# SOCIAL ENGINEERING ON SUSTAINABILITY OF THE AGRICULTURAL TRANSFORMATION AGENDA (ATA)

# PROCEEDINGS

*of the*

23rd ANNUAL NATIONAL *Congress*

*of the*

**NIGERIAN RURAL SOCIOLOGICAL ASSOCIATION (NRSA)**

*held at*

**BANQUET HALL, UNIVERSITY OF BENIN**

12th - 15th October, 2014

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# SOCIAL IMPACT OF DONOR-SUPPORTED INTERVENTIONS IN AGRICULTURAL COMMODITY VALUE CHAINS IN NIGERIA: THE USAID/MARKETS STORY

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Director External Relations
USAID/MARKETS

An invited paper presented at the 23rd Annual National Nigerian Rural Sociological Association Congress, Benin City, 13thOctober, 2014

**Introduction**

Nigeria has a surfeit of development programs and projects which are supported by international development agencies in agriculture, education, health, water, infrastructure etc., all geared towards stimulating growth in the long term or addressing some short term economic and social challenges. Many of them have demonstrated tangible successes while some others have simply demonstrated tokenism – we were also there; with little or no clear impact. A lot of these programs are located in the rural areas based on the assumption that rural people are the ones that need help most since majority of them live below the poverty line, with some of them being vulnerable, and usually depend on the land for their livelihood. This is perhaps the reason there has been a plethora of donor-assisted agricultural development programs in Nigeria. These programs are expected to complement public programs, pointing the new direction of development programming so that even when the investment period of the development assistance is over, the inertia developed in the program would sustain the process.

In the strictest sense, donor-support connotes such assistance that is solely funded through multilateral or bilateral agreements in the development initiative. However, there are similar organizations that provide short or very long term loans at subsidized rates of interest, and are therefore considered donors including the World Bank, African Development Bank, International Monetary Fund etc. The others are essentially development agencies of their respective governments, including United States Agency for International Development (USAID), Department for International Development (DFID) of the British government, International Fund for Agricultural Development (IFAD), Food and Agricultural Organization of the United Nations (FAO), GIZ of the German government, JICA of the Japanese government, among others. Their support comes mainly in form of technical assistance and grants.

Agriculture is the most important economic sector for the people of Nigeria and represents the greatest potential for growth; employs more than 70% of the country's population and accounts for about 40% of gross domestic product. The country is endowed with favourable agro-climatic conditions, yet has been involved in huge importation of food needs. However, in the last few years due to the introduction of the Federal government's Agricultural Transformation Agenda (ATA), things are looking up, and hope is being rekindled in the ability of Nigeria to be self-sufficient in food production in the near future.

USAID's Maximising Agricultural Revenue and Key Enterprises in Targeted Sites (MARKETS) project, and implemented by Chemonics International, was established in Nigeria in 2005 to address a program of commercializing agriculture for large numbers of smallholders. The project's objective was to increase output and help commercialize six targeted commodity value chains initially including rice, sorghum, cowpea, dairy, aquaculture, and sesame – later, cassava and cocoa were added during the Bridge phase of the project which lasted from 2010 to 2012. MARKETS II which commenced in April 2012 and will end in 2017 now works in15 core and adjoining states and in seven commodities namely, rice, sorghum, cassava, cocoa, soybean, maize and aquaculture. In its activities, the project has endeavored to collaborate with governments and the private sector, where practicable.

**MARKETS project background**

For the purpose of this paper, MARKETS (2005 – 2010), Bridge to MARKETS II (2010 – 2012) and MARKETS II (2012 – 2017) will be referred to as MARKETS except where a specific phase is being referred to. MARKETS II project is a USAID-funded project implemented by Chemonics International between April 2012 and March 2017. It builds upon work conducted under the first phase – MARKETS, which expanded economic opportunities in the agricultural sector by increasing agricultural productivity, enhancing value-added processing, and increasing commercialization through private sector-led and market-driven growth and development. MARKETS continues to leverage this experience to conduct activities through six programmatic components: 1) increased agricultural productivity, 2) improved performance of value chains, 3) increased

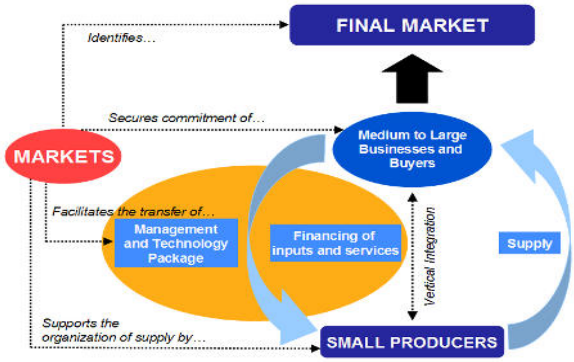
commercialization of selected commodities and products, 4) increased access to capital, 5) improved livelihood and nutrition support, and 6) increased capacity to harness lessons learned and best practices.

Through these activities, MARKETS will increase sustainable food security in Nigeria via a private sector-driven agricultural value chain approach, improving the Nigerian economy and the livelihoods of farmers as well as agro-processors. By capturing best practices and lessons learned through both MARKETS and MARKETS II activities, the project will also inform the Government of Nigeria (GON), United States Government (USG) Feed the Future program, and local partners to ensure continued growth and sustainability in the Nigerian agricultural sector.

MARKETS focus on the large population of smallholder farmers with between 1 to 5 hectares, including women with less than one hectare of land under cultivation. An estimated 80 to 90 percent of all agricultural plots in Nigeria are less than two hectares in size. Given that between 60 to 80 percent of the workforce on such smallholdings may be women (depending on crop and region); MARKETS seeks to benefit them specifically. The project will continue to make agro-processors central to the value chain and sector development to increase rural incomes and jobs. It gives privilege to women, youth, and the very poor by systematically seeking to incorporate these groups into all project activities. The project is also designed to promote environmentally sustainable activities. MARKETS will continue to work with local banks and other lenders, e.g., MFIs, MFBs, and NGOs, to update their systems, staff, evaluation procedures, collateral requirements and the like, to facilitate lending to smallholders. Productivity increases will not be the outcome of direct subsidies, but rather the result of adoption of modern farming methods and management practices, connecting farmers and agro-producers to improved inputs, through privately and publicly provided extension services, by investments in public infrastructure, and by changes in agricultural policy.

MARKETS will continue to focus on expanding economic opportunities in the Nigerian agriculture sector by increasing agricultural productivity, enhancing value-added processing, and increasing commercialization through private-sector led and market-driven growth and development. The project's aim is to transform Nigerian agriculture in selected areas from low input/output subsistence farming to commercially competitive agriculture. The project is identifying and addressing priority food and cash crop/non-crop systems where productivity gains translate to significant impacts on the economy and improvement in household livelihoods of those involved in the agricultural sector. The project is also supporting off-farm agricultural enterprises that will enhance the transformation process and generate employment.

**MARKETS approach**




***Key Elements of Strategy and Implementation***

MARKETS II deepens and expands the MARKETS approach through the facilitative, game-changing activities that increase production and forge sustainable market linkages, bringing the model to new processors and producer organizations (POs), increasing farmer access to inputs while ensuring innovative technology generation and transfer for broader dissemination, developing productive partnerships with the government of Nigeria (GON), donors, and firms with minimal resource outlay through leveraging and knowledge sharing, and extending the model to new value chains and exiting those showing sustainability.

The elements of MARKETS strategy include:

- MARKETS is a private-sector led agro-business development program
- The entry point into the market chain is at the company level. Business deals drive the interventions
- The approach stimulates functioning supply chains in response to a specific market demand by:
  - Identifying processors and marketers as guaranteed market (e.g. OLAM).
  - Strengthening the market through technical assistance and linkages.
  - Encouraging competitiveness through value addition, contract farming and private sector extension delivery.

Five principles guide MARKETS' work:

- Maximizing the MARKETS approach to unleash the potential of Nigerian agriculture, including the Niger Delta Region in collaboration with Chevron through the Foundation for Partnerships in the Niger Delta (PIND)
- Ramping up and leveraging for reach, expanding on successes such as the fertilizer voucher program, now the Growth Enhancement Support Scheme (GES) and

out grower activities with a range of Nigerian and international processors, continuing to work through others, building new partnerships to develop sustainable buyer-farmer linkages, and fostering replication by GON, donors, and the private sector

- Prioritizing agricultural inputs and finance which are major stumbling blocks across all value chains
- Entering every activity with an exit strategy by defining who takes on what from Day 1 with our role to demonstrate, scale up, and exit when milestones are met
- Empowering Nigerian agriculture – our team's goal is a Nigerian workforce that understands agriculture, including women, youth and the vulnerable, and put their skills and knowledge to work to bring success to their households, the sector, and their country

**Partners and institutional resources**

Our subcontractors, including international partners; International Fertilizer Development Center (IFDC), Making Cents International, ShoreBank International and Winrock International, offer specialized expertise in extension and training, private sector fertilizer systems, agriculture production, capacity building, and financial services. Other local firms will serve as key implementing partners in farmer, PO, and out grower scheme development efforts and Diamond Development Initiatives (DDI), a local NGO, will work under a formal subcontract. Our approach recognizes the number of capable Nigerian firms and NGOs working in the sector. Our exit strategy is dependent on building the capacity of these organizations, as well as others accessed via grants and subcontracts under the fund. MARKETS aim is to give these organizations opportunities and resources to grow as knowledgeable, credible leaders in the sector, which agribusinesses, donors, and producer organizations will want to access directly for services. We do this by raising the quality of services provided by local capacity building and training providers, as well as by building the capacity of our local subcontractors to serve as contractors directly with business, government, and donors through a tailored capacity building effort.

**Approaches to producing sustainable results**

Below are the provisional frameworks for achieving the project's objective:

a. Producers' Capacity Development and Organizations –Build the capacity of smallholder farmers through the establishment and strengthening of cooperatives and producer associations. Our interventions specifically target the inclusion of women and youth in all activities.
b. Agricultural Inputs –Work with smallholders, producer associations, including women's associations, financial institutions (banks and MFIs/MFBs), private sector input suppliers, state governments, public and private sector extension services to improve smallholder access to inputs through private-sector distribution networks.
c. Technology Generation and Development – Support the generation of new, locally produced technology or adaptation of new technology to the local context. We also focus our efforts on disseminating proven technologies to smallholders and agribusinesses in support of competitive agriculture including improved varieties of target crops, and promoting sustainable soil and water management practices that help to mitigate challenges faced by climate change. And, as part of our efforts to empower women in the agricultural labor force, special attention will be given to technology that helps to reduce women's labor burdens (time poverty) in the field or in food preparation.
d. Water and Soil Management –Support the development and dissemination of innovative water and soil practices and the adoption of stress-tolerant varieties at the farmer-level, which help to mitigate climate change. We will support, where funds permit, the rehabilitation of small-scale irrigation systems and the provision of operations and maintenance training.
e. Access to Finance- Enhance the capacity of commercial banks and microfinance institutions and microfinance banks to increase lending to the rural and agricultural sectors. Technical assistance will include the brokering of wholesale loans for MFIs and MFBs, risk management training for commercial bank staff, and financial modeling for typical agribusinesses in selected value chains.
f. Grants and Subcontracts Fund –Establish a grants and subcontract fund that will support innovative applications within the selected value chains that will enhance productivity, increase efficiency, and improve prospects for producers and agribusinesses.

**Operationalisation of principles in the field**

This is practiced at four intervention levels:

a) Support at farmer level - This commences after MARKETS undertakes an opportunity assessment for a particular commodity and identifies an appropriate locality for the particular value chain. In the process, key

players/potential partners are identified and consultations are undertaken to determine the usefulness of the identified potential intervention to perceived partners. When agreements are reached, a Terms of Reference for undertaking the intervention is drawn up. Using this, a request for proposals (RFP) is published and responses received from potential service providers are evaluated by a panel of experts. Price negotiations are carried out followed by award of the sub-contract to service providers.

Service providers undertake sensitization and mobilization of farmer groups who will participate in the program for the season after MARKETS signs Implementation Agreement (MOU) with the state government and processors/off-takers of the product. This exercise is repeated for each value chain per season to ensure transparency. The service providers involved work with the ADP extension system using the Package of Practices (POP) earlier developed for that value chain to undertake farmer training in agronomic practices, leadership skills and enterprise curriculum; as well as establishing demonstration plots. Farmers are assisted in locating sources of quality inputs.

Gender consideration (50% female and 30% youth) is mandatory in farmer selection. Even though, initially, some service providers felt it was a "tall order", some are easily achieving it.

At harvest, teams comprising farmer leaders, off-takers, associated credit providers and relevant ADP extension staff visit surrounding markets to establish on-going price; reach agreement on payable price while the prospective off-taker marks it up as an incentive to supply. This is not without its own challenges, as not- too- honest farmers would sell their produce in the open market and declare that they experienced drought or flood even though there are processes for reporting the occurrence of any natural disaster. Of course, the claim is intended to avoid repayment of the loan they received from the bank or off-taker.

b) Support to processor/other private sector entities - Prior to MARKETS intervention, many private sector processors, particularly, integrated rice millers had the serious challenge of sourcing paddy leading to their operating at below installed capacity. MARKETS commenced working with them and linked them with out-grower schemes, acting as a facilitator and honest broker in the entire process. MARKETS also organizes training for their mill operators on best manufacturing practices, encouraging over a dozen of them to undertake collective efforts to solve industry challenges.

Recognizing the challenges associated with access to credit, MARKETS embarked on training credit institutions on lending to farmers. In 2013 /2014, MARKETS trained agricultural finance officers in a number of leading banks on "How to lend to smallholder farmers"; and also trained farmers groups on "How to access and utilize credit." Beyond that, MARKETS trained microfinance banks (LAPO and DEC) on the use of Nigeria Agricultural Enterprise Curriculum (NAEC) developed by MARKETS and her partner, Making Cents International of the USA, on business approach to lending to small scale farmers, and the result has been much appreciated.

c) Support to government interventions - MARKETS is committed to supporting government agricultural interventions at both federal and state levels. Transport allowances are paid to ADP extension agents who work with service providers in their locales as an incentive to enable them provide services to farmers in the respective value chains, apart from receiving seasonal agronomic training. MARKETS also supports IFDC financially to function as a supply chain manager for the GES program of Agricultural Transformation Agenda as well as funding the introduction of some technologies to boost productivity including Urea Deep Placement (UDP)and Direct Paddy Seeder (DPS). As a way of supporting the Staple Crops Processing Zone (SCPZ) of ATA, MARKETS engaged nine consultants for three months, three each on Environment, Value Chain and Finance to work with UNIDO and international consultants in designing the project. Recently, MARKETS engaged consultants to assist Federal Ministry of Agriculture and Rural Development to design a Paddy Aggregation Centre (PAC) concept which is expected to enhance the accessibility of paddy by millers.

d) Household economic strengthening - MARKETS' youth, gender and vulnerable groups activities are designed to ensure that youth, women and men, and vulnerable groups (i.e. resource poor farmers, women, and youth) benefit from project interventions and achieve equitable outcomes. The youth strategy entails promoting agriculture as a profitable business through financial literacy training and MARKETS' package of practices (POPs) to encourage youth participation in the targeted value chains. The design is in consonance with USAID's Youth in Development strategy and to address the high youth unemployment rate. MARKETS continues to strengthen youth programming, participation, and partnership by directly engaging youth and integrating them in all value chains of the project. Among other youth specific activities, MARKETS equips youth spraying groups with the knowledge and facilitates links to inputs to support the

development of youth-led business support services in our partner states. The unit collaborates with the Youth/Gender department of the FMARD and other partners to support youth groups engaged in micro processing of soy beans, cassava, rice and aquaculture.

Malnutrition level in Nigeria is increasing yet interventions targeting household utilization of food and nutrition are limited in scope and depth. MARKETS recognizes the fact that an integrated approach to livelihoods and nutrition can results in improved behaviour change in food insecure households. It builds the capacity and assets of very poor and vulnerable households that are most impacted by drought and floods, high food prices, and other economic shocks to recover more quickly without using negative coping mechanisms such as eating less and selling limited productive assets.

**Indications of impact**

There are indications of significant impact as a result of the MARKETS' interventions in the respective value chains. These interventions have positively affected the farmer, processor, marketer, and food availability in the country thus:

a) Farmer yields have increased several folds. For example, the average yield of rice when MARKETS commenced was 1.7 Mt per hectare but today, MARRKETS networked farmers record an average of 5.7Mt/ha. It has been noted that the gross margin per hectare increased from $673 to $1422 i.e. from about N111,718 to about N236,052
b) The increase in incomes of farmers has consequently boosted their purchasing power, and invariably, their standard of living.
c) The increased yield has equally encouraged farmers to invest in more hectares leading to much higher gross incomes, thus developing a new crop of entrepreneurs and speeding up commercialization.
d) The introduction of Urea Deep Placement technology has increased yield by about 40%.
e) Farmers have even learnt how to produce quality paddy devoid of debris. Recently, one of MARKETS partner miller, Umza, at a forum informed the Minister of Agriculture that since MARKETS intervention the debris in paddy supplied by farmers had dropped significantly.
f) As MARKETS embarked on an aggressive capacity building of producer groups, training members on Leadership skills, Group dynamics, and Nigerian Agricultural Enterprise Curriculum(NAEC), networked farmer groups are becoming stronger and are now seek accountability from service providers and extension agents as well as making better business decisions.
g) Capacity building for local service providers has increased their capability to serve as contractors directly to businesses.
h) Above all, both farmers and processor partners are now conscious of the need to be transparent in transactions thereby strengthening the interaction along the chain.

**Lessons Learned**

- Collaboration with agro-processors and marketers creates confidence in farmers and encourages sustainable supply of high quality produce to processors
- Market-led approach requires full commitment of all stakeholders i.e. continuous technical backstopping of farmers to meet market demand and consumer quality
- Partnerships help farmers and processors to leverage the services of key players – government, banks, input dealers, markets
- Use of private extension delivery strategy in collaboration with government improves service delivery and facilitates adoption of improved technologies
- Developing spray-men improves farmers access to CPPs and generates quick results – high yield, income and employment
- Agriculture is time bound and should guide our decisions
- A strong monitoring and evaluation team is critical to any value chain initiative in order guide the course of implementation

**Challenges**

The success story of the MARKETS project is not without challenges. These include:

- Farmers' unwillingness to buy seed preferring to recycle grain
- Timely provision/availability of inputs
- Delays in bank disbursements of credit
- Crop insurance vis-à-vis false claim
- Managing repayment/high default
- Buy-back issues: grades, standards and measures
- Availability of processors with vision to appreciate the benefits of working with producers

**Opportunities**

- Employment creation: " Okada riders" returning to farm
- Wealth creation: shift from subsistence to commercial mindset
- Development of service markets e.g. spray men, tractor, thresher, and reaper hire
- Development of seed industry
- Aggregators
- Expansion of installed capacity for factories

**Conclusion**

MARKETS has come a long way in commercializing Nigeria's agriculture, and the evidence is there for all to see. Several success stories have been documented leading to several recognitions at various levels and fora. As the tempo is maintained, and outstanding challenges surmounted with collaboration from public and private organizations, Nigeria's agriculture is headed for a trajectory which will make agribusiness work for Nigerian farmers and agripreneurs.

# AGRICULTURAL TRANSFORMATION AGENDA AND QUALITY OF RURAL INFRASTRUCTURES AND INSTITUTIONS: LESSONS FROM GLOBAL REFLECTIONS AND PERSPECTIVES

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Lead paper presented at the Nigerian Rural Sociological Association Conference. University of Benin, Benin City, Edo state

**Introduction**

The agricultural sector is very crucial to the economic and social development of Nigeria since the larger population derives its livelihood from farming . It has been estimated that 70% of Nigeria's population of 165 million lives in the rural areas. In spite of the fact that Nigeria is the largest economy in Africa , yet, about two-thirds of the population lives below the national poverty line (AETA, 2013), 100 million people were living on less than $1.25 a day, 60.9 % of Nigerians in 2010 were living in absolute poverty, up from 54.7% in 2004( UNDP, 2013) .

Nigeria is endowed with substantial natural resources which include: 68 million hectares of arable land; fresh water resources covering about 12 million hectares, 960 kilometers of coastline and an ecological diversity which enables the country to produce a wide variety of crops and livestock, forestry and fisheries products (Shaib, et. al., 1997). It is therefore an irony that the nation should still be self insufficient in food production. However, this situation has not always been so. Before the oil boom of the 1970s, Nigeria was one of the leading agricultural producers in the world. Between 1962 and 1968, export crops were the country's foreign exchange earner. Nigeria was the highest palm oil exporter, well ahead of Malaysia and Indonesia. She exported 47% of all groundnut ahead of United States of America and Argentina ( Green, 2014), Nigeria produced 18% of cocoa in the world. Produced 65% of tomatoes in West Africa, but now the largest importer of tomato paste .

With the coming of the oil boom of the 1970s with the attendant influx of foreign exchange to the country, the agricultural sector was abandoned by the subsequent administrations. Nigeria then became net importer of food items that she had the capacity to produce. The top four imports consume over 1 trillion naira in foreign exchange every year. In 2010 Nigeria spent N635billion to import wheat, N356b to import rice (1billion naira daily) and N217b to import sugar (Adesina, 2012).

It is noteworthy that in 2011, Nigeria launched what has been described as a revolutionary Agricultural Transformation Agenda. This is to change the falling fortunes of the agricultural sector.

**Agricultural Transformation Agenda**

The Agricultural Transformation Agenda (ATA) is a project launched by the Federal Government in 2011. The goal is to enhance the role of agriculture as an engine of inclusive growth leading to rural employment, wealth creation, and diversification of the economy. A major policy accomplishment in the sector is the liberation of seed and fertilizer supply, which had hitherto been controlled by the Federal Government, undermined the private sector and did not deliver the inputs to genuine farmers. Since September 2011, fertilizers and seeds are being sold by agro- companies directly to farmers. Lending commitments from commercial banks has been leveraged using guarantees issued by the Ministry of Finance to finance the seed and fertilizer supply. In order to provide a legal framework for the establishment and perpetuity of Staple Crop Processing Zones, and transform the Nigerian agriculture sector with significant multiplier effects on the entire economy, an Act to provide a legal framework for the establishment of Staple Crop Processing Zones (SCPZ) is currently being drafted prepared and to be presented to the National Assembly for adoption (FMARD, 2011).

**Objectives of ATA**

Its specific objective is to increase, on a sustainable basis, the income of smallholder farmers and rural entrepreneurs that are engaged in the production, processing, storage and marketing of the selected commodity value chains. The direct beneficiaries are the 45,300 economically active smallholders living in the rural areas who are already participating in commercial agriculture. This number is expected to increase significantly when other economically active value chain entrepreneurs enlist in the Program. The indirect beneficiaries include existing or potential small, medium and large-scale entrepreneurs and business associations who provide services to rural households. Among the target group, women and youth play a major role in crop and animal production, processing, small enterprises operation and marketing. They will be specifically targeted for Program activities and benefits.

**Key issues of ATA**

1. Treating agriculture as business
2. Value chain process- integrating food production, storage, food processing and industrial manufacturing by value chain
3. Using agriculture to create jobs, wealth and ensure food security
4. Investment- driven strategic partnerships with the private sector
5. Investment drives to unlock potential of our States in agriculture

**Institutions to carry out ATA programme**

***NIRSAL***

The Nigeria Incentive-Based Risk-Sharing System for Agricultural Lending (NIRSAL) – this is a new innovative mechanism targeted at de-risking lending to the agricultural sector. It is designed to provide the singular transformational and one bullet solution to break the seeming jinx in Nigeria's agricultural lending and development..

***Marketing Corporation***

Under the Agricultural Transformation Agenda, the markets for agricultural commodities would be strengthened through the establishment of commodity marketing corporations around each of the commodities.

***Growth Enhancement Support***

Growth Enhancement Support Scheme (GESS) represents a policy and pragmatic shift within the existing Fertilizer Market Stabilization Programme and it puts the resource constrained farmer at its center through the provision of series of incentives to encourage the critical actors in the fertilizer value chain to work together to improve productivity, household food security and income of the farmer.

*Goals of GESS:-*

- Target 5 million farmers in each year for 4 years that will receive GESS in their mobile phone directly totaling 20 million at the end of 4 years.
- Provide support directly to farmers to enable them procure agricultural inputs at affordable prices, at the right time and place
- Increase productivity of farmers across the length and breadth of the country through increased use of fertilizer i.e. 50kg/ha from 13kg/ha
- Change the role of Government from direct procurement and distribution of fertilizer to a facilitator of procurement, regulator of fertilizer quality and catalyst of active private sector participation in the fertilizer value chain

Series of meetings have been held with the fertilizer suppliers to inform and generate their interest in the scheme. As at December 2011, 17 fertilizer suppliers have been identified and have shown commitment to participate in the scheme. They will feed about 2,500 agro-dealers (certified by IFDC) and spread across the country. The suppliers will feed another 1,780 agro-dealers that are yet to be certified.

List of verified agro-dealers have been compiled and forwarded to all participating banks and Cellulant.

Data entry of farmers (census) is on-going and to date, about 600,000 farmers have been captured at the data centre.

Fifteen (15) states have written to commit their respective States to respect the terms and conditions in participating in the GESS

The draft bill on Fertilizer Quality Control is presently with the Ministry of Justice for vetting prior to its being forwarded to the National Assembly for consideration

***Staple Crops Processing Zones***

This idea focuses on attracting private sector agribusinesses to set up processing plants in zones of high food production, to process commodities into food products. This would be enabled by government by putting in place appropriate fiscal, investment and infrastructure policies for Staple Crops Processing Zones.

**Achievements of ATA**

The e-Wallet (GESS) allows our farmers to redeem their inputs in areas where there are no networks, simply by using Android phones as smart cards. So a farmer will get a smart card (when registering for subsidies); they will go to the input retailer that has an Android phone; the smart card has all the allocations for the farmer. It's revolutionary. Nigeria is the first to implement this application in the world and it has is been tested in different parts of the country. About 10.5 million farmers have been registered and database has been built to manage identity of farmers. Their biometric information has been moved to a national identity management system platform, with this fraud is reduced in the sector (Sobogun, 2014)

Another innovation that has manifested as a result of ATA, is the case of Cassava Bread which is now being produced in the country. The taste was described by a high ranking official of the UK's Department for International Development (DFID) with the following words "It's so nice, you don't need butter," Dr Adesina has pledged to "turn Cassava into gold in Nigeria." (Iruobe 2014)

**Use of ICT**

The use of mobile phones by local farmers is an area that ATA has recorded the greatest success. Farmers now use mobile phones and e-wallets for direct access to inputs. According to the Minister of Agriculture and Rural Development, this is connecting farmers to the information grid, expanding their access to markets, improving their access to financial services, principally loans, and

helping them adapt to climate change dynamics that can affect them and their livelihoods.

With this development, Nigeria became the first country in Africa to reach farmers with subsidized farm inputs through their mobile phones; and some of the BRICS countries are reportedly looking to deploy the electronic wallet idea in their agricultural systems.

**Increased food production**

In the last two year, Nigeria's food production level has increased to the extent that the import bill has reduced by half from that of 2012. In 2014, three million rice farmers have received new varieties for planting. Rice production in 2014 in terms of total value to the local economy is put at N750 billion. Thirty nine cocoa seedlings have been released free to farmers. This will increase production from350 to 800 metric tonnes in 2016 (Adesina, 2014). In October 2014, Nigeria's Vice President Namadi Sambo disclosed the intentions of the Federal Government to invest N50 billion ($312 million) in the Mechanization Intervention Support Fund in order to allow farmers hire agricultural mechanization services and further boost agricultural output.

**Agricultural finance**

The Government has greatly improved agricultural financing through the NIRSAL scheme. The most recent fruit from this policy is the provision of $31 million by the Bank of Industry (BoI) for Agric-based SMEs, a development that can create up to 20,000 jobs directly and indirectly if properly utilized. Also, Mainstreet bank's total bank loans under GESS has grown from N4billion in 2012 to N20 billion in 2013

**Private sector participation**

Seed companies grew from 11-77 in 2 years. Syngenta, Monsanto and Dupont- the largest seed companies in the world have committed to establishing their companies in Nigeria.

GES has led to the emergence of 3000 SME agribusiness in the in input supply chain.

Local fertilizer manufacturing and blending capacity has significantly expanded with $5billion in new investment

Staple Crop Processing Zones have been established in Kogi, Niger, Kano, Enugu, Lagos and Rivers States

**The Minister as the change agent**

Honourable Minister for Agriculture and Rural Development, Dr Akinwumi Adesina graduated from Obafemi Awolowo University with a First Class in Agricultural Economics. He worked for;

- Alliance for Green Revolution in Africa
- International Institute for Tropical Agriculture ( IITA)
- West Africa Rice Development Association (WARDA)
- International Crops Research Institute for Semi Arid Tropics (ICRISAT)
- Rockefeller Foundation
- Sustainability of the Agricultural Transformation Agenda

In spite of the successes recorded in the agricultural sector so far, the question still remains as to how sustainable the programme will be after this present administration. The conclusion of this paper is that this programme will not succeed without a strong, well established rural Institutions and functional infrastructures.

Nigeria has suffered in the past from discontinuity in projects at the coming of a new political administration. Also policy inconsistency has been the bane of Nigeria's developmental efforts. The fact remains that the vast majority of agricultural production is done in the rural areas. Therefore, greater attention must be paid to that sector. Therefore, only strong rural institutions and infrastructures would ensure the sustainability of the transformation agenda.

**Rural Institutions**

Rural institutions can be defined as cultural structures devised to meet the basic needs of the people (Akpabio, 2005). Human interaction with each other creates some forms of association which constitute the major mechanisms through which the society operates. These associations vary according to the functions they perform and the nature of the bond that hold them structurally together. Rural institution entails a culturally approved pattern of behaviour with defined roles, statuses and procedures. Therefore institutions develop through the process of institutionalization or the process of regularizing of patterns and patterning sanctioned behaviour in the society (Ekong, 2003).The different kinds of rural institutions include; the family, political, education, religion, health etc.

The following rural institutions are considered essential for the sustainability of the agricultural sector in Nigeria.

**Family**

The family is the smallest and indivisible unit of a society. It is usually the most multifunctional of all societal institutions and it helps to meet basic social needs especially in the rural areas. The specific family tasks include; sex regulation, reproduction and perpetuation of the human race, socialization, love, affection and security. The family commands very large influence on the individuals because it moulds him from infancy and also influences people's personality.

Every farmer comes from a family therefore his/her productive capacity largely depends on the family's socio-economic wellbeing. It is therefore necessary to ensure that the family is secure, to

prepare the farmer for the task of food production. But most importantly, that the family produces young, vibrant and educated people who will go into agriculture.

**Religious Institution**

Religion can be defined as consisting of institutionalized systems of belief, values and symbolic practices which provide groups of men with solutions to their question of ultimate meaning-death, difficulties, suffering, etc (Brown, 1966). It is usually a belief in a supernatural power which distinguishes between right and wrong and which provides answers to life ultimate problems(Akpabio, 2005). Element of most religion include an ideal and proper pattern of behavour. Religion is a foundation of mores of society for instance, taboo against eating pork by Jewish and Muslim cultures. Religion entails the fear of the almighty and this guides our actions into the path of 'good'.

Our religious belief should make us to be honest, hardworking and not to do that which is evil and corrupt. If we can imbibe this, then we will make a success of whatever we do. Unfortunately, this is not so in Nigeria as corruption has become so endemic in the public and private lives of citizens.

**Political Institution**

Political institution administers the regulatory functions of law and order and maintains security in the society. It provides the means for regulating the behavior of individuals within society in accordance with required norms, and protection from external aggression.

Our political governance should ensure the equitable distribution of resources to all tribes and tongue and that no gender should be discriminated against. Political leaders should ensure that developments also spread to the rural areas where the majority lives. The present situation is that the rural areas are largely neglected in the distribution of socio-economic amenities.

**Educational Institution**

The educational institution seeks to socialize individuals in the society. This process commences informally at home and then formally in educational institution. In some rural societies, part of educational function is performed by the family and religious groups. The functions of educational institution includes; transmission of cultural heritage, social integration of society and moulding of individuals to conform with norms. Education is of tremendous influence on the behaviour and personality of individuals and groups.

In agriculture, studies have shown a correlation between educational level and the adoption of innovations. it is therefore necessary to provide both formal and informal avenues for the ruralites to acquire proper education. This will enable farmers to properly manage their resources.

**Health Institution**

There is no doubt that there has been an improvement in the provision of health facilities in the rural areas. The Millennium Development projects have ensured that cottage health facilities are provided in all the Local Government Areas in Nigeria . What needs to be done is to properly equip the hospital with materials and personnel to adequately cater for the farmers. Only a healthy farmer will be productive.

**Legal Institution**

The most important institution that will ensure the success of the transformation agenda is the legal institution. Law is a system of rules and guidelines which are enforced through social institutions to govern behaviour. The bane of the agricultural sector in Nigeria is that presently, there is no agricultural policy and there is no law guiding and enforcing that policy. What this means is that the agricultural transformation agenda is at the mercy of any government. The next government can jettison the agenda and that will be an end to it.

There is the need for an agricultural policy in Nigeria that is backed by the law. The agricultural transformation agenda is being driven at the federal level with the States just tagging along. The Local Governments, where the farmers are, are non participant in the decision making of the agenda. An agricultural policy must clearly define the role of the federal, state and local governments in the planning and financing of the agricultural sector. A veritable example of an agricultural policy backed by law is the Land Grant System of the United States of America. This is the Morril Acts of 1862. This law spells out the agricultural policy of the US and the Smith –Lever Act in 1914, included extension services to the agricultural policy.

**Rural Infrastructure**

This can be referred to as the physical components of interrelated systems providing commodities and services essential to enable, sustain or enhance societal living conditions (Fulmer and Jeffrey, 2009) There is no doubt that the provision of adequate rural infrastructure is sine qua-non to the sustainability of the agricultural transformation agenda. Evidently, infrastructures have not been adequate in Nigeria and the available ones lack maintenance. Some of these infrastructure include: energy, transportation, roads, finance, irrigation, communication, extension services.

**Energy**

The problem of inadequate provision of energy in Nigeria has been on for decades. However, the present Government is tackling the problems by

privatizing and liberalizing the energy sector and providing infrastructure for adequate electricity supply. There has been an improvement in the quantum of electricity supply in recent times but the rural areas are yet to experience this improvement.

The transformation agenda is hinged on food processing. These industries consume a lot of energy which is mostly privately soused at the present. The high cost of providing energy makes the cost of production very high thereby discouraging consumers from buying such products, preferring cheaper imported products.

**Transportation**

With the increase in food production, there is the need to have an efficient transportation system that will make the evacuation of farm produce from the rural areas to the urban market at an affordable rate. Public transport system in the rural areas is nonexistent. However, it is expected that the newly developed rail system will help in this regard.

**Roads**

The state of the Nigerian roads have been very deplorable and the maintenance culture is very poor. The road system is particularly poor in the rural areas. The Federal and State governments are however making some efforts at building and rehabilitating roads. More efforts should be put into this.

**Finance**

The agricultural transformation agenda has achieved much in the area of agricultural financing. This has been highlighted earlier on. However, the rural farmers are still not benefitting enough from these funds made available by the government. There is still the inadequate information to these funds. Where they are aware, they do not have the resources to access the funds. The beneficiaries of the Food Crop Processing Zone business are the large scale businesses while the local producers are largely neglected.

**Irrigation**

There is no doubt that the Nigerian agriculture cannot depend on rain fed agriculture alone. There is the need therefore to develop an efficient irrigation system in the country. The Federal Government is making efforts in this direction. More efforts should be made.

**Communication**

Nigeria has achieved tremendous success in the area of communication. The cell phone has become so widely used that the positive effect is so pervasive even in the rural areas.

**Extension services**

The transformation agenda depends solely on an efficient extension system in order to succeed. That was why the Agricultural Extension Transformation Agenda ( AETA ) was also inaugurated. Extension services in Nigeria are mostly carried out by the public extension system through the Agricultural Development Programmes (ADP) which is present in all the States of the Federation. A study of the ADPs (AETA, 2013) shows that they are grossly underfunded and inefficient. In many States, there are 1 extension agents to about 5000 farmers, while the recommendation is, 1 agent to 800 farmers. The APDs are understaffed, and the agents don't have the equipment and resources to function optimally.

The extension system must be revitalized and properly equipped by the different strata of the Governments. That is the only way that the transformation agenda can succeed. The ADPs must be the official channel for public extension services. Already corrupt practices are being witnessed in the distribution of inputs to farmers by input agencies. It is observed that sometimes they deny the farmers that the inputs have finished whereas it is not so. These inputs are then sold at the market rates elsewhere.

**Conclusion**

The Agricultural Transformation Agenda is presently recording successes. However, it is concluded that the agenda cannot be sustainable without a legislated agricultural policy in the country. Also the agenda cannot succeed without a strong rural institutions and functional infrastructures. I end this paper by posing these two questions. Can agriculture succeed in the face of endemic corruption in the lives of public office holders in the sector?. Two , can agriculture succeed in the presence of huge oil money that comes from crude oil export?

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# ENGINEERING, DEVELOPMENT COMMUNICATION AND AGRICULTURAL TRANSFORMATION – THE MISSING LINK AND WAY FORWARD

Prof Mohammed Kuta Yahaya

Keynote address delivered by Niger state Honourable Commissioner for Agriculture and Rural Development at the 23rd Annual National Congress of the Nigerian Rural Sociological Association (NRSA) held on 13th October, 2014 at University of Benin, Benin city, Edo state

**Background**

The President, National Congress of Nigerian Rural Sociological Association, other members of NRSA Executives, distinguished participants, ladies and gentlemen of the press, distinguished ladies and gentlemen. Allow me to express my gratitude for this great honour of inviting me to deliver the keynote address as part of the activities of the 23rd Annual National Congress of the Association.

Twenty-three [23] conferences since the year 1981 when the Association was birthed are phenomenal in an association's existence and therefore while paying tributes to the founding fathers of this Association, allow me to also congratulate the present leadership for their continued foresights and of course the University of Benin for hosting this edition. There is no doubt that during these twenty-four years, the Association has mentored great academics and personalities, who have transformed the landscape of agricultural terrain in many facets of life in Nigeria and beyond. Personally, being part of this mentoring exercise is an honour. It is also an honour for me to be asked to give this Keynote Address on a familiar platform, among like minds and with the same focus fostering development of knowledge, strengthening institutions and nurturing creativity. I really feel special. I thank you.

**Introduction**

The theme of the Conference "Engineering, Development Communication and Agricultural Transformation – The Missing Link And Way Forward" is relevant, timely and appropriate for several reasons:

First, it is becoming gradually obvious globally that development is beyond industrial breakthrough and that there can be no national development without rural and agricultural development (Age, 2012). The new paradigm underscores local definition of developmental needs, which permits the inclusion of non-economic or non-industrial indices such as question of quality of life, equity and social participation (Okonkwor, 1987). Yahaya (2003) described development as a trend in the technologies, organizations, activities and values of a society. Accordingly, the indices for measuring development are economic growth, cultural and racial prejudices, equity in income, egalitarianism (personal freedom), technology and ecology.

Secondly, close to half a century now, the concept of communication as a potent catalyst in development has dramatically expanded. Gliding the terrain of conceptual framework with much emphasis on behavioural changes through audience participation, use of mass media, use of entertainment strategies, Development Communication has been developed practically by scholars and researchers to cover diverse areas of concern to humanity.

Finally, we live in a new world with emerging realization that ordinary people are the key change agents or active participants in development. Hence, Social Engineering and Development Communication anchor their strong drive on people's liberation and emancipation with due respect and consideration to local cultures and basic needs. In view of these, there are new frontiers and opportunities emerging from all these that we should unlock for overall development in every areas of life

**Social engineering, development communication: A brief retrospective view**

Social Engineering entails the practical application of sociological principles to particular social problems while on the other hand, Development Communication can be described as the art and science of human communication linked to a society's planned transformation from a state of poverty to one of dynamic socio-economic growth that makes for greater equality and the larger unfolding of individual potentials (Quebral 1972). Albert, 2008 differentiates between " communication about development" and communication for development" and focuses on the latter. Accordingly, the former involves communication being used to inform people about development initiatives, activities and results while the latter, also known as "development support communication" and more recently, "communication for social change" (Mefalopulous 2008:5), portends a situation where communication is "applied to engage stakeholders, assess the situation, and devise effective strategies leading to better and more sustainable development initiatives (Mefalopulous 2008:xi). According to the World Bank, Development Communication is the ''integration of strategic communication in development projects'' based on a clear understanding of indigenous realities.

Mr. President, Mr. Chairman, distinguished participants, Nigeria as one of the fast developing

nations harnesses her situations, realities and circumstances to perfect the concepts of Social Engineering and Development Communication in a bid to aid agricultural transformation. These approaches actually create access to the real life situations of millions of the poor people around us to connect with their various efforts to improve their lives. The approach was first used in the agricultural sector and the first development communication agents were village level agricultural extension officers. Globally, the approach flourished from the 1950s onwards and roughly paralleled the de-colonisation experiences of many developing nations. Little wonder then that we have provision for the fields in the Department of Agricultural Extension and Rural Development at the University of Ibadan

Accordingly, these two disciplines of Social Engineering and Development Communication allow us to see people as the nucleus of development with attendant implications on intellectual soundness, cultural empowerment and maintenance of environment. This is the foundation where theories like monolithic universalism, community development and power redistribution emanated from to pave way for a fully-fledged democracy at the community level. Scholars like Piotrow et al (1997) believe that " effective communication begins with the audience, and client or consumer and continues overtime as a process of mutual adjustment and convergence". So as experts, while building scholastic institutions to achieve institutionalizing effective communication, we must understand audiences of communication interventions are diverse in every ramification. Our audiences differ in thinking, language, comprehension and vocabulary. They also differ in attitudes and predispositions; social and cultural backgrounds.

In my long years of research in the field of Development Communication, I have realized that its thrust is anchored on the desire to ascertain factors and implications of key variables that enhance effective communication among stakeholders in the critical areas of development particularly, agriculture, livelihoods and health, social interactions/conflict/environment and understanding social change processes. The contemporary society, especially in the developing world, has handful development challenges to tackle in its bid to create realistic and sustainable approaches that are integrated into development policies and practices of governance, inter-governmental relations, democratic ideals and human overall development. This therefore brings about imperativeness in research areas that are not only strategic to using development communication in simulating peoples' needs and policy development and implementation but also has calculated mechanisms in establishing parameters for policy impacts and sustainability.

**Unlocking new frontiers**

I wish to bring the attention of all to the facts that Social Engineering and Development Communication along their key structures of information dissemination and education, behaviour change, social marketing, social mobilization, media advocacy, communication for social change and community participation, are not only means of actualizing desired change in both social and economic transformation of nations but an all-embracing strategy that will provide the much-needed human development in this age. Its now obvious that communication catalyzes development process. Communication is the key to the formation and maintenance of life-long relationships among individuals and nations at large. As a nation therefore development communication culminates in the improvement of information gathering, growth and advancement in social engineering. Little wonder then, the revolution witnessed in the social media areas to pave way for the unfolding globalization and networking

We all know development itself is a product and it is the actual change in every ramification on all issues relating to every facet of human endeavor. Development teaches us that nations are built by the creative hard work of citizens and pursuit of excellence by institutions. Communication, on its own, strives to promote social change and economic development in nation building. Current realities reveal that university system provides an ever-increasing ground for the pursuit of the much needed excellence, despite the twin challenges of growth and shrinking financial resources. Universities have occupied and will continue to occupy a critical position in the development of nations. Their research efforts testify to the power of progressive ideas and innovations and, are themselves the cradle of scientific discoveries, providing intellectual and cultural springboards, which have propelled nations forward along the path of excellence, greatness and achievement.

A major task in agricultural development is the transfer of improved technologies to farmers. Although extension institutions and various sources of information exist in almost every developing country, the coverage of farm families is still very limited. A link between farm families and research information is very important. Trends in Nigeria's agricultural development scenario show that mass media have tremendous potentials for agricultural information dissemination (Yahaya, 2002). Specifically, Sonaiya (2004), indicated that extensive contacts in information sharing such as can be found in a network is required for development of animal production. This is because it will improve the performance of locally available animal production resources within the rural system.

**Niger state experience: The PPP approach**

Since the inception of the administration of Dr. Mu'azu Babangida Aliyu, CON in 2007 in Niger State, we conceptualized the State's PPP programme to serve as a development strategy in the pursuit of the State's Development Action Plan, which was geared towards achieving vision 3:2020. The myriad of challenges that have impeded budget implementation across Governments for effective provision of infrastructure services coupled with dwindling economic fortunes and lack of available resources to meet the growing demand for basic urban services and infrastructure requirements has made collaboration with private sector essential. These apparent merits have heightened the need for re-alignment of strategies within the public sector to maximize opportunities for infrastructural development. This can be viewed within the context of the State's mission statement, which is clearly stated as follows:

"To empower Nigerlites by providing a conducive environment for living, through wealth and employment creation opportunities in collaboration with development and public private partners."

The need for private sector investment in addressing our infrastructure deficits cannot be underestimated as a World Bank report on Nigeria's infrastructure gap conducted in 2011, indicated that the country would require about $142 billion per annum over the decade to address infrastructure challenges. These funds will be applied to meet illustrative targets in roads, ports, aviation, railways, power, information communication technology (ICT), water resources, sanitation and agriculture. In this regard, an estimated $10.5 billion (₦1.68 trillion) would be required annually to address the mentioned gaps. There is no gain saying that the need for realignment of strategies and standardization of PPP processes to drive private sector investments in the key sectors to close the impending infrastructure deficit is most important. The ardent need for private sector investments in meeting our overall developmental aspirations lies in the agricultural sector, which serves as a major platform upon which the Niger State PPP programme was built. Agriculture as an area of competitive advantage which comprises a 10% holding of the country's total arable land mass, substantial water bodies suitable for large scale commercial farming and strategically located in the north central of the country forms the nucleus of Niger State's economy. It is pertinent to note at this juncture, that the vision statement which serves as the major driving force for the development agenda states as follows: "To transform Niger State into one of the top three state economies in Nigeria by the year 2020 by being a model and leader in agro-based industrialization where there is employment and wealth creation opportunities for all in an atmosphere of peace."

Significant efforts in policy review and adoption of a multi-faceted value chain approach geared towards repositioning of the agric sector to attain full capacity utilization through the private sector have been made. It is in line with the foregoing that the Niger State Rice Investment Consortium was established with a comprehensive operational framework put in place for mechanization with the establishment of private sector driven Agricultural Equipment Hiring Centres (AEHC) at the farming zones to provide easy access to small holder farmers for an integrated increase in production. Critical financing for basic inputs requirements has been explored through a Federal Government intervention under the Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) in a renewed effort to overcome agro-financing challenges and to achieve high yield production out-put. Niger State is shinning example with landmark achievements in various partnerships with States, Federal Government and Development Partners.

The rice project in Niger State with an estimated total investment of N34.584 Billion for the development of 100,000ha of rice farmland for the State in three (3) years has provided ample investment opportunities across the rice value chain in mechanization, processing, branding and packaging for exports. As part of Government's commitments to stimulate private investments, 25 units of Tractors were provided for the Agricultural Equipment Hiring Centers (AEHC) to kick start the project pilot as initial capital investment.

Accordingly, the drive for the establishment and development of the Staple Crop Processing Zones (SCPZ) with Niger State as strategic partners will further provide the needed impetus in sustaining and consolidating on the successes recorded under the Agricultural Transformation Agenda (ATA). It is against this backdrop and our commitment in supporting the developmental initiative that the required land space and title for the proposed SCPZ in Niger State was expressly issued without any hindrance. While we remain focused in our resolve for system improvement through the creation of an enabling environment for private sector participation, we are confident that the development of the SCPZs will attract the desired capital investments in achieving the overall objectives of the project.

**Agricultural Transformation Agenda (ATA) in Nigeria**

"Agricultural Transformation is the process by which individual farms shift from highly diversified, subsistence-oriented production towards more specialized production-oriented and towards market or other systems of exchange (Oladeji, 2008). Agricultural Transformation Agenda (ATA) is therefore a robust development programme geared

towards tackling the intractable challenges facing Agriculture and Rural Development Sector. It is requested as the cardinal tool to combat the identified major ills of Nigeria agricultural economy including poverty amongst the famers, hunger, unemployment and insecurity. It is equally seen as a delivery vehicle for engendering livelihoods of the populace thereby moving the country closer to attaining the MDGs.

Implementation of the Agricultural Transformation Agenda (ATA) in Nigeria reveals that the small holder farmers are regarded as the rural poor because they engage in subsistence farming due to many challenges they face daily in their quest for livelihood, and have to be assisted to get out of the situation. This is done by educating all and sundry that agriculture can be made a business, popularly referred to as Agric business or commercial farming using the value chain approach. The crops or livestock chains address production, processing and marketing, with the farmers, processors, agro input dealers, financial institutions, marketers and the policy makers as major stakeholders.

The Agricultural Transformation Agenda (ATA) has been designed to address a myriad of challenges facing Agriculture and Rural Development in Nigeria. A cursory look at the crops and livestock subsectors reveals the over-aching issues affecting productivity like ageing farmers, youth rural- urban migration, low adoption of improved technologies, poor extension service delivery, drudgery associated with agriculture, poor genetic breeds of animals, mechanization etc. A survey of the country shows that over 80% of our farmers are not only illiterate but ageing very fast, resulting in low yields and late adoption of technologies. Coupled with this, is the use of traditional instruments like hoes, cutlasses, sickles etc for farming operations. Trying to get the youth to take over from this crop of farmers has been resisted because of the stigma of regarding the typical Nigerian farmers as poorest of the poor and bad media reputation. Even in the rural areas, they are seen as the poorest of the poor. Popoola (2014) refers to Yahaya's (2009) inclination on the framework of the Magic Bullet Theory where he, indicates that media practitioners as sources of information and mobilization for improved agricultural practices are not favourably predisposed to coverage of rural development news including agriculture given the media Reportage of Rurality by the Nigerian Press. He states further that it is evidently clear that we are faced with scantiness of agricultural and rural development information in Nigerian media.

**The missing link**

ATA has come to address these issues through the use of Value Chain approach for crops, Livestock, aquaculture and fisheries, which periscopes each link in the chain using the SWOT analysis approach. This has brought out areas of weaknesses and threats. Both the Government and the Academia are part of this war which we are already winning considering the quality of productivity and value addition. Furthermore, research is being conducted on breeds and cultivars improvement geared towards enhancing the quality of our livestock and crops.

Another area of challenge being addressed by ATA is youth rural-urban migration, which is a disservice to agriculture because the youths expected to take over from the ageing population are migrating to the urban centres, in search of non-existent white collar jobs and the good things of life like power, portable water and other social amenities. The Government is not unaware of this development and is doing everything possible to reverse the syndrome. It has thus engaged in infrastructural development in the rural areas through the provision of power for small scale industries, water for both humans and livestock, rural hospitals for medicare, schools etc. Due to the availability of land, large farms are being established in the rural areas of the State to attract the youths. Examples abound in Niger State, like Dangote Group coming to cultivate 50, 000 ha of rice and sugarcane, the largest ever in Nigeria. Others are; Synergia Group, Bicco, Millstone, Maurana and Umza industries limited, just to mention but a few, who are preparing to establish large scale rice, sugar cane and pepper/tomato farms with processing/milling facilities.

One other area of concern to ATA is the drudgery associated with Agriculture, which has discouraged majority of our youths to take to agriculture as a business. The use of traditional implements in farming is being greatly, addressed by the Government and the private sector through partial or full mechanization of farm operations. Farm equipments like tractors, planters, reapers, power tillers combine harvesters etc are being introduced into farming to address the issue of drudgery and make farming attractive to the youth. Processing and milling facilities with state of the art equipment are also being incorporated in the value chains of most crops and livestock. We have interesting experience in the rice processing technologies; recently Japanese technology was introduced to our rural women in this regard.

Poor genetic breeds of our animals are another area of concern. Available livestock breeds today produce about five litres of milk daily and the meat quality is very low. ATA is looking at this area using the livestock value chains e.g. dairy value chain, cow and calf value chain, meat value chain etc. The essence is to improve the breed quality of our cows, sheep and goats. The Government of Niger State on her part has imported livestock of high genetic quality i.e. 72 cattle,700 sheep and goats of different breeds from South Africa, in order to improve the quality of our local breeds. About N269million has been spent on this initiative. A missing aspect to their developmental programmes is the ability to

communicate effectively to the farmers as the channels used for passing a new idea to receiver is important in his decision to adopt or reject it. The effectiveness of extension services hinges on effective communication through the right channels to the target audience. It is known that farmers need information on agricultural production. Such information helps the farmers to participate more in agricultural production activities (Oyekunle 2011) the basic kinds of information needed by these farmers are hitherto well defined.

Mechanization is another area of priority under ATA. In Niger State, for example, we established the Niger State Rice Investment Consortium Project, which is explicably extensive in the amplification of our rice production potentials as the leading rice production in Nigeria. In addition to boosting the cultivation of rice in the State, it has established five (5) Agricultural Equipment Hiring Centres designed to fast track farm mechanization. Presently, each has five tractors and implements, and five power Fillers. These are under the control and management of private sector operatives to ensure efficiency and effective service delivery. Happily, I want to say very proudly that the Federal Government appeared to have taken cue from Niger State, as it is about establishing Agricultural Equipment Hiring Centres across the country in aid of farm mechanization. There used to be a proposal on Community Tractor Hire Scheme, of the Federal Government, which never saw the light of the day. I want to seize this opportunity to call on the Federal Ministry of Agriculture and Rural Development to revisit this laudable programme. It will surely address the issue of drudgery generally associated with Agriculture in the country.

**Conclusion**

I wish to call our attention to the need of upgrading Agricultural Extension Transformation Agenda, which is a veritable component of ATA. Extension Service Delivery is on the low side, accounting for the poor adoption of improved technologies by farmers across the country. We should remember that extension services are composite of social engineering and development communication. Coupled with this, is the low Extension Agent Farmers ratio in Nigeria. The recommended ratio across the Globe is 1:500 which has not been attained anywhere in the country. In Niger State where I come from, it is about 1:2000; a far cry from the standard. I must however, indicate that Niger State Government voluntarily keyed into the Agriculture Extension Transformation Agenda to address this gross imbalance. It has also created an Extension Department under the Niger State Agricultural and Mechanization Development (NAMDA) our version of the ADP, with a Director as its head. Just recently, 100 motorcycles were provided to Extension Agents alongside monthly stipends for fuelling and maintenance. Monthly Technology Reviews and Fortnightly Trainings are being held regularly for proper technology reviews and transfers.

I also want to state that it is high time we started bringing our experience to bear on things we do. More often than not there is no sustainability plan in our programmes and projects implementation because of policy summersaults. There is also disconnect and absence of sustainability between one administration and the other resulting in waste of valuable resources and time. For instance, Matanmi (1991) advocated that the main problem facing the developing world today, particularly Nigeria, is not the lack of efficient technologies and scientific discoveries needed for economic growth and rural change but that of their effective utilization for the social and economic transformation of the country.

Therefore there is need for the re-engineering of both the leaders and the led for sustainable policy formulation, sustainability of Government projects and the involvement of the Private sector, so that Government Projects and Programmes conception and implementation will subsist irrespective of the administration at all levels. I therefore charge this congress in session to come up with recommendations on how extension, rural sociology and communication will be accorded priority attention in our national policy formulation and implementation of agreement and rural development initiatives in Nigeria as a practical step towards a realistic way forward as to the way forward in Nigeria.

Finally, we are, convinced that if our country must develop, we must build a reputation for excellence. We must resolve as a people to aim at the highest and the best not only for the present generation but also for the generation to come.

I thank you all for the opportunity and kind attention.

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# CLIMATIC VARIABLES INFLUENCING GROUNDNUT (*Arachis hypogaea L*) GENOTYPES YIELD IN THE NORTHERN GUINEA SAVANNAH OF NIGERIA

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**Abstract**

A field trial was conducted at the Institute for Agricultural Research experimental farm under rain-fed condition of 2011 and 2012 cropping season to ascertain the influence of atmospheric temperature and rainfall distribution on the growth of selected groundnut genotypes in Samaru, Nigeria. The experiment was a split plot arrange in a randomised block design replicated three times. Climatic data such as daily rainfall and temperature distribution was taken from a sub weather station cited adjacent to the field. Findings show that, the growth of the various groundnut genotypes were influenced by temperature and rainfall variations in both 2011 and 2012. Groundnut pod yield was significantly higher in 2012, than in 2011 with a mean yield of 839 and 843 kg/ha reported in 2011 and 2012 respectively. These yield gaps correspond to a proportionate average annual rainfall of 1207 mm and 1333 mm per annum recorded in 2011 and 2012 respectively. Rainfall distribution during the most critical growth stage (pod filling) of the various groundnut genotypes also contributed to the infinitesimal increase in groundnut yield in 2012 over 2011. Temperature was equally observed to fluctuate in both 2012 and 2011. During the critical stage of the crop, relatively higher temperature was reported in 2012 than in 2011. This research however emphasise the profound effect that global climate change could posed on crops yield and productivity. However, evident increase in temperature and rainfall will pose a profound challenge on the growth and adaptation of groundnut genotypes in the study area and/or even beyond the area to other locations sharing similar soil and climatic characteristics. Hence, with the variation existing in the yield of the selected groundnut genotypes to climatic variables, it has become clear that crop adaptation base on genotypic trials could provide a very useful index to mitigate the evidential effect of climate change in agricultural production in Nigeria which will in turn provide a guide to the implementation of the federal government Agricultural Transformation Agenda (ATA).

**Keywords:** Groundnut genotypes, Climate change, Yield, and ATA.

## INTRODUCTION

Groundnut is grown on nearly 23.95 million ha worldwide with the total production of 36.45 million tons and an average yield of 1520 kg/ha in 2009 (FAOSTAT 2011). China, India, Nigeria, USA and Myanmar are the major groundnut growing countries. Developing countries in Asia, Africa and South America account for over 97% of world groundnut area and 95% of total production. Production is concentrated in Asia (50% of global area and 64% of global production) and Africa (46% of global area and 28% of global production), where the crop is grown mostly by smallholder farmers under rainfed conditions with limited inputs. Between 2000 and 2009, the annual global production increased marginally by 0.4%, the area by 0.3% and yield by 0.1% (FAOSTAT 2011).

In Africa, both groundnut area and production grew during the 2000-2009 period (FAOSTAT 2011). The groundnut area grew by 2.17 million ha, an annual increase of 1.9%. The annual increase in production was 1.5%, crossing the 10 million ton level in the year 2009. However, grain yields declined by 0.4% annually and remained below 1000 kg/ha during the entire decade with the exception of 2006. In Africa, groundnut production showed a good recovery during 2000-2009 relative to the 80s. Yields increased from 600-800 kg/ha in the 1980s to 900-1050 kg/ha during 2000-2009. In Nigeria and Ghana, groundnut yields were above 1000 kg/ha in 2009 (FAOSTAT 2011). This growth trend is not due to any significant increased in technology, but rather attributed to an increased land area which is not sustainable as noted by Chandra *et al*. (2011). During 2000-2009, the groundnut area grew annually by 2.6% in Nigeria, but the yield declined by 3.3% annually resulting in stagnation of groundnut production at 2.9 million tons. Another report also placed Nigeria groundnut production potential at 3.9 million tonnes representing 57% of all groundnuts cultivated in West Africa. Despite this increasing trend in groundnut production, the demand for it is not still been made.

Although "agriculture remains a key component of Nigeria's economy, and currently contributes about 40.0% of the GDP and employing about 70.0% of the active population, the sector, has however, significantly underperformed its potential" (FGN,2008). But achieving sustainable agricultural production in Nigeria depend in part on the suitability of environmental/climatic factors/variables; which have been reported to control the yield of crops. Considering the current reality of climate change, it is expected that groundnut production in the future will not be sustainable and thus making the current federal government of Nigeria agricultural reforms (Agricultural Transformation Agenda, ATA) to be sub-optimal or unrealistic.

The contribution/analysis of growth factors provides a leeway in assessing the policies and programmes of agricultural development in any given country with the purpose of achieving higher growth (Deosthali and Chandrahekhar, 2004). In relation to climate change, this could also provide direction on the strategies to adopt to mitigate the effect on agriculture. Crop varietal trials as an adaptation strategy to mitigate the effect of climate change have been advocated, and significant results have been reported. For instance, in India, a drought tolerant groundnut variety; ICGV.91114, introduced through farmers participatory varietal selection has spread to 25000 ha of the 0.8 million hectare groundnut area (Deosthali and Chandrahekhar, 2004).

Most at times statistical data on Nigerian agriculture are scarce and sometimes contradictory and/or unreliable; hence, this research is aimed at generating primary and first hand information on the yield potential of groundnut as influence by climate change.

## MATERIALS AND METHOD

The field experiment was conducted on one of the experimental fields (S13) of the Institute for Agricultural Research (I.A.R) Samaru located at an altitude of 686m above sea level, latitude 11°11'008´N and longitude7°36'52.1"E in the Northern Guinea Savanna of Nigeria (NGS). The NGS is characterised by a mono-modal rainfall pattern with a mean annual rainfall of about 1011±161mm concentrated almost entirely in the five months (May/June to September/October) of the cropping season (Oluwasemire and Alabi, 2004). Soils in the experimental area are classified as Typic Haplustalf according to the USDA soil taxonomy (Ogunwole *et al*., 2001) and Acrisols according to FAO-UNESCO legend (1994). The soil is low in inherent fertility: organic matter, cation exchange capacity and dominated by low activity clays (Jones and Wild, 1975; Odunze, 2003).

### Field layout, treatment and experimental design

The experimental area was marked out from the field, ploughed, disc-harrowed and ridged at an inter-row spacing distance of 0.75m. The various treatments consisting of eleven genotypes of groundnut; SAMNUT 24, SAMNUT 22, ARRORS ICGX-SM 00017/5/$P_{15}$/$P_2$, SAMNUT 10, ICIAR 7B, 6AT, ARRORS ICGX 000201/5/$P_4P_{10}$, SAMNUT 21, SAMNUT 23, SAMNUT 14, ICGL 5 and two rates of nitrogen fertilizer (0 kg $ha^{-1}$ and 30 kg $ha^{-1}$) were arranged in a split plot design.

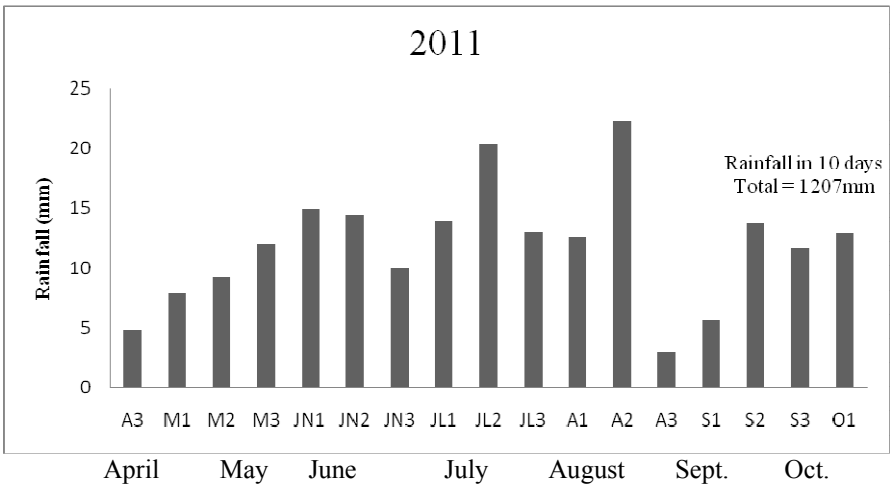
### Statistical analysis

Individual analysis of variance was performed for each character in each year. Error variance for the two years was tested for homogeneity by Bartletts test (Gomez and Gomez, 1984). Combined analysis was carried out for those characters having homogeneous error variance for the two years. The analysis of variance at this stage was performed using the General Linear Model (GLM) procedure of SAS; (SAS Inst., 2000) because of its high sensitivity. Graphical illustrations were used to show interaction among variables.

## RESULTS AND DISCUSSION

### Rainfall and Temperature Distribution in 2011 and 2012

Results of the meteorological data generated during the period of the experiment are presented in Fig. i (a and b) and Fig. ii (a and b). These figures show that total annual rainfall was slightly higher in 2012 (1333 mm) than in 2011 (1207 mm). Although in both years, rains started in April but result shows that the rains came much earlier within the second ten days period in 2011 whereas in 2012 it was within the third ten days interval. The total rainfall in both years was greater than the long term average reported for the zone. Similarly, temperature (minimum and maximum) variation was equally observed in both years with average minimum temperatures of 18°C and 19°C and maximum temperature 35°C and 34°C observed in 2011 and 2012 respectively. The values were both above the long term mean temperature of 21.05°C and 33.47°C average minimum and maximum temperature reported by Oluwasemire and Alabi, (2004).



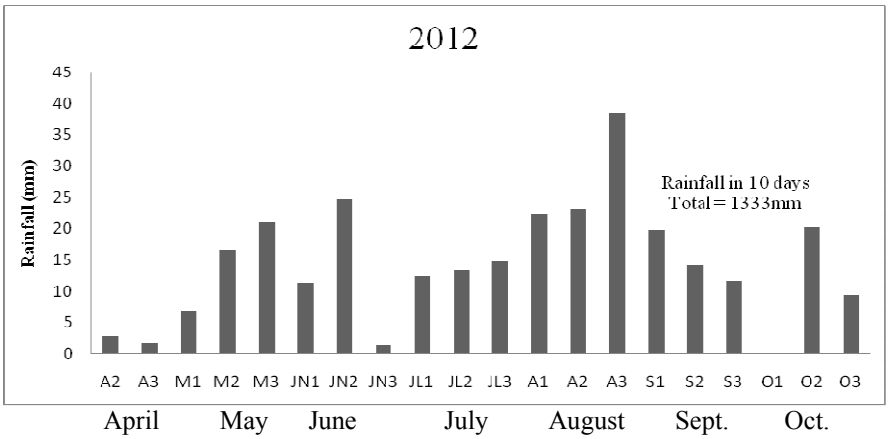




Fig. i. Rainfall patterns in Samaru in 2011 and 2012

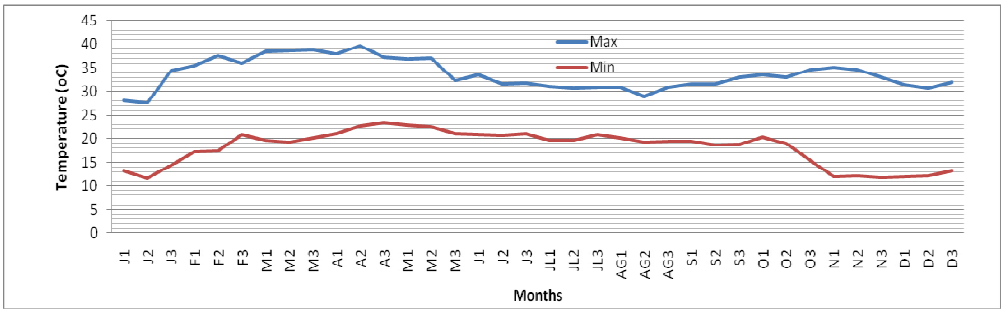



Fig. ii a.Ten days Mean monthly temperature distribution in Samaru (2011)

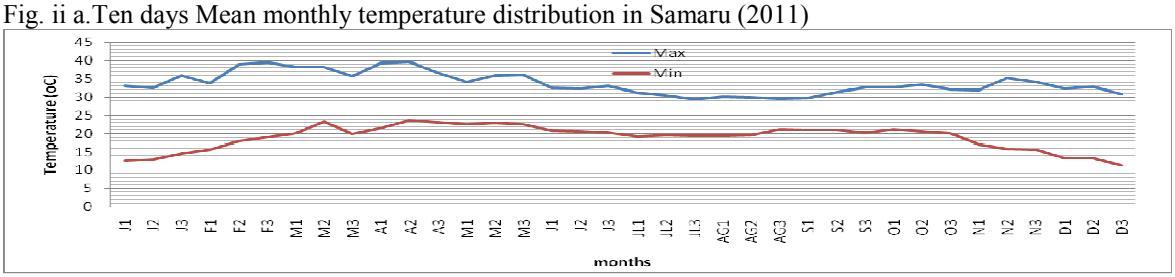



Fig. ii b. Ten days Mean Monthly Temperature Distribution in Samaru (2012)
Definition of abbreviation: J, F, M, A, M, J, JL, AG, S, O, N and D represent January to December in that order. The numbers 1, 2 and 3 represent first, second and third ten days of each month.

**Pod yield of groundnut as influenced by rainfall and temperature in 2011, 2012 and combined**

The effect of genotype and nitrogen rates on pod yield shows a highly significant difference in both years (2011 and 2012) as shown in Table 1. However, higher pod yield was observed in 2012 than in 2011. Result of analysis of variance further shows that the highest pod yield was recorded in groundnut genotype SAMNUT 22 in 2012 which was not significantly different from ARRORS ICGX000201/5/$P_4P_{10}$, ARRORS 1CGX-SM00017/5/$P_{15}P_2$ and SAMNUT 21. However in

2011 ARRORS ICGX000201/5/$P_4P_{10}$ was the best closely followed by SAMNUT 22 and SAMNUT 23 which was not statistically different from ARRORS ICGX-SM 00017/5/$P_{15}$/$P_2$ and the two genotypes tend to maintain their consistency in high pod yield across the two year duration. Among the nodulating lines, ICIAR 7B and SAMNUT 14 consistently recorded the least yield in both the 2011 and 2012 season. Nitrogen rates effect was significant in both 2011 and 2012; with the 30 kg/ha N outperforming the control.

Environmental factors such as rainfall and temperature have been reported to have significant influence on groundnut yield. Thus the little variation in yield during the two year period could be attributed to the even distribution of rainfall during the flowering and pod filling stage which is considered critical to groundnut growth. Putnam *et al*.; (2013) from his maiden research at Minnesota has indicted temperature and rainfall as the major environmental factors influencing the yield of groundnut. For instance, a peanut crop will not reach optimum maturity for a marketable yield to justify commercial production in areas with fewer heat units during the growing season. Putman *et al*. (2013) also reported that little if any growth and development can occur at temperature below 20$^o$C and 30$^o$C. Similarly, average yield increased from 1000 to 1450 kg/ha was obtained with increased moisture availability during the most critical growth period (flowering and pod filling) (Putnam *et al*., 2013).

**Table 1: Effects of Genotype and N Fertilizer on Pod Yield in 2011, 2012 and Combined**

| | Pod (kg/ha) | | |
|---|---|---|---|
| Treatment | 2011 2012 | Combined | |
| **Genotypes (G)** | | | |
| SAMNUT 24 | 1108 | 1106 | 1107 |
| SAMNUT 22 | 2179 | 2963 | 2571 |
| ARRORSICGX SM 00017/5/$P_{15}$/$P_2$ | 2070 | 2738 | 2404 |
| SAMNUT 10 | 1249 | 1433 | 1341 |
| ICIAR 7B | 1038 | 614 | 826 |
| 6AT | 1088 | 674 | 881 |
| ARRORSICGX 000201/5/$P_4P_{10}$ | 2801 | 2540 | 2671 |
| SAMNUT 21 | 1025 | 2473 | 1749 |
| SAMNUT 23 | 2122 | 1678 | 1900 |
| SAMNUT 14 | 1138 | 669 | 904 |
| ICGL5 | 479 | 525 | 502 |
| Mean | 1482 | 1547 | 1514 |
| SE± | 178** | 266*** | 160** |
| **N rates (kg/ha)** | | | |
| 0 | 1313 | 1619 | 1466 |
| 30 | 1650 | 1475 | 1563 |
| Mean | 1482 | 1547 | 1515 |
| SE± | 76** | 113* | 68.12$^{NS}$ |
| **Interaction** | | | |
| **G*N** | | | |
| Significance | NS | NS | NS |

NS=Not significant at 5% level of probability,
*Significant at 5% level of probability, **Significant at 1% level of probability

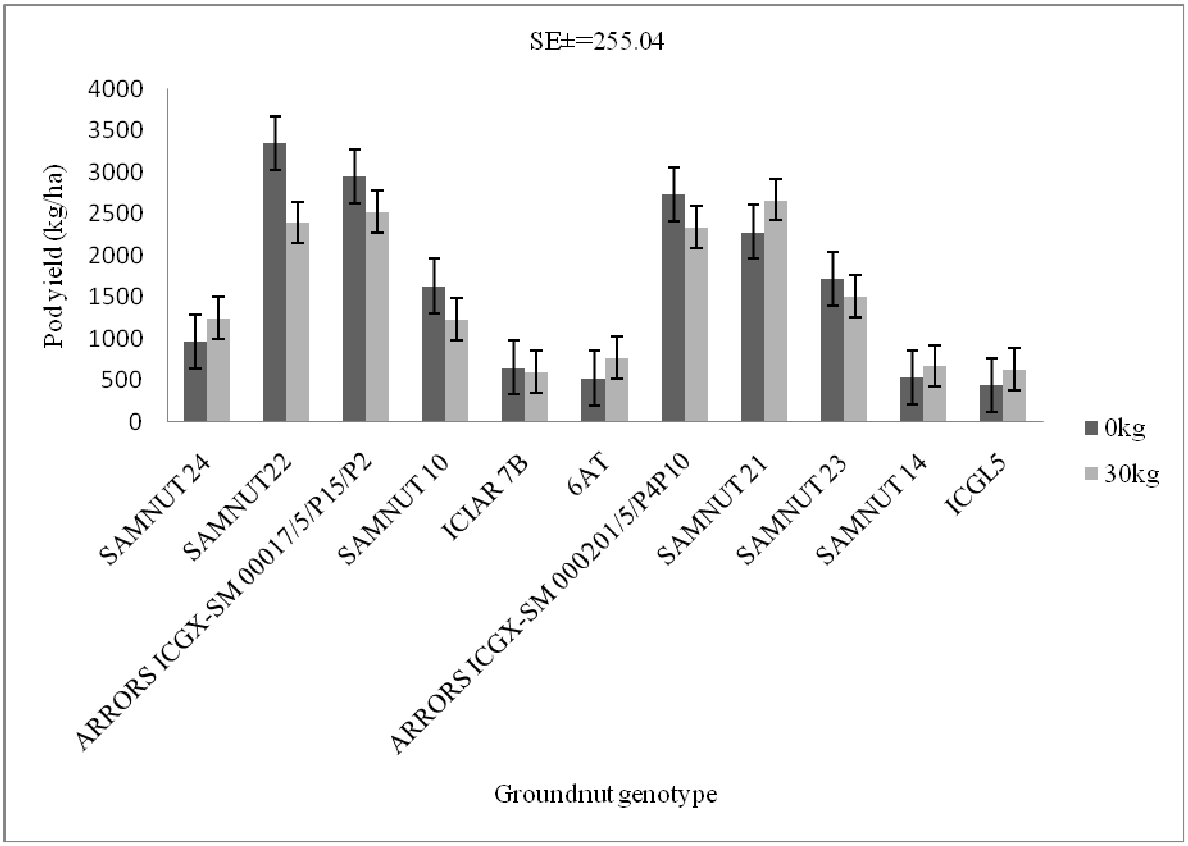


Fig. iii: Interactions between genotype and N rates on pod yield of groundnut in the 2012 trial.

**Conclusion**

Hence, with the variation existing in the yield of the selected groundnut genotypes to climatic variables, it has become clear that crop adaptation base on genotypic trials could provide a very useful index to mitigate the evidential effect of climate change in agricultural production in Nigeria which will in turn provide a guide to the implementation of the federal government Agricultural Transformation Agenda (ATA).

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# EFFECT OF FARMER FIELD SCHOOL ACTIVITIES ON FARMERS PRODUCTION IN OSUN STATE

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**Abstract**

The study examined the effect of Farmer Field School (FFS) activities on farmers' production in Osun state, Nigeria. Multistage sampling technique was used to select 154 respondents for the study. A well-structured and validated interview schedule was used to collect primary data for the study. Data collected were analyzed using descriptive statistical tools such as frequency counts, percentage, mean and standard deviation while inferential statistics (correlation and chi-square) were used to test the hypotheses. Results show that the mean age of FFS graduates in the study area was 46.8±9.5 years, majority (77.0%) were males, and spent an average of 6.7 years in formal school. Also, 75.3% had farming as primary occupation and their mean years of farming experience was 23.7 years. Also, majority (91.6%) were involved in harvesting, 80.5% in site selection, and 76.0% in seed planting production activities during FFS training. Majority (96.1%) of the respondents were exposed to discussion, 94.2% to observation and 90.3% to experience sharing on communication and educational activities. There were positive and significant relationships between accessibility to NPFS loan ($\chi^2$=11.950, P≤0.05); education/ communication activities (r= 0.250; P ≤ 0.05); constraint (r=--0.547; P ≤ 0.05), benefits derived by graduates of FFS (r=0.218; P ≤ 0.05) and their level of production. Since there was improvement in the farmer's level of production before and after attending farmer field school, therefore FFS should be recommended for other farm enterprises to achieve the goal of Agricultural Transformational Agenda (ATA) which is to improve agricultural productivity and value chain.

**Keywords**: Farmer Field School, agricultural communication, farmer's production, Agricultural transformation Agenda

## INTRODUCTION

Agricultural extension is defined as the entire set of organizations that support and facilitate people engaged in agricultural production to solve problems and to obtain information, skills and technologies to improve their livelihoods and well-being. Agricultural extension services are provided by a variety of agencies in the public, commercial and voluntary sectors (Birner, Davis, Pender, Nkonya, Anandajayasekeram, Ekboir, Mbabu, Spielman, Horna, and Benin, 2006). Today's understanding of extension goes beyond technology transfer to facilitation; beyond training to learning and includes assisting farmers to form groups, dealing with marketing issues and partnering with a broad range of service providers and other agencies (Davis, 2008). The field of extension now encompasses a wider range of communication and learning activities organized for rural people by professionals from different disciplines. One of such is the Farmer Field School (FFS), now practiced in at least 78 countries (Braun et al, 2005).

Farmer Field School is a new development in the agricultural preaching enterprise and helps farmers to show their stable and full participation at all levels of innovation and act like an expert on their farm. Unlike the traditional approach of preaching which focuses on the technological packages for the farmers, FFS approach includes participative concepts and introduces the farmer as a partner for agent workers and researchers (Gholamreza et al, 2012). It also seeks to improve the potentialities for programming, evaluating and decision-making in them so that their analytical skills, critical thinking and creativity can be expanded for the purposes of making better decisions. FFS approach is designed to create capacities in farmers so that they can analyze their productive systems, identify their problems, test solutions and choose the most appropriate operation according to their agricultural system and consequently their productivity and probability will increase (Luther et al, 2005). According to Agro Care (2009), feedback from farmers and operators of the Farmers Field School (FFS) from Edo state, Nigeria have shown that this agricultural extension approach is capable of improving farm yields tremendously, particularly in the cocoa sub-sector where it is presently put into use and which many more farmers and states are adopting. The use of FFS extension approach will make the farmers to be central to agricultural research and dissemination. Farmer Field School as a model has potential to be an appropriate methodology for validation and dissemination of agricultural technologies. This will lead to people-oriented and sustainable agriculture in Africa (Asiabaka, 2003). It is a participatory approach which facilitates farmer's demand for knowledge and offers opportunity for the end users to choose, test and adapt technologies according to their needs (Ajani and Onwubuya, 2010). The Farmer Field School (FFS) extension approach as embedded in the Agricultural Extension Transformational Agenda (AETA) under the overall Agricultural Transformational Agenda (ATA) requires that FFS is

adopted for farmers' empowerment, group development and for faster transition from subsistence farming to agribusiness for the large majority of farmers. The farmers will still remain important for food security while they transit to the medium scale agri-business group which is to be serviced by both public and private advisory service providers. One important issue in FFS is that of sustainability without outside funding. Thus, the empowerment process of Farmer Field School has been inhibited by some factors which have affected the production capacity of farmers. Hence, there is need to investigate the effect of Farmers Field School (FFS) on farmers production in the study area.

The main objective of the study is to examine the effects of Farmer Field School (FFS) activities on farmers' production in Osun state, Nigeria. The specific objectives of the study are to determine the socio-economic characteristics of the FFS graduates, identify the production activities of FFS graduates, examine the communication and educational activities that graduate of FFS were exposed to in the school and investigate the constraints faced by the FFS graduates.

## METHODOLOGY

Osun state was selected being the first state to pay the counterpart fund for FFS in Nigeria and subsequently the first to hold field school for facilitators in 2009. There are thirty (30) local government areas in the state, out of which nine (9) has farmer FFS. These are Osogbo, Ede-south, Obokun, Ife central, Ayedade, Odo otin, Atakumosa, Ola-oluwa and Ila local government areas. Fifty percent of the LGAs were chosen using simple random sampling technique, having Osogbo, Atakumosa, Ayedade, Ife central and Ola-oluwa. There are three (3) Farmer Field Schools (FFS) in each local government area comprising of members ranging from 12-30. Fifty percent of the total members of the farmer field schools in the sampled local government areas were chosen using simple random sampling technique, giving a sample size of 154 respondents, respectively. The data for the study was collected with the aid of a well-structured and validated interview schedule from respondents according to the objectives of the study. The data were analysed using descriptive statistics, while chi-square and correlation analysis were used to draw inferences from the hypotheses.

### Measurement of variables

The dependent variable was conceptualized as the effect of Farmer Field School (FFS) activities on farmers' production. A list of crops were presented to the respondents and they were asked to indicate if they grew the crops and to also give the quantity of the crops cultivated before and after attending Farmer Field School. They were asked to give the output in tonnes (t), kilogram (kg) or basket before and after attending farmer field school, and harmonized using the corresponding unit price.

### Production activities of the members at the FFS

Respondents were asked to indicate the production activities they were involved in while in the FFS from a list of production activities given to them using Always =3, occasionally =2, rarely=1, Never =0, to indicate their level of involvement in these activities.

### Communication and educational activities of members at the FFS

A list of communication and educational activities conducted at the farmer field school were presented to the respondents and they were asked to indicate the ones they had at the farmer field school using 2-point scale of Yes =1, No=2.

## RESULTS AND DISCUSSION

### Socioeconomic characteristics of respondents

Table 1 shows that the mean age of respondents was 46.9 years. It shows that 39.6% of the respondents were in the age range of 45-54 years. The table also reveals that 77.0% of the respondents were male, while 23.0% were female. This is an indication that there are more males participating in FFS programme in the study area. This corroborates the findings of Ajayi and Okafor (2008) which state that a higher proportion of the respondents in both categories of trainees of FFS were males. Also, majority (79.0%) were married, 5.2% were single, 7.8% divorced and 1.3% separated. The high percentage of married people is an indication of more responsible adults in the area. Majority of the respondents (63.7%) had at least primary education. This result agrees with the view of Quisumbing and Meinzen-Dick (2001) "that many countries in sub-Saharan Africa have low level of education and that improving their education would probably increase agricultural productivity and reduce poverty." On religious affiliation, 59.8% of the respondents were Muslims and 42.2% were Christians. This indicates that Muslims are prevalent in the study area. The primary occupation of the respondents follows this order; 75.3% involved in farming, 14.9% in trading, 5.2% were artisans and 3.9% civil servants. This implies that farming is the primary occupation that predominates in the area. In the same vein, secondary education of the respondents shows that 51.3% were farmers, 32.5% were trading, 12.3% were artisans and 0.6% night guards. As regards years of experience, the mean year of experience was 23.7. This means that more (29.9%) of the respondents had between 20 and 30 years experience. The mean family size of the respondents in the study area was 6.7 persons, which shows that majority of the respondents had between 6 and 10 children. Large family size may serve as incentive for engaging in FFS in order to meet the obligations of the family. Large proportion of FFS graduates (84.4%) were

members of NPFS loan groups and 71.4% had access to loan.

**Table 1: Frequency distribution of respondents based on socioeconomic characteristics**

| Socioeconomic characteristics | Frequency | Percent | |
|---|---|---|---|
| **Age** | | | |
| 25-34 | 11 | 7.1 | $\bar{x}$ =46.9 |
| 35-44 | 51 | 33.1 | SD =9.5 |
| 45-54 | 61 | 39.6 | |
| 55-64 | 26 | 16.9 | |
| 65-74 | 5 | 3.3 | |
| **Sex** | | | |
| Male | 119 | 77.0 | |
| Female | 35 | 23.0 | |
| **Marital Status** | | | |
| Single | 8 | 5.2 | |
| Married | 123 | 79.9 | |
| Divorced | 12 | 7.8 | |
| Widowed | 9 | 5.8 | |
| Separated | 2 | 1.3 | |
| **Family Size** | | | $\bar{x}$ = 8.3 |
| 1-5 | 35 | 22.7 | SD =3.7 |
| 6-10 | 89 | 57.8 | |
| 11-15 | 22 | 14.3 | |
| 16-20 | 8 | 5.2 | |
| **Primary Occupation** | | | |
| Farming | 116 | 75.3 | |
| Traders | 23 | 14.9 | |
| Artisans | 8 | 5.2 | |
| Civil Servants | 6 | 3.9 | |
| Teachers | 1 | 0.6 | |
| **Secondary Education** | | | |
| Farming | 79 | 51.3 | |
| Trading | 50 | 32.5 | |
| Artisan | 19 | 12.3 | |
| Night Guard | 1 | 0.6 | |
| Hunting | 5 | 3.2 | |
| **Level of Education** | | | |
| No formal Education | 45 | 29.2 | |
| Primary | 50 | 32.5 | |
| Secondary | 48 | 31.2 | |
| Tertiary | 11 | 7.1 | |
| **Religion** | | | |
| Christians | 65 | 42.2 | |
| Muslims | 89 | 57.8 | |
| **Years of Farming experience** | | | |
| 1-9 | 14 | 9.1 | |
| 10-19 | 40 | 26.0 | |
| 20-29 | 46 | 29.9 | |
| 30-39 | 37 | 24.0 | |
| 40 and above | 17 | 11.0 | |
| **Membership of NPFS** | | | |
| Yes | 130 | 84.4 | $\bar{x}$ = 23.7 |
| No | 24 | 15.6 | SD =10.5 |
| **Accessibility to loan** | | | |
| Yes | 110 | 71.4 | |
| No | 44 | 28.6 | |

**Field Survey 2012**

**Production activities of members of FFS**

The result in Table 2 shows the production activities of members of Farmer Field School in the study area. Majority (91.6%) were involved in harvesting, 80.5% in site selection, and 76.0% in seed planting production activities during FFS training. This shows that the school has empowered the farmers with knowledge and skills that make them experts to solve their own problems, leading to highest mean score in harvesting as a production activity. This finding is in consonance with previous studies on cocoa production by Nkang et al. (2009) which indicated that there were great improvements in activities of farmers due to participation in FFS activities.

**Table 2: Distribution of Respondents by production activities of members at the farmer field school, n = 154**

| Activities | Never Freq | % | Rarely Freq | % | Occasionally Freq | % | Always Freq | % | Mean |
|---|---|---|---|---|---|---|---|---|---|
| Site selection | 3 | 1.8 | 3 | 1.9 | 24 | 15.6 | 124 | 80.5 | 2.75 |
| Soil examination | 68 | 44.2 | 6 | 3.9 | 51 | 33.1 | 29 | 18.8 | 1.27 |
| Bush clearing | 35 | 22.7 | 18 | 1.7 | 15 | 9.7 | 86 | 55.8 | 1.99 |
| Packing of refuse | 52 | 33.8 | 6 | 3.9 | 39 | 25.3 | 57 | 37.0 | 1.66 |
| Burning of refuse | 50 | 32.5 | 18 | 11.7 | 65 | 42.2 | 21 | 13.6 | 1.37 |
| Ploughing | 1 | 0.6 | 14 | 9.1 | 54 | 35.1 | 85 | 55.2 | 2.45 |
| Harrowing | 4 | 2.6 | 26 | 16.9 | 71 | 46.1 | 53 | 34.4 | 2.12 |

| Activities | Never Freq | % | Rarely Freq | % | Occasionally Freq | % | Always Freq | % | Mean |
|---|---|---|---|---|---|---|---|---|---|
| Stumping | 47 | 30.5 | 43 | 27.9 | 37 | 24.0 | 27 | 17.5 | 1.29 |
| Heap making and bed making | 39 | 25.3 | 25 | 16.2 | 42 | 27.3 | 48 | 31.2 | 1.64 |
| Landscaping and spacing | 19 | 12.3 | 59 | 38.3 | 31 | 20.1 | 45 | 29.2 | 1.66 |
| Sourcing for seed varieties | 35 | 22.7 | 23 | 14.9 | 41 | 26.6 | 55 | 35.7 | 1.75 |
| Seed testing | 11 | 7.1 | 42 | 27.3 | 42 | 27.3 | 59 | 38.3 | 1.97 |
| Seed treatment | 3 | 1.9 | 11 | | 49 | 31.8 | 91 | 59.1 | 2.48 |
| Seed rating | 12 | 7.8 | 19 | | 48 | 31.2 | 75 | 48.7 | 2.21 |
| Seedling purchase | 52 | 33.8 | 18 | | 68 | 44.2 | 16 | 10.4 | 1.31 |
| Seedling selection | 39 | 25.3 | 29 | | 48 | 31.2 | 38 | 24.7 | 1.55 |
| Transplanting with appropriate spacing | 40 | 26.0 | 17 | | 29 | 18.8 | 68 | 44.2 | 1.81 |
| Planting with appropriate spacing | 4 | 2.6 | 17 | | 24 | 15.6 | 109 | 70.8 | 2.55 |
| Planting with specific no of seed | 2 | 1.3 | 16 | 10.4 | 19 | 12.3 | 117 | 76.0 | 2.63 |
| Gap filling and thinning | 3 | 1.9 | 21 | 13.6 | 38 | 24.7 | 92 | 59.7 | 2.42 |
| Chemical identification | 3 | 1.9 | 17 | 11 | 63 | 40.9 | 71 | 46.1 | 2.31 |
| Chemical measurement | 2 | 1.3 | 17 | 11 | 66 | 42.9 | 69 | 44.8 | 2.31 |
| Chemical spraying | 3 | 1.9 | 17 | 11 | 59 | 38.3 | 75 | 48.7 | 2.34 |
| Use of basal fertilizers | 13 | 8.4 | 15 | 9.7 | 65 | 42.2 | 61 | 39.6 | 2.13 |
| Top dressing | 15 | 9.7 | 19 | 12.3 | 65 | 42.2 | 55 | 35.7 | 2.04 |
| Use of pre emergence herbicides | 0 | 0 | 17 | 11 | 72 | 46.8 | 65 | 42.2 | 2.31 |
| Use of post emergence herbicides | 1 | 0.6 | 17 | 11 | 68 | 44.2 | 68 | 44.2 | 2.32 |
| Use of pesticides | 35 | 22.7 | 13 | 8.4 | 66 | 42.9 | 40 | 26.0 | 1.72 |
| Post planting operation | 1 | 0.6 | 15 | 9.7 | 31 | 20.1 | 107 | 69.5 | 2.59 |
| Manual Weeding | 2 | 1.3 | 22 | 14.3 | 23 | 14.9 | 107 | 69.5 | 2.53 |
| Harvesting | 0 | 0 | 5 | 3.2 | 8 | 5.2 | 141 | 91.6 | 2.88 |
| Processing | 35 | 22.7 | 8 | 5.2 | 50 | 32.5 | 61 | 39.6 | 1.89 |
| Storage | 33 | 21.4 | 17 | 11 | 77 | 50 | 27 | 17.6 | 1.64 |

**Field Survey 2012**

**Communication and educational activities of respondents in the FFS**

Table 3 reveals that respondents were exposed to the following communication and educational activities: discussion (96.1%), observation (94.2%) and identification, prevention, and eradication of different pest species (92.9%). The results show that higher percentages of the respondents were exposed to most of the communication and educational activities in their farmer field schools. The setting up of an apiary was found to be the least explored (20.1%) among the educational and communication activities in the study area. This implies that the farmers need to be more sensitized and educated on the importance of bee-keeping and the benefits derivable from its investment.

**Table 3: Frequency distribution of respondents on communication and educational activities, n = 154**

| Activities | Frequency | Percent |
|---|---|---|
| Weekly training | 125 | 81.2 |
| Discussion | 148 | 96.1 |
| Brainstorming | 128 | 83.1 |
| Survey | 74 | 48.1 |
| Observation | 145 | 94.2 |
| Practical sessions | 134 | 87.0 |
| Demonstration | 118 | 76.6 |
| Presentation | 127 | 82.5 |
| Experience sharing | 139 | 90.3 |
| Comparison of varieties and | 118 | 76.6 |

| Activities | Frequency | Percent |
|---|---|---|
| introduction of improved varieties | | |
| Comparison of local treatment | 130 | 84.4 |
| Identification, prevention and eradication of different pest species | 143 | 92.9 |
| Group visit to research institutes and integrated farm plots | 86 | 55.8 |
| Identification of different species of crop | 124 | 80.5 |
| Multiplication of variable seeds and mini sets | 91 | 59.1 |
| Raising healthy seedlings | 93 | 60.4 |
| Setting up an apiary | 31 | 20.1 |
| Study of different weather forms | 117 | 76.0 |

**Field Survey 2012**

**Benefit derived from exposure to Communication and Educational activities of FFS**

The benefits derived can be attributed to the respondents through the result on Table 4. To a large extent, there were increased knowledge on the application of pesticides (91.6%), herbicides (87.7%) and crop management (85.1%). This reveals that FFS had sharpened the farmers' ability to make decisions that would render their farming activities more profitable and sustainable. Adisa and Adeloye (2012) stated in their findings that FFS extension approach has much more additional benefits accruing to FFS participants which can be difficult to quantify in determining improvement in cocoa management practices.

**Table 4: Frequency Distribution of Respondents on Benefits derived from exposure to communication and educational activities of FFS on farmers' production**

| Benefit | Not at all | | To a lesser extent | | To a large extent | |
|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % |
| Increase in the knowledge of crop management | 2 | 1.3 | 21 | 13.6 | 131 | 85.1 |
| Increase in knowledge on the application on pesticide | 2 | 1.3 | 11 | 7.1 | 141 | 91.6 |
| Improve knowledge on the application of herbicides | 2 | 1.3 | 17 | 11 | 13 | 87.7 |
| Technical proficiency on the use of input | 12 | 7.8 | 26 | 16.9 | 116 | 75.3 |
| Accessibility to loan | 17 | 11 | 84 | 54.5 | 53 | 34.4 |
| Increase in social and interpersonal relationship among co-farmers | 3 | 1.9 | 32 | 20.8 | 119 | 77.3 |
| Increase in the knowledge of farm account | 4 | 2.6 | 35 | 22.7 | 115 | 74.7 |
| Increase in the overall farm output | 5 | 3.2 | 65 | 42.2 | 84 | 54.5 |
| Diversification into other farm enterprise | 36 | 23.4 | 97 | 63 | 21 | 13.6 |
| Improvement in group cohesion and livelihood | 8 | 5.2 | 29 | 18.8 | 117 | 76.0 |
| Increase in market accessibility | 21 | 13.6 | 81 | 52.6 | 52 | 33.8 |
| Accessibility to timely and sufficient farm input | 13 | 8.4 | 82 | 53.2 | 59 | 38.3 |

**Field survey 2012**

**Constraints faced by farmers in the FFS**

Results of the analysis in Table 5 reveal that more than half (54.5%) of the respondents considered lack of storage facilities as a serious constraint in the study area. An appreciable percentage of the respondents also indicated that glut in market (70.8%), bureaucracy (57.8%), and inadequate subject matter specialists (56.5%) were constraints faced in FFS activities. The findings also corroborate that of Hakiza et al (2004) that logistic issues like inadequate materials and challenges imposed by facilitators also affect the quality of FFS.

**Table 5: Frequency distribution of respondents on constraints faced by farmers in the farmer field school**

| Constraints | Not a constraint | | Constraint | | Serious constraint | |
|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % |
| Untimely release of input at the field school | 47 | 30.5 | 76 | 49.4 | 31 | 20.1 |
| Lack of market for the proceedings | 71 | 46.1 | 40 | 26.0 | 43 | 27.9 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Glut in the market | 5 | 3.2 | 109 | 70.8 | 40 | 26.0 |
| Inadequate subject matter specialist | 54 | 35.1 | 87 | 56.5 | 13 | 8.4 |
| Changes in weather | 39 | 25.3 | 75 | 48.7 | 40 | 26.0 |
| Lack of storage facilities | 4 | 2.6 | 66 | 42.9 | 84 | 54.5 |
| Inadequate logistic support for extension agent | 42 | 27.3 | 67 | 43.5 | 45 | 29.9 |
| Bureaucracy | 50 | 32.5 | 89 | 57.8 | 15 | 9.7 |
| Unskillfulness of instructor | 96 | 62.3 | 33 | 21.4 | 25 | 16.2 |
| Change in government structure | 14 | 9.1 | 74 | 48.1 | 66 | 42.9 |
| Large members in a group | 51 | 31.1 | 77 | 50.0 | 26 | 16.9 |

**Field Survey 2012**

**Level of production of respondents before and after attending Farmer Field School**

Table 4 reveals the following mean farm sizes before FFS for maize (1.9), cassava (1.59) and yam (0.42) while the mean increase recorded for farm size after FFS as shown on Table 6 were Maize (3.66), cassava (3.03) and yam (0.7). The increase in farm size of maize, cassava and yam cultivated after attending farmer field school led to increase in mean of all the output of crops cultivated with the following mean. Maize output before and after FFS is 1869.5 and 3613.9, cassava output is 5812.6 and 11509.1 yam is 1471.4 and 2316.9, respectively. The increase in the overall mean of the crops cultivated by graduates of farmer field school in farm size and output shows that activities of farmer field school had effect on the level of production of its graduates, thereby increasing the overall output of farmers in the study area. This was closely related to the findings by Nwaobiala (2013) that the high level of participation in Farmer Field School Approach had shown that the technologies transferred were beneficial to cocoa farmers by increasing their farm size, farm output and farm income.

**Table 6: Frequency distribution of respondent level of production before and after attending farmer field school**
**N=154**

| Level of production | Before FFS | | After FFS | | |
|---|---|---|---|---|---|
| | Mean | Std dev | Mean | Std dev | Difference in means |
| Maize farm size (ha) | 1.9 | 1.14 | 3.66 | 2.17 | 1.76 |
| Cassava farm size (ha) | 1.59 | 1.19 | 3.03 | 2.25 | 1.44 |
| Yam farm size (ha) | 0.42 | 0.67 | 0.7 | 1.09 | 0.28 |
| Maize output (kg) | 1869.5 | 1077.9 | 3613.9 | 2109.6 | 1744.4 |
| Cassava output (kg) | 5812.6 | 7332.8 | 11509.1 | 14682.8 | 5696.5 |
| Yam output (kg) | 1471.4 | 2550.4 | 2316.9 | 3911.2 | 845.5 |

**Field Survey 2012**

**Research hypotheses**

Pearson product moment correlation coefficient (PPMC) in Table 7 reveals that a significant relationship exists between respondents' communication activities (0.250) and their level of production at $p<0.05$. This implies that communication activities carried out in farmer field school had influence on the level of production. It was revealed that constraint (r=-0.547) had negative but significant relationship on level of production. Also, benefit derived from involvement in FFS (r=0.218) had positive and significant relationship with level of production of respondents. This means that the lesser the constraints faced by respondents on farmer field school activities, the more the level of production of farmers. Furthermore, the benefit that is derived from farmer field school activities will enable the farmers to use the skill acquired from the school to improve their level of production. Madukwe (2006) noted that the FFS has transformed farmers from recipients of information to generators and manipulators of local data.

**Table 7**: **PPMC Analysis of Relationship between production activities, communication activities, benefits derived from FFS and Level of Production of Graduates of Farmer's Field School**

| Variable | r | *P* |
|---|---|---|
| Production activities | 0.041 | 0.616 |
| Communication activities | 0.250 | 0.002** |
| Benefit | 0.218 | 0.007** |
| Constraints | -0.547 | 0.000** |

r = correlation coefficient, p= probability level of significance $p \leq 0.05$

**Relationship between the selected socio-economic /enterprise characteristics of respondents and their level of production**

Chi-square analysis in Table 8 tested relationship between socio-economic characteristics of graduates

of FFS and their level of production. The relationship between sex, marital status and access to NPFS loan ($X^2$ =6.953, 10.904 and 11.950, respectively) were found to have a significant and positive relationship at $p<0.05$ with level of production. Results show that level of education, religion, primary occupation, secondary occupation, types of labour and membership of NPFS ($X^2$= 3.119, 1.387, 12.279, 10.514, 16.324, 10.286, respectively) of the respondents were not statistically significant with level of production at p=.05. 1Sex of respondents was significant because majority were male. That of marital status is true because married farmers are shouldered with the responsibility of the family; therefore participation in FFS is geared towards more production. Access to NPFS loan had a significant relationship with level of production since it helps to boost the level of production of the farmers from small scale to large scale so as to increase income generated from farming.

**Table 8: Chi-square Result Showing Relationship between Socio-economic /enterprise Characteristics and Farmers level of production.**

| Variables | Df | $X^2$ | p-value | Decision |
|---|---|---|---|---|
| Sex | 1 | 6.953 | 0.007 | Not Significant |
| Marital status | 4 | 10.904 | 0.006 | Not Significant |
| Level of education | 3 | 3.119 | 0.375 | Not Significant |
| Religion | 1 | 1.387 | 0.239 | Not Significant |
| Primary occupation | 4 | 12.279 | 0.100 | Not Significant |
| Secondary occupation | 4 | 10.514 | 0.026 | Not Significant |
| Types of Labour | 3 | 16.324 | 0.701 | Not Significant |
| Membership of NPFS | 1 | 10.286 | 0.208 | Not Significant |
| Access to NPFS loan | 1 | 11.950 | 0.000 | Significant |

df= degree of freedom, X =chi square coefficient, p= probability level of significance $p \leq 0.05$

## CONCLUSION

The study established that most of the FFS graduates in the study area were in their reproductive age and were males. Also, harvesting was the leading production activity engaged in by the respondents in the study area. Furthermore, discussion among FFS graduates in communication and production activities was more pronounced than other activities. In conclusion, much benefit was derived by the respondent on exposure to communication and production activities and thus contributing to increase in the level of production of the farmers.

Based on the foregoing, it is suggested that FFS should be recommended for other farm enterprises to achieve the goal of ATA which is to improve agricultural productivity and value chain. Also more females should be encouraged to participate in FFS activities through enlightenment programmes and sensitization about the goal and objectives of the program.

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# EVALUATING YOUTH INVOLVEMENT IN CROP PRODUCTION IN GIWA LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA

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**Abstract**

Nigeria as a country is characterized by massive youth unemployment and poverty. The country's population is estimated to be over 160 million people, half of which are youths. The labor market is saturated with about 75% unemployed or underemployed youths that are targeting white collar jobs. About 100 million people nationwide are said to be suffering from "absolute poverty". Efforts to curb these problems of unemployment and poverty bedevilling the Country led to the establishment of the Agricultural Transformation Agenda [ATA] initiative of the Federal Government. In spite of this laudable initiative, not much change has taken place in terms of youth employment and poverty in the country. The broad aim of the study was to evaluate youth involvement in crop production in the area. Questionnaire was used to collect data on socio-economic characteristics of youths involved in crop production, their attitude to crop production practices and the quantum of support received from government through extension service in crop production practices. Giwa Local Government Area was purposively selected for being a major crop production area in the state. Doka, Giwa, Yakawada, Galadimawa and Kakangi districts were purposively selected due to their cosmopolitan nature as well as being the areas with secondary schools. A list of youths actively involved in crop production and youth organizations was obtained from the district out of which 50 youths were randomly selected. Data were analyzed using descriptive statistics like: percentages, frequencies and ranking methods. Findings revealed that 74% of the youths were male, and the mean age was 26.65 years. Ranked results showed that the first reason why the youths were not involved in crop production was due to the tediousness of farm operations. Many of the youths (52%) were unaware of the existence of extension agents and their services. It was concluded that youths involved in crop production were not adequately encouraged hence the Federal, State Governments and Private Partners should provide youths with easy access to modern farming technologies and credit as well as make reforms in the existing educational sector to encourage farming and transform the existing land tenure arrangements to provide increased access.

**Keywords:** Youths, Crop Production, Unemployment, Poverty

## INTRODUCTION

The Oxford Dictionary defines youth as the period between childhood and adulthood with the qualities of vigor, freshness or immaturity as associated with being young. Globally, youth is described as the period in an individual's life that runs between the end of childhood and entry into the world of work. According to Nigeria's National Youth Development Policy (2001), the youth comprises all young persons of ages 18 to 35, who are citizens of the Federal Republic of Nigeria. However, the youths in this study are conceptualized as people within the ages of 13 and 39 years old. The Nigerian youth are estimated to be about 80 million people. This constitutes half of the total population. According to the Nigerian Bureau of Statistics (NBS, 2013), the national unemployment rate is 23.9 percent with the youth accounting for more than 70 percent.

Arguments have been put forward to leverage on the employment generation capability and opportunities of the agricultural sector of the economy to combat the massive youth unemployment, poverty and restlessness that has become the bane of the society. According to Oluwatomi (2012) Agriculture is the backbone of any dynamic and forward looking economy with Nigeria not being an exception. It plays an important role in socio-economic development by ensuring food security, providing raw materials for foreign & local industries; generate foreign exchange and income for most of the population, majority of which is rural-based as well as providing employment and other strategic rural – urban economic turnaround opportunities. Increased involvement of youth in agricultural activities will help reduce the problems of the ageing farm population and increasing youth unemployment. The Nigeria 2001 National Youth Policy provides the framework for all stakeholders to empower the youth to realize their full potentials and take advantage of the opportunities available to make positive contributions to the well-being of their communities across the entire country.

The Federal Government under the leadership of President Goodluck Jonathan therefore instituted the National Economic Transformation Agenda whose aim is to diversify the economy from reliance on oil, assure food security and create jobs, especially for the youth. As observed by Itah (2012), the transformation Agenda of President Goodluck Jonathan is a policy package that proposes to reposition the economy by addressing issues of poverty, unemployment, insecurity and most particularly, the diversification of the entire economy from total dependence on oil to a significant reliance on non-oil driven economy. Gyong (2012) observed

that: In the life of a nation, transformation involves structural changes in the major institutions of governance and the society at large. It should guarantee improved living standard, Per Capital Income, Gross Domestic Product (GDP) and other basic socio-economic indicators such as food, shelter, clothing and health for the substantial majority of the citizenry. Thus, on the whole, transformation can be said to be a total package that involves every facet of the individual, organization or society. It is meant to be a vehicle for a better society where virtually everyone will be reasonably comfortable. According to yarinigeria.wordpress.com (2013), the Federal Agriculture Ministry has put in place innovative solutions to address youth unemployment and food security challenges. But are Nigerian youths aware of the goldmine hidden in the agricultural sector today? Four major problems among several others accounted largely for youth's lack of interest in Agriculture, namely: Drudgery in farm operations, Lack of competitive market for agricultural products, Lack of start-up capital for the youths, Lack of Buy Back Scheme (BBC) by the Government (yarinigeria.wordpress.com, 2013). However, the ATA team is working very hard to address all these problems through the following Government Initiatives that are mostly Private sector driven but Government enabled. Some of the programmes include: The Private Sector Driven Agricultural Mechanization Programme, (PSDAMP), Staple Crops Processing Zones (SCPZs), One Stop Agro-Centre (OSAC), Youth Employment in Agriculture Programme (YEAP), Growth Enhancement Support (GES) Scheme, Nigeria Incentive Based Risk sharing System for Agricultural Lending (NIRSAL), Commercial Agriculture Development Project (CADP) FADAMA III, National Programme for Food Security (NPFS), Private sector Driven Commodity Marketing Corporation.

Despite these programmes as well as the expanding markets for primary and secondary agricultural commodities, the involvement of the youth in agricultural activities has steadily declined in recent years. Ekong (2003) noted that the youth who have the energy to take up agricultural production do not believe or have the knowledge that agricultural production can really be a profitable venture. According to Oluwatomi (2012), it would be an omission of reality if the nation does not address the challenges faced by young people as it relates to their involvement in agriculture and agribusiness.

In spite of the high current youth unemployment rate, and abundance of agricultural opportunities available for youths to practice agriculture as a livelihood strategy not much support or encouragement is received from the federal, state and local governments in terms of making credit accessible and initiating pragmatic policies to reform the existing but moribund land tenure difficulties facing enthusiastic prospective young farm entrepreneurs. Thus the study seeks to further expose challenges facing youths practicing agriculture to enable clear policy direction as well as raise opportunities and attention from donor agencies to support youth agricultural initiatives. It is to this extent that this study vigorously sought to investigate the following study objectives: describe the socio-economic characteristics of youths in the study area, examine the reasons for the dwindling youth involvement in crop production and assess the support of government through extension service to youths participating in agricultural crop production

## METHODOLOGY

The study was carried out in Giwa Local Government Area, Kaduna State. It lies in the northern guinea savanna ecological zone with savanna woodland vegetation and underlying grass species. Giwa Local Government Area has an area of 2,066km$^2$ and a total population of 292,384 (NPC 2006), and lies between latitude 11.20º and 11.42°N and longitude 7.50 º and 7.40°E of the equator. It has a wet season between June and September and a dry season which lasts from October to early May. The dry season is further divided into a cool dry season known as harmattan period from November to February and hot dry season from March to early May. Its vegetation is of the northern guinea savannah type (Otchere, E. O., Ahmed, H. U., Olorunju. S.A.S. and Kallah, M. S. 1988). Majority of the people are small scale farmers. Crops produced in the area include maize, millet, sorghum and groundnut. The people are mostly Hausa and Fulani. The settler population includes the Yorubas, Igbos, Southern Kaduna Indigenes and people from the Middle belt and North east.

A multistage sampling procedure was employed. Giwa Local Government Area was purposively selected due to it being a major crop producing area in the State. A purposive sampling method was also used to select five villages (Giwa, Yakawada, Galadimawa and Kakangi in Giwa). Ten youths were randomly selected from each of the villages making a total of 50 youths from the list of youths actively involved in youth organizations in the districts. Information was collected from youths between the ages of 13 and 40 years. The data were collected using a structured questionnaire. The data collected were subjected to statistical analysis such as percentages, frequencies and ranking.

## RESULTS AND DISCUSSION

### Description of the socioeconomic status of respondents

**Age -** The result in Table 1 showed that many (42%) of the respondents were within the age range of 23-27 years and the mean age was 26.65 years. The categories of youths studied were between 13 and 37 years and might have been responsible for arriving at this mean age. Individuals within this

mean age are expected to have determined the path of career that they wished to follow as well as were in the category that could be said to be strong, healthy, dynamic and resourceful. Therefore, it is expected that if they choose agriculture as a career in life, they would be able to achieve sustainable progress and boost food production. Although the works are not directly related, but a study by Udoh and Nyienakuma (2008) reported that farmers within this active age groups are more able to withstand stress and put more time in various farming operation, as well as embrace new techniques of production, these in return results in increased production.

**Gender -** The result in Table 1 presents the distribution of respondents according to gender differences. The result shows that majority (74%) were male. Socioeconomic factors in Nigeria, and indeed the study area are factors that stand strong in determining participation in ventures. This finding is corroborated by similar study carried out by Echebiri, (2005) which also noted that male are more involved in agricultural production than female. The implication is that the female gender is not sufficiently encouraged to undertake farming as a means of livelihood.

**Household size -** The result in Table 1 further showed that majority (60%) of the respondents has household sizes ranging from 3 to 4 members. Considering the dominant age of majority of the respondents it is not surprising that the household size appears this way. Even though farming and cultural practices encourage early marriage and large family size, the precarious nature of the economy and the reality of the ages of the respondents predispose to this small family size. Adebayo (2012) reported that an increase in household size would likely bring the household membership to food insecure group.

**Level of education -** The results presented in Table 1 on level of education attained by the respondents showed that more (42%) of the respondents had secondary education. The reason for this relatively high level of education attainment may be attributed to the closeness of the Local Government to Sabon-Gari Local Government which has a high concentration of institutions of learning (especially tertiary). The implication is that increased educational level often leads to better adoption of improved farming practices and hence better productivity. Education has been found to have a positive correlation with making right adoption decisions as well as providing access to information similar view is shared by (Rahm and Huffman, 1984).

**Occupation -** The result in Table 1 showed that many of the respondents (56%) were engaged in farming as an occupation. Farming has a wider variety of ways that it can provide food and employment to the unemployed. This, more than any other Reason may be why many of the respondents engaged in farming. Moreover, the villages sampled were basically agrarian communities with farming as the main preoccupation. The villages were also sparsely populated compared to the cities or urban areas and with greater availability of land for farming, there is no reason why farmers should not be in the majority.

Table 1: Distribution of respondents according to socio-economic status, n=50

| Variables | Frequency | Percent |
|---|---|---|
| **Age** | | |
| 13-17 | 3 | 6 |
| 18-22 | 6 | 12 |
| 23-27 | 19 | 38 |
| 28-32 | 17 | 34 |
| 33-37 | 5 | 10 |
| Mean age = 26.65 | | |
| **Gender** | | |
| Male | 37 | 74 |
| Female | 13 | 26 |
| **Household size** | | |
| 1-2 | 4 | 8 |
| 3-4 | 30 | 60 |
| 5 and above | 16 | 32 |
| **Level of education** | | |
| Non-literate | 16 | 32 |
| Primary education | 4 | 8 |
| Secondary education | 21 | 42 |
| Tertiary institution | 9 | 18 |
| **Occupation** | | |
| Farming | 28 | 56 |
| Non-Farming | 22 | 44 |

Source: Field Survey, 2013

**Perceived reasons for non- involvement of youths in crop production**

The results presented in Table 2 showed that the most important reasons for the dwindling involvement of youths in crop production was because farming operations are tedious. Other reasons in order of importance include: parents wanting their children to go to school and no guarantee access to credit. Apart from parents preferring education and thus not wanting their children to take farming as a career livelihood, all the other stated reasons for the dwindling involvement of youths in agriculture were largely due to the backward nature of Nigerian agriculture. Hence any effort to revamp the agricultural practices towards modern mechanized and commercial agriculture will ginger and encourage youth involvement. The implication will be that farming will receive a boost in production and profitability. According to Lawal and Muyiwa (2009) the existing gap between population growth and food crops productions could be bridged through adoption of modern farming technology, encouraging youths in farming, adequate agricultural infrastructures and mechanization, funding agricultural scientific research, and adequate and relevant up-to-date farming information.

Table 2: Reasons for not being involved in crop production

| Reasons for non-involvement in crop production | Frequency | Ranking |
|---|---|---|
| Farming operations are tedious. | 8 | 1st |
| My parents want me to go to school | 5 | 2nd |
| Farming is not profitable | 4 | 3rd |
| Lack of government support | 2 | 4th |
| Rigid land tenure system | 1 | 5th |
| **Total** | **22** | |

Source: Field Survey, 2013

**Assessment of government support through the extension services to the respondents**

The results presented in Table 3 showed that many of the respondents (52%) denied being aware of any services offered by the extension services. The reason respondents in Giwa may not know about the activities of extension services may not be far from their remoteness from the State capital where most of the extension activities are concentrated. Given the reason that it has a common boundary with Sabon-Gari Local Government Area which hosts the Ahmadu Bello University, Zaria that has three major research institutes (Institute for Agricultural Research, National Agricultural and Extension Research and Liaison and National Animal Production Institute) having national mandate for agricultural researches and information dissemination, it is expected that extension services activities will be ordinarily available or even diffuse to the Area through the many research centers. But available evidence shows that many of the youths are ignorant of extension operations talk less of benefitting from its services. Extension services had been found to have positive correlation to agricultural productivity. Extension should serve as link between farmers, researchers and government. As the gap between old farming techniques that promote drudgery and new technological developments continue to widen, many youths that should have been relied upon as the future of the Nation's agricultural development may not be attracted to farming.

The result presented in Table 3 further showed that from the 48% that have benefitted from the extension service, the services benefitted from had the following frequencies: information on new practices (21), provision of farm inputs (20), access to credit (15) and leadership training (7). The results show that youths in the study area, although may have enjoyed various services, but the spread, in terms of number and impact, appear low given the number of youths studied in the area. The implication is that the food security of families may still be unsecured.

Table 3: Distribution of respondents according to awareness of government extension services and supports received

| Variables | Frequency (%) |
|---|---|
| **Awareness of extension services** | |
| Yes | 24 (48) |
| No | 26 (52) |
| | n=50 |
| **Specific services benefitted** | |
| Information on new practices | 21 (42) |
| Provision of farm inputs | 20 (40) |
| Provision of credit | 15 (30) |
| Leadership training | 7 (14) |

*Multiple responses are allowed

Source: Field Survey, 2013

## CONCLUSION

The study established the fact that a large number of youths are opposed to developing a career in agriculture. Reasons for this center around the traditional methods (use of crude implements, land tenure problems and absence of government support to agricultural practitioners) of practicing agriculture in the country. This has serious negative consequences on the future of agricultural development in Nigeria and therefore, portrays Government's agricultural transformation agenda as a mere political propaganda.

## RECOMMENDATIONS

Based on the major findings of the study, the following recommendations are hereby made:

1. Calculated efforts should be made to encourage more youths and particularly the female gender to participate without discrimination in agricultural programmes and projects.
2. The agricultural transformation agenda of Government should look critically at ways of really eliminating the tedious nature of agriculture in Nigeria to one that is mechanized. The days of hoes and cutlasses should be put behind and agriculture should be made a sustainable and profitable enterprise.
3. School curriculum should be redesigned by the stakeholders to include modern agricultural practices that will encourage and build the interest of youths in agriculture. Times should be allotted for modern farming in the school calendar and the youths encouraged to practice areas of agriculture they are interested.
4. Extension services (both private and public) should be improved to increase access by youths and programmes targeted at more youths.

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# AN ASSESSMENT OF THE EFFECT OF LAPO MICROFINANCE SCHEME ON POVERTY REDUCTION IN BENIN CITY, EDO STATE, NIGERIA

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**Abstract**

The problem of poverty is a global phenomenon, and no doubt one of the greatest challenges facing mankind today. Efforts to stem the spread of poverty have attracted the attention of government, researchers and policy makers. One of such is the Lift Above Poverty Organisation (LAPO) in Benin-City, Edo State. This study assessed the effect of microfinance on poverty reduction in Benin-City, Edo State, Nigeria. The Survey research design was adopted for the study. A total of 265 respondents comprising 250 clients of LAPO microfinance bank (Fifty (50) participants each from the five branches of LAPO) who have accessed micro-credits, 5 management staff of LAPO microfinance bank and 10 other beneficiaries of microfinance loan who are leaders of selected registered unions were selected for the study. The primary data collected were analysed using descriptive and inferential statistics. Findings reveal a positive improvement in the welfare of beneficiaries of micro-credits. Problems confronting the loan beneficiaries amongst others were high interest rates, short period of loan repayment (6 months), and small amount of loan (N30, 000). Others were too much delay in processing the loan application, inaccessibility of the loan to the rural poor and mandatory insurance deposit. The study recommended a downward review of the high interest rate charged by microfinance banks, reduction of time of loan approval and extension of loan repayment period.

**Keywords**: Poverty, Microfinance, Rural Poor, Empowerment.

## INTRODUCTION

The poverty question is a global phenomenon and perhaps one of the greatest challenges facing Mankind today, especially in the developing world. This perhaps explains why the eradication of global poverty was listed as the first of the eight issues of the Millennium Development Goals (MDG). The problem of poverty is more disturbing giving the fact that there is abundant and enormous wealth in the world to adequately meet the needs of every one.

In other words, the problem of poverty is more endemic in Sub-Saharan Africa with 47.5% of the people living on less than $1.25 and 70% living on less than $2 per day (World Bank, 2008). In Nigeria, the high level of corruption and poor leadership has contributed to exacerbate the problem of poverty. Ucha, (2010) puts it thus: "Unemployment, corruption, non-diversification of the economy, income inequality, laziness and a poor educational system can be considered to be some of the key factors contributing to poverty in Nigeria".

Similarly, existing literatures on poverty in Nigeria corroborates the fact that poverty is growing rather than abating. According to the National Bureau of Statistics (NBS) data, as at 2010, 69.0% of Nigerians (112 million people) were living in poverty, an increase from 54.4% in 2004. This is particularly disturbing given the fact that Nigeria is a country with rich human and natural resources. The government has over the years formulated a lot of programmes and policies geared towards poverty reduction; however, in light of the above statistics it remains a controversy whether those programs and policies have actually achieved their desired goals and objectives. In recent past however, many microfinance institutions have sprung up, backed by the Central Bank of Nigeria (CBN), 2005 Microfinance Policy, Regulatory and Supervisory Framework as amended in 2011. The goal of this policy is to strengthen and position Microfinance Banks (MfB's) to provide small, collateral free loans to poor Nigerians especially those residing in rural areas to support their trade and business and by implication reduce poverty. Consequently, the study examines, empirically, how well microfinance has contributed to poverty reduction in Nigeria. Focus will be on beneficiaries of micro-credits from LAPO microfinance bank in Benin City and how it has affected their socio-economic advancement.

Specifically, the objectives of the study are to:

1. To find out the socio-economic characteristics of beneficiaries of LAPO microfinance loans in Benin City.
2. To assess the effect of micro-finance scheme on the living standard and wellbeing of the beneficiaries
3. To find out the policy, regulatory and supervisory frameworks that guide micro-finance banks in Nigeria
4. Examine the possible constraints/ challenges faced by beneficiaries in accessing loans from LAPO microfinance bank

### Conceptual clarification of poverty

Undoubtedly, one of the most contentious and serious problems facing humanity today is that of poverty. Defining the concept of poverty in absolute terms is in fact difficult because there is no consensus measure or single
meaning of poverty and defining who is poor (Rosenfield, 2010; Spicker, 1999; Akindola, 2009). However, some definitions are worth viewing.

According to O' Boyle (1991) "Poverty is a problem in unmet human physical needs. That is persons and families in poverty lack the goods and services needed to sustain and support life and the income to purchase the goods or services which would meet those needs".

The World Bank 2000 explained poverty as follows;

> *Poverty is hunger, lack of shelter, being sick and not being able to see a doctor, not having access to school and not knowing how to read and write, not having a job, fear for the future, living one day at a time. Poverty is losing a child to illness brought about by unclean water. Poverty is powerlessness, lack of representation and freedom from servitude. Poverty is living in abject squalor and hopelessness* (World Bank 2000).

Similarly, Townsend (2010) defines poverty as inadequate resources of people which fall seriously short of the resources commanded by the average individual or family in the community in which they live, whether that community is local, national or international one. In summary, poverty is defined in this study as a condition of acute deprivation preventing a person from living a life of adequate wellbeing.

**Microfinance**

The declaration by the United Nations pronouncing 2005 the year of microcredit and the 2006 Noble Peace Prize award to Dr. Mohamed Yunus, the founder of Gramaen Bank gave impetus to the growth of microfinance globally (Midgley, 2008). The term, microfinance have been defined in different ways by different authors. Midgley (2008), defines microfinance as the provision of small credit to poor people usually with 'little or no collateral and at a comparatively low interest rate'. According to Yunus (2003, quoted in Dobra 2011), Microfinance involves the process of giving access to financing to as many poor people as possible, allowing them to utilize their capacities in favour of lasting development. Similarly, Ehigiamusoe (2011) defines microfinance as a set of less rigid organization structures and procedures by which necessary financial services are provided to low-income people and owners of small enterprises on a sustainable basis. It can be deduced from the above definitions that microfinance is basically about providing loans and credit to the poor(to support their trade and business) who are usually excluded from the normal banking system in the society.

**Theoretical Framework**

The theoretical framework used in this study is the capability approach. The approach explains poverty not in monetary sense (income and consumption) only but as a result of deprivation or lack of basic capability to live a valuable life (see Sen, 1983, 1988, 1993, and 1999). According to Sen, living a life of adequate wellbeing requires meeting/achieving some basic capabilities and functioning. Achievement of functioning does not depend only on the commodities a person have, but the availability of some certain public goods needed to achieve a certain functioning (Sen, 1988, Robeyns, 2005).Similarly, Nussbaum (2003) posit that the capability approach is closely related to the Universal human rights. These rights she added are those that have to do with 'opportunities and capabilities' that enable an individual to make choices about life's plan, and that the fundamental human rights can only be meaningful when people have the desired capability to function.

**METHODOLOGY**

The study was conducted in selected branches of LAPO Microfinance Bank in Benin City. Benin City is capital of Edo state, the city is split into three administrative and political Local Government Areas: Oredo, Ikpoba-Okha and Egor, with Oredo being the socio-economic and political nerve-centre. According to 2006 Census, Benin City has a total population of about 1,147,188 people (NPC, 2006). The inhabitants of the area are mainly the Benin ethnic groups and settlers from other parts of the state and country. On the other hand, LAPO Microfinance is one the biggest microfinance institution/banks in Nigeria with over 268 branches spread across 23 states of the country. LAPO began operation as a non-profit finance institution in 1987. It transformed into a Microfinance Bank in 2010 with the approval of the Central Bank of Nigeria (CBN) under the Microfinance Policy, Regulatory and Supervisory Guidelines of 2005(LAPO, 2009, 2011).

This study adopted the survey design. The respondents were selected using cluster sampling technique. Branches of LAPO in Benin City were divided into the three constituents' Local Government Areas (LGA) that made up the city: Oredo, Ikpoba-Okha and Egor. From the lists of the branches in the area, two each were selected from Oredo and Ikpoba-Okha, while one was picked from Egor. This selection was done based on population and concentration of branches in the respective local government areas. Being that Oredo and Ikpoba-Okha have more branches and population two branches each were selected from there hile one was selected from Egor. Thereafter, 50 clients were randomly selected from each of the branches making it 250 clients/respondents that the questionnaire was administered to. The questionnaires were administered to the respondents with the help of two trained research assistants. Among the 250 samples selected for the questionnaire, 80% which is 200 was valid. Most of the respondents were not willing to complete the questionnaire and others were not correctly filled, hence were discarded. In addition to this, five (5) other respondents who are management

staff of LAPO were interviewed and another 10 beneficiaries of micro-credits who are leaders of selected unions of LAPO were organized for the focus group discussion. The data were statistically analysed using simple percentages.

## RESULTS AND DISCUSSIONS

### Socioeconomic and demographic characteristics of respondents

Result in Table 1 shows that majority of the respondents (55.0%), were youths since their ages fall within 21-40 years. Only 12.5% were above 60 years. Meanwhile, most of the respondents (88.5%) were females. This result corroborates the fact that Microcredit beneficiaries are predominantly Women. The data for marital status shows that 21.0% of the respondents were single, 8% widowed, while 62.0% were married. This means that majority of the clients/respondents were are those who belong to the married Nu7a

The result also revealed that 20.0% of the respondents are illiterates since they have no education background, while only 10.0% are graduates. Similarly, 72.5% of respondents are Christians, this supports the fact that majority of the people living in Benin City are Christians. The results also revealed that a vast majority of the respondents (75.0%) are Traders/Business. The percentage of respondents who have borrowed more than twice was 53%; thus revealing that majority of the respondents have been doing business with LAPO for more than two years.

Table 1: Socioeconomic and demographic characteristics of respondents

| **Age(Years)** | **Frequency** | **Percentage** |
|---|---|---|
| Below 20 | 10 | 5.0 |
| 21-40 | 110 | 55.0 |
| 41-60 | 55 | 27.5 |
| Above 60 | 25 | 12.5 |
| **Sex** | | |
| Male | 23 | 11.5 |
| Female | 177 | 88.5 |
| **Total** | **200** | **100** |
| **Marital Status** | | |
| Single | 42 | 21.0 |
| Married | 124 | 62.0 |
| Separated | 18 | 9.0 |
| Widowed | 16 | 8.0 |
| **Education Background** | | |
| None | 40 | 20.0 |
| Primary School Leaving Certificate | 50 | 25.0 |
| Junior Secondary | 10 | 5.0 |
| Senior Secondary/NECO/GCE | 40 | 20.0 |
| National Diploma/NCE | 31 | 15.5 |
| HND/First Degree | 20 | 10.0 |
| Masters/PhD | 9 | 4.5 |
| **Religion** | | |
| Christianity | 145 | 72.5 |
| Islam | 23 | 11.5 |
| Others | 32 | 16.0 |
| **Occupation** | | |
| Trading/Business | 150 | 75.0 |
| Civil Service Work | 20 | 10.0 |
| Teaching | 3 | 1.5 |
| Others | 25 | 12.5 |
| None | 2 | 1.0 |
| **No. of Times Loan Accessed From LAPO** | | |
| Once | 62 | 31.0 |
| Twice | 32 | 16.0 |
| More Than Twice | 106 | 53.0 |
| **Total** | **200** | **100.0** |

**Source: Field Work, 2013**

### Attitude of Respondents towards the effects of Microfinance

Attitude as used in this research was defined as the respondents' perception of the effects of the loans they received on poverty. This was assessed by asking the respondents opinions on 4(four) distinct statements/questions on their living standard since they started collecting loans from LAPO Microfinance Bank (MfB). A five point Likert scale of Strongly Agree (SA), Agree (A), Undecided (U), Decided (D) and Strongly Disagreed (SD) was used to record their responses.

Results as shown in Table 2, reveal that 24.0% and 57.0% of the respondents strongly agreed and agreed, respectively, to feeding better than they used to do since they started collecting loans from LAPO. Also, 46.5% agreed that they were able to provide for their children's education better than they used to do. Similarly, 56.0% agreed to saving more money than before, while 12% disagreed. 55.5% of the respondents agreed to have grown their business. The interview and focus group discussions reveal a similar result. For instance Discussant B who was a union leader expressed happiness for joining LAPO MfB Union and noted that access to micro credits from LAPO MfB since 2002 have helped her food stuff business to expand tremendously and this she added have translated to more support for her family. Also, other studies by Anyanwu, (2004); Yahaya, Osemene & Abdulkareem (2011) observed that microfinance helps in reducing poverty by providing financial services to the poor, generating employment and assisting small businesses to grow.

**Table 2: Attitudes of respondents towards the effect of Microfinance**

| Response Items | SA | A | U | D | SD |
|---|---|---|---|---|---|
| I feed better than I used to do | 48 (24.0) | 114 (57.0) | 5 (2.5) | 20 (10.0) | 13 (6.5) |
| I am now better able to provide for my children's Education | 35 (17.5) | 93 (46.5) | 19 (9.5) | 24 (12.0) | 29 (14.5) |
| I am able to save some money now unlike before | 45 (22.5) | 112 (56.0) | 2 (1.0) | 24 (12.0) | 17 (8.5) |
| My business have grown/expanded than before | 47 (23.5) | 111 (55.5) | 6 (3.0) | 14 (7.0) | 22 (11.0) |

**Source: Field Work, 2013**

**Policies, regulatory and supervisory frameworks that guide microfinance banks in Nigeria**

According to the Central Bank of Nigeria (CBN), 2005 Microfinance Policy, Regulatory and Supervisory Framework as amended in 2011, and information from the interview of the study, the following are the policies, regulatory and supervisory frameworks guiding operations of Microfinance Banks in Nigeria:

- The CBN shall be responsible for the registration and licensing of MfB's in Nigeria, and such institutions must add "Microfinance Bank" to its name. And all such names are required to be registered with the Corporate Affairs Commission (CAC) in accordance with the Companies and Allied Matters Act (CAMA) 1990.
- All operators of MfB's are required to familiarize themselves with the revised regulatory and supervisory guidelines and comply with its provisions accordingly.
- Operators shall be required to obtain credit information from credit reference bureau to aid decision making and minimize risk.
- As a means of ensuring safety of depositors' funds and public confidence, MfB's shall qualify for the deposit insurance scheme of the National Deposit Insurance Corporation (NDIC).
- As a way of bridging the technical skills gap of the MfB's, the CBN have established the Microfinance Certification Program (MCP) to ensure the acquisition of requisite microfinance operational skills by staff and management of MfB's.
- The MfB's shall be required to make annual budgetary provision for staff development and capacity building programs.
- When established, the Microfinance Development Fund shall provide financial support for capacity building program for the MfB's on an on-going basis.
- Based on the importance of wholesale funds to MfB's which could enable them to expand their outreach, the CBN shall work out modalities for fostering linkages between MfB's and deposit money banks/development finance institutions, specialized finance institutions and Donor Agencies to enable them source for wholesale funds for continuous lending to customers.
- MfB's shall disclose their sources of fund in accordance with the Money Laundering Prohibition Act 2004.
- The corporate governance principles shall be adhered to by all MfB's and the corporate governance shall be the direct responsibility of The Board of Directors by establishing strategic objectives, policies and procedures that would guide and direct the activities and the means to attain good corporate governance as well as setting up mechanisms for monitoring management's compliance.

This framework have led to the growth and expansion of microfinance institutions, as well as increased people's confidence in their operations in Nigeria.

**Problems/challenges hampering the successful implementation of the microfinance scheme**

From the field work results of this study, the following were the common views by respondents of the problems/challenges hampering the microfinance scheme in the study area:

- Too much demand requirements before loans are given
- Difficulties in getting guarantors by the clients
- Lack of trained and experienced microfinance experts
- High Interest Rate and Short repayment period
- Lack of care and attention by the MfB staff to the clients
- Communication problems between beneficiaries and MfB staff caused by poor literacy and multiple languages.
- The process and time of loan approval is too long
- The loan amount is too small to help clients expand their businesses
- High handedness by leaders of some MfB unions.
- Lack of direct support from the government e.g. failure to establish a microfinance development fund.
- Lack of adequate funds to meet the growing needs of the beneficiaries. This was also observed by Morduch& Harley (2002) that microfinance has not been able to sufficiently penetrate the poorer strata of the society.

## CONCLUSION

This study focused on the assessment of the effect of the micro finance scheme in the reduction of poverty. The result of the analysis reveals a lot of progress and positive outcome for majority of the beneficiaries/clients who agreed that LAPO microfinance have helped them out of poverty. However, this positive outcome does not mean that the microfinance framework is problem free. In fact, the prospects of micro finance as a poverty reduction tool is being threatened by poor outreach to clients especially those in the rural areas who do not have access to these credits. A problem caused by biased location of most Microfinance Banks in the urban areas, inadequate fund and harsh fiscal policy on the part of micro finance institutions.

## RECOMMENDATION

Consequently, to make microfinance more accessible and beneficial to the poor (especially those in the rural areas) in Nigeria the following recommendations are put forward:

- The high interest rates charged by microfinance banks should be reduced so as to reduce the burden on the clients.
- The government, specifically the CBN should collaborate with the Microfinance Banks in the area of manpower training so as to increase the number of professionals/experts in the sector.
- The loan approval process of the microfinance banks should be fasterso as to reduce the long period of loan approval and ensure quick access of c,redits to the clients. Also, the period of loan repayment should be extended beyond the present 6 to 8 months to between 15 to 18 months.
- The present threshold amount of N30, 000(thirty thousand Naira) should be increased to N60, 000 (sixty thousand Naira) so as to give the clients/borrowers more capital for their businesses.
- The process of setting up of the planned microfinance development fund by the government should be expedited as this would help provide more liquidity for the microfinance banks and therefore increase their outreach to other numerous poor clients.
- The CBN and other necessary agencies of government should work vigorously to ensure that more microfinance banks are located in the rural areas.
- The provision of basic infrastructures and amenities should be vigorously pursued by the government.
- Also the problem of corruption which is ubiquitous in Nigeria should be urgently tackled.

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# INDIGENOUS METHODS USED BY AGRO-PASTORALISTS FOR CATTLE HEALTH MANAGEMENT IN RURAL AREAS OF OYO STATE, NIGERIA

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**Abstract**

Agro-pastoralists form the bulk of the producers of meat for Nigerians. Therefore, attention to this sector is essential to enhance food security. This study examined indigenous methods adopted by agro-pastoralists for cattle health management. Multi-stage sampling technique was used to select 107 Agro-pastoralists from the rural areas of Oyo State. Data collected were described with frequency counts, percentages and mean. Regression was used to test the hypothesis. Findings showed that 51.4% of the agro pastoralists were between the ages of 41- 50 years with the mean age of 42 years. The study further revealed that all the agro pastoralists were male and Muslims. Majority (93.0%) believed that hygiene was the best indigenous method for cattle health management. Also, use of herbs (87.0%), bush burning (48.0%), use of holy books and local concoctions (35.0%),use of incantations (28.6%) and herd sharing (89.7%) were indigenous methods practiced by the herdsmen. There exists significant relationship (at $p<0.05$) between indigenous methods adopted towards cattle health and age ($\mathbf{r}_{=}$ -0.192.) and household size (**r**=-0.198). It was concluded that indigenous knowledge should be incorporated in the preventive and curative medicine to reduce incessant mortality rate of cattle. It therefore recommended that innovative programmes that will benefit the agro-pastoralists should be organized to broaden their knowledge of innovation acceptance.

**Keywords:** Indigenous, Methods, Agro-pastoralists, Health, Management

## INTRODUCTION

Livestock production in Nigeria originates from a large resource base which is composed of different livestock species, breeds and types whose ownership and distribution differs greatly from region to region. Three livestock production systems are commonly distinguished in the rangeland areas and these comprises of commercial herd, pastoralism and agro-pastoralism. Pastoralism and Agro-pastoralism is the traditional herd which is owned by small scale farmers and it accounts for 88% of total cattle herd in the country (Bhasin, 2011). Pastoralism is concentrated in the northern plains of the country and is practiced in traditional grazing areas where climatic and soil conditions do not favour crop production. In this system, livestock production plays a triple role in providing means for subsistence, serving as a store of wealth and a source of cash income. Agro-pastoralism involves cultivation of a range of crops and livestock keeping. This production system is thriving in many parts of the country due to the synergy between livestock and crops. Livestock production in these systems has been increasing at more than 2% per annum (FAO, 2001).

The World Health Organization states that 74% of plant derived medicine have modern indications that correlate with their traditional and cultural uses (Wynn, 2001). Also, about 80% of the world population, mostly in developing countries, are poor and depend on traditional medicine for their primary health care (Gefu, Abdul and Alawa, 2000). Most of the livestock in Nigeria are infected with varieties of diseases, ranging from skin diseases to others which are related to gastro intestinal tracts (GITs) such as scabies, mange, and itch which are all referring to mite infections that cause inflammation and irritation of the skin. These diseases cause significant losses and waste to the cattle in meat and milk production. The resultant effect of this may degenerate into large reduction in the amount of meat and quality of wool/fiber of the animals thus causing damages to the skin by mites (IIRR, 1994). Most of the developing countries including Nigeria, rely wholly or partly on traditional herbal medicine for the treatment and control of animal and human diseases (Devendra and Burns, 1970). The absence of adequate conventional animal health care systems in the rural communities makes them to rely on traditional medicine for their primary health care (Schillhorn van veen, 1997).

Rural settings in Nigeria mainly depend on traditional or indigenous knowledge mainly because such indigenous ideas are usually handed down orally from generation to generation and from region to region among and within communities. These innovative ideas are usually developed through trial and error and deliberate experimentation. Although, it has its shortcoming because is less systematic and less formalized, but is easily accessible compared to conventional drugs. This tends to be an advantage in that, it allows for easy preparation and administration, with relevance to cost effectiveness thereby making it accessible to all users. (Ngeh, Wanyama, Nuwanyakpa and Django, 2001)

However, Nigeria has many cattle health challenges due to environmental factors, like high temperature and humidity, topography structure of sloppy area and flood disaster as a menace for cattle and exposure to soil borne diseases. In Nigeria, the cattle herds are mainly managed by uneducated pastoralists and agro-pastoralists, which could cause

a setback in cattle production management. However, studies have shown that, increased concentration of animals in areas of high human density may facilitate the transmission of zoonotic diseases such as; tuberculosis, anthrax, brucellosis, salmonellosis and echinococcosis between production units as well as between animals and human beings during husbandry, processing or consumption of livestock products (Kolawole, 2001).

In order for these agro-pastoralists to raise a profitable herd, therefore, this study examined the indigenous methods adopted by agro pastoralists towards cattle health management and provided answers to the following questions:

1. Why are the pastoralists utilizing indigenous practises in cattle health management?
2. What are the indigenous technologies in use among the settled agro-pastoralists for cattle health management?
3. What methods do indigenous technologies diffuse among settled agro-pastoralists
4. What are the indigenous methods adopted by the agro pastoralist towards cattle health management? and
5. What are the constraints militating against the adoption of these indigenous methods?

**Objectives of the study**

The main objective was to examine the indigenous methods used by agro pastoralists towards cattle health management in rural areas of Oyo State with a view to finding out the extent to which the indigenous methods were used. The specific objectives were to:

(a) describe the socioeconomic characteristics of the agro pastoralists in the study area
(b) identify indigenous methods adopted by the agro pastoralist towards cattle health management?
(c) identify the constraints militating against the adoption of these indigenous methods?

**Hypothesis of the study**

There is no significant relationship between selected socioeconomic characteristics of the agro pastoralists and indigenous methods adopted towards cattle health management

**METHODOLOGY**

The study was carried out in Oyo State which is in the Southwestern part of Nigeria. The vegetation ranges from rainforest to derived savannah. The forest is a mixture of savannah, interspersed with trees which cover the northern part of the State. Multi-stage sampling technique was used to select the respondents for the study.

In the first stage, two zones: Oyo and Ibadan/ Ibarapa were randomly selected out of the four zones in the state. In the second stage, one local government was randomly selected from each of the zones. Thus, kajola and Ibarapa central local governments were selected from Oyo and Ibadan/ Ibarapa zones respectively. The third stage involved random selection of three wards out of eleven wards in Kajola Local Government area while in Ibarapa Central Local Government area, three wards were randomly chosen from the ten wards making a total number of six wards for the study. However, 50% of the agro pastoralists were sampled from each of the three wards in the two local governments. Thus a total of 63 and 44 agro-pastoralists were randomly selected from Oyo and Ibadan/ Ibarapa zones, respectively. On the whole, a total of one hundred and seven respondents participated in the study. Descriptive statistics such as frequency counts, percentages and mean were used to analyze socio-economic characteristics and other economic activities. Regression was used to test the hypothesis of the study.

**RESULTS AND DISCUSSION**

**Socio-economic characteristics:**

Result in table 1 shows that majority (51.4 %) of the respondents were between the ages of 41- 50 years while (24.8%) were between ages of 51-60 years and (16.3%) were between 31-40 years and minority (7.5%) fell between ages of 21-30 years with the mean age of 42 years. Age is an important variable when considering the use of indigenous methods agricultural production. From the table, none of the respondents were less than 30 years, so they would have had experience in cattle rearing and knowledgeable in indigenous methods of controlling diseases of cattle. The study further revealed that all the respondents were male. This may be attributed to the fact that, cattle rearing is a male dominated occupation. Even, where herds of cattle were owned by women, their culture does not permit women to claim ownership. The table also showed that majority (94.4%) were married while (2.8%) of respondents were single and widowed, respectively. Also, majority (83.1%) had 1-5 hectares of land while (14.9%) had 6- 10 hectares of farm land with minority (2.0%) had 11-15 hectares of land. This is an indication that farming activity is prevalent in the study area. This helps in meeting the demanding rise in population and solving the problem of food security which has helped in achieving part of ATA goals. The table also shows that, majority (51.4%) of the respondents has household size of 1-10 while (5.6%) of the household heads lived alone.

Table 1: Distribution of Respondents by socioeconomic characteristics

| Socioeconomic characteristics | Frequency | Percentage | Mean |
|---|---|---|---|
| **Age** | | | |
| 21 – 30 years | 7 | 7.5 | |
| 31 – 40 years | 22 | 16.3 | 42.0 |
| 41 – 50 years | 48 | 51.4 | |
| 51 – 60 years | 30 | 24.8 | |
| **Sex** | | | |
| Male | 100 | 100.0 | |
| **Marital Status** | | | |
| Single | 10 | 2.8 | |
| Married | 87 | 94.4 | |
| Widowed | 10 | 2.8 | |
| **Farm Size** | | | |
| 1 – 5 | 89 | 83.1 | |
| 6 – 10 | 16 | 14.9 | |
| 11 – 15 | 02 | 2.0 | |
| **Household size** | | | |
| 0 | 6 | 5.6 | |
| 1 – 10 | 55 | 51.4 | |
| 11 – 20 | 35 | 32.7 | |
| Above 20 | 11 | 10.3 | |
| **Total** | **107** | **100.0** | |

**Sources: Field Survey, 2014**

Table 2 revealed that all the respondents had various indigenous methods used to control diseases of cattle. However, the table revealed that majority (93.0%) believed that hygiene was the best indigenous innovations for cattle health management. Also, use of herbs (87.0%), bush burning (48.0%), use of holy books and local concoctions (35.0%) respectively while use of incantations (28.6 %) and herd sharing (89.7%) were indigenous innovations practiced by the herds men. Use of holy books and local concoctions were mentioned by the respondents to cure contagious Bovine Pleuropneumonia. This indicates that the use of holy book and local concoction were always used in curing cattle diseases. Herd sharing was rated second as an indigenous innovation used by agro pastoralists which involves distribution of cattle among relatives and grown up children in other locations apart from the areas of infestations during emergency diseases in order to lessen the rate of casualties. The herdsmen use spiritual incantations, when an unexplainable death occurs in their herds. Though, only minority (28.0 %) of the respondents accepted practicing this control method which may be due to secrecy surrounding spiritualism. The respondents believed that bush burning would help to reduce the menace of tick and mite infection by burning the eggs of the tick as well as the elimination of possible intermediate host for pests and diseases. Majority (73%) of the respondents indicated that movements or partial displacement of cattle from areas of infestation to save areas was the practicing type of indigenous control method used.

**Table 2: Distribution of Respondents by indigenous methods used**

| Diseases (indigenous methods) | Frequency | Percent |
|---|---|---|
| Scab, Contagious bovine Pleuropneumonia, (Hygiene) | 87 | 93.0 |
| Skin mange (Herbs) | 75 | 87.0 |
| Herd sharing (Itching) | 75 | 89.7 |
| Bush burning (Mite and tick infestation) | 106 | 48.0 |
| Use of holy books (Contagious bovine Pleuropneumonia) | 89 | 35.0 |
| Spiritual incantations (Foot rot) | 66 | 28.6 |
| Use of local concoctions (Contagious bovine Pleuropneumonia) | 64 | 35.0 |
| Movements (Skin mange) | 55 | 73.0 |

**Source: Field survey, 2014**

Table 3 revealed that the challenges militating against the adoption of indigenous methods diminish livestock production for improved human nutrition. It was discovered that, for indigenous knowledge and practices to be promoted, there should be a high rate of acceptance of the innovation and the indigenous knowledge to some extent needs to be preserved. The study revealed that, (29.0%) were severely faced with ,the problem of acceptance of indigenous methods from one culture to another, while (55.1%) of respondents were mildly faced with the problem. Minority (15.9%) were not severely affected by the problem of acceptance of indigenous methods from one culture to another. The findings also revealed that (40.2%) of the respondents were severely faced and mild respectively with problem of group initiative with respect to time, resources and risk while (19.6%) were not severely affected by the problem. The results also showed that (22.4%) were affected severely with the acceptance of indigenous methods while (50.5%) were mild and (27.1%) were not severely affected with problem of acceptance of the indigenous method. The data above also indicated that 31.8% were severe with the problem to segregate method, 50.0% were mild while 25.2% were not severely affected. Majority (67.3%) of the respondents were mild in facing serious threat of environmental friendliness problem,19.6% were severe while 13.1% were not severe. However, the study implies that all the challenges facing indigenous method could be overcome if proper orientation were given to beneficia ries of the innovation.

**Table 3: Challenges militating against the adoption of indigenous methods**

| Challenges | Severe | Mild | Not severe |
|---|---|---|---|
| Acceptance from one culture to another | 31 (29.0) | 59 (55.1) | 17 (15.9) |
| Group initiative in terms of time resources and risk | 43 (40.2) | 43 (40.2) | 21 (19.6) |
| Problem of innovation acceptance | 24 (22.4) | 54 (50.5) | 29 (27.1) |
| Inability to segregate innovation for promotion and documentation | 33 (31.8) | 54 (50.0) | 27 (25.2) |
| Environmental friendliness | 21 (19.6) | 72 (67.3) | 14 (13.1) |

Sources: Field Survey, 2014

**Hypothesis**

The result of the hypothesis testing in Table 4 showed significant relationship between age (r=-0.192, $p<0.05$) and household size (r= -0.198, $p<0.05$) of indigenous methods adopted by agro pastoralists. This implies that as the respondents advance in age, the adoption of indigenous method increases. This might be due to the experience acquired over the years. This is in agreement with McCorkle (1986), that from time memorial traditional stock raisers, farmers and herders, have developed their own ways of managing the health of their stock and keeping them productive. Traditional livestock keepers were reported to treat and prevent livestock diseases using age-long home remedies, which may include manipulative techniques, husbandry strategies and magico-religious practices. The regression result also indicated that a decrease in household size will result in an increase in indigenous method used due to the distance of farmers' farm to the nearest veterinary clinic/hospital will result in increase in the use of indigenous method.

**Table 4: Correlation between demographic characteristics and indigenous methods**

| Variables | R | P value | Decision |
|---|---|---|---|
| Age | -0.192 | 0.048* | S |
| Farm size | -0.036 | 0.709 | NS |
| Household size | -0.198 | 0.041* | S |

*significant at 0.05

**Source: Field Survey, 2014**

**CONCLUSION AND RECOMMENDATIONS**

The study had examined the indigenous methods used by agro pastoralists towards cattle health management and thus concluded that:

The usage of indigenous method was dominated by older men. The study has also contributed significantly in making the agro pastoralists to produce more cattle save for human consumption. Based on the findings of the study therefore, the following recommendations were made:

Indigenous methods for cattle health management will most likely continue to be relevant for livestock health management.

There is a need to preserve our local knowledge of indigenous methods and this could be achieved through Farmer Field Research in which university researchers and farmers jointly carry out research about indigenous methods on farmers' farms. This will enable groups of farmers and researchers, through a discovery learning process, find out about the efficacies of various indigenous methods while the younger farmers and university researchers learn from the older farmers who are regarded as custodians of knowledge about indigenous methods. This process will facilitate the documentation of indigenous methods with proven efficacies.

This will therefore enhance the speedy achievement of the goals and objectives of ATA.

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# GENDER DIMENSION OF CLIMATE CHANGE EFFECTS IN NIGERIA

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**Abstract**

Climate change is one of the most serious problems facing human societies all over the World. The paper focuses on the impacts of climate change on Nigerian women in the context of the socio-cultural, economic and political impediments and constraints that are brought to bear on women because of the tenets of patriarchal Nigerian society. These realities a priori put the women at the receiving end of all obnoxious cultural practices of the Nigerian society. The negative effects of climate change therefore hit women hardest because the subservient position of women compels them to bear the burden of fending for the children and supporting their husbands. To carry these tasks, the women have to get water from far distances during drought and face the risks during floods and other exigencies occasioned by global warming and climate change. Some feasible panaceas are proffered to the negative effects of climate change. The paper concludes that all concerned bodies and individuals should proactively engage in policy formulation and floats programmes that will help mitigate the harsh effects of climate change on women in Nigeria.

**Keywords**: Gender, Climate Change, Rural Communities, Climate related health problems, Culture.

## INTRODUCTION

One of the most urgent issues of our time is climate change and it is already impacting populations and ecosystems around the globe, threatening to set back development efforts by decades, but the impacts are not being felt equally between the global North and South and within the regions in the Southern Hemisphere (Hasis, 2012). The negative impacts of climate change are becoming increasingly evident today including long term changes in average temperature and rainfall changes in the intensity, timing and geographic distribution of rainfall; an increase in the frequency of extreme events such as draught and flood; and sea level rise (IPCC, 2007; Varner, 2011).

The degree to which people are affected by climate change impacts is partly a function of their social status, gender, poverty, power, location and access to and control over resources. Despite the international community's increasing acknowledgement of the differential experiences and skills women and men bring to development and environmental sustainability efforts, women still have lesser economic, political and legal clout and hence are less able to cope with – and are more exposed to – the adverse effect of the changing climate (UNDP, 2011).

This paper focuses on the impacts of climate change on Nigerians in the context of gendered implication of the threat of climate change and global warming. The paper specifically examines the Nigerian women vulnerability and susceptibility to the threat and distractions associated with climate change in the context of the socio-cultural, economic and political realities of the power-authority relations and other impediments in the society. These, a priori,q put women in disadvantaged positions and expose them to more precarious situations in terms of reactions to global warming. The factors and other situations that account for the discrepancy between women's and men's differential exposure and vulnerability to climate change risks and other side effects were exhaustively discussed in this paper.

### The Concept of Climate Change

The climate system is a complex interactive system consisting of the atmosphere, land surface, snow and ice, ocean and other bodies of water, and living things. The atmospheric component of the climate system most obviously characterizes climate. Climate is defined as average weather. Climate is usually described in terms of the mean and variability of temperature, precipitation and wind over a period of time, ranging from months to millions of years. The climate system evolves in time under the influence of its own internal dynamics and due to changes in external factors that affect climate (Treut and Somerville, 2007).

Climate change refers to any change in climate over time, whether due to natural variability, or as a result of human activity. United Nations Framework Convention on Climate Change (UNFCCC) defines 'climate change as a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods (WHO, 2005).

### Climate change and the Nigerian women

Gender inequality is a global problem but the severity, pervasiveness and endemic gender inequality in patriarchal Nigerian society is unassailable. Gender inequalities permeate all facets of human endeavour in Nigeria. The Nigerian society treats women as subservient members of the society hence all obnoxious and harsh socio-cultural, economic and legal practices all work against women who are the final destination of the harsh realities of the society (Ebohon, 2012).

In Nigeria, evidence from the 2012 flood disasters in five states of the nation including Edo, Delta, Anambra, Kogi and Bayelsa shows that women were more adversely affected. This is because the onerous tasks of providing and protecting the children fell squarely on the women. This role became more hazardous because they have less capacity to move from the path of on-coming hazardous events and disasters before the events or disaster strike. The mother instincts and the expectancies of the society to tender and nurture the young ones and their husband make the women very vulnerable to danger of disasters.

Research also indicates that in post-disaster period, women again become victims of domestic and sexual violence, more vulnerable to health related problems like nutritional deficiencies, and girls are often forced to drop out of school to help with recovering efforts from the trauma of the disasters (Docan, 2007). From a different, yet linked perspective, financial resources channelled towards climate change discourse hardly include women's needs, such needs are inappropriately subsumed in men's perceived needs, yet women tend to bear a disproportionate burden of adjustment to climate change, and contribute less than men to green gas emissions (Peralta, 2008).

In Nigeria, women also feel the brunt of drought brought about by climate change (Agwu and Okhimambe, 2009). This is because women walk further to collect water, especially in the dry season. Women are expected to find water anyhow to take care of domestic needs of the families and even for domestic animals. In the Niger Delta region specifically Delta State, women contribute much to construction works (Okafor, 2005). Women are the ones who carry concrete and building materials for decking, pillars, anti-flood embankments, water conservation and more involved in labour that will go into coping with climate risks and increased off-farm employment. These women are still expected to carry out home chores and tender their husbands after strenuous and energy sapping works in building sites. This heavily impacts their health and well-being. In the Northern and Middle Belt of Nigeria, prolonged draught and decrease in foliage and grazing pastures for cattle have resulted in communal and Fulani/Native communities unending clashes. The most victims of these avoidable violent clashes are the women and their children. Thousands of women have been lost through these senseless and avoidable clashes.

Women make up about 54% of the now estimated population of Nigeria's 176 million people according to Central Intelligence Agency (CIA) Fact Books (2013). Despite being the majority, the Nigerian women are powerless, voiceless and subservient members of the society. This subjugation and subservient status translate into other problems and avoidable obnoxious trauma, health related risks and helpless mind-set. Climate change has exacerbated the gender inequalities in Nigeria. The gender inequalities that define women lives prior to a disaster are really what put them at such a great risk after a disaster.

For instance, during flood and drought disasters the under listed are some of the health problems women faces:

- Increase in infectious, water-borne or vector-borne diseases, e.g. malaria, due to increased temperature and intensified storms.
- Heat-related illness.
- Malnutrition
- Increased air pollution, allergies and asthma.
- Mental disorders such as anxiety and depression.
- Pregnant and lactating women, along with the very young and very old, are most vulnerable to health threats as evident in the 2012 flood disaster in Nigeria and the drought-related communal clashes between Fulani cattle herdsmen and natives of the Middle belt region of Nigeria
- Increased lack of health care services, immunization, family planning and, reproductive health care in disaster zones. These were even compounded by the flatfooted National Emergency Management Agency workers who failed woefully to meet the exigencies of the various disasters in recent times in Nigeria including the 2012 floods, the displaced people in North Eastern Nigeria and even collapsed building's episodes, and
- Lack of services and hygienic supplies in relief shelters for pregnant, lactating or menstruating women (Haas, 2009).

Additionally, perceptions of illness caused by climate change among the rural poor are interesting to note, although many of these claims require further investigation. Through their survey in Nigeria, Agwu and Okhimambe (2009) find that when asked about health issues, women and men in most communities listed malaria, hypertension, ulcer, diarrhoea, asthma and diabetes as ailments that they perceive to be "ushered in" by the changing climate, with malaria being the most widespread. Some community reported that about thirty years ago, they could rely on local medicinal herbs for treatment of illness, now they have to go to substandard clinics and health centres for treatment. This is not far from the truth, but the survey failed to list other socio-cultural and economic impediments that a priori set the women on the path to suffering trauma and disease infections like patriarchal belief systems and economic powerlessness of women in Nigeria.

Women in Nigeria are particularly vulnerable to climate change because they are highly dependent on local natural resources for their livelihood. Women charged with securing water, food and fuel for cooking and heating, face the greatest challenges. Women experience unequal access to resources and

decision-making processes with limited mobility in rural areas. It is therefore important to identify gender-sensitive strategies that respond to these crises for women (Nwangi, 2002). As enumerated above, a number of factors account for the discrepancy between women's and men's differentiated exposure and vulnerability to climate change risks. First, gender-based differences in time use, access to assets and credit and treatment by markets and formal institutions (including the legal and regulatory framework) constrain women's opportunities. As a result of these factors, there is a global gender gap in earning and productivity, and this is even worsened and exacerbated in Nigeria by patriarchy and other socio-cultural, economic and political realities and religious injunctions which not only treat women as second class citizens but nearly totally restrict their opportunities and well-being in many other ways. Nigerian women compared to their male counterparts, face huge challenges in accessing all levels of policy and decision-making processes. These render them less able to influence policies, programmes and decisions that impact their lives.

The socio-cultural norms and religious injunctions of Nigeria limit women from acquiring the information and skills necessary to escape or avoid hazards, (e.g. swimming among the Benins, and climbing trees to escape rising water levels). Dress codes imposed on women usually restrict their mobility in times of disaster as can their responsibility for small children who cannot swim or run during disasters. Such social influences render women disproportionately vulnerable to disasters and related negative effects of climate change in Nigeria (Watson, 1998; Pandey et al, 2003).

Moreover, a lack of sex disaggregated data in all sectors (e.g. livelihoods, disasters preparedness, and protection of environment, health and well-being) often leads to an underestimation of women's roles and contribution. This has resulted in gender-blind climate change policy and programming which does not take into account the gender differentiated roles of both women and men (i.e. their distinct needs, constraints and priorities), hence in Nigeria, such policies and programming can have the unintended effect of actually increasing gender-based vulnerability.

We conclude this section by paraphrasing and reproducing the positions of United Nations Development Programme (UNDP, 2012) on women position in climate change saga and problems. Gender-based vulnerability to climate change: Fast-facts.

- Women are not well represented in decision-making processes, which constraints their ability to meaningfully participate in decisions on adaptation and mitigations.
- Globally, only 17 percent of cabinet and 19 percent of parliament and executive council are women in most developing countries. It is less than the stipulated percentage in Nigeria. The 35% affirmative action is a mirage.
- A global gendered gap in earning and productivity persists across all forms of economic activity; women make between 30 percent and 80 percent of male annual income. Restricting job opportunities for women has been costing Nigeria and other Third World Nations billions of dollars annually.
- Study by the Organization for Economic Cooperation and Development (OECD) classified women's access to land as 'very limited' in a number of countries in Africa.
- For those developing countries globally for which data were available, only between 10 and 20 percent of all landholders are women.
- Burning biomass fuel indoors leads to 2 million deaths per year (mainly women and children).

## CONCLUSION

It is indisputable that climate change is a phenomenon that is not only real but staring on the faces of Nigerians and the world but already hunting the psyche of the people because of the apprehension and anxiety associated with the disastrous effect of climate change. Climate change is already causing unpredictable damage and making already vulnerable people especially vulnerable women more disaster-prone and prone to danger of climate change. At present in Nigeria, there are socio-cultural, economic and political constraints that a priori expose women to the risks of climate change more than other groups. It is also true that women's adaptive strategies are stressed to a breaking point, yet the nature and scale of environmental stress is such that it may overwhelm women's ability to contribute effectively to socio-economic development. The surest answers to climate change are to incorporate women in all activities geared towards redressing and mitigating the climate change challenges and problems. The total involvement of women with the view of playing key role in development and any potential environmental policy will yield the much needed results. Women should always be taken into consideration for positive outcome. It is only when women are a key players and resource managers that mitigation and management of climate change problems and threats can properly be handled and the society will expect positive results from such action. This is the submission of this paper and the suggestions are tenable anywhere in the world hence valid, sustainable and replicable.

## RECOMMENDATIONS

Based on the above realities and problems, we make the following recommendations on the way forward out of this precarious situation to remedy climate related problems.

1. Help inform and empower people to address climate change issues. Nigerians were not

properly informed before the 2012 flood disasters and this increased the devastating effects of those disasters and many others. This situation can be avoided in future by helping the women to explore national level climate change strategizing and planning, and in general connecting to the international and national level policy discourse on climate change.

2. Conduct an in-depth and evidence-based analysis of women's and men's roles in sector impacted by, and their strategies for coping with climate change. This entails ensuring informed understanding of women's and men's knowledge, roles and abilities that will provide a solid basis for policy and programmes developed to address and combat climate change impacts.
3. There should be integration of gender perspectives through climate change programming in order to effectively address both women's needs and priorities, ensure the full and meaningful participation of women and achieve gender - equitable outcomes. Women should constantly be consulted and made part and parcel of every climate change action and be provided with opportunities for improving health, education and livelihoods of women in the Nigerian society.
4. There should be concerted efforts to ensure mitigation and adaption efforts to address sources of gender-based vulnerability, gender inequality and poverty precursors like the patriarchy, socio-cultural and religious constraints. Economic, legal and socio-cultural constraints can lead to women's capacity gaps as evidenced in Nigeria. Climate change responses need to address women historic and current disadvantages occasioned by patriarchy and other factors enumerated above in the Nigerian society.
5. There is the urgent need to incorporate gender perspectives into the Nigerian climate change effect finance mechanisms and strategies. Gender sensitiveness should play more efficient, effective and inclusive financing and other conditions informing all policies, and programmes.
6. The lack of attention to gender issues as a result of the perceived need felt by the people from the perspectives of the men under the influence of patriarchy and religious injunctions should be discouraged and where possible stopped
7. The gender-specific differences in adaptive and mitigation capacity must be fully acknowledged and considered, paying special attention to the design and implementation of response strategies to future natural and man-made disasters. Steps should be taken to search for new ways of integrating the gender variable into international negotiations for the second and subsequent commitment periods, into natural regimes for mitigation and adaptation to climate change.

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# OFF-FARM EMPLOYMENT OPPORTUNITIES AMONG RURAL DWELLERS IN SELECTED FISHING SETTLEMENTS IN BRASS LOCAL GOVERNMENT AREA, BAYELSA STATE

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**Abstract**

The study examined off farm employment opportunities among rural dwellers in selected fishing settlements in Brass local government area of Bayelsa state. Structured interview schedule was used to elicit information from the respondents. Data obtained were subjected to descriptive statistics. Results established that age range of 36.0% of the respondents was between 31 to 40 years and 40% each of the respondents were single and married, respectively. Majority (70%) of the respondents had informal education while a higher percentage (58%) was male. The major off farm employment opportunities in the study area were local gin making (Kaikai) (50%), masonry (45%) and timber lumbering (40%). The major challenges to these off farm employment opportunities were lack of patronage (26%), insufficient employable industry (26%), illiteracy (35%) and inadequate training for the skill (25%). It was therefore recommended that government should encourage education by building schools at the fishing settlements to get the people educated.

**Keywords:** Off-farm Employment Opportunities, Rural dwellers, Viable, Challenges

## INTRODUCTION

Fishing settlement is when a group of people who are having fishing as an occupation from diverse background live together at a location created by them in pursuit of their common occupation. According to Magnvson (1996) fishing settlement is a place where group of fishermen who are substantially engaged in the harvest or processing of fishery resources to meet social and economic needs. It is a social or economic group of fishermen whose members reside in a specific location and whose members share similar interest-making the fishing industry safer.

Brass is an island surrounded by the Atlantic Ocean in Bayelsa State. It is situated at the end of Nun River estuaries which serve as an export route for Nigerian oil. In adaptation to the environment, the primary economic livelihood of the people is fishing. In order to increase fish catch and income, some of the fishermen and women left their natural communities, to stay in areas where they could fish more profitably.

However, the dreams of these fishermen have been distorted because of degradation of the rivers as a result of oil pollution. Oil was first discovered at Olobiri in 1958, in the then Brass local government area. The constant oil spills from pipelines, vessels, well heads due to rupture or rusting of the pipelines and sometimes through vandalisation have made rivers, creeks and streams inhabitable for aquatic population. This has resulted in depletion of fishery resource and reflected in lower catch of fish by fishermen in the zone. This has affected some youths whose means of livelihood is fishing. The outcome is illicit means of livelihood like pipeline vandalization, militancy, kidnapping, armed robbery and serving as political thugs (Albert, 2010). This has led to insecurity in the state and Brass LGA in particular. It is therefore necessary to seek other employment opportunities apart from fishing for the fish farming population as the transformation agenda of the Federal Government of Nigeria. This necessitates the need to assess off farm employment opportunities among rural dwellers in selected fishing settlements in Bayelsa State. Specifically, the study sought to; (1) determine the socio-economic characteristics of the respondents; (2) identify off-farm employment opportunities; (3) ascertain the extent to which these off-farm employment opportunities can be made viable and; (4) find out the challenges to off-farm employment opportunities.

## METHODOLOGY

Brass local government area is made up five communities namely: Akassa, Twon, Odro-ma, Sangana and Egweama and fifteen fish settlements. The settlements are Deima, Evo-ama, Opu-Orubo-kiri, Inbi-kiri, Igbabele, Canus-kiri, Obloku, Ibidi, Oyenkia, Lia-ama, Wagitic, BeleTema, Sangana, Afrek-Ongo and Miribi. A simple random sampling technique was used to selected one fishing settlement from each of the five communities and 10 fish farmers from each of the selected fish settlements giving a total of 100 fish farmers that were used for the survey. Structured interview schedule was used to collect data from the respondents. The interview schedule comprised four sections. Section A sought information on the socio-economic characteristics of the respondents, section B sought information on off-farm employment opportunities, section C elicit

information on the extent to which off-farm employment opportunities could be made viable while section D elicits information on challenges to off-farm employment opportunities . A pilot test as carried out adopting the test retest approach. The Pearson Product Moment Correlation was used to establish the reliability of the instrument. A correlation co-efficient of 0.71 was observed. Data collected were presented using descriptive statistics such as tables and percentage. Objectives 1 and 2 were presented in percentage while objectives 3 and 4 were presented in mean scores. A three point Likert-type scale of: very viable, less viable and not viable were scaled 2, 1 and 0, respectively. The values were added to give 3 and divided by 3 to give a mean score of 1.0. In terms of reliability, mean scores of 1.00 and above were classified as viable measures while those with mean scores below 1.00 were regarded as not viable measures.

**RESULTS AND DISCUSSION**

Table 1 reveals that 36.0% of the respondents were in the age bracket of 30-39 years followed by the age bracket of 20-29 years with 32.0%. This is an indication that young active and vibrant fish farmers were involved in fish catching and also living at the fishing settlements. A higher percentage (58.0%) of the respondents were males. The result implies that males dominated fish farming in the area. The findings is in line with that of Davis (2003) and De Siloa, *et al* (2009) who noted that males have the stamina to handle the activities involved in fishing which may be too tedious for females. Fishing is a strenuous job. The females in the fishing settlements buy the fish from the fishermen to sell either as fresh fish or dry fish. Furthermore, the result showed that 40.0% of the respondents were married and with a mean household size of 6.This means that the respondents are responsible people who have a fairly large household size to care for. They have the responsibility of providing for their families. Therefore, there is a high demand of income to meet family needs.

The result also shows that 34.0% of the respondents had primary education, 36.0% had secondary school education while 30% had no formal education. The result indicates that the respondents have low educational attainment which might affect their ability to learn other skills or adopt new technology to improve their production and standard of living which according to Isife *et al* (2010), education affects farmers' ability to understand and adopt new skills. The mean fishing experience of the fishermen/women was 13 years, indicating that the fish farmers have been fishing at the settlement for the past 13 years. They have enough knowledge and experiences to talk and discuss about the fish settlement where they dwell.

**Table 1: Percentage distribution of respondents according to their socioeconomic characteristics**

| Variables | Frequency | Percentage | Mean |
|---|---|---|---|
| Age | | | |
| 20 – 29 | 32 | 32.0 | |
| 30-39 | 36 | 36.0 | |
| 40-49 | 16 | 16.0 | |
| 50-59 | 12 | 12.0 | |
| | | | 37yrs |
| 60 years & above | 4 | 4.0 | |
| Sex | | | |
| Male | 58 | 58.0 | |
| Female | 42 | 42.0 | |
| Marital Status | | | |
| Married | 40 | 40.0 | |
| Single | 40 | 40.0 | |
| Divorced/Separated | 16 | 16.0 | |
| Widow/Widower | 4 | 4.0 | |
| Educational Level | | | |
| No formal education | 30 | 30.0 | |
| Primary school dropout | 14 | 14.0 | |
| Primary school completed | 20 | 20.0 | |
| Secondary school completed | 10 | 10.0 | |
| Secondary school dropout | 16 | 16.0 | |
| Tertiary Education | 10 | 10.0 | |
| Years of settling | | | |
| 0-5 | 8 | 8.0 | |
| 6-10 | 26 | 26.0 | |
| 11-15 | 28 | 28.0 | |

| Variables | Frequency | Percentage | Mean |
|---|---|---|---|
| 16-20 | 24 | 24.0 | |
| 21-25 | 12 | 12.0 | |
| 26 & above | 2 | 2.0 | |
| Fishing Experience | | | |
| 0-5 | 4 | 4.0 | |
| 6-10 | 34 | 34.0 | |
| 11-15 | 32 | 32.0 | |
| 16-20 | 22 | 22.0 | 13 years |
| 21-25 | 8 | 8.0 | |
| Household Size | | | |
| 0-5 | 52 | 52.0 | |
| 6-10 | 38 | 38.0 | |
| 11-15 | 10 | 10.0 | 6 Households |

Source: Field survey, 2013

**Off-farm Employment Opportunities in the study area**

Table 2 established that local gin making (Kaikai/Ogogoro) (50.0%), lumbering (40.0%) and masonry (45.0%) were the off-farm employment opportunities engaged in at the fishing settlements apart from fishing. Other employment opportunities' at the fishing settlements were red mangrove (*rhizophora racemosa*) business (38.0%), local bread making (35.0%) and canoe carving (32.0%). Local gin processing (kaikai) business strove more than others at the fishing settlements because the fishermen drink local gin to keep themselves warm due to the cold environment where they live. This is closely followed by masonry. Dash houses could no longer with stand the water that flows in from the Atlantic Ocean so many of them have converted their dash houses to block.

**Table 2: Off-farm Employment Opportunities**

| Employment Opportunities | Frequency | Percentage |
|---|---|---|
| Masonry | 45 | 45.0 |
| Tailoring | 4 | 4.0 |
| Welding | 6 | 6.0 |
| Transportation | 6 | 6.0 |
| Carpentry | 4 | 4.0 |
| Lumbering | 40 | 40.0 |
| Red mangrove (*rhizophora racemosa*) business | 38 | 38.0 |
| Canoe carving | 32 | 32.0 |
| Local gin making (Kaikai) | 50 | 50.0 |
| Local bread baking | 35 | 35.0 |

Multiple Responses

Source: Field survey, 2012

**Extent to which off-farm employment opportunities could be made viable**

The extent to which off-farm employment opportunities at the fishing settlements could be made viable is shown in Table 3. Entries show that encouraging the fish farmers on the skill they have already acquired (M-2.80) will make the employment opportunity viable in the study area. Other measures include: The fish farmers making effort to train themselves in other skills other than fishing (M=2.60) and government engaging them on skills acquisition programmes (M=2.70). Encouraging the fish farmers by exposing them to new or modern innovations will help to increase production and increase income.

**Table 3: Mean Distribution of the Extent off-farm Employment Opportunities could be Viable**

| Viable Ways | Very Viable (2) | Low Viable (1) | Not Viable (0) | Total Score | Mean x | Remarks |
|---|---|---|---|---|---|---|
| Private agricultural Project/Programmes | 5 | 35 | 60 | 45 | 0.45 | NVM |
| Personal training | 61 | 31 | 8 | 153 | 1.53 | VM |
| Skills Acquisition Programme | 70 | 37 | 3 | 177 | 1.80 | VM |
| Training of males in various field of specialization | 75 | 24 | 1 | 174 | 1.74 | VM |
| Encouraging them on the existing skills | 80 | 18 | 2 | 178 | 1.80 | VM |
| Providing financial assistance | 67 | 21 | 7 | 155 | 1.60 | VM |

**VA: Viable Measure**

**NVM: Not a Viable Measure**
**Source: Field survey, 2012**

**Challenges to off-farm employment opportunities in the study area**

All the variables outlined were challenges to off-farm employment opportunities except financial assistance. The major challenge to employment opportunities is illiteracy (M=1.80) in the study area. This might impede the respondents' ability to acquire other skills and even sustain it when acquired. Other factors include insufficient employable industries (M=1.75), high cost of transportation from the fishing settlements to the city to sell and sought for customers (m=1.60), including lack of modern skills (M=1.70). The result indicates that acquiring a skill without patronage or practicing will also lead to frustration on the respondents.

**Table 4: Percentage Distribution of Challenges to off-farm employment opportunities**

| Challenges | **Frequency** | **Percentage** |
|---|---|---|
| Illiteracy | 35 | 35.0 |
| Lack of modern skills | 18 | 18.0 |
| Insufficient employable industry | 26 | 26.0 |
| Lack of patronage | 26 | 26.0 |
| Financial assistance | 14 | 14.0 |
| High cost of transportation | 12 | 12.0 |
| Poor terrain/environment | 8 | 8.0 |
| Inadequate training of the skill | 25 | 25.0 |

Source: Field survey, 2013
Multiple Responses

## CONCLUSION

There are other off-farm employment opportunities for people living in fishing settlements of Brass local government area, Baylesa state to depend on as economic livelihood other than fishing. However, education is needed to help them acquire new innovations and skills that will improve the lives of the fishermen and women. Since after acquiring a new skill, there is an issue of low patronage. However if the transformation agenda of the present administration would succeed, attention should be to how to empower the fishermen and women in the fishing settlements to improve on the existing off-farm employment opportunities- to train them on modern skills of the off-farm activities in the study area.

Based on the findings, it is recommended that government should build schools and provide free education at the primary and secondary levels to the children of the fishermen and women.

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# EFFECT OF VEGETABLE PROFITABILITY ON THE LIVING STANDARDS OF URBAN FARMERS IN LAGOS STATE

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**Abstract**

The study assessed the effect of vegetable production on the living standards of urban farmers in Lagos State. It focused on the profitability of vegetable farming and the living standards/conditions of vegetable farmers. Data were collected from 150 respondents using a structured questionnaire and analyzed using frequency counts, means, percentages and standard deviation. Hypothesis testing was done using Spearman's Rank Correlation Coefficient. Major results show that pumpkin vegetables (mean=2.54) had high and uniform profitability among all farmers. Few farmers enjoy good living conditions but were generally food secure. The relationship between perceived profitability of vegetable farming and the standard of living of respondents show that all the variables (consumption, r=0.025, income, r=0.019, health, r=0.123 and education, r=0.025) had a positive correlation with perceived profitability of vegetable farming but were not significant. This implies that they had enough profit to live fairly well but their small farm sizes deprived them of some entitlements. Farmers were advised to increase their scale of operation so as to earn more from vegetable farming and hence increase their standards of living.

**Keywords:** Vegetable profitability, Living standards, Urban agriculture.

## INTRODUCTION

Urban agriculture takes place on private, leased or rented land in peri-urban areas, in backyards, on roof tops, on vacant public lands (such as vacant industrial or residential lots, road sides), or on semi-public lands such as school grounds, in prisons and other institutions, as well as in ponds, lakes and rivers. Vegetable farming is the growing of vegetables for human consumption. Traditionally it was done in the soil in small rows or blocks, often primarily for consumption on the farm, with the excess sold in nearby towns.

Both men and women are involved in vegetable production (Berinyuy, 1998). Leafy vegetables are an important feature of Nigerians' diet that a traditional meal without it is assumed to be incomplete. Therefore, the horticultural sector which supplies vegetables occupies a significant niche in the food systems of urban and peri-urban centers, providing often highly perishable produce to urban consumers.

Urbanization is one of the major problems of mankind in the near future. By 2015, about 26 cities in the world are expected to have a population of 10million or more. To feed a city of the size Tokyo, Sao Paulo or Mexico City for example at least 6000tonnes of food must be imported each day (FAO-SOFA, 1998). Lack of job and income is leading to increasing urban poverty as well as to growing food insecurity among the urban poor. A substantial proportion of urban household expenditures (as much as 60-80%) is dedicated to food for poor households. In the city context the lack of cash income translates more directly into food shortages and malnutrition (Mougeot, 2006). On the average, urban consumers spend at least 30 percent or more on food but despite this their average calorie intake is low and in most cases insufficient (Argenti, 2000). Worldwide around 852 million people are chronically hungry due to extreme poverty while up to 2 billion lack food security intermittently due to varying degrees of poverty (FAO, 2003).

The urban farmers include men and women coming from all income groups, but the majority of them are low-income earners. Women tend to dominate certain components of urban cultivation such as vegetable farming (Idowu, Cofie and Adetola, 2012). Women are the key players in the production of vegetables as they are mostly involved in indigenous vegetables such as green leaf, bitter leaf, fluted pumpkin, *soko, ewedu* and the like (Schippers, 2000). Yet it has been observed by Southern African Development Committee (SADC) countries that women usually lack the savings needed to put down the equity payment requirement to get a loan to expand their farming enterprise. Also married women have no independent access to land or physical infrastructure that could be used as collateral for a loan. Even those married women who have knowledge, ability and time to engage in large scale business activities face difficulties in obtaining loans without permission from their husbands or fathers. In West Africa, married women in Nigeria also suffer from similar laws that limit their access to productive resources such as land (Deji, Koledoye and Owombo, 2013). At best, they have only temporary tenancy rights to use as part of their husband's land (FAO, 1997, Iwuchukwu and Uzoho, 2009).

A survey of 720 households in Harare shows that higher income farmers engage in more gardening and cropping activities (ENDA, 1999). The highest

income earned was equivalent of 7 months' salary at the industry minimum wage, while the average earnings were equivalent to about 2 weeks of an industrial salary (ENDA, 1996). According to Success Digest (2013), vegetable farming is a lucrative business in the sense that it takes shorter period to mature and also has a regular market demand. Compared with cassava for example, that may stay a year or more in the ground, it is lucrative and gives an even source of cash to farmers as this period can give three harvests of vegetables (Abukutsa – Onyago, 2003, Thompson *et al.,* 2010)

However, urban farmers are still found to be poor, is it that they do not have enough resources or they are not making sufficient profit to cater for themselves and their households? From the above, it can be seen that there are some problems underling urban agriculture as it concerns vegetable production and this in turn affects the living standards of the urban farmers.

The Living Standard Measurement Study (LSMS) was established by the Development Research Group (DECRG) to improve on the quality and type of household data collected. Indicators of living standard used include Housing, Education, Consumption, Income, Labour Employment, Health and Healthcare (Grosh and Glewwe, 1995). This study therefore seeks to address the following specific objectives arising from these challenges are: to determine the profitability of vegetable farming in the study area and to assess the living standards/ conditions of vegetable farmers in the study area; while hypothesis to be tested is: there is no significant relationship between profitability of vegetable farming and the standard of living of urban vegetable farmers.

## METHODOLOGY

Lagos state is one of the 36 states in Nigeria and lies to the south-west of Nigeria with Ikeja as its capital. It extends approximately from latitude $6^0$ 2' North to $6^0$ 4' North and from longitude $2^0$ 45' East to $4^0$ 20' East. Of its total area of 4000sqkm, about 3277sqkm i.e. 78% is land and about 787sqkm or 22% is water (PATHS, 2012). The state is bounded in the North and the East by Ogun state, spans the Guinea coast of the Atlantic Ocean for over 180km to the South from the Republic of Benin on the West. The state is rich in natural and mineral resources including oil, natural gas, bitumen and the two non-metallic mineral resources available in commercial quantities in the state are clay and silica rich sands. Total population of Lagos is over 17.5 million (PATHS, 2012).

A multi-stage sampling was employed in this study. First, was the purposive selection of two agricultural zones (Badagry and Ikorodu) for the study out of the five agricultural zones in Lagos State. This is because vegetables are mainly cultivated or grown in these areas. Secondly, a total of 15 communities (7 from Badagry and 8 from Ikorodu) were randomly selected. The third stage of this procedure was the random selection of 10 respondents (vegetable farmers) from each community for inclusion in the sample, thus giving rise to a total sample size of 150 respondents (70 respondents from Badagry and 80 from Ikorodu).

Both primary and secondary data were used to elicit information for the study. The primary data was obtained using a well-structured questionnaire which was administered to the farmers and also interview schedule. The secondary data used in chapters one and two and section of the result discussions were sourced from various publications such as journals, textbooks, internet, past research work, libraries relevant to the study.

Profitability of vegetable farming was measured using a 3-point Likert type scale of Very profitable=3, profitable=2, Not profitable=1. Mean responses greater than or equal to 2.00 were considered as profitable while mean responses of below 2.00 were considered as not profitable.

To assess the living standard of respondents, indicators for living standard such as Living Conditions, Education, Labour Employment, Health and Healthcare, Income and Consumption level were measured.

**Living conditions:** This was measured by asking the respondents to indicate the type of house they lived in (Flat or Face to Face), Ownership of house and possession of facilities in the house. A list of facilities was given and respondents were required to tick YES or NO. YES was coded 1 while NO was coded 2.

**Education:** This was measured by asking the respondents 6 questions. A 5-point Likert type scale of Strongly agree=5, Agree=4, Not sure=3, Disagree=2 and Strongly disagree=1 were used. Mean responses greater than or equal to 3.00 were considered as being significant while mean responses below 3.00 were considered as not significant.

**Labour Employment, Health and Healthcare, Income and Consumption level:** These were measured by asking the respondents some questions under each indicator. A 3-point Likert type scale of Always=3, Sometimes=2 and Never=1 were used. Mean responses greater than or equal to 2.00 were considered as high living standard while mean responses below 2.00 were considered as low living standard.

Simple descriptive statistical technique such as frequency counts, percentages, means, standard deviation and rank order were used to analyze the data collected while Spearman's rank correlation was used to test the hypotheses.

The Spearman's rank correlation coefficient is given by:

$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2 - 1)}$$

Where $d_i = X_i - Y_i$ (Deviation = Differences between the ranks of each observation on the 2 variables)
n = sample size
$X_i$ = Independent variable
$Y_i$ = Dependent variable

## RESULTS AND DISCUSSIONS

### Perceived profitability of vegetables grown by respondents

Perceived profitability of vegetables grown by respondents, findings from Table 1 indicates that pumpkin, bitter leaf, water leaf, *ewedu*, scent leaf and *soko* leaf were profitable since their means are greater than 2. This result agrees with that obtained by Adebooye and Opabode, (2004) *ewedu*, an indigenous leaf vegetable in south-west Nigeria was several times more expensive and profitable than routinely cultivated species (vegetables). He also reported that leafy vegetables such as pumpkin, *soko,* green leaf were also very profitable. Srinivos (2012) also reported from his research in India that farmers are shifting from paddy production to vegetable production because vegetable was four to eight times more profitable than other crops.

The results revealed that respondents made less profit from *utazi* leaf, egg plant, *ila* and *worowo*. This could be due to low demand of these vegetables in the study area. However *ila* production was considered profitable by Ikorodu farmers and *utazi* leaf was also profitable in Badagry despite their low demand in the study area, implying that there was viable market for *ila* and *utazi* in Ikorodu and Badagry respectively and this is probably due to the preference of these vegetables by consumers in Ikorodu and Badagry.

The standard deviation of pumpkin production showed a dispersion of 2.54 ± 0.5 around the mean and did not affect the significance of the mean, but that of scent leaf 2.09 ± 0.323 affected the significance of the mean. This finding implies an even respondents' uniformity of the profitability of pumpkin production but not all respondents agree to the profitability of scent leaf.

**Table 1: Perceived profitability of vegetables grown**

| | Ikorodu | | Badagry | | Total | |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD |
| Pumpkin (ugu) | 2.48* | .5 | 2.59* | .5 | 2.54* | .5 |
| Soko leaf | 2.48* | .5 | 2.10* | .3 | 2.27* | .5 |
| Ewedu leaf | 2.36* | .7 | 2.08* | .6 | 2.22* | .6 |
| Water leaf | 2.17* | .4 | 2.21* | .4 | 2.19* | .4 |
| Bitter leaf | 2.21* | .5 | 2.16* | .5 | 2.18* | .5 |
| Green leaf | 2.22* | .4 | 2.08* | .3 | 2.14* | .4 |
| Scent leaf | 2.09* | .4 | 2.10* | .3 | 2.09* | .3 |
| Utazi leaf | 1.97 | .2 | 2.00* | .0 | 1.99 | .1 |
| Ila | 2.02* | .5 | 1.97 | .4 | 1.99 | .4 |
| Egg plant | 1.95 | .4 | 1.97 | .4 | 1.96 | .4 |
| Worowo | 1.95 | .4 | 1.90 | .3 | 1.92 | .3 |

*Source: Field Survey, 2012.* Multiple Responses.* Profitable Vegetable, mean ≥ 2.0*

### Respondents' reasons for not growing some vegetables despite their profitability

Table 2 shows respondents' reasons for not growing some vegetable despite their profitability. Reasons such as; lack of land, unfavourable weather, difficult to cultivate, no market value, no market, lack of input and lack of knowledge for cultivating the vegetable were considered serious since their means were greater than 2.50. These findings agree with that of Samantaray, Prusty and Raj (2009) in their study of constraints in vegetable production that some of the above reasons prevent or hinder farmers from growing vegetables. Diogo, Buerkert and Schlecht (2011) from their study in Niamey, Niger reported that unavailability of land, mainly in intra-urban areas, is a great hindrance to vegetable farming. They also noted that in general urban agriculture is known to be associated with high-inputs such as fertilizers, seeds and pesticides among others.

The standard deviation shows how the values deviate from the mean. A standard deviation that does not change the mean negatively shows that the variable is significant across the population. The standard deviation value (SD = 0.303) for lack of land and the standard deviation value (SD = 0.585) for lack of knowledge for cultivating the vegetable both have a dispersion of 3.90 ± 0.303 and 3.51 ± 0.588 respectively, both variables do not deviate from the mean showing that the significance or seriousness is very strong across all the population.

**Table 2: Reasons for not growing some vegetables despite their profitability**

| Constraints | Mean | Std. Deviation |
|---|---|---|
| Lack of land | 3.90* | .303 |
| Unfavourable weather | 3.80* | .447 |
| Difficult to cultivate | 3.58* | .515 |
| No market value | 3.60* | .577 |

| Constraints | Mean | Std. Deviation |
|---|---|---|
| No market | 3.67* | .577 |
| Lack of input | 3.75* | .452 |
| Lack of knowledge for cultivating the vegetable | 3.51* | .585 |

*Source: Field Survey, 2012.*Multiple Responses.*Serious Reason, Mean ≥ 2.50*

**Living standards of respondents and living conditions of respondents**

The living conditions of a household provide a good indicator of living standard measurement. The result in Table 3 shows that 51.3% of the respondents' household in the study area lived in face to face and as much as 48.7% of respondents lived in flat and 26.7% of the respondents owned the house they live in. The type of house an individual occupies is a function of his level of income. This also holds for house ownership. Based on house facilities possessed, majority of respondents (94.0%) possessed television sets, 85.3% possessed radio set and 84.0% possessed telephones. More than half (74.7%) had either rug/carpet/tiles, 69.3% had a C.D/DVD player and 63.3% had generators. Almost half (46.0%) of the respondents had a refrigerator and 46.0% had bore hole. The implication of the above result is that only some of the respondents could be adjudged to be enjoying good living conditions. This is because the house facilities they possessed were those that are basic i.e. they had only those basic facilities that are needed in a house and only a few of them could afford luxuries such as car, air conditioner.

**Table 3.1: Living conditions of respondents**

| | Ikorodu | | Badagry | | Total | |
|---|---|---|---|---|---|---|
| **Type of house lived** | Freq | % | Freq | % | Freq | % |
| Flat | 45 | 64.3 | 29 | 36.2 | 73 | 48.7 |
| Face to Face | 25 | 35.7 | 51 | 63.8 | 77 | 51.3 |
| House ownership | 33 | 47.1 | 7 | 8.8 | 40 | 26.7 |
| **House facilities possessed** | | | | | | |
| Television | 67 | 95.7 | 74 | 92.5 | 141 | 94.0 |
| Radio | 62 | 88.6 | 66 | 82.5 | 128 | 85.3 |
| Computer | 6 | 8.6 | 10 | 12.5 | 16 | 10.7 |
| CD/DVD player | 53 | 75.7 | 51 | 63.8 | 104 | 69.3 |
| Refrigerator | 39 | 55.7 | 30 | 37.5 | 69 | 46.0 |
| Washing machine | 8 | 11.4 | 8 | 10.0 | 16 | 10.7 |
| Rug/ carpet/ tiles | 58 | 82.9 | 54 | 67.5 | 112 | 74.7 |
| Generator | 49 | 70.0 | 46 | 57.5 | 95 | 63.3 |
| Bore hole | 39 | 55.7 | 30 | 37.5 | 69 | 46.0 |
| Water heater | 23 | 32.9 | 8 | 10.0 | 31 | 20.7 |
| Car | 17 | 24.3 | 2 | 2.5 | 19 | 12.7 |
| Electric/ gas cooker | 20 | 28.6 | 12 | 15.0 | 32 | 21.3 |
| Telephone | 60 | 85.7 | 66 | 82.5 | 126 | 84.0 |
| Water closet toilet | 54 | 77.1 | 56 | 70.0 | 110 | 73.3 |
| Air conditioner | 2 | 2.9 | | | 2 | 1.3 |

*Source: Field Survey, 2012.*Multiple Responses*

**Indicators of standard of living of respondents**

Other indicators of standard of living include education, labour employment, health and healthcare, income level and consumption level. Grosh and Glewwe (1995). Standard of living as shown in Table 3.2 for education reveals that, respondents ability to enroll their children into primary school (given their income from vegetable farming), enrolment of respondents children into kindergarten from ages of 3 – 5 years, enrolment of respondents children into secondary school and ability of respondents to afford the education of their children up to university level; were all significant because their means were greater than 3.00. Respondents children being sent out of school due to lack of payment of fees and the possibility of their children not completing their primary and secondary education because they cannot afford the fees have means of 2.92 and 2.39 respectively. These variables were not significant since their means are less than 3.00. The implication of this result is that respondents can afford the educational requirements of their children from kindergarten up to university level. This is likely due to the fact that vegetable farmers in the study area are generating enough income to enroll and keep their children in school up to university level. Mougoet (2000) stated that urban farming is comparatively affordable, a noteworthy source of income and

savings and is more profitable than rural-based farming.

In Table 3.2, respondents' labour employment show that self only, family members labour, hired labour, mixed labour were significant because their means are greater than 2.00. This implies that the labour employed by respondents in vegetable farming came either from self (i.e. respondents), family members, hired labour or mixed labour. The dispersion of the variants of hired labour 2.75 ± 0.558 and mixed labour 2.71 ± 0.597 around the mean do not affect the significance of the mean hence the significance is very strong across all the population. This is probably due to the high labour requirements of vegetable farming. This result is in line with the findings of Umoh and Yusuf (2000) who stated that urban vegetable farming involves the use of traditional farming implements such as hoe and machete. They noted that human power plays crucial role and this has been attributed to small and scattered farm holding, poverty of farmers and lack of affordable equipment.

Concerning health and healthcare, Table 3.2 shows that ability of respondents to afford primary healthcare services for his family (mean = 2.59), afford good health package for themselves and family (mean = 2.24), immunization for all respondents children (mean = 2.95) were significant. Though respondents could afford the necessary health care packages for themselves and their household, however, their income might not be enough for them to acquire routine medical checkup which was not significant. This might be due to high cost associated with routine medical checkup. Also they preferred modern medicine to traditional medicine probably due to the increased availability of public health services and greater awareness on the relative importance of modern medicine. The standard deviation value (SD = 0.2) for immunization for respondents children have a dispersion of 2.95 ± 0.225 do not deviate from the mean showing that the significance is very strong across all the population. Respondents ability to afford good health package for their household have a dispersion of 2.24 ± 0.6, this variable deviate negatively from the mean showing that the significance is not very strong across all the population. Again the health and health care of respondents depends on their level of income. This agrees with Nugent, (2000) who stated that high living standard is associated with high income level and consumption.

Table 3.2 also shows results on income: ability of income to meet daily household needs, provide basic comfort of life, income being sufficient to keep respondents on vegetable farming on full time basis, income sufficient for future saving and income sufficient to expand production were not significant. This implies that the respondents' income from vegetable farming was only enough to meet immediate needs as it comes but not enough for long time planning i.e. majority of respondents (46%) were in low income bracket. This finding concurs with that of Aina *et al* (2012) in their study: urban livelihood, which reported that majority of farmers involved in vegetable farming have low farm income and the low income earned might deprive the farmers of some entitlements (e.g. health, education). However Umoh (2006) had a different view, he reported that the percentage of farmers in Uyo who were on a high income bracket was slightly higher than those on a low income bracket.

Table 3.2 also reveal results on consumption level of respondents reveals that ability of household to afford 3 square meals (mean = 2.74), access to safe drinking water (mean = 2.39), afford balanced diet (mean = 2.00) were significant. This implies that the respondents and their families were food secure. This also implies that majority of the respondents were food secured. This can be attributed to the fact that since respondents were famers, they had easy access to food. This corroborates with Maxwell, Levin and Csete (1998) who in their study: "Does urban agriculture help prevent malnutrition?" reported that in Kampala, children aged five years or less (in low - income farming households) were found to be significantly better-off nutritionally (less stunted) than counterparts in non-farming households. Adedeji and Ademiluyi, (2009) also observed in their study of urban agriculture in Lagos, Nigeria, that the production of leafy vegetables provides a quick return that helps families to meet their daily cash requirements for purchasing other food.

Based on the indicators of living standard discussed above, it can be concluded that majority of the respondents have low living standards. This is because according Nugent (2000) high standard of living is associated with high income level and consumption level. Respondents are majorly of a low farm income although they are food secured. Hence the bulk of respondents' income goes to household food consumption in order to be food secured while only a little is left to cater for other basic needs of life. The findings also do not support ENDA, (1996) who reported that vegetable farmers in Harare have a relatively high standard of living.

**Table 3:2 Living standard of respondents**

| | Ikorodu | | Badagry | | Total | |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD |
| **Education** | . | . | . | . | . | . |
| With my Income can sponsor my children in kindergarten | 3.67* | 1.4 | 3.10* | 1.3 | 3.37* | 1.3 |
| With my income can enroll my children in primary school | 4.19* | .9 | 3.95* | 1.0 | 4.06* | .9 |
| Have or will enroll children for secondary education. | 4.00* | 1.0 | 3.97* | 1.1 | 3.99* | 1.1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Can afford children education up to university level. | 3.44* | 1.1 | 3.00* | 1.3 | 3.21* | 1.2 |
| My children may be sent out of school due to lack of payment of fees. | 2.99 | 1.3 | 2.86 | 1.4 | 2.92 | 1.3 |
| My children may be unable to complete their primary and secondary education because I may not be able to afford the fees. | 2.49 | 1.3 | 2.31 | 1.2 | 2.39 | 1.3 |
| **Labour Employment** | . | . | . | . | . | . |
| self only | 2.03* | .7 | 2.20* | .6 | 2.12* | .7 |
| family members | 2.29* | .6 | 2.34* | .6 | 2.31* | .6 |
| hired labour | 2.76* | .5 | 2.74* | .6 | 2.75* | .6 |
| mixed labour; (self and hired labour) (family labour and hired labour) | 2.71* | .6 | 2.70* | .6 | 2.71* | .6 |
| **Health and Healthcare** | . | . | . | . | . | . |
| Can afford primary health care services for family | 2.77* | .5 | 2.44* | .7 | 2.59* | .6 |
| Can afford good health package for my household | 2.53* | .5 | 1.99* | .6 | 2.24* | .6 |
| Completed immunization programme for all my children | 2.97* | .2 | 2.93* | .3 | 2.95* | .2 |
| Can afford routine medical checkup for my household | 1.80 | .7 | 1.23 | .5 | 1.49 | .7 |
| Prefer traditional medicine to modern medicine because it is cheaper | 1.97 | .7 | 1.78 | .7 | 1.87 | .7 |
| **Income** | . | . | . | . | . | . |
| Income sufficient to keep me in vegetable farming on full time basis | 2.09* | .7 | 1.55 | .7 | 1.80 | .8 |
| Income able to meet daily household needs | 2.17* | .8 | 1.77 | .7 | 1.96 | .8 |
| Income sufficient to enable future saving | 1.76 | .8 | 1.35 | .6 | 1.54 | .7 |
| Income sufficient to expand production | 1.46 | .6 | 1.32 | .6 | 1.39 | .6 |
| Income provides basic comfort of life | 2.01* | .6 | 1.71 | .6 | 1.85 | .7 |
| **Consumption Level** | . | . | . | . | . | . |
| Household can afford 3 square meals | 2.73* | .5 | 2.75* | .5 | 2.74* | .5 |
| household can afford balanced diet | 2.13* | .7 | 1.89 | .6 | 2.00* | .7 |
| In the last one year, how frequently do you or any member of your family skip meals or cut the size of your meals because there was not enough money for food? | 1.66 | .6 | 1.61 | .5 | 1.63 | .6 |
| Worry whether food would run out before money is available to buy more | 1.97 | .6 | 1.95 | .4 | 1.96 | .5 |
| In the last 12 months, did you or your children lose weight because of insufficient food | 1.47 | .6 | 1.58 | .5 | 1.53 | .6 |
| Have access to safe drinking water | 2.60* | .7 | 2.20* | .9 | 2.39* | .9 |

*Source: Field Survey, 2012. *High living standard (For Education mean ≥ 3.00, For Labour Employment, Income, Health and Consumption, mean ≥ 2.00).*

**Relationship between profitability of vegetable farming and the standard of living of urban vegetable farmers**

Table 4 shows the relationship between perceived profitability of vegetable farming and the standard of living of respondents. All the variables had a positive correlation with perceived profitability of vegetable farming but were not significant.

Correlation between consumption level as an indicator of living standard and perceived profitability of vegetable farming is positive (r = 0.025). The positive relationship implies that respondents with higher consumption level felt they made more profits than respondents with low level of consumption. Correlation between health and healthcare as an indicator of living standard and perceived profitability of vegetable farming is also positive (r = 0.123) implying that respondents can afford improved health care packages. Correlation between education as indicator of living standard and perceived profitability of vegetable farming was positive (r = 0.025), implying that respondents who could afford formal education for household members. The reason for the above positive correlations is probably due to the fact that increased profit implies more income for the respondents which enabled respondents to afford improved consumption level, better health package, improved education for household members and higher farm income which would lead to high living standard. The findings agree with Nugent (2000) who stated that high standard of living is usually associated with high income level and consumption level. However, consumption, income, health and education as indicators of living standard were not significant probably because most of the respondents had small farm sizes which resulted in low farm income. This is also in line with Sen's (2001) research on poverty and families: an essay on entitlements and deprivation, he reported that low farm income might

deprive the farmers and households of some entitlements.

**Table 4: Relationship between profitability of vegetable farming and the standard of living of urban vegetable farmers**

| | Perceived Profitability (total) | |
|---|---|---|
| | r | Prob. level |
| Living standard – Consumption | 0.025 | 0.758 |
| Living standard – Income | 0.019 | 0.821 |
| Living standard – Health | 0.123 | 0.133 |
| Living standard – Education | 0.025 | 0.763 |

***. Correlation is significant at the 0.01 level (2-tailed).*

## CONCLUSION

Vegetable farmers were generally found to be food secure but have low standards of living since most of them could only afford basic requirements of life and not luxuries. Farmers are advised to increase their scale of operation so as to earn more from vegetable farming and hence increase their standards of living. However, farmers were advised to increase their scale of operation so as to earn more from vegetable farming and hence increase their standards of living.

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