



# Nigerian Institution of Highway & Transportation Engineers (NIHTE)

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Think, Transform & Transcend

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The No. 1  
Highway &  
Transportation  
Engineering  
Development  
Journal

## PICTURES OF NIHTE-IRF INTERNATIONAL TRAINING WORKSHOP ON MANAGING ROAD INFRASTRUCTURE ASSETS FOR SUSTAINABILITY, HELD ON 11TH TO 14TH AUGUST, 2025, AT NEC, ABUJA.



## OBASANJO REAFFIRMS SUPPORT FOR ENGINEER AS NSE PRESIDENT VISITS ABEOKUTA



## COURTESY VISIT TO FERMA



## OUR VISION

- ! To transform the nation's highway & transport sector that is centered on road safety, compliance, intervention, monitoring, assets management, reform, financing and capacity building for the nation's highway and transportation professionals.

## OUR MISSION

- ! To think, transform and transcend the nation's highway & transport practice to that of global best practices.
- To provide forum for members and partners of the highway & transport industry that foster education, innovation, research, fellowship, promoting a safe, sustainable and efficient highway & transport system.
- To bring radical changes into the highway & transport practice in design, construction, maintenance, sustainability and management of highway & transport infrastructures.
- To engage highway and transportation stakeholders.
- To hold research, conference, seminar, technical publication, workshops, lectures in line with global best practices.
- To provide professional leadership while developing and sharing knowledge, capacity building and technology acquisition.
- To develop the nation's highway design and construction standards.
- To net-work and engage with highway industry leaders from different countries of the world.
- To have unparalleled professional and business development opportunities around the globe.

### Core Values

Education and Innovation.  
Diversity, Inclusiveness and Ethics.  
Quality life  
Fellowship.

### Goals

Increase visibility.  
Maintain membership and extend market diversity.  
Promote education.  
Educating highway & transport decision makers.

### Aims & Scope

As an academic journal, the *Journal of the Nigerian Institution of Highway and Transportation Engineers (NIHTE)*, provides a platform for the exchange and discussion of novel and creative ideas, on theoretical and experimental research in the field of Highway and Transportation. This journal publishes high-quality peer-reviewed papers on engineering, planning, management, and information technology for highway transportation. The journal is committed to rapid peer review and publication.

The scope of the *Journal of the Nigerian Institution of Highway and Transportation Engineers*, includes: -

- Road engineering, railway engineering, environmental engineering, ITS and traffic engineering and bridge and tunnel engineering
- Automotive engineering, design, manufacture, and operation of vehicles
- Air transportation, maritime transportation, road transportation, and railway transportation
- Analysis, operation, optimization, and planning of highway and transportation systems and networks
- Travel behaviour, information technology, traffic control, and traffic flow theory
- Economics, health, safety, security, environmental and management of highway and transportation
- Multi-modal highway, transportation and logistics research
- Intelligent highway and transport systems
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## A NOTE FROM THE LEAD EDITOR'S PEN

Welcome to 32nd Edition of the NIHTE Newsletter. We are required to kindly peruse this edition carefully. This edition has been a labour of love, patience and awe, as we've all navigated these truly unparalleled and perplexing times. The series for this third quarter Newsletter is to showcase some interesting events. While 2025 has no doubt been challenging, I hope these events bring us hope, joy and pride.

The editorial team of NIHTE today also has a resolution it intends to keep: - we promise to continue to deliver on our promise and collect engaging images, videos, articles and photo galleries related to NIHTE and to keep us, our dear readers informed about breaking and ongoing stories in NIHTE, NSE, national and international communities. On behalf of the whole Editorial Team, we wish you, your family and friends the very best.

As we move on, I wish you a happy and healthy year. Please stay safe and thank you again for your patience as we put this together with our team of contributors from around the institution and outside.

Thank you for taking the time to learn more about the work being done in our field and at our Institution. I urge you to reach out to our editorial team and share your thoughts and experiences with them. And of course, if you're interested in writing for next Newsletter, please let us know.

Best regards



**Jones Nwadike**  
**Lead Editor**

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## NIHTE ONE DAY RETREAT ON SUSTAINABLE ROAD MAINTENANCE IN NIGERIA, 18TH SEPT. 2025



## About NIHTE

**NIHTE – the Nigerian Institution of Highway and Transportation Engineers** – is a non-profit, non-partisan institution representing highway and transportation in the Nigerian Society of Engineers (NSE), in Nigeria. It represents all highway and transportation modes, including air, highways, public transportation, active transportation, rail, and water. Its primary goal is to foster the development, operation, and maintenance of an integrated national highway and transportation systems.

NIHTE works to educate the public and key decision-makers about the critical role that highway and transportation play in securing a good quality of life and sound economy for our nation. NIHTE supposed to serves as a liaison between national, state and local government departments of highway and transportation and the Federal government and is supposed to be an international leader in setting technical standards for all phases of highway and transportation systems development. Standards are supposed to be issued for design, construction of highways and bridges, materials, and many other technical areas.

Construction workers are often at risk of exposure to many infectious diseases, such as coccidioidomycosis, histoplasmosis, hypersensitivity pneumonitis, disseminated histoplasmosis, dengue, asbestos-related illnesses, silicosis, legionellosis, tuberculosis, blood-borne pathogens, and COVID-19. Due to severe working conditions and possible accidents, construction fields are high-risk zones by nature. It is very important to recognize and control the preventable health and safety hazards within these environments. The need for identification and prevention of these diseases is urgent, according to NIHTE. We can be nimble and quick in illustrating to those who are exposed to theses hazards, how to spot them and, hopefully, eradicate them, with help from health workers.

# THE OPPORTUNITY VALUE CHAIN OF AGRICULTURE IN NIGERIA: PRACTICAL ENTRY POINTS FOR THE AVERAGE NIGERIAN

BY

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## Abstract

This paper is a practical toolkit and the cornerstone that offers significant opportunities for both youths and farmers that will create new-income generating activities, improve livelihoods and foster economic resilience. The agricultural value chain provides avenues to establish businesses and built better livelihoods in rural areas that will reduce rural exodus. The agricultural value chain in Nigeria, even though highly underdeveloped, is estimated to worth \$85 billion. Strengthening value chains can enhance farmer incomes, improve food security, processing, supply chain infrastructure, avoid wastage, digital finance and drive socio-economic growth by connecting investors and small farmers with modern agricultural practices and markets. Nigeria holds 13% of uncultivated arable land in the world, with 82 million hectares of arable land and so far, only 34 million hectares have been cultivated. Over the past decades, the sector has contributed an average of 24% to GDP and generated 5.1% of export earnings. The recent fall in crude oil prices has triggered conversations around the role of agriculture in economic transformation and diversification<sup>40, 41, 42, 43</sup>. This paper identifies the challenges and opportunities that Nigeria's agricultural sector provides for sustainable economic development, which requires massive investments to increase production and to create value addition across the most profitable segments of the value chain. Furthermore, leveraging technology, improving access to finance and enhancing market linkages can empower farmers increase their incomes and improve food security. The paper is chronological, thematic, as well as, analytical in presentation.

**Keywords:** Agriculture, value chain, farmer, production, distribution, consumption, opportunity.

## Introduction

### Background of the study

As COVID-19 pandemic unfolded, there were disruptions in domestic food production, processing, distributions, marketing and supply chains, which have led to massive unemployment, poverty, hunger and inequality. Loss of incomes and remittances have been witnessed among poor rural and urban farmers, creating food security risks in Nigeria. When the Sustainable Development Goals (SDGs) were unveiled in 2015, the drive to end hunger and eradicate poverty became number two goals among the 17 SDG targets. In fact, the achievement of SDG goals by the year 2030 has become doubtful as a result of emergence of COVID-19. With COVID-19, life changed fundamentally as global and national economics tumbled. Crude oil prices crashed and it became difficult to invest in agriculture or compete at international market to sustain productivity in agriculture and sustain food security in Nigeria. In Nigeria context, there were pre-existing challenges in productivity in agriculture and food security because of locust invasion, flood disaster, deforestation, desertification, population growth and Boko Haram insurgency in the North Eastern area of Nigeria. According to UN Report (2018), Nigeria is leading top 11 extremely poor countries by about 87 million people. With this report, Nigeria's possibility of attaining United Nations Sustainable Development Goals (SDGs) by 2030 to end extreme poverty and hunger by may be unattainable. The food insecurity challenges have become more alarming as a

result of the emergence of COVID-19 pandemic. These challenges are also not unconnected with nature, such as; climate change, urban sprawl, environmental degradation, loss in diversity and deforestation, among others. All these disrupt the efficient functioning of the food systems. It is believed by scientific agricultural experts that technological innovations would boost agricultural gains and sustain food security in Nigeria (UN, 2020). Hence, the justification for this paper, WEF, 2009.

### A. The Importance of Agriculture in Nigeria

Agriculture is intricately connected to Nigeria's economy and it remains a cornerstone of the economy, contributing significantly to food security, employment and GDP, despite disruption from oil and gas sector<sup>44,45</sup>. It remains a key factor in improving the value of the Naira against the Dollar, particularly, as the country seeks to diversify its foreign exchange sources beyond crude oil. While crude oil traditionally dominates Nigeria's foreign exchange earnings, agriculture has always come a close second and remains vital today. With Nigeria's population expected to reach 400 million by 2050, increasing agricultural productivity is essential to ensuring food security, fostering national growth and strengthening the country's economic base. The four main sub-sectors of agriculture in Nigeria are crop production, fishing, livestock and forestry—with crop production being the most significant, accounting for around 90% of the sector. There is an untapped potential within Nigeria's agricultural landscape; Nigeria's diverse ecological zones are suitable for various crops and livestock, which could be leveraged to attract **Foreign Direct Investment** (FDI). Agriculture is a major employer in Nigeria, engaging over 36% of the labour force and it also contributes substantial portion to GDP, averaging around 24% over the past decade. Nigeria boasts a wide range of agricultural products, including staples like cassava, yam, maize, rice, millet, etc., as well as cash crops like cocoa, oil palm, rubber, etc.

#### Contribution to GDP and employment

In Nigeria, agriculture significantly contributes to both gross domestic product (GDP) and employment, although its share of GDP has fluctuated in recent years with the rise of oil and

gas sector. While the sector accounts for a substantial portion of the nation's employment, particularly in rural areas, it faces challenges that impact its productivity and overall contribution. The sector, encompassing crop production, livestock, fishing, and forestry, accounts for a substantial portion of the nation's GDP and provides livelihoods for a large segment of the population. In recent years, the sector's contribution has hovered around 22-25% of the GDP and 35% of total employment in Nigeria<sup>19</sup>.

### Government Intervention, Policies and Programs

The little neglect in agricultural economy generated poverty, hunger, increase in unemployment, social insecurity and other associated problems. This called for the federal government's attention to sustain agricultural economy through the enactment of some policies to revive the sector. Since agriculture provides raw materials that can feed the local industries and arrest hunger in the society, some agricultural policies such as: -

#### Agricultural Development Programs (ADPs, 1972,

Operation Feed the Nation (OFN, 1976),  
Green Revolution (GR, 1980),

Structural Adjustment Program (SAP, 1983),

Back to Land Agricultural Scheme (BLAS),

River-Basin Development Authorities (RBDA),

Nigerian Agricultural Cooperative and Rural Development Scheme (NACRDS),

Peoples Bank (PB),

Nigerian Agricultural Cooperative Bank (NACB),

Family Economic Advancement Program (FIAP),

Bank of Industry (BoI),

Nigerian Development Bank (NDB),

Nigerian Bank for Commerce and Industry (NBCI),

National Economic Reconstruction Fund (NERF),

Directorate for Food, Road and Rural Infrastructure (DFRRI),

Oil Minerals Producing Area

Development Commission (OMPADEC,

Nigeria FADAMA Development Project (NFDP, 2007),  
 Agricultural Transformation Agenda (ATA, 2013),  
 Agricultural Promotion Policy (APP, 2016),  
 National Agricultural Technology and Innovation Policy (NATIP, 2021),  
 Nigeria Agricultural Policy Activity (NAPA),  
 etc.<sup>6, 7, 12</sup>.

In recent time, among other programme of MDG was the food security which was mandated by UN for all developing world to start a programme that will enable their countries to achieve the MDG goals on food security. This made Nigeria to embark upon the FADAMA Agric project.

### **Food security and poverty alleviation**

Globally, food security is a major concern of governments, international organizations and entire people of the world. This growing concern about food insecurity and fear of it meeting the future need motivated the Nigeria Food Summit, organized by food professionals in Nigeria, which was held on 21<sup>st</sup> March, 2025, at the Landmark Event Center, Victoria Island, Lagos, Nigeria, focused on redefining culinary excellence and showcased innovations in agricultural technology. Food security and poverty alleviation are intertwined challenges in Nigeria, USAID, 2010. Addressing food insecurity, which includes issues of availability, access, and affordability of food, is crucial for reducing poverty. Efforts to improve agricultural productivity, strengthen food value chains and enhance access to resources for farmers can significantly contribute to both food security and poverty reduction. While the country has implemented various programs and policies, including agricultural initiatives and poverty reduction schemes, persistent issues like high food prices, corruption and lack of proper implementation hinder progress<sup>20</sup>.

### **B. The Agricultural Value Chain in Nigeria**

The Nigerian agricultural value chain encompasses all the stages involved in bringing agricultural products from their origin on the farm to the consumer's table, including production, collection, processing, marketing

and distribution<sup>17, 18, 19</sup>. It includes everything from input supply and production to processing, distribution and marketing<sup>44, 45</sup>. The basic characteristic of a value chain is market-focused collaboration; different business enterprises working together to produce and market products and services effectively and efficiently by allowing businesses to respond to the marketplace through linking production, processing and marketing activities to meet market demands. Analyzing the value chain helps identify opportunities to improve efficiency, reduce costs and increase the value captured by various actors, including farmers<sup>17, 18, 19</sup>. It is a complex system with various actors and activities that contribute to adding value to agricultural products<sup>21</sup>.

### **From input supply to consumer market**

In Nigeria, the agricultural supply chain from input to consumer market involves various stages, including the supply of inputs like seeds, fertilizers and chemicals, machinery, followed by production, processing, distribution, and finally, consumption. Small-scale farming dominates, with limited innovation, and access to markets is often a challenge. The sector faces issues like fluctuating prices, insufficient household income, and inadequate infrastructure, impacting both consumer demand and food security<sup>22</sup>.

### **Overview of value creation points**

Nigeria, with its large population and growing economy, offers numerous opportunities for value creation across various sectors. Key areas include leveraging the burgeoning digital economy, particularly in fintech, and focusing on agribusiness and manufacturing to reduce reliance on imports. Additionally, the country's vast natural resources present opportunities for sustainable development and value addition within the oil and gas sector and beyond. Key areas include enhancing farm productivity through technology and sustainable practices, optimizing resource utilization, improving market access, and developing value-added products<sup>23</sup>.

### **C. Objective of the Presentation**

The primary objective of the agricultural value chain in Nigeria is to identify actionable opportunities for Nigerians at different levels of skill, capital and access and enhance the

incomes and food security of rural households involved in agricultural production, processing and marketing.

## II. Segments of the Agricultural Value Chain (With entry points for individuals and small-scale entrepreneurs)

The Nigerian agricultural value chain can be broadly segmented into input supply, production, collection, processing, and marketing & trade. Each stage involves various actors and activities that contribute to the final product reaching the consumer<sup>24</sup>.

### 1. Input Supply

This segment focuses on providing farmers with the resources they need to cultivate crops, raise livestock or engage in fishing and forestry.

#### A. Description:

This includes: -

- **Seeds and seedlings:** Providing high-quality planting materials.
- **Fertilizers and pesticides:** Ensuring adequate soil nutrition and pest control.
- **Animal feeds:** Supplying feed for livestock and poultry.
- **Farm implements and machinery:** Providing tools and equipment for various agricultural operations.
- **Water and irrigation systems:** Ensuring access to water for irrigation, especially in areas with limited rainfall.
- **Financial services:** Providing access to credit and other financial products to support farmers' operations.

### Seeds, fertilizers, agrochemicals and equipment

The supply of essential agricultural inputs like seeds, fertilizers, agrochemicals and equipment is crucial for successful farming. Effective input supply chains ensure farmers have access to quality products at the right time and place, ultimately boosting agricultural productivity. These inputs, when used correctly, enhance soil fertility, protect crops from pests and diseases and improve overall yields<sup>25</sup>.

### B. Opportunities

**Strengthening input supply chains, promoting quality control, providing access to finance, empowering agro-dealers, promoting extension services,**

**building trust,** investments in mechanized farming tools and climate-resilient crops, expansion of microfinance and insurance schemes tailored for smallholder farmers, adoption of precision agriculture technologies for improved yields.

### Distributorship or Retail of Inputs

In the context of selling inputs, distributorship and retail represent different approaches to getting products to consumers. Distributorship typically involves a manufacturer granting a distributor the right to sell their products within a specific geographic area or to a specific market segment. Retail, on the other hand, is the direct sale of goods to the end consumer. Understanding the distinction between these two models is crucial for businesses looking to optimize their supply chain and reach their target market.

#### Distributorship

A distributor acts as an intermediary, purchasing products in bulk from a manufacturer and then selling them to retailers, other distributors or sometimes directly to consumers.

#### Retail

Retail refers to the sale of goods directly to individual consumers for their personal use. Retailers focus on creating a positive customer experience, providing personalized service, and managing the final transaction.

### Organic fertilizer production (E.g., composting)

Organic fertilizer production involves creating nutrient-rich materials from organic waste sources to improve soil health and plant growth. The process involves composting organic materials, deep processing of the fermented material and sometimes further granulation. Common raw materials include animal manure, agricultural waste and food processing by-products.

### Agro-dealer training and certification

Agro-dealer training and certification programs are crucial for enhancing the capabilities of agricultural input retailers, ultimately improving agricultural productivity and sustainability. These programs equip

agro-dealers with the knowledge and skills necessary to effectively serve farmers, manage their businesses, and promote best practices in agriculture. Certification often follows training, validating the agro-dealer's competence and adherence to standards.

**Key aspects of agro-dealer training and certification:** - Training content, training delivery, certification.

**Benefits of Training and Certification:** Improved farmer productivity, enhanced business management, increased access to inputs, promoting sustainable practices, building a stronger agricultural sector.

**Examples of Agro-Dealer Development Programs Certification:**

The International Fertilizer Development Center (IFDC) has implemented numerous agro-dealer development projects in developing countries.

- Cultivating New Frontiers in Agriculture (CNFA) has developed an Agro-dealer Model that includes training, financial support and market information.

- The Nigerian College of Agribusiness (NCA) provides action learning for skills development in commercial agriculture, including agribusiness trade and development leadership.

- The Federation of Agricultural Organization (FAO) E-learning Academy offers online courses with certification upon successful completion.

In Port Harcourt, Nigeria, agro-dealer training and certification programs can play a vital role in enhancing agricultural productivity and promoting sustainable farming practices. By ensuring that agro-dealers are well-equipped to serve farmers, these programs can contribute to the overall development of the agricultural sector in the zone.

## 2. Production (Farming)

**A. Description:** Farm production, also known as agricultural production, encompasses the processes of cultivating crops and raising livestock for the purpose of producing food and other agricultural products. This involves various activities like planting, harvesting, animal husbandry and the subsequent processing and storage of farm products.

**Key Aspects of Farm Production:** - **Crops, livestock, agricultural production cycles, farm management.**

**Factors Influencing Farm Production:** - **Climate, soil quality, pests and diseases, technology and innovation, government policies, economic factors.**

**Importance of Farm Production:** - **Food Security, economic growth, rural development, environmental sustainability.**

**Crop farming, animal husbandry and aquaculture**

Crop farming, animal husbandry and aquaculture are three key branches of agriculture.

Crop farming focuses on cultivating plants for food, fiber and other uses.

Animal husbandry involves the raising and care of livestock for products like meat, milk, and eggs.

Aquaculture is the farming of aquatic organisms, including fish, shellfish and plants, in water environments.

### B. Opportunities

Opportunities in crop farming, animal husbandry and aquaculture in Port Harcourt, Nigeria, include both established practices and emerging trends. Crop farming encompasses a wide range of agricultural practices including: - **Agronomy, horticulture, forestry.** Crop farming can focus on local staples like cassava and vegetables, while animal husbandry can involve poultry, small ruminants, and piggery. Animal husbandry involves the care and management of animals, including: - **Raising livestock, selective breeding, veterinary care.**

Aquaculture, particularly freshwater fish farming, is a growing sector with potential for expansion, especially through integrated farming systems with crops and livestock.

**Smallholder or backyard farming (E.g., tomatoes, vegetables, poultry)**

Smallholder or backyard farming, which includes the cultivation of crops like tomatoes and vegetables, along with poultry rearing, is a viable way to produce food for personal consumption and potentially for sale, using limited land in residential areas. This practice can contribute to household food security and even supplement income.

Key aspects of backyard farming: - **Crop production, poultry farming, space optimization, resource management, location, planning and sustainability.**

#### **Use of leased or community land**

Leasing or using community land for agriculture offers potential benefits and challenges. Leasing allows farmers access to land without upfront purchase costs, while community land use can be a source of livelihood and food security for community members. However, both practices require careful consideration of legal, financial and social aspects to ensure sustainable and equitable outcomes.

#### **Climate-smart and sustainable practices**

Climate-smart agriculture (CSA) involves practices that boost agricultural productivity, enhance resilience to climate change and reduce greenhouse gas emissions. These practices aim to transform and reorient agricultural systems to ensure food security in the face of a changing climate.

Key Climate-Smart and Sustainable Practices:

- **Conservation Agriculture:** Techniques like no-till farming, crop residue management, and crop rotation help improve soil health, reduce erosion, and enhance water retention.
- **Water Management:** Efficient irrigation methods like drip irrigation, rainwater harvesting, and mulching optimize water use and minimize water loss.
- **Soil Fertility Management:** Integrated approaches like using organic matter, cover crops, and crop rotation improve soil health and nutrient availability.
- **Climate-Resilient Crop Varieties:** Cultivating crops that are early maturing, drought-tolerant, and disease-resistant enhances productivity and reduces crop failure.
- **Agroforestry:** Integrating trees and shrubs into agricultural systems can provide multiple benefits, including carbon sequestration, improved soil fertility, and enhanced biodiversity.
- **Livestock Management:** Improving feed efficiency, managing animal waste, and exploring alternative livestock options can reduce greenhouse gas emissions from livestock production.
- **Renewable Energy:** Utilizing solar-powered irrigation and bio-gas production reduces reliance on fossil fuels and lowers carbon

footprint.

### **3. Aggregation & Storage**

**A. Description:** In agriculture, aggregation and storage are crucial processes that involve collecting small quantities of agricultural products from multiple sources and ensuring their safe keeping for later use or sale. Aggregation streamlines the supply chain, enabling farmers to access larger markets and better prices, while storage preserves the quality and quantity of produce, extending its availability. Aggregation in agriculture refers to the process of bringing together small, individual or group-sourced agricultural products into larger, marketable volumes.

#### **Collection, preservation and bulk handling**

In Nigeria, the collection, preservation and bulk handling of agricultural products are crucial for minimizing post-harvest losses and ensuring food security. These processes involve various methods, including traditional and modern techniques, tailored to different crops and storage needs.

#### **B. Opportunities**

Nigeria's agricultural sector presents significant opportunities in collection, preservation, and bulk handling of agricultural products, particularly for reducing post-harvest losses and enhancing food security. These opportunities include improving storage facilities, adopting modern preservation techniques and developing efficient bulk handling systems to minimize waste and maximize product value.

#### **Opportunities in Collection:**

##### **• Improved Collection Networks:**

Establishing efficient collection systems, especially in rural areas, can reduce transportation costs and ensure timely delivery of produce to processing and storage facilities.

##### **• Strengthened Farmer Cooperatives:**

Cooperative models can facilitate the aggregation of produce, enabling farmers to access better markets and negotiate favorable prices.

##### **• Enhanced Market Linkages:**

Connecting farmers with processors and buyers through organized markets can improve access to markets and reduce

post-harvest losses.

#### **Opportunities in Preservation:**

- **Adopting Modern Storage Technologies:**

Investing in cold storage facilities, evaporative cooling systems, and hermetic storage can significantly extend the shelf life of perishable goods.

- **Promoting Traditional Methods:**

While modern technologies are beneficial, incorporating and improving traditional methods like drying and smoking, while addressing their limitations (e.g., contamination), can also be valuable, especially in areas with limited access to electricity.

- **Reducing Mycotoxin Contamination:**

Implementing proper grain storage practices, including pest control and moisture management, is crucial to prevent mycotoxin contamination and ensure food safety.

#### **Opportunities in Bulk Handling:**

- **Developing Efficient Transportation Systems:**

Investing in infrastructure, including roads and transportation networks, can reduce delays and damage during the transportation of agricultural produce.

- **Promoting Mechanization:**

Introducing machinery for handling, loading, and unloading agricultural products can improve efficiency and reduce labor costs.

- **Building Large-Scale Storage Facilities:**

Establishing strategically located warehouses and storage facilities can help to buffer seasonal gluts and ensure a steady supply of food throughout the year.

#### **Buying from farmers and selling to larger buyers (middle-men role)**

In the agricultural supply chain, middlemen often buy produce from farmers and then sell it to larger buyers, acting as intermediaries. This role can offer benefits like expanded market access for farmers and streamlined distribution, but also potential drawbacks such as lower prices for farmers and increased costs for consumers.

Investment in simple storage facilities

#### **(E.g., silos, cold rooms)**

Storage facilities such as grain and rice silos, warehouses and cold storage units have a critical role to play in ensuring food security and ending hunger. About one third of food produced for human consumption is lost or wasted in Nigeria, which amounts to about **\$9 billion USD (3.5 trillion)** or 40%, or over 144 million tonnes lost or wasted annually<sup>16</sup>. The magnitude of post-harvest loss (PHL) can vary across nations and households depending on gender (Losses are lower in female-headed households), education (Losses are lower in households with post primary education) and climate (Losses are higher under hot and humid conditions). Improved storage infrastructure capacity, quality and practices are important for reducing PHL, but the appropriateness of the intervention will depend on the profile and conditions (Social, environmental and economic) of each particular farming community. Effective storage infrastructure can prevent moisture condensation from ruining a crop post-harvest, while also keeping out pests, such as rodents, insects and birds. It can enable a family or community to better preserve crops on-site for their own consumption, increasing food availability and access<sup>14, 15</sup>.

#### **Mobile aggregation services using tricycles (Keke) or vans (Keke bus)**

Mobile aggregation services using tricycles or vans can significantly improve agricultural logistics, particularly in rural areas. These services facilitate the collection, transportation, and initial processing of produce, connecting farmers with markets more efficiently and reducing post-harvest losses. While tricycles and vans are common, the specific choice depends on factors like terrain, load capacity and road conditions.

### **4. Processing and Value Addition**

**A. Description:** Processing and value addition in agriculture, particularly with horticultural crops, refers to transforming raw agricultural products into higher-value forms through various methods like processing, packaging, and branding. This process aims to enhance the product's appeal, extend its shelf life and ultimately increase its market value and profitability for producers.

Turning raw produce into consumable or

## industrial products

Turning raw agricultural produce into consumable or industrial products is known as agro-processing. This involves various methods, including food processing, which transforms raw ingredients into edible food items. These processes aim to enhance safety, palatability, convenience and shelf life of food.

## B. Opportunities

Turning raw agricultural produce into consumable or industrial products, also known as agro-processing, offers significant opportunities for farmers, businesses, and consumers. This process can increase shelf life, reduce waste, enhance nutritional value, and create economic growth by adding value to raw materials. It also generates employment and can be a key driver for sustainable development.

- **Increased Income:** Agro-processing allows farmers to sell their produce at a higher price point, increasing their profitability and potentially revitalizing rural economies.
- **Reduced Post-Harvest Losses:** By processing perishable goods, farmers can minimize losses due to spoilage and extend the availability of their products beyond the harvest season.
- **Market Diversification:** Agro-processing opens up new markets and opportunities for farmers to sell their products in different forms, such as processed foods, biofuels, or industrial materials.
- **Value Addition:** Turning raw produce into value-added products like flour, oil, or packaged goods can significantly increase the value of their harvest.

## Cottage industries (E.g., gari, palm oil, smoked fish, dried tomatoes)

Cottage industries in agriculture are small-scale, often home-based businesses that process or add value to agricultural products. They play a vital role in rural economies by providing employment, diversifying income sources and preserving traditional skills.

Key aspects of cottage industries in agriculture:

### • **Processing agricultural products:**

These industries transform raw agricultural goods into items like processed foods, textiles (e.g., silk), or handicrafts.

### • **Home-based or small-scale:**

They are typically operated by individuals or

families, often within their homes or small workshops.

### • **Focus on local resources:**

Cottage industries often utilize locally available raw materials, minimizing transportation costs and promoting local self-sufficiency.

### • **Employment generation:**

They create jobs in rural areas, especially for women and those with limited formal education.

### • **Economic diversification:**

They provide alternative income streams beyond traditional farming, contributing to economic stability.

### • **Value addition:**

They enhance the value of agricultural products by processing them into higher-value items, increasing profitability for farmers.

### • **Preservation of traditional skills:**

Many cottage industries are rooted in local crafts and traditions, helping to maintain cultural heritage.

## Fruit drying, juice production

Fruit drying and juice production are both methods for preserving fruits, but they serve different purposes and utilize distinct processes. Fruit drying reduces moisture content to inhibit microbial growth, while juice production extracts and concentrates the liquid component of fruits, often for beverage consumption. Both processes can extend the shelf life of fruits, but drying generally results in a more shelf-stable, concentrated product than juice.

## Use of local machinery for affordable processing

Using locally manufactured machinery for food processing offers significant cost savings and promotes economic growth in Nigeria. Locally made equipment is often more affordable than imported alternatives due to reduced import duties, shipping costs, and currency exchange rate fluctuations. This affordability makes it easier for farmers and small businesses to invest in processing equipment, leading to increased efficiency, higher yields, and expanded market access. Furthermore, local manufacturing supports local jobs, fosters innovation, and reduces reliance on imported machinery.

## 5. Distribution & Logistics

**A. Description:** Agricultural logistics and distribution involves the planning and management of the flow of agricultural products from farm to consumer, ensuring timely delivery and optimal condition. This encompasses various activities, including production planning, storage, transportation and distribution, **minimizing waste, cost optimization, stakeholder collaboration**, all aimed at minimizing waste and maximizing efficiency. Importance of efficient logistics: **Timely delivery, quality maintenance, cost reduction, meeting consumer demand, increased profitability.**

### Transport of goods to markets and consumers

Transportation is vital for moving goods from production locations to markets and consumers, creating place and time utility. It enables businesses to reach wider markets, increases sales, and improves customer service. Various modes of transport, including road, rail, air, and sea, are used to ensure goods reach consumers efficiently.

Key aspects of transportation in moving goods: - **Connecting production and consumption, creating place and time utility, facilitating trade and commerce, ensuring price stability, impact on economic growth, different modes of transportation, multimodal transport, transportation costs.**

### B. Opportunities

The transportation of goods to markets and consumers offers several opportunities for businesses, particularly in the context of increasing e-commerce and the need for efficient last-mile delivery. These opportunities include: - Last-mile delivery services, third-party logistics (3PL) for e-commerce, and specialized transportation services catering to specific needs like perishable goods or high-value items.

Here's a breakdown of the opportunities: - **Last-mile delivery, third-party logistics (3PL) for e-commerce, specialized transportation, multi-modal transportation, technology integration, focusing on sustainability.**

In addition to these specific opportunities,

transportation plays a crucial role in broader economic development by: - **Expanding market access, supporting rural development, facilitating trade, creating employment opportunities, supporting e-commerce growth.**

### Motorbike or vehicle delivery services

Motorcycle and vehicle delivery services offer options for delivering goods, with motorcycles often favored for their agility in congested areas and vehicles for larger or bulkier items. Several companies in Nigeria, like Kwik and Gokada, specialize in these services, providing both motorbike and vehicle-based delivery options.

### Cold chain logistics

Cold chain logistics refers to the specialized supply chain management for temperature-sensitive products, ensuring they remain within specific temperature ranges throughout their journey from production to consumption. This involves maintaining optimal conditions for perishable goods like food, pharmaceuticals, and vaccines, preventing spoilage and maintaining quality.

### Cooperative warehousing and transportation pooling

Cooperative warehousing and transportation pooling are collaborative logistics strategies that involve multiple businesses sharing resources to optimize storage and distribution. This approach aims to reduce costs, improve efficiency, and enhance service levels by pooling resources like warehouse space, transportation vehicles, and potentially even inventory management systems.

## 6. Marketing & Retail

**A. Description:** Agricultural marketing and retail involves the processes of moving farm products from the farm to the consumer, including various activities like planning, handling, advertising, and selling. Effective agricultural marketing is crucial for farmers to achieve their goals and for consumers to access affordable and quality produce.

### Sales to consumers, wholesalers and retailers

Sales to consumers, wholesalers and retailers represent different stages in the distribution chain. Consumers are the end-users who

purchase products for their own use. Wholesalers buy goods in bulk from manufacturers and sell them to retailers. Retailers purchase from wholesalers and sell directly to consumers.

### **B. Opportunities**

Opportunities in sales exist across the consumer, wholesale, and retail sectors. Businesses can explore direct sales to consumers, wholesale partnerships with retailers, and retail sales to end-users. These channels offer different advantages, such as direct customer interaction, bulk sales discounts, and convenient access to products for consumers.

### **Setting up market stalls or roadside retail**

Setting up market stalls or roadside retail in agriculture can be a viable way for farmers to sell their produce directly to consumers, potentially increasing profits and building relationships with their customers. This approach can involve various scales, from small roadside stands to larger market stalls within a community or designated market space.

### **E-commerce platforms for farm produce (e.g., WhatsApp, Instagram sales)**

E-commerce platforms for farm produce range from specialized online marketplaces and website builders to social media and messaging apps like WhatsApp and Instagram. These platforms enable farmers to reach a wider customer base and streamline sales processes.

### **Branding and packaging for higher profits**

Effective branding and packaging are crucial for maximizing profits by influencing consumer perception and driving sales. Strong branding creates a memorable and trustworthy image, attracting customers and fostering loyalty. Distinctive packaging, in turn, grabs attention on crowded shelves, communicates key product information, and enhances the overall brand experience.

## **7. Export Opportunities**

**A. Description:** Nigeria's agricultural sector presents significant export opportunities due to its diverse products and growing global demand. Key export items include cocoa,

sesame seeds, cashew nuts, ginger, yams, and various fruits and vegetables. To capitalize on these opportunities, exporters should focus on quality, compliance with international standards, and building strong relationships with buyers.

### **Selling to International Markets**

Selling agricultural products to international markets involves navigating a complex process of production, quality control, logistics, and marketing. To succeed, farmers and exporters in Port Harcourt need to understand market demands, meet international standards, and leverage effective distribution channels.

### **B. Opportunities**

Selling agricultural products to international markets presents significant opportunities for growth and economic development, particularly for countries like Nigeria with strong agricultural potential. These opportunities include expanding market reach, diversifying income streams, and increasing overall profitability for farmers and agribusinesses.

Here's a breakdown of the key opportunities: - Expanded market access, value addition and diversification, economic growth and development, technological advancements and efficiency, strategic partnerships and collaboration:

### **Export of dried and packaged foods (e.g., spices, hibiscus, shear butter)**

Exporting dried and packaged foods like spices, hibiscus, and shear butter from Nigeria involves several key steps, including understanding product standards, obtaining necessary certifications, and navigating customs procedures in the destination country. Nigeria has a strong export potential in these areas, particularly to the UK and other European countries, due to high demand for authentic Nigerian food products.

### **Registration with Nigerian Export Promotion Council (NEPC) and partnerships with exporters**

To begin exporting from Nigeria, businesses must register with the Nigerian Export Promotion Council (NEPC) and can also explore partnerships with other exporters.

The NEPC registration provides the necessary license for exporting and is done online through the NEPC website. Partnerships with other exporters can involve collaboration on export strategies, resource sharing, and market access.

NEPC Registration:

Meeting Export Standards through Quality Control

Meeting export standards requires robust quality control measures throughout the production process. This involves establishing quality standards, implementing inspection and testing methods, monitoring performance, and taking corrective actions to ensure consistent product quality and compliance with international regulations. By prioritizing quality, exporters can build trust with international buyers, gain access to new markets, and enhance their reputation.

## 8. Support Services and Technology

**A. Description:** Support services and technology in agriculture are crucial for improving farming practices, increasing productivity, and ensuring food security. These services encompass a range of solutions, from providing access to equipment and financing to offering data-driven insights and market access. They include agricultural extension services, precision agriculture technologies, and digital solutions that connect farmers with resources and information.

### Non-farming roles in the value chain

Non-farming roles in the agricultural value chain encompass a wide range of activities that support the production, processing, and distribution of agricultural products. These roles are crucial for connecting farmers to markets and ensuring that food reaches consumers efficiently and effectively. Examples include input suppliers, transporters, processors, wholesalers, retailers, and various service providers.

### B. Opportunities

Non-farming roles in the agricultural value chain offer significant opportunities for income generation and economic growth. These roles encompass various activities beyond primary production, including

processing, transportation, marketing, and service provision. They are crucial for adding value to agricultural products, connecting farmers with markets, and supporting overall rural development.

Specific Opportunities: -

- **Processing:** Transforming raw agricultural products into marketable goods (E.g., milling grains, canning fruits and vegetables).

- **Transportation:** Moving agricultural products from farms to markets or processing facilities.

- **Marketing and Sales:** Connecting producers with consumers, including wholesale and retail trade.

- **Service Provision:** Offering essential services to farmers and other value chain actors, such as input supply (seeds, fertilizers), financial services, and technical support.

- **Equipment Maintenance and Repair:** Providing maintenance and repair services for agricultural machinery and equipment.

- **ICT and Data Management:** Utilizing technology to improve market access, information flow, and efficiency within the value chain.

- **Packaging and Labeling:** Preparing agricultural products for sale, ensuring quality and appealing presentation.

### ICT and agritech (apps, marketplaces, record-keeping tools)

ICT (Information and Communication Technology) and Agritech are transforming agriculture through digital tools like apps, marketplaces, and record-keeping systems, enabling more efficient and data-driven farming practices. These technologies offer solutions for various aspects of agriculture, from production to marketing and management.

Key Areas of ICT and Agritech Application: -

- **Farm Management:** Software like FarmBrite, Agrivi, and Trimble Ag Software provide tools for crop planning, livestock tracking, inventory management, and financial record-keeping.

- **Marketplace Platforms:** Platforms like Local Line and Local Food Marketplace connect farmers directly with consumers, enabling online sales and direct-to-consumer marketing.

- **Record Keeping:** Apps like MyFarmWorks, Herdwatch, and Gatekeeper help farmers track livestock, crops, inputs, and financial transactions digitally.

- **Precision Agriculture:** Technologies like

GPS, sensors, and drones, integrated with software, enable farmers to optimize resource use, monitor crop health, and improve yields.

- **Agro-Advisory:** Platforms like Kitovu offer data-backed agronomic advice, including weather forecasts, fertilizer recommendations, and crop health assessments, helping farmers make informed decisions.

- **Supply Chain Management:** Digital tools can streamline logistics, improve traceability, and enhance efficiency in the supply chain, from farm to market.

**Training, Consulting and Extension Services**  
Training, consulting, and extension services in ICT and agritech focus on using technology to improve agricultural practices and empower farmers. These services encompass various areas, including training on digital tools for farmers, providing expert advice on incorporating technology into farming, and offering support to integrate technology into agricultural extension systems.

**Key Aspects of ICT and Agritech Services:** - **Training (Digital literacy, technology adoption, extension worker training), Consulting (Technology selection, system integration, advisory services), Extension services (Digital extension delivery, data-driven extension, public-private partnerships).**

### **Micro-financing or cooperative lending schemes**

Throughout human history, many activities have always been undertaken by groups rather than individuals, simply because this seems to be a better and more economic-way of doing things. Micro-Finance and Cooperative, in most cases are methods of working together with others who have the same or similar needs or problems such that the need of individual members or group is met at one point or the other provided such an individual complies with the rule of micro-finance and/or cooperative program. Microfinance programs provide Micro credit/loans, Micro savings, Micro insurance and training to group members and other financial services to low- income and poor people for use in small businesses. In

Cooperative Micro Financing we are essentially looking at a "double bottom line"— social gains and commercial success.

### **III. Financing and Partnership**

It was observed that agricultural financing is all about providing services to the farmers who are traditionally not served by the conventional financial institutions. Agricultural financing holds a lot of prospects for Nigerians especially the poor as it will enable them develop their skills, engage in production and many others. Among the problems identified are access to banking services in rural communities, lack of acceptable collateral/ security, perceived high agricultural risk, lack of access to credit information, high cost of credit administration, access to market, infrastructural challenges and subsistence nature of farming.

#### **A. Government Schemes (E.g., NIRSAL, CBN-Anchor Borrowers Program)**

Several Nigerian government initiatives aim to boost the agricultural sector. Here's a breakdown of some key schemes:

1. **Agricultural Transformation Agenda (ATA, 2014):** This agenda aims to modernize the agricultural sector, improve productivity, and ensure food security.
2. **Growth Enhancement Support Scheme (GESS, 2012):** GESS provides subsidized inputs like fertilizers and seeds to farmers, helping to increase their yields.
4. **Youth Empowerment in Agriculture Programme (YEAP, 2018):** This program is designed to encourage youth participation in agriculture by providing training, resources, and support for young farmers.
5. **National Agricultural Development Fund (NADF, 2022):** NADF provides financial resources to support agricultural development projects and initiatives across the country.
6. **Commercial Agriculture Credit Scheme (CACS, 2009):** The CACS provides concessionary funding for commercial agricultural enterprises, complementing other CBN initiatives.
7. **Agricultural Credit Guarantee Scheme Fund (ACGSF, 1977):** Established by the CBN, the ACGSF provides guarantees to banks for loans given to farmers, mitigating the risk for lenders and encouraging them to lend to the agricultural sector.
8. **National Young Farmers Scheme (NYFS,**

202): NALDA's NYFS focuses on empowering young people through agricultural entrepreneurship by providing resources, training, and support for various agricultural ventures.

9. AgriConnect Initiative (ACI, 2025): This initiative, launched in Ogun state, uses digital tools and AI-powered solutions to enhance farming practices, including precision planting and communication with government data centers.

10. Soil Health Card Scheme (SHCS, 2024): The SHCS aims to provide farmers with information about the nutrient content of their soil, helping them to optimize fertilizer use and improve crop yields.

11. The Nigerian Incentive-Based risk sharing system for agricultural lending (NIRSAL, 2011): The Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL Plc.) is a Non-Bank Financial Institution wholly-owned by the Central Bank of Nigeria (CBN) created to Redefine, Dimension, Measure, Re-Price and Share agribusiness-related credit risks in Nigeria. Established in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD), now Federal

Ministry of Agriculture and Food Security (FMAFS), and Nigerian Bankers' Committee in 2013, NIRSAL's mandate is to stimulate the flow of affordable finance and investments into the agriculture sector by de-risking the agriculture & agribusiness finance value chain, fixing agricultural value chains, building long-term capacity, and institutionalizing incentives for agricultural lending through its five (5) strategic pillars, namely: Risk Sharing, Insurance, Technical Assistance, Incentives and Rating.

12. **Anchor Borrowers Programme (ABP, 2015):** The ABP was established on November 17, 2015 to facilitate a demand driven ecosystem that creates economic linkages for all nodes of the commodity value chain, from inputs supply, through production, to processing, and finally, to the market. ABP provides loans to smallholder farmers through participating commercial banks, with the Central Bank of Nigeria (CBN) providing guarantees to reduce the risk for the banks<sup>5,40,41</sup>.

#### **B. Microfinance and cooperative societies**

Microfinance, also called micro-credit, is a type of banking service provided to low-income

*cont'd. in page 22*

## **NIHTE DEPUTY NATIONAL CHAIRMAN, ENGR. DR. BOLA J. MUDASIRU, FNSE, FNIHTE, CHARGED PROFESSIONALS TO DEVELOP BUSINESS ACUMEN AND GLOBAL MINDSET**



## NSE AND FMW TO DEEPEN COLLABORATION ON ENGINEERS' WELFARE AND INFRASTRUCTURE DEVELOPMENT.



## THREE MAJOR REGULATORY BODIES SIGN MOU

IN A LANDMARK MOVE TO STRENGTHEN REGULATION AND FOSTER COLLABORATION IN NIGERIA'S CONSTRUCTION AND BUILT ENVIRONMENT SECTOR, THREE MAJOR REGULATORY BODIES - COUNCIL FOR THE REGULATION OF ENGINEERING IN NIGERIA (COREN), ENGR. PROF. SADIQ Z. ABUBAKAR, FNSE, FAEng, PRESIDENT OF COREN, THE COUNCIL OF REGISTERED BUILDERS OF NIGERIA (CORBON), ENGR. BLDR. SAMSON AMEH OPALUWAH, Ph. D, FNIOB, FNIM, FAEng, AND THE COUNCIL OF MINING ENGINEERS AND GEOSCIENTISTS (COMEG), REGISTRAR/CEO, ENGR. BLDR., PROF. ZACHEUS O. OPAFUNSO, ON THURSDAY IN ABUJA SIGNED THE TRIPARTITE MEMORANDUM OF UNDERSTANDING (MOU), AIMED AT DEEPENING COOPERATION, SYNERGY AND REGULATORY EFFECTIVENESS.



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individuals or groups who otherwise would not have access to financial services. In Nigeria, an agricultural micro-finance and cooperative societies is a group of farmers or other stakeholders in the agricultural sector, who voluntarily join together to achieve a common economic goal through a democratically controlled business. These societies are formed to address the needs of members, improve their well-being and enhance their economic standing within the agricultural value chain.

Microfinance and cooperative societies are methods of working together with others who have the same or similar needs or problems such that the need of the individual member of the group is met at one point or the other provided such an individual complies with the rules of the cooperative and/or microfinance program.

### **C. Youth and women-focused initiatives**

Several initiatives globally are working to empower women and youth in agriculture, recognizing their crucial role in food security and economic development. These initiatives often focus on providing access to resources, training, and market opportunities, ultimately aiming to improve livelihoods and promote sustainable agricultural practices.

## **IV. Challenges and How to Overcome Them**

Agriculture faces numerous challenges, including climate change impacts like droughts and floods, soil degradation, water scarcity, pests and diseases, and market access issues. To overcome these, farmers can adopt sustainable practices like precision agriculture, climate-smart agriculture, and integrated pest management. Additionally, improving infrastructure, access to finance, and promoting education and training for farmers are crucial.

### **A. Land Access**

Land access in agriculture is a critical factor influencing food production, livelihoods, and overall development, especially in rural areas. It refers to the ability of individuals or communities to physically and legally access land for agricultural purposes, encompassing ownership, tenure security, and the ability to utilize land for farming. Secure access to land is crucial for investment, productivity, and

sustainable development, while lack of access can hinder agricultural growth and exacerbate poverty.

### **B. Climate Variability**

Climate variability significantly impacts agriculture, affecting crop yields, livestock production, and overall food security. Increased variability in temperature and rainfall patterns, as well as the frequency of extreme weather events like droughts and floods, can lead to reduced harvests, livestock losses, and increased vulnerability to pests and diseases. These impacts are particularly pronounced in regions heavily reliant on rain-fed agriculture, such as sub-Saharan Africa.

### **C. Market Access and Pricing**

Market access and pricing in agriculture are intertwined concepts crucial for farmers' livelihoods and the overall agricultural sector. Access to markets allows farmers to sell their produce, while pricing determines their income and incentives for future production. Factors like infrastructure, market information, and government policies significantly influence both market access and pricing dynamics.

### **D. Solutions: Community Farming, digital tools, farmer cooperatives**

Community farming, digital tools, and farmer cooperatives are effective solutions for improving agricultural practices. Community farming fosters collaboration and resource sharing, while digital tools enhance efficiency and data-driven decision-making. Farmer cooperatives empower producers through collective bargaining and access to resources. These approaches, when combined, can significantly boost agricultural productivity and sustainability.

## **V. Case Studies of Average Nigerians Who Succeeded**

Several Nigerians, even those starting from ordinary backgrounds, have achieved remarkable success. Examples include individuals who built thriving businesses, excelled in the arts and entertainment, and made significant impacts in global development. Their stories highlight the importance of perseverance, innovation, and

a strong work ethic in achieving success.

Here are some examples:

Business and Entrepreneurship: -

• **Cosmos Maduka:**

Starting with just 300 Naira, he persevered through a failed venture and built Coscharis Motors, a successful automobile company.

• **Ada Osakwe:** She founded the Nuli Juice Company and Agrolay Ventures, earning recognition as Forbes Woman Africa Businesswoman of the Year.

• **Uche Pedro:** Founder of BellaNaija, a popular media company, she has also pursued further education at Harvard Kennedy School.

• **Temie Giwa-Tubosun:** She founded a healthtech company and won the Africa Netpreneur Prize Initiative.

• **Wizkid:** A globally recognized singer and songwriter who started his career at a young age and collaborated with international artists.

• **Linda Ikeji:** A successful blogger and entrepreneur, she built a media empire from the ground up.

• **Ngozi Okonjo-Iweala:** From being Nigeria's Minister of Finance to leading the World Trade Organization, she has made a significant impact on global development.

• **Abisoye Ajayi-Akinfolarin:** Founder of the Pearls Africa Foundation, which empowers girls through technology education.

These individuals, among many others, showcase the potential for success in Nigeria, demonstrating that with dedication, innovation, and resilience, individuals from various backgrounds can achieve great things.

### Profiles of small-scale farmers, processors or agropreneurs

Several individuals are making significant contributions to Nigerian agriculture, particularly within the small-scale farming sector, often through innovative approaches and impactful businesses. Examples include:

- Yemisi Iranloye, known as the "Cassava Queen" for her work with Psaltry International, a cassava processing company. Shalom Bako Dangombe, who founded Afrivana, a company focused on marketing and distributing African superfoods like hibiscus flowers, sourced from smallholder farmers. Timi Oke, who built AgroEknor, a business

exporting Nigerian agricultural products like dried hibiscus, while also supporting small-scale farmers. Babban Gona, a social enterprise that works with smallholder farmers to improve maize production. Additionally, organizations like The Smallholder Women Farmers Organization of Nigeria (SWOFON) are working to empower women smallholder farmers.

Here's a more detailed look at some of these individuals and organizations:

• **Yemisi Iranloye and Psaltry International:**

Yemisi Iranloye is the founder of Psaltry International, a cassava processing company. The company produces food-grade starch, cassava flour, and sorbitol, playing a significant role in the cassava value chain.

• **Shalom Bako Dangombe and Afrivana:**

Bako Dangombe, after initially pursuing a career in soccer, returned to Nigeria and established Afrivana. The company focuses on sourcing and marketing dried hibiscus flowers, a product derived from smallholder farms in northern Nigeria.

• **Timi Oke and AgroEknor:**

Timi Oke, with his brother and a friend, founded AgroEknor after identifying a gap in the market for Nigerian agricultural products. The company sources hibiscus flowers from small-scale farmers in northern Nigeria and exports them to international markets.

• **Babban Gona:**

This social enterprise works with smallholder maize farmers, providing them with resources, training, and access to markets. In 2020, Babban Gona was one of the world's largest maize farming operations, with over 80,000 member-farmers.

• **The Smallholder Women Farmers Organization of Nigeria (SWOFON):** The SWOFON is an organization that advocates for and supports smallholder women farmers, helping them to secure investments and access resources, contributing to improved food security and livelihoods.

These individuals and organizations are examples of how innovation, entrepreneurship, and strategic partnerships can transform Nigeria's agricultural sector, empowering small-scale farmers and contributing to the nation's economic growth.

### Lessons learned and key strategies used

In Nigeria's agricultural sector, lessons learned

highlight the importance of strong institutions, multi-stakeholder partnerships, and addressing systemic gaps for sustainable transformation. Key strategies include enhancing value addition, improving market linkages, boosting smallholder productivity, and mainstreaming climate change considerations<sup>5, 6, 40, 41, 42</sup>.

#### **Lessons Learned: -**

##### **· Strong institutions and partnerships are crucial:**

Past programs often faced challenges due to weak institutional linkages and siloed efforts. Current approaches emphasize better coordination among stakeholders.

##### **· Value addition is critical:**

Analysis suggests that increasing production and value addition across key segments of the agricultural value chain is essential for economic growth.

##### **· Addressing systemic and service gaps is necessary:**

Market failures and weak market structures can hinder value chain development.

##### **· Climate change and environmental sustainability are vital:**

Integrating climate-smart practices and addressing environmental concerns is crucial for long-term sustainability.

##### **· Youth inclusion is a key factor:**

Understanding the dynamics of the value chain and creating opportunities for youth engagement is important for sustainable development.

#### **Key Strategies:**

##### **· Enhancing Market Access and Linkages:**

Improving access to markets for smallholder farmers and agro-processors is vital.

##### **· Strengthening Value Chain Infrastructure:**

Investing in infrastructure like storage facilities and transportation can reduce post-harvest losses and improve efficiency.

##### **· Promoting Value Addition:**

Encouraging processing, packaging, and other value-adding activities can increase profitability and competitiveness.

##### **· Boosting Smallholder Productivity:**

Providing access to quality inputs, extension services, and financial resources can help smallholder farmers increase their yields.

##### **· Mainstreaming Climate Change:**

Adopting climate-smart agricultural practices, such as drought-resistant crops and water conservation techniques, can help mitigate the impacts of climate change.

##### **· Fostering Public-Private Partnerships:**

Collaborations between government agencies, private companies, and research institutions can leverage resources and expertise to drive agricultural development.

##### **· Developing Innovative Technologies:**

Adopting and adapting new technologies, such as digital platforms for market information and precision farming techniques, can enhance productivity and efficiency.

##### **· Supporting Youth Engagement:**

Creating opportunities for youth to participate in the agricultural value chain, such as through specialized training programs and access to finance, can ensure its long-term sustainability.

##### **· Ensuring Inclusive Growth:**

Prioritizing the needs of smallholder farmers, women, and other vulnerable groups in agricultural development programs can promote equitable and sustainable growth.

##### **· Effective Policy Framework:**

Creating supportive policies and regulations that incentivize investment, promote innovation, and ensure fair market practices is essential.

#### **VI. Call to Action**

A call to action in Nigeria's agricultural value chain emphasizes the need for a shift towards a business-oriented approach, increased private sector involvement, and a focus on technology adoption to improve productivity and market access. This includes strengthening farmer cooperatives, enhancing access to finance, and promoting transparent and efficient distribution of support. Stakeholders need to collaborate to address the identified challenges and unlock the sector's full potential. This includes governments, private sector investors, financial institutions, and farmers themselves.

#### **Start small – even with your backyard**

Even a small backyard garden in Port Harcourt can be a valuable part of Nigeria's agricultural value chain. You can start by growing readily available crops like vegetables, herbs, or even fruits, and then explore options like selling produce to neighbors, local markets, or even participating in farm-to-table initiatives. This can be a stepping stone to more significant agricultural endeavors.

### Join a cooperative or training program

To join a cooperative or training program in agriculture in Nigeria, you can explore options like the IITA Youth Agripreneurs program or the Nigeria Young Farmers' Network. You can also look into the EYiA Project for specific training opportunities or the MSR Agro Fund Program for funding and training support. Additionally, organizations like the Nigeria Agribusiness Group (NABG) offer opportunities for networking and market access. Here's a more detailed breakdown:

#### 1. Cooperative Membership:

##### • **Nigeria Young Farmers' Network (NYFN):**

This network focuses on empowering young people in agriculture and offers opportunities to engage in the agricultural value chain.

##### • **Agricultural Cooperatives (AC):**

Explore cooperative societies in your area. These groups provide a platform for farmers to pool resources, share knowledge, and access markets collectively. The Federal Department of Co-operatives regulates and supports cooperatives in Nigeria.

##### • **MSR Agro Fund Program:**

This program offers funding and training to farmers and is managed by a cooperative.

#### 2. Training Programs:

• **IITA Youth Agripreneurs:** This program focuses on agribusiness development, offering training, mentorship, and business plan development for young agripreneurs, particularly in aquaculture.

• **EYiA Project:** This project offers a 12-week physical training program focused on horticulture, particularly vegetable farming, for individuals between 18-29 years (males) and 18-35 years (females).

• **Leventis Foundation Nigeria:** This foundation offers agricultural training programs.

• **Federal College of Agriculture, Akure (FECA):** Offers various agricultural courses and programs.

• **Online Training:** Explore online courses on goat farming and silage making, as well as training on cooperative methodologies.

#### 3. Other Opportunities:

• **Nigeria Agribusiness Group (NABG):** This group provides a platform for networking, policy advocacy, market access, and access to finance for agribusinesses.

• **White Gold Initiative (WIG):** This NGO

focuses on female farmers and provides them with training, information, and support.

• **International Institute of Tropical Agriculture (IITA):** Offers various training and research opportunities in agriculture.

To find specific opportunities:

• **Visit the websites of the organizations mentioned above.**

• **Search online for agricultural training programs in Nigeria.**

• **Contact agricultural extension officers in your local area.**

• **Network with other farmers and agricultural professionals.**

• **Attend agricultural events and workshops.**

By exploring these options and actively seeking information, you can find the right cooperative or training program to support your agricultural endeavors in Nigeria

### Choose a niche and learn the business

To learn a business, start by choosing a specific niche that aligns with your interests and skills. Then, research the market and your target audience within that niche to understand their needs and how your business can provide value. Finally, test your niche and refine your approach based on feedback and market trends. Here's a more detailed breakdown:

#### 1. Choose a Niche:

• **Identify your interests and skills:** What are you passionate about? What are you good at?

• **Brainstorm potential niches:** List out specific areas within your interests that could be viable business ideas.

• **Research the market and competitors:** Determine if there is a demand for your chosen niche and if you can differentiate yourself.

• **Consider your target audience:** Who are your ideal customers? What are their needs and pain points?

• **Narrow down your niche:** Look for sub-niches within your general market to focus your efforts.

#### 2. Learn the Business:

##### • **Market research:**

Thoroughly research the market size, trends, and potential profitability of your chosen niche, according to LCN.com.

##### • **Understand your target audience:**

Develop customer personas to represent your ideal customers and understand their needs.

##### • **Develop your product or service:**

Create a product or service that addresses the

needs of your target audience.

- **Identify your unique selling proposition:**

What makes your business stand out from the competition?

- **Test your niche:**

Gather feedback from your target audience on your product or service to refine your approach.

- **Refine your approach:**

Adjust your product, marketing, and business strategy based on the feedback you receive.

### 3. Importance of Niche Selection:

- **Focus and expertise:**

Choosing a niche allows you to become a specialist and build expertise in a specific area.

- **Targeted marketing:**

You can effectively target your marketing efforts to reach your ideal customers.

- **Reduced competition:**

A niche market can offer less competition than a broad market.

- **Building brand loyalty:**

Customers are more likely to be loyal to a brand that understands their specific needs.

- **Increased profits:**

By understanding your niche and target audience, you can increase your profits and sales.

By following these steps, you can effectively choose a niche, learn the business within that niche, and set yourself up for success.

## Leverage technology and partnerships

### 1. Identify the right technology partner:

Look for companies that **offer complementary products or services**, have a similar target market, and share your business values and goals. For example, if you're a robotics process automation (RPA) entrepreneur, partnering with a software company that specializes in AI and machine learning can enhance your offering and give you a competitive edge.

### 2. Collaborate to develop innovative solutions:

Once you have found the right technology partner, the next step is to collaborate and develop innovative solutions together. By combining your expertise and resources, you can create new products or services that meet the evolving needs of your customers. For instance, imagine partnering with a data analytics company to develop a predictive analytics tool that can optimize the performance of your RPA systems. This

collaboration can help you stay ahead of the competition by offering *advanced capabilities* that others may lack.

### 3. Share knowledge and resources:

Technology partnerships are not just about collaboration on specific projects; they also provide an opportunity to share knowledge and resources. By exchanging ideas, best practices, and industry insights, you can accelerate your learning curve and gain a competitive advantage. For example, partnering with a technology company that has a strong research and development team can give you access to cutting-edge technologies and help you stay at the forefront of innovation in the RPA industry.

### 4. Extend your reach and market presence:

Technology partnerships can also help you extend your reach and market presence. By leveraging your partner's customer base, distribution channels, or marketing capabilities, you can tap into new markets and reach a wider audience.

## VII. Conclusion

The following messages emerged from the study, which every farmer should know: -

Agriculture, the practical toolkit and the cornerstone of Nigeria's economy, presents vast opportunities across its value chain. From the fields where crops are grown to the shelves where finished products reach consumers, this chain holds untapped potential to drive economic growth, reduce poverty and enhance food security.

In the food sector, public-private-partnership (PPP) has the potential, not only to reduce the risk that farmers face, but also to improve the agricultural business environment. As the agricultural and rural sectors are the habitat of the poor, the best value chain strategy should be one of that embodies poverty reduction, which can be achieved by increasing the incomes of smallholder farmers and rural dwellers.

Food security and poverty alleviation are intertwined. Addressing one can significantly impact the other. By implementing comprehensive strategies that focus on both food security and poverty reduction, it is possible to create more resilient, prosperous and equitable communities.

Mobile aggregation services using tricycles or vans offer a promising solution for improving agricultural logistics, connecting farmers to markets and reducing post-harvest losses. By addressing the challenges and leveraging the opportunities, these services can play a vital role in transforming agriculture and boosting rural economies.

Agricultural value chain in Nigeria is a sector brimming with potential for economic growth and development, but requires strategic investments, innovation and a focus on addressing systemic inefficiencies to unlock its full value. This includes strengthening market linkages, improving infrastructure and promoting financial inclusion to benefit smallholder farmers and rural communities.

### **Agriculture remains a goldmine for Nigeria**

Agriculture is Goldmine for strong and determined Nigerian youths.

1. **Agriculture is a lucrative industry:** It has the potential to generate wealth and create opportunities for economic growth.
2. **Nigerian youths can thrive in agriculture:** With determination and hard work, young Nigerians can succeed in this field and create a better future for themselves.
3. **Agriculture requires resilience and determination:** It's not an easy endeavor, but with persistence and dedication, one can overcome challenges and achieve success.

Yes, the statement that agriculture remains a goldmine for Nigeria is accurate. Despite oil being the dominant export, agriculture is a vital sector, contributing significantly to the Nigerian economy, providing livelihoods for a large portion of the population, and holding substantial potential for growth and export earnings.

### **Every Nigerian can find a place in the value chain**

The idea that "every Nigerian can find a place in the value chain" is a positive and aspirational one, suggesting that all citizens have the potential to contribute to and benefit from economic activity. It implies that, with the right opportunities and support, individuals can participate in various stages of production, distribution, and consumption within a specific industry or sector. This concept is particularly relevant in the context of Nigeria's economic development, where diverse sectors like agriculture, manufacturing, and services offer numerous avenues for participation.

### **Collective action can transform food systems and livelihoods**

Collective action, involving collaboration among various stakeholders, is crucial for transforming Nigeria's food systems and improving livelihoods. This approach can address challenges like food insecurity, low agricultural productivity and climate change impacts by fostering inclusive and sustainable practices.

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# HIS EXCELLENCY, ENGR. SEYI MAKINDER, FNSE, INVITES YOU TO IBADAN 2025



## COMMITTEE TO DRAFT THE THIRD ECOPACCE DOCUMENT. 20TH AUGUST, 2025



## THE FUTURE OF CONCRETE MIXER



  
**The Nigerian Society of Engineers**  
Announces its  
**2025 INTERNATIONAL ENGINEERING  
CONFERENCE, EXHIBITION AND  
ANNUAL GENERAL MEETING**  
**IBADAN  
2025**

— Theme —  
**ENGINEERING INNOVATION FOR  
A SUSTAINABLE BLUE ECONOMY**

DATE: MONDAY 1ST - FRIDAY 5TH DECEMBER, 2025  
VENUE: THE INTERNATIONAL CONFERENCE CENTRE,  
UNIVERSITY OF IBADAN, OYO STATE.

**CONFERENCE FEES:**

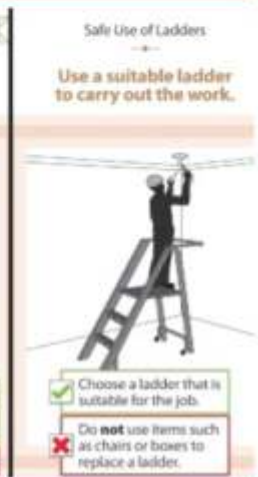
| EARLY BIRD<br>(1ST SEP - 30TH OCT 2025) | LATE REGISTRATION<br>(1ST NOV - 30TH NOV 2025) |
|-----------------------------------------|------------------------------------------------|
| • Fellow: ₦125,000                      | • Fellow: ₦155,000                             |
| • Delegate: ₦75,000                     | • Delegate: ₦85,000                            |
| • Sponsor: ₦25,000                      | • Sponsor: ₦35,000                             |
| • Graduate / Student: ₦20,000           | • Graduate / Student: ₦25,000                  |
| • Virtual Attendee: ₦10,000             | • Virtual Attendee: ₦15,000                    |
| • International Delegate: \$300         | • International Delegate: \$500                |

CONFERENCE ENQUIRIES:  
Registration: 080035479597  
Technical: 07030460888  
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or email: [conference@nse.org.ng](mailto:conference@nse.org.ng)  
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Engineers** 🖐️

  
**The Nigerian Society of Engineers**  
announces its  
**2026 INTERNATIONAL ENGINEERING CONFERENCE  
EXHIBITION AND ANNUAL GENERAL MEETING**  
**"MAIDUGURI 2026"**

## NIHTE-IRF WORKSHOP PICS. CONT'D.



## Obituary Announcement

**Forever in our Hearts**

With deep sense of loss, but in total submission to the will of God Almighty, We the family of Late Elder John Ogbonnaya of Anodu, Ututu Anochukwu Local Government area of Abia State, announce the passing of our beloved son, husband, father, brother and uncle, Sir Chief Engr. Chinemere Ogbonnaya, whose demise took place after a protracted illness.

**SIR CHIEF ENGR. CHINEMERE OGBONNAYA** 55

**Burial Arrangements:**

**SERVICE OF SONGS**

- DATE: FRIDAY, 26TH SEPTEMBER, 2025
- Time: 5pm prompt
- Venue: St. Andrew Anglican Church, Rumuok, Deanery: Port Harcourt, Rivers State.

**FUNERAL SERVICE**

- DATE: FRIDAY 31ST OCTOBER, 2025
- Venue: Anodu, Ututu in Anochukwu Local Government Area, Abia State.

He is survived by wife, children, brothers, sisters and host of many relations.

May his gentle soul rest in the bosom of God.

Signed: THE FAMILY

**FOREVER IN OUR HEARTS**

Funeral programs in honour of

**Sir Innocent AKUVUE** KSJI (Ozo Ochudo Nibo)

**Mater Misericordiae Catholic Church.**

**Wednesday, 19th November, 2025**

- 4pm: Highlights of his life and times. Songs of praise and tributes
- 6pm: Vigil Mass and songs for the dead.

**Thursday, 20th November, 2025**

**12 noon: Requiem Mass.**

Ochudo, as we mourn your departure, we are consoled by the testimonies of your life and our faith in the resurrection of those who died in Christ.

Rest well in the loving arms of our Lord Jesus Christ.

May your gentle soul rest in peace, Amen.

By: Innocent Akuvue, CSJG (Pastor: Nibo)

## NIHTE-IRF WORKSHOP PICS. CONT'D.



### "The PDCA of Success"



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IMMEDIATE PAST PRESIDENT



**Engr. Joshua Egube, FNSE**  
Executive Secretary



The Nigerian Institution of Highway & Transportation  
Engineers (NIHTE)

(A Division of the Nigerian Society of Engineers)

## CALL FOR PAPERS

**SUBMISSION DEADLINE: 31<sup>ST</sup> DECEMBER, 2025**

For publication in NIHTE 2025 Journal  
Authors are requested to submit their draft  
manuscripts, via online @:

nihe.nse2013@gmail.com, japavisca@yahoo.com or 08032630023

## 2026 INTERNATIONAL HIGHWAY AND TRANSPORTATION ENGINEERS CONFERENCE & AGM

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Green, Equitable, Intelligent & Integrated*

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- Spouses Program
- Technical Sessions
- Annual Chairman's Cocktail
- Annual Dinner
- Industrial Visits
- Cultural Displays
- Election of Executive Officers
- Celebration of Achievers
- Exhibitions
- Fellowship Award and Fellows Night

## NSE CONFERENCE VENUE VERIFICATION TEAM VISITS MAIDUGURI AHEAD OF 2026 INTERNATIONAL CONFERENCE



# NIHTE SUB-COMMITTEES

## A. FINANCE AND GENERAL-PURPOSE COMMITTEE

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| 2. Engr. Obi Anaduaka, FNSE, FNIHTE             | - | Alt. Chair 08039781144 |
| 3. Engr. Abdulazeez Rufai, FNSE, FNIHTE         | - | Vice Chair 08036340371 |
| 4. Engr. Esther Oluwakemi Oladeji, MNSE, MNIHTE | - | Member 07031221452     |
| 5. Engr. Mrs. Mbak Akakwam, MNSE, MNIHTE        | - | Member 08035701459     |
| 6. Engr. JudeMary Nwoti, MNSE, MNIHTE           | - | Member 08033368662     |

## B. CODES AND STANDARDS COMMITTEE

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|-----------------------------------------------|---|---------------------------|
| 1. Engr. Sunday Abu, MNSE, MNIHTE             | - | Chairman 08033654751      |
| 2. Engr. Dr. Thomas Eyo, FNSE, FNIHTE         | - | Alt. Chairman 08033705986 |
| 3. Engr. Friday Elaigwu, MNSE, MNIHTE         | - | Member 08061602772        |
| 4. Engr. Imo Ukpong, MNSE, MNIHTE             | - | Member 08035146679        |
| 5. Engr. Prof. Olumide Ogundipe, FNSE, FNIHTE | - | Member 08107825001        |
| 6. Engr. Dr. Mudasiru Bola J., FNSE, FNIHTE   | - | Member 08065668058        |
| 7. Engr. Usman Mohammed, MNSE, MNIHTE         | - | Member 08065395369        |
| 8. Engr. Lasisi Adekunle Rafiu, MNSE, MNIHTE  | - | Member 08060761830        |

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| 2. Engr. Oludayo Oluyemi, FNSE, FNIHTE        | -    | Alt. Chair. 08034017782 |
| 3. Engr. Prof. Olumide Ogundipe, FNSE, FNIHTE | - V. | Chairman 08107825001    |
| 4. Engr. Ayotunde Ogunnoiki, FNSE, FNIHTE     | -    | Member 08034081890      |
| 5. Lagos Chapter Rep.                         | -    | Member***               |

## D. TECHNICAL COMMITTEE

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| 1. Engr. Nwadike Jones, FNSE, FNIHTE        | - | Chairman 08032630023   |
| 2. Engr. S.K. Illugbekhai, FNSE, FNIHTE     | - | Vice Chair.08033290596 |
| 3. Engr. Thomas Eyo, FNSE, FNIHTE           | - | Member 08033705986     |
| 4. Engr. Dr. Mudasiru Bola J., FNSE, FNIHTE | - | Member 08065668058     |
| 5. Engr. Onah Ezekwesili, FNSE, MNIHTE      | - | Member 08063963769     |
| 6. Engr. Hassan Abubakar, MNSE, MNIHTE      | - | Member 08059698604     |
| 7. Engr. Usman Mohammed, MNSE, MNIHTE       | - | Member 08065395369     |
| 8. Engr. Aminu M. Jika, MNSE, MNIHTE        | - | Member 07035154435     |

## E. CONFERENCE & AGM PLANNING COMMITTEE

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| 2. Engr. Edmond Nkalu, FNSE, FNIHTE         | - | Vice Chairman 08038713607 |
| 3. Engr. Esther Oluwakemi, MNSE, MNIHTE     | - | Member 07031221452        |
| 4. Engr. Imo Ukpong, MNSE, MNIHTE           | - | Member 08037039727        |
| 5. Engr. Osarenogowu A. Wilson MNSE, MNIHTE | - | Member 08038805096        |
| 6. Engr. Iwanger Ortese, MNSE, MNIHTE       | - | Member 07068943700        |
| 7. Engr. Chigozie Achi, MNSE, MNIHTE        | - | Member 08034104170        |
| 8. Engr. Aminu M. Jika, MNSE, MNIHTE        | - | Member 07035154435        |

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| 3. Engr. Dr. Mudasiru Bola J., FNSE, FNIHTE | - | Member 08065668058   |
| 4. Engr. Friday Elaigwu, MNSE, MNIHTE       | - | Member 08061602772   |
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## **NIHTE SUB-COMMITTEES CONT'D.**

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| 3. Engr. JudeMary Nwoti, MNSE, MNIHTE    | - | Member 08033368662   |
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| 4. Engr. Friday Elaigwu, MNSE, MNIHTE | - | Member 08061602772   |

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- |                                             |   |                           |
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| 2. Engr. Abdulazeez Rufai, FNSE, FNIHTE     | - | Alt. Chairman 08036340371 |
| 3. Engr. Dr. Mudasiru Bola J., FNSE, FNIHTE | - | Member 08065668058        |

# NSE INVESTITURE COMMITTEE FOR THE 35TH PRESIDENT, ENGR. ALI ALIMASUYA RABIU, FNSE, FASCE, FAEng. MFR (CIGARIN LAFIA)



## The Nigerian Society of Engineers

### REQUEST FOR CLASSIFIED ADVERTS FOR THE NIGERIA ENGINEER MAGAZINE

In our bid to fulfil one of the terms of reference of the Editorial Board which is to generate funds and make The Nigeria Engineer magazine self-financing, we seek the dissemination of e-mail to all corporate members to notify them of the committee's request for classified Adverts for the next edition of the Magazine. The size of the advert should be 4.123 by 3.924 inches and will cost Fifty Thousand (50,000.00) only per advert.

Evidence of payment and advert should be forwarded to [editorialcommittee@nse.org.ng](mailto:editorialcommittee@nse.org.ng). All adverts should reach the committee latest 10<sup>th</sup> September-December, 2022; this is to enable the committee complete the production of the magazine by the 15<sup>th</sup> of September-December. Thank you and regards

Engr. Dr. Felicia Agubata, FNSE  
Chairman, Editorial Board Committee



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