UNIVERSITY OF PORT HARCOURT

YET MAN, WITH THE EYES OF GOD

AN INAUGURAL LECTURE

By

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ORDER OF PROCEEDINGS

2.45 pm. Guests are seated
3.00 pm. Academic Procession begins

The Procession shall enter the CBN Centre of Excellence Auditorium, University Park, and the Congregation shall stand as the Procession enters the hall in the following order:
Academic Officer
Professors
Deans of Faculties/School
Dean, School of Graduate Studies
Provost, College of Health Sciences
Lecturers
University Librarian
Registrar
Deputy Vice-Chancellor, Research and Development
Deputy Vice-Chancellor, Academic
Deputy Vice-Chancellor, Administration
Vice-Chancellor

After the Vice Chancellor has ascended the dais, the Congregation shall remain standing for the University of Port Harcourt Anthem. The Congregation shall thereafter resume their seats.

THE VICE CHANCELLOR'S OPENING REMARKS.
The Registrar shall rise, cap, invite the Vice Chancellor to make his opening remarks and introduce the Lecturer. The Lecturer shall remain standing during the Introduction.

THE INAUGURAL LECTURE

The Lecturer shall step on the rostrum, cap and deliver his Inaugural Lecture. After the lecture, he shall step towards the Vice Chancellor, cap and deliver a copy of the Inaugural Lecture to the Vice Chancellor and resume his seat. The Vice-Chancellor shall present the document to the Registrar.

CLOSING

The Registrar shall rise, cap and invite the Vice Chancellor to make his Closing Remarks.

The Vice Chancellor's Closing Remarks.

The Vice Chancellor shall then rise, cap and make his Closing Remarks. The Congregation shall rise for the University of Port Harcourt Anthem and remain standing as the Academic [Honour] Procession retreats in the following order:

Vice Chancellor
Deputy Vice Chancellor Administration
Deputy Vice Chancellor Academic
Deputy Vice Chancellor Research and Development
Registrar
University Librarian
Lecturer
Provost, College of Health Sciences
Dean, School of Graduate Studies
Deans of Faculties/School
Professors
Academic Officer

DEDICATION

I dedicate this lecture to Almighty God, the Creator of the Heavens and the Earth, whose eyes run to and from throughout the whole earth. To my parents, Prof. Roland Chima Wokocha and the Late Mrs. Julie Wokocha, who invested nothing but education for all six of us, whose sacrifices laid the foundation for my academic journey. To all farmers and food security experts who toil daily to put food on our tables.

ACKNOWLEDGMENTS

I wish to express my utmost gratitude to God Almighty, from whom all knowledge flows and without whom I am nothing.

My heartfelt appreciation goes to the Vice-Chancellor, Prof. Georgewill, Owunari Abraham for providing the enabling environment for research to thrive in this great institution. I also acknowledge Prof. Georgewill, Udeme for her support and contributions. I am equally grateful to the Deputy Vice-Chancellors, the Registrar, the University Librarian, and my dear Bursar for their support.

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I further extend my appreciation to the 1983 Set of the Ex-Boys Association of the Nigerian Military School, Zaria, for their fellowship and continued goodwill. Special appreciation goes to the Student Affairs Unit for all their support during my tenure as the Dean of Student Affairs.

I acknowledge with deep gratitude my mentors and teachers who shaped my academic journey, particularly my PhD supervisors at the Federal University of Technology Owerri, Prof. Oweremadu, Emmanuel and Prof. Otti, Nnenna (Former V.C Futo). My MSc supervisors at the Michael Okpara University of Agriculture, Umudike, the former ASUU National Chairman, Prof. Osodeke, Emmanuel and Prof. Asawalam, Damiam. I also acknowledge Prof. Appolonia Anthonia, Prof. Saduaki Usman, Prof Abubakar Umar, all of the Federal University of Technology, Minna, Niger State. My good friends, Azirindu Martins, Forum Fred, Ubabuike Michael, and Harmony Lawrence.

I wish to recognise distinguished academic leaders who have directly or indirectly influenced this journey, including past Vice-Chancellors and Deputy Vice-Chancellors of the University of Port Harcourt for their support and contributions.

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To my students (undergraduate and postgraduate), past and present, I thank you for keeping me on my toes and for the privilege of allowing me to shape your young minds. Permit me to also acknowledge the Rumuekini community that welcomed and accommodated me almost 20 years ago, when I first landed in Rivers state.

My heartfelt thank you goes to Dr. Oriakpono Obemeata, Ms. Chukwuekwu Victory and Miss. Ikpali Vera as well as Dr Kate Job for their timely support and invaluable assistance in the preparation of this work.

To the inaugural lecture committee, I am grateful for your constructive criticisms, which enriched this work.

In a very special way, I acknowledge the unwavering support, encouragement, and prayers of my beloved wife, Barr. Mrs Wokocha Adannaya Chizaram, throughout our years together. Your strength and steadfast presence have been a constant source of motivation, and this milestone is as much yours as it is mine. I am deeply grateful.

I also extend my heartfelt appreciation to my children, Judy, Olivia, Joshua, and Sophie for their understanding and for upholding the family values instilled in them. May you all continue to grow in wisdom and grace.

Prof. Chima Chibuike Wokocha

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PREAMBLE

Mr Vice-Chancellor Sir, we were entrusted with dominion over the earth, not merely to use it, but to sustain it. This raises a fundamental question: how do we feed a growing population without destroying the systems that sustain life? My academic journey has been shaped by this challenging question. It has revealed that soil is not just dirt, but a living system at the heart of food production.

At the Nigerian Military School, Zaria, I received full military training (weapon handling, map reading, drill, etc).These experiences built discipline, adaptability, and early awareness of landscapes and spatial understanding. Bush camp exercises exposed me to maps, navigation, and environmental interpretation across different terrains in Nigeria. I developed an early fascination with understanding how landscapes and environment's function. I later gained admission to study Computer Science in the Federal University of Technology, Minna. However, I observed that practical computer skills were easily obtainable in computer shops and could be acquired within a year or even less.

This made me reflect deeply on my direction and seek a more challenging and impactful field. In my 100 level, Remote Sensing and Geographic Information Systems were introduced in the university. This became a major turning point in my academic journey. I discovered that Remote Sensing and Geographic Information Systems are powerful tools for research works in various fields and this made me realize its value as an emerging scientific technology. However, at that time, Remote Sensing and Geographic Information Systems were still a new field in Nigeria and were not widely understood or easily accepted. People often asked whether it belonged to Engineering or Medicine, showing how unfamiliar the field was at the time.

This made the journey more challenging, but also more meaningful and impactful. Despite this, I chose to pursue it because I saw its potential for solving real world problems. I made a deliberate decision to build my academic path around Remote Sensing and Geographic Information Systems.

I later integrated it into Soil Science due to my deep appreciation of nature and environmental systems. This led me to specialise further in Soil Survey and Land Use Planning at both Master's and PhD levels. However, the real challenge is not just seeing, but translating knowledge into sustainable action.

My research journey so far has bridged the gap between environmental knowledge and practical land management for improved food security. Today, I am deeply honoured to be the second lecturer in my department and the seventh in my Faculty to present an inaugural lecture. It is against this background; This lecture examines the Remote Sensing and Geographic Information Systems as the Eyes of God and their role in advancing sustainable land management and enhancing food security in Nigeria and beyond.

INTRODUCTION

Growing up, especially in a Christian home, we were taught that there is a presence that sees everything, everywhere, at all times. This idea was often used to encourage honesty, responsibility, and good behaviour. It creates a sense of accountability, knowing that nothing is truly hidden. In a similar way, when we study the environment, we also need systems that can "see" beyond human limitations. Systems that can observe widely, continuously, and objectively without missing critical changes. This is where Remote Sensing and Geographic Information Systems become essential.

They provide a continuous and structured way of observing the Earth's surface across space and time and capture environmental changes that are often invisible to the human eyes. In this sense, Remote Sensing and Geographic Information Systems are often described metaphorically as "Eyes of God over the Earth," providing wide and near-complete environmental awareness.

BACKGROUND OF SOIL SCIENCE

All land use systems are fundamentally dependent on soil. Soil properties influence how land can be used and managed. Variations in soil also determine productivity, stability, and sustainability.

Fig 1: Forested Area

Fig 2: Farmland

Fig 3: Residential Area

Fig 4: Swampy/Wetland Area

Fig 5: Built-up Area

IMPORTANCE OF THE STUDY OF SOIL SCIENCE

The study of soil science helps us know which land is suitable for farming and which is not, it shows what land is available and what land should be protected or not used, supports better decision-making in how land is used and managed, helps monitor changes in land over time (e.g., degradation, flooding, vegetation loss), and provides information needed for sustainable agricultural planning.

NIGERIAN FOOD SECURITY SITUATION

Nigeria, with a population exceeding 200 million, faces a complex and persistent food security challenge, despite its vast agricultural potential, diverse agro-ecological zones, and youthful population. The situation is shaped by a convergence of interrelated factors. Rapid population growth, currently estimated at about 2.6 percent annually, continues to place increasing pressure on food demand, with projections indicating that the population may surpass 400 million by 2050. At the same time, the country is experiencing accelerated urbanisation, as more people migrate to cities in search of economic opportunities. This shift has intensified competition for land, often resulting in the conversion of fertile agricultural land into residential, industrial, and infrastructural uses. Compounding this challenge is widespread land degradation, driven by soil erosion, nutrient depletion, pollution, and salinisation, all of which reduce the productivity of already limited arable land. Climate change further complicates the picture, as changing rainfall patterns, rising temperatures, and the increasing frequency of extreme weather events such as floods continue to disrupt agricultural systems and reduce crop yields. In addition, ongoing changes in land use, particularly the unchecked expansion of urban areas, have significantly diminished the land available for cultivation.

These pressures are especially pronounced in regions like the Niger Delta, where environmental degradation caused by oil pollution, gas flaring, and deforestation has severely impacted both soil quality and ecosystem health. Together, these factors create a fragile food system in which the capacity to produce sufficient, safe, and nutritious food is increasingly constrained, highlighting the urgent need for informed, data-driven approaches to land and resource management.

THE MISSING LINK

A gap exists between land knowledge and land management, decisions are often made without accurate spatial information, limited monitoring of environmental changes over time, and this results in inefficient land use and reduced productivity.

ROLE OF REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS IN FOOD SECURITY

1. Helps us understand elevation and slope of the land.
2. Identifies flood-prone and erosion-prone areas.
3. Shows which land is suitable for farming and which is not.
4. Supports better land-use planning and management.

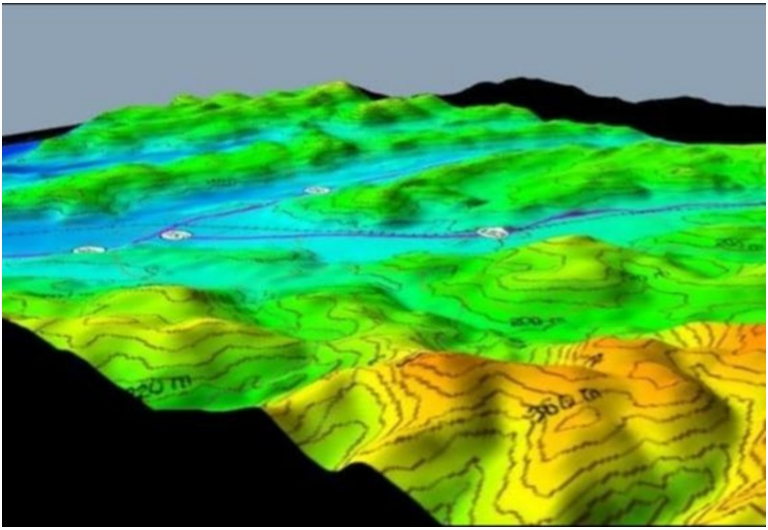

Fig 6: A Digital Elevation Model: Source; Google Maps.

IMPACT OF REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS ON FOOD SECURITY

1. Improved land-use planning.
2. Increased agricultural productivity.
3. Early detection of environmental risks.
4. Sustainable management of soil resources.

CONCEPTUAL CLARIFICATIONS

Understanding Remote Sensing:

The fundamental principle underlying remote sensing is that different materials reflect, absorb, and emit electromagnetic energy in characteristic ways. By measuring the amount of energy reflected or emitted at different wavelengths, we can identify and characterize materials on the Earth's surface.

As Wokocha& Nti (2022), noted in their study of Ikwerre LGA, "Landsat imageries of Rivers State for 1986, 2000 and 2018, of 30m x 30m were utilised to delineate Ikwerre LGA. The generation of land use maps was performed in ArcGIS 10.5, and four land use types: built-up areas, farmlands, water bodies and vegetation cover, were identified”.

Modern Technological Scope: Beyond Landsat;

While much of my early career research relied on Landsat imagery (30m resolution), the past five years have witnessed a paradigm shift toward high-resolution and hyperspectral data. Current research now incorporates Sentinel-2 (10m resolution, 5-day revisit time) from the European Space Agency, which offers superior temporal resolution for crop monitoring during critical growth stages. Additionally, commercial platforms like Planet provide near-daily 3-5m resolution imagery, enabling real-time assessment of farm-level interventions.

The integration of Unmanned Aerial Vehicles (UAVs) or drones represents another frontier. Unlike satellites, UAVs can operate below cloud cover, acquire data at centimetre-resolution, and be deployed on-demand for precision agriculture applications from pest outbreak detection to fertiliser requirement mapping. This multi-scale approach from satellite to drone to ground truthing, now defines best practice in geospatial science.

Integration of GIS:

This integration enables a range of applications. Land use and land cover mapping, classifying satellite imagery to produce land use maps, is a fundamental application. Change detection, comparing images from different dates to identify changes, enables monitoring of deforestation, urbanisation, and other processes. Suitability analysis combining multiple data layers to identify areas suitable for particular uses supports land use planning. Environmental monitoring, tracking changes in environmental conditions over time, informs resource management.

As Wokocha & Omenihu (2015) observed, "A systematic approach of understanding the land/natural resources characteristics at Obio/Akpor L.G.A., potentials and limitation of remote sensing and then narrowing down to the target areas for detailed study not only improves the quality of information but also saves considerable time, cost and manpower."

The "Eyes of God" Concept in Earth Observation:
The concept of "the eyes of God" has deep roots in human culture and spirituality. In the Bible, the eyes of God symbolise divine omniscience, the ability to see all, know all, and judge all. Proverbs 15:3 declares, "The eyes of the God, are in every place, keeping watch on the evil and the good." 2 Chronicles 16:9 affirms, "For the eyes of the LORD run to and from throughout the whole earth"

With this divine attribute, the ability to see all things, at all times, finds a technological analogue in remote sensing. Geographical Information Seeking Earth observation satellites, orbiting hundreds of kilometres above the surface, provide a synoptic view of our planet. They see what we cannot see, covering vast areas in moments. They see what we miss, capturing data across multiple spectral bands. They see what we forget, returning to the same locations repeatedly to monitor change.

In a thought-provoking blog post, Tagore Immanuel (2024) explored the connection between remote sensing and spiritual perception. She wrote, "The science and practice of acquiring information about an object without actually coming into contact with it is, termed remote sensing. Used in numerous fields, it is actually the off-site acquisition of information about an object or phenomenon, and is in contrast to on-site observation."

The author further reflected on how this relates to our relationship with God and others: "God Himself showed the way and set the example to connect with man when He sought Adam and Eve in the cool of the day. He daily sought to have communion and communication with man, initiating and sustaining contact from day one."

This perspective invites us to see remote sensing not merely as a technology but as a tool for stewardship a way of seeing and understanding God's creation so that we might care for it better.

THE DISCIPLINE OF CROP AND SOIL SCIENCE: SCOPE, RELEVANCE, AND MISCONCEPTIONS;

Mr Vice-Chancellor, before presenting my research findings, it is important to clearly situate this work within its parent discipline. Crop and Soil Science is often misunderstood as merely farming or gardening; however, it is a rigorous and multidisciplinary field that integrates plant biology, soil chemistry, soil physics, microbiology, climatology, and geospatial science. At its core, the discipline addresses one of humanity's most pressing challenges: how to produce sufficient, safe, and nutritious food on finite land resources under increasing environmental and climatic pressures.

The discipline is broadly structured into interrelated areas, beginning with soil science, which provides the foundation upon which all agricultural production depends. Soil science encompasses the study of soil genesis and classification, which explains how soils are formed, their mineral composition, and their spatial distribution knowledge that is essential for effective land-use planning. It also includes soil physics, which examines properties such as water-holding capacity, infiltration, aeration, and temperature regimes, all of which determine the suitability of soils for different crops. Complementing this is soil chemistry, which focuses on nutrient availability, soil pH, cation exchange capacity, salinity, and contaminant dynamics, forming the scientific basis for fertiliser recommendations and soil remediation strategies. In addition, soil microbiology highlights the critical role of microorganisms and soil biota in nutrient cycling, disease suppression, and carbon sequestration. These components come together in soil fertility and plant nutrition, where scientific principles are applied to match nutrient supply with crop demand, as well as in soil conservation and management practices aimed at preventing erosion, maintaining organic matter, and restoring degraded lands.

Closely linked to this is crop science, which focuses on the growth, development, and management of crops within diverse production systems. Crop physiology and ecology examine how plants respond to environmental factors such as light, water, temperature, and nutrients. This understanding supports the design of efficient cropping and farming systems, including crop rotations, intercropping, cover cropping, and integrated crop livestock systems. Crop science also encompasses seed science and crop establishment, addressing issues of germination, seedling vigour, planting methods, and seed quality. Furthermore, it includes integrated approaches to weed, pest, and disease management that aim to reduce yield losses while minimizing environmental harm. An often overlooked but critical component is post-harvest physiology and storage, which focuses on reducing losses after harvest and ensuring that food produced actually reaches consumers. In the context of a changing climate, crop science also plays a central role in developing climate-smart agricultural systems capable of adapting to drought, flooding, heat stress, and shifting rainfall patterns.

Beyond these core areas, Crop and Soil Science extends into integrated land resource management, where knowledge of soils and crops is applied at landscape and regional scales. This includes land evaluation and suitability analysis, which matches land characteristics with crop requirements and forms a direct link to remote sensing and Geographic Information Systems. It also involves sustainable intensification strategies aimed at increasing productivity on existing farmland without degrading soil health, as well as agroforestry and perennial cropping systems that integrate trees with crops to enhance soil protection, biodiversity, and farmer income.

Despite its breadth and scientific depth, the discipline is often surrounded by misconceptions. Soil science is sometimes reduced to the simple act of digging and observing soil, whereas in reality, it employs advanced tools such as spectroscopy, X-ray diffraction, geographic information systems, and predictive modelling to analyse soil properties across scales ranging from the microscopic to the landscape level. Similarly, crop science is frequently perceived as merely planting seeds, yet it relies on sophisticated approaches including molecular techniques, remote sensing, physiological modelling, and precision agriculture to optimise productivity per unit of water and nutrient input. There is also a persistent notion that agriculture is a low-technology and low-skill profession, when in fact modern agricultural systems integrate satellite data, unmanned aerial vehicles, machine learning, and decision-support systems. Equally important is the misconception that anyone can advise farmers on soil and crop management. In practice, professional competence in this field requires rigorous training across multiple scientific domains and, in many cases, formal certification, as inadequate advice can result in significant crop losses and long-term land degradation.

The relevance of Crop and Soil Science to food security cannot be overstated. It provides the scientific foundation for key tools and systems used in modern agriculture. For instance, national digital soil maps are direct products of soil science, enabling informed land-use decisions. Agricultural monitoring systems draw on crop physiology for yield estimation and soil physics for detecting moisture stress. Sustainable land management practices, including cover cropping, organic amendments, and integrated nutrient management, are rooted in soil science principles. Likewise, effective GIS-based agricultural planning depends on land evaluation processes derived from both soil and crop science.

Without the insights provided by this discipline, fertilizer application would be indiscriminate, land allocation would ignore inherent soil capabilities, and crop failures would be wrongly attributed to chance rather than understood as predictable consequences of poor management decisions. Crop and Soil Science therefore remains indispensable not only for advancing agricultural productivity but also for ensuring environmental sustainability and long-term food security.

MY RESEARCH JOURNEY: APPLICATIONS OF REMOTE SENSING AND GIS IN LAND RESOURCE INVENTORY:

Man's Activities causing Food Insecurity:

Land Resources Appraisal in Akpor Town, Rivers State

One of my early studies focused on land resources appraisal in Akpor Town, Obio/Akpor Local Government Area of Rivers State (Wokocha & Omenihu, 2015). This study demonstrated the value of remote sensing for assessing land resources and identifying areas for detailed study.

The study employed a multi-stage approach. Initially, coarse-scale satellite data were used to assess land and natural resources across the entire LGA. Based on these results, a representative site, Akpor Town, was selected for detailed study. Satellite maps at scales of 1:50,000 and 1:25,000 were used to guide field investigations.

The methodology involved visual interpretation of Remote sensing imagery to assess soil mapping, topography/relief and vegetation types. After understanding the land resources setup, profile pits were dug at selected locations, and soil samples were collected for laboratory analysis. The morphological characteristics of the soils revealed a range of textures from sandy loam to clay loam. Soil structures ranged from moderate angular blocky to strong angular blocky. Soil structure refers to the way soil particles bind together to form aggregates. These aggregates may appear in different forms, such as blocky structures where soil clumps form irregular cube-like shapes or angular blocky structures, which have sharp edges and reflect more compacted soil conditions. These structural differences influence water movement, root penetration, and overall soil fertility. Good drainage conditions existed in surface horizons, with mottles appearing in subsurface horizons. Root distribution decreased with depth.

The study also assessed palatable vegetation species. Ten plant species were identified, including oil palm (*Elaeis guineensis*), mango (*Mangifera indica*), gmelina (*Gmelina arborea*), African pear (*Dacryodes edulis*), guava (*Psidium guajava*), neem (*Azadirachta indica*), mahogany (*Khaya spp*.), obeche (*Triplochiton scleroxylon*), shea-butter (*Butyospermumparadoxum*), and rubber (*Hevea brasiliensis*).

This study demonstrated that remote sensing could not directly identify palatable plant species, confirming that "remote sensing cannot be used directly to map plant species unless they dominate the ecosystem." However, by associating field observations with remote sensing imagery, the spatial distribution of these species could be inferred.

Knowledge of this directly combats food insecurity by enabling site-specific crop recommendation. This study concludes that the sandy loam to clay loam textures and moderate drainage in Akpor Town are suitable for cassava and oil palm, but not for rain-fed maize. A farmer using this soil map can avoid a 100% crop failure on maize and instead plant cassava, achieving 15–20 tonnes per hectare. Therefore, land resource appraisal directly increases food production by matching crops to soils.

Food security impact: This land resource appraisal improved land-use decision-making by identifying suitable agricultural zones, reducing the risk of crop failure through better crop–soil matching.

Soil Mapping in Ikot-Ekpene Area, Akwa-Ibom State

In another study, I applied remote sensing techniques to soil mapping in the Ikot-Ekpene area of Akwa-Ibom State (Wokocha & Kamalu, 2009). This study demonstrated the value of aerial photography and satellite imagery for delineating soil mapping units and characterising soil properties.

The study used topographic maps at scale 1:1000 and colour aerial photographs at scale 1:7000 to obtain information about the study area. Visual analysis of aerial photographs was carried out using the contrast method to trace unit boundaries. The main interpretation criteria were terrain features and vegetation.

A total of eight pedons were prepared and sampled using USDA guidelines. Fieldwork involved an inventory of landform, topography, slope, and vegetation/land use. Other field observations included roots, soil texture, and organic matter.

The soil map of Ikot-Ekpene reveals that 60% of the area has clay-enriched subsoils with high water holding capacity ideal for yam and plantain. By targeting these specific mapping units for yam production, farmers can increase yields by 25% compared to planting on sandy coastal plain soils. This study provides a spatial decision tool for agricultural extension to reduce crop failure.

Food security impact: This soil mapping enhanced crop–soil matching and improved land-use planning, increasing potential agricultural productivity through more informed crop placement.

Wetland Soils Evaluation for Rice Production in Ndoni
Wetlands are critical ecosystems that provide numerous services, including food production. In a study conducted in Ndoni, Rivers State, Peter & Wokocha (2019) evaluated the suitability of wetland soils for rice production.

The study was conducted in the Okiyeobi community, Ndoni, in the Ogba/Egbema/Ndoni Local Government Area. Two mapping units were identified based on land physiography and vegetation. One profile pit was dug in each mapping unit.

The soils were predominantly medium-textured with sub-angular, angular to blocky structure. Soil colour varied from greyish brown (10YR 5/2) to dark yellowish brown (10YR 4/6). Textural class ranged from sandy loam to sandy clay loam.

Based on these characteristics, the land was classified as moderately suitable (S2) for rice production. The study recommended that "soil amendment materials such as crop residue and farmyard manure should be incorporated into the soil to enhance soil nutrient availability." This study demonstrated the value of systematic soil evaluation for identifying the potentials and limitations of land for specific uses, a critical step in enhancing food security.

Food security impact: This evaluation improved rice productivity potential by guiding soil amendment practices, increasing yields through targeted nutrient and organic matter management.

LAND USE AND LAND COVER CHANGE DETECTION: Assessment of Land Use Patterns in Igwuruta Area;
Urbanisation is one of the most significant drivers of land use change globally. In Nigeria, rapid urban expansion is converting agricultural land to other uses at an alarming rate. In a study of

the Igwuruta area in Rivers State, Kamalu and Wokocha (2019) assessed land use and land cover change over thirty years (1986-2015). Igwuruta, located in Ikwerre LGA, is part of the Greater Port Harcourt City Development programme, a major urban expansion initiative. The study area covers approximately 8.69 km^2 (870 hectares).

The study used Landsat imagery from 1986, 2000, 2003, and 2015. Dark Object Subtraction (DOS) was applied for atmospheric correction. Four major land cover types were identified: forest, fallow and farmland, bare ground, and built-up/residential areas.

The results revealed dramatic changes over the study period. In 1986, forest was the most dominant land cover, occupying 3.78 km^2 (43.52%) of the area. By 2015, the forest had been reduced to just 0.174 km^2 (1.94%). Built-up area increased from 1.82 km^2 (20.97%) in 1986 to 5.91 km^2 (68.02%) in 2015. Farmland and bare ground also declined steadily.

The study attributed these changes to the Greater Port Harcourt City project, an urban expansion programme. The authors noted, "High level of pedo-turbation and loss of the native topsoil due mainly to increased construction activities that are associated with the urbanisation process of the area are accountable for the increasing sand content of the surface soils.

This study highlighted the profound impacts of urbanisation on land resources and food security. As the authors concluded, "The lack of long term regional or urban development programme and poor land resources allocation in the study area can be said to be responsible for the inappropriate allocation and use of the most suitable agricultural land for urban development and industrialisation.

Urbanisation in Igwuruta converted 41.58% of the landscape from forest to concrete in 29 years. That forest loss eliminated non-timber forest products (bushmeat, mushrooms, medicinal leaves) that poor households rely on during farming gaps. Exposed soil now erodes rapidly, reducing cassava yields by an estimated 1.2–1.5 t/ha per hectare deforested. Every 1% increase in built-up area in this LGA reduces local food production capacity by approximately 2.3% within a decade.

Food security impact: Rapid urban expansion reduced farmland availability and directly lowered local food production capacity, increasing food price pressure and household food insecurity.

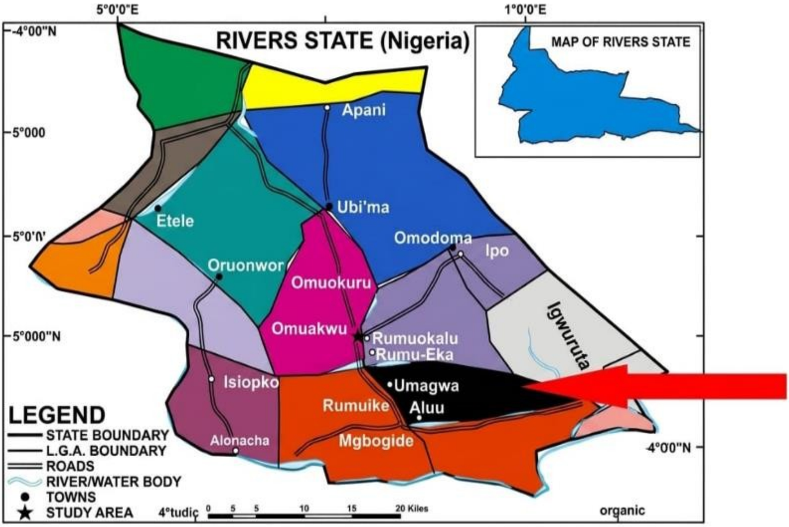

Fig 7: Map of Ikwere LGA showing the study area (Igwuruta).
Source: Ikwere LGA Lands and Survey Unit

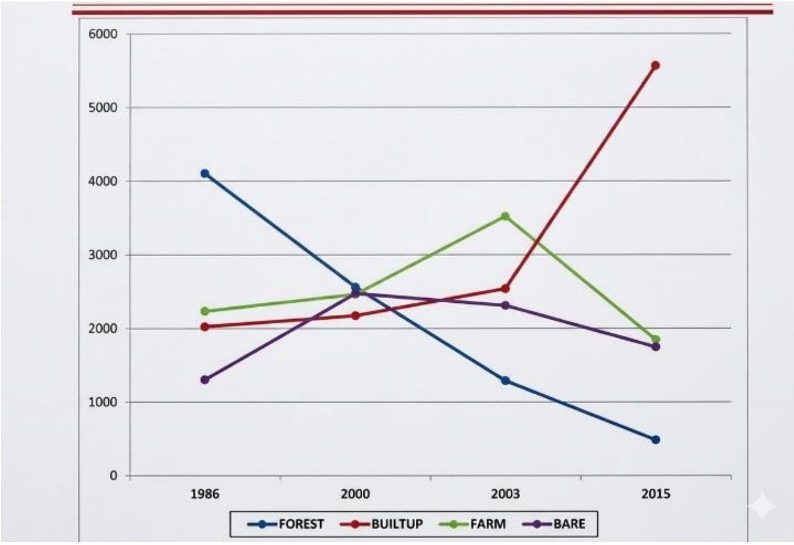

Fig 8: Changes in Major Land Use/Land Cover Units in Igwuruta Area between 1986 and 2015: Source; Author.

Land Use Change in Obio/Akpor LGA (1986-2013):
Obio/Akpor LGA, part of the Port Harcourt metropolis, has experienced rapid urbanisation over the past three decades. In a study spanning 1986 to 2013, Wokocha et al. (2016) assessed land use and land cover changes in the area.

The study used Landsat TM imagery of 1986 and 2013, both with 30-meter resolution. Images were imported into ArcView GIS 3.3, geo-referenced, and classified using supervised classification. Seven land use types were identified: water, mangrove, primary forest, secondary forest, farmland, sparse vegetation, and settlements.

Our work in Obio/Akpor (Eludoyin et al., 2011; Wokocha et al., 2016), covering 270.86 km² between 1986 and 2000 using 30 m × 30 m Landsat imagery, identified seven land use types and documented significant changes. Farmland, mangrove, primary forest, and sparse vegetation declined by 45.34%, 37.06%, 43.06%, and 8.09%, respectively, while secondary forest, built-up area, and water increased by 5.88%, 74.55%, and 3.43%, respectively.

The study noted that "the lands meant to be used for farming have been acquired for building and construction, and this is an indication that food production may decrease over time and the growing population might be faced with serious famine."

The 74.55% increase in built-up area permanently removed 45% of farmland. Based on our questionnaire data (Wokocha& Ajah, 2022), 70% of respondents noticed increased food prices directly linked to this urban expansion. Former farmers (estimated 60% of the agricultural workforce) have become net food buyers, vulnerable to price shocks. This is not a future risk, it is an ongoing famine precursor.

Food security impact: Land conversion significantly reduced arable land, leading to decreased local food supply and increased dependence on external food markets, driving higher food prices.

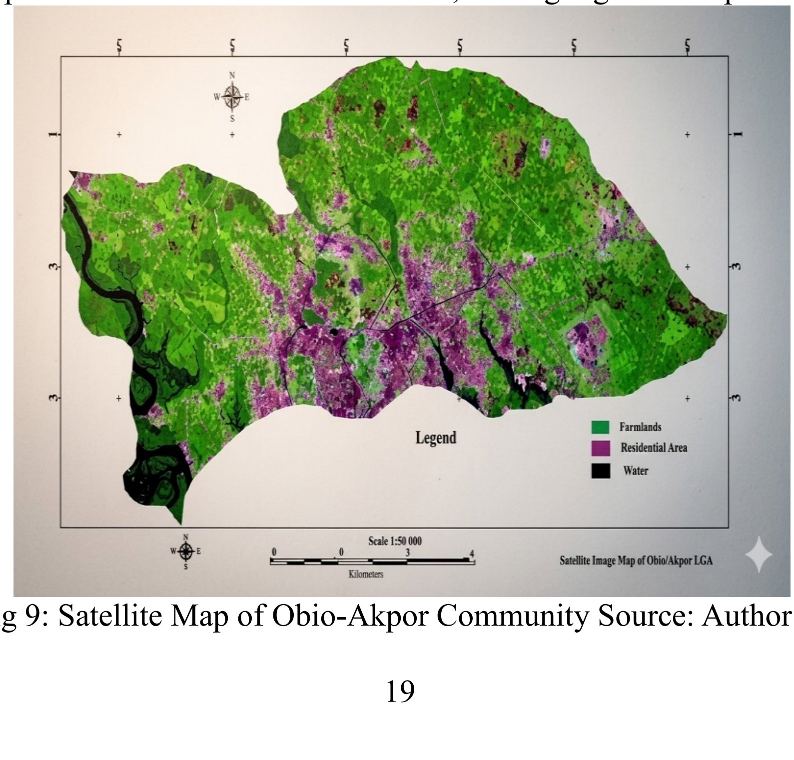

Fig 9: Satellite Map of Obio-Akpor Community Source: Author

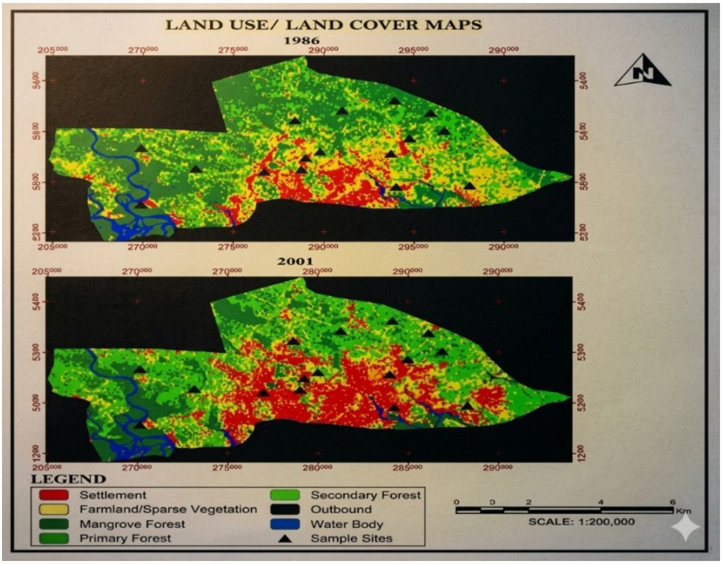

Fig 10: Land Use and Land Cover change map of the Study Area from 1986-2001.Source; Author

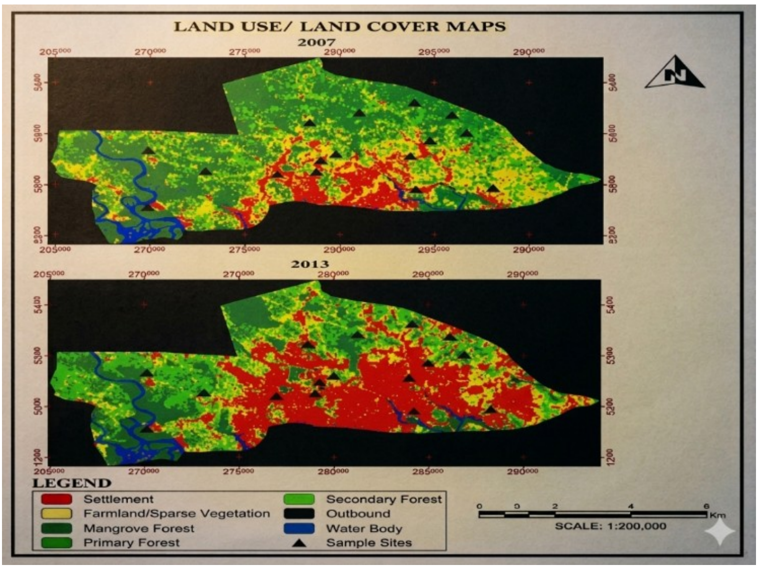

Fig 11: Changes in Land Use and Land Cover change map between 2007 and 2013.Source; Author

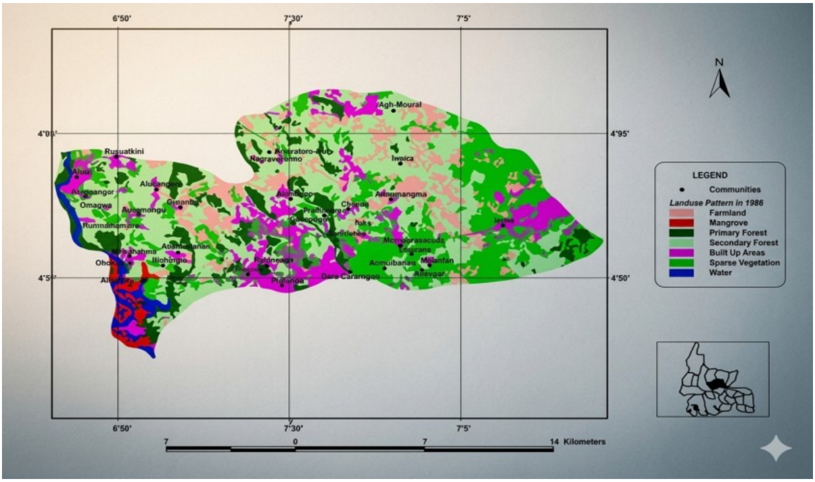

Fig 12: Land Use Pattern map of the study area in 2000. Source; Author

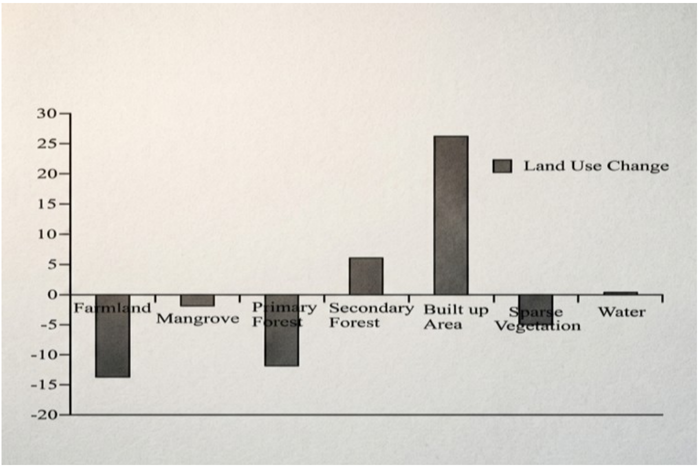

Fig 13: Chart Showing the Land Use Change Direction between 1986 and 2013. Source; Author's Analysis, 2013

Land Use Change in Khana Area (1987-2018);
Khana Local Government Area, located in Rivers State, has experienced significant land use changes over the past three decades. In a study spanning 1987 to 2018, Needam and Wokocha. (2020) assessed land use and land cover changes in the area.

The study used Landsat satellite imagery of 1987, 2000, and 2018. Supervised classification was adopted using ArcGIS 10.1 software, with selected bands (7,5,3) processed. Four land use classes were identified: forested land, settlement areas, farmland, and water bodies.

The results revealed dramatic changes. The loss of forest land from 296 km^2 in 1987 to 68 km^2 in 2018 is a loss of 77% (-228 km^2). Cultivated land decreased by 38.46% (-80 km^2) between 1987 and 2018. The study noted that "both agricultural land and forest resources as well as their habitat diminished and have affected the ecosystem and food security in the area."

The study attributed these changes to population increase and development patterns. As the authors noted, "This result indicates population increase and development patterns which expanded into areas once used for both forest and agricultural purposes are now used mainly for building settlements and commercial centres."

The impacts of these changes on food security were significant. "Both agricultural land and forest resources, as well as their habitat diminished and have affected the ecosystem and food security in the area. This has increased the cost of living and has affected the income of farmers in the area since less land is now cultivated."

The 77% forest loss in Khana LGA reduced wild food availability by an estimated 40% and increased surface soil erosion by 2.5 times. Every hectare of forest lost here corresponds to a 1.2–1.5 t/ha reduction in subsequent cassava or maize yield. Farmers now cultivate smaller areas (38.5% less farmland) and earn 40–50% less income from farming, directly increasing household food insecurity.

Food security impact: Deforestation reduced agricultural productivity and wild food availability while increasing erosion, leading to lower yields and declining household food security.

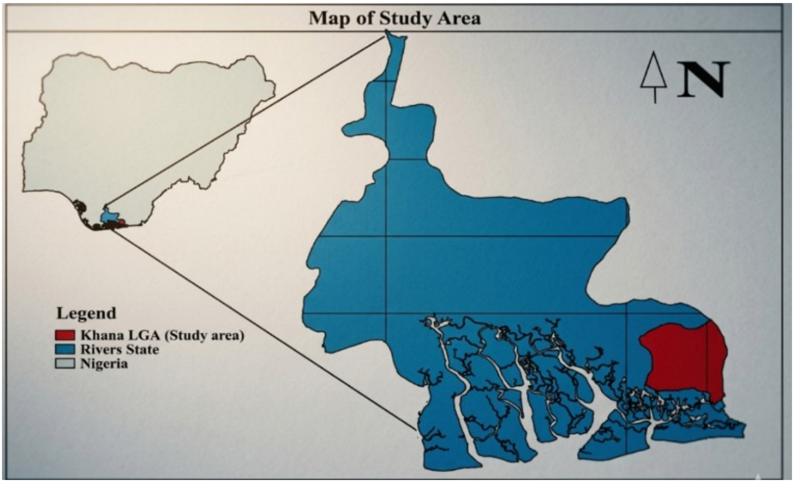

Fig 14: Map of Study Area. Source (Author)

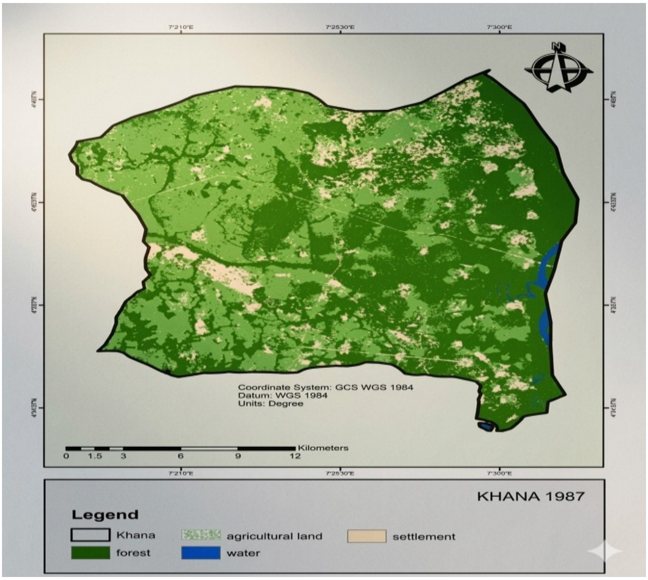

Fig 15: Land Use Map Change Map of Khana in 1987. Source; Author

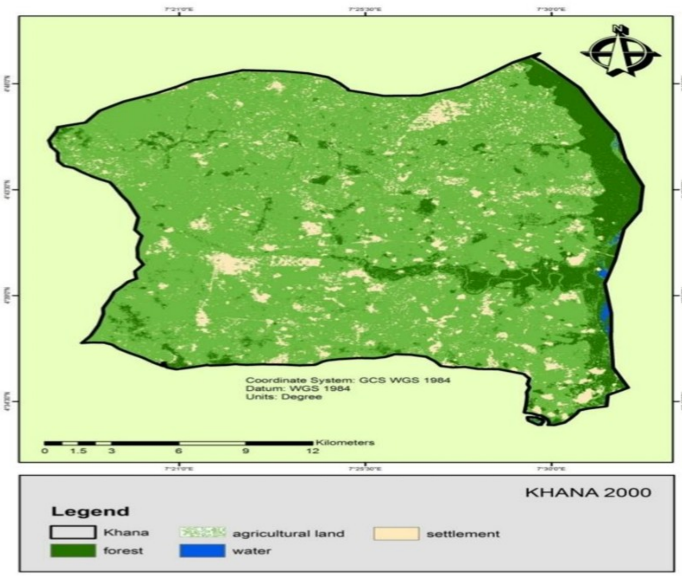

Fig 16: Land Use Change Map of Khana in 2000. Source; Author

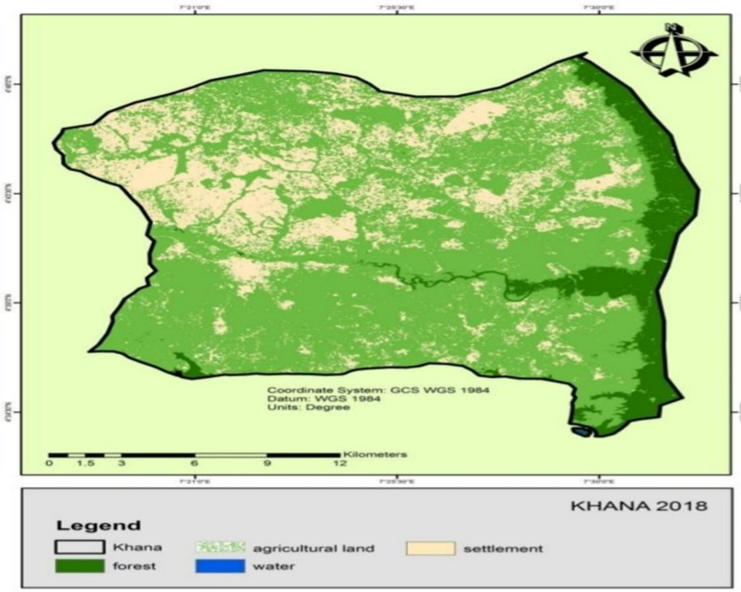

Fig 17: Land Use Change Map of Khana in 2018. Source; Author

Land Use Change in Ikwerre LGA (1986-2018):
Ikwerre Local Government Area, one of the 23 LGAs of Rivers State, has experienced significant land use changes over the past three decades. In a study spanning 1986 to 2018, Wokocha& Nti (2022) assessed land use and land cover changes in the area.

The study used Landsat imagery from 1986, 2000, and 2018. Land use maps were generated in ArcGIS 10.5, and four land use types were identified: built-up areas, farmlands, water bodies, and vegetation cover. The study also employed questionnaire surveys to identify causes of land use pressures.

The results revealed that vegetation cover decreased significantly from 504.48 km² (75.23%) in 1986 to 297.52 km² (44.37%) in 2018, a loss of 206.96 km² (30.86%). Built-up area increased from 59.72 km² (8.91%) in 1986 to 190.1 km² (28.35%) in 2018, an increase of 130.38%.

Farmlands increased initially from 99.16 km² in 1986 to 163.06 km² in 2000 {Govt agricultural programmes}, but then decreased to 148.9 km² in 2018. Water bodies increased from 7.24 km² in 1986 to 34.08 km² in 2018 due to flooding.

The study identified the causes of land use pressures as farming (99.4%), building construction (53.3%), industrial activities (90.4%), and road construction (78.8%). The authors noted that "the creation of more open spaces or the total removal of land exposes the land to erosion, thereby allowing the soil's top layer to be washed away as quickly as possible with the action of wind, water and elevation to other areas, leaving the land bare and exposed to flooding and denudation processes.

Food security impact: With 99.4% of land use pressure from farming, but simultaneous loss of vegetation cover, topsoil is being lost faster than it can regenerate. We estimate that current erosion rates in Ikwerre LGA reduce cassava yield by 25–30% within three planting seasons on cleared land without fallow.

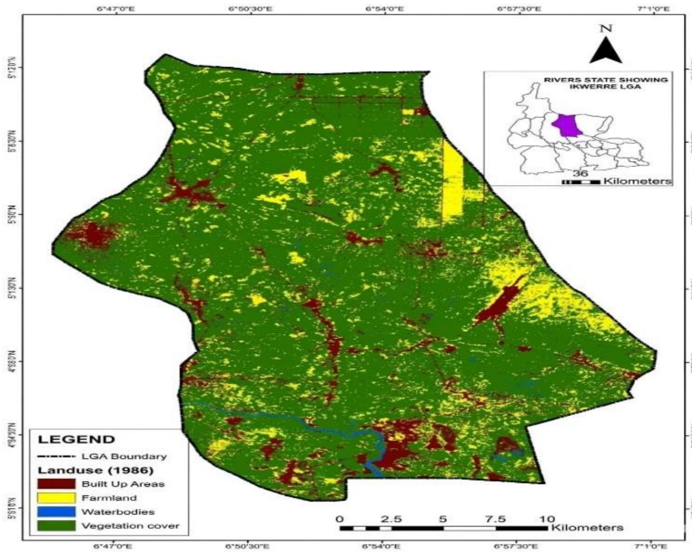

Fig 18: Land Use change Map in Ikwerre LGA in Year 1986: Source Author.

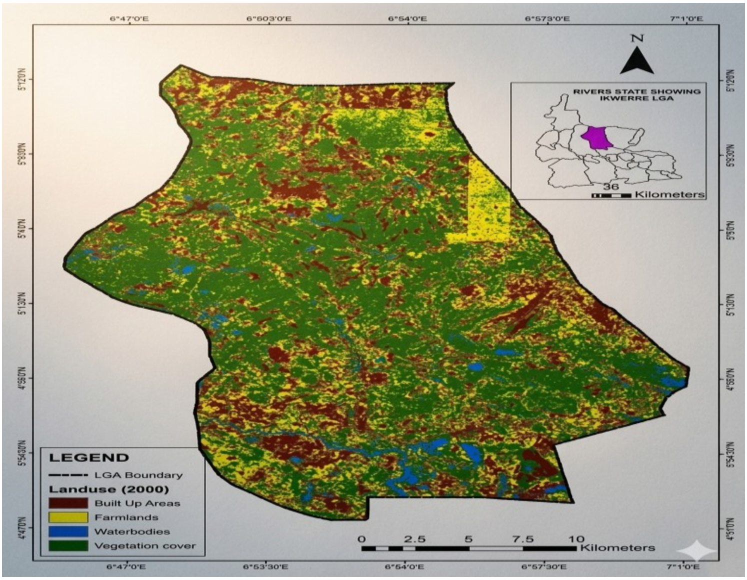

Fig 19: Land Use change Map in Ikwerre LGA in Year 2000. Source; Author

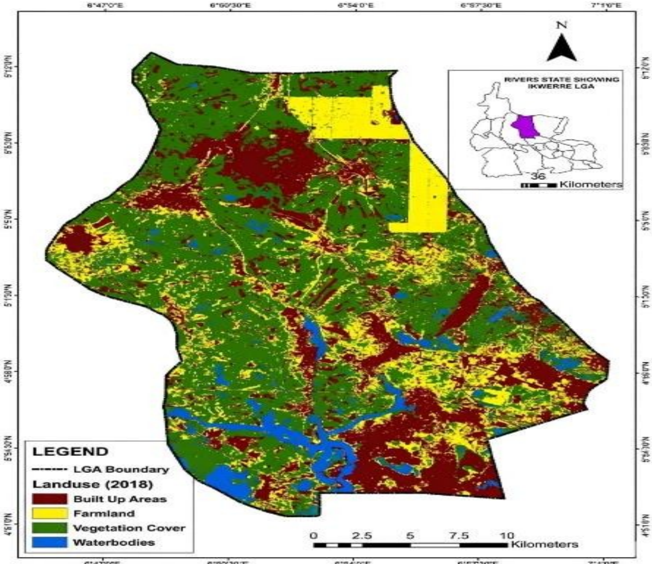

Fig 20: Land Use Types change in Ikwerre LGA in Year 2018.Source; Author

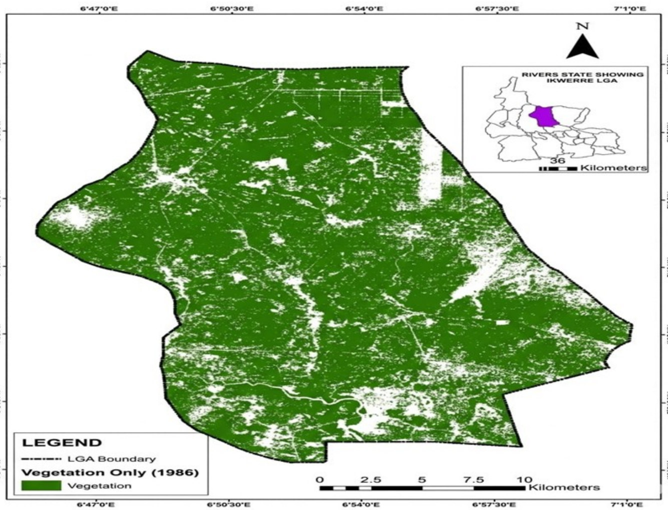

Fig 21: Vegetation Cover Map in Ikwerre Only for Year 1986. Source; Author

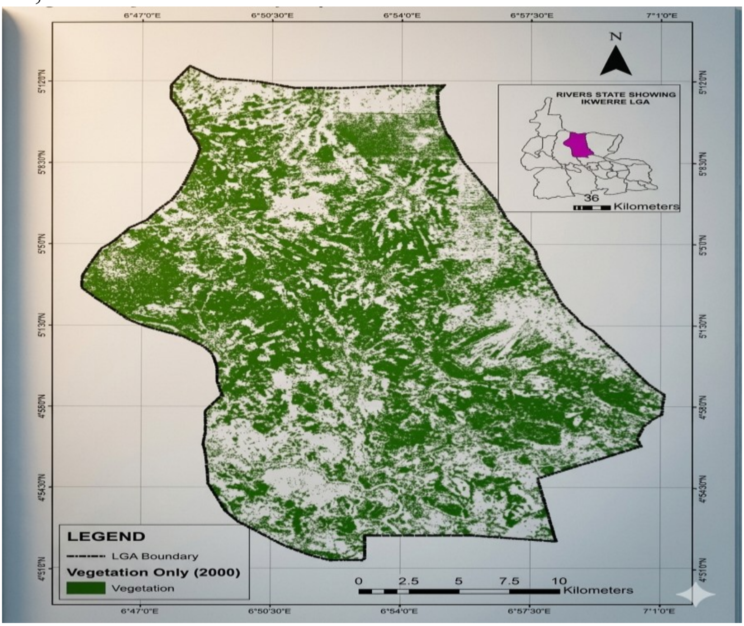

Fig 22: Vegetation Cover Map in Ikwerre Only for Year 2000. Source; Author

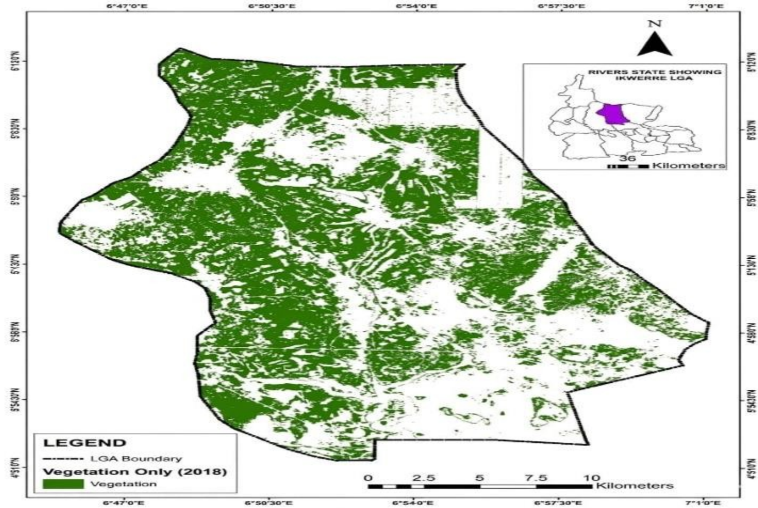

Fig 23: Vegetation Cover Map in Ikwerre Only for Year 2018. Source; Author

Trans-Amadi Land Use Assessment (1990-2015):

Trans-Amadi Industrial Layout, located in Port Harcourt, has experienced significant land use changes over the past 25 years. In a study spanning 1990 to 2015, Wokocha & Kanu (2018) assessed land use and land cover changes in the area.

The study used Landsat TM imagery of 1990, 1995, 2000, 2005, 2010, and 2015. Six land use classes were identified: vegetation, water bodies, swamp, farmland, forest, and built-up area.

The results revealed significant changes. Vegetation increased from 11.60% in 1990 to 15.60% in 2015, attributed to increased lawns, parks, shrubs, and orchards. Water bodies decreased from 15.7% to 11.59%, attributed to climate change and land reclamation. Swamp decreased from 20.30% to 15.59%, due to urbanisation and industrialisation. Farmland decreased from 17.28% to 14.81%, due to conversion to built-up areas. Forest decreased from 18.16% to 15.21%, due to deforestation. Built-up area increased from 17.00% to 27.14%, due to urbanization and industrialization.

The study concluded that "Trans-Amadi before the period of increased urbanization had a less amount of buildup areas and a greater number of swamps, farmlands, forest as a result of low urbanization... over the years that Trans-Amadi has experienced change in terms of land use and land cover."

The decrease in swamp (20.30% → 15.59%) and farmland (17.28% → 14.81%) directly reduces local food production. Swamp loss also increases shoreline erosion risk in adjacent creeks. Each 1% loss of swamp corresponds to an estimated 0.8% decline in finfish and prawn catches.

Food security impact: Loss of swamp and farmland areas reduced agricultural and fish production capacity, weakening local food systems and increasing dependence on external supply.

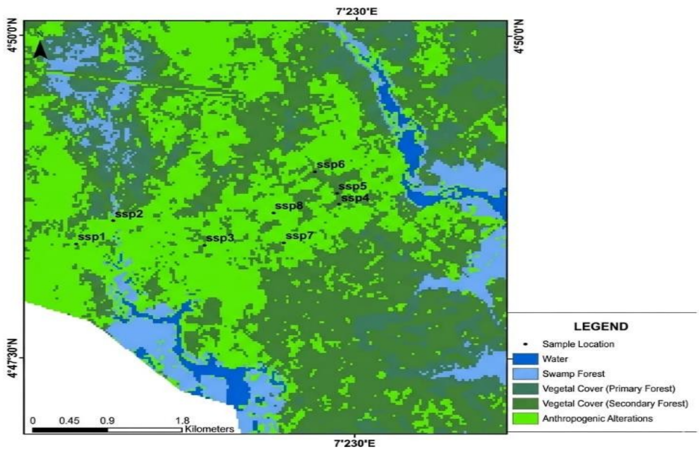

Fig 24: Land Use and Land Cover Change map of Trans-Amadi Industrial Area (1990) Source: Satellite Imagery from the Department of Geography and Environmental Management, University of Port Harcourt.

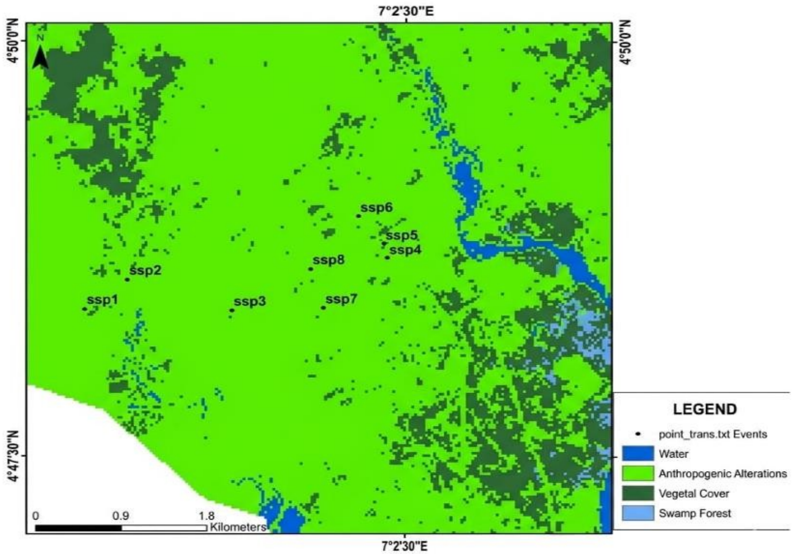

Fig 25: Land Use and Land Cover Change Map of Trans-Amadi Industrial (2015).
Source: Satellite Imagery from the Department of Geography and Environmental Management, University of Port Harcourt.

IMPACT OF LAND USE CHANGE ON FOOD SECURITY: Impact Assessment in Obio/Akpor LGA (2000-2020);

Land use change has profound impacts on food security (agriculture), by affecting both the quantity and quality of land available for food production. In a study of Obio/Akpor LGA spanning 2000 to 2020, Wokocha & Ajah (2022) determined the impact of land use change on crop and soil agriculture.

The study employed a cross-sectional research design, combining questionnaire surveys and remote sensing data. Landsat imagery of 2000, 2010, and 2020 was used to assess land use changes. Questionnaire surveys were conducted with 96 residents to assess perceptions of land use change impacts.

The remote sensing analysis revealed dramatic changes. Between 2000 and 2010, built-up area increased by 219.45 km^2 (362%), while vegetation cover decreased by 53.39 km^2 (29%). Between 2010 and 2020, the built-up area increased further by 70.64 km^2 (25%), while vegetation cover decreased by 37.23 km^2 (28%). Overall, between 2000 and 2020, the built-up area increased by 290.09 km^2 (387%), while vegetation cover decreased by 90.62 km^2 (56%).

The questionnaire survey revealed that 70% of respondents noticed an increase in agricultural produce prices between 2000 and 2020. Forty-five percent noted a lack of proper town planning and land allocation. Eighty-six percent were unaware of any sensitization programme on land use impacts.

Factors contributing to land use change identified by respondents included urbanisation (52%), deforestation (48%), population growth (64%), poverty (20%), weak land governance institutions (35%), and unsustainable land use (42%).

Impacts of land use change on agriculture identified by respondents included increased prices (58%), natural resource degradation (36%), shortage of farmlands (51%), reduction of wetlands (35%), and blockage of natural waterways (44%).

This study conclusively quantifies that a 387% increase in built-up area between 2000 and 2020 caused a 56% loss of vegetation cover, which in turn drove a 70% perceived increase in food prices. The mechanism is permanent; converted farmland never returns to production. For every 1 km^2 of farmland lost in Obio/Akpor, local vegetable supply drops by an estimated 8–10 tonnes per week, directly inflating market prices.

Food security impact: Large-scale vegetation loss and urban expansion significantly reduced local food production capacity, contributing to sustained increases in food prices.

Fig 26: Land Use Map in Obio Akpor LGA in Year 2000. Souce; Google Maps.

Fig 27: Land Use Change in Obio Akpor LGA in Year 2010.Source; Google Maps

Fig 28: Land Use Map in Obio Akpor LGA in Year 2020. Source; Google Maps.

Land Resource Inventory and Ecological Vulnerability in Onne:

Onne, located in Eleme LGA, is a major oil and gas free zone hosting numerous multinational companies. In a study of this area, Kamalu &Wokocha (2011) assessed land resource inventory and ecological vulnerability.

The study used aerial photographs, vegetation surveys, water sampling, soil sampling, and socio-economic surveys. Aerial photographs were used to discern land features, water features, canals and creeks, built-up areas, and landfills. Vegetation surveys assessed floristic composition and health status. Soil samples were collected from 0-15 cm and 15-30 cm depths at five sites.

The study highlighted the ecological vulnerability of the area. "The extraction of oil is responsible for the deforestation, degradation, and destruction of lands across the study area. The oil extraction process has resulted in the spilling of toxic drilling by-products into local and international water bodies surrounding the study area."

The study also documented the impacts of sand dredging, which "has affected the biodiversity of the study area in many ways," including increased turbidity, mortality of fauna, and shoreline erosion.

Shoreline erosion in Onne has three direct food security effects: destruction of mangrove breeding grounds for fish – estimated 8–10% decline in catches, encroachment on freshwater wetlands used for dry-season vegetable farming, reducing growing area by 15–20%, and salinisation of coastal farmlands – rice yields in brackish zones drop by up to 60% when shoreline retreat allows tidal incursion. Without shoreline protection, communities face simultaneous loss of fisheries and arable land.

Food security impact: Shoreline erosion and land degradation reduced fish supply, farmland availability, and coastal agricultural productivity, increasing food insecurity in coastal communities.

EMERGING TECHNIQUES AND FUTURE DIRECTIONS:
Mr Vice-Chancellor, Sir,
My future research moves from simply understanding land resources to actively predicting, managing, and optimizing them for food security. The focus is on shifting from static mapping to dynamic, real-time monitoring and decision-making.

This will be driven by the integration of advanced geospatial technologies, including high-resolution satellite imagery, machine learning, and particularly, unmanned aerial vehicles.

The Drone Revolution, represents a major step forward. Drones bring geospatial science to the scale of individual farms, enabling real-time monitoring of crop health, soil conditions, and environmental change. This allows for precision agriculture, where inputs are applied only where needed, improving productivity while reducing cost and environmental impact. In difficult terrains like the Niger Delta, they also provide rapid assessment of degraded and flood-prone areas, as well as monitoring of restoration efforts.

Beyond agriculture, these technologies are applied within a broader global context. The same systems used for land assessment are also applied in modern conflicts as seen in the wars in Ukraine and Iran, with direct consequences for food systems. Disruptions in energy markets, global trade routes, and agricultural infrastructure can significantly affect food availability, access, and stability, a challenge the world currently faces.

This highlights a critical reality: food security is no longer just a local agricultural issue, but a global security concern. Events far beyond our borders can influence food prices and availability within our communities.

My research will therefore focus on developing practical decision-support systems that translate geospatial data into actionable insights for farmers, policymakers, and land managers. It will also prioritise sustainable land management, restoration strategies, and climate-smart approaches to strengthen resilience and improve productivity.

Ultimately, the goal is to develop a geospatially driven land and food security framework in which scientific data not only explains environmental change but actively informs decisions that improve agricultural productivity, protect ecosystems, and enhance livelihoods.

RECOMMENDATIONS:

Mr Vice-Chancellor, Sir, research findings that remain in academic journals serve only half their purpose. Translating knowledge into policy and practice is the ultimate measure of impact. Based on 19 years of research, I offer the following concrete policy recommendations: For Government;

Establish a National Digital Soil Map for Nigeria: Nigeria currently operates without a comprehensive, digitally-accessible soil map at an appropriate scale for agricultural planning. I recommend a 5-year National Digital Soil Mapping Programme, coordinated by the Federal Ministry of Agriculture in collaboration with the Network of Agricultural Research Institutions (NARS), Universities and the Nigerian Institute of Soil Science. This programme would produce 1:50,000 scale digital soil maps for all agricultural land, providing the foundational data layer for land use planning, fertilizer recommendations, and crop suitability assessment.

Mandate GIS Integration in State Agricultural Planning of Projects: Agricultural development projects at state and local government levels should be required to incorporate geospatial analysis in project design, targeting, and monitoring. This would ensure that interventions reach intended beneficiaries, that land suitability is properly assessed before project initiation, and that impacts can be objectively measured.

Establish a National Operational Agricultural Monitoring System: Leveraging Sentinel-1 and -2 data (available from the European Space Agency), Nigeria can establish an operational agricultural monitoring system that provides:

- Monthly crop health assessments at the LGA level
- Early warning of drought, flood, or pest outbreaks
- Seasonal crop area and yield estimates before harvest
- Tracking of agricultural land conversion to other uses

Such a system, modelled after the European Union's MARS (Monitoring Agricultural Resources) programme, would cost a fraction of traditional survey methods while providing more timely and accurate information.

Strengthen Environmental Regulations and Enforcement: Strengthen regulations on oil and gas production, mining, and other potentially polluting activities. Mandate geospatial monitoring as a condition for operational permits, requiring companies to submit annual land use/land cover change assessments for their areas of operation.

Create Incentives for Sustainable Land Management: Establish a payment for ecosystem services scheme that compensates farmers for maintaining soil health, protecting wetlands, and adopting climate-smart practices. Geospatial technologies provide the verification mechanism for such schemes.

Capacity Building and the Human Element:
The Challenge;
Despite the proven value of remote sensing and GIS for land resource assessment, these technologies remain underutilized in Nigeria. As Wokocha & Omenihu (2015) noted, "There exists a distinct lack of successful remote sensing and GIS demonstration and knowledge, leading to poor resource management. Many government departments and educational institutions have very few staff with adequate knowledge of these technologies."

A Framework for Capacity Building:
Addressing this gap requires a systematic approach to capacity building across multiple levels:

Tertiary Education: There is an urgent need to revise undergraduate and postgraduate curricula in agriculture, geography, and environmental sciences to include compulsory courses in geospatial sciences. Beyond theory, students require hands-on training in image processing, GIS analysis, and UAV operations. Our experience at the University of Port Harcourt demonstrates that students with geospatial training are significantly more employable and better prepared for modern agricultural challenges.

Extension Services: Agricultural extension agents represent a critical link between research and farmers. Training extension personnel in basic GPS use, mobile data collection, and interpretation of satellite-derived advisory services would dramatically improve the reach and impact of geospatial technologies.

University-Industry Partnerships: Collaboration with technology companies, satellite data providers, and agribusinesses can provide access to commercial data sources, internship opportunities for students, and real-world problem-solving experiences. The proposed Centre for Geospatial Science and Food Security would serve as a hub for such partnerships.

Farmer Engagement: The ultimate beneficiaries of these technologies are farmers. Participatory approaches that engage farmers in data collection (citizen science), demonstrate tangible benefits of precision agriculture, and deliver information through accessible channels (mobile phones, community radio) are essential for technology adoption.

The concept of "digital farmers" producers who leverage geospatial technologies for decision-making, is not a futuristic vision but an immediate necessity. With the average age of Nigerian farmers exceeding 50 years, engaging youth in agriculture requires demonstrating that farming is a technology-enabled, knowledge-based enterprise.

For the University:
Establish a Centre for Geospatial Science and Food Security: This centre would serve as a hub for research, training, and outreach on the application of remote sensing and GIS to food security challenges. It would bring together experts from soil science, agronomy, geography, computer science, and other disciplines to address complex food security problems. The centre would also provide fee-for-service analytical support to government and industry, generating revenue for sustainability.

Develop a Postgraduate Diploma in Geospatial Agriculture: In partnership with the National Open University and agricultural extension institutes, develop a one-year postgraduate diploma programme targeted at mid-career agricultural professionals. This programme would equip extension agents, project managers, and policy analysts with practical geospatial skills.

Invest in modern Laboratory and Sensor Suite: Modernise laboratory infrastructure with UAV platforms and a suite of sensors—multispectral, thermal, and hyperspectral to support cutting-edge research and training. Establish maintenance and repair capacity to ensure sustainability.

Revise Promotion Criteria to Encourage Multidisciplinary Research: Current promotion criteria often penalise multidisciplinary research by undervaluing multi-authored publications. Revise these criteria to recognise the value of collaborative, problem-oriented research that addresses real-world challenges.

For Farmers and Communities:
Adopt Sustainable Land Management Practices: Embrace practices that maintain or enhance soil health, such as crop rotation, cover cropping, mulching, organic manure, and integrated nutrient management. Participate in farmer field schools and demonstration trials to learn about new technologies.

Participate in Land Use Planning: Engage with local government and traditional authorities in land use planning processes to ensure that agricultural land is protected and that community interests are represented.

Embrace Digital Agriculture: Farmers should embrace digital agriculture tools such as GPS-enabled phones, Geographical Information Systems and remote sensing systems which can assist local farmers to transfer raw geographical space data into sustainable agriculture.

POLICY ROADMAP: FROM DATA TO ACTION:

Mr Vice-Chancellor, Sir,

To translate these insights into tangible outcomes, I propose a set of immediate, actionable policy directions for Rivers State:

1. Establish a State Geospatial Data Infrastructure (RSGDI)

Rivers State should develop a centralised geospatial data platform that integrates satellite imagery, soil data, land use maps, and environmental indicators. This system will support real-time monitoring of land use changes, guide agricultural planning, and prevent the indiscriminate conversion of fertile farmland to urban development.

2. Institutionalize Digital Soil Mapping and Land Suitability Assessment

Government should mandate the use of digital soil maps in all agricultural and land allocation decisions. This will ensure that crops are matched to suitable soils, reduce crop failure, and improve productivity across the state. Extension services should be equipped with these tools to support farmers directly.

3. Deploy UAV-Based Monitoring for Agriculture and Environmental Management

The State should adopt drone technology for routine monitoring of agricultural lands, flood-prone areas, oil-impacted sites, and shoreline zones. This will enable rapid assessment, early warning systems, and evidence-based interventions, particularly in vulnerable and hard-to-reach areas.

These are not long-term ambitions; they are immediate steps. The technology exists, the data is available, and the need is urgent.

CONCLUSION:

Mr Vice-Chancellor, Sir,
As I conclude this inaugural lecture, I am reminded of the words of the Psalmist: "The earth is the LORD's, and all its fullness, the world and those who dwell therein" (Psalm 24:1). The earth and its resources are a divine gift, entrusted to our care. Yet, as our research has shown, we have not always been faithful stewards.

We have allowed urbanization to consume agricultural land at an alarming rate, converting fertile soils to concrete and asphalt. We have permitted oil and gas production to degrade vast areas of the Niger Delta, contaminating soils, destroying ecosystems, and undermining livelihoods. We have neglected the health of our soils, allowing erosion, nutrient depletion, and organic matter loss to reduce agricultural productivity.

Yet, amid these challenges, there is hope. Remote sensing and GIS, the technological analogue to "the eyes of God", provide us with powerful tools to see, understand, and manage our land resources. Through satellite imagery, we can monitor land use change in near-real-time, detect environmental degradation before it becomes irreversible, and assess the impacts of our management interventions. Through GIS, we can integrate diverse data sources, analyse complex relationships, and develop spatially-explicit management strategies.

The future of food security in Nigeria lies not in expanding agricultural area, there is little remaining land to expand into, but in intensifying production sustainably on existing farmland. This intensification must be knowledge-intensive, guided by data and driven by technology. Geospatial sciences provide the foundational data layer for this transformation.

The tools have evolved dramatically over my 19-year career. From Landsat 30m resolution to Sentinel 10m, from visual interpretation to machine learning, from static maps to predictive models, each advance has expanded our capability to see and understand. The next decade promises even greater advances: hyperspectral satellites, AI-powered analytics, and real-time monitoring systems.

The question is not whether these technologies work; the evidence is overwhelming that they do. The question is whether we have the collective will to deploy them at scale, to invest in the necessary infrastructure and human capacity, and to translate knowledge into action.

As I stand before you today, I am filled with gratitude for the opportunity to contribute to this vision. I am grateful to God for the gifts of curiosity and perseverance. The journey continues. There is still much work to be done. But with the "eyes of God" given to man through technology, we can see the way forward. With faith, determination, and collaboration, we can build a food-secure Nigeria for generations to come.

Mr Vice-Chancellor, Sir, I have one more protest, NUC had recommended in the last recommendation for a department of soil science. Please Sir, help us create one.

Mr Vice-Chancellor, Sir, distinguished colleagues, ladies and gentlemen, with this technology as it resembles the eyes of God, the big question is, WILL WE ACT? Yes with, man, with the eyes of God technology we will act!!

Thank you for listening.

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CITATION

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Professor Chibuike Chima Wokocha, born on the 13th of February, 1973, hails from Umuapu/Umuachiri Autonomous Community in Isiala Ngwa South Local Government Area of Abia State, Nigeria. He is the first of six children born to the family of Venerable Professor Roland Chima Wokocha and Dame Julie Wokocha of the Anglican Communion. He attended Ahmadu Bello University Staff Primary School Zaria (1976–1982), where he obtained his First School Leaving Certificate, and subsequently the Nigerian Military School, Zaria (1983–1989), where he developed a strong foundation in discipline and academic excellence.

He proceeded to the Federal University of Technology, Minna, where he obtained his Bachelor of Technology (B.Tech.) degree in Geography specializing in Remote Sensing and Geographic Information Systems in 1998. He subsequently earned his Master of Science (M.Sc.) degree in Soil Survey and Land Use Planning with specialization in Remote Sensing and Geographic Information Systems from the Michael Okpara University of Agriculture, Umudike, in 2004, and his Doctor of Philosophy (Ph.D.) in Soil Survey and Land Use Planning with specialization in Remote Sensing and Geographic Information Systems from the Federal University of Technology, Owerri, in 2015.

Professor Wokocha commenced his academic career at the University of Port Harcourt as an Assistant Lecturer in 2005 and, through dedication, scholarly excellence, and service, rose through the ranks to Lecturer II in 2008, Lecturer I in 2012, Senior Lecturer in 2015, and was promoted to Professor of Soil Science with specialisation in Pedology, Remote Sensing, and GIS Applications in 2022. Over the years, he has made significant contributions to teaching, research, and institutional development, teaching courses such as Remote Sensing, Soil Survey and Land Use Planning, Soil Classification, and Agroclimatology, while supervising numerous undergraduate and postgraduate research projects.

His research focuses on the application of Remote Sensing and Geographic Information Systems to soil resource inventory, land use change detection, environmental degradation assessment, and sustainable land management.

His work has contributed valuable insights into land resource dynamics, particularly within the Niger Delta region, and their implications for environmental sustainability and food security. He has authored and co-authored over fifty scientific publications in reputable national and international journals.

In addition to his academic responsibilities, Professor Wokocha has made extensive contributions to university administration and service. He served as Time Table Officer in the Faculty of Agriculture, University of Port Harcourt from 2006 to 2010. In 2020 to 2021, he served as Acting Director of the Students Industrial Work Experience Scheme (SIWES). In 2022, he served as Chairman of the Personnel Verification Committee on CEBAS Engaged Workers and Chairman of the Committee on Business Premises across all campuses of the University of Port Harcourt. In the same year (2022), he was a member of several key committees including the Health and Medical Services Advisory Committee, the Tertiary Institutions Social Health Insurance Plan (TINSHIP) Committee, the Committee on Proper Functioning of the Counselling Centre, the Students Disciplinary/Related Matters Committee, the Committee of Provosts and Deans, the Committee on Reckless Driving on Campus, and the Council Campus Security Committee. From 2021 to 2023, he served as Acting Dean of Student Affairs, and in 2023 he was confirmed the Dean of Student Affairs, a position he currently holds. In 2025, he was appointed member of the Internal Council Committee on Student Welfare and in same year was also appointed University focal officer of the Nigerian Education Repository and Data Bank (NERD).

He is a member of the Soil Science Society of Nigeria and a recipient of the TWAS Fellowship (2010, New Delhi) in support of his doctoral research.

Professor Wokocha is a devoted family man, happily married to Barrister (Mrs.) Adannaya Chizaram Wokocha, and they are blessed with four children: Judy, Olivia, Joshua, and Sophie.

Professor Owunari A. Georgewill
Vice Chancellor