emerged as a significant factor affecting land use changes, surpassing rapid population growth. The impact on agriculture was evident, with 49% stating urban spread on agricultural lands ranged from 21% to 40%. The study established a correlation between urban expansion and food insecurity, with increasing population and inadequate food resources reported. Based on the observations, it was recommended that appropriate land use control/management measures be instituted by the land use planning and monitoring department within the study area.

Keywords; agricultural land, land, food, food shortage, food security, population growth

1. Introduction

Food security is a situation where all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Abur, 2014). This implies that the basis of food security is the ability of countries, regions or households to meet up with the target food consumption needs such that individuals in a specified organization/region can access food maximally taking their health and general wellbeing into cognizance. Food is basically increasing due to population growth. While population is increasing, there is decline in food production. This is due to increase in housing demand which in turn triggers housing development which brings about changes in land uses from agricultural to other land uses. Food shortage results in inadequate diet and unsustainable consumption pattern (FAO, 2014).

Asia and Africa are growing rapidly with predictions that by 2050, the two continents will account for 90% percent of the world's population (UN, 2018). These changes would imply an increase in demand for land and a change in land use especially within the peri-urban areas where most agricultural lands and farming are practiced between the years 2018 and 2050, India, China and Nigeria are expected to account for thirty five percent (35%) of world population (UN, 2018). Nigeria has been identified as the fastest urbanizing country in sub-Saharan African with an annual growth rate of 3% and the, most of the growth is recorded in cities such as Lagos, Abuja, Markurdi, Kano, (Lorliam and Ortserga, 2019). Furthermore, food production and distribution system have not been able to meet up with increasing demand for food due to unplanned urban spread. Available agricultural production systems, policies and institutions that ought to project sustainable food production and security are inadequate (FAO, 2014). Furthermore, food insecurity and lack of sustainable approach to food production have been attributed to poverty, inequality and malnutrition.

In Anambra State and its major urban areas such as Awka, Nnewi and Onitsha have experienced increased urban population and the expansion of physical development within its environs. This has led to the sudden conversion of arable land, ecosystems and water bodies especially at the peripheries of the town into built up areas. The resultant effect is the decline in food production which further poses a threat to food security. In recent years, Oyi Local Government Area have been witnessing urban sprawl/expansion. The expansion has led to continuous loss of farmlands. Having in mind that food production is largely tied to land availability for agricultural activities; withdrawal of land from agricultural uses due to housing development threatens food production and the decline in production lands. In spite of the obvious observations that food security is threatened by continuous uncontrolled urban expansion in the study area, available studies have not shown the level at which food shortage is experienced in this study area. Furthermore, studies of this nature have not been carried out with reference to Oyi Local Government Area. This suggests that there is a gap in knowledge that needs to be filled.

Based on this premise, this study seeks to examine the impact of urban expansion on food security in peri-urban areas of Oyi Local Government Area of Anambra State, Nigeria.

2. Literature Review

Policies on Food Security

It has been observed that in India there are several policies aimed at facilitating the need for urban and peri-urban agriculture to be used in addressing food security. These policies address the constraints to sustainable urbanization, with the sole aim of achieving food security. An example of such policies in India is the natural land utilization policy. This focuses on protecting land suitable for agricultural purposes, ensures food security, addresses future consumption need and livelihood as well as considering the natural environment and ecosystem (Mars et al., 2010). Another notable policies that was introduced was vegetable initiative for urban clusters (VIUC). This was launched by the government in 2011-2012 with the aim of supplying vegetables to urban clusters from adjoining villages and peri-urban areas, it also captures the composting of solid waste management (SWM) rules of 2016. With this the soil quality and structure is preserved while ameliorating the cost and environmental impact attributed to the use of synthetic fertilizer inputs (IIED, 2017).

One of the notable concerted efforts made by government in this regard is the Millennium Development Goal, which focused on addressing hunger, poverty, malnutrition and so on. One of the recent international efforts to address the challenges of food security is the recently concluded Millennium Development Goals. Goal 1, to end hunger and poverty, included three distinct targets: halving global poverty, achieving full and productive employment and decent work for all, and cutting by half the proportion of people who suffer from hunger. The year 2015 marked the end of the monitoring period for the Millennium Development Goal targets. Using the three-year period 1990–92 as the starting point, FAO, IFAD and WFP concluded in 2015 that 72 of the 129 countries monitored for progress had reached the target of Goal 1. Most of those countries enjoyed stable political conditions and economic growth, accompanied by sound social protection policies targeting vulnerable population groups (FAO, 2015). In those countries, the commitment to fight food insecurity proved successful in spite of the difficulties posed by rapid population growth, volatile commodity prices, high food and energy prices, and rising unemployment. Some regions missed the overall goal (e.g. sub-Saharan Africa, the Caribbean, Southern Asia, Oceania) and the percentage of undernourished people in Western Asia even increased during the period (FAO, 2015).

The Sustainable Development Goals (SDGs) were targeted at achieving zero hunger. Precisely, on 1 January 2016, the 17 Sustainable Development Goals officially came into force as successors of the Millennium Development Goals. Sustainable Development Goal 2 aims to end hunger and ensure access to sufficient, safe and nutritious food by all people all year round. The Goal addresses a large diversity of tasks, starting from an increase in yield and improved infrastructure to the functioning of local markets and international commodity trading. In detail, Goal 2 has a series of eight targets to support the three interrelated components of the Goal: ending hunger, economic recessions of the late 1990s and again after 2008 (FAO, 2015). The success of the goal was more realistic in countries such as; Caucasus and Central Asia, South-Eastern Asia, Eastern Asia and Latin America, especially in the areas of achieving food security and improved nutrition, as well as promoting sustainable agriculture. Target 2.1 achieving by 2030 access to food, and target 2.2 refers to under nutrition. The other six targets relate directly or indirectly to sustainable production systems, trade, biodiversity and climate change (FAO, 2015).

Furthermore, Jayne, Sieglinda, Frank and Nicholas (2019) conducted a study on sustainable agricultural intensification in Africa. They pointed out clearly that given the rapid economic transformation in Africa, farming will remain a major source of livelihoods and employment in Africa for the next several decades. Hence, the need for deliberate effort in form of researches and extension services to boost food production and livelihood security at the community level. This was similar to the view of Andersson, Ola, Aida, Elibarik and Genesis (2020) where sustainable agriculture intensification in Tanzania was reported to have exerted great potentials in addressing food insecurity, poverty as well as boost commercialization and mitigating environmental ills.

However, according to Alana, Jennifer and Charisma (2018), they noted that urban agriculture is not the only solution to food insecurity and food access; in fact, it is a devolution of responsibility for policymakers to expect urban farms to serve as primary subsistence or primary food-producing sites run by and for low income communities without external support. This implies that urban agriculture is part of the solutions portfolio to improve food justice and food access. Hence, it should be complemented by sustainable policy, planning and civic engagement efforts to provide affordable, healthy food through effective neighbourhood farming and marketing (Alana et. al, 2018). In India the government has shown tremendous commitment in ensuring that food insecurity is a thing of the past. As reported by Anjani, Kumar and Shiv, (2012) such effort included the increasing food grain production, intervention in the grain market, initiating public distribution system as well as monitoring of stocks for major grains. This policies and strategies were backup with the promulgation of the National Food Security Act (NFSA) which is saddled with the aim and responsibility of guaranteeing social and economic access to adequate food and healthy living to all the inhabitants of India (Anjani, Kumar and Shiv, 2012). Sulaiman, Olubunmi and Olanike (2015) believed that increase in household farming has the potentials for addressing food insecurity, unemployment and poverty in our society. Hence, as a way of ensuring food security in Oyo state Sulaiman *et al.* (2015) reported that making extension services readily available to urban farmers is key to boosting food security. Also, it was discovered that households that were between 1 – 3 persons and engaged in large scale crop farming and livestock rearing were more food secured. Similarly, Ibok, Idiong, Ito, Okon and Uwendimo (2013) conducted a study on the food insecurity status of urban food crop farming household in Cross River State. They pointed out in their study that intensive cropping of food crops such as cassava, maize, yam, and rice have a great potential in addressing food insecurity.

Effect of Urban Expansion on Food Security

The impact of urbanization on food security is receiving global recognition (Sylvia, 2015). It is more worrisome to note that urban growth have to a large extent worsened the level of food security as observed in developing countries with rapid urbanization and low level of human development. Furthermore, Sylvia (2015) noted that urbanization affect food availability limits access to food and constrains food stability. Christopher and Karen discovered facts of food security that there was a negative relationship existing between urban spread and agricultural productivity in Africa. As observed, Asia and Africa would more likely lose 80 percent of productive agricultural land to urban expansion in the next few decades.

In Asia urban sprawl tends to pose diverse economic and environmental challenges. According to Kaifang et al, (2016), food insecurity was attributed to uncontrolled urban expansion. This implies that urban expansion has a negative effect on agricultural resources. It was outlined that between the years 2001-2013 urban area in China increased from 31,076 km² in 2001 to 80,887 km² in 2013. This implies a setback in food production due to the unprecedented growth in urban space which encroached into over 33,080 km² of its valuable agricultural land.

Helge, (2017) noted that industrialization of Hanoi has impacted on the city food security, while there is an adverse increase in the demand for agricultural produce. This is made possible through the decrease in agricultural land from 75 percent in 1993 to less than 50 percent presently (Helge, 2017). The conversion of agriculture lands to residential and industrial uses is common in urbanized cities. For instance, in the Chilean city of about 500,000 inhabitants, it was observed that 1,734 hectares of wetland and 1,975 hectares of agricultural land and forest were converted to residential development over the period of 1975 to 2000.

That notwithstanding, China's urbanization is more likely to worsen its food security. This was discovered from a study carried out by Li Jiang et., al (2013) on the impact of urban expansion on agricultural resources in China. The findings showed a negative correlation between urbanization and agricultural land use intensity. The concern here is on China's urban growth, agricultural land use and how food production can be made more sustainable.

These findings were similar to the views of Satterwaite et al (2010), on urbanization and its implications for food and farming. It was observed that urbanization has a negative impact on agriculture. For instance, the loss of agricultural land to urban expansion and an urban bias in public funding for infrastructures, services and subsidies were attributed to urbanization.

Economic factor and urbanization are the major reasons for uncontrolled land use change in India. Within its environment built-up areas is increasing drastically from 2,611 hectares as observed in 2011 to 5,36 hectares in 2018. This increase over a period of seven years has taken over agricultural land and plantations in Aligarh city thereby threatening food sustainability (Sadafet., al, 2019). While in Accra (Ghana) up to 2,600 hectares of agricultural land is converted yearly due to urban expansion and the need for infrastructure and residential development (Ira, 2009). These negative trends however imperil peri-urban agriculture thereby threatening food security.

In Nigeria, Mubarak, (2017) discovered that in Osun state not less than 72% of the farmers were afraid of losing their farm lands due to city expansion. The rates are alarming due to uncontrolled urban sprawl into farm lands / vegetation cover which was reduced from 9,277.71 hectare (62.70%) in 1986 to 7,995.33 hectare (54.03%) in 2014. This reduction to a large extent has impeded food production with an accelerated rate of hunger and malnutrition.

Etim and Atser (2023) observed that, within year 1980 to 2020, Ikot Ekpene LGA witnessed significant changes in land use, particularly in thick forest and cultivated farmlands. The thick forest, comprising remnants of high forest and fragmented secondary forests, decreased from 58.61 km² in 1980 to 30.158 km² in 2020, marking a substantial decline of 39.99%. Notably, cultivated farmlands experienced a reduction from 39.084 km² in 1980 to 33.231 km² in 2020, indicating a 15.996% annual change. This decline, constituting 8.18% of the total change, was attributed to the expansion of built-up areas, which increased by 35.591 km² at an annual rate of 20.008%. Built-up land use accounted for 35.591% of the overall changes, reflecting urbanization and development around Ikot Ekpene Town and adjacent regions. Additionally, water bodies showed a declining trend, decreasing from 3.847 km² in 1980 to 2.562 km² in 2020, contributing 1.81% to the total change percentage. These findings showed the significant loss of farmlands and the transformative impact of urban expansion on the landscape.

It is also worrisome to note that most urban poor in developing nations spend between 50% and 90% of their earnings on food (Adedeji et al, 2009). In Markurdi, the rate of land use conversion to other nonagricultural uses was said to be very high in mixed agricultural land uses and land cover classes such as vegetation, barren lands its wetland recorded a significant decline in area coverage due to conversion (Lorliam and Ortserga, 2019). Accordingly, Benue State has witnessed a significant rise in physical urban infrastructure due to increased population of the city centre. This physical infrastructure at the city centre includes residential housing estates, new markets, urban road network, schools, clinics, and recreation facilities. Consequently, in Markurdi built up land use expanded from barely 8.73% in 1986 to 64.5% in the year 2016 which implies that forest, wetland, vegetation and bare land declined significantly.

Thus, Iheke and Iheoma (2015), carried out a study on the effect of urbanization on agricultural production in Abia state, They emphasize that beside urbanization, agricultural or food production was also determined by farm size, non-fertilizer/agrochemicals use and land tenure system, duration of land use as well as the cost of acquiring farm land, non-availability of capital, land fragmentation, rise in population, and the cost of planting.

The challenges of hunger, food insecurity and malnutrition that is at an alarming rate in developing countries of the world is due to the structural changes in urbanization and its accompanying demographic dynamics (Assem et al, 2019). Moreover, a study carried out in Anambra state showed that the occurrence of food scarcity, disease, urban environmental challenges and wide spread hunger were attributed to unplanned urbanization and migration of people (Okoli et al, 2016). The reduction in agricultural land is an indication of urban expansion. This is worse in areas with little or no mechanism for effective monitoring over land use conversion from agricultural purposes to non-agricultural purposes, poor regulation and complete neglect of urban

expansion (Okoli et al., 2016). This was similar to the report given by Tokula and Ejaro (2018) in Kogi state. They reported a negative relationship between urban spread and agricultural productivity. This was occasioned by the expansion of built up areas and the drastic reduction in agricultural lands as observed in the land use pattern generated between the periods 1995 to 2016 (Tokula and Ejaro, 2018).

3. Conceptual Framework

The Concept of Sustainable Development

It is pertinent to note that the term sustainable development was first adopted in 1972 at the United Nations Conference on Human Environment at Stockholm. The most important piece of writing on Sustainable development is in the publication by the World Commission on Environment and Development (WCED) in 1987 titled "Our Common Future" (Klarin 2018). In 1992 at the Earth summit at Rio-de-Janeiro, one hundred and seventy countries signed many important documents on sustainable development pledging preservation of environment.

According to Emas (2015) the concept of sustainable development is a deliberate effort to link the challenges of economic development and environmental stability. Sustainable development is a development that is in accordance with the needs of the present without jeopardizing the ability of the generation to come in addressing their own needs (Ivo and Etim, 2023). Therefore, the reasoning in sustainable development is the ability of present generations to harness and harvest resources such that the needs of the future generations will not be jeopardized. Therefore, sustainable development is basically concerned with ensuring the creation of harmonious relationship in the exploitation and use of the earth resources without necessarily compromising the gains and aspirations of future generations (Bassey, Amba and Eteng, 2020). This suggests that direction of exploitation, exploration and harnessing of resources in sustainable development is such that the needs of the future will be met.

However, Gohar (2016) stated that urbanization had posed serious challenges to the sustainability of the built environment. Right from pre-industrial revolution to the contemporary era, the sustainability of the environment have been identified to be constrained by; the change in planner's skills, constant influence by non-planners on the discipline, unprecedented change in the built environment as well as the weak relationship existing between science and practice in general. Sustainable development is multi-disciplinary hence, it has undergone various developmental phases since it was introduced. Historically, various organizations and institutions participated actively towards the implementation of its principles and objectives. More so, despite the level of critics and interpretation attached to the concept globally, the definition of sustainable development has become one of the most cited definitions on literature (Klarin 2018).

In summary, it can be deduced that the concept of sustainable development is focused on the "development that meets the needs of the present (people) without compromising the ability of future generation to meet their own needs". More so, physical development effort in Oyi Local Government Area should take into cognizance the need for improving the quality of life of the present generation without abuse of natural resources, so that they can be preserved for the next generation. This concept is widely applicable in land use and resources management in our society today. Hence, the need for adopting it in explaining the rationale for the present pattern of land use as well as and guiding the future development of the study area.

Concept of Public Health

Public health describes the state of being free from illness by a particular group of persons or the entire population. The concept of public health in this regard illustrates the relationship between accessibility to food and the health of the people. This is against the backdrop that food plays a very significant role in the life of humans. A plethora of studies (Eteng, Mfon and Okoi, 2022; Ajom, Mfon, Etim and Eteng, 2022; Salisu, Odulaja, Ogunseye, Fasina and Okunubi, 2019; Onifade, Lawanson and Adewale, 2018) have all shown that food is ranked first in the daily needs of man. Even in general Economics, Biology and Sciences, food is recognized as a need to mankind. Nutrition is also one of the major characteristics of living things. This implies that living things and humans cannot exist without demanding for food.

Globally, access to food is a basic human right to all people irrespective of nationality, religion, colour, wealth or creed. Food security, as defined by the United Nations' Committee on World Food Security, means that all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life (WHO, 2020). For the health of the public to be in good condition, food has to be accessible and available in required quantity and quality. For food to be produced in required quantity, the place of land cannot be over emphasized. For instance, land is expected to be available to farmers to plant and cultivate. The present study therefore seeks to explain that while sprawling is inevitable, food security should be given concern being that humans also require food for them to be able to survive. This implies that appropriate measures need to be instituted to ensure sustainable food production.

4. Materials and Methods

Study Area

The study area is Oyi Local Government Area of Anambra State, Nigeria. It lies between Latitudes 5^o and 7^o North and Longitudes 6^o and 7^o East. It has a land area of about 500 square kilometres. The area experiences rainy season between April and October while the dry season spans between November to March annually. The area has a warm humid tropical climate, with an average rainfall of between 1520-2020mm per annum. Minimum and maximum temperatures range from 25°C to 30°C, (Ifeka, and Akinbobola, 2015). The climate favours agricultural development. The residents of the area are largely involved in the production of oil palm, maize, rice, yam, cassava, and fishing activities. The five autonomous communities which make up Oyi LGA are

Awkuzu, Nteje, Umunya, Ogbunike and Nkwelle-Ezunaka. The communities are known for their vast agricultural farming in both crop and livestock production. Being agrarian in nature, they are essentially agric-based and reputed as one of the food baskets of Anambra State. It has wide arable land and the crops grown include: rice, yam seeds, cassava, cocoyam, maize and vegetables. Domestic animals are goats, sheep and fowl. Due to the system of land ownership in the area, cultivation of crop is relatively in small land holdings by individual farmers who practice cropping often with fallow system (Nkamigbo, Nwoye, Makwudo and Gbughemobi, 2019). Figures 1 and 2 shows the geographic location of the study area.

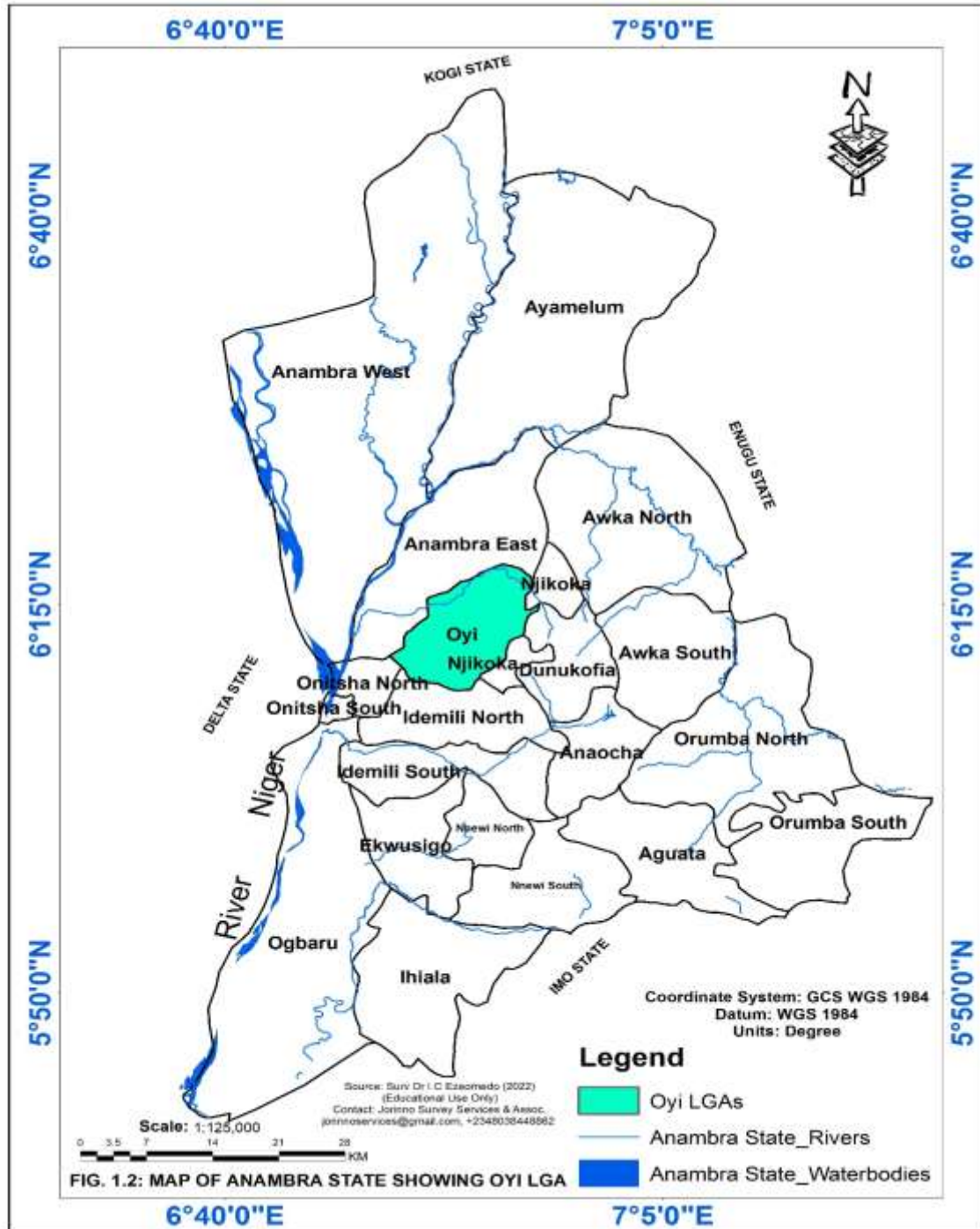
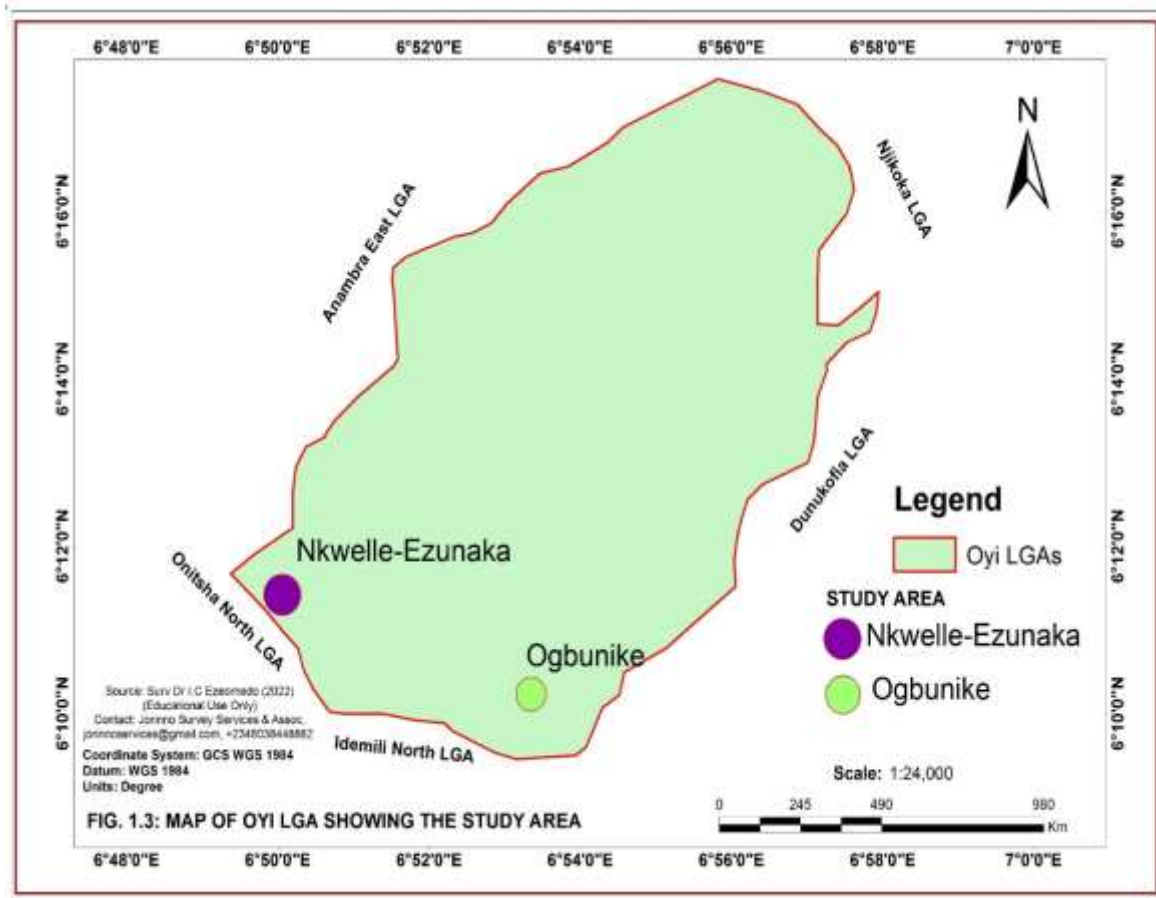


Figure 1: Administrative Map of Anambra State Showing Oyi LGA

Source: Jorinno Survey Services & Assoc. Nig., (2022)

Figure 2: Map of Oyi LGA



Source: Jorinno Survey Services & Assoc. Nig., (2022)

5. Methodology

The survey design method was adopted in the study. Two peri-urban areas in Oyi LGA were purposively chosen for the study. The areas are Ogbunike and Nkwelle-Ezunaka. Data were obtained using questionnaire, oral interviews and observations. Geographic Information System (GIS), Global Positioning System (GPS), linear measurements and estimations of lost agricultural lands and land use changes for the past 35 years was determined using change detection techniques and satellite images. Data were obtained on the socioeconomic characteristics of the respondents such as sex, age, occupation, income and level of education. Data that were used in the study also included information on the population of the study area, area of land based on land uses. Maps of Nigeria, Anambra State and Oyi Local Government Area also formed part of the data that were needed

The primary sources include data from Geographical Information System (GIS) technique, administration of questionnaire, interview and observation of the trend in urban expansion in Nkwelle and Ogbunike in Oyi Local Government Area. The secondary sources of data consist of published and unpublished documents. These data sources are the National Population Commission (NPC), Department of Agriculture and Rural Development in Anambra state, Ministry of Agriculture, Ministry of Lands, Physical Planning and Urban Development in Anambra state, Oyi Local Government, Local Planning Authorities. Other important sources include agencies, internet, journals, Gazettes, textbooks, lecture notes, etc. Information under this category serves as a guide in determining the population of the study area and data from review of literature.

The population of the study area consist of the inhabitants of Ogbunike and Nkwelle-Ezunaka in Oyi Local Government Area of Anambra State. The results of the 1991 population was presented on the basis of the autonomous communities which are Ogbunike and Nkwelle-Ezunaka neglecting the sub units that make up the entire population. To quantitatively sample appropriately, the 1991 population of the villages in Nkwelle-Ezunaka and Ogbunike was used. According to NPC (1991), a total of 82,350 persons were residing in the area. projections to 2020 using a growth rate of 2.5 percent show that the population of the areas as at 2020 as 168,818 persons. To this end, the population of people in the study area was 168,818 persons. The study adopted the sampling method by Yamane (1967) to arrive at the sample size. The sample size was determined from the population of the villages that make up the peri-urban areas of Oyi Local Government Area. Projections to 2020 showed that a total of 168,818 persons were residing in the area. The Taro Yamane statistical equation was used in establishing the sample size for the study. It is mathematically illustrated as follows;

$$n = \frac{N}{1 + N(e)^2} \quad \text{Equation (3.1)}$$

Where: n = Sample size, N= Population size, e = Level of Significance/ limit of error, 1= unity (constant)

$$n = \frac{168,818}{1 + 168,818 (0.05)^2}$$

$$n = \frac{168,818}{423.045}$$

$$N = 399.$$

Approximately, 400 persons were taken as the sample

6. Findings and Discussions

Table 1: Effect of urban expansion on food security

No	Biographic	Frequency	Percentage	Total
1	Are there Encroachment by Physical Development in Oyi LGA			
A	Yes	400	100	400
B	No	-	-	
2	Areas Usually affected by Uncontrolled Urban Spread			
A	Transportation Route	71	14	400
B	Periphery	70	10	
C	Community Centre	259	76	
D	Others	-	-	
3	Lands Easily Converted to other Uses			
A	Agricultural	221	46	400
B	Commercial	99	14	
C	Public	80	40	
D	Others	-	-	
4	Extent of Population Increase in Oyi LGA for the past 35 Years			
A	Low	-	-	400
B	Medium	-	-	
C	High	267	74	
D	Uncertain	133	26	
5	Different Ways Population Growth Have Affected Landuse			
A	increase demand for land	257	65	400
B	Increased land speculation	143	35	
C	pressure on agricultural lands	-	-	
E	Environmental problems	-	-	
F	Others	-	-	
6	Factors affecting the change in the use of land in Oyi LGA			
A	Rapid population growth	159	47	400
B	Poor landuse planning	241	53	
C	Infrastructural planning and industrialization	-	-	
E	Economic diversification	-	-	
F	Land tenure system and ownership status	-	-	

Source: Field Survey, 2022

Table 1 shows the responses of respondents on the assessment of urban spread / expansion in Oyi LGA. From the table, when the respondents were asked if there are encroachments by physical development in Oyi LGA, all the responses were in the affirmative (400). On the areas usually affected by uncontrolled urban spread, 71 out of the 400 respondents said it was transportation route, 70 said it was periphery, 259 said it was community centre while none pointed at other areas. On lands easily converted to other uses, 221 of the respondents said it was agricultural lands, 99 said it was commercial while 80 think it was public and none of the respondents pointed at others. On the extent of population increase in Oyi LGA for the past 35 Years, none

of the respondents said it has been low or medium, but 267 respondents said it has been high while 133 were uncertain. On the different ways population growth have affected landuse, 257 said it affected it through increased demand for land, while 143 said it was through increased land speculation and responded that it was through pressure on agricultural land, environmental problems or others. On factors affecting the change in the use of land in Oyi LGA, 159 said rapid population growth, 241 said poor landuse planning, while none said it was infrastructural planning and industrialization, economic diversification or land tenure system and ownership status.

Table 2: Impact of urban expansion on agriculture in Oyi LGA

No	Options	Frequency	Percentage	Total
1	Rate of Urban Spread on Agricultural Lands in Oyi LGA			
A	0% - 20 %	77	23	
B	21% - 40%	227	49	
C	41% - 60%	96	28	
D	above 60%	-	-	
2	Rationale for Applying Change Detection Techniques in Monitoring Urban Expansion in Oyi LGA			
A	Provide an ideal land related data	86	26	
B	to provide maps and trend of urban spread	182	44	
C	to project and guide future landuse expansion	132	30	
D	to ensure the conservation of agricultural resources	-	-	
E	to ensure the safety and aesthetic of the built environment	-	-	
3	Government Ratings on Effort Towards Food Security and Sustainable Landuse Planning			
A	Good	-	-	
B	Fair	66	14	
C	Poor	256	70	
D	Uncertain	78	16	
4	Measures of Fostering Sustainable Community Approaches in Food Security			
A	effective government policies	129	46	
B	master planning approach	167	35	
C	encouraging researches on landuse planning and agricultural development	80	17	
D	public private partnership and engaging communities in self-help program	24	-	
F	public sensitization	-	-	

Source: Field Survey, 2022

Table 2 shows the responses on the impact of urban spread on agricultural land in Oyi LGA. On questions as to the rate of urban spread into agricultural lands in OyiLGA, 77 out of the 400 respondents said 0%-20 %, 227 said 21%-40%, 96 said 41% - 60% ,while none said above 60%. On the rationale for applying change detection techniques in monitoring urban expansion in Oyi LGA 86 respondents said it provides an ideal land related data, 182 said to provide maps and trend of urban spread, 132 said to project and guide future landuse expansion while none said it was to ensure the conservation of agricultural resources or to ensure the safety and aesthetic of the built environment. On government ratings on effort towards food security and sustainable landuse planning, none of the respondents said it was good, 66 said fair, 256 said poor while 78 respondents were uncertain. On measures of fostering sustainable community approaches in food security, 129 of the respondents said it will be through effective government policies, 167 said master planning approach, 80 said encouraging researches on landuse planning and agricultural development, 24 said public private partnership and engaging communities in self-help program while none said public sensitization

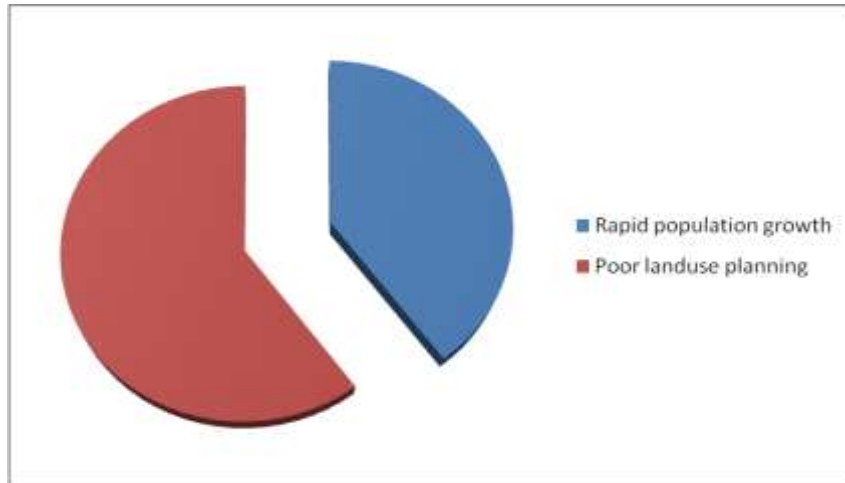


Figure 4.16: factors affecting the change in the use of land in Oyi LGA

Source: Field Survey, 2022

Figure 4.16 shows that majority of the respondents stated that the greatest factor affecting the change in the use of land in Oyi LGA is poor landuse planning with 241 respondents out of a possible 400. However, 159 respondents stated that it was rapid population growth that was responsible. None of the respondents pointed at infrastructural planning and industrialization, economic diversification or land tenure system and ownership status as a factor affecting changes in land use in the studied areas.

Table 3 Relationship existing between urban expansion and food security

S/N	Items	SA (5)	A (4)	UD (3)	D (2)	SD (1)	Mean
	Population Growth						
1	Our number in my community has been increasing over the years.	85	107	127	81	-	3.49
2	More people have come into our community lately.	84	113	144	59	-	3.56
3	My community has witnessed an increase in the number of people.	111	112	154	23	-	3.78
4	We have been growing in terms of population in my community.	78	127	130	65	-	3.55
	Food Insecurity						
5	We do not have enough food in my community now because there are so many people who need it.	97	154	77	72	-	3.69
6	We lack food in my place as a result of increase in the number of people.	69	145	127	59	-	3.56
7	I do not have access to all the kinds of food I want in my community.	93	140	143	24	-	3.76
8	We lack enough food in my community.	118	131	130	21	-	3.87

Source: Field Survey, 2022

Table 3 shows the distribution of responses for the relationship existing between urban expansion and food security in Nkwelle-Ezunaka and Ogbunike in Oyi Local Government Area. The analysis was also done using mean, with the same benchmark of 3. From the Table, it shows that all the questionnaire items are accepted, because their means are all more than the threshold of 3.

5.2 Conclusion and Recommendations

Urban expansion has become a serious threat to survival of agricultural activities because of conversion of agricultural land use to residential. Specifically, it was shown that while land for built-up areas is on the increase between the years 1986 and 2020, the reverse becomes the case for forests, agricultural lands and water bodies which are declining tremendously. The reduction of agricultural lands in the study area suggests that food security is vulnerable. It should be noted that while housing is seen as the second largest need of man, food tops the chart in the daily needs of man. This implies that for there to be a balance between food production and urban expansion, the place of land regulation, appropriate environmental/town planning and preparation of planning schemes and enforcement of same cannot be over emphasized. From the observations, it is clear that the impact of urban expansion on food security is negative. Based on the observations, it was concluded that appropriate land use control/management measures be instituted by the land use planning and monitoring department within the study area. Equally, there is need to ensure that improved varieties of crops are made available to farmers, while access to manure and fertilizers that are capable of boosting crop yield should be given priority. Equally, campaigns and sensitization workshops that are geared towards encouraging the people to return to farms should be organized regularly in the study area

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