UNIVERSITY OF PORT HARCOURT

AGRICULTURAL EXTENSION IN CONTEMPORARY NIGERIA: OPTIMISING OUR DEVELOPMENT POTENTIALS

An Inaugural Lecture

By

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ORDER OF PROCEEDINGS

2.45P.M. GUESTS ARE SEATED

3.00P.M. ACADEMIC PROCESSION BEGINS

The procession shall enter the Ebitimi Banigo 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
LECTURER
AG. REGISTRAR
COORDINATOR ACADEMIC AFFAIRS
AG. VICE CHANCELLOR

After the Ag. 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 AG. VICE-CHANCELLOR'S OPENING REMARKS.

The Ag. Registrar shall rise, cap, invite the Ag. 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 Ag. Vice-Chancellor, cap and deliver a copy of the Inaugural Lecture to the Ag. Vice-Chancellor and resume his seat. The Ag. Vice-Chancellor shall present the document to the Registrar.

CLOSING

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

THE AG. VICE-CHANCELLOR'S CLOSING REMARKS.

The Ag. 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:

AG. VICE CHANCELLOR
COORDINATOR ACADEMIC AFFAIRS
AG. REGISTRAR
LECTURER
PROVOST, COLLEGE OF HEALTH SCIENCES
DEAN, SCHOOL OF GRADUATE STUDIES
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PROFESSORS
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- Unique Students of UNIPORT
- Members of the Press
- Distinguished Ladies and Gentlemen.

DEDICATION

I dedicate this lecture to God Almighty. The Great I AM. You are the reason why I am here today.

I also dedicate this Lecture to my father Warrant Officer (Rtd.) Oluwole Joshua Adesope and to my Late mother: Mrs. Deborah Taiwo Adesope (nee Mayah), they gave all they had to ensure that I got the best of education which brought me this far.

Also, to my Late brother, Emmanuel Adesope

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My primary and secondary school teachers: Mr. Charles, Mrs S. Jaja, Mr. Otuyelu, Mr. Orifa, Mrs Dada, and especially Mrs O. Akinola, my Agricultural Science teacher at Command Secondary School (CSS) Kaduna, for laying the foundation for my interest in Agriculture.

My senior colleague and mentor: Prof A.C Agumagu started it all by instilling academic discipline in me during my undergraduate years as his supervisee in the University of Ibadan.

Professor J. Orebiyi has been a father and friend since I met him when I resumed work at Federal University of Technology, Owerri (FUTO). Dr C.I. Ezedinma, apart from being my lecturer and supervisor, aided my field experience greatly. I thank him for linking me up with the various research organisations that gave me a lot of exposure and training for Agricultural Extension services.

Professor Edna C. Matthews-Njoku was the pioneer Head of Department (HOD) when I resumed duty at FUTO and she appointed me the pioneer Examination Officer to the new Department of Agricultural Extension. Throughout my stay at

FUTO, she gave me and my family a lot of encouragement that kept us going. As my supervisor and lecturer, she made the environment very conducive for learning. You are a blessing to me.

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Prof R. Ogali, the immediate past Deputy Vice Chancellor (Administration) of the University of Port Harcourt, was Dean, School of Graduate Studies (SGS) when I became the Assistant Director, Centre for Research Management and Development. She is indeed a very good leader. I thank you for all the support

you gave me as a member of several committees I worked with you.

I worked with Prof. H. Fawehinmi, the immediate past Deputy Vice Chancellor (Academic) of the University of Port Harcourt, first when he was Dean, Faculty of Basic Medical Sciences. He was always available to support me whenever I had workshops for early career researchers.

Prof. E.C Wokoma was my Dean under whom I served as Associate Dean, Faculty of Agriculture; *Mart*, as she would always call me, I thank you for your leadership acumen and disposition.

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me through your consultative style, what a real leader should be like.

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Mrs. M. Nnodim, Dr. Dorcas Otto (former Registrars of the University of Port Harcourt) and Dr. Agatha Ataga are women with passion for their job. They have a place in my success story. God bless you.

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Professor C.C. Asiabaka deserves special mention here. He was the 6th Vice Chancellor, Federal University of Technology, Owerri, Nigeria. He brought a new dimension to my research life - he supervised my M.Sc and PhD research works and hired me as a staff of FUTO. I am so proud to be identified with you Sir.

Professor O.I. Oladele was my classmate at the undergraduate days in the University of Ibadan, a great man, my mentor, my brother and friend. He is a great source of inspiration to me. I remain loyal my brother and friend. I cannot forget my other classmates who have been very supportive to me: Prof. Eddy Onemolease, Mr. Tayo Solagbade, Mr. Adeolu Adeojo, Mr. Raymond Adelabu, and Dr. Andy Igonor.

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Sir. Effiom Nyong Effiom, my childhood friend, I appreciate you once again and I want to put it on record that you bought me my first pair of suits and got me all dressed up, as I was preparing to attend my Convocation at the University of Ibadan. I cannot forget that act of kindness.

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I would like to appreciate the following Vice Chancellors in the University of Port Harcourt for providing the environment for me to work with them: Under the 6th Vice Chancellor, Prof Don Baridam, I worked as Acting Head of Department. Under the 7th Vice Chancellor, Prof. Joseph Ajienka, I was Associate Dean, Faculty of Agriculture and also was appointed Pioneer Assistant Director, Centre for Research Management (CEREM) and Prof. N.E.S. Lale, the 8th Vice Chancellor, who appointed me the Assistant Director of the newly established Centre for Research Management and Development (CEREMAD). I remain grateful to him as my senior colleague and friend for his unique mentoring acumen. He helped to build my confidence as an Administrator and also appointed me as Associate Dean, School of Graduate Studies. I was employed into the University of Port Harcourt when he was the Dean of the Faculty of Agriculture. He worked with us as a team and mentored his HODs (Professors A.A. Aiyeloja, O.M. Adesope, B. Nuga and I. Etela) with tact and this brought out the best in us. God will bless you forever.

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Preamble

I did not grow up in a rural area but in Army Barracks. It was a maze of experiences across several States of Nigeria. My father had very big farms from where the family was sustained in addition to his salary. I became a rustic fellow in the process as I learnt the act and art of farming and sometimes, hunting. I think that was how destiny got me involved in Agriculture.

My father started his career in the Nigeria Army. He met and married my mother, fought in the Nigeria civil war, and I was born in Warri where my mother lived at Esisi Road in the then Bendel State. Both of them weathered the storm and saw me through school. It was rough growing up in the Barracks. However, what was spectacular in all of it was the learning process. I learnt survival from my father in all the itinerary from Warri, to Owode to Oyo to Kainji to Kaduna to Kachia to Ohafia and then to Elele. We had large farms and farmed everything possible – maize, groundnut, cassava, peppers, fruits crops and vegetables. I developed interest in solo-fishing in the process. I used to fish in the flowing streams in our farm in Kachia, Kaduna State. This gave me a can-do spirit and I even had the guts to try same at the University of Ibadan in my second year, I went fishing around the flowing river near the University second gate those days. On one occasion, as I was getting to the river I saw a black snake nudging towards me and I sped off with speed of light. That was the last of my fishing experience. But when I graduated from the Department of Agricultural Extension, I was prepared for the future.

My father introduced me to books such as Brighter Grammar and the Lady Bird series. Much later, I started reading Eze Goes to School, Chike and the River, African Nights Entertainment series, Mallam Ilia's Passport, then I graduated into reading Pacesetter series, James Hadley Chase series,

Harold Robbins series, Irvin Wallace, Frederick Forsyth, Jeffery Archer and many other Bestsellers.

Staff Sergeant Nwosu was my father's friend at the Army Barracks, Ohafia (then Imo State, and now Abia State) and he was about to retire from the army, consulted my dad about his desire to start a pig farm and my father was quick to tell him to contact me and he did. I wrote out a business proposal for him which earned me twenty Naira (₦20.00) only. I was in 300 Level by then.

My interest in Agriculture is self-imposed. I wanted to carve a niche in Agriculture. While I was about to fill my Joint Admissions Matriculation Board (JAMB) form in secondary school, I decided I did not want to study Medicine because of my dislike for the peculiar smell of drugs, so I consulted Mrs O. Akinola my Agricultural Science teacher in form 5 at Command Secondary School, Kaduna. What I could gather from her explanation on the difference between Agricultural Economics and Agricultural Extension was that Agricultural Extensionists work with rural people – I did not want that. However, when I wrote JAMB and applied to the University of Ibadan I was hopeful that I will be offered admission to study Agricultural Economics so I opted for Agricultural Economics so that I could work in some bank or financial institution. To my greatest shock I was offered Agricultural Extension. I had no choice but to resign to fate. It was in my third year that I made up my mind to face the task ahead of me as an Agricultural Extensionist and decided that I would study up to the Master's degree.

Over the years, God has been preparing me for this day. My first public lecture was in 1993 as a Corper at Etinan Town Hall, Nsit Ubium Local Government Area of Akwa Ibom when

it was unanimously agreed that I present a paper on rural development.

My journey into Academics started with the influence of Prof Anthony C. Agumagu who was my project supervisor at the undergraduate level at the University of Ibadan. He instilled much academic discipline in me and today he is like a father and elder brother to me. God bless you Sir.

My first name is "Olufemi" which means "God loves me" and it has always played out so. I have been very lucky in my work life to work with great role models who have not only inspired me but imbued in me very impressive management and administrative skills. Dr. N.S. Oguzor was the Dean, School of Vocational Education, when I started my career at the Federal College of Education (Technical), Omoku in 1994. When I moved to the Federal University of Technology, Owerri, Prof. C.C. Asiabaka, Prof. Edna Matthews-Njoku, Prof J. S. Orebiyi and Prof. M. A. C. A. Odii mentored me. When the new Department of Agricultural Extension was birthed, I worked with Prof Edna Matthews-Njoku as the Pioneer Examination Officer: - she mentored me as a friend, brother and son. Then I moved to the University of Port Harcourt in 2006 and again, under the tutelage of my mentor, Professor Agumagu developed the new Department of Agricultural Economics and Extension (along with Drs Unaeze, and Nwaogwugwu who were the staff on ground) and groomed students in 2006, and from only 17 students, the Department now boasts of over 100 students every year. The staff strength has also increased from 5 staff in 2006 to 20 staff in 2021. We are grateful to God Almighty for the significant expansion in the Department in terms of quality staff, students and activities.

Inaugural Lecture

An inaugural lecture is a major milestone in the life of an academic who is a Professor. It is a celebration of upliftment to the exalted rank of Professor. Trust me, it is not easy to become a Professor. But I, for one, was determined from the onset, to get to that height and I worked for it. This lecture is one of a kind. Over the past 27 years of my career, I have lectured and taught students in the different cadres ranging from the Nigerian Certificate in Education (NCE), Ordinary National Diploma (OND), Higher National Diploma (HND), Bachelor's, Master's and Doctoral degrees and in the process carried them through the pedagogical process to earn their certificates. I have also used andragogical process to build capacity of adult learners to sustain their livelihoods – a major task of Agricultural Extension. This is the first time I will deliver a lecture of this kind to a mixed multitude where they will listen to how I got to this position. Truly, I am glad to be here to share my story and my vision thereafter.

For the records, this will be the first inaugural lecture from the Department of Agricultural Economics and Extension, University of Port Harcourt. It is the 3rd Inaugural Lecture from the Faculty of Agriculture; the first was delivered by Prof N.E.S Lale, the 8th Vice Chancellor of the University of Port Harcourt on February 25, 2008 with the title: *Stealthy Thieves in Homes and food stores*. The second was just a few weeks ago (May 27, 2021) by my brother and friend, Prof A.A Aiyeloja. His Lecture was titled: *Forest for rest forever*. I also had the privilege to deliver the Third Faculty lecture in the Faculty of Agriculture lecture series titled: *Open data in contemporary Nigeria. Framework for E-Agriculture*, which was also the first in the Department of Agricultural Economics and Extension. I also had the rare privilege of giving a public lecture at the Lilongwe University of Agriculture and Natural

Resources (LUANAR), Bunda Campus, Malawi titled: *Trusting the messenger, believing the message. A change agent's perspective in Agricultural extension service delivery* (Adesope, 2018a). This was during my stay as a Visiting Professor at that University.

INTRODUCTION

In Africa and particularly Nigeria, Agriculture is the bedrock of the nation. Food is a necessity of life and with the teeming and growing population, the demand for food far exceeds its supply.

Among the four major sectors that contribute to the country's economy, petroleum/oil, services, manufacturing and agriculture, the agricultural sector always has been the highest contributor to Nigeria's Gross Domestic Product (GDP), followed by the petroleum industry, service and manufacturing. In 2013 the agricultural sector contributed about 22% of Nigeria GDP while crude oil contributed 14%, telecommunication contributed 9% and manufacturing contributed 7% (US Department of State, 2014). Services, telecommunications, finance and construction contributes about 52% of the GDP, and as at 2016 the agriculture sector contributed 24.18% of the GDP more than oil and manufacturing combined (CBN, 2016). This shows that agriculture is important and essential to the reviving and development of Nigeria's economy as well as in improving the living standard of the people (Ufiobor, 2017).

Agriculture remains the main source of employment to the generality of Nigerians who by the way live in rural and peri-urban areas. Agricultural Extension aims to help the people to improve their livelihoods through provision of reliable agricultural information.

According to FAO (2018) 55% of a Nigerian farmer's annual gross income of USD 9, 815 is earned from agricultural activities, but 51% from crop and livestock (45% from crop production, 6% from livestock production). The four subsectors in agriculture are crop, livestock, forestry and fisheries.

Table 1. Average (2007-2011) productions, harvested areas and yields of the major food crops in Nigeria

Crop	**Yield (t ha^{-1})**	**Harvested Area (ha)**	**Total Production (t)**
Cassava	13.04	3,561,120	46,530,610
Yam	13.08	2,558,110	33,529,470
Cocoyam	7.34	415,454	3,083,748
Maize	1.64	4,839,508	7,959,992
Sorghum	1.19	4,967,020	5,937,890
Rice	2.04	1,780,622	3,641,640
Millet	1.01	3,809,330	3,823,998
Groundnut	1.19	2,319,448	2,772,432
Cowpea	0.52	3,059,632	1,561,694
Soybean	1.26	392,128	491,504

Sources: National Agricultural Extension and Research Liaison Services (NAERLS, 2010) and National Programme on Agriculture and Food Security (NPAFS, 2010)

Meaning of Agricultural Extension

In Genesis 2 vs 8, 9, 15-20, God gave man some express instructions on the one hand and man had a responsibility on the other hand:

8. And the LORD God planted a garden eastward in Eden; and there he put the man whom he had formed. 9. And out of the ground made the LORD God to grow every tree that is pleasant to the sight, and good for food; the tree of life also in

the midst of the garden, and the tree of knowledge of good and evil.

15. And the LORD God took the man, and put him into the garden of Eden to dress it and to keep it. 16. And the LORD God commanded the man, saying, Of every tree of the garden thou mayest freely eat. 17. But of the tree of the knowledge of good and evil, thou shalt not eat of it: for in the day that thou eatest thereof thou shalt surely die.

18. And the LORD God said, It is not good that the man should be alone; I will make him an help meet for him. 19. And out of the ground the LORD God formed every beast of the field, and every fowl of the air; and brought them unto Adam to see what he would call them: and whatsoever Adam called every living creature, that was the name thereof. 20a. And Adam gave names to all cattle, and to the fowl of the air, and to every beast of the field …

From the Bible passage above, Man had a responsibility to produce food. Adam even gave names to all the animals. This, I think is some form of extension service because useful agricultural information was involved so that livelihood can be sustained. Provision of relevant agricultural information is what makes Agriculture possible. There is no denying this!

Agricultural Extension simply means extending agricultural information related to food and nutrition to those who primarily produce food. These people reside mainly in the rural areas and the outskirts of urban areas (peri-urban). Several views about agricultural extension exist hence terms like "extension", "extension education" are used to mean the same thing. According to Maunder (1972) Extension, in its broad sense, may be defined as: 'the extending of, or a service or

system which extends, the educational advantages of an institution to persons unable to avail themselves of them in a normal manner.' In other words, all forms of extension take education to the people.

Agricultural Extension education involves the conscious use of communication of information to help people form sound opinions and make sound decisions. It is an effective instrument only when combined with others such as research, provision of inputs and credit and marketing. It teaches farmers how to produce crops and livestock in the most profitable way, as well as how to organise themselves into cooperatives and other farmer organisations (van dan Ban & Hawkins, 2002).

According to Suvedi and Kaplowitz (2016), the aim of all Extension work is to teach the people living in rural areas how to raise their standard of living, by their own efforts, using their own resources of manpower and materials, with minimum of assistance from the governments. By encouraging local leadership and a spirit of self-help, extension develops civic pride and the progressive growth of the community.

The concept that the broader function of extension work is to help people to solve their own problems through the application of scientific knowledge is now generally accepted. If this be true, then Extension must be regarded as largely educational. But it is a different type of education, than that taught in schools and colleges, the main difference being that Extension education involves no coercion of any sort. Adult farmers cannot be forced to learn new and improved practices.

Thus, Agricultural Extension is the light of Agriculture. Just as Matthew 5 vs16 states: *Let your light so shine before men, that they may see your good works, and glorify your Father which*

is in heaven. Through Agricultural Extension end users of agricultural information understand how to apply the information to improve their livelihood.

Van den Ban and Hawkins (1996) had expressed different perceptions about extension to include lighting the pathway ahead to help people find their way (*voorlichting* - Dutch), lighting the way ahead (*penyuluhan* - Indonesia), improving people's skills (*capacitacion* – Spanish). The differences between formal education and extension education are shown in Table 2.

Table 2: Differences between Formal Education and Extension Education

Formal Education	**Extension Education**
Teacher starts with theory and works up to practices	The teacher (Extension worker) starts with practical situations of the learners in which they live, and work and develops these into a theory for basic understanding
Students study subjects	Learners study problems
Students must adapt themselves to the fixed curriculum offered	It has no fixed curriculum or course of study, and the learners help formulate the curriculum
Authority rests with the teacher	Authority rests with the learners
Class attendance is compulsory	Participation is purely voluntary
Teacher only instructs the students	The teacher teaches a great deal through local leaders and also learns from the learners
Teaching is only through instructors	Teaching is also through local leaders
Teaching is mainly vertical and curriculum centred	Teaching is mainly horizontal and mostly need based and problem oriented
The teacher has more or less homogeneous audience with common goals	The teacher has large and heterogeneous audience with diversified goals
It is rigid	It is flexible

It has all pre-planned and pre-decided programmes	It has freedom to develop programmes locally, which are based on the needs and expressed desires of the people
It is more theoretical	It is more practical and intended for immediate application in the solution of problems
Teaching is confined largely to the premises of an institution	Teaching is largely outside the walls of an institution

Source: Indian Council of Agricultural Research (2006)

Extension education is dependent upon the ability of a limited staff of advisers to inspire rural people and to create a desire for more efficient production, and better living in the rural community. Agricultural Extension is a system that facilitates access of farmers or their organisations to new knowledge, information and technologies and promotes interaction with research, education, agri-business, and other relevant institutions to assist them in developing their own technical, organisational and management skills and practices (Christoplos, 2010).

Functions of Agricultural Extension

Agricultural Extension has three major functions in Agricultural development programmes (Williams, et al, 1984; Williams, 1990) to:

- *Put farmers in a frame of mind conducive to accepting technological change*: Since most farmers in developing countries are still largely tradition bound and afraid to take risks that will involve them in great financial loss unless they are convinced beyond all doubt that the improved technology that the extension agents are asking them to adopt is economically viable, technically feasible and compatible with their farming system. This is done through effective and dynamic extension education programmes.

- *Disseminate to the farmers the results of research and to carry the farmers' problems back to research organizations for solution:* Effective lines of communication must exist between the research organization, the extension service and the farmers.
- *Help farmers gain managerial skills to operate in a commercial economy by providing training and guidance to farmers in decision making*.

HISTORY OF AGRICULTURAL EXTENSION

The use of the word "extension" derives from an educational development in England during the second half of the nineteenth century. Around 1850, discussions began in the two ancient universities of Oxford and Cambridge about how they could serve the educational needs, near to their homes, of the rapidly growing populations in the industrial, urban area. It was not until 1867 that a first practical attempt was made in what was designated "university extension," but the activity developed quickly to become a well-established movement before the end of the century. Initially, most of the lectures given were on literary and social topics, but by the 1890s agricultural subjects were being covered by peripatetic lecturers in rural areas (Jones, & Garforth, 1997). The growth and success of this work in Britain influenced the initiation of similar activity elsewhere, especially in the United States. There, in many states, comparable out-of-college lectures were becoming established by the 1890s (True, 1900, 1928). During the first two decades of this century, the extramural work of the land-grant colleges, concerned with serving the needs of farm families, was to expand dramatically and become formally organized; but the use of the term "extension" continued and has persisted as the designation for the work (FAO, 1997).

Agricultural Extension has changed its philosophy and modified its methodology from what was obtained during the pre-colonial and colonial periods to new orientations and current methodology. The philosophy during the pre-colonial and colonial periods emphasised production. This shifted to education of farmers on improved farming techniques during the post-colonial era. The methodology, on the other hand, shifted from the directive approach of informing farmers of what to produce to meet the needs of the colonial administrators during the colonial period, to the non-directive approach of basing extension programmes on the farmers' needs.

The efforts of the government in agricultural development in Nigeria started as far back as 1893 with the establishment of the Department of Botanical Research, in the former Western Nigeria. Its responsibility included conducting research in both Agriculture and Forestry. In 1905, the British Cotton Growing Association acquired 10.35square kilometers of land at the site now called Moor Plantation, Ibadan for growing cotton to feed the British Textile mills. In 1910, the Moor Plantation, Ibadan became the headquarters of the Department of Agriculture in Southern Nigeria, while the Department of Agriculture was established in the North in 1912.

In 1921, the United Central Department of Agriculture was established. These institutions were established mainly to provide raw materials and foreign earnings for the British market. However, rudimentary extension service was being practiced in the process (Patel, 1983; Jibowo & Ajayi, 2011).

When the Western, Eastern and Northern regions were created, each region had its corresponding ministry of agriculture in which department of extension division was domiciled. This

pattern continued when the Midwestern region was created and even when more states were created out of the region, from 1967 when 12 states were created to 1991 when 36 states were created including the Federal Capital Territory. Various agricultural development programs that were implemented at the regional and state levels applied rudiments of extension, which enabled the farmers to meet the needs of production of cash crops for export (Ladele, 2016).

By the tie federal ministry of agriculture and natural resources was established at the federal level, emphasis started shifting to food crop production because of impending difficulties in meeting the food need of growing urban population. The application of agricultural extension grew in implementation of several agricultural programmes in Nigeria, which included the National Accelerated Food Production Project (1972); the Agricultural Development Projects, ADP (1975); the Accelerated Development Area Project, ADAP (1982); the Multi-State Agricultural Development Project, MSADP (1986) among others. In the 2000s, the Poverty Alleviation Programme (2000), and National Economic Empowerment and Development Strategy, NEEDS (2004) were introduced and in 2003, the National Special Programme for Food Security was launched. From the rudimentary application of extension to farmers' problems, public extension adopted Conventional Agricultural Extension Approach based in the Ministry of Agriculture. This however, was beset with many problems hence limited the effectiveness of extension, which then led to the adoption of project-based extension service delivery. When the ADPs were initiated, an extension approached called Training and Visit (T & V) extension system was adopted. This brought professionalism into extension work, focusing strictly on communication and educational function of extension.

The ADP was sponsored by the World Bank in collaboration with the states and federal government. ADPs were first established at pilot level in Funtua, Gusau and Gombe in 1975. The success of the pilot projects was scaled up, resulting in several projects. The ADP system is premised on the fact that a combination of factors comprising the right technology, effective extension service, access to farm inputs, adequate market and other infrastructure are essential elements for increased output and productivity, required to raise the income and living standards of the rural dwellers who are mainly farmers. All states in Nigeria actively implemented statewide ADPs until World Bank withdrew funding after the project expired. This drastically affected development activities of the ADPs and public extension generally (Ayichi, 1995; Ladele, 2016).

Scope of Agricultural Extension

All extension services have areas of common interest which include the following (Maunder, 1972):

- *Agricultural production*: helping farmers make useful decisions to increase food production
- *Marketing, distribution and utilisation of farm products*: Extension helps to reduce the cost of marketing farm products, expands the market for farm products and help people to understand the marketing system.
- *Conservation, wise use and development of natural resources*: group action may be required to ensure the success of any programme. This is possible by motivating people, involving them in policy making and stimulating them to work together for the common good.
- *Management on the farm and in the home:* making decisions wisely is a skill which can be learned. It can be applied by the individual, family, the group and the firm. It can help assure better individual incomes, higher levels of

living and generally higher level of ability to make decisions and confidence to carry them out.

- *Family living*: family living programmes conducted by extension include family economics, home management, buying, human relations, food and nutrition, clothing, housing, citizenship, health and safety, conservation, and problems of low incomes.
- *Youth development:* needs of youth to be served by extension differ especially at the different developmental stages. A young boy/girl of 13 or 14 is interested in knowledge and skills. At 13 or 14, interests become broader. Group activities are more important. Youths want to help plan their own programmes and take some leadership in it. When formal schooling ends, another transition begins. At this stage they begin to seek information and guidance on careers, on college work, on marriage and on the other adult programmes they are beginning to encounter. Extension must therefore broaden its concept of youth work to make sure it offers all the services to the youths.
- *Leadership development*: extension work has long made a policy of trying to give people the resources necessary for leadership, the opportunities to assume a leader's role, and the experiences by which they can build their own self-confidence and earn the confidence of others.
- *Community improvement*: Extension workers work with three kinds of community resources which are natural, human and institutional. The purpose will be the development of people themselves, helping them to actualize their potentials in knowledge, abilities, skills, attitudes and appreciations.
- *Public affairs*: public affairs education is education for citizenship. Its scope is measured by the educational needs of intelligent citizens concerned with public issues at every

level of government. When Extension teaches new technology it must also accept the responsibility to help the society make the adjustments that will assure genuine benefits from such technology.

Agricultural Extension is an eclectic endeavour from the above which involves several and varied areas of interest.

Agricultural Extension Approaches

There is no one particular agricultural extension approach that dominates the Extension system. Different approaches to extension are found in several organisations using different strategies, methods and techniques across the world (Axinn, 1988; Suvedi & Kaplowitz, 2016). The following are the prevailing approaches:

Technology transfer model: Most Extension systems rely on technology and information that are either available or able to be derived so that farmers can use it. This form of Extension relies heavily on a linear concept of technology transfer: new technology and knowledge generated by scientists/researchers/others are transmitted by Extension Agents to farmers to increase production and income. This is the most common Agricultural Extension approach applied in developing countries.

Training and visit Extension model: Beginning in the late 1970s, the World Bank introduced the "Training and Visit" approach in about 70 countries to speed the dissemination of Green Revolution technologies to farmers. This approach assumed that extension workers were poorly trained and not up-to-date on the subject matter, were poorly supervised and tended not to visit farmers regularly. To address these problems, this approach introduced a system of regular training

of Extension staff members by subject matter specialists, regular visits by extension workers to innovative farmers, and periodic interaction between farmers, Extension Workers and research scientists to facilitate the two-way flow of communication.

Farmer training model: Agricultural Extension programmes in many countries initiated farmer training centers where selected "model farmers" from surrounding villages or districts could get training in improved farming methods and techniques. It was assumed that, after the training, the model farmers would go back to their villages, adopt the new farm practices they had learned during the training, and meet with others in the village to share what they had learned. These training programmes would address two issues: the inadequate number of frontline extension workers to serve a large number of farmers, and the education of youths and inexperience of Extension workers in the field. Farmer field schools are an adaptation of this approach.

Participatory extension models: Evidence indicates that when rural people organise for their own benefit, much can be achieved. Generally, participatory Extension approaches assume that local farmers have wisdom or indigenous knowledge regarding food and fiber production on their land, but their productivity and livelihood could be improved by learning more of what is known outside their locality or from applying scientific investigation techniques through on-farm trials. Farming systems research makes the same assumption regarding the value of local knowledge and strives to create co-learning opportunities among Extension workers, researchers and farmers. Most Participatory Extension models are supported by international non-governmental organisations (NGOs), and field activities are managed by local NGOs.

Farmer-based Extension organisations: In more developed economies, farmers' associations or cooperatives have established and managed agricultural Extension programmes to serve the needs of their members. Management structures and sources of financial support vary from country to country. In general, members of the group or cooperative, not the government, control the functioning of the Extension system. A few examples are the farmers associations of Japan, and members of farmer associations or commodity groups - such as coffee, sugar, cotton or rubber growers - who pay annual dues or a small portion of their product sales to receive extension services. In other situations, participants pay part of the cost of extension programmes and government sources provide matching support.

Cyber Extension: This is an agricultural information exchange mechanism over cyber space, the imaginary space behind interconnected computer networks through telecommunication means. It utilises the power of networks, computer communications and interactive multimedia to facilitate information sharing. (Wijekoon, 2003; Oladele, 2013).

University-based extension model: Many agricultural colleges and universities offer outreach or Extension services that help local communities and also create an opportunity to improve the quality and relevance of their teaching and research functions. Agricultural universities have an assumed mandate to create and test technical knowledge so that it is relevant and useful to farm people. Also, both teachers and students benefit greatly from interaction with farmers. The U.S. land-grant universities were developed to serve the people in each state with three interrelated and complementary functions: teaching, research and extension. This concept is recognised by many agricultural colleges and universities developed through

USAID assistance, and these universities have organised Extension services in nearby communities. In Nigeria, Michael Okpara University of Agriculture, University of Ibadan, Obafemi Awolowo University, University of Nigeria, Nsukka and recently University of Port Harcourt have applied this model.

Agricultural Extension and advisory services across the world continue to change. For example, the World Bank no longer supports the training and visit (T and V) approach to extension. Today, many donor organisations support participatory and demand-driven Extension services. It is fair to say that there is no single dominant Agricultural Extension system today. New approaches that integrate elements of many Extension models are evolving constantly. In most countries, the central government provides an overall policy framework for Extension, but a variety of actors such as public organisations, civil societies and private firms provide a range of services to farmers and agribusiness operators. This has resulted in the rise of pluralistic Extension systems in increasing numbers of countries.

Suvedi (2011) summarised the key elements embraced by contemporary agricultural extension services:

Privatisation: In the United Kingdom, public Extension service has evolved over time into a private consulting business. In the Netherlands, farmers provide the majority of the cost of extension service. Other forms of privatisation include cost recovery, outsourcing and contracting out Extension services. In Costa Rica, for example, the government "provides farmers with Extension vouchers, which can be used for getting advice from private specialists"(Qamar, 2006).

Pluralism: Contemporary Extension services recognise the heterogeneity of the farming community and the need for a diversity of Extension service delivery systems. Pluralistic Extension encompasses a range of service providers, approaches, funding streams and sources of information available to farmers and clients (INGENEAS, 2016). Thus, multiple organisations, both public and non-public, deliver extension services. Examples include Extension services delivered by local NGOs and private seed companies in Bangladesh, Malawi, Mali and Nepal, including Nigeria.

Decentralisation: The key element of this approach is to transfer the decision-making functions to the local levels. Local units of government take charge of managerial functions including planning, implementation, and financing and accountability functions. Extension services are planned and implemented by district- or subdistrict-level governments in the Philippines, Tanzania and Indonesia.

Client participation: In the "old school" models of Extension services, diffusion was accomplished through transfer of technology; in "new school" models, diffusion is achieved through active participation of farmers in the learning process. Extension programmes and services are managed by membership of user groups such as coffee growers' associations and vegetable cooperatives.

Women and Youth focus: The number of women farmers is rising except in western nations as rural farm youths move to white-collar jobs in urban areas. This has resulted in the loss of farming population and a need for reengaging rural youths in food and fiber production, processing and marketing.

There is a dynamism in Agricultural Extension and advisory services across the world which prompts review and change. The World Bank no longer supports the Training and Visit approach to Extension. The bottom-up, participatory approach which is more demand-driven is supported by many organisations across the world. As new models emerge, they are integrated into the central policy framework for Extension. What is predominant is the myriad of stakeholders that are involved. Extension organisations in the public and private sectors provide a range of services to farmers and agribusiness operators giving rise to the pluralistic Extension system.

Principles of Agricultural Extension

Extension principles are the fundamental truths, the essential constituents that guide the conduct of Extension work. For Extension work to succeed in its bid to disseminate useful and practical information, it needs to be guided by a set of principles (Asiabaka, 2012; Ogunbameru, Undiandeye & Ani, 2008; Williams et al. 1984). These principles are:

- Extension starts where the people are: Extension should work at the level where the people are, that is, at their level of knowledge, understanding, interest and degree of readiness (Williams et al., 1984; Adereti & Ajayi, 2011).
- Extension workers must gain the confidence of their clienteles: Farmers will believe in the Extension worker's skill and ability to persuade them to adopt an improved technology. This is why the extension worker should embark on Extension programmes that are likely to succeed.
- Extension focuses on people's needs and interests: This should be in line with improving their livelihood by increasing farm production and their physical environment.
- Extension should assist people to determine their own problems, help them to find desirable solutions and to

encourage them to take action. Extension should work WITH the people and not FOR the people. The Extension worker should not attempt to solve the problems FOR the people as this will amount to imposing his own value judgment on them.

- Extension should use a variety of teaching methods in training the people. Bearing in mind that no one method will help to bring about desirable changes in people. The more the variety of ways a topic is presented and practised, the quicker the people tend to grasp the subject matter.
- Extension should promote the use and development of volunteer local leaders. Through this forum extension can reach many people and educate them on the need for change.
- The principle of professionalism should be followed. Extension should work with extension professionals who can easily sell their programmes to the clientele. This is because they have the requisite technical knowledge about the programmes. Agriculture will not progress if we do not place Agricultural Extension in the right perspective.
- Extension is educational in function through assisting people to make their own decisions among various alternatives put before them. Extension should not be involved in supply activities.

Roles of Agricultural Extension in Agricultural Development

Agricultural Extension employs a democratic approach which is voluntary in nature, with no fixed curriculum (Amalu, 1998). Extension has the responsibility to advise, transfer knowledge, educate, enable and stimulate farmers in a way that they will feel comfortable to produce enough food to feed the nation. Suvedi and Kaplowitz (2016) explained that the roles and

responsibilities of Extension workers serve as links between agricultural research, policy and farmers in the following ways:

- Disseminating new research-based knowledge through training and demonstrations.
- Developing networks with local organisations, ensuring coordination of services and promoting collaboration with development partners.
- Organising producers into groups and associations.
- Linking farmers to markets—identifying opportunities and conducting market analysis.
- Facilitating access to credit and inputs supply.
- Supporting market and value chain development for farm products.
- Convening innovation platforms to facilitate knowledge management.
- Promoting gender equality and engaging various marginalised groups in Extension programmes.
- Supporting adaptation to climate change.
- Organising participatory, demand-driven programme planning for Extension.
- Implementing collaborative and pluralistic delivery of Extension service.
- Evaluating local Extension programmess to report progress and document impacts.

Problems of Agricultural Extension

Over the years, agriculture and agricultural extension have suffered neglect. Since the withdrawal of funding to the ADPs by the World Bank, various governments have not been able to put enough money into the sector to sustain it. Generally, the problem of Agricultural extension as I stated in a Television programme in Accra, Ghana (https://youtu.be/vOEQsIqB_H0) are the 3Cs of Corruption (Compromise), Climate Change, and Conflict bedevil Africa's Agriculture (Adesope, 2018). In

essence we need to understand the political process and dynamics of politics to appreciate why we are not getting adequate Agricultural development. I totally agree with Acemoglu and Robinson (2013) in their classic book, *Why nations fail*, that "poor countries are poor because those in power make choices that create poverty. They get it wrong not by mistake or ignorance but on purpose". Agricultural policies have not been put rightly to ensure agricultural development. In making theories that do not work we set our progress backward by another century. Where then do we go from here? We have compromised so much that it no longer matters who steers the ship of agricultural formations. Specifically, the problems of Agricultural Extension are:

- Inadequate funding: This is one of the most challenging issues affecting Agriculture and Agricultural Extension. Granted that Federal government has made efforts at supporting agriculture but for almost 10 years, the budgetary allocation to agriculture has been too low. The Maputo Declaration in 2003 and the Malabo Declaration of 2014 affirmed 10% budgetary allocation to Agriculture but Nigeria still allocates a paltry 2% or less, to the agricultural sector. Ojekunle (2020) lamented that despite N592.9 Billion budget on agriculture in the last five years, there is less to show for it.
- Poor logistic support for field staff: The Agricultural Development Programme is the organ through which agricultural extension services are carried out in Nigeria. However, there is inadequate logistics support for them to effectively carry out their activities, hence visits to farmers are inadequate and most times not possible.
- Poorly trained field personnel
- Poor Agricultural Research-Extension linkages
- Lack of clientele participation in programme development

- Dilution of Extension Agent's specific responsibility: Extension agents have become Marketing Officers involved in the supply of agricultural inputs, thereby neglecting their educational functions
- Disproportionate extension agent to farm family ratio: Food and Agriculture Organization (FAO) recommends that for effective extension service delivery, Extension agent to farm family ratio should be 1:800. Through the Growth Enhancement Support scheme (GES) of the Federal Government of Nigeria, 14 million farmers were enumerated, with 8,000 private extension service workers complementing those from the public service. It was observed that there are only 14, 000 farm extension workers in the country with a ratio of one extension agent to 10, 000 farmers, according to a study on Agricultural Performance Report (APR), 2017/2018 conducted by NAES (Adanikin, 2020).

The theoretical basis of Agricultural Extension is too shallow and this affects the long term application of Agricultural Extension. The methodology of Extension practice is lacking. The perception at several quarters (government, non-governmental organizations, NGOs) is that anybody can carry out Agricultural Extension work. This is the feeling of most stakeholders in the Agriculture profession but those trained for the purpose are left out of the equation. The Agricultural Development Programmes (ADPs) in Nigeria exist on lifelines. If donors do not bring funds they do not function. The Research-Extension-Farmers linkage is so weak in Nigeria that we cannot make significant progress if it continues like that.

In countries like USA, Japan and Israel, extension drives their food security development. They have as much food as they need stored up in reserves.

Unfortunately, Agriculture is on the concurrent list in the Nigerian constitution hence policy implementation and programmes on agriculture are to be executed at the state and local government levels. What is considered as public extension work in reality is the engagement of field extension agents by pockets of international support agencies and grants hovering over the nation's development programme's space. These include the World Bank, African Development Bank, International Monetary Fund, among others. They have offered support in form of technical assistance, grants or short and long term loans (Ladele, 2016).

During the administration of President Goodluck Jonathan, significant progress was made through the Agricultural Transformation Agenda and impressive Growth Enhancement Support scheme. Subsequently, we have observed that even though a remarkable initiative like the Anchor Borrowers' Programme is being implemented by the current administration, the budgetary allocation is still grossly inadequate to sustain growth in agricultural development.

Why do the people resist change?

Social change is the alteration in the social structure and social relationships of the society and they could include changes in age distribution, in the educational level, birth rate of a population, decline in informality as people move from villages to the city. There are various sources of resistance to change which a change agent should be aware of to help him in his change efforts. They include:

Habits: established procedures contain some behavioural patterns according to which the basic needs of the society are met. Crises arise when these habitual methods of need satisfaction are disrupted or become ineffective (Williams et al., 1984). We conducted a research on adoption of cooking-banana technology and found that respondents would not adopt cooking banana which was a good technology to enhance food security. The reason given was that they were comfortable with plantain as it is and also banana as it and they wonder why they should accept a cross-breed of plantain and banana (Angba, Adesope & Odeyemi 2008). Cooking banana is a cross breed of plantain and wild banana to increase farmers income and enhance productivity.

Fear of disruption: Introduction of a new trait or technology may upset the equilibrium in the culture causing major repercussions. This was the case I experienced in my research on cooking banana over 20 years ago.

Traditionalism: People have been accustomed to doing things the way "our forefathers were doing it and it worked for them so why should they change for the unknown?"

Vested interest: In a social system where stratification is fairly strong and entrenched there would be resistance to change if the change affects the superior class whose position or status is likely to be threatened by the change.

OPTIMIZING OUR DEVELOPMENT POTENTIALS THROUGH AGRICULTURAL EXTENSION

The coronavirus pandemic taught us a great lesson about agriculture and food security, but one wonders whether we learnt it. Even after the pandemic how have we fared in terms of agricultural development?

Nigeria has a highly diversified agro-ecological condition which makes it possible for the production of a wide range of agricultural products. Nigeria has a total land area of about 91.07 million hectares, 77% of which is cultivable (agricultural) area and 13% under forests and woodland (Eboh et al., 2004). Of Nigeria's estimated 74 million hectares of agricultural land as at 2005 (FAOSTAT, 2009), about 39.2 million are under permanent pasture with another 3 million under permanent crops, with about 32 million hectares for arable crops. Crop production, livestock (animal husbandry), fisheries and forestry (agro-forestry) are the four broad systems of land use (Okoro & Ujah, 2009).

Nigeria is highly vulnerable to the global economic disruption caused by COVID-19, particularly due to the pronounced decline in oil prices and spikes in risk aversion in global capital markets. Nationally, 40 percent of Nigerians (83 million people) live below the poverty line, while another 25 percent (53 million) are vulnerable. With COVID-19, many of these 53 million vulnerable people could fall into poverty (The World Bank Group, 2021).

Nigeria is so blessed that we do not have any reason to be food and nutrition insecure. There is no geo-political zone that is not endowed with development resources that should sustain us. The infrastructure we need is available within us. Let us look inwards by optimising our available development potentials. I

will like to identify some of our development potentials, thereafter, state how we can optimise them for the greater public good:

- Available youths: over 150, 000 young Agriculturists are turned out from the Faculties of Agriculture in Nigerian Universities yearly, and enter into the Labour market, yet we engage non-Professionals in Agricultural Extension-related facilities. This is causing a lot of disaffection among the youths. We have competent personnel which we can and should leverage on. African youths will make up one-quarter of the world population in the next 20 to 30 years. This is a huge human resource yet untapped. FAO (2014) reported that the number of young people (aged 15 to 24) is expected to increase to 1.3 billion by 2050, accounting for almost 14 percent of the projected global population.
- High population: Nigeria has a large population in the entire Africa sub-region which is an advantage to us because this is an opportunity for a very huge market. The market is so large that we can comfortably export our products and make very reasonable foreign exchange in the process.
- Land resources: Africa remains a net importer of food, although it has 60% of the world's uncultivated arable land (World Economic Forum, 2021). This is a waste gone too far. The unused lands have become fertile for unscrupulous elements. On a small scale level, compound (homestead) farms are readily available in our backyards wasting.
- ICT resources: the infrastructure has already been set, as open data mechanism is already on course. The print media has not helped much in promoting agricultural information. For instance, Maduka et al., (2014) in their study on the level of agricultural news coverage in the selected newspapers reported that agricultural news was under published in the two newspapers examined. Thus to

enhance the scope and quality of agricultural news reported in Nigerian newspapers, it is pertinent that the outcome of meetings generated in extension agencies and research centres be collated and reported by newspaper agencies. Eniye (2018) also found out that agribusiness related news was generally given low coverage. This is evident in the space allocated to agribusiness related news. Out of the 231 agribusiness news items examined, 99 had space allocation between 0-200cm^2 and the highest space allocation of above 1000cm^2 was allotted to only 6 agribusiness news items. The social media however, promises to be a better alternative.

- Innovative ideas for value addition: There are emerging trends in the agricultural sector. For example, mushroom enterprise; high quality cassava flour (HQCF), with few investors taking advantage of this technology. Cashew nuts, leafy and fruity vegetables, sweet potato flour (particularly orange fleshed sweet potato); cocoyam flour; plantain flour and plantain paste for snacks, plantain wine, cakes and confectioneries. Several alternatives are being sought and recommended, and insects have been confirmed by researchers as viable sources of animal protein in feed formulation (Van Huis, 2013). Among these insects, black soldier fly and several others have shown great nutrition and production features which positions them to be used in the commercial production of feed for animals.
- Black Soldier Fly Larva (BSFL) production: Black Soldier Fly (BSF) thrives on organic waste residues which are readily available in farms. Research has shown that BSF can comfortably grow on a wide range of organic matter; poultry manure, pig dung, cattle dung, rice husk. In their study on an open system farming black soldier fly larvae as a source of proteins, used mashed maize grains, vegetables and fruits wastes from market and animal manure as their

growing media (Nyakeri *et al*., 2017). It has a greening potential as it works on organic waste to produce high level protein and lipids. However, very few research exists on BSFL in Nigeria at the moment. The use of BSF as an alternative for high protein component in livestock and fish feed production offers economic and environmental benefits (Adesope et al., 2021).

- Cassava: Cassava is a very unique crop in Nigeria. This is white precious gold, classified as the king of crops as every aspect of the crop is loaded with nutritional benefits from the leaves to the highly valued tubers. Demand for HQCF for bread, snacks, and biscuits is 500, 000 metric tonnes per annum but supply is less than 15, 000 metric tonnes. Demand for cassava starch is over 300,000 metric tonnes while supply is still about 10, 000 metric tonnes (Adesope, et al., 2015). There are very few high quality cassava flour (HQCF) factories in Nigeria. There are very few garri factories. There are very few cassava pellets/chips factories. We have depended on small scale farmers for too long and. Large scale commercial farmers should take advantage of this viable enterprsie. We must commend the Rivers State Government and few private groups like Association of Commercial Farmers and Agro- Allied Producers of Nigeria, Krisdera Agro-Allied Farms Limited for their efforts in cassava production and processing.
- Rice: Nigeria is a major rice grower but production is not meeting domestic demand with a shortfall of 2.5 million tonnes (Maritz, 2021). Thrive Agric, (2020) reported that 55% of rice produced in Africa is from Nigeria, 15% from Egypt and 30% from the rest of Africa. The major rice producing states in Nigeria according to Obialo (2020) include Kebbi (2.05 million metric tonnes), Benue (1.5 million metric tonnes, Ebonyi (1.5 million metric tonnes), Jigawa (2.1million metric tonnes), Kaduna (2.1 million

metric tonnes), Kano (1.6 million metric tonnes). Other states include Ekiti, Ogun, Niger and Cross River. Rice is a staple in Nigeria and has potentials to be processed into flour to make snacks.

- Castor Oil: this product is a very useful one in the local environment especially in South Eastern Nigeria in the production of *ogiri*. However, on a large scale, castor oil is a major ingredient in the production biofuel which is useful in jet oil production. Castor oil is used as a lubricant in high-speed engines and aero planes, in the manufacture of soaps, transparent paper, printing inks, vanishes, linoleum and plasticizers (Castor Plant, 2020)
- Mini-livestock: The mini-livestock sector has great potentials in Nigeria. This is obviously because of the ease with which they can be produced. Examples are snails, grasscutter (cane rat) and rabbits.
- Fisheries sector: The demand for fish, fish products, prawn, periwinkles, crabs and other sea foods is a good indicator for any potential investor in agriculture.
- Forestry sector: The obvious domestic and medicinal uses of forest products remain enormous. For instance medicinal potentials of Ethiopian pepper (*Xylopia aethiopica*), sour-sop, almond, neem tree. Many remain underutilized.

My Contributions to Agricultural extension research

Vice Chancellor Sir, over the past 27 years I have been a teacher, facilitator, educator, researcher administrator, and fully involved in community services. My research focus which was interlaced with community services began with livelihood and enterprise development. I focused on cooking banana adoption at a time when adoption of this product was very low, not minding its usefulness; snail domestication, and yam minisett development. I joined the Nigeria Society for Animal Production (NSAP) in 1997 and Agricultural Extension

Society of Nigeria (AESON), and also the Agricultural Society of Nigeria (ASN) and in the process consolidated my experience in snail farming through which I have empowered individual farmers and cooperative groups thereby enhancing livelihoods of many at the grassroots level. I established farms for several persons and groups. My area of specialization is Community and Rural Development but my research areas include ICT in Agriculture, Livelihood and enterprise development, Adoption studies, Youth Development and Gender Studies, Livestock and Fisheries extension studies.

Agro livelihood enterprise development

My earlier contribution in this regard was on identifying factors responsible for multiple cropping practices among compound farmers. Compound farmers are those individuals who cultivate crops and rear livestock behind their houses or close to their houses. It was found that feeding the family, commercial purpose and want of many crops at a time were the important factors for practicing multiple cropping (Adesope & Nwankwo, 1996). Since compound farming complements the overall farming enterprise, the need for reliable agro-information to help boost compound farming practices is very important.

Adesope et al (2010) in their paper on enterprise development needs assessment in Niger Delta Area of Nigeria revealed that a significant percentage of respondents involved in the study were young, male, single, educated up to tertiary level, but were mostly unemployed and did not have business ideas. It further revealed that respondents generally lacked vocational and entrepreneurial skills, which are prerequisites to effective survival and independent living. They lacked adequate knowledge on the activities of the Small and Medium Enterprise Development Agency of Nigeria (SMEDAN). The

authors recommended that SMEDAN should organize sensitization workshops in all the local government areas to impart adequate knowledge about its activities to the people in the state.

Adesope (2018b) reported that cocoyam is one of the neglected crops in Nigeria as the crop is gradually going into extinction. One way to revive and sustain the crop from going into extinction is by adding value through the production of cocoyam flour. The flour can then be used for snacks and confectioneries. This, apart from creating job opportunities will also increase income.

Matthews-Njoku et al. (2006) found that low income earners dominated the food vending venture, manpower involvement was not adequate. Problems identified in the food vending business included insufficient finance, indiscriminate demands for taxes from government officials, high cost of foodstuffs, levies from local government, illegal collectors of levies, difficulty in buying cooking fuel. It is recommended that government should check the illegal collection of levies from food vendors.

Maduike et al. (2014) reported that youths seek economic independence with high interest in rural livelihood generation. They feel committed towards the development of their communities. The need to establish and sustain rural youth empowerment programmes to ensure better rural living and development cannot be overemphasized. Maduike et al. (2013) concluded that youths have the ability to generate their livelihoods from the rural areas and are more gainfully employed in the non- farming activities. It is therefore recommended that conscious efforts should be in place to ensure that youths have access to credit to help them put their

human resources into good use. Okerenta et al (2007) revealed that microfinance institution programmes have improved the quality of life of rural households in the study area. It was recommended that the government and its institutions including the Central Bank of Nigeria should promote microfinance as a means of mobilizing savings, promoting enterprise development, creating employment and income generation and thus reducing poverty.

Youth development studies

At a time when youth restiveness was rife, my research focus was to first identify the reasons behind the high incidence of restiveness and we went on to research on sustainable development opportunities to make the youths more useful to the society. Adesope, Agumagu and Chiefson (2000) in identifying why youth restiveness was high recommended encouraging income generating activities as the means of sustenance, provision of scholarships to the youths to fund their educational pursuit, establishment of skills acquisition centres among others. In a related study, Adesope and Asiabaka (2001) found that youths have favourable attitude towards participation in community development projects in Rivers State. The need to provide social amenities and making the rural areas conducive enough to forestall the further rural-urban migration is necessary. Adesope, Asiabaka and Angba (2003) reported adequate participation of youths in community development and suggested that they should be further encouraged through their involvement in decision making with regards to community development activities.

Asiabaka and Adesope (2001) found that respondents have favourable attitude towards community development while Adesope et al. (2003) reported adequate youth participation in community development activities supporting the fact that

youths, by their large numbers can be mobilized as a group to work for the benefit of the communities. In a study on youth participation in farming activities in rural areas of Imo State Nigeria implications for extension, Ugwoke, et al. (2005) reported that youths participated in several farming activities. The study found significant relationship between level of participation of youths in community development and their education level, farming experience, and farm size. Adesope et al (2004) revealed that involvement of youth in small scale enterprise was very low: garri processing, rice milling, corn milling, soybean processing, fish smoking, palm oil production, maize production. The problems affecting their involvement include insufficient labour, inadequate loan facilities, harsh economic conditions, stiff competition, unfavourable weather. Enabling environment, provision of credit facilities and training in agro-enterprise development were recommended.

Angba, and Adesope (2007) reported some drop-out from the national poverty alleviation programme (NAPEP) because of inadequate understanding of the programme, lack of discipline as a result of unspecified rules in the programme; financial reasons; family problems, personal problems and lack of interest. Adequate facilities should be provided at various primary centers and follow-up scheme and monitoring.

Adesope et al. (2010) in a study on rural youth development needs in the Niger Delta area of Nigeria found that respondents need development in employment opportunities, educational advancement, environmental protection, community development, skill acquisition, social interaction, community service, health service, crop production, livestock production. Decision making in development planning, scholarship training, leadership training, personality development, income

generating activities, information and computer related technologies. The result showed that education, gender, occupation and location significantly affects perceived development need. Infrastructural facilities should be provided to make the areas more conducive for living.

Involving youths in decision making related to food security is a prerequisite to contemporary agricultural development. They have innovative ideas that can help sustain the growth of agriculture.

Information and Communication Technology in Agriculture

Digital finance is widely regarded as one of the most effective means of financially empowering women and increasing their financial inclusion. On the other hand, cybercriminals are constantly looking for new ways to exploit the vulnerable and developing ever more sophisticated attack methods. As a result, the cyber risk exposures and prevention of female heads of farm households in Southern Nigeria were investigated in this paper by Ugwuja and Adesope (2021). Unsuccessful transactions by mobile applications and Point of Sales (POS) terminals were often encountered by female heads, and yet their money was debited, and it took a long time for their money that was debited from unsuccessful transactions to be reversed. Avoiding lonely ATMs and not going to the ATM during late hours, ignoring emails and text messages instructing them to provide online banking details, no longer using birth dates, addresses, and other words or numbers that would make it easier for attackers to figure out their passwords, and not using the same passwords for all their different accounts were the most common cybersecurity measures used by female heads. Access to digital financial products and services was influenced by factors such as marital status, household size, business experience, internet access,

possession of an ICT device, and perceived security risks. Henri-Ukoha et al. (2014) in the study on analysis of the rate of use of information communication technology by poultry farmers in Owerri Municipality, Imo State showed that age, level of education and household size of the farmers were significant factors that affected their rate of use of ICT in the study area. Poultry farmers should be encouraged to form co-operatives to enhance their ease of access to gain ICT skills and knowledge of the modern ones through seminars, workshops and lectures organized for members in order to boost their productivity.

Oladele et al (2006) stated that Agricultural extension services have undergone several changes in terms of aims, tasks and trends, particularly with the impact of Information Communication Technology. Information technologies have the potential to support the agri- food sector in coping with the challenges but they are also key enablers for some of the developments to take place as the drive towards globalization builds on modern communication technology. This paper presents the trend of Information development and application in Japanese agriculture such that lessons and challenges for the development of the information technology for agricultural development in Nigeria could be explored.

Adebayo and Adesope (2007) found that female researchers and female extensionists were aware of ICT and both can access internet on their own. The types of ICTs needed by both category of respondents include world wide web, electronic mail, electronic spreadsheet, word processing, CD ROM, use of projectors, use of computer, web design, chat-room. Female researchers spent an average of 3.5 hours on ICT weekly and 4.4 hours weekly for female extensionists. It was recommended that types of ICT should be considered in ICT

applications among respondents. Offices should be equipped with proper computers which are linked up with internet.

In the study on effect of personal characteristics of extension managers and supervisors on their information technology needs in the Niger Delta area of Nigeria, Adesope, Asiabaka and Agumagu (2007) reported no significant difference in the information technology needs of Extension Managers and supervisors. Educational qualification, training, category of organization were personal characteristics that influenced information technologies needed by the extension managers and supervisors. It was recommended that the use of internet, sending and receiving e-mails, surfing the web, using chat-rooms, newsgroup, should be enforced to further enhance the performance of extension managers in the discharge of their duties.

The study on Extensionists and Researcher's proficiency requirements in information and communication technologies in South Eastern Nigeria revealed that Extensionists recorded higher ICT requirements than Researchers. Extensionists identified 6 ICT tools as against 3 ICT tools by Researchers. It was therefore recommended that Researchers and Extensionists need to update their knowledge and skills on information and communication technologies (ICTs) to justify their information utilization and dissemination function. Adequate infrastructure should be provided for information and communication technologies and more time should be spent on ICTs by the Extensionist and Researchers (Adesope, Agumagu & Adebayo, 2007).

In the study that focused on perceived effects of information communication technology among researchers, extension agents and farmers in Nigeria, a triangulation approach was

employed. The results show that the use of Information Communication Technology was perceived to be of positive effect. This is based on the fact that digital tools could make farming more productive and environmentally benign. However the constraints to the realization of this potential lie in the infrastructure availability, manpower development and the policy frame work for the implementation (Oladele et al., 2008). Adesope, Ifeanyi-obi and Aboh (2010) investigated Socio-economic factors affecting rural households consumption expenditure on mobile phone services. They observed that the average amount spent on mobile phone services was ₦442.43, and percentage share of household income per month was 1.5% which is almost insignificant. Significant relationship was established between socio-economic characteristics of respondents and consumption expenditure on mobile phone services.

In examining web based training needs of agricultural professionals in tertiary institutions in Rivers State, Adesope et al. (2014) reported the web-based training needs of agricultural professionals to include how to type documents, browse on the internet, set data in spread sheet. The benefits of web-based training include the following: to facilitate communication with researchers (Mean =3.60), improve access to agricultural knowledge (Mean=3.75), conduct field surveys (Mean =3.12) and access to new knowledge and technologies (Mean =3.75). Factors limiting the application and benefits of web-based training for agricultural professionals were identified to include lack of computer facilities (Mean =3.58), high cost of operation (Mean =3.33) and inadequate electronic power (Mean =3.70). The study recommended that prices of computers and cost of operation of web-based facilities should be subsidized.

Utilizing Information and Communication Technologies in Agriculture will help in the digitalization process and lead to engender effectiveness and efficiency. Social media tools will Agricultural extension will

Gender and women Studies

Adesope and Agumagu (2005) conducted a study on gender differential perception about agricultural and rural development news in Nigeria newspapers. In the study, male and female respondents had moderately high affection for agriculture and rural development news in Nigerian newspapers. The study showed that males reacted more to educational news and less to fashion related news while females reacted more to health related news and less of fashion related news in the newspapers

Rural women are involved in important livelihood diversity strategies identified to include petty funding, thrift savings, farming, cooking at occasions, hair plaiting (Matthews-Njoku & Adesope, 2007). The impact of the identified strategies include ability to feed adequately, ability to buy/rent land for farming, to buy more farm inputs, pay house rent, pay children's school fees, and access to improved healthcare. Findings revealed that education, household size, and income have significant effect on the livelihood diversity strategies of rural women. It is recommended that rural women should be given opportunity to participate fully in various agricultural and rural development programmes that improve livelihood standards.

Acceptance of improved crop production practices by rural women in Aguata Agricultural Zone of Anambra State, Nigeria was examined by Matthews-Njoku et al. (2009). Respondents adopted ten out of twelve selected improved practices. The

study revealed significant relationship between adoption and the following variables, household size, number of farms owned, farming experience and extension contact. It was recommended that rural women should be encouraged through access to appropriate inputs, land, credit facilities and policy promotion for increased and effective agricultural productivity. Thus, this also arouses challenges for extension agents to effectively play their role towards improving the livelihood of these rural women by appropriately equipping them with these improved crop production practices.

Onuebunwa and Adesope (2006) analyzed the contributions of women and children to backyard farm labour in Ikeduru area of Imo State, Nigeria. The major livestock kept by respondents include poultry, pigs and goats and the major livestock production activities engaged in were feeding, treatment and cleaning. Findings showed that women spent an average of 20.4 hours of labor work on six major agricultural activities. Findings showed that children were not willing to work on the farm and the children spent between 1 and 2 hours on the farm weekly which is grossly inadequate, as the bulk of the work will be left for the women. It is therefore suggested that enabling environment be created for young men to remain in the rural areas so that they will be available for farm labour. Children should also be encouraged to help their mothers on the farm. Matthews-Njoku and Adesope (2007) reported moderate involvement of rural women in the National Special Programme for food security in Imo State. Involvement was higher in crop production enterprises than in animal, agro-processing, and aquaculture. The need to encourage women to take part in aquaculture, agro processing and animal production enterprises was recommended.

Adoption studies

Orebiyi and Adesope (2001) reported rural farmers' adoption of yam minisett technology and stated that credit availability is important in meeting the needs of farmers in cultivation, labour inputs. It was recommended that research should focus on seed multiplication, and extension agents should bring technical information and advice to the farmers regarding improved technologies. Adesope (2002) investigated compound farmers' utilization of soil management and improvement practices in the Niger Delta Area of Nigeria and found that farmers practice mixed cropping, slash and burn, combined fertilizer application as soil improvement measures. More enlightenment programmes on soil improvement practices were recommended. Provision of some soya bean products that are not known by farm families should be made.

Agumagu and Adesope (2007) investigated the response of farmers to the Root and Tuber Expansion programme (RTEP) in Imo State, Nigeria. The study revealed that respondents have favorable reaction to the Root and tuber expansion programme (RTEP). The most preferred tuber crop was cassava, followed by yam and cocoyam. It was recommendable that farmers should be encouraged to upscale their production so that they can improve their livelihood. There is need for further awareness about ideas of the root and tuber expansion programme so that more farmers can take advantage of the programme.

Matthews-Njoku and Adesope (2008) revealed that biotechnology has a great impact on productivity and increasing food base, and more investment should be made into biotechnology and end users of biotechnology products. Adequate and proper education of farmers about biotechnology and its relative advantage is recommended. Anyanwu and

Adesope (2010) examined resource productivity among low external input technology small holder farmers in Imo State and their implications for rural development in Nigeria. The study revealed that resources such as land, labour, planting materials and organic manure are abundant in the rural areas. Increase in these resources will lead to increase in the living standards of the rural dwellers. It was recommendable that extension agents could be used both as co-guarantors and as a means of channeling credit to the appropriate farmers in the rural areas and holding these extension agents accountable in the event of default.

Livestock and Fisheries extension Studies

Adesope et al. (2021) noted that recently, the rising concern for the environment, increasing human population and scarcity of animal feed ingredient calls for increased campaign for the use of environmental friendly approaches to sustainable food/feed production and consumption, this necessitates the use of promising insect species as feed for livestock. Thus, research and innovation in animal nutrition is driving the production of edible insects, as their production falls short of global demand. Among such insect species, the Black Soldier Fly (BSF) is highly considered as its nutritional, health, environmental and livelihood features and life cycle positions it for varied beneficial use. Research has shown that BSF is rich in crude protein, fatty acid and chitin. The larval stage of this insect is saprophagous and has the ability to degrade organic waste materials and convert them to useful materials in the form of nutrients for animals and plants. Research in this area is gaining global recognition, thus, this study seeks to review the potentials of BSF as an alternative to high protein component in feed composition in Nigeria. The review showed that BSF is a rich source of animal protein for livestock and fish feed. It also has a waste management potential, which adds to its

sustainable use as it has the capacity to reduce greenhouse gas emission, global warming and climate change.

Adesope et al (2021) reported that the COVID-19 global pandemic brought with it several swings in the way of life and among which, there is need for paradigm shifts in sustainable livelihood development. The period witnessed tremendous increase in the cost of livestock and fish feeds and its attendant scarcity of feeds, predominantly with respect to protein thereby reducing the production capacity of most small-scale farmers, hence the need for alternative feed sources. Black Soldier Fly (BSF), *Hermetia illucens* larvae provides this alternative source. BSF has been with us for a while but there has been less focus on its development and establishment obviously because we thought we had enough till now. The emergent of the COVID-19 pandemic is bringing to light the threat of ignoring other sources of livestock and fish feeds and the need to be prepared for further uncertain emergencies that affect food and nutrition security in Nigeria. Adequate sensitization and further establishment of BSF colonies across Nigeria will support the sustainability of the livestock feed industry and create alternative source of feed for livestock and fish farmers in Nigeria.

Meat is a very important protein source which when eaten increases our level of protein intake. This in essence satisfies the body's demand for protein. Nodu and Adesope (2002)' s study focused on the meat types available and consumed by households in Omoku area of Rivers State and the reason of their choice. It was found that chicken, beef, goat, snail, and grasscutter meat were the most consumed. It was also found that most respondents indicated that the meat types consumed are consumed because of the taste. Adesope and Nodu (2002) found acceptance of duck meat in the Niger Delta zone.

Respondents consumed the meat because of its sweet taste even though they ate it infrequently. It is suggested that the livestock extension service should create greater awareness of the importance of duck meat to rural people.

Nodu et al. (2003) investigated demographic characteristics related to the consumption of snail meat in Bori, Nigeria. Consumption level (number of snails) of snail meat was found to be high, but frequency (number of times) of consumption was low. Significant relationship was found between frequency of snail meat consumption and gender, marital status, education. It was recommended that government and non-government owned livestock extension organizations in the area should intensify awareness about importance of snail meat and also encourage domestication of snails.

Adesope et al. (2006) ascertained veterinary services needed by rural livestock farmers in Imo State, Nigeria. The significant veterinary services needed by farmers were vaccination, de-worming, treatment of sick animals, adequate feeding, curative treatment, identification of animal diseases and livestock management. The predictors of veterinary services needs of farmers were found to include income, gender, primary occupation and education. It is therefore suggested that livestock extension programmes should be planned bearing in mind the predictors found in this study. Adequate awareness on the various animal healthcare services is desirable. Okoli, et al. (2006) in a study on brooding management practices of small holder turkey farmers in Imo State, Nigeria reported several management practices: brooding their poults in pens separate from the ones used for rearing, preparing their brooding pens and equipment at least 24 hours before the arrival of day-old poults and using kerosene stove as their source of heat, using

one heater for every twenty poults. Results on feeding practices showed that respondents believed that poults do not see the feed for the first few days of life and therefore visited or cared for them every hour for those few days. Most respondents cleaned feeders and drinkers on daily basis. These results suggest that there are no definite brooding practices among the smallholder turkey farmers and that brooding knowledge acquired in chicken management is probably being applied in turkey production.

One of the most important means of livelihood among the inhabitants of rural Bayelsa is fishing. Livelihood in most cases has always been at a subsistence level and this has implications for poverty alleviation. The study by Tamuno et al. (2007) found that the commercial value of fish species is consistent across all sample communities based on the Traditional eco-livelihood knowledge (TELK) of fishers in the study Area. Thirty seven (37) fish species were recognized by fishers in the study area as species of relatively high abundance based on fish catch. Seven fish species were identified as being of high commercial value. These were *Gymnarchus niloticus, Clarias spp, Heterotis niloticus, Chrysichthys nigrodigitatus, Bagrus spp, Hepsetus odoe and Lates niloticus*.

It was recommended that livelihood patterns should form the basis for planning development projects if the benefits of developments are to become equitable, particularly to residents of rural communities in developing countries, whose livelihoods are eco-dependent. The TELK of inland river fishers should be used in preparing a catalogue to identity inland river fish species in the study area.

Social network is an effective strategy in promoting coexistence among shrimp fishers in Rivers State Nigeria. The

study by Komi et al. (2019) assessed how network bonding is stimulating the bridging and linking among actors in fishing settlements of Rivers State. The results show three levels of social network: bonding, bridging and linking. Network bonding, which comes in the form of planned or unplanned within-group interactions, is a significant factor for bridging with similar fisher groups. Linkage with other settlements was weak as each fishing settlement had specific requirements for membership and rules to abide by. However, group formation was more of fishers' initiative than imposition by external bodies' thereby promoting co-existence of fishers in coastal communities.

Adesope et al. (2014) in a study on the status of Poultry Production in Obio/Akpor Local Government Area of Rivers State, Nigeria showed that respondents mostly produced layers while broiler were in higher demand. Majority of poultry producers buy birds from the wholesalers and sell their products to the final consumers. Disease infection was a major cause of mortality in poultry production, hence, it was recommended that Government should subsidize poultry feeds and poultry producers were advised to attend workshop training on poultry farming so as to acquire the knowledge to enable them formulate and prepare on-farm feeds for birds in order to help reduce cost of feed. Poultry producers were encouraged to use veterinary services and produce more of broilers since its demand is very high.

Kainga et al. (2014) in the study of socioeconomic factors affecting rural households' consumption of water snails in Southern Ijaw local government area of Bayelsa state, found that majority (57.70%) of the respondents used fish as substitute to water snail. Consumption level of water snail was low, as most (60.2%) of the respondents consumed between

250 – 832grams of snail. The result of the regression revealed that monthly income influenced consumption of substitutes of water snail, monthly expenditure on substitutes (beef, fish and pork) influenced consumption of substitutes and also, the marital status of the respondents influenced their consumption of water snails. It is thus recommended that awareness should be created through education and media promotion on nutritional benefits of water snail meat.

Ajayi et al. (2015) found that benefits derived by respondents from indigenous poultry production were: cost intensive, less cost feed, hardly sick, no disease problem, no drugs needed and no vet needed. The result of chi-square tests showed that purpose of keeping poultry, revenue from sales, were significant at 0.05 level. Factors affecting indigenous poultry production were: stealing, lack of capital, lack of information on price, poor housing system, poor management system, lack of proper marketing structure for local birds, predators, price fluctuation and poor breeding stock. The study recommended that women's access to production inputs and adequate care facilities should be improved.

Climate change/Environmental extension studies

Social forestry practice is an emerging concept in which rural people engage in tree farming for their own benefit. Rural households in Nigeria have not been able to embrace social forestry because the potentials of planted forests and agro-forestry to alleviate socio-environmental problems are not well understood. The involvement of rural household in social forestry practices in Imo State, Nigeria was evaluated. Results revealed a low level of involvement in social forestry practices. The involvement in social forestry practice is hampered by problems related to land acquisition, lack of funds, information flow, and ignorance about the importance of social forestry to

the rural community. Suggestions were made to address fundamental strategies that can improve the introduction, adoption and operation of social forestry in the study area (Adesope et al., 2007).

Ifeanyi-obi et al (2011) assessed the effects of climate change and adaptation strategies in Etche Local Government Area of Rivers State with the intention to properly enlighten them on issues of climate change. Extreme hot weather condition was ranked the highest effect of climate change in the community. The coping strategies adopted by the community members include: increase in the height of building and use of hollow blocks in building to counter the extreme hot weather condition; use of charcoal and kerosene stove in place of firewood, use of boreholes and well as alternative sources of water, use of inorganic fertilizers to improve soil fertility; etc. The study recommended an urgent need to properly educate the people of Umuebulu community on the causes of climate change in order to properly equip them to identify adaptive strategies that will enable them cope with the impacts of climate change rather than abandoning their fate in the hands of SPDC.

Adesope et al. (2011) reported low adoption of organic farming practices in Rivers State as farmers adopted 5 out of the 14 organic farming practices identified. These include crop rotation, mixed cropping, hoeing and hand weeding, slash and burn, and intercropping. Respondents perceived that organic farming practices increased soil organic matter content, reduce input cost of farming, and involved low risk in crop failure. Organic farming practices have high social value of general acceptability, are compatible with their own cultural systems, are inexpensive, are natural forms of farming, and are environmentally friendly.

Adesope et al (2013) reported farming activities that contribute to the negative effect of climate change among crop farmers in Imo State, Nigeria. Bush burning and tillage were the main activities identified while adaptation strategies employed included intercropping, early planting, use of organic manure, and mulching. It was recommended that there should be adequate sensitization on importance of planting trees to replace felled trees. Use of improved crop varieties and use of best agronomic practices should be taught to farmers.

The study on Geospatial analysis of Maize yield vulnerability to climate change in Nigeria, by Olarewaju and Adesope (2019) showed that maize yields were vulnerable to climate variability across most of the GAs. Exposure values indicate a very high level of climate variability with the northern region more exposed. Yield sensitivity ranges between ranges 0.47 and 0.95, and highest along the northern extremes, moderate sensitivities were observed across large tracts of the north-west, northeast, south-east and south–south geopolitical regions. Adaptive capacity is highly variable ranging between 0.27 and 1. Yield vulnerability ranges between 0.46 and 1.51. The general assumption of a north–south divide for yield vulnerability was invalidated. Vulnerability is more disparate beyond latitudinal differences. The model presented, creates a framework to support targeted response, and opportunity for building resilience to climate change impact for crop yield

Ifeanyi-obi et al (2017) examined the challenges faced by cocoyam farmers in adapting to climate change in Southeast, Nigeria. The study identified eight major challenges faced by cocoyam farmers in adapting to climate change namely Lack/high cost of farm inputs and low soil fertility (Factor 1), Land and labour constraints (Factor 2), Poor access to

information and ineffectiveness of cooperatives (Factor 3), lack of/poor access to fund and credit facilities and poor government support (Factor 4), lack of improved varieties of cocoyam (factor 5), poor value attached to cocoyam (Factor 6), poor infrastructural capacity and technology know-how (Factor 7) and Transportation constraint (Factor 8). Analysis of variance identified significant variations in the challenges faced by cocoyam farmers in the study area. The study recommends enrollment in cooperatives and revitalizing existing cooperatives, re-orientation of farmers on the benefits of cocoyam and increased use of climate change information sharing using mobile phones as possible ways of alleviating the challenges.

The study by Henri-Ukoha and Adesope (2018) found that farmers adopted sustainable and unsustainable climate change adaptation strategies. They reported that sustainable climate change adaptation strategies practiced by farmers were sustainable. Enlightenment campaign to educate and expose more farmers to the sustainable climate change adaptation strategies is necessary.

Climate Smart practices will provide long lasting positive effect on the environment and agricultural productivity. This will be enhance income of farmers and generally improve their livelihoods.

COMMISSIONED RESEARCH ACTIVITIES

Establishment of Rural development Centre

This involved the establishment of a training and capacity building centre in a rural community in Imo State in 2004. A training centre was constructed and 6, 000 snails were stocked in four types of snail pens to meet the needs of large, medium

and small scale snail farmers. Improved cassava varieties were cultivated utilizing sole cropping and multiple cropping systems. High yielding local plantains were cultivated and use of combined fertilizer and organic manure were practiced. Staff were interviewed and employed while capacity building was provided to strengthen them. The project centre was commissioned by the State Government and declared open thereafter. It became a resource centre for the immediate communities.

Study on food security status in North Central Nigeria

This study involved evaluation of the national special programme for food security in 2008. Research covered Kogi, Nassarawa, Kwara and Benue States in North Central Nigeria. Food security was highest in Kogi. Significant difference was reported in food security status between Kogi and Nassarawa while no significant difference was found in the status between Benue State and Kwara State. Provision of improved agricultural inputs and support from government are required to enhance food security in the study area.

Contribution of Advisory Services and input support in Bayelsa State, Nigeria

The study focused on the contribution of Advisory Services and input support, support to ADPs and adaptive research to the attainment of the Fadama III Project development objective in Bayelsa State, Nigeria in 2011. Findings revealed that agricultural information based inputs such as market information on prices of agricultural items, record keeping, savings and credit and farm management, and improved agricultural technology based inputs such as storage, fertilizer application on crops, plant spacing, fish feed formulation, fish breeding, fertilization of fish pond, fish pond management were received. Female respondents adopted relatively more

Inputs such as savings and credit, record keeping, market information on prices of agricultural items, storage, and weed control than their male counterparts. The findings revealed that Fadama III impacted on the beneficiaries meaningfully.

The following services were provided to service providers by the Bayelsa State ADP; Training conducted in cultivation methods, improved agricultural technologies, sound use of agro-chemicals, soil fertility management, marketing and enterprise management, sustainable ecosystem management, mentoring activities, facilitation skills, participating methods, provision of quality control/assurance to service providers, among others. The need for the State Fadama III project to improve on distributing more agricultural Advisory Services was recommended. FCAs and FUGs should have more access to grants to enable them carry out the ideals of Fadama III in the State. Beneficiaries of Fadama III should have more access to improved agricultural technologies. The training menu should be delivered to Fadama beneficiaries for sustainable agricultural development to take place

Food security assurance study

The study found that the food security situation in Rivers State is moderate as households grew enough food and worry less about not having enough to eat since there is always something to fall back on in the farm products. It was found that households have favourable perception about cassava production in Rivers State. Despite the favourable perception about cassava production in the State, the study showed that households were beset with a myriad of constraints which include inadequate finance, scarcity of planting materials, difficulty in obtaining credit facilities, lack of technical knowledge in the use of improved technology, high cost of

improved varieties, high interest rate on loans, among others (Lale, 2011).

From the findings, the level of cassava production in the study area was 25 metric tonnes per household, while cassava, plantain, vegetable, maize and yam were the most important crops in the study area. The study concludes that households in the study area consume cassava products ranging from *garri*, *tapioca* and *fufu* and these amount to ₦18, 250.00 per household, per month, while consumption of other food crops amounts to ₦30, 700 per household per month. The study concludes that households in Rivers State are willing and able to grow more cassava without this having any negative effect on alternative food crops. Recommendations include the need to improve the food security situation in the State, open up more farmlands to enhance adequate food production, provision of credit to farmers in the form of grants or soft loans to encourage more production. Agricultural extension services in the State should be more functional.

Evaluation of farmer-based organization projects in Nigeria

The study (in 2017) identified effective interventions however, training on nutrition was grossly inadequate. Level of effectiveness varied from State to State, with Kano State recording the highest level of effectiveness, followed by Jigawa State and Gombe State. Interventions on organization function were effective. These include planning, choice of enterprise, organising, directing, controlling and coordinating, budgeting, communication, leading. However, Staffing, Reporting, motivating staff and supervision were noted as less effective. Interventions on membership participation were effective: self-help, welfare and value addition.

Farmer Based Organisations indicated improvement in value chain activities after Sasakawa intervention. Effectiveness was noted in the following value chain activities; improved techniques, improved varieties, improved implements, sorting, marketing, packaging, processing, storage, cleaning, post harvest handling, bulking and grading. The only activity that was identified to be less effective was labeling. The study recommends more capacity building (step-down training) to farmer based organizations to further strengthen the human capacity of the groups, especially in the crop and livestock enterprises. More revolving funds should be provided to strengthen the financial base of the farmer organizations.

Effectiveness of Enterprise Centers in selected communities in Northern Nigeria

The findings of this study (in 2019) showed major types of ongoing enterprises to include juice production, fish production and processing and locust beans processing and rice milling. Successful innovations recorded by the project were bottled juice which reduced post-harvest losses, fish production/processing through drying/smoking for improved nutritional benefits and locust beans processing to stone-less and de-husked products which increased their shelf life. Impact analysis showed that increased profit and improved shelf life were the significant economic changes experienced in the three enterprises. The need to provide modern storage facilities to improve shelf life of processed products; register with food regulatory agencies as well as increase access to finance for purchase of more inputs. It is recommended that more actors could be accommodated especially at the downstream sector if the production capacity of the enterprises is balanced as well as massive awareness/promotion by extension officers to increase participation of more actors at the upstream category.

COMMUNITY DEVELOPMENT SERVICES

I have greatly impacted on my immediate and remote communities as a practicing Agricultural Extensionist. I have taught farmers how to use improved agricultural technologies such as yam minisett production, snail domestication, and several improved farming practices. As an extension professional I have built capacity of youth and adult farmers and other agricultural stakeholders on emerging agricultural technology trends like production and use of high quality cassava flour, cocoyam flour, sweet potato flour, plantain flour, for making snacks and confectioneries. I have also built capacity of many in production of plantain wine, insecticide from banana peels, neem plant, garlic and pepper. My desire to see well developed youths has made me carry the crusade to primary and secondary schools. Through my personal extension outreach programme, I have empowered undergraduate students, primary and secondary school students with value added agricultural knowledge.

For a long time Agricultural Development practitioners have worked and remained in their "silos". I believe that information should spread to the relevant stakeholders and we should make concerted efforts to impact on our society. I rely on the knowledge bank provided by our rich heritage and the potentials of value addition hence I share information through several social media platforms. This way we can carry agricultural information to the grassroots and the clienteles that we serve can tap from our knowledge. The use of social media platforms (blog, LinkedIn, twitter, Google docs, Google alerts, ORCID) is inevitable in contemporary Nigeria.

Other Community services

Mr. Vice Chancellor Sir, I have been involved in capacity building of many young men and women not only in

agriculture and agribusiness, I have mentored many on the application of information and communication technology for research development. I have impacted on the grassroots with the improved agricultural practices. Find below other areas in which I have impacted:

- **November 10-13, 2020:** Training on Agricultural Extension: Rural Development and the Food Security Challenge for Frontline Agricultural Extension Officers in Lagos State Public Service
- **November 28, 2020:** Mushroom farming. Presented at the RCCG Rivers Province 16 Redeemers Men Convention at RCCG Life Sanctuary Parish, Choba
- **July 7, 2020:** Facilitated a talk show through zoom on creating wealth through Agribusiness. Organized by Full Gospel Business Men's Fellowship International, Uniport Chapter.
- **2018:** Compiled and Edited the Elements of Mentorship. A Climate Impacts Research Leadership Enhancement (CIRCLE) Programme Mentorship Book Project.
- **August 10, 2018:** Television Talk show on Agribusiness enhancement for higher education in Africa. At the Association of African University Television in Accra, Ghana. https://youtu.be/vOEQsIqB_H0
- **April 22 to 27, 2017**: Conference Coordinator and Convener, 22nd Annual Conference of Agricultural Extension Society of Nigeria (AESON).
- **April 17 to 20, 2016:** Agribusiness enhancement project planning meeting held at Egerton University, Njoro, Kenya.
- **December, 2016:** Social Media Reporter, 2016 African University Day. Association of African Universities.
- **August 17, 2015:** Facilitated a Talk show on agricultural business as emerging wealth hub to Full Gospel Business

Men's Fellowship International, University of Port Harcourt, Chapter.

- **February 6, 2013:** Facilitator, training on how to use the research professional africa platform to access funding. Held at Enugu State University of Technology, Agbani, Enugu State, Nigeria
- **February 6, 2013:** Facilitator, training on how to use the research professional africa platform to access funding. Held at Afrihub Building, Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria.
- **January 30, 2013:** Facilitator, training on how to produce high quality cassava flour for confectioneries. Held at Rumuekini Town Hall, Rumuekini, Rivers State.
- **January 9, 2013:** Facilitator, training on how to use the Research Professional Africa platform to access funding. Held at the University of Port Harcourt, Nigeria.
- **July 2012 to Date:** Platform Administrator, Research Africa, Cape Town, South Africa. The research platform of the University of Port Harcourt, Nigeria.
- **July24 - July 26, 2012:** Participant, training on how to use the Research Professional Africa platform to access funding. Held at Research Professional Africa Office, Cape Town, South Africa.
- **2010 - 2012:** South-South Zonal Coordinator, Agricultural Extension Society of Nigeria (AESON).
- **February 2010:** Training programme curriculum for trainees of the School To Land Authority, Port Harcourt, Rivers State, Nigeria. Prepared for School To Land Authority, Port Harcourt, Rivers State, Nigeria.
- **May 26th – November 2005:** Member, Agbala Social Laboratory Project (SLaP). An initiative of the Department of Agricultural Extension, Federal University of Technology, Owerri, Nigeria.

- **May 26th - June, 2005:** Team Leader, participatory research with rural dwellers in Agbala Community of Owerri North Local Government Area of Imo State, Nigeria.
- **December, 4, 2004:** Team Member, participatory needs assessment on Umuri autonomous community in Imo State, Nigeria.

CONCLUSION

Mr. Vice Chancellor sir, despite the enormous challenges faced in the Agricultural sector, there is still hope because of the very many potentials in the sector. I am so happy that the youths in Agriculture are getting more innovative with value addition for most agricultural products. They are rendering agricultural services to the public, and adding value to the society. My interaction with the youths show that they are ready to take up the tasks ahead but they need to be supported.

From my exposition, you will agree with me that agricultural extension is a *Jack of all trade and a master of many*. This is the time that Nigeria's Agriculture and Agricultural Extension need reprogramming to sustain food security.

Mr. Vice Chancellor Sir, the earlier title I gave to this lecture was ***we see it, we say it, yet neglect it. Agricultural extension in the rat race of optimizing development potentials*****.** I decided to modify it to the current one to make my submission clearer to all and sundry. I make bold to state that we, as a nation have refused to move faster than we should by not putting the policy right. The mistreatment meted to the agricultural sector is likened to beating a child and insisting that the child must not cry. This is why according to my senior colleague (Ladele, 2016), extension is everywhere, but extending nowhere. How can we extend anywhere if we move two steps forward and one

step backward? Physically, the agricultural sector seems to be progressing but the working materials are not made available.

RECOMMENDATIONS

- The Federal Government of Nigeria to allot a minimum of 5% budgetary allocation to the agricultural sector and adequate monitoring and evaluation mechanism should be put in place to ensure proper implementation. All State Agricultural Development Programmes including that of the Federal Capital Territory must be adequately funded.
- Formal Agricultural Extension Policy should urgently be put in place.
- Invest in the training of agricultural extension personnel on the use of ICT and social media. This will save cost in terms of logistics for agricultural extension services.
- There is need for a comprehensive stakeholder analysis to build up database of **farmers in Nigeria** to be categorised into small, medium and large scale and also categorized into youth, women farmers and other adults including those living with disability. Thereafter, identify viable agricultural enterprises and create open data platforms for stakeholders and investors to have easy access to them. This will give people an idea of agro-enterprise to invest in.
- There is need to identify and encourage agripreneurs with inputs for sustainable agricultural production and processing.
- There is a need for a census of Agricultural Extension personnel which should cut across Agricultural Development Programmes, and other organizations. There is also the need for synergy among all Agricultural Extension professionals in the various Agricultural organizations for effective planning and development of agricultural extension services.

- Establishment of agro processing centres in every local government area in Nigeria.
- Establishment of agro processing centres in Faculties of Agriculture.
- There is an urgent need to identify all fallow lands along highways, and within the communities. Then, the Government should sign a Memorandum of Understanding with owners of such fallow lands to grow identified annual crops all year round that will keep the youths busy. This will provide a source of income to them. It will also provide income to the land owners. This will open up the thick forests that have become shelters for miscreants to perpetrate evil.
- Stakeholders should support compound farming (homestead) practices including vertical farming so that food can be readily available.
- We must integrate practical components of Agricultural extension into the curriculum (e.g Agricultural communication, agricultural journalism, etc). Garden-Based Learning Technology should be implemented at the primary and secondary education, while extension outreach programmes should be emphasized at the tertiary education level. Practicum should be introduced in Extension programmes to adequately attract and challenge the youth.
- Demand driven extension services should be ensured. This is possible only if collaborative research/participatory technology development is realized. We should institutionalize agricultural extension outreach programmes. Institutional agricultural resource centres should be established in communities.
- Ensure that professionals are appointed to manage agriculture-related organizations.
- We need to emphasize digitalization of Agriculture and ensure that open data mechanisms are put in place. This

will give room for accountability and transparency hence giving hope to all stakeholders involved in agriculture.

- Database of profitability indices of all categories of agro-enterprises should be made available and published in the print and electronic media to give prospective stakeholders insight into agro-enterprises to prioritize.
- The poultry, snailery, plantain, leafy vegetable, cucumber, mushroom, cassava, sweet potato, cocoyam, rice, fishery value chains are not fully optimized. Adequate sensitization on the value added products that are derivable from these products should be carried out by extension organizations to the public. This will help to strengthen the agribusiness potentials therein. There is urgent need for documentation on this. A compendium of potentials of each of the agricultural products should be produced. This will make information easily accessible to prospective investors in agriculture.
- There is need to encourage the integration of Black Soldier Fly Larva farming in agriculture curriculum as an emerging agro-enterprise. It is useful as an alternative to the livestock feed shortages experienced in the livestock and fisheries subsector. It is also useful in the Climate Smart Agriculture process, for instance waste management process
- Active participation of the private sector in the agricultural sector is inevitably necessary.
- The obvious disconnect between the University and the society can be bridged if the University Extension approach is activated by providing adequate institutional support.

Putting these recommendations into practice will encourage youths, women, and prospective investors.

Mr. Vice Chancellor Sir, for the past 27 years I have traversed Nigeria, Africa and beyond, with the message of sustainable

agricultural development through value addition and value chain development. There is no doubt, Mr. Vice Chancellor Sir, the agricultural sector still holds the key to sustainable food and nutrition security, and Agricultural Extension services are indispensable. Agricultural extension again is the light of Agriculture. For the light to shine effectively as we noted in Matthew 5 vs 16, we need to take this light to the end-users of agricultural information – the grassroots, they are the clienteles that make the change happen. This is my humble submission.

Thank you all for listening.

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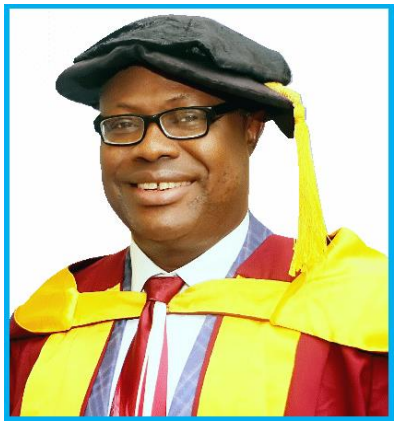

PROFESSOR OLUFEMI MARTINS ADESOPE
BSc (Hons) Ibadan; MSc, PhD (FUTO); Cert. Project Design, M& E (PMDI, USA); fCAI; MFB Ag.Dev Fellow
Department of Agricultural Economics and Extension, Faculty of Agriculture, University of Port Harcourt, Nigeria

Professor Olufemi Martins Adesope was born on the 17th November, 1970 in Warri, former Bendel State (now Delta State) to the family of Warrant Officer (Retired) Oluwole Adesope and Late Mrs. Deborah Taiwo Adesope of Kishi in Irepo Local Government area of Oyo State, Nigeria, as the first child. He is happily married to Mrs. Funmilayo Rachel Ngozi Adesope (nee Okirigwe) and they have four children – Oluwaseun, Oludayo, Ibukun and Titilayo.

Professor Adesope attended Ishokun Baptist School Oyo, Army Children School, Kainji-New Bussa and Army Children School, Kaduna. He also attended Command Secondary School, Kaduna. He proceeded to the University of Ibadan where he obtained B.Sc (Hons.) degree in Agricultural Extension Services and thereafter Federal University of Technology, Owerri where he obtained M.Sc and Ph.D degrees in Agricultural Extension. He holds Technical Teachers'

Certificate from Federal College of Education (Technical), Omoku and the Teachers' Registration Certificate from the Teachers' Registration Council, Abuja, Nigeria. He holds a Certificate in Project Design, Monitoring and Evaluation from the Project Management Development Institute, USA. He holds Graduate Certificate from the Redeemed School of Discipleship and Post Graduate Diploma in Theology from the Redeemed Bible College. He did the primary assignment of the mandatory one year National Youth Service Corps (NYSC) programme at Community Secondary School, Ikot Obiokoi and Community Secondary School, Ndiya in Akwa Ibom State, Nigeria and taught Agricultural Science, Literature in English and English Language.

Professor Adesope started his academic career in 1994 as a Lecturer in the Department of Agricultural Education, Federal College of Education (Technical), Omoku, Rivers State, Nigeria. In 2000, he was employed in the newly established Department of Agricultural Extension at the Federal University of Technology, Owerri, Imo State. In 2005, he was employed into the Department of Agricultural Economics and Extension, University of Port Harcourt, Port Harcourt, Rivers State, Nigeria, and rose to the rank of Professor in 2014.

Professor Adesope has **201 publications** (7 books, 130 journals articles, 22 chapters in books, 27 conference proceedings, 5 monographs, and 10 Technical Reports). He has presented **120** papers at conferences, seminars and workshops. He has received several awards such as research grants, travel grants and awards of excellence and has mentored scores of early and middle level career researchers around the world.

He is a mentor to several mentees across Africa through the Association of Commonwealth Universities programme

(CIRCLE programme), the IGNITE fellowship programme and the AUTHORAID mentorship scheme. He convened a team of stakeholders in the University of Port Harcourt to deliberate on the mentoring policy document and is instrumental to the University of Port Harcourt Mentorship Policy document which was approved by the Senate of the University in 2019.

He is on the Editorial Board of several academic journals in and around the world. As a Social media enthusiast, he has been actively involved in the African Union Day since 2015 as a Volunteer Social Media Broadcaster. He has received and managed individual and institutional research grants from the Gender Caucus, Canada; the European Union; Climate Impact Research Capacity Leadership Enhancement (CIRCLE), UK and Federal University of Technology, Owerri, Nigeria. In October 2015, he was listed among 800 Nigerian Scientists according to their Google Scholar Citation (http://muratalper.com/haber/310/ranking-of-scientists-in-nigeria-namibia-ghana- botswana-kenyan.html).

He has visited several African countries in strengthening the South-South Cooperation through research networking to Ghana, Uganda, Mozambique, South Africa, Kenya, Ethiopia, Cameroon, Rwanda and Malawi.

Olufemi Martins **ADESOPE** is a Professor of Agricultural Extension in the Department of Agricultural Economics and Extension, University of Port Harcourt, Nigeria with 27 years teaching, research, and community service experiences. He currently serves as the Associate Dean, School of Graduate Studies, University of Port Harcourt. He has held various administrative responsibilities in different capacities as Head of Department, Associate Dean of the Faculty of Agriculture, Assistant Director, Centre for Research Management and

Development. He was the Chairman, Graduate Studies Committee of the Department of Agricultural Economics and Extension, University of Port Harcourt. He is the Chairman, Faculty of Agriculture Research and Training Committee, University of Port Harcourt. He has been a visiting scholar and external examiner to several universities around and beyond Nigeria in addition to supervising postgraduate students.

He has been involved in several national and international Think-Tank groups. He was among the 262 persons who participated in the review of National Universities Commission (NUC) accreditation instruments for undergraduate programmes in affiliate institutions and the draft NUC benchmark for academic staff appointments and promotions
He has been involved as Lead trainer in the Web 2.0 for development programme (sponsored by CTA) at the University of Port Harcourt since 2013. Professor Adesope has been involved in national programmes such as the Fadama III Project, National Special Programme for Food Security, Food Security Assurance Programme; and regional research programmes such as Agribusiness Enhance Project (European Union funded 2013-2017), and through the project, participated with other team members from Ethiopia, Kenya, Uganda, and Denmark. He is the Institutional Strengthening Programme (ISP) Lead and University Coordinator, Climate Impact Research Leadership Enhancement (CIRCLE), DFID funded and implemented by African Academy of Sciences (AAS) and Association of Commonwealth Universities (ACU) through which he has been involved in capacity building (training-the-trainers) activities with research across Africa, in the process visited Ghana, Kenya and South Africa. He has attended training programmes across Africa and Europe.

He is a strong advocate of value addition in enterprise development as he exemplified this in the use of cassava, yam, coconut, and potato which can be found on his blog: Making Extension Services Work (MESW) blog (www.omadesope.com). His areas of research interests include rural development, community participation in technology development, strategic planning, farmer field schools, agribusiness enhancement, socio-economic impact assessment, research methods, Information and Communication Technologies/Social media in Agriculture.

He has consulted for national and international organizations in and outside Nigeria. He is an external examiner and visiting scholar to Universities within Nigeria and outside Nigeria, and has also been external assessors for Professorial promotions in universities around Nigeria and beyond Nigeria.

Professor Adesope is a Fellow, Institute of Corporate Administration (fCAI), and MFB Ag.Dev Fellow in the Global Agricultural Development Programme. Member of the following associations: Agricultural Extension Society of Nigeria (AESON); Rural Sociological Association of Nigeria (RuSAN); Nigerian Forum for Agricultural Advisory services (NIFAAS); Society for Community Mobilization for Sustainable Development, India; West African Research and innovation Management Association (WARIMA), Institute of Development Administration of Nigeria (IDAN); Agricultural Society of Nigeria (ASN); Agricultural Research and Extension Network (AgREN); Nigerian Association of Teachers of Technology (NATT); Agricultural Professional of Nigeria (AgPON); Nigerian Society for Animal Production (NSAP), Association of Commercial Farmers and Agro Allied Producers. He is a member of the Association of Nigerian

Authors, Full Gospel Businessmen's Fellowship and Rotary Club, Choba.

Professor Adesope is an Ordained Deacon in the Redeemed Christian Church of God (RCCG). He is a literary artist and while in the University of Ibadan as an Undergraduate, he was a member of the Poetry Club. He is funder of the defunct African League of Creative Artists through which he encouraged many young students with literary acumen. To date, he has several Literary publications to his credit among which are Silent Songs (Poetry); Musings (Poetry); School Adventure (short stories). He also has the following literary works: Memoir: Years of corperhood (a compilation in novel form on his experience during the national youth service corps programme), Vultures don't cry (Unpublished play), rain songs (Unpublished poetry).

Mr. Vice Chancellor, Sir, distinguished ladies and gentlemen, I present to you Professor Olufemi Martins Adesope, a seasoned scholar, a humble academic achiever, a mentor, a teacher, a friendly personality, highly esteemed, kind hearted and straight-forward, a family man, an astute administrator, a man of many parts, a poet, an Agricultural Extensionist *par excellence*, the 170th Inaugural Lecturer.

Professor Stephen A. Okodudu
Ag. Vice Chancellor

SELECTED PHOTOS OF ACTIVITIES OF PROFESSOR OLUFEMI M. ADESOPE

Demonstrating use of high quality cassava flour at UDPS

At a workshop in Accra

Training women on use of cocoyam value addition

Stakeholder meeting on mentoring policy document at uniport

Training students of UDSS on sweet potato and cocoyam flour value addition

Inception meeting of Agribusiness enhancement project team at Entebbe, Uganda

Field work at Oyo State, Nigeria

Training students of Olobo Comprehensive school of cocoyam and sweet potato value addition

Training students of Olobo Comprehensive school of cocoyam and sweet potato value addition

Training students of University Demonstration Primary School on cocoyam and sweet potato value addition


At the 2nd PASET regional benchmarking workshop in Rwanda

PASET regional benchmarking workshop in Rwanda

AAU workshop on use of STATA software in Accra, Ghana

AAU workshop on use of STATA in Accra, Ghana

AAU workshop on use of STATA software in Accra, Ghana

AAU workshop on use of STATA software in Accra, Ghana

Celebrating African University Day at Uniport

African University Day at Uniport

Celebrating AAU workshop on use of

with farmers in their household on field work in Kano

With Dr Nbete (DAP, Uniport) at Anglia Ruskin University, UK on proposal writing workshop

At Anglia Ruskin University, UK on proposal writing workshop

With cassava farmers in Aluu, Rivers State

With cassava farmers in Aluu, Rivers State

With cassava farmers in Aluu, Rivers State

Training undergraduates on use of high quality cassava flour for snacks making

Training undergraduate & post-graduate students on use of high quality cassava flour for snacks making

Snacks from high quality cassava flour

With Agribusiness enhance project team at Gulu University, Uganda



RUFORUM conference at Maputo, Mozambique

RUFORUM conference at Maputo, Mozambique

Training of early career researchers in uniport

Prof. Adesope learning how to produce mushroom

Field work with cassava farmers in Oyo State

Field work with maize farmers in Oyo State

Interviewing a farmer

Field work with cassava farmers in Oyo State

Training workshop at Rumuekini, Rivers State

Training workshop at Rumuekini, River State

Interviewing rice farmers in Jigawa State Interviewing rice farmers in Jigawa State

With women farmers in their household in Jigawa State

Interviewing rice farmers in Jigawa State

Documenting rice farmers data in Jigawa State

Interviewing women farmers in their household in Gombe State

Locally produced rice in Jigawa State

Discussing with a stakeholder in Kano

Discussing with Professional Agric. Extensionists in Zaria, Kaduna State

Discussing with farmers in Gombe State

In Jigawa State

With rice farmers on the field in Kano State


On a rice field in Kura, Kano State

With Prof. Alice Nte

At the faculty of Agric Farmers Day

Receiving an award on behalf of Prof. Agumagu from the AESON President, Prof. Agwu

End of tenure as Ag. Head, Dept of Agric Econs & Extension, Uniport

At training workshop on Agribusiness enhancement

With Profs Matthews-Njoku & Mgbada at AESON confab, uniport

At stakeholder meeting of Agribusiness enhancement meeting



Agribusiness enhancement team at Kampala, Uganda

Stakeholder meeting of Agribusiness enhancement

With students intern of the Agribusiness enhancement project

Showing how to use high quality cassava flour for snacks making

At the Faculty of Agriculture farmers day celebration

At the planning committee meeting of Agribusiness enhancement project, Egerton University, Njoro, Kenya

With team members of Agribusiness enhancement project, Egerton University, Njoro, Kenya

At the University of Buea, Cameroon on mentoring summer school

At the Science Editors workshop in Abuja, Nigeria

At Enugu State University farm

At Federal College of Education (Technical), Omoku with stakeholders at a workshop

With team members at Obrikom on a training workshop

As Lead paper presenter at Weed Science Society Confab at Uniport

At TetFUND Workshop in FCT Abuja, Nigeria

At a training workshop in Cambridge University, UK

Receiving an award in Port Harcourt, Nigeria

With rice farmers in Kano

With children of rice farmers in Kano

With rice farmers in Kano

Community survey in Kano

With households on food security needs assessment in

Demonstrating simple random sampling to select farmers for survey in Nassarawa State

At HEPPSA workshop

CIRCLE workshop, Accra,

Training on use of R software

Carrying out a household survey on the outskirts of Abuja, Nigeria

At an exhibition of snacks made from high quality cassava flour

Conducting focus group discussion in Imo State

Discussing with stakeholders during field work in Nassarawa State

Practical field work at University of Ibadan

Landscaping and beautification project at Elebele, Bayelsa State

At a needs assessment in Imo State

Household survey in Kwara State

Marking out portions to cultivate pineapple in Ikeduru, Imo State

Planting pineapple suckers in a farm in Ikeduru, Imo State,

Collecting soil samples in a farm in Otuasega, Bayelsa

Completion of large scale snail pen at Umuokanne, Imo State,

Construction of snail pen at the rural development centre, in Imo State

Stocking snails in the pen at the rural development centre, in Imo State

Exhibition of products from cassava at the commissioning of rural development centre, Imo State

Showing the representative of the Governor of Imo State the snail pen at the rural development centre

Displaying the making of a snack with high quality cassava flour

Displaying products from high quality cassava flour

Collecting soil samples at a farm in Ikeduru, Imo State, Nigeria

Constructing wooden snail pen in a farm in Imo State

With cassava farmers in Benue State, Nigeria

With farmers in Afam, Rivers State

Interviewing household in Bori, Rivers State, Nigeria

With a woman agro-processor in Tai, Rivers State

With Dr Ifeanyi-obi at AFAAS symposium in Accra, Ghana

With farming household in Gokana, Rivers State

With Dr C. Atoma after training staff of Delta State Poly, Ozorro on use of SPSS software

Garri making from cassava in Oyo State

Garri making from cassava in Oyo State

Garri production in a cassava zone in Oyo State, Nigeria

With a garri processor in Oyo State, Nigeria

At a cassava plant in Imo State

Field staff refreshing in a community after field work

With cassava farmers in Imo State

Conducting focus group discussion in Oyo State

Garri production by small scale processors in Oyo State

Fufu making in Ohaji, Imo State, Nigeria


Garri making process


Cassava plant in Imo State, Nigeria




Cassava products


Sieving orange fleshed sweet potato

orange fleshed sweet potato flour

Blending orange fleshed sweet potato flour

Cake from orange fleshed sweet potato

Vertical farming (yam)

Vertical farming (yam)

Vertical farming (tomatoes)

Insecticide from banana peels

Production of small scale plantain wine

Plantain wine

Castor oil plant

at the Apiary Baraka College of Agric, Molo, Kenya

On study visit to Baraka Agricultural College, Molo, Kenya

On study visit to Baraka Agricultural College, Molo, Kenya


After my Public Lecture at Lilongwe University of Agric & Natural Resources (LUANAR), Malawi


With Nigeria's Ambassador to Malawi

Excursion to Lake Malawi


With my Graduate students, LUANAR, Malawi

With the DVC at LUANAR, Malawi


Department of Fisheries and Aquaculture, Bunda College of Agric, Malawi



Visiting Scholars with staff of AquaFish Centre of Excellence, LUANAR, Malawi

Visiting Scholars at LUANAR, Malawi


At a market in Malawi

at Lilongwe University of Agriculture and Natural Resources, (LUANAR), Malawi


At WARIMA conference and workshop, Accra, Ghana

With Prof. M.B. Nodu at Niger Delta University, Wliberforce Island, Bayelsa State