



# An Analysis of the Livelihood Coping Strategies of Peri-Urban Dwellers in Enugu Urban, South East, Nigeria.

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## Article Information

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**Abstract:** In African sub-sahara region, peri-urbanisation development has remained a steady phenomenon with its unplanned characteristics. Most recent studies on peri-urban development have centred on her self-governance, environmental impacts and impacts on agriculture. Little attention has been given in understanding the peri-urban dwellers' livelihood coping strategies in this chaotic, difficult and challenging location. This paper aims to address this gap by analysing the livelihood coping strategies of peri-urban dwellers in a Nigerian urban city- Enugu. Survey research design was adopted in this study. The sample size of 816 was derived from a population of 3,986 registered households in the study areas. Simple random and cluster sampling techniques were used in this study to proportionately select the respondents. Principal Component Analysis was used to classify the livelihood coping strategies in the study area. Result showed classified the coping strategies adopted into four components and they were Home-Based Business (49.95%), Retail Trading (16.50%), Domestic Working (16.34%), and Street Trading (12.03%). The factors that influenced the identified coping strategies of these dwellers include age, sex, convenience, take-off capital, type of housing unit and space availability. The planning implication of these coping strategies is that the urban informal sector dynamics should be integrated into the modern urban planning practices and techniques. This has become imperative as the heat of the informal sector dynamics has come to stay. Daring efforts should be made by the government to accommodate them by integrating their needs in the future planning and control policies.

**Keywords:** Dynamics, Strategies, Sustainability

## Introduction

The year 2008 was noted globally as the cross over year when the total population living in the urban areas superseded the population living in the rural areas all over the world (Mabogunje, 2008). African countries, among the developing nations, were previously acclaimed to be slow in urbanization, but recent studies revealed that the current rate of urbanization in Africa has been recorded as the highest ever growing at over 5% per annum. This is very high when compared to the developed countries with urbanization rate of about 0.75% per annum (Mabogunje, 2008). However, it was been reported that cities account for

about two percent of the surface of the earth (UN, 2021). (Ritchie & Roser, 2019) posited that cities equally accommodates more than fifty five percent of the world population, as well as contributes about sixty percent of GDP globally. Study also shows that cities emits over sixty of greenhouse gases globally (UN, 2019). This shows the global influence of the cities at large.

This uncontrolled rate of urbanization gave rise to several crisis situations in the urban centers such as traffic and housing congestion, pressure on poorly maintained urban facilities, waste management issues, inadequate accommodation for the new migrants and spontaneous growth of urban slums (Fadare & Daramola, 2008). It is also believed that high cost of

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rent in the cities, with poor economic opportunities coupled with unrealistic government policies on social amenities like housing may have driven the urban poor to settle at odd locations within the urban peripheries, (Murgante, *et al.*, 2007). It has been estimated by a UN-HABITAT study in 2009 that nearly one billion people live in slums in the various cities of the world. This figure represents one-sixth of the world population. Unfortunately, the findings show that most of these slums are in the cities of the developing countries of the world, specifically in Africa, Latin America and South East Asia (Dumashie, 2011; UN-HABITAT, 2020). Scholarly studies on urban expansion depicts that suburbanization and peri-urbanisation are gaining grounds in an informal pattern in places that are not formally planned.

Most of the research works on urban slums, housing conditions, informal and peri-urban settlements centered mostly on rate of rural–urban migration, housing challenges and slum renewal (Adell, 1999; Webster, 2009) but only very few have attempted to identify the coping strategy of the peri-urban dwellers. Recent works on peri urban informal settlements centred on peri urban areas and self-governance, highlighting the trade-offs in ecosystems and peri urban areas. (Masselière, *et al.*, 2020, OECD/SWAC, 2020). A study by International Housing Coalition in 2007 stated that the population of Nigerian urban dwellers living in slums has risen to 80% while in Tanzania, 92.1% of urban dwellers also live in slums. No mention was made of their livelihood coping strategies. Further studies by (Lloyd, 2019) on the Barriadas of Rima, Bustees of India, Ghettos of North America and Ranchos of Venezuela failed to dig into the livelihood strategies these slums and outlying urban settlements adopted to survive.

A panoramic view of the mosaic of human settlements overlaying the spurs and valleys of Udi Hills in Enugu city, Nigeria quickly generate many puzzles and research questions on the survival, sustainability and persistence of such human settlements. The houses vary from squalid attachments to well-designed buildings with even tenancy in place. Greater area of the hills inhabited by the peri-urban dwellers in Enugu were accessible only through winding narrow footpaths, while motor vehicle movement is restricted up to half a kilometer down the slopes at the foot of the hills. The peri-urban settlements in Enugu consists of these neighbourhoods – Ikirike, Ngenev, Uguw Alfred, Uguw Aaron, Agu Abor and Uguw Odogwu. There are no significant job generating activities, no visible sign of service industries and available portable water supply. Yet, many immigrants move in to reside

in these areas despite the survival challenges. One is, therefore, poised to query: what are the individual coping strategies of these dwellers? This paradoxical growth in the population and expansion of the peri-urban settlements in Enugu, Nigeria with increasing terrain difficulty and absence of basic social amenities and services, yet dwellers seem to cope with the horrible conditions, is the main focus of this research. The research is therefore to fill the knowledge gap by working to identify the livelihood coping strategies these peri-urban settlers devised to survive in such a difficult physical, economic and social environment as well as also analyzed the determinants of the pull factors that influenced the residents' adoption of the identified coping strategies. This study gives a lead into further study on the perception of the hillside settlements and psychological coping strategies adopted by the dwellers.

## Literature review

Peri-urban areas which are often negatively affected by the city growth and expansion is being transformed to create healthy environment and social management support that take the peri-urban a healthy resource for the city (Owusu, 2007). The peri-urban areas are usually negatively affected by the rapidly growing cities especially where the peri-urban was previously occupied by farmers and villagers. Gadd *et al.* (2003) further reported that in Colombo, the city authorities prepared against these fallouts by integrating these areas through the CDC's into the developing mainstream of the communities. The communities were not just simply organized but properly linked to structure such as neighbourhood, district, the province etc. These areas were empowered with adequate responsibility including access to resources and finances. From the study, two prominent steps were taken which succeeded in shifting the erroneous perception of peri-urban areas by transformation to positive settlement spaces which are now contributing positively to the growth and good livability of cities.

Current peri-urban research is concentrated on assessing peri-urban land use change and environmental impacts (UN-HABITAT, 2009), impact on agriculture as well as peri-urban concepts and definitions (Kule, (2008)., Busck *et al.*, 2006). Little emphasis is placed on studies that evaluate the impact of peri-urban development household livelihood support and income. There was a growing concern on the peri-urban areas in Kenya which led the World Bank to study the peri-urban development and livelihood change. (World Bank Report, 2008). This study was, therefore, conducted with the objective

of assessing the impact of peri-urban development on household income, using a peri-urban settlement named Nyahururu in Kenya as the case study. Their findings are not different from similar studies in sub Saharan Africa but their coping strategies needed to be closely examined in the light of concomitant effects on the urban milieu. (EcoSanRes, 2010)

A study by (Lieve *et al.*, 2008) in 15 lower middle and low income sub Saharan African countries indicated that borrowing and selling assets are common strategies adopted to cope with uninsured catastrophic health expenditures. Households with higher inpatient expenditure and lower income were found to be more likely to borrow and sell assets. Absence of policies that can contain food price inflation, improved decent-paying job opportunities for the urban poor are the likely cause of the use of negative coping strategies by urban slum dwellers that lack steady and reliable sources of income. In addition, enhancing access to free primary schooling in the slums would help limit the need to use detrimental strategies like “removing” children from school.

## Methods and procedures

The study adopted the survey research design. Distribution of questionnaires and interviews were carried out on some key residents of the settlements especially the pioneer settlers, some of who are still alive. There are six settlements under study and these are: Ikirike, Ngenev, Ugwu-Aaron, Ugwu-Alfred, Agu-Abor, and Ugbo-Odogwu. Important information on the early location and growth of settlements were got from them. These key informants were able to throw more light on land ownership pattern which gave impetus to immigrants to settle with ease in the areas. Since the 1991 and 2006 National Population Census figures do not have distinct population figures of these peri-urban settlements, the reliable sampling size adopted in the research was derived from housing survey done with the aid of satellite aerial maps. With the Satellite imagery it was possible to estimate the number of housing units in the settlements and their spatial spread across the hill slopes. The total number of households was obtained from the security levy register of the Neighbourhood Watch Associations of the settlements. Out of the 3,986 households identified from the various Neighbourhoods Watch Associations' registers in the settlements, sample size of 816 was used for the study as seen in table 1. However, only 678 copies of the questionnaire was used in the study. This was determined using the Taro Yamani sample size determination formular.

Simple random and cluster sampling techniques was deployed in selecting the houses in each of the cells in the settlements. Each settlement was divided into four

**Table 1:** Distribution of questionnaires in the various settlements.

S/N	Settlement	*Households	Percentage	Distribution
1	Ugwu Alfred	680	17%	139
2	Ugwu Aaron	920	23%	188
3	Ngenev	800	20%	163
4	Ugbo Odogwu	790	20%	163
5	Agu Abor	440	11%	90
6	Ikirike	356	9%	73
<b>Total</b>		<b>3986.</b>	<b>100%</b>	816

**Source:** \*Security levy Register of Neighbourhood watch Associations 2021.

cells from which households were representatively sampled. The researcher made even sample size from each cell in the settlement to ensure uniform coverage and proper representativeness in each settlement. The Principal Component Analysis (PCA) was used to identify and classify the coping strategies adopted by the dwellers.

## Results and discussion

Analyses on the social activities of the residents were considered in the study.

**Places of Relaxation:** There was no amusement park for relaxation found in any of the neighborhoods in the study area. 64% of the people use their single rooms as places of relaxation. Many of the respondents indicated that they had no time for relaxation. It was found from the study that 88% of these low income earners/respondents in the study area have multiple sources of income generating activities which made it difficult to spare time to relax. Surprisingly, 61.3% of the respondents reported that relaxation was left for lazy folks. Most of the inhabitants actually work very hard and long hours to earn their daily sustenance. The inhabitants in these peri-urban area which mainly are hawkers and street traders leave their homes early in the morning only to go home when there is nobody on the street to serve. This is one of the most commonly adopted livelihood strategy among these peri-urban dwellers. It was observed from the study that these dwellers are always the first to wake up and prepare for the days' sales. 87.5% of the respondents are on the street or their make-shift stores from the morning till either their stock is exhausted or late evening when there was nobody in the street to attend to.

**Toilet Facilities.** The study showed that vividly that 94.7% of households use *bush method* ( the practice of defecating in the surrounding bushes) and pit latrine. It is embarrassing to discover that going to toilet in the bush and streams which has gone extinct in most

villages is still common in these urban settlements. This practice exposes the inhabitants to serious danger of diseases especially in the absence of clean public water supply. Besides, hydrological study of Enugu drainage system shows that most of the streams in Enugu originated from the highly polluted hillside settlements and flow across the length and breadth of the city. The environmental implications could be subject of further research.

### Identified Coping Strategies.

The study, through literature and survey, was able to identify 12 possible coping strategies that were adopted by these slum dwellers. These strategies which are shown in table 2 were posed as a question to the dwellers in the study area. Their responses were subjected to P C A to really identify and possibly classify these strategies as they relate to these peri-urban settlements under study.

**Table 2:** Showing 12 Variables Extracted

X1	Tailoring/Fashion designing
X2	Small Poultry farms/Pens
X3	Part-time/Security guards
X4	Shoe making
X5	Artisans
X6	Patent Medicine Store
X7	Crop Farming
X8	Hawking by Children/Scavenging
X9	Local food processing
X10	Selling cooked food on wheel Barrows.
X11	Water Vendors.
X12	Petty Trading/Provision Stores

**Source;** Field Survey and Literatures.

These identified coping strategies were subjected to statistical classification using principal component analysis to ascertain to what extent the coping strategies adopted by the dwellers in the peri-urban areas can be classified. Four components were extracted using PCA extraction method. To classify the identified components, the factor loadings were placed on rotations converged in four iterations and a properly classified rotated component matrix shown in table 3 was observed.

## Results Analysis

The coping strategies adopted by these peri-urban dwellers were identified and classified into four components which explained 94.82 percent of the observed variability and these components are further explained below.

### Component 1:(Home Based Businesses)

This component one is classified and defined as **Home-Based Business** coping strategies. It is highly and also positively loaded with factors which include: artisans

**Table 3:** Four Components Classified; Rotated Component Matrix<sup>a</sup>

	Component			
	1	2	3	4
Artisans	.998			
Local food processing	.901			
Tailoring/fashion designing	.898			
Part-time/ Security guards	.732			
Water vendor	.778			
Shoe makings	.895			
Petty trading/provision stores		.849		
Patent medicine stores		.984		
Crop farming			.986	
Small poultry farms / pens			.983	
Hawking by children/Scavenging				.867
Selling cooked food on wheel barrows				.816

**Source:** PCA Analysis result.

(.998), local food processing (.901), Tailoring and fashion designing (.898), security guards (.732), water vendors (.778), Shoe makings (.895). They explained 49.95% of the observed coping strategies. This component was compositely named to be **Home based businesses**. Thus, this are among the prominent coping strategy adopted by the dwellers in the study area.

### Component 2:(Retail Trading)

This component explained 16.49% of the variables. They are also highly loaded as components of the coping strategies. They are petty trading and provision store (.849), and patent medicine store (.984). The area is dotted with retail outlets selling various articles to the dwellers. This factor was christened, **Retail Trading**

### Component 3:(Domestic Working)

The component which was defined as **Domestic Working** was well loaded on coping strategy which explained 16.35% of the variables. They are crop farming (.986) and small poultry farms/pens (.983). Despite the sloping nature of the settlements many of dwellers engage in extensive crop farming and animal husbandry. Poultry farms are common on the hillside settlements. Terrace cultivation is common among the farmers who live in Agu Abor and Ugbo Odogwu.

### Component 4: (Street Trading)

The fourth component was also identified as the **Street Trading** and it explained 12.03% of the variables. They are hawking by children with high factor loading (.867) and selling cooked food on wheel barrows (.816). Street trading is ubiquitous across the six peri-urban settlements under study.

These four components namely, Home-Based Business (49.95%), Retail Trading (16.49%), Domestic Working (16.35%), and Street Trading (12.03%) with high factor loadings explained 94.82% of the variables.

## Discussion of findings

The study shows that twelve coping strategies are identified and classified into four major components namely; (1) Home-Based Businesses, (2) Retail Trading (3) Domestic Working and (4) Street Trading. The significant activities in home-based businesses are artisans, local food processing, tailoring and fashion designing, security guards, water vendor and shoe making. It was found in the study and confirmed by the result of the analysis that these strategies clearly dominate throughout the six peri-urban areas under study. This has gone a long way to restate the reason behind the high influx of particular type of immigrants into the peri-urban areas. It was found earlier in the study that 83.3% of the residents have only *First School Leaving Certificate* and below, while 11% completed their post-primary school education. However, through informal training like apprenticeship and urban exposure, many can now read, write and communicate in simple English language. It was identified that over 92% of these dwellers were engaged in self employed occupations currently known as the informal sector. One may, therefore, draw the conclusion that the informal sector dynamics are incubated and hatched in the peri-urban areas in Enugu. They acquired their skills through informal training and apprenticeship scheme. In a similar study, (Essamuah & Tonah, 2004) argued that urban poverty has become a major issue since the implementation of the Structural Adjustment Programme by the Ghanaian government during the 1980s and the resultant massive migration of rural residents to the city to seek for livelihood. The migrants overwhelmed Accra City infrastructural facilities, leading to livelihood coping strategies deployed by households to cope with urban poverty. These include increased participation in informal sector activities, employing legal and illegal methods in obtaining essential social services. They also observed an increased patronage of street food vendors, and multiple memberships of social, ethnic and religious associations as a backup. The streets of Accra were flooded with migrants involved in rental distribution of goods and foodstuffs such as newspapers, imported household items, crafts, toiletries, toys, non-essential items etc. Carrying wares on heads and using bicycles, trucks and taxi to transport goods from one part of the suburb to another became the order of the day. Providing skilled services by engaging in shoe shinning, watch repairing, hairdressing, manicure and pedicure services, typing of documents, etc were also common. Other activities include repair and maintenance services such as fixing of umbrellas, cookers, fridges, fans, bicycles etc, others include security services working as day and

night watchmen for the shops and offices, car parks etc and gambling services such as sale of tickets for lottery and other games of chance as well as phone cards. The young among them go into door-to-door collection of waste materials to be recycled. These include old newspapers, empty bottles and cans, plastics, scrap materials etc. Engaging in prostitution on a permanent or intermittent basis was widespread amongst the young females in the suburbs and peri-urban areas who engage in casual sex for money in an attempt to improve their household income. Common among the abhorrent youths were engaging in organized and spontaneous crimes. The most common activities include the stealing of cash and other household electronic gadgets (television sets, video equipment, radios), mobile phones and communication equipment and any moveable property (Essamuah & Tonah, 2004).

The factors that influenced the identified coping strategies of these dwellers include age, sex, location, convenience, take-off capital, type of housing unit and space availability. It was revealed from the study that active population from 26 to 50 years constitutes over 65% of the dwellers. The study further showed that over 78% of the dwellers fall within the range of low income bracket. They reported that they were attracted to the settlement by low house rent. It was revealed that over 92% of the dwellers earn gross family income of less than #60,000. An income of less than #2000 per day with a family of six can hardly save especially with associated large family size. The fact is that they fall below the United Nations poverty level. Unavailability of employment in rural villages has resulted to influx of masses in search of jobs in towns in sub Saharan Africa. This situation cuts across the board including illiterates, semi-literates and the educated class. Even the kind of education we have is responsible as is mostly narrowed towards obtaining urban employment. This has also resulted in the preponderance of structural unemployment in Nigeria. Urban areas have opportunity to grow hence, the attractive place for all hence the massive rural to urban drift (Cameron, 2001, Lieve *et al.*, 2008; Djesika, 2014). Oloto & Adebayo (2012) stated that the identified major causes of urban poverty include;

1. Rural unemployment.
2. High influx of rural population to cities.
3. Lack of education to apply for better jobs.
4. Lack of wage control on over unorganized informal sectors.
5. High cost of living.
6. Absence of functional social security and pension scheme to majority of the population especially those in the informal sectors.

7. Insecurity of tenure and under employment.
8. Pattern of Economic growth and development of the country, etc.

They finally warned that economic growth or recovery without employment growth is suicidal and dangerous. Narain & Nischal (2007) in their study of peri-urban in India fingered poor economic conditions as the major factor responsible for the various coping strategies adopted by the dwellers. High cost of rent in the organized and planned layouts cannot be afforded by the urban poor. They therefore opt for squatter hillside settlements they can afford. as reported by Gadd *et al.* (2003).

#### **Planning implications of these coping strategies adopted by the peri-urban dwellers.**

The planning approach relevant in handling these coping strategies adopted by the peri-urban dwellers is appropriate integration of the dynamics and activities of these dwellers into modern urban planning techniques. There is urgent need for evolution and adoption of a unified urban planning scheme. The efforts of the various Town Planning Authorities and Enugu Capital City Territory Development Authority (ECCTDA) in curbing street hawking and trading, illegal makeshift shops and extension of buildings across utility lines were thwarted by the activities of these dwellers who are desperately struggling daily to make a living in the town. Dwellers in Ikirike usually patrol core urban neighbourhoods like Achara Layout and Agbani road; while those of Ngenev cover the whole of another urban area - Coal Camp, Ogbete main market and Okpala Avenue. These peri-urban areas are dominated by the informal dynamics and, informality today and perhaps, more importantly in the years to come remains to be the dominant mode of urban production in many cities of developing nations. (EcoSanRes, 2010). It has been argued that informal settlements for many urban dwellers are the only viable alternative for accessing land, services, job opportunities and social mobility. Yet, it is regrettable that much of the current planning and design approaches in these cities disregard and even alienate this form of urbanization. The truth is that these informal urban dwellers have come to stay. The services provided by these dwellers are needed and indispensable by the other residents in the town. The food they cook and sell in the wheel barrows and on foot like the local “*Okpa, moi moi, agidi, akara*”, rice, beans, roasted yams, boiled and fried corn, bakery products etc are in high demand by all levels of income brackets in the city. Most of the artisans provide services in the area of motor mechanics,

building construction workers, iron welding works, and carpentry. The residents of Agu Abor and Ugbo Odogwu were involved more in small scale farms and animal husbandry. There are many poultry and pig farms in Ugbo Odogwu. Most of the cultivable hill slopes are being converted to residential buildings. However, in Agu Abor, crop farming is still dominant with cassava farms and local garri processing plants in place. They also practice vegetable gardens from where they supply fresh vegetables to Enugu Town especially the residents of Trans Ekulu and New G R A, Enugu.

#### **Conclusion**

In this study, the livelihood coping strategies of peri-urban dwellers were analyzed with the aim of identifying and classifying them. The coping strategies adopted by these peri-urban dwellers were identified and classified into four components which explained 94.82 percent of the observed variability. The four components were Home-Based Businesses (49.95%), Retail Trading (16.50%), Domestic Working (16.35%), and Street Trading (12.03%). The factors that influenced the identified coping strategies of these dwellers include age, sex, location of settlements, convenience, take-off capital, type of housing unit, duration of residence and space availability. The planning approach relevant to these coping strategies adopted by the peri-urban dwellers is appropriate integration into a unified urban scheme by Enugu Capital Territory Development Authority (ECTDA) and Enugu State Ministry of Environment. The heat of the informal sector has come to stay; therefore daring efforts should be made by ECTDA to accommodate them by integrating their needs in their policy planning and control.

Appropriate development policies aimed at integrated development of the rural areas by encouraging labour intensive rural industries will help tame the tide of rural to urban migration which led to the persistent growth of the peri-urban slum settlements. Development of medium towns into urban status will also provide alternative residence to these slum dwellers. The planning agencies especially the various Town Planning Authorities, ministry of environments and Enugu State Environmental Management Authority should as a matter of urgency extend their planning controls to these hillside settlements not minding the likely resentment and resistance by the dwellers. Finally, the planning approach relevant to these coping strategies adopted by the peri-urban dwellers is deliberate integration into a unified urban scheme through appropriate policy measures and

control techniques. The urban informal sector dynamics should be integrated into the modern urban planning practices and techniques.

## References

- Adell, G. (1999). Theories and models of the peri-urban interface: A changing conceptual landscape. In Development Planning Unit; UCL. London, UK, p. 46.
- Busck, G.A.; Pilgaard, K.S.; Præstholt, S.; Reenberg, A.; Primdahl, J. (2006). Land system changes in the context of urbanisation - examples from the peri-urban area of greater Copenhagen. *Geografik Tidsskrift/Danish. Journal of Geography*, 106: 21-34.
- Cameron, L. A. (2001). The Impact of Indonesian Financial Crisis on Children: An Analysis Using 100 Villages Data. *Bulletin of Indonesian Economic Studies*, 37:43-64.
- Dumashie, D.A. (2011). Proactive Planning for Infrastructure and Peri-urban Settlement: A Tool Book for Surveyors to Facilitate Environmental and Social Resilience by FIG: African Task Force, East Africa Regional Conference
- EcoSanRes, (2010). Adapting Planning Tools to the Peri-Urban Setting: A Combination of Existing Tools, Stockholm Environment Institute, Swedish International Development Cooperation Agency (SIDA), [www.ecosanres.org](http://www.ecosanres.org)
- Essamuah,; Tonah (2004). Coping With Urban Poverty In Ghana: An Analysis of Household and Individual Livelihood Strategies in Nima/Accra. Legion. *Journal of Sociology*, Ghana.45-52.
- Fadare, W.; Daramola, O. (2008), Multi-Sectoral Approach to Urban Growth Management in Africa. *Journal of the Nigerian Institute of Town Planners*, Vol. XXI, No 1, pp24
- Gadd, D.; Water, R.; Richard, H. (2003), Sanitation for Peri-Urban Communities; David Gadd, Project Manager, Rand Water.
- Kule, L. (2008). Concepts of Rurality and Urbanity as analytical categories in multidimensional research. *Proc Latvian Acad. Sci. Section B*. 62:1-2
- Lieve, A. fr.; Xu, K. (2008). Coping With Out of Pocket Health Payments; Empirical Evidence 15 African Countries. *Bulletin of World Health Organisation*.
- Lloyd, P. (2019). Slums of Hope? Shanty Towns of the Third World. Pelican books
- Mabogunje, A. L. (2008). The Inclusive City: Popular Employment of Local Governments in a Rapidly Urbanizing Africa, in *Journal of The Nigerian Institute of Town Planners*, Vol. xxi, No 1.
- Masselière, B.C.D.L.; Bart, F.; Thibaud, B.; Benos, R. (2020) Revisiting the rural-urban linkages in East Africa: Continuity or breakdown in the spatial model of rural development? The case of the Kilimanjaro region in Tanzania. *Belgeo*, 1: 1–25.
- Murgante, B.; Las Casas, G.; Danese, M. (2007). “The periurban city: geostatistical methods for its definition” in Rumor M., Coors V., Fendel E. M., Zlatanova S. (Eds), Urban and Regional Data Management, London, *Taylor and Francis*, 473-484.
- Narain, V.; Nischal, S. (2007). ‘The Peri-Urban Interface in Shahpur Khurd and Karnera, India’. *Environment and Urbanization*, 19 (1): 261-266.
- OECD/SWAC. Africa’s Urbanisation Dynamics (2020). Africapolis, Mapping a New Urban Geography; Moriconi-Ebrard, F., Heinrigs, P., Trémolières, M., Eds.; Sahel and West Africa Club Secretariat; OECD Publishing: Paris, France, ISBN, 978-92-64-57958-3.
- Oloto, E. N.; Adebayo, A.K. (2012).The new Lagos - Challenges facing the Peri-urban areas and its relationship with its City centre. Department of Architecture, University of Lagos, Akoka, Lagos State, Nigeria.
- Owusu, F. (2007), Conceptualizing Livelihood Strategies in African Cities: Planning and Development Implications of Multiple Livelihood Strategies. *Journal of Planning Education and Research*, 26:450.  
<http://jpe.sagepub.com>.
- Ritchie, H.; Roser, M. (2020). Urbanization. Available online:  
<https://ourworldindata.org/urbanization>.
- UN-HABITAT, (2009), For a Better Urban Future: Global Report on Human Settlements.
- United Nations Cities and Pollution. Available online (2021).  
<https://www.un.org/en/climatechange/climate-solutions/cities-pollution>.
- United Nations. The Sustainable Development Goals Report (2019). United Nations: New York, NY, USA.
- UN-HABITAT. UN-habitat unpacking the value of sustainable urbanization. In *World Cities Report 2020*; UN-HABITAT: Nairobi, Kenya, 2020; pp. 43–74. ISBN 978-92-1-132872-1.
- World Bank Report, (2008). Poverty Reduction and Economic Management Unit, Africa Region 2008 Kenya Poverty and Inequality Assessment Report.
- Webster, D.; Muller, L. Peri-urbanization (2009): Zones of rural-urban transition. In *Human Settlement Development*; Sassen, S., Ed.; UNESCO: Paris, France, 281–309.

## Satellite Imagery of the Peri-Urban Settlements in Enugu, Nigeria.

The settlements are Ikirike, Ngenev, Ugwu Alfred, Ugwu Aaron, Agu Abor and Ugbo Odogwu.

### Ugwu Alfred



**Plate 1. Satellite Imagery of Ugwu Alfred. Source;** Goggle satellite imagery of Enugu

### Ugwu Aaron



**Plate 2. Satellite Imagery of Ugwu Aaron**

### Ngenev:



**Plate 3. Satellite Imagery of Ngenev**

### Ugbo Odogwu:



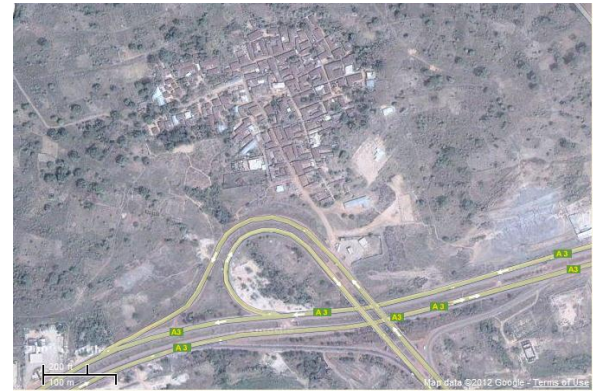
**Plate4 . Satellite Imagery of Ugbo Odogwu**

### Ikirike Village:



**Plate 5. Satellite Imagery of Ikirike**

### Agu Abor:



**Plate 6. Satellite Imagery of Agu Abor**