# LIVELIHOOD OUTCOMES OF BENEFICIARIES OF UNIVERSITY-BASED AGRICULTURAL EXTENSION SYSTEM IN SOUTHWESTERN NIGERIA


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## ABSTRACT

University-Based Agricultural Extension System (UBAES) was established to complement the activities of the conventional agricultural extension system. One of its objectives was to impact on the livelihoods of beneficiaries through enhanced food security, improved health status, and reduced vulnerability to poverty. Previous studies have focused more on livelihood diversification and income to the neglect of their outcomes. Therefore, livelihood outcomes of beneficiaries of UBAES in southwestern Nigeria were investigated.

A multistage sampling procedure was used to select respondents. The UBAESs of University of Ibadan (UI), Obafemi Awolowo University (OAU) and the Federal University of Agriculture, Abeokuta (FUNAAB) were purposively selected due to their years of existence. Proportionate and simple random sampling were used to select 70% of the active participants in each UBAESs to get 108 beneficiaries in UI, 126 in OAU and 140 in FUNAAB to give a sample size of 374 respondents. Structured interview schedule was used to collect data on respondents' personal characteristics, livelihood abilities (17-46 low, 47-106 high), social capital (14-26 low, 27-58 high), and physical capital (13-20 low, 21-55 high). Others are human capital (0-25 low, 26-130 high), and financial capital (12-22 low, 23-80 high), natural capital (4-21 low, 22-156 high), benefits derived from UBAES (3-12 low, 13-21 high), and livelihood activities (11-19 low, 20-57 high). The rest are food security (28-49 low, 50-80 high), perceived health status (47-66 low, 67-75 high), vulnerability to poverty (13-26 low, 27-73 high) and livelihood outcomes (73-120 low, 121-178 high). Data were analysed using descriptive statistics, Chi-square, Pearson product moment correlation, ANOVA and linear regression at $\alpha_{0.05}$.

Respondents were mostly male (59.4%), married (73.0%), with age and household size of 43.1±15.60 years and 6.4±2.42 persons, respectively. Farming experience, record keeping, and professional group membership were 18.6±14.31, 8.6±7.31, and 14.4±2.89 years, respectively. Averagely, respondents belonged to three occupational groups and had low livelihood ability (56.1%). More respondents had high social (57.0%) and physical (51.1%) capitals, while human (58.6%), financial (56.1%) and natural (69.8%) capitals were low. Benefits of participating in UBAESs (57.0%) were high, but livelihood activities (56.7%) were low. Most respondents were food secured (65.2%), perceived health status and livelihood outcomes were high for 60.4% and 54.4%, respectively, while vulnerability to poverty was low for 61.0% of the respondents. There was a significant association between livelihood outcomes and educational attainment ($\chi^2$=0.196), and there was a significant relationship between livelihood outcomes and age (r=0.178), natural capital (r=0.146), social capital (r=0.282) and human capital (r=0.216). Respondents' livelihood outcomes significantly differed across UBAESs of UI (124.5±15.29), OAU (122.1±12.82) and FUNAAB (117.6±11.27). Livelihood outcomes were influenced by social capital **(**β=0. 185), UBAES influence (β=0. 154), human capital (β=0. 142) and physical capital (β=-0. 144).

Beneficiaries of University-Based Agricultural Extension System in the Federal University of Agriculture, Abeokuta had the lowest livelihood outcomes, while those of the University of Ibadan had the highest in southwestern Nigeria. Influences of University-Based Agricultural Extension System, social capital, physical capital and human capital are the determinants of livelihood outcomes across University-Based Agricultural Extension System.

**Keywords**: Livelihood activities, Capital asset, Vulnerability to poverty, Food security

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## DEDICATION

I dedicate this thesis to the strongest woman I know, Mrs Toyosi Odunola Ademola.

## CERTIFICATION

I certify that this study was carried out by Adedamola Ola ADEMOLA in the Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan, Nigeria.

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## LIST OF ACRONYMS

ACOMEX – Agricultural Commodity Exchange Market

ADP – Agricultural Development Programme

ANOVA – Analysis of Variance

ATA – The Agricultural Transformation Agenda

ATASP-1 – Agricultural Transformation Agenda Support Program Phase 1

BLP – Better Life Programme

CAADP – Comprehensive Africa Agriculture Development Programme

DAPRS – Developing Agricultural Policy and Regulatory System

DFID – Department for International Development

DFRRI – Directorate for Food Roads and Rural Infrastructure

DRUSSA – Development Research Uptake in Sub-Saharan Africa

ECOWAS – Economic Community of West African States

FEAP – Family Economic Advancement Programme

FFS – Farm Settlement Scheme

FSP – Family Support Programme

FUNAAB – Federal University of Agriculture, Abeokuta

GR – Green Revolution

IADP – Integrated Agricultural Development Projects

ICT – Information Communication Technology

LEEDS – Local Economic Empowerment and Development Strategy

MDG – Millennium Development Goal

NAFPP – National Accelerated Food Production Programme

NALDA – National Agricultural Land Development Authority

NARP – National Agricultural Research Project

NEEDS – National Economic Empowerment and Development Strategy

NEPAD – New Partnership for Africa's Development

NFDP – National Fadama Development Project

NPFS –National Programme for Food Security

NSPFS – National Special Programme on Food Security

OAU – Obafemi Awolowo University

ODA – Official Development Assistance

OFN – Operation Feed the Nation

PPMC – Pearson Product Moment Correlation

RAISE – Raising Agricultural Income with Sustainable Environment

RBDA – River Basin Development Authorities

RTEP – Root and Tuber Expansion Programme

SEEDS – States Economic Empowerment and Development Strategy

SLF – Sustainable Livelihood Framework

UBAES – University-Based Agricultural Extension System

UI – University of Ibadan

UNDP – United Nations Development Programme

# CHAPTER ONE

# INTRODUCTION

This chapter presents the background to the study, a statement of the research problem, research questions, objectives of the study, hypotheses of the study, significance of the study, and operational definition of terms.

## 1.1. Background to the study

Agricultural extension is a system for delivering information and advice to farmers as an input into farming, and a social innovation towards agricultural promotion. “Extension” has been created and recreated, adapted and developed over centuries. Cunningham, Oosthuizen and Taylor (2009) states that in 1850, Oxford and Cambridge Universities conceived the idea of meeting the educational needs of communities around their campuses and termed it "extension." The same idea was tagged “university extension” in 1867 and by 1890, various branches of agricultural science and technology were being covered by lecturers in rural areas. The growth and success of this work in Britain influenced the initiation of similar activity elsewhere, especially in the United States. In the USA, comparable out-of-campus lectures were established in the 1890s as the extracurricular work of land-grant universities to serve the needs of farm families (Leslie, 2008). The use of the term "extension" continued and has persisted in several other European, American, Asian and African countries.

In Nigeria, agricultural extension also originated within an education-research institution. Ingawa, Kassim, Mordi-Onota and Balarabe (2006) reiterates that the establishment of the School of Agriculture at Moor Plantation in 1921 marked the formal beginning of extension work, which main objectives include: carrying out experiments on the production of export crops, improving soil fertility, marketing agricultural produce and basic extension services. Major progress in the development and practice of agricultural extension also took place when a School of Agriculture was established in the North at Samaru-Zaria in 1931 (Fadiji and Adeniji, 2011). By 1960, there were Regional Ministries of Agriculture across Nigeria and Extension Departments or Field Service Divisions were created in each of the regional ministries of agriculture – thus initiating the establishment of agricultural extension institutions.

Ever since then, agricultural extension has been ministry-based. Adegbola and Bamishaye (2013) opines that mainstream agricultural extension services fell under the auspices of the Ministries of Agriculture with contributions from NGOs. However, many agricultural programmes, with an extension service delivery component, under the supervision of the ministries were not efficient. According to Ayoola (2001), the National Accelerated Food Production Project (NAFPP), which was set up in 1978, was abandoned when faced with infrastructural and financial challenges, along with managerial ineptitude. Asiabiaka (2002) states that the Operation Feed the Nation (OFN), which was set up in 1979, and the Green Revolution of the 1980s produced no agricultural revolution. Likewise, Olatunji (2005) observes that the Directorate of Food, Road and Rural Infrastructures (DFRRI) established in 1986 lacked proper coordination, execution, and evaluation. The Agricultural Development Projects (ADPs) that started in 1975 adopted the Training and Visit system, which had success stories in Europe and Asia, also failed for bureaucratic reasons (Madukwe, 2008). Moreover, an upgrade to this approach was the participatory Community Based Demand Driven approach, which was adopted in 1992 by the National Fadama Development Programme. Unfortunately, Ayanwale and Alimi (2004), and Ike (2012) asserts that the programme is recording only little successes in just a few states of the nation.

On the other hand, educational and research institutes did not completely neglect extension work. For instance, there are University-Based Agricultural Extension Service Delivery Systems across the country. According to Akpoko and Kudi (2007), University-Based Agricultural Extension System (UBAES) has much potential for success because information is being assembled, systematised and made available for best agricultural practices suited to a particular environment based on the accumulation of experience and findings from research. The system adapts community adoption to create an outlet for the university to bring about improvement in agricultural production and raise the living standards of rural inhabitants.

The UBAES resembles what is known as Corporate Social Responsibility (CSR) of corporate bodies and Cooperative Extension Service (CES) of land-grant universities in the United States of America. The University of Ibadan adopted *Badeku* Community and later *Ileogbo* Community; Obafemi Awolowo University adopted *Isoya* Community; Ahmadu Bello University adopted *Samaru* Community and later *Nassarawan Buhari* Community;

University of Nigeria, Nsukka adopted *Otukpe* and *Obukpa* communities, and the Federal University of Agriculture Abeokuta adopted *Alabata* and *Isolu* communities. Other universities that are involved in UBAES according to Akinnagbe and Ajayi (2010) are the University of Ilorin, Michael Okpara University of Agriculture and University of Agriculture Makurdi.

The primary concern of agricultural extension is to serve the needs of beneficiaries' in areas of production, processing, storage, marketing, health, education and leadership. These concerns are in agreement with the sustainable livelihood framework of the Department for International Development (DFID, 2005). This framework agrees with the principles of agricultural extension: both are people-centred, dynamic, holistic, and both build on peoples' strengths and encourage participation. The components of this framework as suggested by Carney (2002) are assets (social, human, natural, financial, and physical capitals), livelihood activities, transforming structures, vulnerability context, and livelihood outcome. All of which are concurrent with the system of operation of the UBAES.

The systems approach to measuring the cost and effect of extension service suggests a process that starts from objectives, inputs, activities, outputs to the outcome (Millar, Simeone, and Carnevale, 2001). The ideology behind UBAES is that the specific goals should conform to a felt need, the inputs should be accessible, the activities should record high participation, the outputs should reflect complementariness among assets and the outcome should be in harmony with a certain outcome. Within the sustainable livelihood framework, the relationship between the UBAES specific objectives and peoples' felt needs reflects on the vulnerability context. If the objectives do not meet the felt needs, people will continue to be vulnerable to poverty. The correlation between UBAES inputs and peoples' access to assets is revealed in the "Asset Pentagon" – social, natural, physical, financial and human capitals. This is because, an ideal livelihood, according to DFID (2005), is one with a balanced asset pentagon (with the five sides almost equal).

In addition, the level of participation of beneficiaries in UBAES activities is a reflection of the strength of transforming structures within the sustainable livelihood framework. The transforming structures are the formal and informal policies and institutions that determine the level of access an individual has to beneficial assets and activities. UBAES is thus an example of a transforming structure within the sustainable livelihood framework. UBAES activities are varied, and they are intended to increase the assets of the beneficiaries

towards various results or outputs, which could be increased productivity or income. The complementariness of these outputs is the livelihood outcome of these beneficiaries. Livelihood outcome, according to Ntale (2012), is the aggregate of peoples' food security, sustainable land management practices, perceived health status, mental wellbeing, and income; minus vulnerability to poverty.

### 1.2. Statement of the research problem

Universities are at the centre of human development, and since rural livelihood abilities are the lowest among rural livelihood components (Oyesola and Ademola, 2011), universities have a major role to play in improving rural knowledge, skills, and attitude. Right from inception, University-Based Agricultural Extension System (UBAES) has been broad-based, incorporating adult education, nutrition, home economics, agricultural extension, development communication and health services (Cunningham, Oosthuizen, and Taylor, 2009). According to Madukwe, Okoli and Eze (2004), four conventional universities with agricultural programmes and the four universities of agriculture in Nigeria have found worthy the need to integrate the system into their research and extension functions. Leslie (2008) opines that in this kind of extension system, it is expected that adequate and location specific remedies would be available to the challenges of beneficiaries because it would have been a research concern given the free flow of information between the system and the beneficiaries. Given this potential of UBAES, its outcome on the livelihood of beneficiaries should be outstanding. However, only a few studies have been conducted to reveal the outcome of this extension approach.

Findings of various surveys in communities adopted by UBAES show a low level of livelihood: Akinnagbe and Ajayi (2010) concludes that access of beneficiaries to capital assets is low in *Otukpe* (University of Nigeria's adopted community). Oyesola and Ademola (2011) states that the level of livelihood activities is low in *Ileogbo* (University of Ibadan's adopted community), and Kolawole (2011) reiterates that livelihood ability is lower than expected in *Isoya* (Obafemi Awolowo University's adopted community). This reveals that the benefits of the system may not have diffused across the communities or that there are inadequacies within the system. There is thus a need to make an empirical report on the effect of UBAES on the quality of life of its beneficiaries.

Research has shown that the inadequacies of extension programmes could be due to the defect in program planning, implementation, and evaluation (Fadiji and Adeniji, 2011).

UBAES has been ongoing in Nigeria for more than 25 years (Kolawole, 2011); a time long enough for repackaging for efficiency if there had been needs for it. On the other hand, UBAES is diverse and insufficient if evaluated only for effectiveness in line with individual specific objectives. System approach to programme evaluation revealed that long-standing or matured programmes are more efficiently evaluated concerning the outcome rather than outputs (Madukwe *et al*., 2004). Programme outputs only reflect the objectives and inputs, while outcome reflects the overall effect of the complementariness of the individual outputs.

In the case of this study, livelihood outcome as regards to agrarian communities are suggested by the sustainable livelihood framework of the Department for International Development (2005) to be made up of the following outputs: more income, reduced vulnerability, food security, better health, mental wellbeing and sustainable land management practices. Many programmes address one or fewer of these outputs, which is inadequate as far as livelihood promotion is concerned. This is because a livelihood is a compound mix of all necessities that pertain to a decent living. A nexus of these outputs is thus required to promote peoples' standard of living. This study thus intends to examine the outcome of UBAES on its specific beneficiaries, not communities, with reference to the sustainable livelihood framework. In line with the preceding, this study will provide answers to the following research questions:

1. what are the personal characteristics of the beneficiaries of UBAES?
2. what is the livelihood (ability, asset, and activity) of the beneficiaries of UBAES?
3. how much do the beneficiaries participate in UBAES activities?
4. what are the benefits of UBAES to beneficiaries?
5. what is the influence of transforming structures (FG, SG, LG, ADP, NGO, UBAES, and NFDP) on the beneficiaries?
6. are the beneficiaries food secure?
7. are the beneficiaries still vulnerable to poverty?
8. what is the perceived health status of the beneficiaries?

### 1.3. Objectives of the study

The general objective of this study is to determine the livelihood outcome of beneficiaries of University-Based Agricultural Extension System (UBAES) in southwestern Nigeria. The specific objectives are to:

1. identify the personal characteristics of the beneficiaries of UBAES;
2. describe the livelihood of the beneficiaries of UBAES;
3. determine how much beneficiaries participate in UBAES activities;
4. ascertain the benefits of UBAES to beneficiaries;
5. determine the influence of transforming structures on the beneficiaries;
6. examine the food security of the beneficiaries;
7. ascertain the beneficiaries' vulnerability to poverty; and
8. assess the perceived health status of the beneficiaries.

### 1.4. Hypotheses of the study

$Ho_1$: There is no significant relationship between livelihood and livelihood outcome of UBAES beneficiaries

$Ho_2$: There is no significant relationship between beneficiaries' participation in UBAES activities and their livelihood outcome

$Ho_3$: There is no significant relationship between the benefits derived from UBAES activities and livelihood outcome of UBAES beneficiaries

$Ho_4$: There is no significant relationship between the influence of transforming structures and livelihood outcome of UBAES beneficiaries

$Ho_5$: There is no significant difference in the livelihood outcome of UBAES beneficiaries across southwestern Nigeria

$Ho_6$: There is no significant relationship between selected personal characteristics and livelihood outcome of UBAES beneficiaries

## 1.5. Significance of the study

The need for a cost-effective agricultural extension delivery system cannot be overemphasised. Since the inception of "extension practice" in Nigeria, programmes had been rolled out with huge budgets but with few accomplishments. The decision to continue to anchor the practice in the same way it has been done can only guarantee similar results. Therefore, the achievement of agricultural transformation requires a change in the planning, implementation, and evaluation of extension programme among other things. With the attendant failure of the ministry-based extension service for more than five decades now, it could be suggested that the service should be returned to educational institutions where it originated. This suggestion, however, requires the backing of facts and Figures proving the success of University-Based Agricultural Extension System.

One of the challenges of extension programmes is the inadequacy of their evaluation reports. The effect and outcome of these programmes have not been sufficiently convincing because of the usual lack of baseline data. Traceability of effect has always been declared as a generic constraint to extension practice. Despite that, extension personnel must continue to work towards measuring the influence of their activities on their clients to maintain their relevance as a stakeholder in agricultural transformation. Presently, there is only a little report of the change in the quality of life of the University-Based Agricultural Extension System's beneficiaries. This study, therefore, will fill this gap towards an effective measurement of the outcome of UBAES.

The change in the enterprise characteristics of the beneficiaries will reflect the increase or decrease in their access to capital assets. Also, the change in the attitude of beneficiaries to UBAES will show the level of relevance of the system to its clients. Since the activities of UBAES are location specific, the socioeconomic and cultural factors influencing livelihood promotion can be easily contained to isolate the outcome of the system. Livelihood promotion is based on the belief in the essential right of all human beings to equal opportunity to promote economic growth and to ensure social and political stability.

Livelihood outcomes are best in measuring this promotion according to Barrett, Bezuneh, Clay and Reardon (2005). This is because they help to understand the output of the current configuration of factors within the livelihoods, what motivates people to behave as they do, what their priorities are, how they are likely to respond to new opportunities and

which performance indicators should be used to assess support activity. The result of this study will show if the outputs of the system complement each other enough to translate into a livelihood upgrade. If not, the areas of weak coverage of the UBAES will be exposed, and this will help the system to make adequate provisions for these needs to be met to strengthen the effectiveness of UBAES service delivery.

Finally, no single measurement of development that is sufficient. That is why the data from this study will give development interventionists the relationship between various components of peoples' livelihood towards future project efficiency. It will also help the government to formulate policies and design programmes that promote livelihood as a whole and not just income. The study will also expose the correlations of development concepts like food security, income, well-being, health, sustainable land management practices, and vulnerability toward further research.

### 1.6. Operational definition of terms

***Livelihood:*** this is the livelihood ability, assets, and activities of people, upon which they depend on for a living

***Livelihood ability:*** This is the relevant education, skills, years of experience, strength, and support that help in making efficient use of capitals. They are the personal and socioeconomic characteristics of an individual that have been proven to enhance livelihood activities.

***Livelihood assets:*** These are the capitals (social, human, financial, physical, and natural) from which people derive a living.

***Livelihood activities:*** These are the income generating activities from which people derive a living.

***Livelihood outcomes:*** Livelihood outcomes are the possible results of a sustainable livelihoods approach to development. They are household food security, reduced vulnerability to poverty, and sustainable use of land management practices. Income, health, and wellbeing are removed because food security and vulnerability to poverty can account for them.

***Vulnerability to poverty:*** This refers to exposure to stress that renders people defenceless and eventually poor. It is a lack of means to cope without damaging loss.

***Food security:*** This refers to the accessibility and consumption of food to ensure adequate nutrition for individual household members.

***Perceived health status:*** These are body symptoms that people feel that make them seek treatment. They include joint pain, headache, stomach upset, body heat, nausea, diarrhoea, appetite loss, sleepless nights, among others.

***Transforming structures:*** These are the influences of institutions (governments, NGOs, law, norms, caste, or class) that either decreases or increases people's vulnerability to poverty. Transforming structures here are Federal Government, State Government, Local Government, Agricultural Development Projects, National Fadama Development Programme, nongovernmental organisation and University-Based Agricultural Extension System.

***University-Based Agricultural Extension System:*** This is the outreach activities of the Departments of Agricultural Extension and Rural Development of Universities. It uses advisory and input services to increase agricultural production and upgrade rural livelihood.

***Sustainable Livelihood Framework (SLF):*** SLF is a model of the DFID that illustrates the relationship between all livelihood concepts; which are livelihood assets, vulnerability context, transforming structures (policies, institutions, processes), livelihood activities, and livelihood outcome.

# CHAPTER TWO

# LITERATURE REVIEW

This chapter presents agricultural development in Nigeria, global concern for agricultural extension, agricultural extension services in Nigeria and its clientele, agricultural and rural development policies and programmes in Nigeria, participation and project sustainability, University-Based Agricultural Extension System (UBAES), Sustainable Livelihood Approach (SLA) and Sustainable Livelihood Framework (SLF).

## 2.1. Agricultural development in Nigeria

Agriculture used to attract adequate attention in Nigeria before the advent of oil exploration. Presently, what the nation has left is agricultural potentials; there are hectares of fallow lands that could be utilised to ensure food security and adequate nutrition. The business of agriculture is left to smallholder farmers that lack adequate capitals to explore the potentials. Many of them feel stalk with farming because it is their only area of skill. Inadequate capital, insurance, storage, processing, and marketing structures are crippling the agricultural sector. According to Ijaiya, Ijaiya, Bello and Ajayi (2011), efforts to revolutionise agriculture through research, mechanisation, advisory and input services have been failing consistently. Inadequate expertise, community engagement, gender mainstreaming, evaluation and policy/programme continuity are some of the reasons for the accounted failure as recorded by Oshewolo (2010).

However, farmers like all humans always seek better ways of living – improved farm practices, land management, agro-processing, storage, market options, transportation, nutrition, investment practices, coping activities, good practices, societal relevance and operational ease; thus change becomes inevitable. Mehta (2007) states that opportunities for positive changes are limited in farmers' locality, which is mostly rural. Consequently, beneficiaries' income is low and adversely influences their welfare. In addition, Adejobi (2004) reiterates that low welfare dominates farming communities, and it is a menace in Nigeria because of dysfunctional agricultural policies and poor infrastructures. The lower the beneficiaries' access to productive assets, literacy, skills, awareness, networks and opportunities, the less achievable is agricultural development.

## 2.2. Global concern for agriculture and agricultural extension

Three out of four poor people in developing countries live in rural areas, with the majority of them relying on, either directly or indirectly, on agriculture for their livelihoods (World Bank, 2007). Agriculture plays a major role in both poverty reduction and economic growth. Agriculture remains the largest source of income for around 2.5 billion people in the developing world (Food and Agriculture Organization, 2003). The impact of the agricultural sector is wide-ranging and extends to economic growth, food security, poverty reduction, livelihoods, rural development and the environment (Nkoya, Philip, Mogues, Pender, Yahaya, Adebowale, Arokoyo and Kato, 2008). Moreover, the poorest half of the population benefits significantly more from agricultural growth than growth in other sectors of the economy (United Nations, 2008). However, despite evidence that investment in agriculture has beneficial impacts on agricultural growth and poverty reduction (Fan and Rao, 2003), since 1980, there has been a decline or stagnation in public expenditure on agriculture in most developing countries (Akroyd and Smith, 2007).

Likewise, the proportion of Official Development Assistance (ODA) going to agriculture has also declined from around 18 percent in 1979 to 3.5 percent in 2004 (World Bank, 2007). Agricultural extension and advisory services play a major role in agricultural development and can contribute to improving the welfare of farmers and other people living in rural areas. Anderson (2007) defines the term agricultural extension and advisory services as "the entire set of organisations that support and facilitate people engaged in agricultural production to solve problems and to obtain information, skills, and technologies to improve their livelihoods." Extension services can be organised and delivered in a variety of forms, but their ultimate aim is to increase farmers' productivity and income.

According to Anderson and Feder (2003), productivity improvements are only possible when there is a gap between actual and potential productivity. They suggest two types of 'gaps' contribute to the productivity differential – the technology gap and the management gap. "Extension" can help the reduction of the productivity differential by increasing the speed of technology transfer and by increasing farmers' knowledge and assisting them in improving farm management practices (Feder, Murgai and Quizon, 2004). Additionally, extension services also play a major role in improving the information flow from farmers to scientists (Anderson, 2007). A range of approaches to extension delivery has been promoted over the years. Early models focusing on transfer of technology using a 'top-

down' linear approach were criticised due to the passive role allocated to farmers. As well as the failure to factor in the diversity of the socioeconomic and institutional environments facing farmers and ultimately in generating behaviour change (Birner, Davis, Pender, Nkonya, Anandajayasekeram, Ekboir, Mbabu, Spielman, Horna, Benin and Cohen, 2009).

Some models have been implemented since the 1970s. Combining approaches to outreach services and adult education, including the World Bank's Training and Visit (T&V) model (Anderson, Feder, and Ganguly, 2006), participatory approaches, and farmer field schools (FFSs) (van den Berg and Jiggins, 2007). Additional extension modalities include ICT -based delivery, which provides advice to farmers on-line and other approaches such as the promotion of model farms (Birner *et al*., 2009). While there is an extensive literature dealing with issues related to agricultural extension in developing countries, rigorous impact evaluations (IEs) of agricultural extension interventions are less common. According to Waddington, Snilstveit, White, and Anderson (2010), this is partly due to the complexity of evaluating such interventions in the face of the broad range of additional factors that influence agricultural outcomes. Including agro-ecological climate, weather events, availability and prices of inputs, market access, and farmers' characteristics. Biases inherent in attributing the impact of extension services on agricultural production mean that the measured effects might result from pre-existing differences rather than the programme under evaluation (Wu, Praneetvatakul, Waibel, and Wang, 2005).

### 2.3. Agricultural extension services in Nigeria and its clientele

Agricultural extension service has some success stories among farmers in Nigeria. The recorded results are usually location specific depending on the will that drives the service and the level of participation of agricultural stakeholders, especially farmers themselves. Due to the failures of many agricultural programmes, beneficiaries have lost confidence in extension service because agricultural extension is the unit that has a direct relationship with them (Ogunsumi, 2011). The attitude of beneficiaries to extension services, therefore, needs to be revived by revamping the present agricultural advisory structure. There is a need to involve only professionals, use only effective contact methods, adopt only cost efficient practices and continue to encourage participation of all stakeholders.

Class, caste, livelihood, gender, age, religion, race, origins, and ethnicity usually differentiate rural communities. However, development planners have treated communities as

uniform in the past. Extension service is required to maintain flexibility to accommodate changing trends. In line with this, Adeola and Ayoade (2011) infers that agricultural programmes now have a gender component to address the former imbalance in access to and control of assets among males, females, adults, youths and children. According to Agwu and Abah (2009), efforts are also in place to curb elite capture of projects' incentives. Attempts must continue to be made to allow institutional benefits to filter across gender, generational, class, and caste boundaries to sustain development.

On the other hand, Kolawole (2011) resolves that low literacy will always hinder human development efforts of any society. Educational institutions must thus go beyond their walls to reach people that lack the opportunity of classroom education (Abdulkareem and Oyeniran, 2011). Education being the founding drive of extension, should continue to receive attention from extension workers and other development agents. Agricultural extension now encourages occupational multiplicity (Donye, Ja'afar-Furo, and Obinne, 2013), which is no longer new across all individual profiles, because it is a real strategy for reducing vulnerability. There are always adverse trends, risks, shocks, and seasons that persons need to plan for and fight against to maintain survival and relevance (Adebayo, Onu, Adebayo and Anyanwu, 2012). This does not leave out people in rural areas, especially farmers. They cultivate virtually all crops they need for household survival and raise livestock as a protein source and back up for sale in difficult times. In addition, Oni, Nkonya, Pender, Phillips and Kato (2009) states that farmers explore on-farm, off-farm, and non-farm income sources to achieve economic equilibrium.

Tijani, Benisheik, Mustapha and Dangaladima (2010) reiterates that in the midst of these multiplicities, agricultural labour is diminishing. Rural youths migrate to cities in search of economic or educational opportunities. Farming households now often operate independently; it is usual to have husbands, wives and children's farm on their personal lands. Worse still, Adekunle, Adefalu, Oladipo, Adisa and Fatoye (2009) holds the view that many rural youths have lost interest in farming because of its accompanying drudgery, uncertainties, and delay. In order for extension to solve agricultural challenges, it has to continue investing in farmers' empowerment, fostering participatory processes, mainstreaming gender, deepening decentralization, encouraging market-oriented farming, intensifying productivity and profitability, managing the natural resource base, increasing

institutional strength, and harmonizing of public extension oriented programmes (Nnadi, Chikaire, Atoma, Egwuonwu and Echetama, 2012).

### 2.4. Agriculture and rural development policies and programmes in Nigeria

The colonial government recognized the potential of agriculture for propelling Nigeria's economic development when policies were put in place to encourage output growth and to extract surpluses (Iwachuku and Igbokwe, 2012). The predominant theme of development in this period was the surplus extraction philosophy or policy whereby immense products were generated from the rural areas to satisfy the demand for raw materials in modern Britain (Ayoola, 2001). This early interest of the extraction policy was on forest resources and agricultural exports like cocoa, coffee, rubber, groundnut, and oil palm. More than half of the policies in the era focused on forest matters while less emphasis was made on food and animal production. Most of these policies were drafted without proper institutional arrangement, programmes, specific projects, strategies, goals or targets and specific objectives geared towards the realisation of the dreams of the policies. This can be proved by the fact that there was only one documented agricultural scheme that evolved towards the end of the era (the early 1960s) termed Farm Settlement Scheme. The undocumented ones, according to Ayoola (2001) were as follows:

I. Forest Policy 1937 – Based on the proposal of chief conservator of forests after a forestry conference. The problem of depreciating forest capital because of unregulated exploitation was addressed.

II. Forest Policy 1945 – this is the revision of 1937 policy. It incorporated the new position of the government that (a) agriculture must take priority over forestry (b) the satisfaction of the need of people at the lowest rates (prices) must have priority over revenue, and (c) maximisation of income must be compatible with sustained yield.

III. Agricultural Policy 1946 – It was the first all-embracing policy statements in respect to agriculture. Nigeria was demarcated into five agricultural areas. (i) Northern provinces' pastoral or livestock production area. (ii) Northern provinces' export crop (groundnut and cotton) production area. (iii) Middle belt's food production area. (iv) Southern provinces' export crop (palm oil and kernels) production area. (v) Southwest's food export (cocoa and palm kernels) area.

IV. Policy for the marketing of oils (Oilseeds and Cotton 1948) – It was a commodity specific policy directed toward stabilising post-second world war prices in Britain.

V. Forest Policy for Western Region 1952 – Territorial policy declared during the trial of the regionalization concept focused on forest matters.

VI. Agricultural Policy 1952 – Territorial policy focused on agricultural matter in the Western Region

### 2.4.1. Farm Settlement Scheme

Farm Settlement Scheme (FSS) was initiated by some regional governments in Nigeria and was a critical element of Western Nigeria Policy of Agricultural and Natural Resources of 1959. The main objective of this scheme was to settle young school leavers in a specified area of land, making farming their career, thereby preventing them from moving to cities in search of white-collar jobs. These settled farmers were also to serve as models in good farming systems for farmers residing in nearby villages to emulate. Unfortunately, the dream of this scheme was not materialised because some of the settlers were too young and inexperienced in farming, thus causing a high percentage of dropouts among the settlers (Amalu, 1998). Secondly, lack of understanding of the meaning and implication of the scheme by some settlers who assumed that their participation in the scheme would eventually guarantee a paid job. They were discouraged, and some withdrew as soon as the allowances were not given any more. Thirdly, the cost of establishing a viable farm settlement was too high regarding cash and staff (Amalu, 1998). Finally, expenses made on the scheme were incurred on infrastructure like construction of houses, schools, markets, and road for the settlers, which did not directly bring about an increase in agricultural output by the participants as targeted.

### 2.4.2. From independence (1st October 1960) to 15th January 1966

New policies were formulated in the post-independence era to actualize more equitable growth in agriculture. The earlier surplus extraction policies were quickly translated into the pursuit of an export-led growth (Ayoola, 2001). This led to the demarcation of the country into the Western Region (cocoa), Northern Region (groundnut) and the Eastern Region (oil palm). In this era, there was also an import substitution policy, which saw industrialisation as the best strategy to achieve economic growth. It emphasised on the establishment of domestic industries behind tariff and quota barriers. Manufacturing industries were considered as the most appropriate tool to initiate the process. In this policy, it was hoped that imports would be replaced and internal growth fostered; and that the costs

of the strategy would be mostly borne by the advanced countries supplying the manufactured consumer goods (Pearce, 1986 cited in Ayoola, 2001). Surprisingly, there was no programme, project or scheme set out to accomplish the goal of these policies given that no agricultural programme or project emanated within this period. For a policy to have a meaningful impact, it must have strategies (that is, programme or project) geared towards the accomplishment of specific objectives and the ultimate goal of the policy.

### 2.4.3. January 15, 1966, to May 29, 1999 (military era)

This period is termed military era because apart from Alhaji Shehu Shagari's civilian administration (lasted from October 1, 1979, to December 31, 1983) that thrived within this period others were military administrations. The agricultural policies that existed within this period were Agricultural Policy for Nigeria 1988 and Agricultural Control of Importation 1990 (The Washington Times, 1999). There were also River Basin Development Decree (Decree 25 of 1976) and Land Use Decree promulgated under the military regime of General Olusegun Obasanjo in 1978, which was later changed to the Land Use Act. The Act aims at ameliorating the problem of land tenure that existed mainly in Eastern Nigeria. Irrespective of the two policies, two decrees and an act that existed, several programmes/projects were initiated within this period, which includes:

#### 2.4.3.1. National Accelerated Food Production Programme

National Accelerated Food Production Programme (NAFPP) was an agricultural extension programme launched in 1972 by the Federal Department of Agriculture during General Yakubu Gowon's regime. The programme focused on bringing about a significant increase in the production of maize, cassava, rice and wheat in the northern states through subsistent production within a short period. The programme was designed to spread to other states in the country after the pilot stage that was established in Anambra, Imo, Ondo, Oyo, Ogun, Benue, Plateau and Kano States. Mini kit, production kit, and mass adoption phases were the three phases of the programme. Lapses found in the programme, according to Iwachuku and Igbokwe (2012) includes:

a. Farmers financially sponsored the last two phases of the programme. This discouraged some farmers from participating in the programme.

b. Farmers who could not form co-operatives were likely to be left out in the programme since the programme relied on disbursement of credits and farm inputs through co-operative societies.
c. Abrupt and premature withdrawal of funding by the Federal Government due to the introduction of another programme termed Operation Feed the Nation.
d. Demonstration trials were done on some selected farmers' plots by the research and extension personnel that did not give a good representation of the outcome of the technology or programme.

### 2.4.3.2. Agricultural Development Projects

Agricultural Development Projects (ADP) formerly known as Integrated Agricultural Development Projects (IADP) was earlier established in 1974 in the North East (Funtua), North West (Gusau) and North Central (Gombe) states as pilot schemes. The earlier impressive result of the programme led to its replication in 1989 for the entire then nineteen states of the Federation. This approach to agricultural and rural development was based on collaborative efforts and tripartite arrangement of the Federal Government, State Government and World Bank (Amalu, 1998). Today this has grown to become the major agricultural and rural development programme existing in states in Nigeria. The important features of the programme are the reliance on the small scale farmers as the main people that will bring about an increase in food production, and the feedback information mechanism, which is a decentralized decision making process that allows farm families/households to give their responses to an innovation/technology, incentive, and subsidies according to their judgment. The objectives of the programme are to bring about a solution to the decrease found in agricultural productivity by sustaining domestic food supply.

### 2.4.3.3. Operation Feed the Nation

Operation Feed the Nation (OFN) evolved on May 21, 1976, under the military regime of General Olusegun Obasanjo. The programme was launched to bring about increased food production in the entire nation through the active involvement and participation of everybody in every discipline, thereby making every person be capable of partly or wholly feeding him or herself. Under this programme, every available piece of land in urban, sub-urban and rural areas was meant to be planted while the government provided inputs and subsidies (such as Agrochemicals, fertilisers, improved variety of seed/seedlings,

day olds chicks, matchets, sickle, and hoes.) freely to government establishments. Individuals received these inputs at a subsidised rate. According to Iwachuku and Igbokwe (2012), the failure of the programme can be attributed to:

a. Farming was done on any available piece of land irrespective of its suitability for agriculture.
b. Majority of the participants in the programme had little or no farming background, and there was no formal or informal preparatory teaching or advice given to them on how to manage their farms.
c. They practised mono-cropping instead of mixed/ relay cropping and relied on hiring labour to carry out their farming activities, which resulted in high input and low output /yield per unit of land.
d. Preference was given to government establishments and individuals in authority/administration over the poor farmers (original producer of food) regarding input supply.
e. There was an abundance of food in the market and less demand for the food because many people produced part or almost all of the food they consumed.
f. There was an incidence of endemic poultry diseases, especially new castle disease that wiped out the birds due to lack of quarantine and necessary routine inoculation /vaccination.

#### 2.4.3.4. River Basin Development Authorities

The River Basin Development Decree was promulgated in 1976 to establish eleven River Basin Development Authorities (RBDAs). The initial aim of the authorities was to boost economic potentials of the existing water bodies, particularly irrigation and fishery with hydroelectric power generation and domestic water supply as secondary objectives. The purpose of the programme was later extended to other areas, most importantly, to production and rural infrastructural development. Problems found on the agenda, according to Ayoola (2001) were that the activities suffered from intensive political interference. In addition, substantial public funds were wasted to streamline sizes and functions of RBDAs through the disposal of their non-water assets.

### 2.4.3.5. Green Revolution

Green Revolution (GR) was a programme inaugurated by President Shehu Shagari in April 1980. The programme aimed at increasing production of food and raw materials to ensure food security and self-sufficiency in basic staples. Secondly, it aspired to boost production of livestock and fish to meet home and export needs and to expand and diversify the nation's foreign exchange earnings through the production and processing of export crops. The Federal Government ensured the success of the programme by providing agrochemicals, improved seeds/seedlings, irrigation system, machine (mechanisation), credit facilities, improved marketing and favourable pricing policy for the agricultural products. The programme did not achieve its objective of increasing the food supply because there was a delay in execution of most of the projects involved in the programme (Iwachuku and Igbokwe, 2012). There were also no monitoring and evaluation of the projects for which huge sums of money were spent.

### 2.4.3.6. Directorate for Food Roads and Rural Infrastructure

The Directorate for Food Roads and Rural Infrastructure (DFRRI) was initiated in Nigeria in January 1986 under General Ibrahim Babangida's administration. It was a kind of homegrown social dimensions of adjustment (SDA) that was embarked upon in most Sub-Saharan African countries by the World Bank, African Development Bank and the United Nations Development Programme (UNDP). The programme was designed to improve the quality of life (improvement in nutrition, housing, health, employment, road, water, and industrialisation) and standard of living of the rural dwellers with many resources that exist in the rural areas and mass participation of the rural people. The poor quality of infrastructures provided by the Directorate probably due to embezzlement and mismanagement of fund made the impact of the programme almost insignificant (Idachaba, 1988).

### 2.4.3.7. Better Life Programme

Better Life Programme (BLP) for rural women was founded in Nigeria by Mrs Maryam Babangida (wife of the then president of Nigeria) in 1987. The programme aimed at stimulating and motivating rural women towards achieving better living standards and sensitising the rest of Nigerians to their problems. Others include: to raise consciousness about their rights, the availability of opportunities and facilities, their social, political and economic responsibilities; encourage recreation and enrich family life; and inculcate the spirit

of self-development particularly in the fields of education, business, arts, crafts and agriculture (Obasi and Oguche, 1995). Over publicity of the programme was criticised by people who thought that the programme might turn into a mere fashion parade. In addition, cultural and religious inhibition of the Muslims that do not allow easy access to women in 'purdah' reduced level of participation and consequently 1ed to low level of benefit accruing from the programme (Ayoola, 2001).

### 2.4.3.8. National Agricultural Land Development Authority

National Agricultural Land Development Authority (NALDA) was established in 1992 much after the Decree (Land Use Decree, 1978) and Act (Land Use Act 1979). The authority aims at giving strategic public support for land development, assisting and promoting best uses of Nigeria's rural land and their resources, boosting profiTable employment opportunities for rural dwellers, raising the level/standard of living of rural people, targeting and assisting in achieving food security through self-reliance and sufficiency. Iwachuku and Igbokwe (2012) states that the land reform act/decree has been criticised most as what highly placed officers used to usurp land that belonged to poor people.

### 2.4.3.9. Family Support Programme / Family Economic Advancement Programme

Family Support Programme (FSP) was initiated in 1994. Late General Abacha and his wife Mrs Maryam Sani Abacha initiated Family Economic Advancement Programme (FEAP) in 1996. This programme culminated in the creation of the Ministry of Women's Affairs and Social Welfare. The programme stressed in areas like health, education, women in development, agriculture, child welfare and youth development, disability, destitution, income generation as well as facilitating the provision of shelter for the less privileged in the society from ongoing housing programme of government. It is unfortunate that these programmes (FSP and FEAP) died as soon as the administration that initiated them was replaced.

### 2.4.3.10. National Fadama Development Project

The first National Fadama Development Project (NFDP-I) was designed in the early 1990s to promote simple, low-cost improved irrigation technology under World Bank financing. The main objective of NFDP-I was to sustainably increase the incomes of the fadama users through expansion of farm and non-farm activities with the high value-added

output. The programme covered twelve states of Adamawa, Bauchi, Gombe, Imo, Kaduna, Kebbi, Lagos, Niger, Ogun Oyo, Taraba including the Federal Capital Territory (FCT). The NFDP adopted Community Driven Development (CDD) approach with extensive participation of the stakeholders at an early stage of the project. This approach is in line with the policies and development strategies for Nigeria, which emphasise poverty reduction, private sector leadership and beneficiary participation (http.//www.fadama.org). Overall appraisal of the first and second phases of the project showed remarkable success, hence the invention of the current third phase. The problem associated with the project lies in the fact that the unskilled handling of water application through irrigation can degrade and deplete the soil of its productive capacity (Afolayan, 1997). While environmental impact assessment conducted on behalf of the NFDP showed that the programme does not pose a serious threat to the environment (Agriscope, 2001).

### 2.4.4. May 29, 1999, to date

Since 1999, Nigeria has embarked on an ambitious economic reform program that is yielding impressive results in budget discipline and implementation. The reform programme is also leading to less waste, as many government benefits are now monetized (The Washington Times, 1999). The thrust of current Nigerian public policy against poverty is to enable the poor and most vulnerable sections of the society to achieve sustainable livelihoods (The Washington Times, 1999). Government programmes in the era that are related to agriculture emphasise poverty alleviation. Some of them are:

#### 2.4.4.1. National Economic Empowerment and Development Strategy

President Olusegun Obasanjo initiated National Economic Empowerment and Development Strategy (NEEDS) in 1999. The key elements of this development strategy included poverty eradication, employment generation, wealth creation and value reorientation. NEEDS provided help to agriculture, industry, small and medium scale enterprises and oil and gas. The programme comprises of a series of performance targets that government wanted to achieve by 2007. These included a 6 percent annual growth in agricultural GDP of US $ 3 billion per year on agricultural exports and 95 percent self-sufficiency in food (Iwachuku and Igbokwe, 2012). NEEDS offered farmers improved irrigation, machinery and crop varieties, which was expected to boost agricultural productivity and tackle poverty head on since half of Nigerian's poor people were engaged in

agriculture. Its activity with States' Economic Empowerment and Development Strategies (SEEDS) and Local Economic Empowerment and Development Strategies (LEEDS) would help to implement an integrated rural development programme to stem rural-urban migration. NEEDS differ from other reforms by its participatory process that ensures ownership, sustainability, encompasses scope, coordination, attractiveness, problem solving, and achievement orientation. NEEDS/SEEDS/LEEDS process has been commended for bringing about cordial relationship between federal, state, and local level planning - the plans, which enumerate strategic roles for the private sector in agriculture.

#### 2.4.4.2. National Programme for Food Security

National Programme for Food Security (NPFS) was launched in January 2002 in all the thirty-six states of the federation during the President Olusegun Obasanjo's regime. The broad objective of the programme was to increase food production and eliminate rural poverty. The specific aims of the programme were to assist farmers in increasing their output, productivity, and income; strengthen the effectiveness of research and extension service training, and educate farmers on farm management for effective utilisation of resources. Others were to support government's efforts in the promotion of simple technologies for self-sufficiency, consolidate initial efforts of the programme on pilot areas for maximum output and ease of replication, and consolidate gain from on-going activities for continuity of the programme. Setbacks associated with the agenda were seen in the inability of the majority of the beneficiaries to repay their loan on time, complexity and incompatibility of innovation and difficulty in integrating technology into existing production systems (Iwachuku and Igbokwe, 2012). Others include insufficient knowledge of credit use, poor extension agent-farmer contact, unavailability of labour to carry out essential farming activities, lack of modern storage facilities and the high cost of farm input.

#### 2.4.4.3. Root and Tuber Expansion Programme

Root and Tuber Expansion Programme (RTEP) was launched on April 16, 2003, under President Olusegun Obasanjo's administration. It covered 26 states and was designed to address the problem of food production and rural poverty. At the local farmers' level, the programme hopes to achieve economic growth, improve access of the poor to social services and carry out intervention measures to protect poor and vulnerable groups. At the national level, the programme is designed to achieve food security and stimulate demand for cheaper

staple food such as cassava, garri, yam, and potato as against more expensive carbohydrate such as rice. Smallholder farmers with less than two hectares of land per household were the targets of the programme while special attention is being paid to women who play a significant role in rural food production, processing, and marketing. RTEP also targets at multiplying and introducing improved root and tuber varieties to about 350,000 farmers to increase productivity and income (Iwachuku and Igbokwe, 2012).

#### 2.4.4.4. The new agricultural policy 2001

The basic policy that guides the agriculture sector is the new agricultural policy 2001. It replaced the 1988-2000 agricultural policy (Federal Ministry of Agriculture and Water Resources, 2010). It covers a broad range of issues that affect and determine agriculture outcomes and State Government policy on them. The policy outlines government position on commodity pricing, agricultural trade, exchange rate, agricultural land, food production, industrial raw material crops, and agricultural extension. Others are agricultural credit and insurance, rural bank deposits, produce marketing, commodity storage and processing, agricultural cooperatives, water resources development, agricultural mechanisation, rural infrastructure, agricultural statistics, agricultural investment and advisory services. A key aspect of the policy was that it assigned supportive roles of the government while investments in the sector are to be left to a private sector initiative.

In addition to the new agricultural policy, other policies to guide agriculture related activities include the National policy on integrated rural development and the national policy on food and nutrition. Agricultural extension is primarily an activity that should be carried out by the lower tiers of government. However, given the overriding importance of technology dissemination, all the three tiers of government in Nigeria will be involved in jointly financing agricultural extension delivery and monitoring its impact. Also, extension service delivery will be streamlined through the integration of ADP and state extension services for greater effectiveness. Agricultural extension and technology transfer are a major content of the policy framework. The key agricultural extension feature of this new policy is a nationwide, unified and all-inclusive extension delivery system under the Agricultural Development Projects (ADPs).

#### 2.4.4.5. Agriculture in the Vision 2020

Agriculture has been identified as a major driver of growth in the Nigerian economy and must play a crucial role in achieving vision 2020 in Nigeria. According to the vision, the agriculture sector shall be a technologically driven sector that is profitable, sustainable and meets the socioeconomic aspirations of Nigerians. Towards this end, the sector set to achieve a 3-fold increase in domestic agricultural productivity by 2015 and 6-fold increase by 2020 (Federal Ministry of Agriculture and Water Resources, 2010). This is to be achieved through the promotion of greater use of highly productive and disease-resistant crops, livestock, poultry and fish strains, breeds and species. Nigerian agriculture will be professionalised through the promotion of educational and professional training incentives to encourage young people to embrace agricultural production, processing, extension, and marketing. There is going to be a shift from dependence on rain-fed crop production through significant utilisation of irrigation.

The sector is expected to achieve a high degree of public-private partnership thrust in agricultural research and development by 2020. The Federal Government shall be responsible for continued support for agricultural extension services. The State Governments will be primarily responsible for the promotion of the primary production of all agricultural commodities through the provision of a virile and efficient extension service. The Local Governments will be expected to take over progressively the responsibilities of State Governments on the delivery of effective extension service. The output of the research system will be disseminated by the extension services of the State and Local Governments to farmers, ranging from small-scale to large-scale farmers. It will support both public and private sectors in carrying out activities that will boost agricultural and rural development, with emphasis on all facets of agricultural research, market development, and extension delivery.

**2.4.4.6. Agriculture in the seven-point agenda**

The current agricultural and rural development policies and strategies are being pursued within the framework of the 7-point agenda and the successes and lessons of the National Economic Empowerment and Development Strategy (NEEDS), which was Nigeria's Poverty Reduction Strategy Paper (PRSP) launched in June 2004. In March 2007, the second phase of NEEDS, NEEDS II, was launched (Federal Ministry of Agriculture and Water Resources, 2010). The agenda, which was adopted by the government in May 2007, states the broad policy priorities for implementing economic reforms and development programmes in

Nigeria. It describes the key policy imperatives, directive principles, and instruments in promoting sustainable economic growth for the achievement of the MDGs by 2015 and Vision 2020. The main agricultural goals enunciated under the agenda are diversified economy, food security, employment generation, economic linkages, exports and poverty reduction.

It acknowledges that low productivity, low quality of private sector investment, lack of domestic and international competitiveness, weak national policies and institutions, inadequate funding and lack of organised land titling and tenure are the main challenges of agricultural development in Nigeria. The key agricultural elements of the agenda are land reform, commercial agriculture, irrigation development, institutional support and market stabilisation. Under the commercial agriculture programme, arable land will be developed in the states for use by well-trained and motivated commercial farmers, who will cultivate carefully selected ecologically suiTable and commercial market-responsive crops. It will involve the federal, state and Local Governments, each playing complementary and reinforcing roles. The major policy offshoots of the seven-point agenda are the National Food Security Programme and the five-point agenda.

**2.4.4.7. The National Food Security Programme**

Within the framework of the seven-point Agenda, the National Food Security Programme (NFSP) document was published in August 2008. According to the Federal Ministry of Agriculture and Water Resources, its objective is to "ensure sustainable access, availability and affordability of quality food to all Nigerians and for Nigeria to become a significant net provider of food to the global community." The key features of the programme according to the Federal Ministry of Agriculture and Water Resources (2010) include:

a. Providing a conducive environment for private sector involvement
b. Encouraging large-scale commercial farming with strategic linkages to smallholder farmers
c. Significantly reducing post-harvest losses through adequate storage, processing, and appropriate market outlets

In the short term, the NFSP is to improve Nigeria's agricultural production while in the medium-term, it is to improve productivity, expand large-scale production and increase storage/processing capacity as well as necessary market infrastructure to achieve food

stability. Specific targets for agricultural products have been set under the NFSP. This is to be accomplished through the value chain approach that is planned to address every component of the entire agriculture value chain for crops, livestock, and fisheries. This is also going to be collaborative with the intent of increasing productivity and stimulating food production through private sector participation and market development. The Federal Government will set the direction, while the organised private sector, as well as the State and Local Governments, will drive programme execution. The policy thrusts of NFSP are import-substitution, substantial food security, promotion of modern agricultural practices, natural resource conservation and commodity focus.

**2.4.4.8. The five-point agenda**

The drive to achieve the food security and national development objectives as espoused in the seven-point agenda makes the strengthening of agricultural production, processing, storage, and marketing as well as research and development imperative. In light of this, the Federal Ministry of Agriculture and Water Resources developed the 5-point agenda for agriculture and national development as an implementation roadmap in the short and medium-term towards the attainment of the objectives of the National Food Security Programme (NFSP). The strategic aim of the five-point agenda is to achieve the targets defined in the larger planning framework of the seven-point agenda, NEEDS II, CAADP, the MDGs and Vision 2020. According to the Federal Ministry of Agriculture and Water Resources (2010), the 5-point agenda focuses on the following five key programmes:

a. Developing Agricultural Policy and Regulatory system (DAPRS) which aims at ensuring sound agricultural policies and regulatory frameworks while its objectives are to review and reform critical agricultural policies and framework and to communicate the new or revised policies and framework.
b. Agricultural Commodity Exchange Market (ACOMEX) that aims at establishing agricultural commodity exchange markets with the objective of achieving efficient marketing and price information systems.
c. Raising Agricultural Income with Sustainable Environment (RAISE): this aims at addressing the challenges of infrastructure development and infrastructure for sustenance of the environment (rural energy, rural markets, transport and health) and the focus is the provision of necessary infrastructure to enhance agricultural

productivity in addressing the issues concerning small and medium scale agribusiness in Nigeria.

d. Maximizing Agricultural Revenue in Key Enterprises (MARKETS) that aims at improving the competitiveness of value-added products leading to increased market share in the domestic, regional and international markets through private sector led and market-driven growth and development.
e. Water, Aquaculture and Environmental Resource Management that aims at achieving intensified aquaculture production systems, sustainable conservation through the construction of small dams, irrigation facilities and gaining "Carbon Credit" through afforestation.

### 2.4.4.9. Comprehensive Africa Agriculture Development Programme

Comprehensive Africa Agriculture Development Programme (CAADP) is to support the development of agriculture as stated under the seven-point agenda. Moreover, the five-point agenda of the FMARD that are aligned with the CAADP objectives and the principles that Nigeria and other African countries have collectively defined as part of the broader agenda of the New Partnership for Africa's Development (NEPAD). While the Vision 2020 provides long-term guidance on a wide number of national-level objectives, the seven-point agenda and NEEDS II are the medium term programmatic frameworks seeking to integrate development efforts across key economic sectors. CAADP combines the long-term outlook of the Vision 2020 with the programmatic focus of the seven-point agenda and NEEDS II applied to the agricultural sector (Federal Ministry of Agriculture and Water Resources, 2010). The five-point agenda and the NFSP, on the other hand, have a strong short term, operational nature and a primary subsector focus on the agricultural sector. They define and pursue the implementation of the short-term investment and policy measures that are required at the subsector level to achieve the sector-wide objectives specified in the seven-point agenda and CAADP frameworks. In Nigeria and West Africa as a whole, the CAADP initiative is being implemented in line with the ECOWAS common agriculture policy (ECOWAP) which is a long-term plan to achieve sustainable food security in West Africa.

### 2.4.4.10. The Agricultural Transformation Agenda

The Federal Republic of Nigeria 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. In line with this, the Federal Ministry of Agriculture and Rural Development is implementing an Agricultural Transformation Agenda (ATA) that will promote agribusiness, attract private sector investment in agriculture, reduce post-harvest losses, add value to local agricultural produce, develop rural infrastructure and enhance access of farmers to financial services and markets. The ATA sets out to create over 3.5 million jobs along the value chains of the priority crops of rice, sorghum, cassava, horticulture, cotton, cocoa, oil palm, livestock, and fisheries for Nigeria's teeming youths and women, in particular. In August 2012, the Federal Republic of Nigeria requested the African Development Bank to support the ATA (African Development Bank, 2013). The proposed Agricultural Transformation Agenda Support Program Phase 1 (ATASP-1) comprises three components as follows: (i) Infrastructure Development; (ii) Commodity Value Chain Development; and (iii) Program Management. The expected impact of the Agricultural Transformation Agenda Support Program Phase 1 (ATASP-1) is to contribute to the private sector-led agricultural growth for food security, the creation of jobs, and shared wealth. 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 priority commodities.

### 2.5. Participation and project sustainability

Participation is the coordinated efforts of concerned people or group to take part in activities that seek to increase control over resources and regulatory institutions in a given social environment. It ensures project effectiveness and efficiency, extensive coverage of project benefits and self-reliance of project participants. According to Kahl (2000), participation has various forms and can feature in varying stages of a project cycle and at different levels of society from the contribution of inputs to a proposed project to information sharing, consultation, decision making, partnership, and empowerment. Khanye (2005) classifies participation into seven levels: manipulative participation, passive participation, participation by consultation, participation for material incentives, functional participation, interactive participation, and self-mobilization. Manipulative participation is pretence, for instance, unelected and powerless peoples' representatives on official boards.

In passive participation, people participate by being told what has been decided or has already happened. It involves unilateral announcements by project management without listening to peoples' responses and information shared only belongs to external professionals.

In participation by consultation, people participate by answering questions. External agents define problems and pioneer information-gathering processes, and so control analysis (Mohammed, 2003). The process does not concede any share in decision making to the people, as the agents are not obliged to account for peoples' views. In participation for material incentives, people participate by contributing resources like land or labour in return for food and cash (Mohammed, Umar, Abubakar and Abdullahi, 2011). Recipients are not involved in the learning process and so do not possess required expertise in prolonging technologies or practices when the incentives end.

Functional participation, on the other hand, is seen by external agencies as a means to achieve project goals at reduced socioeconomic costs (Ayoade, 2010). People may participate by forming groups to meet project objectives. Involvement may be interactive and involve shared decision making, but tends to arise after external agents have made major decisions. According to Eze (2007), it is more of co-opting intended beneficiaries to serve predetermined ambition. In interactive participation, people participate in joint analysis, in the development of action plans and strengthening of local institutions. Participation here is seen as a right, not just the means to achieve project goals. The process involves interdisciplinary methodologies, which seek multiple perspectives, and use systematic and well-structured learning processes. Saidu, Samah, Redzuan and Ahmad (2014) opines that here, people take control of local decisions; determine how available resources are used, and hold a stake in maintaining transforming structures and processes – this is the form of participation that University-Based Agricultural Extension System adopts. The ambition, however, is to take the beneficiaries to a state of self-mobilisation, where people participate by taking initiatives independently of external institutions to change transforming structures and processes – this is a state where they would develop contacts with external institutions for resources and needed technical advice – demand-driven extension (Zadeh and Ahmad, 2010).

### 2.6. University-Based Agricultural Extension System

The history of universities in Nigeria started with the establishment of University College Ibadan (now University of Ibadan) in 1948. The then Eastern Region Government of Nigeria established the University of Nigeria, Nsukka in 1960. In 1962, the western region established the University of Ife (now Obafemi Awolowo University), the northern region established Ahmadu Bello University, Zaria, and the Federal Government established

University of Lagos. Universities are at the centre of human development, and since rural livelihood abilities are the lowest among rural livelihood components (Oyesola and Ademola, 2011), universities have a major role to play in improving rural knowledge, skills, and attitude.

Nigerian universities were established after the similitude of land grant universities with a commitment to render service directly to communities (Martin, 2001), they, therefore, have to respond to community needs. Universities working in partnership with communities seek to increase opportunities, empowerment, and security to neutralise socioeconomic deprivation (Hampton and Higham, 2006). As the opportunity of doing multiple activities enhances economic and social welfare, the empowerment through literacy, skill, knowledge, awareness, resources and networks improves the capacity of harnessing the opportunities. The Departments of Agricultural Extension and Rural Development in Nigerian universities are devoted to this course because rural welfare promotion is a core principle of extension, and thus seek to increase rural income, food security, health status, mental wellbeing, sustainable use of natural resources and reduce vulnerability.

Nigerian universities respond to community needs at different times, for varying reasons and at varying degrees. For instance, University of Ibadan started cooperative extension with Badeku community and later abandoned it for Ileogbo in 1984 when the community gave the institution 218 hectares of land that is being used as an on-farm station, field and social laboratory for both staff and students. This working relationship is a replica of the adopted village scheme, which is an extension model for energising the rural economy and slow down rural-urban migration. The scheme is one of the innovations brought to agricultural research in Nigeria by National Agricultural Research Project (NARP) in 1997. The model originated from India and according to Nanavati (2004), it was designed to build resources within existing social, cultural, geographical, legal and economic context. This extension model is more of a livelihood-oriented one than a cash-oriented one. It thus seeks to increase rural abilities, access to assets, options, activities, outcome and reduce vulnerabilities (Ellis, 2000).

University outreaches such as capacity building, institutional strengthening, literacy, nutrition, health, and sanitation programmes improve livelihood ability, and human capital in university adopted communities. Zadeh and Ahmad (2010) stated that university-community partnership is sometimes three-ways (grant-giving organisations to universities to

communities) and as a result could be bedevilled in the areas of mutuality, operating principles, communication, power sharing, commitment, trust, and evaluation. According to Saliu and Age (2009), rural well-being has gradually caught the attention of various organisations as the foundation of sustainable development; universities, therefore, cannot stay detached. University-Based Agricultural Extension System is a form of institutionalising social capital on the part of beneficiary farmers (Woolcock and Narayan, 2000) and it is a form of Cooperate Social Responsibility on the part of universities involved. Universities are active units applying the principles of social responsibility – joining hands with farmers to achieve agricultural and rural development. For University-Based Agricultural Extension System (UBAES) to remedy the challenges of agriculture, a holistic methodology like sustainable livelihood approach becomes inevitable. Nevertheless, Adeoti (2013) points out that universities' community service functions are bedevilled with limited financial resources for competing university's priorities, and unsustainable external funding. Others are little institutional recognition and reward for interaction and outreach activities, lack of clear university policy on interaction and outreach, and lack of recognition of interaction and outreach, as a valid type of scholarship.

### 2.6.1. UBAES of the University of Ibadan

One of the missions of the University of Ibadan is to "contribute to the transformation of society through creativity and innovation." In line with this, the University aligned with the village adoption scheme of the NARP and adopted Ileogbo community in Aiyedire Local Government Area of Osun State, Nigeria. The establishment of the linkage involved several Vice Chancellors and Deans of the Faculty of Agriculture and Forestry since the mid to late 1970s to the present time. The objective was to secure land outside the University because the University Farm could not provide enough space for the practical training programme and in turn boost the income-generating potential of the inhabitants and build up their social capital for livelihood promotion. The relationship, however, became official in the year 2010 with the signing of the deed of the land gift from the community. The extension system enhances the capacity of existing groups and organisations through capacity building and institution strengthening. The University has benefitted from the partnership because the collaboration has aided effective practical teaching for students and field-based research for staff. Plate 1 presents a signpost confirming the presence of the University of Ibadan in Ileogbo Community.

In some quarters, the community is referred to as the social laboratory of the University as it provides the opportunity to bring students out of the classroom to see the social reality of the lives and livelihoods of the people they read about. The opportunity was that practical application of research methods, communication strategies, extension principles, and home economics activities could be carried out in a proper manner. The community later became the location for Practical Year Training Programme of the Faculty of Agriculture and Forestry of the University. In addition to the community offering a platform for the University to perform its community service function, it also provides vast hectares of land for agricultural, academic, research and social activities. Ileogbo community is peri-urban with about 40, 000-50, 000 residents (Olawoye, 2014). About ninety percent of the residents are natives, and about one-third of the population has secondary school education and above. More than eighty percent of the residents are engaged in crop farming, with about seventy percent also involved in livestock rearing and petty trading. The priority "felt need" of Ileogbo community has always been higher education (academic presence of the University of Ibadan possibly) because of its socioeconomic prospects. Others are industries to create jobs for the youths, health centres, good roads, skill development and agro-input supply.

Since 1985, 400-level undergraduate students of the Faculty of Agriculture and Forestry spend part of the session residing in the community and working on the land the community gave to the University. The students have practical experience in farming, learn about local life, as well as extension skills and in return provide after-school lessons for children and organise sporting activities for youth recreation. Between 2002 and 2004, seedlings of oil palm, teak, and coconut from the National Tree Nursery Development Programme (NTNDP) were planted at the periphery of the land the community gave to the University to establish a boundary. In 2006, the UBAES got a 24 sitter bus gift from the Osun State Government. The University in partnership with MacArthur Foundation in 2008 engaged the residents in activities that were meant to enrich rural productive capacity in an environmentally sustainable manner and increase income generation through gender-sensitive strategies.

The activities were specifically to develop a practical set of interventions to facilitate rural development that would enhance the capacity of universities, State/Local Governments, and communities to proactively combat problems faced by rural dwellers. Second was to

achieve the Millennium Development Goals and third was to provide practical experience for staff and students of the University for learning, research and teaching. The plan included four components: capacity building, social capital development, institution strengthening and enhancing teaching and research. The capacity building function is done with the establishment of agricultural demonstration plots and small plot adaptive trial to teach farmers about new techniques, best practices or introduction of new crops. Alternative income-generating activities were similarly promoted, paying particular attention to gender equity. The youths, also, get training on the use of computer and internet. Produce and products promoted are maize, watermelon, sweet potato, soya bean, cassava, oil palm, moringa, snails, cane rat, garri and palm oil. The introduction of moringa cultivation, processing and marketing got featured as one of the case studies in the Development Research Uptake in Sub-Saharan Africa (DRUSSA) in 2013 (Olawoye, Ladele, Adekoya, Odebode, and Oyesola, 2013).

Social capital development is done by training existing social groups, professional associations, credit associations, and support networks, in their varying needs department to increase their efficiency. The institution strengthening is done by training some officials from rural development organisations (governmental, nongovernmental and communal) on participatory and bottom-up approach to intervention and development to enhance effectiveness. Sustainability of the UBAES activities is ensured by facilitating locally relevant, economically viable and socially acceptable production strategies; strengthening of existing social groups; and equipping of development agencies with a participatory/bottom-up approach to rural development. The enhancing teaching and research component is achieved by offering research grants to some postgraduate students and staff of the faculty, and sponsoring field trips to the community for undergraduate students to have the first-hand experience of agricultural extension and rural development. Academic beneficiaries of this partnership are the Faculty of Agriculture and Forestry, and Centre for Sustainable Development (CESDEV) of the University of Ibadan; and Education for Sustainable Development in Africa (ESDA) of the United Nations University Tokyo.

### 2.6.2. UBAES of the Obafemi Awolowo University

In 1968, the Faculty of Agriculture of University of Ife (Obafemi Awolowo University) concluded that Department of Extension Education and Rural Sociology (Agricultural Extension and Rural Sociology) in cooperation with other departments in the

Faculty and other Faculties could play a significant role in facilitating agricultural production in Ife Division and thereby promote the livelihood of rural dwellers. A socio-agro-economic survey of the rural communities in Ife Division was done, and Erefe, Aroko, Iyanfoworogi, Ladin, Akeredolu, Isoya, Olorombo, Esera and Walode Villages were identified for their UBAES activities. Later to be joined by Ayanran, Onalodo, Obere, Fagboja Aro, Ojo, Ikotun and Ile Aro Villages. In 2009, the adopted villages were categorised under three Strategic Training Development Centres (STDCs) for ease of administration; they are Iyanfoworogi (Ife East Local Government Area of Osun State), Esa-Oke (Obokun Local Government Area of Osun State) and Ojo (Egbedore Local Government Area of Osun State). The UBAES included five components: extension and research, intermediate technology, functional literacy, cooperative society and home economics/health programmes. Plate 14 presents a signpost confirming the presence of Obafemi Awolowo University in one of the communities above (Iyanfoworogi).

The specific objectives were to provide a laboratory for teaching students (serving as a research centre for testing and applying methods of community development and extension) and provide an avenue to convey research results to rural communities. Others are to offer a laboratory for testing concepts related to extension and rural development (field-testing and demonstrating innovations) and provide an opportunity to assess and proffer solution to socio-agro-economic challenges of rural communities (developing a model for approaching rural development in the selected villages that could be applied later and on a wider scale). Crops promoted are western yellow maize, cowpea (the popular *Ife Brown*), soybeans, cassava and dry season vegetables. Bicycle carts for carrying large loads that would have been carried on the head were introduced to reduce drudgery. Establishment of some institutionalised Savings and Credit Cooperative Societies (SACCOS) serving all adopted communities constitutes the success story of this UBAES.

Recent activities of the UBAES is its involvement in African Women, and Rural Environment (AWARE) tagged DelPHE Project 643. A collaborative intervention project with Institute of Agricultural Research and Training (IAR&T), Moor Plantation, Ibadan; and the University of Newcastle to introduce *Moringa Oleifera* to rural women in Osun State. The project grant was won through a proposal written in 2008 in a keenly contested competition under the Development for Partnership in Higher Education for Africa sponsored by the British Council of United Kingdom and coordinated by the Department for

International Development (DFID). The project started in September 2009 spanning three years of implementation from 2009-2012 (Adeloye, 2014). DelPHE Project 643, directly and indirectly, focused on meeting three Millennium Development Goals (MDGs): Gender equity and women empowerment; reduction of extreme poverty and hunger; and food security. The project exploited and harnessed the inherent entrepreneurial capability of Osun State's women by motivating them to be aware of the immense possibilities open to them to start off thriving rural enterprises in natural resource utilisation and on- and off-farm wealth generation activities, including crop processing, handling, storage, preservation, and marketing. Other activities were workshop training for beekeeping and the facilitation of the acquisition of the benefits of the National Fadama Development Programme by the beneficiaries of the UBAES.

### 2.6.3. UBAES of the Federal University of Agriculture Abeokuta

The Federal University of Agriculture Abeokuta (FUNAAB) is one of the specialised Universities in Nigeria with a triad mandate of teaching/training, research and extension services. It was in line with this that the extension and outreach activities of the University took off in 1990 with the subsequent inauguration and establishment of the Agricultural Media Resources and Extension Centre (AMREC) in November 1991. The major principle underlying this approach is to develop the rural sector through its well-articulated agricultural development programmes. The approach of AMREC to extension activities involves the adoption of model extension villages and the use of the inter-disciplinary approach to farm technology transfer. This method is to ensure that the practical training research and extension programmes of the University are tested and integrated under the conditions of rural settings to see their impact on the quality of life and living standards of the people. Criteria used in selecting their extension villages are: accessible by roads, predominantly agrarian and relatively unexposed to development interventions. Plate 3 presents the presence of FUNAAB in Iwoye-Ketu – their outreach community.

AMREC plays participatory roles in knowledge/information initiation and facilitates mutually knowledge-based implementation of projects among primary producers, researchers, and private sector practitioners. The centre integrates agricultural development with health and youth development issues to make its activities broad-based and holistic in content and scope. The centre operates under the leadership of the Vice-Chancellor of the University, alongside with Directors of AMREC and Institute of Food Security,

Environmental Resources and Agricultural Research (IFSERAR) and all Deans of Colleges, who are experts in different fields of agriculture. The specific functions of the centre are to organise training workshops, publish agricultural extension modules, conduct On Farm Adaptive Research (OFAR), disseminate proven technologies, convert agricultural information into media materials (print, audio, audio-visual) and collaborate with agricultural institutions for training with adequate gender mainstreaming. These functions are to be executed under these programmes: Extension and Adaptive Research Programme, Gender Issues and Youth Development Programme, Training and Farm Demonstration Programme, Media and Farm Broadcast Programme and the Planning, Monitoring and Evaluation (PME)/ Information Communication Technology (ICT) Programme.

The adopted communities are Ijemo-Fadipe, Boodo Sanyaolu, Ilewo-Orile, Ijale-Papa, Maya, Lanlate and Ogijan. It also included FUNAAB neighbourhood communities like Ogboja, Kango, Owe, Ojoo-Oluwa, Alabata, Ikeiye, Agbede, Adana, Opeji, Isaga-Orile, Olorunda, Imala, Igbooye, Kofesu-Alaro and Adao. AMREC provides specialised advisory services for farmers and stakeholders in the agricultural sector in Nigeria through its well-articulated agricultural development programmes. AMREC serves as the research dissemination outfit of the Federal University of Agriculture Abeokuta and the West Africa Agricultural Productivity Project. It is equally a service provider in the "Cassava: Adding Value for Africa (C: AVA I&II projects), a collaboration between the Federal University of Agriculture Abeokuta and the University of Greenwich sponsored by the Bill and Melinda Gates Foundation. Some of the recent activities of the centre according to Federal University of Agriculture Abeokuta (2014) include:

i. Organised the forum for the beneficiaries of AMREC-FUNAAB Farmers' Loan Scheme.
ii. Trained one hundred and sixty-five (165) farmers and stakeholders in the agricultural sector on beekeeping and its medicinal values at Ilaro, Ogun State.
iii. Organised workshop for one hundred and ten (110) farmers, agricultural extension staff from the Ministries of Agriculture, ADPs, and other agricultural related agencies on Effective Extension Services Delivery in Nigeria.
iv. Organised workshop for one hundred and one (101) secondary school students and farmers on poultry layer production at Salawu Abiola Comprehensive High School, Osiele, and Akintobi Communities.

v. Organised integrated pre-season training workshop for contact farmers themed "Integrated Agriculture for Enhancement of Food Security in Nigeria" for two hundred and sixty-four (264) selected farmers and stakeholders of agriculture in southwestern Nigeria.

vi. Provided free health-care services for sixty-one livestock farmers at the Livestock Capacity Building Training in Olokuta Community and its environs in Yewa South Local Government Area of Ogun State.

vii. Organised workshop on "Nutrition and Healthy Life" for fifty-one (51) rural participants

viii. Organised training seminar for two hundred and thirty-eight (238) farmers on Cotton Production and Marketing in Nigeria at Iwoye-Ketu, Ogun State.

ix. Organised training workshop for one hundred and twelve (112) participants on "Researcher-Extensionists-Farmers' Interaction on Sustainable Fish Production in Nigeria."

x. Organised training workshop on sugar cane production and management for one hundred and seventy (170) farmers in Papa-Lanto in Ewekoro Local Government Area of Ogun State.

xi. Established skill acquisition room for training students and rural youths on skills with income generating potentials towards employment generation.

xii. Over 100 farmers in the Akintobi Village in Alabata community, Odeda Local Government Area of Ogun State was trained in the production, processing, and use of *Moringa Oleifera*.

xiii. Held capacity-building programme on poultry production for rural farmers at Ijemo-Fadipe.

## 2.7. Sustainable Livelihood Approach

Sustainable Livelihood Approach (SLA) combines people's abilities, assets, activities and diversifications in relation with vulnerability context and transforming structures to achieve more income, reduced vulnerability, food security, better health, balanced mental wellbeing and sustainable use of natural resources (DFID, 2005). With social capital being the most important of all assets (Yusuf, 2008), people need extended family to enhance all round development (Kuku and Liverpool, 2010). An individual needs support beyond the ones obtainable from immediate family, friends, and associates alone. Belonging to groups;

networking with superiors, colleagues and subordinates; and affiliating with political, legal and public institutions have potentials that must be tapped for growth and development (Adler and Kwon, 2002). Community outreach within the auspices of UBAES is one of the benefits of this sort of institutional affiliation.

The Sustainable Livelihoods Approach (SLA) is based on a multidimensional understanding of people's lives, which recognises the different assets and entitlements that people hold about the wider context of institutions, regulations and cultural norms (Toner, 2003). Sustainable livelihoods approaches are based on evolving thinking about poverty reduction, the way the poor live their lives and the importance of structural and institutional issues. This approach to development has highlighted significant diversity in the goals to which people aspire and in the livelihood activities, they adopt to achieve them. It has underscored the importance of assets, including social capital, in determining wellbeing.

This approach stands out because it takes people-centred methodology. Taking a people-centred approach puts people at the centre of development. People, rather than resource and government agencies are the priority. It is more important to understand people and the assets that make up their livelihoods than how they use one specific resource. Further, being responsive and participatory involves working with individual stakeholders and being dynamic and adaptive. The approach bridges the gap between macro and micro level activities because the macro level policy has critical implications on livelihood opportunities and options for individuals, households, and communities. Also, the SLA starts by analysing strengths, rather than needs. This approach seeks to assist individuals in meeting their objectives, not macro-scale development goals. The approach looks at all available assets including those that come from strong social networks, access to physical resources and infrastructure, ability to influence core institutions or any other factor that has poverty-reducing potential.

Moreover, central to this approach is the idea of sustainability. DFID (2005) outlines four key dimensions to sustainability: economic, institutional, social and environmental, and it is suggested that a balance must be found between them. In a livelihoods context, the definition of sustainability is evident; sustainability is the capacity of a livelihood system to withstand shocks and adapt to change. Carney (2002) opines that a livelihood is sustainable when it copes with seasonality, trends and recover from shocks; enhances abilities and assets; provides opportunities for the next generation and benefits other livelihoods at the local and

global levels in the short and long term. However, Serrat (2008) critiques the approach to be over ambitious and underplays some salient factors which could result in ineffectiveness like inflation, mass redundancy, inequalities of power, conflict of interests, and the disproportionate relationship among assets.

### 2.7.1. Core principles of sustainable livelihood approach

Kollmair and Gamper (2002) describes principles of sustainable livelihood approach as follows:

**People-centred**: People rather than the resources they use are the priority concern in the livelihoods approach since problems associated with development often root in adverse institutional structures impossible to be overcome through simple asset creation. Therefore, sustainable poverty reduction will entail success only if development agents work with people in congruency with their current livelihood strategies, social environment and capabilities to adapt. At a practical level, this implies a detailed analysis of people's livelihoods and their dynamics over time.

**Holistic**: A comprehensive view is anticipated in the understanding the stakeholder's livelihoods as a whole, with all its facets. The view is not intended to be an exact representation of the way the world is, but rather a flexible model to identify the most pressing constraints faced by people regardless of where (which sector, geographical space) these occur.

**Dynamic**: Just as people's livelihoods and the institutions that shape them are highly dynamic, so is the approach to learning from changes and help mitigating negative impacts, while supporting positive effects.

**Building on strengths**: A central issue of the approach is the recognition of everyone's inherent potential for his/her removal of constraints and realisation of potentials. The approach will contribute to the stakeholders' robustness and ability to achieve their objectives.

**Macro-micro links:** Development activity tends to focus at *either* the macro *or* the micro level, whereas the SLA tries to bridge this gap in stressing the ties between the two levels. As people are often affected by decisions at the macro policy level, and vice-versa, this relation needs to be considered to achieve sustainable development.

**Sustainability**: A livelihood can be classified as sustainable when it is resilient in the face of external shocks and stresses, when it is not dependent upon external support when it can maintain the long-term productivity of natural resources and when it does not undermine the livelihood options of others.

### 2.7.2. Application of sustainable livelihood approach

The potential for the application of SLA are manifold and not restricted to livelihood thinking only, as the approach includes ideas of other recent theoretical approaches. Its flexible design and openness to changes make it adaptable to diverse local settings, where it can be applied to different extents associated with the development research or project objectives. Before any development activity, the SLA might serve as an analytical tool for the identification of development priorities and new activities to understand the way a socially constructed environment works and to find potential beneficiaries or partners in practice. A study made by Ellis (2000) in three Tanzanian villages stresses the importance of a detailed livelihood analysis for successful development cooperation. In a region commonly known as famous for its coffee production, a detailed livelihood analysis was successful to demonstrate that coffee production contributed to the household income only with 1% - a striking fact that might have been overlooked without a detailed livelihood analysis. Calow (2001) analyses water supply systems in Ethiopia, for which conventional inquiries highlighted scarcity in water availability as the most hindering factor. Carlow uses a broader perspective to find out which stakeholders have access, how much water they use and how this factor change associated with household and region.

Further, the SLA might be applied in the form of a livelihood analysis to assess how development activities 'fit' with the livelihoods of the poor, while the Sustainable Livelihood Framework (SLF) might be of use as a checklist or means of structuring ideas. Ashley (2000) explores in Namibia and Kenya how rural livelihoods are affected by natural resource management initiatives. As lessons to learn, she mentioned, for instance, the potential of SLA for the reshaping of a programme to enhance the 'fit' with livelihoods, for impact assessment and as a focus for participatory planning with communities. Within projects or programmes, SLA can be used to sharpen the focus of monitoring and evaluation systems, as Nicol (2000) adopts SLA to water projects to analyse, monitor and evaluate efficiency. The uses of the SLA are diverse and adaptable to many situations, but it does not represent a magic tool

being able to eliminate problems of poverty with a single sign, nor is it a completely new idea that will be revolutionary for development research and cooperation. Still, the SLF delivers a useful tool to structure development research and increase the efficiency of development projects.

Rooted within the strengths of the approach quite often its weaknesses can be found too. On the one hand, a differentiated livelihood analysis requires enormous financial, time, and personal resources often lacking in practical projects. On the contrary, the claim to be holistic leads to a consideration of very many aspects, which inevitably delivers a flood of information hardly possible to cope with. The decision about what to consider with priority leads to a normative dilemma. Further problems may arise with the analysis of the livelihood assets, for example, the difficulties to measure social capital. Additionally, the asset status of a person is associated with the amount of dependence on a certain resource, varying according to the local context. For instance, some actors might be able to satisfy their needs with a low level of financial capital, whereas others with more financial capital might have far less ability to do so.

### 2.8. Sustainable Livelihood Framework

Sustainable Livelihood Framework (SLF) forms the core of the Sustainable Livelihoods Approach and serves as an instrument for the investigation of poor people's livelihoods, while visualising the main factors of influence (Kollmair and Gamper, 2002). Like all models, the SLF is a simplification and does not represent the full diversity and richness of livelihoods, which can only be understood by qualitative and participatory analysis at the local level. In its simplest form, the framework depicts stakeholders as operating in a "Context of Vulnerability", within which they have access to certain "Assets". These gain their meaning and value through the prevailing social, institutional and organisational environment (Transforming Structures and Processes). This context decisively influences the "Livelihood Strategies" that are open to people in pursuit of their self-defined beneficial "Livelihood Outcome". In other words, the framework provides a checklist of important issues and sketches out the way these link to each other, while it draws particular attention to core influences and processes and their multiple interactions in association to livelihoods. In the following, the core ideas represented in the SLF are explained and defined in the way they should be understood in this context.

### 2.8.1. Vulnerability context

The vulnerability context forms the external environment in which people exist and gain importance through direct impacts upon people's asset status (Devereux, 2001). It comprises "Trends" (demographic trends; resource trends; trends in governance), and "Shocks" (human, livestock or crop health shocks; natural hazards, like floods or earthquakes; economic shocks; conflicts in form of national or international wars). The last is "Seasonality" (seasonality of prices, products or employment opportunities) and represents the part of the framework that lies furthest outside stakeholder's control. Not all trends and seasonality must be considered as negative; they can move in favourable directions, too (Fischer, 2010). Trends in new technologies or seasonality of prices could be used as opportunities to secure livelihoods.

### 2.8.2. Livelihood assets

The livelihoods approach is concerned primarily with people. So an accurate and realistic understanding of people's strengths (here called "assets" or "capital") is crucial to analyse how they endeavour to convert their assets into positive livelihood outcome (Bebbington, 1999). People require a range of assets to achieve their self-defined goals, whereas no singular capital endowment is sufficient to yield the desired outcome on its own. Since the importance of the single categories varies in association with the local context, the asset pentagon offers a tool to visualise these settings and to demonstrate dynamical changes over time through constantly shifting shapes of the pentagon. Assets are of particular concern for empirical research to ascertain, if those, who were able to escape from poverty, started with a particular combination of capital, and if such a combination would be transferable to other livelihood settings. Furthermore, it would be interesting to evaluate the potential for substitution between different capitals, for instance, a replacement of a lack of financial capital (as is often the case in the reality of poor stakeholders) through a better endowment with social capital.

#### 2.8.2.1. Human capital

In the field of development studies, "human capital" is a very broad used term with various meanings. In the context of the SLF, human capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood

strategies and achieve their livelihood objectives (DFID, 2000). At the household level, it varies according to household size, skill levels, leadership potential, and health status and appears to be a decisive factor (besides being intrinsically valuable) to make use of any other type of assets. Therefore, changes in human capital have to be seen not only as isolated effects, but as well as a supportive factor for the other assets. Since an exact measurement of the several indicators of human capital causes difficulties at the local level (that is, how to assess indigenous knowledge appropriately), it may be sometimes more suitable to investigate variations and their reasons.

#### 2.8.2.2. Social capital

There is much debate about what exactly is meant by the term "social capital" and the aspects it comprises. In the context of the SLA, it is taken to mean the social resources upon which people draw in seeking for their livelihood outcomes, such as networks and connectedness, that increase people's trust and ability to cooperate or membership in more formalised groups and their systems of rules, norms and sanctions. Quite often access and amount of social capital is determined through birth, age, gender or caste and may even differ within a household. Obviously and often, parallel to positive impacts, social capital also may cause effects, which are restrictive for development. For instance, the membership in groups always entails excluding other stakeholders; or the social affiliation to a certain caste may be positive or negative depending on the person's hierarchical position within the system. Still, it is important through its direct impact on other capitals, by improving the efficiency of economic relations or by reducing the 'free rider' problems associated with public goods through the mutual trust and obligations it poses to the community. For the most deprived, social capital often represents a place of refuge in mitigating the effects of shocks or lacks in other capitals through informal networks.

#### 2.8.2.3. Natural capital

Natural capital is the term used for the natural resource stocks from which resource flows and services (such as land, water, forests, air quality, erosion protection, biodiversity degree and rate of change) useful for livelihoods are derived. It is of particular relevance for those who derive all or part of their livelihoods from natural resource-based activities, as it is often the case for the poor stakeholders, but also in more general terms, since a good air and

water quality represents a basis for good health and other aspects of a livelihood. Within the framework, a particularly close relationship exists between natural capital and the vulnerability context and many of the devastating shocks for the livelihoods are natural processes that destroy natural capital (fires, floods, earthquakes).

### 2.8.2.4. Physical capital

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods, such as affordable transport, secure shelter and buildings, adequate water supply and sanitation, clean, affordable energy and access to information. Its influence on the sustainability of a livelihood system is best fit for representation through the notion of opportunity costs or 'trade-offs', as a poor infrastructure can preclude education, access to health services and income generation. For example, without irrigation facilities, extended periods of time are spent in non-productive activities, such as the collection of water (needing extra labour force), which could be of use somewhere (or would be a time resource to go to school). Since infrastructure can be very expensive, not only its physical presence is necessary, but as well, the pricing and secure disposition for the poorest groups of society must be considered.

### 2.8.2.5. Financial capital

Financial capital denotes the money that people use to achieve their livelihood objectives, and it comprises the availability of cash or equivalent, which enables people to adopt different livelihood strategies. Two main sources of financial capital can be identified:

a. **Available stocks** are cash, bank deposits or liquid assets such as livestock and jewellery, not having liabilities attached and usually independent of third parties.
b. **Regular inflows of money** comprises labour income, pensions, or other transfers from the state, and remittances, which are mostly dependent on others and need to be reliable.

Among the five categories of assets, financial capital is probably the most versatile as it can be converted into other types of capital or it can be used for direct achievement of livelihood outcome (purchasing of food to reduce food insecurity). However, it tends to be the asset that is least available for the poor, which makes other capitals valuable as substitutes.

### 2.8.3. Transforming structures and processes

Transforming Structures and Processes represent the institutions, organisations, policies and legislation that shape livelihoods. They are of central importance as they operate at all levels and efficiently determine access, terms of exchange between different types of capital, and returns to any given livelihood strategy (Shankland, 2000 and Keeley, 2001). Structures can be described as the hardware (private and public organisations) "that set and implement policy and legislation, deliver services, purchase, trade and perform all manner of other functions that affect livelihoods" (DFID, 2000). An absence of well-working structures often constitutes an obstacle to sustainable development and makes simple asset creation difficult in the case of adverse structures impeding access to apply a certain livelihood strategy. In contrast to other approaches, where scarcity and underdevelopment were thought to be a problem of people not having enough due to lacking capital endowments, the SLA analyses it as a problem of access and the possibility to control the available resources, which are often sufficiently at disposition.

Complementary to structures, processes constitute the “software” determining the way in which structures and individuals operate and interact. There are many types of overlapping and conflicting processes operating at a variety of levels – and like software, they are crucial and complex. Critical processes for livelihoods are for instance policies, legislation, and institutions, but also culture and power relations. They may serve as incentives for people to make choices, they may be responsible for access to assets, or they may enable stakeholders to transform and substitute one type of asset for another. Transforming structures and processes occupy a central position in the framework. They directly influence vulnerability context by attempting to mitigate shocks, stress, and seasonality through interventions. They can restrict people's choice of livelihood strategies (for example, caste system) and may thus be a direct impact on livelihood outcome.

### 2.8.4. Livelihood strategies

Livelihood Strategies comprise the range and combination of activities and choices that people undertake to achieve their livelihood goals. They have to be understood as a dynamic process in which people combine activities to meet their various needs at different times and on different geographical or economic levels, whereas they may even differ within a household. Their direct dependence on asset status and transforming structures and

processes becomes evident through the position they occupy within the framework. A changing asset status may further or hinder other strategies depending on the policies and institutions at work. When considering livelihood strategies and issues connected to the SLA in general, it is important to recognise that people compete (for jobs, markets, and natural resources), which makes it difficult for everyone to achieve simultaneous improvements in his or her livelihoods. The poor are themselves a very heterogeneous group, placing different priorities in a limited and therefore highly disputed environment. Compromises are often indispensable. An application of the SLA offers the advantage to be sensitive to such issues in a differentiated manner.

### 2.8.5. Livelihood outcome

Livelihood outcome is the achievements of livelihood strategies, such as more income, increased well-being, reduced vulnerability, improved food security, and a more sustainable use of natural resources. Outcomes help to understand the 'output' of the current configuration of factors within the livelihood framework; they demonstrate what motivates stakeholders to act as they do and what their priorities are. They might give an idea of how people are likely to respond to new opportunities and which performance indicators should be used to assess support activity. Livelihood outcomes directly influence the assets and dynamically change their level - the form of the pentagon -, offering a new starting point for other strategies and outcome.

Livelihood outcome is the achievement or output of livelihood activities (Marschke and Berkes, 2005). The outcome of a livelihood approach to development is the wholesome indices of individual, household, and community growth and development. It is not to be assumed that people are entirely dedicated to maximising their income, rather effort should be directed towards understanding the riches of livelihood goals. This in-turn will help to understand peoples' priorities, why they do what they do, and where the major constraints lie. Livelihood outcome as reported by Barret, Reardon and Webb (2001) are:

#### 2.8.5.1. More income

The proportion of income derived from farming activities is a good indicator to evaluate the dependence of households on farming. These days, it is very rare to find farmers in developing countries collecting all their income from one source. Households derive their incomes from a diverse portfolio of activities, including work in the rural non-farm sector.

Household income determines their expenses on food, clothing, schooling, travelling, medical, housing and other components of quality living. Although income measures of poverty have been much criticised, people certainly continue to seek a simple increase in net returns in the activities they undertake and overall increases of money coming into the households.

#### 2.8.5.2. Increased wellbeing

In addition to income and things that money can buy, people value non-material goods. Their sense of life worth is affected by numerous factors, including their self-esteem, sense of control and inclusion, physical security of household members, health status, access to services, political enfranchisement, and maintenance of their cultural heritage. Wellbeing entails self-acceptance, positive relations with other people, autonomy, environmental mastery, personal achievement and received goodwill. It is an overall evaluation of an individual's life condition. Its measurement reveals the quality of life, especially when the living condition is destitute.

#### 2.8.5.3. Reduced vulnerability

Poor people are often forced to live very precariously, with no cushion against the adverse effects of shocks and risk; their livelihoods are to all intents and purposes unsustainable. For such people, reducing their vulnerability may well take precedence over seeking to maximise income. Poverty and vulnerability are closely interlinked, and while poverty is usually defined as economic deprivation (lack of revenue), vulnerability entails the relationship between poverty, risk, and efforts to manage risk.

#### 2.8.5.4. Improved food security

Food security is conceptualised as resting on three pillars: availability, access, and utilisation. These concepts are inherently hierarchical, with availability necessary but not sufficient to ensure access, which is, in turn, necessary but not sufficient for effective utilisation. Sometimes analysts add a fourth pillar termed stability. Stability captures the susceptibility of individuals to food insecurity due to interruptions in access, availability or utilisation.

#### 2.8.5.5. Sustainable land management practices

Livelihood approach does not encroach resources for a mirage of development. Environmental sustainability or sustainability of the natural resource base is a dimension of sustainability that is essential to livelihood and vital for the long-term benefit of resources. Sustainable land management practices include residue management, mulching, composting, planting cover crops, crop rotation, intercropping, making terraces, and building water harvesting structures.

#### 2.8.5.6. Better health

Heath is not only a lack of illness, but also a state of complete physical, mental and social wellbeing. Farmers become unproductive due to disease and old age, a situation worsened by agricultural drudgery and accidents, HIV/AIDS and cancer pandemic. Heath is thus a vital objective of the livelihood approach, especially because livelihood ability and human capital are always low with a sterile health.

## CHAPTER THREE

## THEORETICAL AND CONCEPTUAL FRAMEWORK

This chapter presents the theoretical and conceptual orientation of the study. The schematic representation and explanation of the conceptual framework of the study are also presented here.

### 3.1. Theoretical framework

Theories upon which this study is hinged are Transfer of Technology Model (TTM), Sustainable Livelihood Framework (SLF), System Approach (SA), and Social Capital Paradigm (SCP).

#### 3.1.1. Transfer of technology models

Transfer of technology models are schools of thought about the effective relationship between makers and users of technology (material or practice innovation). The first transfer of technology model is the appropriability model, which was developed in 1945-1950s. Gibson and Slimor (1991) concludes that the model suggests that quality technologies sell themselves. Purposive or deliberate technology transfer mechanism is seen as unnecessary. This model assumes that after the researchers develop the technology and make technologies

available through various forms of communications such as technical reports and professional journals, the users will automatically show up at the researcher's door (Devine, James, and Adams, 1987). This model is farfetched, considering that many potential users of technology have not acknowledged the need for technology (a newer and better material and practice).

The second model is the dissemination model, which was popularised by Rogers (1983) developed in the 1960-1970s. This approach emphasises that the researchers should be responsible for the dissemination of the innovation or technology to potential end-users (Williams and Gibson, 1990). However, this model suffers from its one-way communication (unilateral) characteristic with no involvement from the users. The third is the knowledge utilisation model and was developed in the late 1980s. The approach taken by this model has its emphasis on the important role of interpersonal communication between the technology developers and technology users, and the importance of organisational barriers. The inadequacy of this model is that information sharing is initiated at project inception and terminated at completion.

The last and the most wholesome of the models is the communication model. This model perceives technology transfer as a communication and information flow process with communication understood to be concerned with full exchange and sharing of meanings. This model defines technology transfer as an on-going process which involves a two-way interactive process (non-linear) by continuously and simultaneously exchanging ideas among the individuals involved (Williams and Gibson, 1990). Information and knowledge sharing can be haphazard if not streamlined along a theory (current thought pattern), that is the reason this study is hinged around the sustainable livelihood framework.

### 3.1.2. Sustainable livelihood framework

Sustainable livelihood framework is a valuable scheme for investigating means by which people can survive (Chambers and Conway, 1992). This framework permits an escape from the previous classification of rural dwellers as farmers or herdsmen when the fact is that most rural dwellers have many means of support. The theory emphasises potentials, competence, capacities, and strength of rural dwellers, rather than their weaknesses and needs. The theory is a function of prudent management of all forms of capitals in relations with transforming structures, and reducing vulnerability by working with institutions. According to DFID (2005), sustainable livelihood is based on the premise that there are factors that inhibit the activities upon which people base their livelihood, which consequently

cut back on the livelihood outcome as shown in Figure 1. Sustainable livelihood framework presents its components to be spontaneous and simultaneous, which does not agree with reality. This necessitates the systems approach that suggests that human-made phenomena can be modelled as a set of interrelated components working together to accomplish some process.

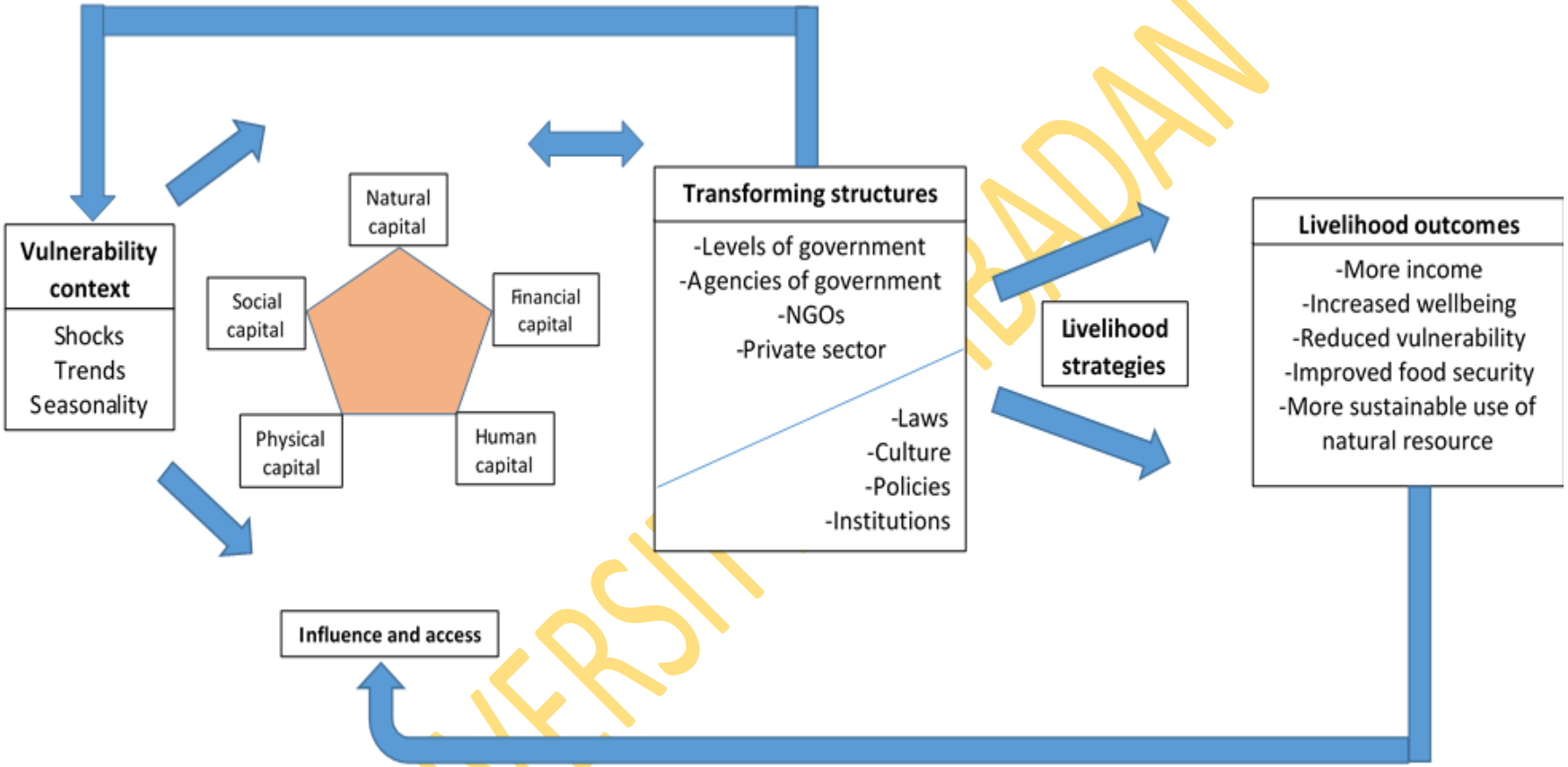


Figure 1: Sustainable Livelihood Framework (DFID, 2005)

### 3.1.3. Systems approach

The systems approach corrects the imbalance inherent in the *transfer of technology models*. Nagel (1980) introduced it to analyse agro-technology transfer system. Rolings (1988) further amplified the approach. The utilisation of the systems approach to the analysis of agricultural technology transfer systems is based on the assumption that interactions exist between technology generation, transfer and utilisation sub-systems (Madukwe *et al*., 2004). The situation permits direct linkages and feedback across sub-systems interface. In other words, there are linkages between technology generation, transfer and utilisation sub-systems, as well as direct linkages and feedback between technology generation and utilisation sub-systems. A system refers to a group of interacting, interrelated and often independent elements that function together as a multiple, unified whole – the link or the glue keeping the individual elements together is the social capital, which is why the study also considered the social capital paradigm.

### 3.1.4. Social capital paradigm

The first perspective of social capital paradigm is called the communitarian view, which equates social capital with local level organisations, namely associations, clubs, and civic groups. This view according to Woolcock and Narayan (2000) is measured simply by the number and density of these clusters in a given community. The second is the networks view, which stresses the importance of vertical as well as horizontal associations between people, and relations within and among other organisational entities such as community groups and firms (Portes and Sensenbrenner, 1993). The institutional view is the third perspective of social capital. The view argues that the vitality of community networks and civil society is the product of the political, legal, and institutional environment. While the communitarian and networks perspectives largely treat social capital as an independent variable giving rise to various "goods" and/or "bads," the institutional view instead puts the emphasis on social capital as a dependent variable (North, 1990). The institutional view is the core paradigm in the relationship between universities and their adopted communities. Lastly, the synergy view attempts to integrate the compelling principles emerging from the networks and institutional camps.

### 3.2. Conceptual framework

Having gone through a review of the theories above it should be noted that none of them could comprehensively explain the influence of UBAES on the livelihood outcome of their beneficiaries. Therefore, a conceptual framework was derived from a synthesis of the theories. The schematic presentation of the conceptual framework for this study was as presented in Figure 2. The study was conceived on the theoretical premise that UBAES represent a significant transforming structure and process by exerting a positive influence on beneficiaries' abilities, assets and activities to improve agriculture, rural life, research process and knowledge/skill delivery. The conceptual framework aims at highlighting how livelihood ability, assets, and activities can be influenced to change livelihood outcome. The framework describes basic principles of system paradigm and examines from a holistic perspective, reviewing the inputs of UBAES, the participation of beneficiaries, and livelihood of beneficiaries, especially as they relate to their livelihood outcome.

The conceptual framework for this study is derived from the premise that livelihood outcome of the beneficiaries (dependent variable) is influenced by a set of independent variables. The variables are personal characteristics, transforming structures, frequency of participation of beneficiaries in UBAES activities, benefits derived by beneficiaries from UBAES activities, and the influence of all these on beneficiaries' livelihood, which is the major independent variable in the study. Transforming structures are gender, generational or occupational specific. The specificity explains the link between personal characteristics and transforming structures. Personal characteristics like sex and age can likewise determine the frequency of participation of beneficiaries in UBAES, benefits derived from UBAES, and livelihood. Reasons for this range from physical strength (comparing the young and the old), availability of time (comparing men and women), cultural perspective (comparing gender and generational access to and choices of livelihood abilities, assets, and activities), to individual preferences and interests.

It is presumed that more active participants among the beneficiaries would benefit more from UBAES activities than the less active ones. The relationship could be both ways because beneficiaries that have recorded substantive benefits from UBAES would likely have a higher allegiance to UBAES and thus participate more frequently. Also, the logistics of transforming structures determines the frequency of participation of beneficiaries and their benefits. The relationship is vice-versa because beneficiaries' participation and benefits they

have derived could also influence the policies and logistics of UBAES. Benefits from UBAES like capacity building influences beneficiaries' livelihood ability, input supply influences the livelihood assets, and market affiliation influences their livelihood activities. The upgrade in beneficiaries' livelihood (ability, assets, and activities) is therefore expected to upgrade their livelihood outcome (improved food security, reduced vulnerability to poverty, and better health status).

In this study, income, mental well-being, and sustainable use of natural resources have been removed from the livelihood outcome. Income was removed because the change in income is expected to have been reflected in food security, vulnerability to poverty, financial capital under livelihood assets, and livelihood activities. Mental wellbeing was also removed because it is expected to have been reflected in food security, vulnerability to poverty, perceived health status. Sustainable use of natural resources has been withdrawn because it is particular to farmers and not all UBAES beneficiaries are farmers. Intervening variables are unmeasured variables that may not be easily operationalized, which affect the ways the independent variables influence the dependent variable; and sometimes influence dependent variable irrespective of the independent variables. In this study, these include differences in environmental factors like endemic pests and diseases/climate variation/land or soil quality that may or may not favour health or some livelihood activities. Socio-cultural factors that determine class/caste, access to assets, livelihood activities and gender roles and responsibilities. Others are many effects of government policies, social infrastructures, global economic depression on the availability of and access to livelihood abilities, assets, and activities. Another is remittances from other sources outside livelihood activities, especially the illegal ones.

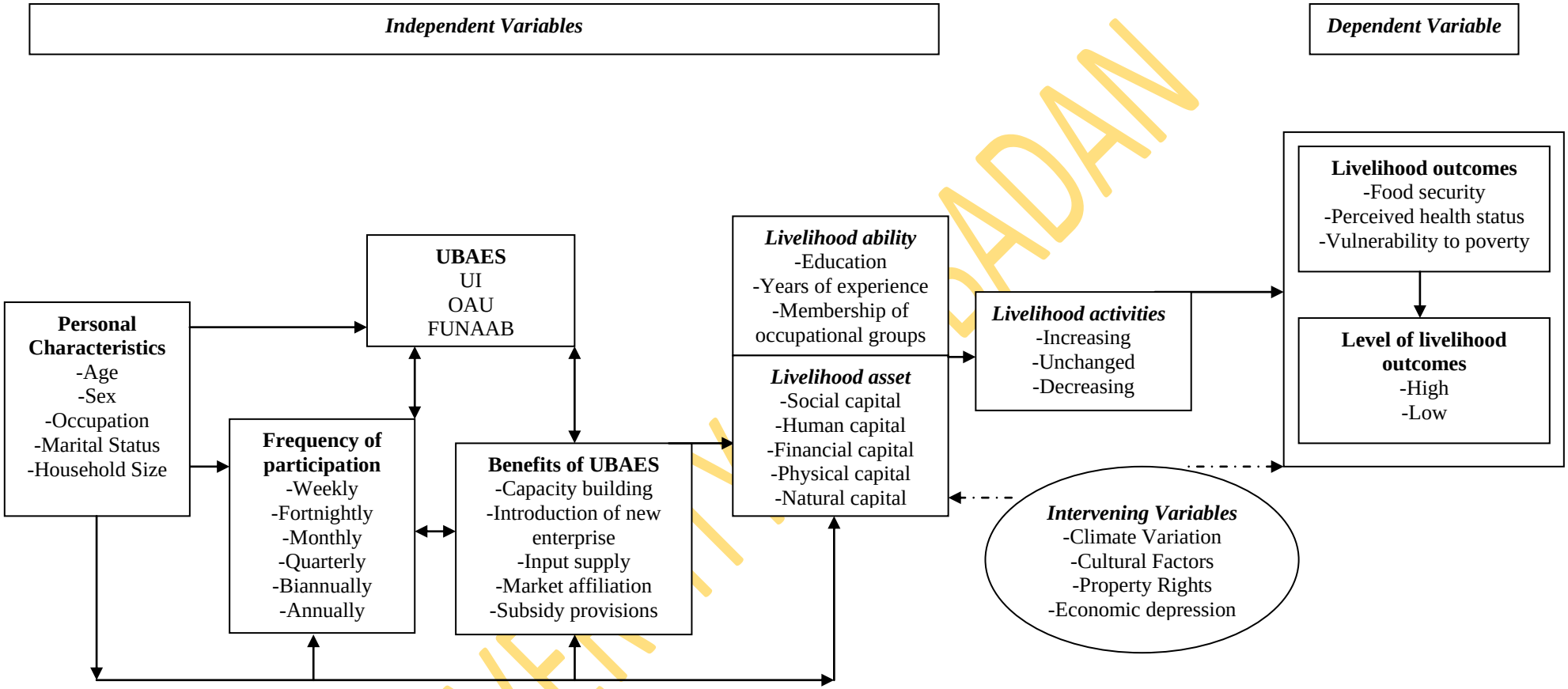


**Figure 2: Conceptual Framework on Livelihood Outcome of Beneficiaries of University Based Agricultural Extension System (UBAES) in Southwestern Nigeria**

# CHAPTER FOUR

# METHODOLOGY

This chapter presents the methods employed in carrying out the study. The chapter is subdivided into the followings: study area, the population of the study, sampling procedure and sample size, sources of data, validity and reliability of the instruments for data collection, measurement of variables and method of data analysis.

## 4.1. Study area

The study was conducted in southwestern Nigeria. It is one of the six geopolitical zones of Nigeria. The zone comprises Oyo, Ogun, Ondo, Osun, Lagos and Ekiti States. Southwest Nigeria lies between Latitudes $5^0$ South, $9^0$ North and Longitudes $2^0$ and $8^0$ East. It is bounded on the South by the Atlantic Ocean, the East by River Niger, the West by the Republic of Benin and the North by north-central Nigeria. Southwestern Nigeria occupies a land area of 78,505.17 square kilometres, representing approximately 8% of the country's total land mass (National Population Commission, 2010). The population of the zone is 27, 722, 432 people, representing approximately 20% of the country's total population according to the 2006 national census.

Higher education started in southwestern Nigeria with the establishment of the University of Ibadan in 1948. There are forty universities in the region: seven Federal Universities, ten State Universities, And twenty-three Private Universities (National University Commission, 2015). There are eight Specialised Universities: one University of Agriculture, one University of Education, three Universities of Technology, two Universities of Science and Technology, and one Open University (with many centres across the country). Among the thirty-two Conventional Universities, University-Based Agricultural Extension System is presently found in two and one University of Agriculture among the eight Specialised Universities. These Universities are University of Ibadan, Obafemi Awolowo University, and the Federal University of Agriculture Abeokuta.

## 4.2. Study population

The population of this study consisted of all beneficiaries of University-Based Agricultural Extension System (UBAES) in the University of Ibadan, Obafemi Awolowo University, and Federal University of Agriculture Abeokuta. A beneficiary is an individual

who is a member of a group that has benefitted from training, input supplies, subsidies, loans among many other benefits from UBAES.

### 4.3. Sampling technique

Multistage sampling technique was used to draw the sample for this study. The administrative structure of UBAES was different in University of Ibadan (UI), Obafemi Awolowo University (OAU), and Federal University of Agriculture Abeokuta (FUNAAB). The sample was therefore drawn differently.

At the University of Ibadan, UBAES directly worked with six occupational groups: cassava processors, palm oil processors, moringa processors, cane rat keepers, blacksmith, and transporters. There was an average of twenty-five active participants in each of the groups. Proportionate and simple random sampling was used to select 70% of the active participants in each of the six groups to get one-hundred and eight UBAES beneficiaries from University of Ibadan.

At Obafemi Awolowo University, the administrative structure of UBAES comprised of three Strategic Training Development Centres (STDCs). They were the Iyanfoworogi STDC in Ife East Local Government Area of Osun State, Esa-Oke STDC in Obokun Local Government Area of Osun State, and Ojo STDC in Egbedore Local Government Area of Osun State. There was an average of sixty active participants in each of the STDCs. Proportionate and simple random sampling was used to select 70% of the active participants in each of the three STDCs to get one-hundred and twenty-six UBAES beneficiaries from Obafemi Awolowo University.

At the Federal University of Agriculture, Abeokuta, the administrative structure of UBAES comprised of five programmes: Extension and Adaptive Research, Gender Issues and Youth Development, Training and Farm Demonstration, Media and Farm Broadcast, and Planning, Monitoring, and Evaluation. The first three programmes worked directly with beneficiaries, while the other two were support-programmes. Only the Extension and Adaptive Research Programme, and the Training and Farm Demonstration Programme worked directly with rural-based beneficiaries. There was an average of one-hundred active participants under each of the two programmes. Proportionate and simple random sampling was used to select 70% of the active participants under each of the two programmes to get one-hundred and forty UBAES beneficiaries from the Federal University of Agriculture Abeokuta. The random sampling produced one-hundred and eight, one hundred and twenty-

six, and one-hundred forty UBAES beneficiaries for University of Ibadan, Obafemi Awolowo University, and Federal University of Agriculture Abeokuta respectively. Three hundred and seventy-four UBAES beneficiaries constituted the sample for the study. The illustration of the sampling procedure is presented in Table 1.

**Table 1: Sampling procedure**

| UBAES in southwestern Nigeria | Administrative structures | Average number of beneficiaries | Sampled 70% of beneficiaries |
|---|---|---|---|
| **UI** | ***Occupational*** | | |
| | Cassava Processors | 25 | 18 |
| | Oil palm Processors | 25 | 18 |
| | Moringa Processors | 25 | 18 |
| | Cane rat Keepers | 25 | 18 |
| | Blacksmith | 25 | 18 |
| | Transporters | 25 | 18 |
| **UI Total** | **6** | **150** | **108** |
| **OAU** | ***Strategic Training Development Centres (STDCs)*** | | |
| | Iyanfoworogi STDC | 60 | 42 |
| | Esa-Oke STDC | 60 | 42 |
| | Ojo STDC | 60 | 42 |
| **OAU Total** | **3** | **180** | **126** |
| **FUNAAB** | ***Programmes*** | | |
| | Extension and Adaptive Research Programme | 100 | 70 |
| | Training and Farm Demonstration Programme | 100 | 70 |
| **FUNAAB Total** | **2** | **200** | **140** |
| **TOTAL** | **11** | **530** | **374** |

Source: UBAES Liaison Officers

### 4.4. Data sources

Both qualitative and quantitative methods were used to elicit information from beneficiaries as a primary source of data for this study. Relevant literature and reports of past studies in journals and monographs were reviewed as secondary sources of information. Information based on the specific objectives of the study was obtained through the qualitative (Focus Group Discussion and In-depth Interview with Key Informants) and quantitative (interview schedule) methods. Each of the objectives was measured under different sections of the interview schedule. Focus Group Discussion (FGD) was conducted with groups of men and women beneficiaries in each of the UBAES communities. In-depth Interview (IDI) was carried out with one extension staff in each of the UBAES. The pictures of the FGDs are presented on Plates 4, 5 and 6, while that of the IDIs are presented in Plates 7, 8 and 9.

### 4.5. Validation of instrument

Face and content validity of the research instruments was achieved through interactions with the research supervisors, and professionals in Agricultural Extension, Rural Sociology, Development Communication, Home Economics and Programme Evaluation. The process resulted in correction of defective items, removal of irrelevant ones, the inclusion of relevant ones, and assurance that the items would measure the variables for which they were intended to measure.

### 4.6. Reliability of instrument

The reliability test of the interview schedule was carried out using Cronbach's alpha method to determine the degree to which it consistently measured what it is designed to measure. Cronbach's alpha is the statistical method for testing constructs' reliability in research, with an alpha value above 0.7 being the acceptable level. The interview schedule was administered on a set of 30 UBAES beneficiaries of the Osun State University (Under-Utilized Indigenous Vegetables - UIVs programme in collaboration with Obafemi Awolowo University). An alpha value of 0.84 was arrived at, which is accepted as a measure of the reliability of the instrument.

### 4.7. Measurement of variables

Variables that were investigated in the study were categorised into independent and dependent variables. Scores were assigned to variables measured at the interval or ordinal level of measurement while numeric labels were alloted to those measured at the nominal level of measurement.

#### 4.7.1. Independent variables

The independent variables of this study were measured as follows:

##### 4.7.1.1. Personal characteristics of UBAES beneficiaries

1. ***Age***: respondents were asked to state their chronological age in years as at their last birthday. This was recorded as given.
2. ***Sex***: this was measured by assigning '1' to male respondents and '2' to female respondents
3. ***Marital status***: respondents were asked to indicate their marital status. This was measured by assigning '1' to single, '2' to married, '3' to divorced/separated, and '4' to widowed.
4. ***Household size***: respondents were asked to state the number of individuals that eat from the same pot in the house to measure dependency. This was recorded as given.
5. ***Primary occupation***: respondents were asked to indicate their primary occupation. This was measured by assigning '1' to food crop farming, '2' to tree crop farming, '3' to livestock rearing, '4' to trading, '5' to agricultural processing, '6' to unskilled daily-waged labour, '7' to the artisan, and '8' to a salaried job.

##### 4.7.1.2. Livelihood of UBAES beneficiaries

The sum of the standardised scores of livelihood ability, assets, and activities was the livelihood score. Minimum score was 88, maximum score was 470, and mean was 185.1. Mean and above mean score was categorised as a high level of livelihood while below mean score was categorised as a low level of livelihood.

###### 4.7.1.2.1 Livelihood ability

The sum of the standardised scores of the components 1 to 5 below was the livelihood ability score. Minimum score was 17, maximum score was 106, and mean was 46.7. Mean

and above mean score was categorised as high livelihood ability while below mean score was categorised as low livelihood ability.

1. **Educational attainment**: respondents were asked to indicate their highest educational attainment. This was measured by assigning '1' to religious education, '2' to adult education, '3' to vocational education, '4' to completed primary education, '5' to completed secondary education and '6' to completed tertiary education.
2. **Years of experience in primary occupation**: respondents were asked to state the number of years they have been engaged in their primary occupation. This was recorded as given.
3. **Years of detailed written record keeping of primary occupation**: respondents were asked to state the number of years they have been keeping detailed written record of primary occupation. This was recorded as given.
4. **Membership of occupational groups**: respondents were asked to state the number of occupational groups they belong. They were asked to indicate their status in each of the groups. This was measured by assigning '1' to Floor member, '2' to Committee member, and '3' to the Executive member.
5. **Membership of social groups**: respondents were asked to state the number of social groups they belong. They were also asked to indicate their status in each of the groups. This was measured by assigning '1' to Floor member, '2' to Committee member, and '3' to the Executive member.

#### 4.7.1.2.2 Livelihood assets

The sum of the scores of social, human, financial, physical, and natural capitals was the livelihood assets score. The maximum score was 409, minimum score was 53, and mean was 118.7. Respondents with mean and above mean score were categorised as ones with high livelihood asset, while those with below mean score were categorised as those with low livelihood asset.

1. **Social capital:** The strength of beneficiaries' networks and connections was measured on a four-point scale of None, Weak, Average, and Strong for social capital items like patronage, kinship relationship, neighbourhood interaction, trust among business partners, cooperation among occupational group members, and cohesiveness among social group members. This was measured by assigning '0' to None, '1' to Weak, '2' to Average, and '3' to Strong. The maximum score was 52, minimum score was 8,

and 19.3 was the mean score. Respondents with mean and above mean score were categorised as ones with high social capital, while those with below mean score were categorised as those with low social capital.

2. **Human capital:** The height of human support that beneficiaries have was measured on a four-point scale of None, Low, Average, and High for human capital items like number of labour, and educational level of labour. others are skill level of labour, physical strength of labour, experience level of labour, and accessibility level of labour. This was measured by assigning '0' to None, '1' to Low, '2' to Average, and '3' to High. The maximum score was 130, minimum score was 0, and 26.1 was the mean score. Respondents with mean and above mean score were categorised as ones with high human capital, while those with below mean score were categorised as those with low human capital.
3. **Financial capital:** The weight of financial support that beneficiaries have was measured on a four-point scale of None, Small, Average, and Big for financial capital items like savings in the bank, savings in cooperatives, formal remittances, informal remittances, access to a loan from formal sources and access to a loan from informal sources. This was measured by assigning '0' to None, '1' to Small, '2' to Average, and '3' to Big. The maximum score was 80, minimum score was 12, and 22.6 was the mean score. Respondents with mean and above mean score were categorised as ones with high financial capital, while those with below mean score were categorised as those with low financial capital.
4. **Physical capital:** The quality of physical support that beneficiaries have was measured on a four-point scale of None, Poor, Average, and Good for physical capital items like access road, portable water quality, GSM network quality, machine quality, tools quality, and input supply. This was measured by assigning '0' to None, '1' to Poor, '2' to Average, and '3' to Good. The maximum score was 55, minimum score was 13, and 21.1 was the mean score. Respondents with mean and above mean score were categorised as ones with high physical capital, while those with below mean score were categorised as those with low physical capital.
5. **Natural capital:** The size of natural capital that beneficiaries have was measured on a four-point scale of None, Small, Average, and Big for natural capital items like agricultural land in cultivation, agricultural land on fallow, residential land in the suburban, and residential land in the urban. This was measured by assigning '0' to

None, '1' to Small, '2' to Average, and '3' to Big. The maximum score was 156, minimum score was 4, and 21.7 was the mean score. Respondents with mean and above mean score were categorised as ones with high natural capital, while those with below mean score were categorised as those with low natural capital.

#### 4.7.1.2.3 Livelihood activities

Beneficiaries were asked to state their first five income generating activities. The change in revenue in their first five activities was measured on a three point scale of Decreasing, Unchanged, and Increasing. This was measured by assigning '1' to Decreasing, '2' to Unchanged, and '3' to Increasing. The maximum score was 57, minimum score was 11, and 19.6 was the mean score. Respondents with mean and above mean score were categorised as ones with high livelihood activities, while those with below mean score were categorised as those with low livelihood activities. The number of activities that a beneficiary is involved in accounts for his/her **livelihood diversification**.

### 4.7.1.3. Participation of beneficiaries in UBAES activities

The frequency of participation of beneficiaries in UBAES was measured on a six-point scale of Weekly, Fortnightly, Monthly, Quarterly, Biannually, and Annually. This was measured by assigning '1' to Weekly, '2' to Fortnightly, '3' to Monthly, '4' to Quarterly, '5' to Biannually and '6' to Annually. The maximum score was 62, minimum score was 7, and 19.1 was the mean score. Respondents with mean and above mean score were categorised as ones with high level of participation, while those with below mean score were categorised as those with a low level of participation.

### 4.7.1.4. Benefit of UBAES activities to beneficiaries

The frequency of benefits of UBAES enjoyed by beneficiaries was measured on a four-point scale of Never, Rarely, Sometimes, and Often for benefits like seed supply, tool supply, and machine supply. Others are introduction of new enterprise, capacity building training, nutrition training, health management training, market affiliation, credit, and subsidy. This was measured by assigning '0' to Never, '1' to Rarely, '2' to Sometimes, and '3' to Often. The maximum score was 50, minimum score was 7, and 13.7 was the mean score. Respondents with mean and above mean score were categorised as ones with high

UBAES benefit, while those with below mean score were categorised as those with low UBAES benefit.

#### 4.7.1.5. Influence of transforming structures on beneficiaries' livelihood activities

The degree of influence of transforming structures on beneficiaries' livelihood activities was measured on a five-point scale. The scale is a very negative influence, negative influence, no influence, positive influence, and very positive influence. What is measured is the direct influence of the Federal Government, State Government, Local Government, Agricultural Development Project, National Fadama Development Programme, UBAES, and nongovernmental organisations on beneficiaries' primary livelihood activities. This was measured by assigning '1' to Very negative influence, '2' to Negative influence, '3' to No influence, '4' Positive influence, and '5' to Very positive influence. The maximum score was 137, minimum score was 77, and 90.7 was the mean score. Respondents with mean and above mean score were categorised as ones with a high influence of transforming structures, while those with below mean score were categorised as those with a low influence of transforming structures.

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### 4.7.2. Dependent variable

Livelihood outcome is the dependent variable and is the sum of the standardised scores of beneficiaries' household food security, perceived health status and vulnerability to poverty. The maximum score was 178, minimum score was 73, and 121.1 was the mean score. Respondents with mean and above mean score were categorised as ones with high livelihood outcomes, while those with below mean score were categorised as those with low livelihood outcomes.

#### 4.7.2.1. Food security of UBAES beneficiaries

The extent of household food security of UBAES beneficiaries was measured on a four-point scale of Never, Rarely, Sometimes, and Often. Fourteen negative questions were asked. They are based on beneficiaries' anxiety over food, fluctuations in the quantity of food for adults and children, and anxiety over consequences of reductions in food intake for adults and children according to FANTA's Household Food Insecurity Access Scale (HFIAS) of the United States Agency for International Development (2012). This was measured by assigning '4' to Never, '3' to Rarely, '2' to Sometimes, and '1' to Often. The maximum score was 80,

minimum score was 28, and 50.2 was the mean score. Respondents with mean and below mean score were categorised as ones with high food security, while those with above mean score were categorised as those with low food security.

#### 4.7.2.2. UBAES beneficiaries' vulnerability to poverty

The degree of beneficiaries' vulnerability to poverty was measured on a five-point scale of Very negative effect, Negative effect, No effect, Positive effect, and Very positive effect for experienced change in labour affordability, commodity prices, and patronage. Others are crop health, livestock health, household health, communal clashes, farm mechanization, farm harvest, soil fertility, flood, erosion, deforestation, and indebtedness according to Fischer (2010). This was measured by assigning '1' to Very negative effect, '2' to Negative effect, '3' to No effect, '4' Positive effect, and '5' to Very positive effect. The maximum score was 73, minimum score was 13, and 27.0 was the mean score. Respondents with mean and below mean score were categorised as ones with low vulnerability to poverty, while those with above mean score were categorised as those with high vulnerability to poverty.

#### 4.7.2.3. Perceived health status of UBAES beneficiaries

The perceived health status of UBAES beneficiaries was measured on a five-point scale of Never, Rarely, Sometimes, Often, and Always for disease symptoms like joint pain, and stomach upset. Others are headache, internal body heat, profuse sweating, weakness, loss of weight, loss of appetite, dizziness, breathing difficulty, sleepless night, and diarrhoea. This was measured by assigning '5' to Never, '4' to Rarely, '3' to Sometimes, '2' to Often, and '1' to Always. The maximum score was 75, minimum score was 47, and 67.0 was the mean score. Respondents with mean and below mean score were categorised as ones with high perceived health status while those with above mean score were categorised as those with low perceived health status.

### 4.8. Method of Analyses

Frequency tables, percentages, means, standard deviations, and charts were used to describe and summarise the objectives of the study. Chi-square, Pearson Product Moment of Correlation (PPMC), Analysis of Variance (ANOVA) and linear regression were used to test hypotheses.

**Table 2: Data analysis**

| Hypothesis | Statement | Statistics |
|---|---|---|
| **$Ho_1$** | There is no significant relationship between livelihood and livelihood outcome of UBAES beneficiaries in southwestern Nigeria | PPMC |
| **$Ho_2$** | There is no significant relationship between beneficiaries' participation in UBAES activities and their livelihood outcome | PPMC |
| **$Ho_3$** | There is no significant relationship between benefits derived from UBAES activities and livelihood outcome of UBAES beneficiaries in southwestern Nigeria | PPMC |
| **$Ho_4$** | There is no significant relationship between influence of transforming structures and livelihood outcome of UBAES beneficiaries in southwestern Nigeria | PPMC |
| **$Ho_5$** | There is no significant difference in the livelihood outcome of UBAES beneficiaries across southwestern Nigeria | ANOVA |
| **$Ho_6$** | There is no significant relationship between selected personal characteristics and livelihood outcome of UBAES beneficiaries in southwestern Nigeria | Chi-square and PPMC |

# CHAPTER FIVE

# RESULTS AND DISCUSSION

## 5.1. Personal characteristics

The personal characteristics identified in this study were age, sex, marital status, household size, and livelihood diversity. The result of analysis of each of their measurement is discussed below.

### 5.1.1. Age of UBAES beneficiaries

The aspirations, capacities, performance and sense of fulfilment of humans vary with chronological age. Busiinge (2010) suggests that these changes vary significantly in decades, that is, aspirations, capacities, performance and fulfilment of an individual in his or her 30s differ considerably from the same in his or her 40s and so on. This is mainly due to changes in roles and responsibilities that come with ageing. This significance of age is also one of the bases for beneficiary selection for many programmes and projects. UBAES beneficiaries in southwestern Nigeria were therefore categorised using ten-year class interval. According to the results of analysis on Table 3, mean and standard deviation value indicates that there was a wide range of significance (43.1±15.61, that is, 28 to 59 years) in the age distribution. The wide range of significance using the mean and standard deviation reveals that beneficiaries between ages 19 and 27 years (the young) constituted 22.5%, ones between ages 28 and 58 years (the middle aged) constituted 59.6%, and ones between ages 59 to 85 years (the old) constituted 17.9%.

Benefiting from UBAES is dependent on participating in UBAES activities. Since participation is voluntary, there is free entry and exit of individuals. The result indicates that UBAES encourage youth participation given that the modal age range proportion is less than 30 years old. The high participation of youths in UBAES shows that rural youths are still interested and actively involved in agricultural and rural development. Contrary to the observation of Omofonmwan (2007) that states that individuals at this youthful age are highly unstable, especially because of their characteristic impatience which is a demerit in farming. It could also mean that UBAES activities are dynamic and appealing to youths. According to Bature, Sanni and Adebayo (2013), people in their 40s have the highest aspirations and anxieties and thus have the highest tendency to seek help to achieve their aspirations and

reduce their anxieties. This could explain the upsurge of their proportion (24.3%) among the beneficiaries. The mean age of the distribution is 43 years, meaning that acceptance of UBAES activities by individuals in this age category is pertinent to the sustenance of the system. Lastly, the elderly in rural Nigeria and other third world countries are often vulnerable (Fadiji and Adeniji, 2011) and thus gather around any form of aid to break-even. This accounts for the 2.4% increment in the proportion of the 60 years and above individuals over the former category (50 to 59 years) among the beneficiaries. On the other hand, UBAES seems to consciously have all age categories duly represented in their projects to avoid bias and prejudice.

### 5.1.2. Sex of UBAES beneficiaries

Sex difference connotes variance in resources, opinions, preferences and priorities. Given this, there will be noticeable gendered differences in priority setting when it comes to group–based livelihood promotion strategies. Males' and females' priorities for livelihood are shaped by the existing norms, roles, and responsibilities and how livelihood strategies build on, ameliorate, or distort these (Meinzen–Dick, Quisumbing, Behrman, Biermayr–Jenzano, Wilde, Noordeloos, Ragasa and Beintema, 2010). Many studies have concluded that females have limited access to productive resources, thereby making them more vulnerable to poverty (Oyekale, Adeoti and Oyekale, 2006; Ayoade, 2010; Ajani and Igbokwe, 2013). Following this, many aid projects have targeted them, and many others have made them a priority over their male counterparts. UBAES being a help project like any other agricultural extension scheme equally has a higher tendency to take this stance. However, the result of sex distribution on Table 3 proved otherwise; 59.4% were males and 40.6% were females. Plate 11 presents females engaging in cassava processing in Ileogbo Community, which is the University of Ibadan's UBAES community.

The result might be due to the primary responsibility of UBAES, which is agricultural development. It has been established by many studies (Umebali, 2003; Akinola, 2006, Yusuf, 2008, Ogunsumi, 2011) that agricultural production in southwestern Nigeria is more because of male involvement than female involvement in agriculture. Ogunsumi (2011) and Olawoye (2014) suggested that male dominated activities are more than female-dominated activities in the rural areas of southwestern Nigeria. Given this assertion, it is only logical to have more male beneficiaries than female beneficiaries for any agricultural extension service delivery. The close margin between both male and female proportions indicates little or no bias.

Females were adequately represented, so the issue of female marginalisation had been properly dealt with in UBAESs. This is essential because a core concept of livelihood promotion is that the inherent potentials of both sexes should be harnessed for the sake of sustainability.

### 5.1.3. Marital status of UBAES beneficiaries

Marital status is a vital factor in determining the roles and responsibilities of individuals. It is mostly implied in many social studies (Oyekale, Adeoti and Oyekale, 2006; Emeka, 2007; Borode, 2011; Akinola, Ene, and Baiyegunhi, 2013) that roles and responsibilities are directly proportional to vulnerabilities. In the sense that the higher an individual's non-investment expenditures, the lesser his/her resources will become. It is thus implied that roles and responsibilities, as well as vulnerability increases in this order; single, married, separated/divorced, and widowed. The single has fewer functions and responsibilities, the married have new responsibilities of raising children, and the separated/divorced parents mostly takes up the responsibilities of raising children alone, especially women. Lastly the widowed have zero support from the spouse unlike the separated/divorced and mostly neglected by friends, relatives, and neighbours, thereby adding to their vulnerability.

The results of analysis in Table 3 reveals that the majority (73.0%) of the beneficiaries was married. The table further points out that 23.3% were single, and 3.5% were widowed. Ekong (2003) opines that marriage facilitates farming activities in rural areas because it is one way to have access to unpaid labour, which farmers usually take exploit. However, Ajibefun, Ademola, and Obioma (2000) asserts that increase in household number is more of a higher dependency ratio (liability) than increased human capital (asset). The result corroborates many social researches (Adejobi, 2004; Adediran, 2008; Adeloye, 2014) in rural areas of Nigeria that infer that marriage institution remains veritable as entry keeps outweighing exit.

Strong marriage institution is profitable for livelihood promotion because it is established that individuals within this institution have fewer chances to contract sexually transmitted diseases like HIV/AIDS. They are likely to be more food secure, children in such societies are less vulnerable, and the division of labour within the family facilitates adaptation to climate variations. Also, the low proportion of the widowed could suggest low mortality as

widowhood has always been a negative feature in areas of high mortality as reported by Borode (2011). Given that the most encompassing definition of poverty is all sense of deprivation an individual feels, good marital status is a poverty reduction strategy that should catch the interest of all development workers.

### 5.1.4. Household size of UBAES beneficiaries

There is strength in number. There have been times when households were numbered in tens. This was good for livelihood promotion because all household members were involved, one-way or the other, in household ventures. On the contrary, the more popular western education got, the more household size became a liability. Children would have to go to school; therefore, they had less time for agriculture and gradually agriculture lost its appeal to them. Consequently, household size continues to dwindle over the years. Schooling children did not only reduce labour and income, but it also increased household expenditures and reduced agricultural investment and intensification. Agricultural drudgery became evident on farmers; ageing became an agricultural challenge, and agricultural sustenance became a mirage. Livelihood diversification became more popular, and the circle of more agricultural exit and less agricultural entry was set in motion.

This study found that the average household size among UBAES beneficiaries was six. This does not suggest that an average family had four children because sometimes there are wards in the household to which the household head is a guardian. Most (74.3%) of the beneficiaries' household were composed of five to nine persons and only 0.5% had more than fourteen persons. The majority of beneficiaries having a household size of five to nine persons corroborates Anyiro, Emerole, Osondu, Udah and Ugorji (2014) that equally has many (48.3%) of their respondents' (yam farmers in Abia State, Nigeria) households having five to nine persons. According to the result of analysis on Table 3, mean and standard deviation value indicates that there was a wide range of significance (6.4±2.42, that is, 4 to 9) in the household size distribution. The wide range of significance using the mean and standard deviation reveals that beneficiaries that had a household size of one to four persons were 17.4%, ones that had a household size of five to nine persons were 74.3% (the majority), and ones that had a household size of ten to twenty-two persons were 8.3%.

Other relevance of household size is that it raises the break-even bar and predicts the size of household business in case of common venture. The break-even bar is the time that

the household can conveniently cater for every need of each of its individual members. The higher this bar in case households does not have common venture, the higher is household vulnerability, which inhibits livelihood promotion. When a household has a joint venture, the size and prospect of the venture hinges on the size of the household and this can be a push to increase household size. In reality, the individuality that came with Western colonisation has travelled beyond the urban to the rural, making joint household venture uncommon. On the other hand, large household size means more responsibilities for extension practice, in this case, the UBAES, since agricultural extension service delivery is principled to work with all household members. In agreement with this result, during the FGD in Ileogbo (UI UBAES's community), a discussant stated that

*"Children and wards (primary and secondary school students) are mostly agriculturally unproductive, given that they now go to school, not farm. When you even force them to farm, they choose to be unproductive intentionally. This is more complicated because many of us do not have enough money to give them tertiary education, and they eventually become unable to achieve sustainable livelihood since secondary education is no longer sufficient to obtain high paying white collar job and artisanship is not as encouraging as it used to be."*

### 5.1.5. Livelihood diversification of UBAES beneficiaries

Livelihood diversification is the addition of economic portfolio to increase income, spread risk, and cope with shock and seasonality. Livelihood diversification offers economic alternatives - if one source of income is affected, others remain - hence it is a key to livelihood security and strengthens people's resilience. The multiplicity of income sources requires a complex network of social relations to buttress it. Meaning that the more the recurring diversification, the more the need for strengthening social capital, especially since diversification is a livelihood strategy that includes social support and transfer options and choices. This makes obvious the role of asset complementariness as resources are being transferred exchange-ably from one form to the other to stay even. As reported by (Ellis, 2000), effective livelihood diversification is achieved when resource control is at equilibrium because no single category of assets on its own is sufficient, yet not all assets are required in equal measure.

Livelihood diversification report on Table 3 corroborates Butler and Mazur (2007), Adediran (2008), Akintola (2008), Ebitigha (2008), and Dorward, Anderson, Nava, Pattison, Paz, Rushton and Sanchez-Vera (2009). All these studies stated that the phenomenon is a norm, as 2.4% of the beneficiaries were engaged in more than eight occupations, 10.2% were engaged in six to eight occupations, 39.8% were engaged in three to five occupations and 47.8% were engaged in less than three occupations. Mean and standard deviation value was 3.1±1.96.

Using the mean and standard deviation, beneficiaries that engaged in one livelihood activity were 25.1%, those that engaged in two to five livelihood activities were 62.6% (the majority), and those that engaged in more than five livelihood activities were 12.3%. This agrees with the qualitative report that observed that beneficiaries of UBAES were very much interested in investing their resources into alternative livelihood activities that promise to facilitate livelihood promotion, especially in the presence of institutional support (transforming structure) such as UBAES. Plates 10, 12 and 13 present pictures of such institutional support. The FGD further reported that beneficiaries were not as pushed to diversify to spread risk or cope with shocks and seasonality as their desire to pull in more income. According to Amogne (2014), children and wards education costs raise household expenditures significantly, and since the study area has the highest literacy rate in the country, it is safe to suggest that many households seek to accommodate increased expenses by seeking for more income through this form of diversification.

Livelihood diversification has taken various forms, ranging from crop-livestock integration, livestock-aquaculture integration, crop-livestock-aquaculture integration, off-farm wage employment (working on someone else's farm for cash or kind), non-farm owned venture, to non-farm wage employment. Butler and Mazur (2007), Adediran (2008), Akintola (2008), Ebitigha (2008) and Dorward, Anderson, Nava, Pattison, Paz, Rushton and Sanchez-Vera (2009) confirm that livelihood diversification is common with poor people, and its objective is to make these people less vulnerable. In contrast, it has been contrarily reported that livelihood diversification stretches household resources to the tether and further render them worse-off socioeconomically (Ite, 2005; Chikaire, Nnadi, Nwakwasi and Ejiogu-Okereke, 2011 and Amogne, 2014). Given that livelihood diversification is naturally more in rural areas, it is still safe for individuals to have between two to five occupations, anything

more than that is a measure of the vicious cycle of vulnerability. It is thus good that the average number of occupations that UBAES beneficiaries were engaged in was three.

**Table 3: Distribution of beneficiaries based on personal characteristics (n=374)**

| Variables | Frequency | Percentage | Mean±SD |
|---|---|---|---|
| **Age (years)** | | | |
| Less than 30 | 96 | 25.7 | |
| 30-39 | 64 | 17.1 | |
| 40-49 | 91 | 24.3 | 43.1±15.61 |
| 50-59 | 57 | 15.2 | |
| 60 and above | 66 | 17.6 | |
| **Sex** | | | |
| Male | 222 | 59.4 | |
| Female | 152 | 40.6 | |
| **Marital status** | | | |
| Single | 87 | 23.3 | |
| Married | 273 | 73.0 | |
| Divorced/Separated | 1 | 0.3 | |
| Widowed | 13 | 3.5 | |
| **Household size (persons)** | | | |
| Less than 5 | 65 | 17.4 | |
| 5-9 | 278 | 74.3 | 6.4±2.42 |
| 10 and above | 31 | 8.3 | |
| **Livelihood diversification (number of occupations involved in)** | | | |
| Less than 3 | 178 | 47.6 | |
| 3-5 | 149 | 39.8 | 3.1±1.96 |
| 6 and above | 47 | 12.6 | |

Source: Field survey, 2015

### 5.2. Livelihood ability of UBAES beneficiaries

UBAES beneficiaries do not have a singular or similar livelihood activities, components of livelihood ability that cut across all livelihood activities were considered to be: educational attainment, years of experience in primary occupation, years of input and output record keeping, and level of membership of occupational groups. The result of analysis for each of their operationalisation is discussed below.

#### 5.2.1. Educational attainment of UBAES beneficiaries

Literacy and numeracy are a form of education that equips individuals to use logic in thoughts, decisions, actions and reactions. It is believed that literacy and numeracy do not come from uncontrolled and uncertified everyday knowledge and understanding picked up by individuals outside an educational institution as they grow. This is often referred to as informal (family and communal) and non-formal (religious, adult, and vocational) education. Logical reasoning necessary for livelihood promotion is believed to increase with the degree of literacy and numeracy acquired by an individual. According to Atala and Hassan (2012), literacy and numeracy are expected to increase with formal educational attainment, which is usually classified into primary, secondary and tertiary. These forms of education require varying forms of organised teaching and learning environment, classrooms, subjects, teachers, students, tests and examinations; followed by the award of certificates.

Table 4 shows that beneficiaries with secondary school education had the highest proportion (31.8%), closely followed by those with tertiary education (28.3%). This is a clear indication that many of UBAES beneficiaries had necessary literacy and numeracy skill to work with UBAES towards desired agricultural and rural development. This high formal educational attainment among UBAES beneficiaries might be due to the assertion of Windapo (2001) that high level of education enhances social participation in extension programmes. Meaning that projects such as UBAES attract more educated ones in a community. Likewise, the high formal educational attainment is in line with the observations of Bature *et al*. (2013) and Saidu *et al.* (2014) who equally found high formal educational attainment among their study respondents. The rest 39.9% of the beneficiaries had primary education (17.1%), non-formal education (13.9%), vocational education (4.0%), religious education (3.2%) and adult education (1.6%). The hope for this category of people is that agricultural extension is an ongoing educational process that starts from where the people are

with the objective to help them acquire the necessary knowledge, skill and attitude to use innovations for agricultural and rural development towards personal, household and community livelihood promotion. This finding was corroborated by an FGD discussant in Iyanfoworogi (OAU UBAES's community) who said that

*"Many of us stopped pursuing education after secondary school because our parents and guardians could not afford to sponsor our education any further, and the case is still the same till date".*

### 5.2.2. Years of experience in primary occupation of UBAES beneficiaries

Continuous use or practice develop skills - the longer one engages in an activity, the better one becomes at it. Doing imparts more skill than teaching; same as teaching imparts more knowledge than learning. Hence, years of experience in an activity are expected to be directly proportional to productivity in the activity. Livelihood activities start early in life in rural areas. Thus studies conducted in rural-peri urban areas revealed many years of experience relative to age (Adesope, Matthews-Njoku, Oguzor and Ugwuja, 2012). According to Eze (2007), long years of experience among rural dwellers could make them more proactive in extension training as a necessary measure towards effective participation. However, this form of knowledge from observation has made some rural dwellers to become apathetic to extension service delivery due to earlier failures of the latter to fulfil promises. In other cases, the apathy is due to over expectations from extension service providers.

The mean and standard deviation values indicate that there was a wide range of significance (18.6±14.31, that is, 4 to 33 years) in the years of experience distribution, which necessitates UBAES to be prepared to work with individuals with a vast experience range. Using the mean and standard deviation, beneficiaries that had one to four years of experience in their primary occupation were 15.5%, ones that had 5 to 32 years of experience were 68.2% (the majority), and ones that had thirty-three to sixty years of experience were 16.3%. According to Etim and Edet (2007), almost all rural and peri-urban dwellers started their livelihood activities with farming. Therefore the mean would have been higher if it were to be years of experience in agriculture. According to Olajide, Akinlabi and Tijani (2012), individuals with many years of experience should be actively involved in their problem identification, programme design, project implementation, and monitoring and evaluation, to guarantee success.

### 5.2.3. Years of 'input and output' record keeping of UBAES beneficiaries

Many agrarian and other rural enterprises are subsistence, managed with little entrepreneurial skills. Attempts to drive these enterprises to become commercial have made many authors suggest explicit input and output cataloguing. This is in line with the belief that it will facilitate better operational decision-making. More importantly for livelihood, it will assist in the balancing of capital assets to increase productivity and achieve decent welfare and well-being. Mayong *et al*. (2005) asserts that poor pricing is first among the many challenges of farmers to sustaining agricultural productivity. Many farmers attested to this. However, there is no record to make the claim empirical (Lawal, 2011). Unavailability of this record also makes the hope of commercialising rural and agrarian ventures through loan acquisition from commercial banks and obtaining insurance policies vague.

The mean year of record keeping among the beneficiaries according to Table 4 was approximately nine. The mean and standard deviation value indicate that there was a wide range of significance (8.6±7.31, that is, 1 to 16 years) in the years of record keeping distribution. Using the mean and standard deviation, beneficiaries that had been keeping records of their input and output for between 0-1 years were 12.8%. Those that had been keeping records of their input and output for between 2-16 years were 76.7% (the majority), and ones that been keeping record of their input and output for between 17-40 years were 10.4%. Record keeping practice among the beneficiaries is not impressive and thus reduces their autonomy and self-confidence as a business owner. Further, it reduces their fitness to receive aid from other stakeholders since their enterprise cannot be empirically evaluated. This result suggests that record keeping is lower in rural and peri-urban enterprises, which explains why there is hardly any evident upward and forward movement in the directions of most of these enterprises. This is in agreement with the statement of a discussant during FGD in Iwoye-Ketu (FUNAAB UBAES's community), who stated that:

*"Record keeping was intentionally avoided because it would reveal in Figures that production cost is usually higher than income. This would increase dissatisfaction and discourage further production".*

### 5.2.4. Membership of occupational groups among UBAES beneficiaries

The relevance of social capital cannot be overemphasised, especially because there is power in number and it increases voice for change. Group formation and membership have always been the first point of call to create and benefit from social capital. Development stakeholders prefer to work with existing groups believing that the groups already have working group dynamics that can be exploited. There is hardly any occupation that does not have a group in its name. They are formed for identification of members, sharing of useful information, and collaboration on big projects, savings and credit opportunities. Other needs for such groups are to claim rights from stakeholders, mark territories to avoid marginalisation, enact rules, regulations and standard, sustenance of the occupation, fixing prices, and fighting for honour to avoid being downtrodden by other occupational groups and stakeholders.

Benefits accrued to individual members based on their membership status, which is usually ordinary, official/committee or executive; and livelihood diversification makes individuals belong to more than one occupational group. For instance, beneficiaries that had farming as an occupation or livelihood activity would most likely belong to All Farmers Association of Nigeria (AFAN), and artisans like tailors would most likely belong to the Fashion Designer Association of Nigeria, and so on. The beneficiaries of UBAES with a low level of membership of occupational groups are (50.8%), and those with a high level of membership of occupational groups are (49.2%). This close proportion could be because beneficiaries cut across all ages, gender, occupations, educational categories, and years of experience because it is proven that membership of occupational groups varies with these characteristics. Occupational group membership is usually higher among women, farmers and middle-aged people. The result, however, implies that many of UBAES beneficiaries have potential access to needed resources for bumper productivity, if such resources are available.

This particular form of social capital that can be otherwise termed professional capital can be used to acquire political capital, which has proven to be the most efficient capital asset in all societies. This is because governance involves all, and with good lobbying, occupational groups, individual members of the groups, and the occupation itself can record revolutionary success. Olatunji (2005) reports that an important responsibility of extension service is to ensure that group dynamic is strengthened and groups are motivated to make

their voices heard, especially through policy advocacy. Moreover, strong occupational groups help keep the younger generations interested in the vocation.

**Table 4: Distribution of beneficiaries based on livelihood ability (n=374)**

| Variable | Frequency | Percentage | Mean ± SD |
|---|---|---|---|
| **Educational attainment** | | | |
| Non-formal | 52 | 13.9 | |
| Religious | 12 | 3.2 | |
| Adult | 6 | 1.6 | |
| Vocational | 15 | 4.0 | |
| Primary | 64 | 17.1 | |
| Secondary | 119 | 31.8 | |
| Tertiary | 106 | 28.3 | |
| **Years of experience in primary occupation** | | | |
| Less than 5 | 58 | 15.5 | |
| 5-14 | 120 | 32.1 | |
| 15-24 | 78 | 20.9 | 18.6±14.31 |
| 25-34 | 57 | 15.2 | |
| 35 and above | 61 | 16.3 | |
| **Years of record keeping (input & output)** | | | |
| None | 38 | 10.2 | |
| 1-5 | 137 | 36.6 | |
| 6-10 | 109 | 29.1 | 8.6±7.31 |
| 11-15 | 47 | 12.6 | |
| 16-20 | 19 | 5.1 | |
| Above 20 | 24 | 6.4 | |
| **Level of membership of occupational groups** | | | |
| Low (11-13) | 190 | 50.8 | 14.4±2.89 |
| High (14-31) | 184 | 49.2 | |

Source: Field survey, 2015

### 5.2.5. Level of livelihood ability of UBAES beneficiaries

Livelihood ability, which is own capabilities, such as knowledge and skills, vary considerably from one person to the other, and can be a precursor to livelihood outcome. Knowledge and expertise are required to balance the use of capital assets to achieve desired livelihood outcome. The measurement of livelihood ability targets personal choices that individuals make to improve their health, labour strength, knowledge and skills to increase leverage needed to create a decent living. This kind of measurement is difficult to scale out, and many researchers have bailed on it. This challenge only becomes minimal if the targets of the study are homogenous in occupation, age, or gender. The more the grounds for homogeneity, the easier it is to measure livelihood ability.

Table 5 presents the result of the level of livelihood ability of beneficiaries in this study. The result is the composite score of beneficiaries on educational attainment (a measure of knowledge), years of experience in primary occupation (a measure of skill), years of record keeping (a measure of entrepreneurship) and level of membership of occupational groups (a measure of professional exposure and enlightenment). The result of analysis reveals that 56.1% of the beneficiaries had low livelihood ability and 43.9% had high livelihood ability. The low livelihood ability corroborates Oyesola and Ademola (2012) that states that most of the people in Ileogbo Community had low livelihood ability. This infers that the capacity of UBAES beneficiaries to boost their livelihood activities and promote their livelihood outcome requires extra effort.

Findings in Table 5 suggest that the major cutback on beneficiaries' livelihood ability was in record keeping. Without adequate record keeping, rural activities will continue to be subsistence and livelihood ability will continue to get lower. Plates 14 and 15 present pictures confirming capacity building training of UBAES towards the elevation of livelihood ability. Considering the mean score of the livelihood ability of beneficiaries, livelihood ability of UI UBAES's beneficiaries (56.9±15.20) was higher than that of OAU UBAES's beneficiaries (55.1±18.20) and FUNAAB UBAES's beneficiaries (31.3±10.81). This could be due to a different level of educational attainment in UBAES's individual communities or the concentrated effort of each UBAES, given that UI has concentrated effort on only Ileogbo Community, OAU has concentrated effort in over 15 communities, and FUNAAB has concentrated effort on over twenty communities over the past ten years.

**Table 5: Distribution of beneficiaries according to their level of livelihood ability**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| **Low** | 47 | 37.3 | 33 | 30.6 | 130 | 92.9 | 210 | 56.1 |
| **High** | 79 | 62.7 | 75 | 69.4 | 10 | 7.1 | 164 | 43.9 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 25 | | 30 | | 17 | | 17 | |
| **Maximum** | 106 | | 101 | | 78 | | 106 | |
| **Mean±SD** | 55.1±18.20 | | 56.9±15.20 | | 31.3±10.81 | | 46.7±19.09 | |

Source: Field survey, 2015


Plate 1: Community Information Centre in Ileogbo Community, powered by UI UBAES


Plate 2: OAU UBAES/DelPHE Project signpost in Iyanfoworogi Community

**5.3. Livelihood assets of UBAES beneficiaries**

Livelihood assets more accurately determine sustainable livelihood approach to development by building on the socioeconomic strength of individuals. The assets are social, natural, human, physical, and financial. Their measurements are discussed below.

### 5.3.1. Social capital of UBAES beneficiaries

Social capital is the network, affiliation, cooperation and/or connectedness that is available for people to access to build their livelihood. It has a direct impact on other capitals and hence offers refuge when there are lacks in other capitals. For the poor, social capital represents a safety net in alleviating the impact of shocks through informal linkages. Group membership is a measure of quantity when taking stock of social capital. On the other hand, a qualitative measure of social capital involves taking stock of trust, reciprocity, exchanges, cohesiveness, reduction in transaction cost, ability to work together and access to wider institutions (like UBAES). Access to wider agencies, which is a measure of the quality of social capital, makes social capital the most closely linked to transforming structures and processes, which is mainly UBAES in this study.

#### 5.3.1.1 Membership of social groups

Membership of social groups is presented in Table 6, and the level of membership of social groups is presented in Table 7. The result on Table 6 reveals in descending order that beneficiaries belonged to religious organisations (2.3±0.78), cooperative society (1.8±0.90), town development union (1.5±0.85), age grade/alumni association (1.2±0.53), and social club/cult (1.2±0.60). As expected, almost all beneficiaries belonged to a religious group, as only 7.8% of them did not associate with any religious group. This result corroborates Akeweta, Oyesola, Ndaghu and Ademola (2014) that found that rural dwellers are more linked to religious groups than economic groups like cooperative society.

**Table 6: Distribution of beneficiaries according to membership of social groups**

| Social group | No | | Yes | | | | | | Mean±SD | Rank |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Ordinary | | Committee | | Executive | | | |
| | Freq | % | Freq | % | Freq | % | Freq | % | | |
| Religious organization | 29 | 7.8 | 230 | 61.5 | 74 | 19.8 | 41 | 11.0 | 2.3±0.78 | 1st |
| Cooperative society | 170 | 45.5 | 129 | 34.5 | 51 | 13.6 | 24 | 6.4 | 1.8±0.90 | 2nd |
| Town development union | 255 | 68.2 | 66 | 17.6 | 35 | 9.4 | 18 | 4.8 | 1.5±0.85 | 3rd |
| Age grade/Alumni association | 333 | 89.0 | 26 | 7.0 | 9 | 2.4 | 6 | 1.6 | 1.2±0.53 | 4th |
| Social club/cult | 323 | 86.4 | 31 | 8.3 | 12 | 3.2 | 8 | 2.1 | 1.2±0.60 | 5th |

Source: Field survey, 2015

### 5.3.1.2 Level of membership of social groups

Mean categorization of membership of social groups on Table 6 shows that 52.7% of the beneficiaries had low social group membership status, while 47.3% had high social group membership status. This result negates studies such as Woolcock and Narayan (2000), Adla and Kwon (2002), Yusuf (2008), Kuku and Liverpool (2010), Akeweta *et al*. (2014), probably because of different occupation, age, and gender of beneficiaries. Considering the mean score of beneficiaries' membership of social groups, OAU UBAES's beneficiaries (8.9±2.18) had a higher membership of social groups than FUNAAB UBAES's beneficiaries (8.0±2.36) and UI UBAES's beneficiaries (7.0±1.66).

**Table 7: Distribution of beneficiaries according to level of membership of social groups**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 45 | 35.7 | 79 | 73.1 | 73 | 52.1 | 197 | 52.7 |
| **High** | 81 | 64.3 | 29 | 26.9 | 67 | 47.9 | 177 | 47.3 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 6 | | 5 | | 5 | | 5 | |
| **Maximum** | 15 | | 13 | | 17 | | 17 | |
| **Mean±SD** | 8.9±2.18 | | 7.0±1.66 | | 8.0±2.36 | | 8.0±2.24 | |

Source: Field survey, 2015

### 5.3.1.3 Social capital items

Another aspect of social capital, which is the qualitative side, is presented in Table 8. The mutual relationship within the nuclear family was high with 63.1% of the beneficiaries attesting to it, followed by mutual relationship among friends with 59.1%. This cohesiveness among family and friends might be the reason why information (a capital in its own right) is usually transferred through family and friends. Other important items here are patronage and trust. The level of patronage was about average with 49.2%, and the degree of trust among business partners was about average with 55.3%. The result is in tandem with Yusuf (2008) that stated that majority of Nigerians have trust issues, which often limit business value chain. He further opined that it is likely because many of them have been victims of unscrupulous people. The result of analysis reveals in descending order that beneficiaries enjoy mutual relationship within nuclear family (2.8±2.29), mutual relationship among friends (2.6±0.56), and working relationship within occupational groups (2.4±0.61). Others are good interaction in the neighbourhood (2.4±0.65), trust among business partners (2.3±0.59), unity within social groups (2.3±0.64), high patronage (2.3±0.66), and mutual relationship within extended family (2.3±0.71).

**Table 8: Distribution of beneficiaries according to social items**

| Social item | Low | | Average | | High | | Mean±SD | Rank |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | | |
| Mutual relationship within nuclear family | 13 | 3.5 | 123 | 32.9 | 236 | 63.1 | 2.8±2.29 | 1st |
| Mutual relationship among friends | 13 | 3.5 | 140 | 37.4 | 221 | 59.1 | 2.6±0.56 | 2nd |
| Working relationship within occupational groups | 27 | 7.2 | 190 | 50.8 | 157 | 42.0 | 2.4±0.61 | 3rd |
| Good interaction in neighbourhood | 27 | 7.2 | 158 | 42.2 | 189 | 50.5 | 2.4±0.63 | 4th |
| Trust among business partners | 26 | 7.0 | 207 | 55.3 | 141 | 37.7 | 2.3±0.59 | 5th |
| Unity within social groups | 37 | 9.9 | 186 | 49.7 | 151 | 40.4 | 2.3±0.64 | 6th |
| High patronage | 42 | 11.2 | 184 | 49.2 | 148 | 39.6 | 2.3±0.66 | 7th |
| Mutual relationship within extended family | 57 | 15.2 | 161 | 43.0 | 156 | 41.7 | 2.3±0.71 | 8th |

Source: Field survey, 2015

### 5.3.1.4 Level of social items

Mean categorization of social items on Table 9 shows that 48.1% of the beneficiaries had low social item or quality of social capital, while 51.9% had a high social item or quality of social capital. This confirms the mutual connectedness and cohesiveness that is generally found in Africa, not necessarily intentional to serve as a safety net but by communal default. Nevertheless, individualism is fast taking root in African culture, rubbing away the once helpful togetherness. This lifting of safety net should be a point of concern to all stakeholders of agricultural and rural development. Considering the mean score of beneficiaries' social items, UI UBAES's beneficiaries (21.7±3.42) enjoyed higher social items than OAU UBAES's beneficiaries (19.1±2.89) and FUNAAB UBAES's beneficiaries (17.5±5.13).

**Table 9: Distribution of beneficiaries according to level of social items**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| **Low** | 55 | 43.7 | 27 | 25.0 | 98 | 70.0 | 180 | 48.1 |
| **High** | 71 | 56.3 | 81 | 75.0 | 42 | 30.0 | 194 | 51.9 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 13 | | 16 | | 8 | | 8 | |
| **Maximum** | 24 | | 24 | | 52 | | 52 | |
| **Mean±SD** | 19.1±2.89 | | 21.7±3.42 | | 17.5±5.13 | | 19.3±4.34 | |

Source: Field survey, 2015

### 5.3.1.5 Level of social capital

Table 10 presents the mean categorisation of the aggregate of social capital quantity (Table 6) and quality (Table 8), and it reveals that 57.0% of the beneficiaries had high social capital, while 43.0% of them had low social capital. This implies that many UBAES beneficiaries had the social capital to trade for other capitals when demands call for it. It further implies that beneficiaries had a high sense of well-being, identity, honour and belonging. The high social capital could be because of free entry and exit for most social groups in UBAES communities, as observed in the qualitative survey. According to Akeweta *et al*. (2014), a community with high social capital are wealthier because of efficient management of common resources (natural capital), maintenance of shared infrastructure (physical capital) and better adaptation to adverse conditions as members can call for a favour when needed. Accumulation and utilisation of social capital always give a feedback of virtuous circles. Considering the mean score of beneficiaries' social capital, UI UBAES's beneficiaries (28.7±4.19) had higher social capital than OAU UBAES's beneficiaries (28.0±3.45) and FUNAAB UBAES's beneficiaries (25.6±5.83).

**Table 10: Distribution of beneficiaries according to level of social capital**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| **Low** | 43 | 34.1 | 30 | 27.8 | 88 | 62.9 | 161 | 43.0 |
| **High** | 83 | 65.9 | 78 | 72.2 | 52 | 37.1 | 213 | 57.0 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 21 | | 21 | | 14 | | 14 | |
| **Maximum** | 39 | | 37 | | 58 | | 58 | |
| **Mean±SD** | 28.0±3.45 | | 28.7±4.19 | | 25.6±5.83 | | 27.3±4.86 | |

Source: Field survey, 2015

### 5.3.2. Human capital of UBAES beneficiaries

Human capital is the capabilities of others available to be used by an individual to pursue different livelihood strategies and achieve different livelihood outcomes. These capabilities include labour capacity, adaptation capacity, knowledge, skill and health found in the household or employed as staff. At the household level, human capital varies according to household size, skill levels, leadership potential, and health status and is a decisive factor in the choice of livelihood strategies. Human capital diminishes in poor households because of some negative livelihood options like cutting back on food intake, medical expense and education, which is cost-cutting in the short term but undermines human capital in the long term. Since ill health and lack of education are core dimensions of poverty, overcoming these conditions may be means or ends.

#### 5.3.2.1 Household human capital

Table 11 presents the result of analysis of beneficiaries' household human capital. The table shows that the number of household members that work on households' income generating activities was less than the mean number of household members for 63.9% of the beneficiaries. Similarly, the proportion of households with less than the mean number of household members that have completed secondary school education was 80.5%. The proportion of households with less than the mean number of household members that work for more than five hours per day on households' income generating activities was 79.7%; Proportion of households with less than the mean number of household members that have all necessary skills for households' income generating activities was also 79.7%. Only 16.8%, 21.1% and 15.5% of beneficiaries' households had up to the mean number of household members that: had up to five years of experience; were always available, and can be trusted with households' income generating activities respectively. This low household human capital corroborates Bature *et al*. (2013) that had only 10% of their respondents (*Fadama* beneficiaries) relying on household labour.

**Table 11: Distribution of beneficiaries according to household human capital**

| Human capital | < Mean | | > Mean | | Mean±SD | Rank |
|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | | |
| Total number of household members that work on income generating activities | 239 | 63.9 | 135 | 36.1 | 2.1±2.14 | 1st |
| Number that have completed secondary school | 301 | 80.5 | 73 | 19.5 | 1.5±1.79 | 2nd |
| Number that can work for more than five hours/day | 298 | 79.7 | 76 | 20.3 | 1.5±1.59 | 3rd |
| Number that have all the necessary skills | 298 | 79.7 | 76 | 20.3 | 1.5±1.68 | 4th |
| Number that have up to five years' experience | 311 | 83.2 | 63 | 16.8 | 1.3±1.64 | 5th |
| Number that are always available to you | 295 | 78.9 | 79 | 21.1 | 1.5±1.67 | 6th |
| Number that can be trusted with income generating activities | 316 | 84.5 | 58 | 15.5 | 1.3±1.50 | 7th |

Source: Field survey, 2015

### 5.3.2.2 Level of household human capital

Accumulation of human capital is more direct as individuals or households must be willing to invest by attending training sessions or schools, attentive to precautionary medical practices, and educate girl-child as much as boy-child. The indirect form of accumulation is, first, by having the larger community makes mechanisation accessible so that drudgery is reduced to make time and strength available for education. Second, promotion of specialised training (access to relevant information) instead of general training; and third increasing the value of education by creating job/business opportunities for those who have invested in education. The call for specialised training to build human capital is what UBAES directly responds to, therefore household human capital is expected to be high except service delivery had not been covering all household members. The result of the analysis in Table 12 discloses that 53.7% of the beneficiaries had low household human capital. This result is justified since household human capital is a function of household's income generating activities, for instance, beneficiaries that had arable farming as their primary occupation had more tendency to have higher household human capital than ones that were traders. The mean and standard deviation were 10.8±11.11. Considering the mean score of beneficiaries' household human capital, UI UBAES's beneficiaries (13.5±13.23) had higher household human capital than FUNAAB UBAES's beneficiaries (12.1±9.23) and OAU UBAES's beneficiaries (7.1±10.08). A discussant in the FGD in Iyanfoworogi (OAU UBAES's community) agreed with this result by stating that:

*"Children and wards have lost interest in household ventures, particularly agricultural activities. They always give the excuse of acquiring education".*

**Table 12: Distribution of beneficiaries according to level of household human capital**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| **Low** | 83 | 65.9 | 52 | 48.1 | 66 | 47.1 | 201 | 53.7 |
| **High** | 43 | 34.1 | 56 | 51.9 | 74 | 52.9 | 173 | 46.3 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 0 | | 0 | | 0 | | 0 | |
| **Maximum** | 46 | | 75 | | 38 | | 75 | |
| **Mean±SD** | 7.1±10.08 | | 13.5±13.23 | | 12.1±9.23 | | 10.8±11.11 | |

Source: Field survey, 2015

### 5.3.2.3 Non-household human capital

Household human capital can be insufficient for some activities. The insufficiency necessitates the employment of wage labour. The labour capacity, adaptation capacity, knowledge, skill and health of wage labourers are other forms of human capital. This non-household human capital varies according to size, skill levels, leadership potential and health status. Table 13 presents the result of analysis of beneficiaries' non-household human capital. The table discloses that the number of non-household members that work on beneficiaries' income generating activities was less than the mean number of non-household members for 52.4% of the beneficiaries. Similarly, the proportion of beneficiaries that engaged less than the mean number of non-household members that have completed secondary school education was 83.7%. The proportion of beneficiaries that engaged less than the mean number of non-household members that work for more than five hours per day on households' income generating activities was 61.5%. Likewise, the proportion of beneficiaries that engaged less than the mean number of non-household members that have all necessary skills was 62.6%. Only 32.6%, 37.6% and 15.5% of beneficiaries had up to the mean number of non-household members that: had up to 5 years of experience; were always available; and can be trusted with households' income generating activities respectively. This result reveals a low non-household human capital that could be a result of variance in labour availability, accessibility and/or cost.

**Table 13: Distribution of beneficiaries according to non-household human capital**

| Human capital | < Mean | | >Mean | | Mean±SD | Rank |
|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | | |
| Total number of household members that work on income generating activities | 196 | 52.4 | 178 | 47.6 | 3.0 ±3.13 | 1st |
| Number that have completed secondary school | 313 | 83.7 | 61 | 16.3 | 1.5±2.12 | 2nd |
| Number that can work for more than five hours/day | 230 | 61.5 | 144 | 38.5 | 2.3±2.53 | 3rd |
| Number that have all the necessary skills | 234 | 62.6 | 140 | 37.4 | 2.4±2.81 | 4th |
| Number that have up to five years' experience | 252 | 67.4 | 122 | 32.6 | 2.2±2.66 | 5th |
| Number that are always available to you | 235 | 62.8 | 139 | 37.2 | 2.4±2.64 | 6th |
| Number that can be trusted with income generating activities | 316 | 84.5 | 58 | 15.5 | 1.6±2.34 | 7th |

Source: Field survey, 2015

#### 5.3.2.4 Level of non-household human capital

Labour is an important input in agricultural production as well as in non-farm activities because of its versatility, divisibility and mobility. The popularly held view that labour is abundant in poor households in sub-Saharan Africa has encouraged the development of labour-intensive technologies. Farmers thus complain of unavailability and the high cost of labour (Gocowski and Oduwole, 2003). Empirical evidence has shown that available labour force comprised mostly of aged farmers, and this has impacted negatively on productivity (Oluyole and Lawal, 2010). The increasing absence of people within the active age could be attributed to drudgery in farm activities, rural-urban migration, and absence of social infrastructure in the rural areas, as well as poor farm income in rural areas (Echebiri and Mbanasor, 2003).

Ajibefun *et al*. (2000) noted that hired labour contributes 88.0% of the total labour use on farms thus emphasising its importance in agricultural activities. The result of analysis on Table 14 discloses that 58.8% of the beneficiaries had low non-household human capital. This result is justified since non-household human capital is only necessary for beneficiaries that are involved in labour-intensive income generating activities. The mean and standard deviation were 15.3±16.74. Considering the mean score of beneficiaries' non-household human capital, UI UBAES's beneficiaries (21.6±18.03) had higher non-household human capital than FUNAAB UBAES's beneficiaries (14.1±15.80) and OAU UBAES's beneficiaries (11.2±15.06).

**Table 14: Distribution of beneficiaries according to level of non-household human capital**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 90 | 71.4 | 39 | 36.1 | 91 | 65.0 | 220 | 58.8 |
| **High** | 36 | 28.6 | 69 | 63.9 | 49 | 35.0 | 154 | 41.2 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 0 | | 0 | | 0 | | 0 | |
| **Maximum** | 57 | | 84 | | 92 | | 92 | |
| **Mean±SD** | 11.2±15.06 | | 21.6±18.03 | | 14.1±15.80 | | 15.3±16.74 | |

Source: Field survey, 2015

### 5.3.2.5 Level of human capital

Human capital, which is an individual's ability to command labour, is basic and essentially required to utilise other capital assets, and thus ultimately necessary to achieve positive livelihood outcome. Table 15 reveals that only 41.4% of the beneficiaries had high human capital while the rest 58.6% had low human capital. This low human capital could be because of a low social capital as Woolcock and Narayan (2000) implied that low level of social capital substantially limits human capital. Considering the mean score of beneficiaries' human capital, UI UBAES's beneficiaries (35.1±22.81) had higher human capital than FUNAAB UBAES's beneficiaries (26.2±22.30) and OAU UBAES's beneficiaries (18.3±22.01).

**Table 15: Distribution of beneficiaries according to level of human capital**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 93 | 73.8 | 48 | 44.4 | 78 | 55.7 | 219 | 58.6 |
| **High** | 33 | 26.2 | 60 | 55.6 | 62 | 44.3 | 155 | 41.4 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 0 | | 0 | | 0 | | 0 | |
| **Maximum** | 102 | | 91 | | 130 | | 130 | |
| **Mean±SD** | 18.3±22.01 | | 35.1±22.81 | | 26.2±22.30 | | 26.1±23.26 | |

Source: Field survey, 2015


**Plate 3: Signpost of FUNAAB UBAES in Iwoye-Ketu**

**Plate 4: FGD in Iwoye-Ketu Community of FUNAAB UBAES**

### 5.3.3. Financial capital of UBAES beneficiaries

Financial capital is the cash or equivalent that is accessible to be used by people to take on different livelihood strategies (activities, diversifications and choices). The best form of financial capital is savings because it lacks liabilities. Savings are stocks that can be held in various forms, ranging from cash, bank deposits to liquid assets such as jewellery and livestock. Another form of financial capital is a regular inflow of money such as earned income, pensions and other formal (government or corporate) and informal (family and friends) remittances. The relevance of these inflows is dependent on their regularities to guarantee that people can plan investments on them. The significance of financial capital lies in its transferability. It can be converted to other types of capital; it can be used for the direct purchase of livelihood outcome (for instance, purchase of food to increase food security); and can become a livelihood outcome by itself (increased income for consumption and investment).

Table 16 shows that the largest stock of financial capital is savings (2.9±3.32), corroborating Ellis and Freeman (2005) that affirmed that savings are the most important form of financial capital in rural sub-Saharan Africa. Only 30.2% of the beneficiaries had more than N25, 000 in their savings account. Second to savings account was a cooperative loan (2.6±1.59) with 36.1% of the beneficiaries being able to obtain a loan of more than N25, 000 from their respective cooperatives. Third, many of the beneficiaries had customers that were indebted to them (2.2±1.34). This phenomenon is caused by selling on credit, which has become a common practice in Nigerian market. About 40.0% of them had less than N25, 000 yet to be paid to them by their customers.

According to Onafowokan (2010), family and friends are important sources of financial capital and as well serve as safety nets in times of deficit. This assertion is corroborated by this result as financial capital is accessible from family (2.0±1.53) and friends (2.0±1.23) as a loan with both having the same mean of 2.0. Similarly, financial capital from family (1.9±1.06) and friends (1.8±1.11) as goodwill gift followed closely. More than ninety percent of the beneficiaries had no investment that can be liquefied to cash, 83.7% had no access to obtain a loan from bank and 80.7% of them did not have a current account in the bank. This makes agricultural, industrial and business intensification and extensification grossly impossible because the result infers that substantial funds for growth and development are not accessible. Further, the result negates many studies (Akanji, 2002;

Emerole, Nwosu and Olajede, 2008; Onafowokan, 2012, Bature *et al*., 2013) that claim that informal savings and credit are common in rural and peri-urban areas because 77.8% of UBAES beneficiaries professed not to have such account. Lastly, 69.3% of them were not in paid employment, which means entrepreneurship is a strong institution among them. It was also reported during FGDs in all of the communities that many beneficiaries did not have enough financial capital to embark on income generating activities for which they had been trained by UBAES.

**Table 16: Distribution of beneficiaries according to financial capital**

| Cash obtainable from | None | | < N 25, 000 | | >N 25, 000 | | Mean±SD | Rank |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | | |
| Savings account in bank(s) | 101 | 27.0 | 160 | 42.8 | 113 | 30.2 | 2.9±3.32 | 1st |
| Current account in bank(s) | 302 | 80.7 | 25 | 6.7 | 47 | 12.6 | 1.6±1.36 | 2nd |
| Investments | 352 | 94.1 | 14 | 3.8 | 8 | 2.1 | 1.1±0.63 | 3rd |
| Informal savings and credit account(s) | 291 | 77.8 | 63 | 16.9 | 20 | 5.3 | 1.5±1.06 | 4th |
| Bank(s) as loan | 313 | 83.7 | 24 | 6.4 | 37 | 9.9 | 1.4±1.11 | 5th |
| Cooperative(s) as loan | 160 | 42.8 | 79 | 21.1 | 135 | 36.1 | 2.6±1.59 | 6th |
| Friends as goodwill gift | 202 | 54.0 | 128 | 34.2 | 44 | 11.8 | 1.8±1.11 | 7th |
| Friends as loan | 176 | 47.1 | 144 | 38.5 | 54 | 14.4 | 2.0±1.23 | 8th |
| Family members as goodwill gift | 174 | 46.5 | 168 | 44.9 | 32 | 8.6 | 1.9±1.06 | 9th |
| Family members as loan | 167 | 44.7 | 167 | 44.6 | 40 | 10.7 | 2.0±1.53 | 10th |
| Employer | 259 | 69.3 | 81 | 21.6 | 34 | 9.1 | 1.6±1.09 | 11th |
| Customer in cash | 164 | 43.9 | 138 | 36.8 | 72 | 19.3 | 2.2±1.34 | 12th |

Source: Field survey, 2015

### 5.3.3.1 Level of financial capital

The direct approaches of increasing access to financial capital are only through facilitating the productivity of existing savings and money flows, helping to overcome barriers associated with access to credit and policy advocacy to reform financial services to suit rural dwellers. These approaches usually take long to accomplish, and this might probably explain why result on Table 17 discloses that more (56.1%) of beneficiaries had low financial capital, while 43.9% had high financial capital. The low level of financial capital is in accord with the findings of Maiangwa, Omolehin, Adeniji and Mohammed (2010), Simonyan and Omolehin (2012) and Saidu *et al*. (2014). Given the mean and standard deviation, majority of the beneficiaries had scores between 14 and 32, which is much tilted towards the minimum than the average. This infers that income, savings, remittances and/or investments are low among the beneficiaries. Considering the mean score of beneficiaries' financial capital, FUNAAB UBAES's beneficiaries (25.9±9.75) had higher financial capital than OAU UBAES's beneficiaries (22.8±7.42) and UI UBAES's beneficiaries (18.1±5.21).

**Table 17: Distribution of beneficiaries according to level of financial capital**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 64 | 50.8 | 90 | 83.3 | 56 | 40.0 | 210 | 56.1 |
| **High** | 62 | 49.2 | 18 | 16.7 | 84 | 60.0 | 164 | 43.9 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 12 | | 12 | | 13 | | 12 | |
| **Maximum** | 43 | | 38 | | 80 | | 80 | |
| **Mean±SD** | 22.8±7.42 | | 18.1±5.21 | | 25.9±9.75 | | 22.6±8.46 | |

Source: Field survey, 2015


**Plate 5: FGD in *Iyanfoworogi* Community of OAU UBAES**

**Plate 6: FGD in *Ileogbo* Community of UI UBAES**

### 5.3.4. Physical capital of UBAES beneficiaries

Physical capital consists of infrastructure and producer goods required to sustain livelihoods. Infrastructure here comprises of alterations to the physical environment that enhance people's productivity, welfare and wellbeing. Examples of infrastructure essential to sustain livelihoods are adequate transportation, communication, residential, health, recreational and sanitation facilities. Producer goods are tools and equipment that are utilised to facilitate productivity. Producer goods are fuel- and non-fuel-using equipment that is accessible to be used in livelihood activities. Lack of one or more of these facilities is a deprivation, and it is a measure of poverty. Indirectly, without one or more of the facilities, more time and energy would be expended on one or few welfare activities (non-economic livelihood activities like fetching of water and woods); leading to cutbacks of time and energy spent on productive/economic livelihood activities.

The physical capitals that were in good condition in descending order according to Table 18 are communication (57.0%), transportation (50.3%), mechanisation (27.8%), production facility (12.3%), production input (8.3%), and housing (6.4%). This means that beneficiaries were not deprived of the free flow of people, goods and services in and out of their communities. This is expected to have a positive impact on marketing and cosmopoliteness of beneficiaries. This result disagrees with Bature *et al*. (2013) that observed beneficiaries of rural development interventions possess high-quality access to production machines. Non-fuel-using equipment are tools often required by all; however, 45.7% and 42.0% of them had fair and poor access respectively. Likewise, production inputs, 55.1% and 36.6% had poor and fair access respectively. Worst of all is the housing, 82.1% of beneficiaries attested to having poor housing.

Examples of physical capitals that have been given by UBAES to support beneficiaries production are cassava grater, knapsack sprayers, trombo sprayers, raincoats, and rain boots. Others are protective gloves, cultivars, nose masks, maize grinders, pepper grinder, storage freezers, borehole water, generator, oil processing mill, biogas cooking unit, community information centre, irrigation facility, and cane rat pens. Plates 10, 12 and 13 present pictures of some of these physical capitals.

**Table 18: Distribution of beneficiaries according to physical capital**

| Quality of physical capital | Poor | | Fair | | Good | | Mean ± SD | Rank |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | | |
| Motor-able roads connecting community | 88 | 23.5 | 98 | 26.2 | 188 | 50.3 | 3.4±0.84 | 1st |
| Accessible GSM service providers | 79 | 21.1 | 82 | 21.9 | 213 | 57.0 | 3.0±0.88 | 2nd |
| Fuel-using equipment used | 158 | 42.3 | 112 | 29.9 | 104 | 27.8 | 2.7±1.15 | 3rd |
| Non-fuel-using equipment used | 157 | 42.0 | 171 | 45.7 | 46 | 12.3 | 2.6±1.81 | 4th |
| Sufficiency of production inputs | 206 | 55.1 | 137 | 36.6 | 31 | 8.3 | 2.4±0.84 | 5th |
| Decency of residential building | 307 | 82.1 | 43 | 11.5 | 24 | 6.4 | 1.7±0.91 | 6th |

Source: Field survey, 2015

### 5.3.4.1 Level of physical capital

Infrastructures are common goods, without them livelihood promotion will be difficult. On the other hand, insufficient producer good is a constraint to production capacity and reduce the utility of human capital. Direct provision of physical capital has many requirements for it to be fair and sustainable. It has to be done to include private markets and local service providers; it should be backed by transforming structures and processes; it must be for the good of all, and it must involve all stakeholders using participatory approaches. All these must be done to avoid local dependence on external aid, gain sustainability, ensure goods are put to best use, avoid division/counter-productivity, and elite-capture as suggested by World Bank (2003).

The result on Table 19 depicts that proportion of beneficiaries with high (51.1%) and low (48.9%) physical were almost evenly divided. This reflects the functionalities of UBAES, but also the limitation of not being capable enough to build physical capital considerably. The relatively high physical capital could be attributed to the physical inputs provided by the UBAES. This was confirmed during FGDs with the beneficiaries in Plates 4, 5 and 6. Considering the mean score of beneficiaries' physical capital, OAU UBAES's beneficiaries (22.8±7.42) had higher physical capital than FUNAAB UBAES's beneficiaries (22.2±5.87) and UI UBAES's beneficiaries (18.1±5.21). This could be because OAU UBAES facilitates their beneficiaries' eligibility and acquisition of *Fadama* inputs.

**Table 19: Distribution of beneficiaries according to level of physical capital**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| **Low** | 85 | 67.5 | 38 | 35.2 | 60 | 42.9 | 183 | 48.9 |
| **High** | 41 | 32.5 | 70 | 64.8 | 80 | 57.1 | 191 | 51.1 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 12 | | 12 | | 13 | | 12 | |
| **Maximum** | 43 | | 38 | | 55 | | 55 | |
| **Mean±SD** | 22.8±7.42 | | 18.1±5.21 | | 22.2±5.87 | | 21.1±4.64 | |

Source: Field survey, 2015

Plate 7: IDI with Mr Razak Yusuf, the Liaison Officer of UI's UBAES

Plate 8: IDI with Dr E.O. Bamgboye, an Extension Officer of Isoya IRDP/OAU's UBAES

### 5.3.5. Natural capital of UBAES beneficiaries

Natural capital refers to ecological goods (such as atmosphere, water, trees and lands) and services (such as biodiversity, erosion/flooding protection and soil fertility) needed to fashion a livelihood. This capital is most relevant to people who draw on nature/ecological-based activities (such as fishing, collection of Non-Timber Forest Products, and farming) for their livelihood. Beyond this, everyone lives on natural capitals, especially because air, water and food come from them. However, they are many times undervalued until their absence or adverse effects are felt. This makes the relationship between natural capital and vulnerability essentially close, given that natural shocks (such as forest fires, floods and droughts) are the most devastating and the shocks are due to the variations in the value and productivity of natural capital over a season. Linkages that natural capital has with other capitals are complex mixes that cannot be expressed in its entirety, especially because humans are a derivative of nature itself.

Table 20 shows that water was the most used natural capital among the beneficiaries as the highest proportion (70.6%) of them responded to having a great use for water, although it was not in surplus because the mean was 3.0±1.07. The reason for this is that the use of water cuts across all categories of the beneficiaries. However, the most available natural capital was cultivated land with mean 5.6±22.59, but only 21.4% of them had it in surplus. Meaning that not all beneficiaries had cultivated land since they were not all farmers but 21.4% of the farmers among them had cultivated land in surplus. It was encouraging that fallow land (4.5±9.62) was not more than cultivated land in quantity. This result disagrees with Adi (2007) that observes that rural dwellers had more land on fallow than in cultivation; it, however, agrees with low natural capital findings of Iwachukwu, Nwankwo and Igbokwe (2014). On the contrary, water resources (fishes, crabs and the likes) were the least surplus with mean 0.7±0.82.

The result further indicates that residential land in the locality was almost evenly distributed among the beneficiaries as 53.2% and 46.8% of them had a high and low quantity of it respectively. The mean (1.2±2.01) reveals that generally, beneficiaries own little quantity of residential land in the locality, which could be due to little fund to develop large residential land to live in or rent out. Ownership of residential land is much less (0.5±0.88) in the urban, and only 32.1% of them had high ownership. Use of forest resources was high with 58.3% of the beneficiaries and the mean (2.7±1.56) reveals that the resource use was not

significant among beneficiaries. It is a point of concern that as much as 42.8% of them attested that they had a poor quality of air.

**Table 20: Distribution of beneficiaries according to natural capital**

| Natural capital | Low | | High | | Mean±SD | Rank |
|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | | |
| Farmland under cultivation | 294 | 78.6 | 80 | 21.4 | 5.6±22.59 | 1st |
| Farmland under fallow | 284 | 75.9 | 90 | 24.1 | 4.5±9.62 | 2nd |
| Residential land in the suburban | 175 | 46.8 | 199 | 53.2 | 1.2±2.01 | 3rd |
| Residential land in the urban | 254 | 67.9 | 120 | 32.1 | 0.5±0.88 | 4th |
| Water use | 110 | 29.4 | 264 | 70.6 | 3.0±1.07 | 5th |
| Water resource use | 201 | 53.7 | 173 | 46.3 | 0.7±0.82 | 6th |
| Forest resource use | 156 | 41.7 | 218 | 58.3 | 2.7±1.56 | 7th |
| Air quality | 160 | 42.8 | 214 | 57.2 | 3.5±0.69 | 8th |

Source: Field survey, 2015

### 5.3.5.1 Level of natural capital

Building on natural capital requires innovation for forestry, farming, and fishing reforms for all service providers in these sectors. In addition with changes in institutions that control access to natural resources, new legislations plus enforcements in the sectors, patronage growth for sectors' produce and products, sustainable utilisation of nature stocks, and motivation to invest more in natural capital. All these require the intensive involvement of transforming structures and processes such as UBAES, especially in the area of policy advocacy. The significance of natural capital varies with seasonality and thus affects reliability in measurement.

Table 21 shows that majority (69.8%) of the beneficiaries had a low level of natural capital, which could be the lack of cultivated and fallow land by non-farmers among the beneficiaries. The result is another reflection of inadequate liquefiable assets to stand as investments that can be later plunged into livelihood strategies by the beneficiaries. The result negates Adi (2007) and Zerihun (2012) that observed that majority of people in rural and peri-urban areas had rich natural capital that shapes their livelihood activity choices in the direction of agriculture. Likewise, during the FGDs, it was reported that "fallow land is bountifully available and given to migrant farmers on free rent". Considering the mean scores of beneficiaries' natural capital, OAU UBAES's beneficiaries (27.8±20.36) had higher natural capital than FUNAAB UBAES's beneficiaries (20.0±36.64) and UI UBAES's beneficiaries (16.6±10.59).

**Table 21: Distribution of beneficiaries according to level of natural capital**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| **Low** | 69 | 70.6 | 89 | 82.4 | 103 | 73.6 | 261 | 69.8 |
| **High** | 57 | 29.4 | 19 | 17.6 | 37 | 26.4 | 113 | 30.2 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 9 | | 7.5 | | 4 | | 4 | |
| **Maximum** | 93 | | 72 | | 156 | | 156 | |
| **Mean±SD** | 27.8±20.36 | | 16.6±10.59 | | 20.0±36.64 | | 21.7±26.25 | |

Source: Field survey, 2015

Plate 9: IDI with Mr D.P. Jagun, the Farm Overseer of Iwoye-Ketu COBFAS/FUNAAB's UBAES

Plate 10: Borehole water given to Iwoye-Ketu by COBFAS/FUNAAB's UBAES

### 5.3.6. Level of livelihood assets of UBAES beneficiaries

Assets are building blocks upon which livelihood is built. As discussed above, they are social, financial, physical, natural and human capitals. Increasing access to them is paramount for sustaining livelihood. This can take the form of possession of 'right to use' or 'ownership'. This gives an accurate understanding of people's strengths from which they can take off on the journey to sustainability by converting these strengths into positive livelihood outcome. However, these assets are limited and thus require nurturing and combinations in innovative ways to ensure survival, especially for the poor. There is a complex relationship between the assets as one can generate multiple benefits. Secure access to land (natural capital) may equally stand as financial capital in the form of liquefiable investment or collateral for the loan. Likewise, livestock (physical capital) may equally stand as social capital (prestige in the community) and natural capital (animal traction). Besides conversion, assets can be substituted for each other, for instance, increased physical capital may compensate for decreased human capital as a tractor can make one man till acres of land that hundreds of men cannot.

Table 22 shows that 59.4% of the UBAES beneficiaries had a low level of assets. This confirms that the building blocks upon which they base their livelihood is weak and thus predicts that their livelihood is not sustainable, corroborating the observation of Onasanya (2007) that low level of access to capital assets is the reason why rural dwellers seem always to require development interventions. Considering the mean score of beneficiaries' livelihood assets, FUNAAB UBAES's beneficiaries (119.8±49.18) had higher livelihood assets than UI UBAES's beneficiaries (119.6±31.83) and OAU UBAES's beneficiaries (116.9±39.35). This leads to the relative significance of each capital asset. Since livelihood approach is all about poverty reduction, a particular combination of assets might be vital to kick start the process of escape from poverty than another combination of assets, given the vulnerability context and transforming structures and processes. In addition, access to one type of asset may be more necessary or sufficient for poverty escape than access to another type of asset. This information helps in facilitating the decision on which asset or combination of assets should be reinforced at the inception of intervention. The low level of livelihood asset confirms the report of FGDs that "beneficiaries of UBAES had little entitlements, which could hamper livelihood promotion".

**Table 22: Distribution of beneficiaries according to level of livelihood assets**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 78 | 61.9 | 60 | 55.6 | 84 | 60.0 | 222 | 59.4 |
| **High** | 48 | 38.1 | 48 | 44.4 | 56 | 40.0 | 152 | 40.6 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 59 | | 64 | | 53 | | 53 | |
| **Maximum** | 243 | | 241 | | 409 | | 409 | |
| **Mean±SD** | 116.9±39.35 | | 119.6±31.83 | | 119.8±49.18 | | 118.7±41.34 | |

Source: Field survey, 2015

### 5.4. Livelihood activities of UBAES beneficiaries

Out of multiple possible livelihood choices, opportunities and diversities, individuals adopt and adapt few depending on their skill (livelihood ability), labour intensiveness (human capital), and start-up fund (financial capital). Others are mobility (physical capital), ecological/climatic need for production (natural capital), required connections (social capital) and legislative access (transforming structures and processes). These imply that people with high access to livelihood assets have a higher opportunity to choose from a range of options in pursuit of positive livelihood outcome. On the other hand, people with low access to livelihood assets might be limited to a given activity because it is their only option. However, this is the apriori, Butler and Mazur (2007), Adediran (2008), Akintola (2008), Ebitigha (2008) and Dorward, Anderson, Nava, Pattison, Paz, Rushton and Sanchez-Vera (2009) ascertain that rural poor with low assets engage in more livelihood activities. None the less, the more flexibility and choices that people have in their livelihood activities, the better their capacity to cope with shocks, stresses, trends and seasonality of the vulnerability context.

Table 23 shows the multiple responses of beneficiaries' different livelihood activities and reveals that trading/business took the lead with 54.0%. The high proportion of beneficiaries involved in trading could be due to the opinion of Ekanem, Nwachukwu and Etuk (2014) that rural and peri-urban trading/business is a means to recycle money (ensuring cash at hand) and not necessarily to increase income, particularly with the current economic meltdown. Many (47.6%) of the beneficiaries had food crop farming as a livelihood activity. This could because food security is obviously an issue in Nigeria according to Maiangwa *et al*. (2010). It is thus only rational for everyone living in rural and peri-urban areas to cultivate their food considering that urban agriculture has been an advocated practice towards food security for years now. Closely following food crop farming was livestock rearing with 42.2% of beneficiaries engaging in the enterprise. Ekanem *et al.* (2014) likewise records that 80.0% of their respondents (development project beneficiaries) in the Niger Delta area of Nigeria were involved in livestock rearing. The relevance of agricultural activities among the beneficiaries corroborates World Bank (2007) that states that majority of people living in rural and peri-urban areas directly or indirectly relies on agriculture for their livelihood.

Less engaged in agricultural livelihood activities were agricultural processing (30.2%), cash/tree crop farming (25.9%), fruit-vegetable farming (22.5%), leafy-vegetable farming (20.9%) and fruit farming (19.0%). Agricultural processing takes the lead here

because most of the processing done in the study area was converting produce of food crop farming into edible products. Other activities that were prominent among the beneficiaries were artisan/handicraft (25.9%), salary job (14.7%) and unskilled labour (6.1%). This result implies that in the study area, artisanal skill is low given the low proportion of artisans, industrialisation is low given the low proportion of salary job owners, and unemployment/poverty level is low given the very low proportion of unskilled labour.

**Table 23: Distribution of beneficiaries according to livelihood activities**

| Livelihood activity* | Not involved | | Involved | | | | | | Mean ± SD | Rank |
|---|---|---|---|---|---|---|---|---|---|---|
| | Freq | | Decreasing | | Unchanged | | Increasing | | | |
| | | % | Freq | % | Freq | % | Freq | % | | |
| Food crop farming | 196 | 52.4 | 7 | 1.9 | 24 | 6.4 | 147 | 39.3 | 2.5±1.40 | 1st |
| Cash/Tree crop farming | 277 | 74.1 | 3 | 0.8 | 27 | 7.2 | 67 | 17.9 | 2.5±3.36 | 2nd |
| Fruit farming | 303 | 81.0 | 2 | 0.5 | 8 | 2.1 | 61 | 16.3 | 2.1±1.36 | 3rd |
| Fruit vegetable farming | 290 | 77.5 | 4 | 1.1 | 13 | 3.5 | 67 | 17.9 | 1.8±1.23 | 4th |
| Leafy vegetable farming | 296 | 79.1 | 6 | 1.6 | 20 | 5.3 | 52 | 13.9 | 1.7±1.20 | 5th |
| Livestock rearing | 216 | 57.8 | 5 | 1.3 | 45 | 12.0 | 108 | 28.9 | 1.7±1.18 | 6th |
| Trading/Business | 172 | 46.0 | 12 | 3.2 | 41 | 11.0 | 149 | 39.8 | 1.6±1.18 | 7th |
| Agricultural processing | 261 | 69.8 | 6 | 1.6 | 19 | 5.1 | 88 | 23.5 | 1.5±1.09 | 8th |
| Unskilled labour | 351 | 93.9 | 2 | 0.5 | 9 | 2.4 | 12 | 3.2 | 1.5±1.13 | 9th |
| Artisan/Handicraft | 277 | 74.1 | 0 | 0.0 | 35 | 9.3 | 62 | 16.6 | 1.5±1.15 | 10th |
| Salary job | 319 | 85.3 | 0 | 0.0 | 5 | 1.3 | 50 | 13.4 | 1.2±0.61 | 11th |

Source: Field survey, 2015 *Multiple responses

### 5.4.1 Level of livelihood activities

Livelihood activities vary across households, geographical area and time. It is a dynamic process with people combining activities to meet diverse needs at various times. Livelihood diversification on Table 3 reveals that UBAES beneficiaries engaged in an average of three livelihood activities. Development efforts like that of the UBAES increase access to assets to increase options to engage in wanted activities, introduce new activities based on available assets and influence existing transforming structures and processes to facilitate the conversion of activities into the outcomes.

Table 24 indicates that 56.7% beneficiaries had a low level of livelihood activities, implying that many of them were not making effective choices on adoptable livelihood activities. In a way, they might not balance the allocation of capitals on activities enough to have all activities increasing in productivity and income. On the other hand, they might have choked up capitals with over-diversification according to the observations of Ekanem *et al*. (2014) on livelihood activities of beneficiaries of Shell's Community Development in the Niger Delta of Nigeria. Considering the mean score of beneficiaries' livelihood activities, UI UBAES's beneficiaries (21.4±7.08) had higher livelihood activities than OAU UBAES's beneficiaries (20.7±6.63) and FUNAAB UBAES's beneficiaries (17.2±4.86).

**Table 24: Distribution of beneficiaries according to level of livelihood activities**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 58 | 46.0 | 48 | 44.4 | 106 | 75.7 | 212 | 56.7 |
| **High** | 68 | 54.0 | 60 | 55.6 | 34 | 24.3 | 162 | 43.3 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 13 | | 11 | | 13 | | 11 | |
| **Maximum** | 44 | | 57 | | 35 | | 57 | |
| **Mean±SD** | 20.7±6.63 | | 21.4±7.08 | | 17.2±4.86 | | 19.6±6.44 | |

Source: Field survey, 2015

### 5.5. Level of livelihood

Livelihood is simply described as the standard of living. Livelihood studies have identified the components of livelihood to be abilities, assets and activities required for a means of living. Further, a livelihood is only sustainable if it copes well with and recovers from shocks and maintains abilities and assets in the present without diminishing the resource base for the future (Ellis, 2000). Table 25 shows that 56.1% beneficiaries had a low level of livelihood, corroborating Oyesola and Ademola (2011). This is an indication of low productivity, small endowment and ineptitude among UBAES beneficiaries. Considering the mean score of beneficiaries' livelihood (ability, asset and activity), UI UBAES's beneficiaries (197.9±38.41) had higher livelihood than OAU UBAES's beneficiaries (192.7±50.70) and FUNAAB UBAES's beneficiaries (168.2±53.62).

**Table 25: Distribution of beneficiaries according to level of livelihood**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 63 | 50.0 | 39 | 36.1 | 108 | 77.1 | 210 | 56.1 |
| **High** | 63 | 50.0 | 69 | 63.9 | 32 | 22.9 | 164 | 43.9 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 98 | | 117 | | 88 | | 88 | |
| **Maximum** | 344 | | 330 | | 470 | | 470 | |
| **Mean±SD** | 192.7±50.70 | | 197.9±38.41 | | 168.2±53.62 | | 185.1±50.27 | |

Source: Field survey, 2015

### 5.6. Participation of beneficiaries in UBAES activities

Participation in any development project is voluntary to ensure project ownership, quality and sustainability (long-term capacity building and self-sufficiency). Participatory approach empowers bottom-up approach to development. This requires identification of relevant stakeholders (people with an interest or interests), share information with them, listen to their views, involve them in processes of planning and decision-making, contribute to their capacity-building and, ultimately, empower them to initiate, manage and control their self-development. Participation improves project design by drawing on local knowledge and expertise to ensure that designs accurately reflects stakeholder priorities and needs. It is a means of verifying the relevance and appropriateness of proposed interventions and strengthens stakeholder commitment to, and ownership of, policies and projects - leading to increased uptake of project services and greater willingness to share costs.

Many activities are embarked upon by UBAES to achieve project objectives and facilitate sustainability by increasing stakeholder ownership. Some of the activities are capacity building training, institutional strengthening, provision of input, and formation of groups. Table 26 presents the result of the participation of beneficiaries in UBAES activities in the study area. Approximately forty percent (40.1%) of them often participate in field/practical sessions, and 39.8% often participate in group meetings. Group formation is often participated in by 34.8% of them, and group incentives (sharing) is often participated in by 31.0%. This close margin reflects that group formation achieved its primary objective, which is to administer the exchange of both internal and external goods and services without bias. There is relatively high participation, which is in tandem with findings of Ibeawuchi and Nwachukwu (2010) in their study of Fadama participation in Imo State, Nigeria.

Other activities with the proportion of beneficiaries that often participate in them are group excursions (30.7%), group loan (25.4%) and group savings and credit or cooperatives (25.4%). The low proportion of beneficiaries that often participate in group cooperatives and loan could be a function of low trust, unavailability of such service, little fund pool, little investment mindset or too little income. This is more because 33.2% of them had never participated in group cooperative and 41.7% had never participated in group loans. With the relatively high percentage of beneficiaries that participated in group formation and group meetings, UBAES can foresee and resolve potential obstacles, constraints and conflicts, including the capacity to analyse problems and initiate other development activities as

implied by Mohammed *et al*. (2011). Likewise, the relatively high participation of beneficiaries in field/practical sessions is an indication that they place value on what UBAES offers. Participation of beneficiaries in UBAES activities in descending order starts with group meetings (3.2±3.16), field/practical sessions (3.1±3.59), group formation (2.8±1.13), group excursions (2.6±1.17), group incentives (2.6±1.21), group cooperatives (2.4±1.19), and group loan (2.3±1.26). Evidence of beneficiaries' participation in field/practical sessions is shown in Plate 14 (computer training in UI UBAES), Plate 15 (beekeeping training in OAU UBAES), and Plate 16 (On Farm Adaptive Research in OAU UBAES).

**Table 26: Distribution of beneficiaries according to UBAES participation**

| UBAES participation | Never | | Rarely | | Sometimes | | Often | | Mean±SD | Rank |
|---|---|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % | | |
| Group meetings | 46 | 12.3 | 54 | 14.4 | 125 | 33.4 | 149 | 39.8 | 3.2±3.16 | 1st |
| Field/practical sessions | 86 | 23.0 | 46 | 12.3 | 92 | 24.6 | 150 | 40.1 | 3.1±3.59 | 2nd |
| Group formations | 76 | 20.3 | 56 | 15.0 | 112 | 29.9 | 130 | 34.8 | 2.8±1.13 | 3rd |
| Group excursions | 96 | 25.7 | 64 | 17.1 | 99 | 26.5 | 115 | 30.7 | 2.6±1.17 | 4th |
| Group incentives | 111 | 29.7 | 45 | 12.0 | 102 | 27.3 | 116 | 31.0 | 2.6±1.21 | 5th |
| Group cooperatives | 124 | 33.2 | 62 | 16.6 | 93 | 24.9 | 95 | 25.4 | 2.4±1.19 | 6th |
| Group loan | 156 | 41.7 | 41 | 11.0 | 79 | 21.1 | 98 | 26.2 | 2.3±1.26 | 7th |

Source: Field survey, 2015

### 5.6.1 Level of UBAES participation

Participation is an ongoing process rather than a one-off exercise (or series of exercises). Participation can be considered as a product (end) as well as a process (means). As a product, the act of participation is an objective in itself and is one of the indicators of success as it refers to the empowerment of individuals in regards to acquiring skills, knowledge and experience, leading to greater self-reliance. When viewed as a process, participation refers to the action used to achieve a stated objective, that is, cooperation and collaboration, which helps to ensure sustainability of programme /project/development (World Bank, 2006). Therefore, stakeholder participation should be incorporated in all aspects of project design, management and implementation.

The level of UBAES projects' participation among the beneficiaries on Table 27 reveals that participation is on the average; only 50.8% had a high level of participation. The quantity and quality of participation are usually directly proportional to project objectives, so the average participation result suggests an average realisation of UBAES objectives to promote beneficiaries' livelihood. Increasing participation requires decentralised decision-making culture through open discussion and collaborative action. Considering the mean score of beneficiaries' participation in UBAES activities, OAU beneficiaries (21.7±8.02) participated more than UI beneficiaries (20.7±9.32) and FUNAAB beneficiaries (15.5±6.10).

**Table 27: Distribution of beneficiaries according to level of participation**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 37 | 29.4 | 47 | 43.5 | 100 | 71.4 | 184 | 49.2 |
| **High** | 89 | 70.6 | 61 | 56.5 | 40 | 28.6 | 190 | 50.8 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 7 | | 7 | | 7 | | 7 | |
| **Maximum** | 28 | | 62 | | 45 | | 62 | |
| **Mean±SD** | 21.7±8.02 | | 20.7±9.32 | | 15.5±6.10 | | 19.1±8.27 | |

Source: Field survey, 2015

**Plate 11: Women cassava processors in Ileogbo Community of UI's UBAES**

**Plate 12: Cassava graters in Ileogbo Community, from UI's UBAES**

### 5.7. Benefits of UBAES

Participation has important benefits both as a means and as an end in itself. UBAES seeks to achieve positive livelihood outcome for beneficiaries and to achieve this; activities were embarked upon to increase their technical and managerial skill, inputs, mechanisation, efficiency, and value addition. These benefits should accrue according to the quantity and quality of beneficiaries' participation. Beneficiaries have needs, particularly because of evident marginalisation of rural and peri-urban dwellers of the country. However, resources are limited, and high expectations are hard to meet, yet there are combinations of activities that ensure some handful benefits as long as participation is adequate. Benefits are continuous, building upon each other as outputs of participation and eventually summing up to becoming livelihood outcomes and initiate a virtuous circle of growth and development.

The result of the analysis in Table 28 shows that higher management skill (35.6%) is the topmost benefit that beneficiaries enjoyed, inferring that the UBAES did well in capacity building training, which is human development. Higher technical skill (34.8%) is likewise a benefit that many beneficiaries enjoyed from participating in UBAES activities. The result is in agreement with the assertion of Chikaire *et al*. (2011) that training is the traditional role of extension, more than 70.0% of their respondents (recipients of extension services) attested that training has always been the primary focus of extension services. This result is better appreciated coupled with the result on Table 26 that field/practical session was a UBAES activity that many (40.1%) beneficiaries often participated in. The field/practical sessions are designed to introduce, teach and demonstrate new practices or teach and demonstrate a better technique for familiar practices. This helps appreciate the primary assignment of extension services, which is to transfer innovations to target users. Both skill-based benefits are indications that UBAES is truly people-centred, which is the number one principle of sustainable livelihood approach to development. The inclusion of other services apart from training is in line with Qatar (2003) that posited that differentiated extension strategies are required for rural development because rural poverty is a multidimensional phenomenon.

Given that UBAES is not very input-centred, the following benefits are lowly ranked by the beneficiaries; lower production cost (42.5% ranked it as a low benefit while 24.9% ranked it as a high benefit), and mechanisation (40.9% ranked it as a low benefit while 27.3% ranked it as a high benefit). That UBAES is more people-centred than input-centred does not mean that UBAES does not supply inputs at all, given that 31.8% ranked it as a low benefit while 31.3% ranked it as a high benefit. These benefits above did good as they got relatively

translated into value addition (38.2% ranked it as a low benefit while 31.0% ranked it as a high benefit) and higher patronage (33.4% ranked it as a low benefit while 31.0% ranked it as a high benefit). The equal proportion (31.0%) of beneficiaries that ranked value addition and higher patronage as high benefits are evidential that value addition usually translates into higher patronage as customers always want increased value for their money. In descending order, UBAES beneficiaries benefited more inputs (2.1±1.79), higher technical skill (2.0±0.82), higher managerial skill (2.0±0.84), higher patronage (2.0±0.80), value added products (1.9±0.83), better mechanisation (1.9±0.82), and lower production cost (1.8±0.80).

**Table 28: Distribution of beneficiaries according to UBAES benefit**

| UBAES benefit | Low | | Average | | High | | Mean±SD | Rank |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | | |
| More inputs | 119 | 31.8 | 138 | 36.9 | 117 | 31.3 | 2.1±1.79 | 1st |
| Higher technical skill | 119 | 31.8 | 125 | 33.4 | 130 | 34.8 | 2.0±0.82 | 2nd |
| Higher managerial skill | 130 | 34.8 | 111 | 29.7 | 133 | 35.6 | 2.0±0.84 | 3rd |
| Higher patronage | 125 | 33.4 | 133 | 35.6 | 116 | 31.0 | 2.0±0.80 | 4th |
| Value added products | 143 | 38.2 | 115 | 30.7 | 116 | 31.0 | 1.9±0.83 | 5th |
| Better mechanization | 153 | 40.9 | 119 | 31.8 | 102 | 27.3 | 1.9±0.82 | 6th |
| Lower production cost | 159 | 42.5 | 122 | 32.6 | 93 | 24.9 | 1.8±0.80 | 7th |

Source: Field survey, 2015

### 5.7.1 Level of UBAES' benefits

Table 29 displays that 57.0% of beneficiaries benefited highly from their participation in UBAES activities. The other 43.0% benefitted, but not as eminently as expected, probably because the participation of beneficiaries were about average and not encouraging. Average participation and benefit suggest that the services of UBAES are averagely relevant, or they are only relevant to or adequate for about half of the beneficiaries. The relatively high level of benefits that beneficiaries obtained from UBAES explains the enthusiasm of beneficiaries during the FGDs. All the discussants in all of the FGDs regarded UBAES agents in their communities as their benefactors. Considering the mean score of beneficiaries' benefits from UBAES, UI beneficiaries (17.5±4.91) benefitted more than OAU beneficiaries (12.4±5.54) and FUNAAB beneficiaries (12.0±4.12).

**Table 29: Distribution of beneficiaries according to level of UBAES benefit**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 77 | 61.1 | 7 | 6.5 | 77 | 55.0 | 161 | 43.0 |
| **High** | 49 | 38.9 | 101 | 93.5 | 63 | 45.0 | 213 | 57.0 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 7 | | 7 | | 7 | | 7 | |
| **Maximum** | 21 | | 50 | | 21 | | 50 | |
| **Mean±SD** | 12.4±5.54 | | 17.5±4.91 | | 12.0±4.12 | | 13.7±5.42 | |

Source: Field survey, 2015

**Plate 13: Oil processing mill in Ileogbo Community, from UI's UBAES**

**Plate 14: Computer training view of secondary school leavers at the Community Information Centre in Ileogbo Community of UI's UBAES**

### 5.8. Transforming structures and processes

Transforming structures and processes within the livelihoods framework are the institutions, organisations, policies, culture and legislation that shape livelihoods. The institutions and policies of the transforming structures and processes have a profound influence on access to assets. They create assets, for instance, government policy to invest in basic infrastructure (physical capital) or the existence of local institutions that reinforce social capital. They determine access, for example, ownership rights or institutions regulating access to common resources. They influence rates of asset accumulation, for example, policies that affect the relationship between input and output of different livelihood strategies. Individuals and groups themselves influence transforming structures and processes. The greater people's asset endowment, the more influence they can exert. Hence, one way to achieve positive influence from transforming structures and processes may be to support people to build up their assets. Table 30 presents the multiple choices of influences of institutions on asset acquisition.

Provision of seed (8.4±1.62) is the highest influence that transforming structures had on beneficiaries. Capacity building is the second highest input acquired by the beneficiaries and it is highest from UBAES (72.7%). Followed by Fadama (21.1%), ADP (12.8%), Local Government (8.8%), State Government (8.3%), Federal Government (7.2%) and lastly NGOs (6.4%). This result reinforces the result on Table 28 that displays that higher technical (34.8%) and managerial (35.6%) skills were top rated benefits from UBAES. Also, the descending order of influence of these institutions pertaining to capacity building reveals that closeness to and involvement of people determines how successful the people rate the impacts of these institutions. Fadama is acclaimed for Community Driven Development (CDD) approach, while the Agricultural Development Projects (ADPs) is specialised by focusing on agriculture and acclaimed for Training and Visit (T&V) approach.

The Local Governments are closest to the people among the three tiers of government, followed by the State Governments. This agrees with Chikaire *et al*. (2011) that the closest institution to the people gets the most efficient result. The little influence of the NGOs may be because many NGOs are not much financially empowered according to Omofonmwan and Odia (2009) or because they target the most deprived people, which are more in northern Nigeria as stated by Mohammed (2003). UBAES takes the lead among all the institutions for their influence in building an asset for these people, which is expected since UBAES beneficiaries are the study respondents. However, the relative relevance of other institutions

for asset provision is ascertained. The very low influence of the three tiers of government was equally reported by discussants during the FGDs that they were experiencing governmental neglects, especially from the Local Government. In descending order, the influence of the 7 transforming structures starts with UBAES (mean=16.9), NFDP (mean=13.5), Local Government (mean=12.3), ADP (mean=12.2), FG & SG (mean=12.0), and lastly, NGOs (mean=11.7). Likewise, the topmost influence was in the provision of seed (8.4±1.62), capacity building training (8.4±1.17), the introduction of new enterprise (8.4±1.15), nutrition training (8.3±1.29), and provision of tools (8.3±1.31). Others are health management training (8.3±1.11), provision of machines (8.3±1.17), market affiliation (8.1±1.16), provision of credit/loan (8.1±1.26), provision of subsidised inputs (8.1±1.28), and lastly, provision of farm/business structure or building(8.0±1.28).

The influence of Federal Government is felt topmost by the beneficiaries in seed provision (15.2%) and least in the provision of machines (7.0%) and farm/business building (7.0%). Likewise, the influence of State Government is felt topmost by the beneficiaries in seed provision (16.6%) and least in the introduction of new enterprise (7.0%). The influence of the third tier of government is felt topmost by the beneficiaries in seed provision (19.8%) and tools provision (19.8%), while it is least in the provision of credit/loan (7.0%). Further, the influence of ADP is felt topmost by the beneficiaries in seed provision (16.0%) and least in the provision of market affiliation (8.3%). Similarly, the influence of Fadama is felt topmost by the beneficiaries in seed provision (25.9%) and least in the provision of subsidised input (17.9%). This result disagrees with Bature *et al*. (2013) that observes that 86.0% of their sampled Fadama users obtained their planting materials from the ADP. Contrarily, the influence of UBAES is felt topmost by the beneficiaries in capacity building (72.7%) and least in the provision of farm/business building (7.0%).

The influence of NGOs is felt topmost by the beneficiaries in health management training (7.8%) and provision of credit/loan (7.8%), while it is least in the provision of seeds (4.5%). Iwachukwu *et al.* (2014) also observe that NGOs contributed more to rural development in the area of health in their study of NGOs contribution to rural development in Anambra State. The mean distribution of the influence of the institutions discloses that influence of UBAES is highest (16.9±3.34), followed by Fadama (13.5±3.46), Local Government (12.3±2.06), ADP (12.2±2.40), State Government (12.0±1.82), Federal Government (12.0±2.33) and lastly NGOs (11.7±2.29). The high influence of Fadama

corroborates Adeolu and Taiwo (2004), Adegbite, Oloruntoba, Adubi, Oyekunle and Sobanke (2008) and Umar, Phoa and Khalique (2012) that observe that the institution has made a significant impact on both agricultural and rural development. The low influence of NGOs disagrees with Barr, Marcel and Owens (2005) and Chitongo and Kufakunesu (2013) that opined that contributions of NGOs to development could not be overemphasised.

**Table 30: Distribution of beneficiaries according to influence of transforming structures**

| Influence item | FG | | SG | | LG | | ADP | | Fadama | | UBAES | | NGO | | Mean±SD | Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | | |
| Seeds | 57 | 15.2 | 62 | 16.6 | 74 | 19.8 | 60 | 16.0 | 97 | 25.9 | 156 | 52.4 | 17 | 4.5 | 8.4±1.62 | **1st** |
| Capacity building training | 27 | 7.2 | 31 | 8.3 | 33 | 8.8 | 48 | 12.8 | 79 | 21.1 | 272 | 72.7 | 24 | 6.4 | 8.4±1.17 | **2nd** |
| Introduction of new enterprise | 33 | 8.8 | 26 | 7.0 | 36 | 9.6 | 39 | 10.4 | 89 | 23.8 | 258 | 69.0 | 23 | 6.1 | 8.4±1.15 | **3rd** |
| Nutrition training | 34 | 9.1 | 23 | 6.1 | 38 | 10.2 | 43 | 11.5 | 88 | 23.5 | 248 | 66.3 | 27 | 7.2 | 8.3±1.29 | **4th** |
| Tools | 39 | 10.4 | 53 | 14.2 | 74 | 19.8 | 41 | 11.0 | 91 | 24.3 | 178 | 47.6 | 19 | 5.1 | 8.3±1.31 | **5th** |
| Health management training | 27 | 7.2 | 18 | 4.8 | 35 | 9.4 | 40 | 10.7 | 94 | 25.1 | 247 | 66.0 | 29 | 7.8 | 8.3±1.11 | **6th** |
| Machines | 26 | 7.0 | 36 | 9.6 | 61 | 16.3 | 34 | 9.1 | 89 | 23.8 | 200 | 53.5 | 21 | 5.6 | 8.3±1.17 | **7th** |
| Market affiliation | 20 | 5.3 | 31 | 8.3 | 41 | 11.0 | 31 | 8.3 | 75 | 20.1 | 197 | 52.7 | 28 | 7.5 | 8.1±1.16 | **8th** |
| Credit/Loan | 45 | 12.0 | 30 | 8.0 | 26 | 7.0 | 44 | 11.8 | 83 | 22.2 | 153 | 40.9 | 29 | 7.8 | 8.1±1.26 | **9th** |
| Subsidized input | 47 | 12.6 | 40 | 10.7 | 47 | 12.6 | 34 | 9.1 | 67 | 17.9 | 147 | 39.3 | 25 | 6.7 | 8.1±1.28 | **10th** |
| Farm/business structure or building | 26 | 7.0 | 30 | 8.0 | 37 | 9.9 | 44 | 11.8 | 83 | 22.2 | 139 | 37.2 | 23 | 6.1 | 8.0±1.28 | **11th** |
| **Mean ± SD** | **12.0±2.33** | | **12.0±1.82** | | **12.3±2.06** | | **12.2±2.40** | | **13.5±3.46** | | **16.9±3.34** | | **11.7±2.29** | | **90.7±10.96** | |
| **Rank** | **5th** | | **6th** | | **3rd** | | **4th** | | **2nd** | | **1st** | | **7th** | | | |

Source: Field survey, 2015

### 5.8.1 Level of influence of transforming structures

UBAES is a form transforming structures (institution) exerting its influence through its policies (processes). Along with other structures, it requires membership of organisations, decentralisation and increasing information flows, to exert influence on higher-level structures and processes to increase their responsiveness to the poor. The fact that processes can 'transform' livelihoods makes them a key focus of donor activity. Activities of UBAES and other structures influence access to assets, conversion of assets, Intra- and inter-group relations and livelihood strategies. Here, the influence of transforming structures and processes is low (64.7%) among the beneficiaries according to Table 32, corroborating Lawal (2011) who stated that most agricultural and rural development are hardly applicable and adaptable operationally at beneficiary level. Policies are misfits and thus die unnoticed or unappreciated by most intended recipient. The main problem faced by the poor is that the processes that frame their livelihoods restrict them and their opportunities for advancement. This is a characteristic of social exclusion. Considering the mean score of the influences of transforming structures on beneficiaries, FUNAAB UBAES's beneficiaries (96.0±14.55) enjoyed more influence than UI UBAES's beneficiaries (88.3±6.38) and OAU UBAES's beneficiaries (86.8±6.07).

**Table 32: Distribution of beneficiaries according to level of influence of transforming structures**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| **Low** | 98 | 77.8 | 77 | 71.3 | 67 | 47.9 | 242 | 64.7 |
| **High** | 28 | 22.2 | 31 | 28.7 | 73 | 52.1 | 132 | 35.3 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 77 | | 77 | | 77 | | 77 | |
| **Maximum** | 99 | | 110 | | 137 | | 137 | |
| **Mean±SD** | 86.8±6.07 | | 88.3±6.38 | | 96.0±14.55 | | 90.7±10.96 | |

Source: Field survey, 2015

**Plate 15: Bee-keeping training at Isoya IRDP/UI's UBAES**

**Plate 16: On-Farm Adaptive Research at Isoya IRDP/UI's UBAES**


Plate 17: Signpost of NFDP III inputs to Iyanfoworogi environs facilitated by Isoya IRDP

## 5.9. Perceived health status

"Health is wealth", meaning that economic growth and development is hardly possible with sickness. Poor health depreciates abilities, assets and activities; suffice to say that it depreciates livelihood. An ill individual is indisposed (reduced livelihood ability, human capital and social capital), likely to spend much money on treatment (decreased financial capital) and probably to go to liquidate physical and natural capitals to raise more funds for treatment. He/she has a tendency to contaminate natural resources like water and air and communicate the disease-causing organism (devaluing natural capital for others) and obviously weaker to engage in his/her usual activities productively. When productivity, income generation and livelihood are concerned, perceived health status is more significant than actual health status, because ill symptoms like aches are what decrease productivity and not the damaging or terminal nature of diseases. For instance, an individual infected with HIV/AIDs with no physical and emotional discomfort can be more productive than an individual infected with malaria fever with body aches. In other words, the concern is not about the diseases but the symptoms.

Symptoms of illness among the beneficiaries according to Table 33 were the ones with low means such as a headache (2.1±1.02), weakness (2.4±1.01), profuse sweating (2.8±2.09), internal body heat (2.8±1.95) and stomach upset (2.8±1.31). The profuse sweating may not necessarily be a disease symptom; it may be because of stress due to hours of physical labour, usually under the sun. This can likewise be the reason for prevailing headache and weakness among them. The non-predominant ones were a joint pain (2.9±2.69), loss of weight (2.9±0.97), body itching (2.9±0.96), sleepless nights (2.9±0.90), and loss of appetite (3.0±0.89). Body itching may be the result of profuse sweating, while the loss of appetite may be responsible for the loss of weight. Joint pain is in the same category with a headache, which both point to drudgery in activities. Pain in the body reduces the quantity and/or quality of sleep. The symptoms that were lowly observed among beneficiaries are dizziness (3.2±0.92), eye itching (3.2±0.89), nasal discharges (3.3±0.83), diarrhoea (3.4±0.73) and breathing difficulty (3.5±0.75). The health status of the beneficiaries circles hard labour and constitutes a vicious cycle that can only be broken by a conscious effort to mechanise their activities. The high health status of UBAES beneficiaries presented in Table 30 is a complete departure from the findings of Alawode and Lawal (2014) that observes that rural health status was low.

**Table 33: Distribution of beneficiaries according to perceived health status**

| Perceived health status | Rarely | | Sometimes | | Often | | Mean±SD | Rank |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | | |
| Head ache | 98 | 26.2 | 162 | 43.3 | 114 | 30.5 | 2.1±1.02 | 1st |
| Weakness | 152 | 40.6 | 138 | 36.9 | 84 | 22.5 | 2.4±1.01 | 2nd |
| Profuse sweating | 157 | 42.0 | 121 | 32.4 | 96 | 25.7 | 2.8±2.09 | 3rd |
| Internal body heat | 182 | 48.7 | 103 | 27.5 | 89 | 23.8 | 2.8±1.95 | 4th |
| Stomach upset | 204 | 54.5 | 97 | 25.9 | 73 | 19.5 | 2.8±1.31 | 5th |
| Joint pain | 110 | 29.4 | 128 | 34.2 | 136 | 36.4 | 2.9±2.69 | 6th |
| Loss of weight | 238 | 63.6 | 93 | 24.9 | 43 | 11.5 | 2.9±0.97 | 7th |
| Body itching | 244 | 65.2 | 100 | 26.7 | 30 | 8.0 | 2.9±0.96 | 8th |
| Sleepless night | 218 | 58.3 | 137 | 36.6 | 19 | 5.1 | 2.9±0.90 | 9th |
| Loss of appetite | 278 | 74.3 | 70 | 18.7 | 26 | 7.0 | 3.0±0.89 | 10th |
| Dizziness | 280 | 74.9 | 72 | 19.3 | 22 | 5.9 | 3.2±0.92 | 11th |
| Eye itching | 283 | 75.7 | 14 | 19.8 | 17 | 4.5 | 3.2±0.89 | 12th |
| Nasal discharge | 297 | 79.4 | 71 | 19.0 | 6 | 1.6 | 3.3±0.83 | 13th |
| Diarrhoea | 337 | 90.1 | 28 | 7.5 | 9 | 2.4 | 3.4±0.73 | 14th |
| Breathing difficulty | 327 | 87.4 | 40 | 10.7 | 7 | 1.9 | 3.5±0.75 | 15th |

Source: Field survey, 2015

### 5.9.1 Level of perceived health status

People in rural and peri-urban areas of Nigeria are deprived in respect to the provision of health care services. Some socio-cultural factors and practices disintegrate health status. These factors determine peoples' health seeking behaviour and the level of adoption of health-related innovations. Apart from diseases, injuries are of economic significance in health management of people, especially this category of people that are mainly involved in long and hard physical labour. Analysis of health status exposes entry points for livelihood interventions in as much as it is a vital determining component of livelihood ability, human capital and vulnerability context. The result of perceived health status on Table 30 conveys that 60.4% of the beneficiaries of UBAES perceived their health status to be high. This reflects a positive outcome of the nutrition department of agricultural extension services alongside the advocacy for nutrition security as an integral part of food security. Considering the mean score of beneficiaries' perceived health status, FUNAAB UBAES's beneficiaries (68.9±4.51) had higher perceived health status than UI UBAES's beneficiaries (67.3±4.98) and OAU UBAES's beneficiaries (67.1±5.22). However, during the FGD at Iwoye-Ketu (FUNAAB UBAES community), a discussant reported that:

*"Measles is prevalent because of poor water quality. FUNAAB UBAES donated a borehole (shown in Plate 10), it is however not enough to serve the whole community".*

**Table 34: Distribution of beneficiaries according to level of perceived health status**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 68 | 54.0 | 39 | 36.1 | 41 | 29.3 | 148 | 39.6 |
| **High** | 58 | 46.0 | 69 | 63.9 | 99 | 70.7 | 226 | 60.4 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 52 | | 47 | | 53 | | 47 | |
| **Maximum** | 75 | | 74 | | 75 | | 75 | |
| **Mean±SD** | 67.1±5.22 | | 67.9±4.98 | | 68.9±4.51 | | 67.0±5.68 | |

Source: Field survey, 2015

## 5.10. Food security

Food security is the access of all people, at all times to enough food for a healthy life. The ability of food-deficit countries to meet target consumption levels on an annual basis. It describes the utilisation and consumption of safe and nutritious food; and ensured equitable provision of food to points of demand at the right time and place (Mkanawire, 2004). Food security is sometimes better explained by describing food insecurity. There are two main kinds of food insecurity: transitory and chronic. Transitory food insecurity is a temporary decline in a households' access to sufficient food, stemming from fluctuations in production or incomes. Chronic food insecurity is continuous inadequate diet, caused by the inability to produce, purchase, or obtain sufficient food. The distinction between "transitory" and "chronic" can become fragile sometimes, because of the difficulty to ascertain the point in time at which transitory food insecurity falls to the chronic shortage.

Food security is an integral component of livelihood outcome that UBAES seeks to achieve. Table 35 reveals that all food insecurity statements posed to the beneficiaries got responses of never and rarely. Only a few beneficiaries responded to the statements with sometimes and often. However, there are still food security issues of concern. Only about half of them could afford to eat a balanced diet (52.1%) and always had sufficient supply of foodstuffs (46.5%). Likewise, 64.4% of them had never had to rely on few kinds of low-cost food to feed children, and 69.0% of them had never found themselves in a situation where there would be no food of any kind to eat. The low-cost food phenomenon corroborates Maiangwa *et al*. (2010) that found that children in many rural households of southern Nigeria monotonously feed on products of maize and cassava because they are the most cultivated arable crop. On the contrary, majority of them had never found themselves in a situation where they (82.9%) or children (87.7%) would not eat a whole day because of zero availability of food. This may be because it is socio-culturally believed in southern Nigeria that everybody must at least eat dinner/supper. The result infers that if at all the beneficiaries were food insecure, which is largely doubtful; it would be transitory food insecurity.

Using the mean scores, top indicators of food insecurity among the beneficiaries are: worry whether food would run out before it could be replaced (3.3±0.86), and food items are not lasting as expected (3.3±0.79). Others are feeding children with few kinds of low-cost food (3.5±0.74), and cutting the size of the meal because there is no enough food (3.5±0.73). On the other hand, bottom indicators of food insecurity among the beneficiaries are: children not eating in a whole day because there is no food (3.8±0.52), and adults not eating in a

whole day because there is no food (3.8±0.55). Others are getting very hungry but not eating because there is no food (3.7±0.54), and children skipping meals because there is no food (3.7±0.65).

**Table 35: Distribution of beneficiaries according to food security**

| s/no | Food security | Never | | Rarely | | Sometimes | | Often | | Mean±SD | Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Freq | % | Freq | % | Freq | % | Freq | % | | |
| **1** | Children would not eat in a whole day because we do not have food | 328 | 87.7 | 31 | 8.3 | 11 | 2.9 | 4 | 1.1 | 3.8±0.52 | 14th |
| **2** | I may not eat for a whole day because we do not have enough food | 310 | 82.9 | 43 | 11.5 | 20 | 5.3 | 1 | 0.3 | 3.8±0.55 | 13th |
| **3** | I get very hungry but would not eat because we do not have enough food | 292 | 78.1 | 66 | 17.6 | 15 | 4.0 | 1 | 0.3 | 3.7±0.54 | 12th |
| **4** | Children skip meals because we do not have enough food | 291 | 77.8 | 49 | 13.1 | 32 | 8.6 | 2 | 0.5 | 3.7±0.65 | 11th |
| **5** | I cut the size of the children's meals because we do not have enough food | 287 | 76.7 | 57 | 15.2 | 25 | 6.7 | 5 | 1,3 | 3.7±0.66 | 10th |
| **6** | I lose weight because we do not have enough to eat | 283 | 75.7 | 51 | 13.6 | 38 | 10.2 | 2 | 0.5 | 3.6±0.68 | 9th |
| **7** | I skip meals because we do not have enough food | 265 | 70.9 | 76 | 20.3 | 28 | 7.5 | 5 | 1.3 | 3.6±0.69 | 8th |
| **8** | There would be no food of any kind to eat | 258 | 69.0 | 64 | 17.1 | 52 | 13.9 | 0 | 0.0 | 3.6±0.73 | 7th |
| **9** | I cannot afford to feed the children with balanced meal | 265 | 70.9 | 68 | 18.2 | 33 | 8.8 | 8 | 2.1 | 3.6±0.74 | 6th |
| **10** | I cannot afford to eat balanced meals | 194 | 52.1 | 127 | 34.0 | 45 | 12.3 | 6 | 1.6 | 3.6±2.35 | 5th |
| **11** | I cut the size of our meals because we do not have enough food | 244 | 65.2 | 79 | 21.1 | 50 | 13.4 | 1 | 0.3 | 3.5±0.73 | 4th |
| **12** | I rely on only few kinds of low-cost food to feed the children | 241 | 64.4 | 82 | 21.9 | 49 | 13.1 | 2 | 0.5 | 3.5±0.74 | 3rd |
| **13** | Food just does not last | 174 | 46.5 | 134 | 35.8 | 59 | 15.8 | 7 | 1.9 | 3.3±0.79 | 2nd |
| **14** | I worry whether food would run out before it could be replaced | 197 | 52.7 | 90 | 24.1 | 80 | 21.4 | 7 | 1.9 | 3.3±0.86 | 1st |

Source: Field survey, 2015

### 5.10.1 Level of food security

The economic cost of food insecurity regarding untold human sufferings is enormous and impossible to quantify. Chronic and transitory food insecurity increase morbidity rates, cause stunted growth in children, and chronic illnesses. They also sap the strength needed for work and other tasks and reduce the benefits of schooling and the productivity of the people affected. These deprivations turn into starvation and decrease life expectancy, and the vulnerability to food insecurity is unevenly distributed. Study result on Table 36 shows that 65.2% of beneficiaries of UBAES were food secure. This is an encouraging proportion given that only about half (47.6%) of the beneficiaries engaged in food crop farming according to Table 23. If not for the smallholder farming that is predominant in the study area as most of Sub-Saharan Africa, food security might have been higher. This is a motivation for agricultural extension projects to keep pushing for commercialization of agriculture. Considering the mean and standard deviation scores of beneficiaries' food security UI UBAES's beneficiaries (52.5±6.55) were more food secured than OAU UBAES's beneficiaries (51.2±6.12) and FUNAAB UBAES's beneficiaries (47.6±6.68).

**Table 36: Distribution of beneficiaries according to level of food security**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 33 | 26.2 | 23 | 21.3 | 74 | 52.9 | 130 | 34.8 |
| **High** | 93 | 73.8 | 85 | 78.7 | 66 | 47.1 | 244 | 65.2 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 31 | | 31 | | 28 | | 28 | |
| **Maximum** | 56 | | 80 | | 56 | | 80 | |
| **Mean±SD** | 51.2±6.12 | | 52.5±6.55 | | 47.6±6.68 | | 50.2±6.78 | |

Source: Field survey, 2015

### 5.11. Vulnerability to poverty

There are shocks, trends, risks, stresses and seasonality that affect livelihood by rendering people vulnerable (susceptible) to deprivations (poverty). These anomalies rather create a tendency for people to shift towards poverty than towards prosperity (livelihood promotion). The causes of vulnerabilities may be awful on their own, like an epidemic, conflict, price hike, natural disaster and climate variations. However, some others, like population growth and technological advancement are good, but some people do not respond or adapt well to change and thus find themselves on the negative side of the change and become worse-off. Vulnerabilities are significant because they have direct influences on people's asset status and the choices that are available to them in search for positive livelihood outcome. Shocks can tear down assets directly (civil conflict and floods). They can also oblige people to liquidate their assets prematurely as part of coping strategies. Seasonal alterations in prices, health, employment opportunities and food availability can eat deep into financial capital, income and investment to initiate a vicious cycle. Any development project would want to reduce vulnerability as much as possible UBAES likewise sought the same.

The result of the analysis in Table 37 discloses that UBAES beneficiaries experienced a hike in commodity prices (48.7%), corroborating Adebayo, Onu, Adebayo and Anyanwu (2012) that states that increment in household and production commodity prices limit the adaptation of coping strategies against climate change in Adamawa State, Nigeria. This could be due to global economic meltdown, low productivity/industrialisation and high imported goods in the economy. In descending order, UBAES beneficiaries were vulnerable to poverty because of the negative changes in commodity prices (1.7±0.77), indebtedness (1.9±0.48), livestock health (1.9±0.58), patronage (2.0±0.79), household health (2.0±0.70), communal clashes (2.0±0.44), and crop health (2.1±0.54). Others are labour availability (2.2±0.52), mechanisation (2.2±0.58), soil fertility (2.2±0.52), household unity (2.2±0.58), farm harvest (2.2±1.57), and labour affordability (1.7±0.77). Change in patronage was tripartite with 32.4% experiencing reduced patronage, 37.2% felt no change in patronage and 30.5% had an increase in patronage. This result may be a consequence of a wide range of occupations, produce, products and services.

**Table 37: Distribution of beneficiaries according to vulnerability to poverty**

| Vulnerability to poverty | Negative change | | Unchanged | | Positive change | | Mean±SD | Rank |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | | |
| Labour affordability | 72 | 19.2 | 234 | 62.6 | 68 | 18.2 | 2.3±0.83 | 13th |
| Farm harvest | 47 | 12.5 | 231 | 61.8 | 96 | 25.7 | 2.2±1.57 | 12th |
| Household unity | 28 | 7.5 | 228 | 61.0 | 118 | 31.6 | 2.2±0.58 | 11th |
| Soil fertility | 22 | 5.9 | 261 | 69.8 | 91 | 24.3 | 2.2±0.52 | 10th |
| Mechanization | 35 | 9.4 | 26 | 63.1 | 103 | 27.5 | 2.2±0.58 | 9th |
| Labour availability | 25 | 6.7 | 266 | 71.1 | 83 | 22.2 | 2.2±0.52 | 8th |
| Crop health | 35 | 9.4 | 260 | 69.5 | 79 | 21.1 | 2.1±0.54 | 7th |
| Communal clashes | 32 | 8.6 | 301 | 80.5 | 41 | 11.0 | 2.0±0.44 | 6th |
| Household health | 91 | 24.3 | 192 | 51.4 | 91 | 24.3 | 2.0±0.70 | 5th |
| Patronage | 121 | 32.4 | 139 | 37.2 | 114 | 30.5 | 2.0±0.79 | 4th |
| Livestock health | 74 | 19.8 | 248 | 66.3 | 52 | 13.9 | 1.9±0.58 | 3rd |
| Indebtedness | 75 | 20.1 | 279 | 74.6 | 20 | 5.3 | 1.9±0.48 | 2nd |
| Commodity prices | 182 | 48.7 | 121 | 32.4 | 71 | 19.0 | 1.7±0.77 | 1st |

Source: Field survey, 2015

### 5.11.1 Level of vulnerability to poverty

Vulnerability to poverty often initiates a vicious circle in action. The underlying delicate nature of poor people's livelihoods makes them unable to cope with stresses, whether foreseen or not. It also makes them less able to manipulate or influence their environment to reduce those stresses; as a result, they become increasingly vulnerable. Even when trends move in the right direction, the poorest are often unable to benefit because they lack assets and strong institutions working in their favour. It is, therefore, the responsibility of development agents to help these poor people to be more resilient and be able to capitalise on positive aspects of change, by reinforcing their livelihood capacities and assets. Coupled with policy advocacy to influence transforming structures and processes to provide enabling social, physical, financial, natural, human and political environment to favour livelihood activities. The result of analysis on Table 38 is positive, as 61.0% of UBAES beneficiaries were not vulnerable to poverty. The analysis of vulnerability to poverty is never exhaustive; therefore, development efforts to reduce vulnerability do not have to be comprehensive to be effective. The low vulnerability according to Table 38 is not in line with the opinion of Fisher (2010) that vulnerability is high in rural areas because of limited availability of social and market infrastructures. Considering the mean score of beneficiaries' vulnerability to poverty, OAU UBAES's beneficiaries (28.3±7.34) were less vulnerable to poverty than UI UBAES's beneficiaries (27.9±5.77) and FUNAAB UBAES's beneficiaries (25.0±3.59).

**Table 38: Distribution of beneficiaries according to level of vulnerability to poverty**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 60 | 47.6 | 58 | 53.7 | 110 | 78.6 | 228 | 61.0 |
| **High** | 66 | 52.4 | 50 | 46.3 | 30 | 21.4 | 146 | 39.0 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 17 | | 21 | | 13 | | 13 | |
| **Maximum** | 72 | | 73 | | 39 | | 73 | |
| **Mean±SD** | 28.3±7.34 | | 27.9±5.77 | | 25.0±3.59 | | 27.0±5.89 | |

Source: Field survey, 2015

### 5.12. Livelihood outcomes

Development frameworks have causes and effects. Many times, they are configurations of causes and effects. In livelihood development, the causes are the different configurations of transforming structures/processes, vulnerability context, assets and capacities, while the effects are configurations of reduced vulnerability, improved food security, and better health. These effects are otherwise called the livelihood outcome, which are the achievements or outputs of livelihood activities. Development outputs are expected to generate more income only, because of the believe that more money will translate into increased wellbeing, reduced vulnerability, improved food security, better health and more sustainable use of natural resource base.

However, livelihood studies (Ellis, 2000; Adediran, 2008; Ajani and Igbokwe, 2013) have shown that the situation is not always so, necessitating present development approach to accommodate increased wellbeing, reduced vulnerability, improved food security, better health and more sustainable use of natural resource base as independent objectives. Reduced vulnerability, improved food security and better health formed the outcome of this study and Table 39 reveals that 54.0% of UBAES beneficiaries had a high level of livelihood outcome. The higher level of livelihood agrees with Chikaire *et al*. (2011) that opines that livelihood approach to development will always eventually translate to the evident outcome. This result infers that only about half of the beneficiaries had high configurations of outputs of their livelihood activities, which is insufficient given the institutional support of the UBAES. The result can be the consequences of the intervening variables such as macroeconomic policies, global economic meltdown, fallen international oil price, fuel subsidy removal, low foreign deposit, high exchange rate, political instability, terrorism and climate variation that have huge effects on the relationship between inputs and outputs.

Considering the mean score of beneficiaries' livelihood outcome (perceived health status, vulnerability to poverty and food security), UI UBAES's beneficiaries (124.5±15.29) had higher livelihood outcome than OAU UBAES's beneficiaries (122.1±12.82) and FUNAAB UBAES's beneficiaries (117.6±11.27). The result could be due to the concentrated effort of UI UBAES on just one community, as against OAU and FUNAAB UBAES that had a dispersed effort in many communities.

**Table 39: Distribution of beneficiaries according to level of livelihood outcome**

| | OAU | | UI | | FUNAAB | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| **Low** | 48 | 38.1 | 39 | 36.1 | 85 | 60.7 | 172 | 46.0 |
| **High** | 78 | 61.9 | 69 | 63.9 | 55 | 39.3 | 202 | 54.0 |
| **Total** | 126 | 100.0 | 108 | 100.0 | 140 | 100.0 | 374 | 100.0 |
| **Minimum** | 87 | | 90 | | 73 | | 73 | |
| **Maximum** | 164 | | 178 | | 138 | | 178 | |
| **Mean±SD** | 122.1±12.82 | | 124.5±15.29 | | 117.6±11.27 | | 121.1±13.33 | |

Source: Field survey, 2015

### 5.13. Hypotheses testing

The results of the hypotheses tested in this study are presented in this section. Implications of the findings are also discussed.

#### 5.13.1. Hypothesis one

$Ho_1$: There is no significant relationship between the livelihood of beneficiaries and their livelihood outcome

Beneficiaries' livelihood is the aggregate of their abilities, assets and activities, while their livelihood outcome is the aggregate of their perceived health status, food security and vulnerability. The Pearson Product Moment Correlation (PPMC) of livelihood and outcome on Table 40 shows that there was a significant relationship between the livelihood of beneficiaries and their livelihood outcome ($r=0.241$, $p=0.000$). The result implies that livelihood is directly proportional to the outcome, meaning that the higher the livelihood, the higher the outcome. Result infers that a unit increase in livelihood (ability, asset and activity) will lead to 0.241 increments in the outcome. The significant relationship strengthens the assumptions of sustainable livelihood framework that abilities, assets and activities work together to achieve better health, improved food security and reduced vulnerability. Livelihood approach to development is, therefore, germane and should be encouraged.

**Table 40: Correlation of beneficiaries' livelihood and livelihood outcome**

| PPMC test of | r-value | p-value | Decision |
|---|---|---|---|
| Livelihood and livelihood outcome | 0.241 | 0.000 | Significant |

Source: Field survey, 2015 Significant at $p < 0.05$

#### 5.13.1.1 Correlation of livelihood components and livelihood outcome

The complementariness of assets, similarity and contrast between livelihood ability and human capital, and dependent relationship between livelihood activities necessitates individual correlation of livelihood components with the dependent variable (livelihood outcome). Table 41 shows that there was no significant relationship between livelihood ability and livelihood outcome (r=0.088, p=0.090), meaning that variance in livelihood outcome is not a function of variance in livelihood ability, which is inconsistent with the sustainable livelihood theory. It is, however, consistent with reality as it is popularly inferred that the best people do not always have the best result. Further, there was a significant relationship between social capital and livelihood outcome (r=0.282, p=0.000), meaning that the higher the social capital, the higher the livelihood outcome. Result infers that a unit increase in social capital will lead to 0.282 increments in livelihood outcome. This result is in accord with Oyesola and Ademola (2011) that found that social capital has a positive influence on livelihood activities and invariably on the outputs of livelihood activities, which is referred to as livelihood outcome.

In the same vein, there was a significant relationship between human capital and livelihood outcome (r=0.216, p=0.000), meaning that the higher the human capital, the higher the livelihood outcome. Result infers that a unit increase in human capital will result in 0.216 increments in livelihood outcome. This result coupled with the insignificant relationship between livelihood ability and livelihood outcome suggests that UBAES beneficiaries rely more on their human capital than on their livelihood abilities, to build their livelihood. None the less, there was no significant relationship between financial capital and livelihood outcome (r=0.068, p=0.189), meaning that variance in livelihood outcome is not a function of variance in financial capital. The result infers that many of the beneficiaries lack the wherewithal to convert finances into productive livelihood activities and that more money does not necessarily translate into better health, improved food security and reduced vulnerability.

There was a significant negative relationship between physical capital and livelihood outcome (r= -0.125, p=0.016), meaning that the higher the physical capital, the lower the livelihood outcome. Result infers that a unit increase in physical capital will lead to 0.125 reductions in livelihood outcome. The relationship may be because many of the physical capital are cost intensive (GSM communication and housing) and therefore divert funds from

livelihood intensification. This result implies that the adverse effect of cost intensive physical capital on livelihood activities is higher than the positive effect of tools and machines efficiency on livelihood activities. This is in disagreement with Bature *et al*. (2013) that observes an increase in physical capital, productivity and income among Fadama users in Abuja. Correlation between natural capital and livelihood outcome comes out with the result that there was a significant relationship between both, meaning that the higher the natural capital, the higher the livelihood outcome ($r=0.146$, $p=0.005$). Result infers that a unit increase in natural capital will result in 0.146 increments in livelihood outcome. The result implies that land resources, forest resources, water resources and air have a positive influence on livelihood promotion among UBAES beneficiaries.

Lastly, there was no significant relationship between livelihood activity and livelihood outcome ($r=0.032$, $p=0.534$), meaning that variance in livelihood outcome is not a function of variance in livelihood activity. The outputs of livelihood activities are supposed to create livelihood outcome; this contradiction may be because of expending financial capital (remittances) directly on livelihood outcome and not indirectly through livelihood activity or engaging in embarrassing (hand downs) or illicit (theft) activities that did not make the list for evaluation. It is observed in many social studies and reality that the wealth differentials of people are not always a function of their occupations, particularly because of bribery and corruption. This is one important reason why Ellis and Freeman (2005) stated that sustainable livelihood framework works best for the poor and vulnerable. With the poor, many of the factors external to sustainable livelihood do not exert much influence on welfare and wellbeing.

**Table 41: Correlation of beneficiaries' livelihood components and livelihood outcome**

| PPMC test of | r-value | p-value | Decision |
|---|---|---|---|
| Livelihood ability and livelihood outcome | 0.088 | 0.090 | Not significant |
| Social capital and livelihood outcome | 0.282 | 0.000 | Significant |
| Human capital and livelihood outcome | 0.216 | 0.000 | Significant |
| Financial capital and livelihood outcome | 0.068 | 0.189 | Not significant |
| Physical capital and livelihood outcome | -0.125 | 0.016 | Significant |
| Natural capital and livelihood outcome | 0.146 | 0.005 | Significant |
| Livelihood activity and livelihood outcome | 0.032 | 0.534 | Not significant |

Source: Field survey, 2015 Significant at $p < 0.05$

### 5.13.1.2 Correlation of livelihood ability components and livelihood outcome

The positive influence of livelihood ability on livelihood activities as observed by many authors (Ellis, 2000; Kollmair, 2002; Serrat, 2008; Oyesola and Ademola, 2011) suggests that there is supposed to be a significant relationship between livelihood ability and livelihood outcome. This demands further inquiries into the correlation between livelihood outcome and components of livelihood ability. The components that were measured at interval level are presented in Table 42. There was no significant relationship between livelihood outcome and years of experience in primary occupation (r=0.098, p=0.059), years of input and output record keeping (r=0.033, p=0.521) and membership of occupational groups (r=0.048, p=0.352). The result means that variance in livelihood outcome is not a function of variance in years of experience in primary occupation, years of input and output record keeping and membership of occupational groups independently.

**Table 42: Correlation of beneficiaries' livelihood ability components and livelihood outcome**

| PPMC test of | r-value | p-value | Decision |
|---|---|---|---|
| Years of experience and livelihood outcome | 0.098 | 0.059 | Not significant |
| Years of record keeping and livelihood outcome | 0.033 | 0.521 | Not significant |
| Membership of occupational groups and livelihood outcome | 0.048 | 0.352 | Not significant |

Source: Field survey, 2015 Significant at $p < 0.05$

#### 5.13.1.3 Relationship between livelihood ability components and livelihood outcome

Chi-square test of association between educational attainment and livelihood outcome on Table 43 discloses that there was a significant relationship ($\chi^2$ =17.421, p=0.008) between both. The implication of this is that the more educated beneficiaries are likely to have higher livelihood outcome to the credit of their education/knowledge, corroborating Leslie (2008) that states that the outreach goal of land-grant universities is based on the premise that livelihood is contingent on the quality of knowledge. This is because it takes appreciable knowledge, skill and attitude to make an efficient combination and judicious use of scarce resources to achieve a decent standard of living.

**Table 43: Chi-square test of beneficiaries' livelihood ability components and livelihood outcome**

| Chi-square test of | Chi-square value | df | p-value | Decision | Cc |
|---|---|---|---|---|---|
| Educational attainment and livelihood outcome | 17.421 | 6 | 0.008 | Significant | 0.211 |

Cc= Contingency coefficient Significant at $p < 0.05$

Source: Field survey, 2015

### 5.13.2. Hypothesis two

$Ho_2$: There is no significant relationship between beneficiaries' participation in UBAES activities and their livelihood outcome

There are different rates of participation, and it is expected that the higher the participation, the higher the benefits should be. This is important because livelihood outcomes are also expected to increase with benefits. Correlation between beneficiaries' participation in UBAES activities and their livelihood outcomes on Table 45 comes out with the result that there was a significant relationship (r=0.134, p=0.009) between both, meaning that the higher the participation in UBAES activities, the higher the livelihood outcome. The result infers that a unit increase in participation in UBAES activities will result into 0.134 increments in livelihood outcome, implying that beneficiaries that participate more in UBAES have more positive livelihood outcome and vice versa. This result corroborates Ayoade (2010), Eze (2007) and Khanye (2005) that states that participation in agricultural and rural development programmes will be one way, or the other improve welfare.

**Table 44: Correlation of beneficiaries' participation in UBAES and livelihood outcome**

| PPMC test of | r-value | p-value | Decision |
|---|---|---|---|
| Participation and livelihood outcome | 0.134 | 0.009 | Significant |

Source: Field survey, 2015 Significant at $p < 0.05$

### 5.13.3. Hypothesis three

$Ho_3$: There is no significant relationship between beneficiaries' benefits from UBAES activities and their livelihood outcome

The significant benefits of UBAES to the beneficiaries were higher managerial and technical skills. These benefits alongside with the others are expected to increase the productivity of their livelihood activities and eventually increase the outputs of these activities to create positive livelihood outcome. This is expected because the proportion of beneficiaries that enjoyed high benefits of UBAES is more than average. Correlation between UBAES benefits and livelihood outcome on Table 45 comes out with the result that there was a significant relationship ($r=0.127$, $p=0.014$) between both, meaning that the higher the UBAES benefits, the higher the livelihood outcome. The result infers that a unit increase in UBAES benefits will result into 0.127 increments in livelihood outcome, implying that beneficiaries that record high benefits from UBAES have more positive livelihood outcome and vice versa. This is in line with the assumption of sustainable livelihood framework that facilitation of asset acquisition by transforming structures and processes empowers livelihood activities and further translate into constructive livelihood outcome. The significant positive relationship agrees with Ashby, Barun, Garcia, Guerrero, Hernandez, Quiros and Roa (2000) that opines that training is the greatest investment from extension service to their clientele, and once the investment is made as shown in Table 28, positive result is ascertained. This further agrees with the system theory that postulates a flow of positive causes and effects that lead to a virtuous cycle.

**Table 45: Correlation of beneficiaries' UBAES benefits and livelihood outcome**

| PPMC test of | r-value | p-value | Decision |
|---|---|---|---|
| UBAES benefits and livelihood outcome | 0.127 | 0.014 | Significant |

Source: Field survey, 2015 Significant at $p < 0.05$

### 5.13.4. Hypothesis four

$Ho_4$: There is no significant relationship between the influence of transforming structures and the livelihood outcome of UBAES beneficiaries

Transforming structures and processes are numerous, and their catalogue/description is never exhaustive. They range from the legislations, policies and activities of all forms of government, agencies, corporations, cultures and even households. Their influences are either positive or negative. When positive, they increase people's access to assets and offer wider opportunities and choices to promote livelihood. When negative, they create limitations, deprivations and marginalisation by decreasing people's access to assets and offer narrow opportunities and choices to promote livelihood. The positive influence of transforming structures and processes is expected to boost livelihood activities and eventually livelihood outcome. Correlation between the influence of transforming structures/processes and livelihood outcome on Table 46 comes out with the result that there was no significant relationship (r= -0.058, p=0.267) between both. The negative relationship means that the higher the influence of transforming structures and processes, the lower the livelihood outcome. The result is not in tandem with the observation of Agwu and Abah (2009) and the assumptions of sustainable livelihood framework and can be the result of misplaced or wrong policies. None the less, a right policy or service may sometimes be targeted to a wrong category of people. The result agrees with studies that observed that many institutional policies fail because of zero or incorrect needs assessments.

**Table 46: Correlation of influence of transforming structures/ processes and livelihood outcome**

| PPMC test of | r-value | p-value | Decision |
|---|---|---|---|
| Influence of transforming structures/processes and livelihood outcome | -0.058 | 0.267 | Not significant |

Source: Field survey, 2015 Significant at $p < 0.05$

### 5.13.4.1 Correlation of influences of transforming structures / processes and livelihood outcome

The incoherence of the result in Table 46 with the sustainable livelihood theory suggests a further inquiry, which is to test the correlation of each of the transforming structures and processes with livelihood outcome. Correlation between the influence of Federal Government and livelihood outcome on Table 47 comes out with the result that there was a significant negative relationship (r= -0.218, p=0.000) between both, meaning that the higher the influence of Federal Government, the lower the livelihood outcome. The result infers that a unit increase in Federal Government influence will result in 0.218 reductions in livelihood outcome, implying that beneficiaries that record high influence from Federal Government have less positive livelihood outcome and vice versa.

The relationship is not in accord with the assumptions of sustainable livelihood theory and can be because beneficiaries of Federal Government incentives often accept them as bonuses that should keep coming and thus do not put them into judicious use or a function of misplaced or wrong policies and/or recipients as described earlier. Bonus incentives are most times as unproductive as lottery winnings that are squandered and not ploughed into livelihood activities. Consequently, livelihood activities will be reduced and this will eventually decline the livelihood outcomes, especially when the bonus incentives are spent. The case with the influence of Federal Government is same with the influence of nongovernmental organisations, which equally had a significant negative relationship with livelihood outcome (r= -0.129, p=0.013). Another cause for this anomaly may be because many of these influences are input-driven, top-bottom, and maligned with sentiments, favouritism, corruption, tribalism, elite capture, and many forms of sharp practices. Most often than not, governmental and nongovernmental agencies have agenda to promote, and indifferent about peoples' felt needs.

Furthermore, there was no significant relationship between livelihood outcome and the influences of State Government, Local Government, agricultural development projects and Fadama. Despite that, these relationships are not significant and inconsequential, the negativity of the relationship signifies a mismatch between development initiatives and people's livelihood. This corroborates the assertion of Ijaiya, Ijaiya, Bello and Ajayi (2011) that reports that high development indices of Nigeria are in disparity with the livelihood of Nigerians. On the other hand, the negative relationships might be because of conflicts between the many and diverse influences that beneficiaries were not able to efficiently

manage as suggested by Iwachukwu and Igbokwe (2012). It was only the influence of UBAES that had a significant positive relationship (r=0.189, p=0.000) with beneficiaries' livelihood outcome, reflecting that a unit increase in the influence of UBAES give rise to 0.189 increments in livelihood outcome. This is an indication that livelihood approach to development is proficient and should be encouraged. On the downside, the significant positive relationship is inevitable since the respondents of the study are direct beneficiaries of UBAES and not of the other transforming structures and processes.

**Table 47: Correlation of influences of transforming structures / processes and livelihood outcome**

| PPMC test of | r-value | p-value | Decision |
|---|---|---|---|
| Federal Government influence and livelihood outcome | -0.218 | 0.000 | Significant |
| State Government influence and livelihood outcome | -0.016 | 0.758 | Not significant |
| Local Government influence and livelihood outcome | -0.038 | 0.467 | Not significant |
| ADP influence and livelihood outcome | -0.016 | 0.754 | Not significant |
| Fadama influence and livelihood outcome | -0.090 | 0.081 | Not significant |
| UBAES influence and livelihood outcome | 0.189 | 0.000 | Significant |
| NGO influence and livelihood outcome | -0.129 | 0.013 | Significant |

Source: Field survey, 2015 Significant at $p < 0.05$

### 5.13.5. Hypothesis five

$Ho_5$: There is no significant difference in the livelihood outcome of beneficiaries of UBAES across southwestern Nigeria

University-Based Agricultural Extension System (UBAES) is as diverse as the numbers and outreach policies of universities, both conventional and specialised. The common denominator of the UBAESs is livelihood promotion. Accordingly, they adopt measures very similar to the principles of sustainable livelihood, the most important of which is people-centeredness. As long as the tenets of sustainable livelihood are likewise comparable with the underlying principles of agricultural extension, the adoption of sustainable livelihood framework will be enduring in agricultural extension service delivery.

The ANOVA test of difference of livelihood outcome of UBAES in southwestern Nigeria shown in Table 48 reveals that there was a significant difference (F=9.099, p=0.000), corroborating Iwachukwu *et al*. (2014) that opines that development interventions are diverse and either complementing or conflicting. This is an indication that UBAES's strategies and impacts are varied despite the common denominator. Improved food security might be directly sponsored by one UBAES with the hope that it will eventually reduce vulnerability and another UBAES may directly sponsor reduced vulnerability with the hope that it will ultimately improve food security.

**Table 48: ANOVA test of difference of livelihood outcome across the UBAESs**

| | Sum of squares | df | Mean square | F | Sig. | Decision |
|---|---|---|---|---|---|---|
| **Between groups** | 17.441 | 2 | 8.721 | 9.099 | 0.000 | Significant |
| **Within groups** | 356.559 | 372 | 0.958 | | | |
| **Total** | 374.000 | 374 | | | | |

Source: Field survey, 2015 Significant at $p < 0.05$

#### 5.13.5.1 Post Hoc test of difference of livelihood outcome across the UBAESs

The Post Hoc test of difference of livelihood outcome of UBAES in southwestern Nigeria shown in Table 49 reveals that there was a significant difference (p=0.014) between the livelihood outcomes of OAU's and FUNAAB's beneficiaries. The mean difference (4.52857) was positive, meaning that OAU's beneficiaries had higher livelihood outcome than FUNAAB's beneficiaries. Likewise, there was a significant difference (p=0.000) between the livelihood outcomes of UI's and FUNAAB's beneficiaries. The mean difference (6.90423) was positive, meaning that UI's beneficiaries had higher livelihood outcome than FUNAAB's beneficiaries.

The mean difference (6.90423) with which UI's beneficiaries had higher livelihood outcomes than FUNAAB's beneficiaries was higher than the mean difference (4.52857) with which OAU's beneficiaries had higher livelihood outcomes than FUNAAB's beneficiaries. However, there was no significant difference (p=0.348) between the livelihood outcomes of OAU's and UI's beneficiaries, yet the mean difference (-2.37556) reveals that OAU's beneficiaries had less livelihood outcomes than UI's beneficiaries. This report corroborates the result on Table 39 that shows the means of livelihood outcomes in the three UBAES and in line with Zadeh and Ahmad (2010) that observes interventional activities be diverse and resulting into varying levels of impact.

**Table 49: Post Hoc test of difference of livelihood outcome across the UBAESs**

| (I) Category | (J) Category | Mean difference (I - J) | Std error | Sig. | Decision |
|---|---|---|---|---|---|
| OAU | UI | -2.37556 | 1.71141 | 0.348 | Not Significant |
| | FUNAAB | 4.52857 | 1.60263 | 0.014 | Significant |
| UI | OAU | 2.37566 | 1.71141 | 0.348 | Not Significant |
| | FUNAAB | 6.90423 | 1.67145 | 0.000 | Significant |
| FUNAAB | OAU | -4.52857 | 1.60263 | 0.014 | Significant |
| | UI | -6.90423 | 1.67145 | 0.000 | Significant |

Source: Field survey, 2015 Significant at $p < 0.05$

### 5.13.6. Hypothesis six

$Ho_6$: There is no significant relationship between selected personal characteristics of beneficiaries and their livelihood outcome

Livelihood outcome is a configuration of items that determine people's welfare and wellbeing and accordingly varies across gender, generation, caste and class. The resources and aspirations of the male may differ from those of female, and those of the old may differ from those of the young. The same goes for single and married, and the list goes on. The correlation of age and livelihood outcome on Table 50 shows that there was a significant relationship (r=0.178, p=0.001) between the two. The older the beneficiaries, the higher the livelihood outcome since a unit increase in the age of beneficiaries will lead to 0.178 increments in livelihood outcome. This may be because adults have more access to and authority over assets than youths Oyesola and Ademola (2012) reports, and according to system theory and sustainable livelihood theory, the more the access to assets, the more productive the activities and the more positive the outcome.

However, there was no significant relationship between livelihood outcome and household size (r=0.053, p=0.303) and livelihood diversification (r=0.098, p=0.058). This is in accordance with the observations of Ajibefun *et al*. (2000) that large household size is more of high dependency ratio than large household labour, which increases expenses, reduces investments, decreases productions, reduces income, encourages food insecurity, suppresses health, and promotes vulnerability. Likewise, the result corroborates Ite (2005), Chikaire *et al*. (2011) and Amogne (2014) that reports that livelihood diversification sometimes encourages the intense spread of assets over some activities that, after all, render the assets unaccounted for efficiently.

**Table 50: Correlation of selected personal characteristics and livelihood outcome**

| PPMC test of | r-value | p-value | Decision |
|---|---|---|---|
| Age and livelihood outcome | 0.178 | 0.001 | Significant |
| Household size and livelihood outcome | 0.053 | 0.303 | Not significant |
| Livelihood diversification and livelihood outcome | 0.098 | 0.058 | Not significant |

Source: Field survey, 2015 Significant at $p < 0.05$

#### 5.13.6.1 Test of association between selected personal characteristics and livelihood outcome

Relationship of livelihood outcome and other personal characteristics that were measured at the nominal level are presented in Table 51. There was no significant relationship between livelihood outcome and sex ($\chi^2$=0.196, p=0.658) and marital status ($\chi^2$=5.768, p=0.123). The result implies that in spite the differentials between the resources and aspirations of males and females, and the ones between single and married, livelihood outcome does not vary with sex and marital status. It is a departure from the common assertions (Oyesanmi, Eboiyehi and Adereti, 2006; Ayoade, 2010; Ajani and Igbokwe, 2013) that females are marginalised, particularly concerning access to and control over productive resources and other welfare and wellbeing related issues. This is in tandem with Chitongo (2013) that opines that there is a leveller syndrome that ensures that people's prospects neither exceedingly fall short nor exceedingly abundant, despite the inequalities in asset acquisition.

**Table 51: Chi-square test of association between selected personal characteristics and livelihood outcome**

| Chi-square test of | Chi-square value | df | p-value | Decision | Cc |
|---|---|---|---|---|---|
| Sex and livelihood outcome | 0.196 | 1 | 0.658 | Not Significant | 0.023 |
| Marital status and livelihood outcome | 5.768 | 3 | 0.123 | Not significant | 0.123 |

Cc= Contingency coefficient Significant at $p < 0.05$

Source: Field survey, 2015

## 5.14 Contribution of independent variables on the dependent variable

Livelihood approach to development is relatively new and factors to be put at the forefront of the interventions are not yet definite. Livelihood studies seek to analyse all possible factors to highlight them independently in significant order because resources available for development are limited and have to be judiciously managed as stated by Agbamu (2005) and Lankford (2005). Regression analysis was used to ascertain the contribution of the variables of this study on livelihood outcome. Independent variables included here are those that were significant with PPMC test when correlated with livelihood outcome. The R-square (0.203) on Table 52 depicts that 20.3% of livelihood outcome is determined or can be explained by these variables. Age (t=0.020, p=0.710), natural capital (t=1.878, p=0.061), UBAES benefits (t=0.093, p=0.926), and influence of nongovernmental organizations (t=0.474, p=0.636) did not have significant contribution to livelihood outcome.

In other words, livelihood outcome of UBAES beneficiaries cannot be explained by the influence of nongovernmental organisations and their age, natural capital and UBAES benefits. On Table 45, UBAES benefits had a significant relationship with livelihood outcomes, using the PPMC test, this shows that the relationship was not strong enough and when tested along with other independent variables in Table 52, using the linear regression, it was no longer significant. On the other hand, social capital (β=0.185), human capital (β=0.142) and UBAES influence (β=0.154) contributed positively to livelihood outcome, inferring that social capital had 18.5% contribution to livelihood outcome, followed by UBAES influence that contributed 15.4% and human capital that contributed 14.2%. Social capital, human capital and UBAES influence explained 18.5%, 15.4% and 14.2% of livelihood outcome respectively. The significance of social capital agrees with the social capital paradigm and corroborates Ellis and Freeman (2005) and Oyesola and Ademola (2011) that conclude that social capital is the most consequential capital assets within the sustainable livelihood framework.

Conversely, the contributions of physical capital (β= -0.144) and Federal Government influence (β= -0.258) to livelihood outcome were significant but negative, inferring that livelihood outcome is drained by physical capital by 14.4% and Federal Government influence by 25.8%. This negative contribution raises concern on spending on and returns of physical capital. Either spending on physical capital is highly unjustified, or returns on investment in physical capital are remarkably low. Lastly, the negative contribution of Federal Government on livelihood outcome connotes mismatches of policies, services and

people. For instance, policies that would have good impacts were not made, while the made ones had negative impacts or services that were needed by one were provided for another and vice versa. This corroborates the assertions of Eze (2005) and Iwachukwu and Igbokwe (2012) that government administrations in Nigeria are sickened with ineptitude and lack of will power to implement even good policies to fruition, which many times render citizens worse-off.

**Table 52: Contribution of independent variables on the dependent variable**

| | Standardised Coefficients (β) | t-value | p-value | Decision | F | Sig. | Decision |
|---|---|---|---|---|---|---|---|
| (Constant) | | -0.097 | 0.923 | | 10.229 | 0.000 | Significant |
| Age | 0.020 | 0.372 | 0.710 | Not significant | | | |
| Social capital | 0.185 | 3.316 | 0.001 | Significant | | | |
| Human capital | 0.142 | 2.786 | 0.006 | Significant | | | |
| Physical capital | -0.144 | -3.024 | 0.003 | Significant | | | |
| Natural capital | 0.092 | 1.878 | 0.061 | Not significant | | | |
| UBAES benefit | 0.005 | 0.093 | 0.926 | Not significant | | | |
| Federal Government influence | -0.258 | -4.594 | 0.000 | Significant | | | |
| UBAES influence | 0.154 | 3.032 | 0.003 | Significant | | | |
| NGO influence | 0.027 | 0.474 | 0.636 | Not significant | | | |

R=0.450 R Square=0.203 Adjusted R Square=0.183;

Std. Error of the Estimate=0.90628961 Significant at $p < 0.05$

Source: Field survey, 2015

# CHAPTER SIX

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter reports the abridged description of the research problem, objectives of the study, methodology and significant findings of the study. In addition to these are conclusions of the study, recommendations based on the findings, and suggested areas for further research.

## 6.1. Summary

In Nigeria, same as in the world, agricultural extension originated within an educational-research institution. By the year of independence, Extension Departments were created in each of the regional ministries of agriculture. Most agricultural extension programmes, projects and policies under the supervision of the ministries were not efficient and utterly failed. However, educational and research institutes did not completely neglect extension work. There have been University-Based Agricultural Extension Service Delivery Systems (UBAES) across the country. The system adapts community adoption to create an outlet for the university. The concerns of the UBAES are in agreement with the sustainable livelihood framework. However, only few studies have been conducted to reveal the outcome of this extension approach - findings of various surveys in communities adopted by UBAES show a low level of livelihood. This reveals that the benefits of the system may not have diffused across the communities or that there are inadequacies within the system. Livelihood outcome is the sum of more income, reduced vulnerability, food security, better health, mental wellbeing and sustainable land management practices. Many programmes address one or few of these outputs, which is inadequate as far as livelihood promotion is concerned. This study thus intends to provide information on the outcome of UBAES on its specific beneficiaries, not communities, with reference to the sustainable livelihood framework.

The general objective of this study is to determine the livelihood outcome of University-Based Agricultural Extension System (UBAES) in southwestern Nigeria. The specific objectives are to identify the personal characteristics of the beneficiaries of UBAES, describe the livelihood of the beneficiaries of UBAES, and determine how much beneficiaries participate in UBAES activities. Others are to ascertain the benefits of UBAES to beneficiaries, determine the influence of transforming structures on the beneficiaries, examine the food security of the beneficiaries, ascertain the beneficiaries' vulnerability to poverty, and assess the perceived health status of the beneficiaries.

The study was conducted in southwestern Nigeria. The population of this study consisted of all beneficiaries of University-Based Agricultural Extension System (UBAES) in the University of Ibadan, Obafemi Awolowo University and Federal University of Agriculture Abeokuta. A beneficiary is an individual that has benefitted from training, input supplies, subsidies, loans among many other benefits from UBAES. Multistage sampling technique was used to draw 108, 126, and 140 UBAES beneficiaries for University of Ibadan, Obafemi Awolowo University, and Federal University of Agriculture Abeokuta respectively. Data was collected from the use of pre-tested interview schedule.

Majority were married (73.0%) and males (59.4%). The mean age was 43 years; mean household size was six persons, and mean number of occupation was three. In addition, the mean years of experience in primary occupation was nineteen years, and mean years of input and output record keeping was nine years. Many had secondary (31.8%) and tertiary (28.3%) education, with average (50.8% low and 49.2% high) level of membership of occupational groups. Likewise, the level of livelihood ability was average with 56.1% low and 43.9% high.

The social capital level of UBAES beneficiaries was slightly high with 57.0%. There was average (53.7% low and 46.3% high) level of household human capital. Likewise with a low level of financial capital with 56.1%. There was average (48.9% low and 51.1% high) level of physical capital and a low level of natural capital with 69.8%. There was a low level of livelihood assets with 59.4%; along with a slightly low level of livelihood activities with 56.7%. In aggregate, there was a slightly low level of livelihood with 56.1% despite that there was a slightly high level of UBAES benefits with 57.0%. There was a high level of perceived health status with 60.4%, a high level of food security with 65.2%, and a low level of vulnerability to poverty with 61.0%. Eventually, there was average (46.0% low and 54.0% high) level of livelihood outcome. Capacity building was the highest input acquired by the beneficiaries and it was the highest from UBAES (72.7%). Followed by Fadama (21.1%), ADP (12.8%), Local Government (8.8%), State Government (8.3%), Federal Government (7.2%) and lastly NGOs (6.4%). The mean distribution of the influence of the institutions disclosed that influence of UBAES was highest (16.9), followed by Fadama (13.5), Local Government (12.3), ADP (12.2), Federal Government (12.0), State Government (12.0) and lastly NGOs (11.7). There was a low level of influence of transforming structures and processes with 64.7%.

There was a significant relationship (r=0.241, p=0.000) between the livelihood of beneficiaries and their livelihood outcome. Correlation between UBAES benefits and livelihood outcome came out with the result that there was a significant relationship (r=0.127, p=0.014) between both. Likewise, the correlation between the influence of transforming structures/processes and livelihood outcome came out with the result that there was no significant relationship (r= -0.058, p=0.267) between the two variables. The ANOVA test of difference of livelihood outcome of UBAES in southwestern Nigeria disclosed that there was a significant difference (F=9.099, p=0.000). There was a significant relationship (r=0.178, p=0.001) between age and livelihood outcome. However, there was no significant relationship between livelihood outcome and household size (r=0.053, p=0.303), livelihood diversification (r=0.098, p=0.058), sex ($\chi^2$ =0.196, p=0.658) and marital status ($\chi^2$ =5.768, p=0.123). Social capital had 18.5% contribution to livelihood outcome, followed by UBAES influence that contributed 15.4% and human capital that contributed 14.2%. Age (t=0.020, p=0.710), natural capital (t=1.878, p=0.061), UBAES benefits (t=0.093, p=0.926), and influence of nongovernmental organizations (t=0.474, p=0.636) did not have significant contribution to livelihood outcome. Contributions of physical capital (β= -0.144) and Federal Government influence (β= -0.258) to livelihood outcome were significant but negative. Age, social capital, human capital, physical capital, natural capital, UBAES benefit, Federal Government influence and UBAES influence explained 20.3% (R Square=0.203) of livelihood outcome.

## 6.2. Conclusions

Based on the findings of this study, the following conclusions are made:

1. This study deduces that beneficiaries of UBAES had low livelihood ability, which has a negative consequence on their livelihood outcome.
2. Livelihood outcome was also limited because there was low access to human, financial and natural assets.
3. Livelihood activity was low and therefore reduced livelihood outcome.
4. Many of the beneficiaries enjoyed the activities (training and input supply) of UBAES despite their average level of participation in UBAES activities.
5. The intangible contributions (influence) of UBAES outweigh the tangible ones (benefits) as far as livelihood outcome is concerned.

6. Beneficiaries were, however, food secure, had high perceived health status, and less vulnerable to poverty.
7. The factors that explained livelihood outcome were education, social capital, human capital and the intangible contributions (influence) of UBAES.
8. UBAES with many adopted communities recorded low livelihood outcomes because their limited resources were too dispersed, unlike UBAES with few adopted communities that had concentrated efforts on their outreaches.

### 6.3. Recommendations

Based on the findings of this study, the following suggestions are made:

1. Analysis of the activities of other transforming structures and processes are necessary to ensure that activities do not conflict, but complement each other.
2. Livelihood approach to development should be maintained because it does have positive tangible and intangible influences on the people. UBAES should further advocate for its use by other transforming structures and processes.
3. Training on financial management should be intensified to facilitate positive output of people's physical capital because acquiring and maintaining physical capital can be expensive and draining for savings, investments and reinvestments.
4. Group dynamics should be improved to strengthen the groups to influence transforming structures and processes in their favour. This will increase livelihood choices and control over livelihood assets.
5. Adoption of Public Private Partnership is necessary by encouraging corporate companies to invest in adopted communities as part of their Corporate Social Responsibilities. These companies can be encouraged to organise specialised training to increase artisanship and handiwork among beneficiaries to boost their human capital and livelihood abilities.
6. A working relationship should be established with other Integrated Rural Development Projects of other departments and faculties in the university communities to extend the scope of activities. This will encourage the transfer of relevant technology to increase the output of physical capital towards productivity, diagnosis and treatments towards better health, extramural classes to improve the knowledge base.

7. The establishment of savings and credit cooperative within each professional group should be facilitated to increase access to financial capital. The system can also assist beneficiaries in accessing bank loans and purchasing insurance policies to the same effect. This equally increases social capital strength.
8. Efforts must be made not to lose the interests of the beneficiaries to encourage their active participation and continued trust in the system.
9. Attempts should be made to identify and target the core poor rather than members of already established groups and people that simply want to acquire more.
10. Policy advocacy should be strengthened by providing research information and facilitating contacts between the poor and policy makers to expedite more pro-poor policy making process.
11. There should be endeavours to correct the get-rich-quick syndrome that is negatively influencing the youths. Workshop sessions can be arranged to explain to them that livelihood promotion takes years to build.
12. The resource base of UBAES should determine the number of outreach communities.
13. Base line study of the livelihood of adopted communities should be done before intervention begins.
14. UBAES should actively seek for grants from grants giving organisations to increase their resource base.
15. The earmarking and allocation of national agricultural funds should include UBAES.

### 6.4. Contributions to knowledge

1. Education is the most significant determinant of livelihood ability.
2. Social capital contributes more to livelihood outcomes than all other capital assets.
3. The cost of maintaining physical capital erodes its significance to livelihood outcomes.
4. Capacity building is as significant to livelihood outcomes as input supply
5. Interventions can sometimes make beneficiaries worse-off.
6. Inhabitants of agrarian communities always have food to eat, making them assessed to be food secure.
7. Indebtedness is a major factor associated with vulnerability to poverty.
8. Drudgery related symptoms contribute significantly to perceived health status.
9. Livelihood value increases with age.

10. Livelihood study is better done on people of same livelihood activity for the sake of analysis and generalisations.
11. Record keeping practice is low in rural areas, not necessarily because of little know-how, but intentionally to avoid discouragement and loss of drive to continue production.
12. Development interventions that actively include local administration are likely to be effective.
13. UBAES is a significant agricultural extension service delivery system.

### 6.5. Areas for further research

1. Sequencing and substitution of livelihood assets towards improving livelihood activities of UBAES beneficiaries in southwestern Nigeria.
2. The impact of transforming structures and processes on the livelihood of UBAES beneficiaries in southwestern Nigeria.
3. Effect of integrated rural development projects of specialised universities in Nigeria on poverty reduction.
4. Influence of sequencing and substitution of livelihood activities on livelihood of rural dwellers in southwestern Nigeria.
5. Determinants of livelihood choices in rural Nigeria.
6. Analysis of trade-offs between livelihood outcomes towards poverty reduction among UBAES beneficiaries in southwestern Nigeria.
7. Gendered livelihood processes in southwestern Nigeria.



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**Appendix I**

**QUESTIONNAIRE**

**Section A: Personal characteristics**

1. Age:.....years
2. Sex: Male ( ); Female ( )
3. Marital status: Single ( ); Married ( ); Divorced/Separated ( ); Widowed ( )
4. Number of males in household:.....males
5. Number of females in household:.....females
6. Occupations: Tick all occupations you are involved in:
   Food crop farming ( ); Cash/Tree crop farming ( ); Fruit farming ( ); Fruit vegetable farming ( ); Leafy vegetable farming ( ); Livestock rearing ( ); Trading/Business ( ); Agricultural processing ( );
   Unskilled daily-waged labour ( ); Artisan/Handicraft ( ); Salary job ( )

**Section B: Livelihood**

***Livelihood ability***

1. Highest educational attainment: Non formal ( ); Religious education ( ); Adult education ( ); Vocational education ( ); Completed primary education ( ); Completed secondary education ( ); Completed tertiary education ( )
2. Years of experience in primary occupation:.....years
3. Years of written recording of 'inputs and outputs' in primary occupation:.....years

4. Membership of occupational groups:

*'Respondents without positions are ordinary members, respondents that are chairpersons or vice are executive members, while respondents that are secretaries, treasurers and others are committee members'*

| S/No | Are you a member of the professional groups of the following occupations? | No | Yes | If 'Yes', what is the hierarchy of your membership? | | |
|---|---|---|---|---|---|---|
| | | | | Ordinary member | Committee member | Executive member |
| 1 | Food crop farming | | | | | |
| 2 | Cash/Tree crop farming | | | | | |
| 3 | Fruit farming | | | | | |
| 4 | Fruit vegetable farming | | | | | |
| 5 | Leafy vegetable farming | | | | | |
| 6 | Livestock rearing | | | | | |
| 7 | Trading/Business | | | | | |
| 8 | Agricultural processing | | | | | |
| 9 | Unskilled daily-waged labour | | | | | |
| 10 | Artisan/Handicraft | | | | | |
| 11 | Salary job | | | | | |

***Livelihood assets***

**Social capital – Social groups**

| S/No | Are you a member of these social groups? | No | Yes | If 'Yes', what is the hierarchy of your membership? | | |
|---|---|---|---|---|---|---|
| | | | | Ordinary member | Committee member | Executive member |
| 1 | Religious organization | | | | | |
| 2 | Social club/cult | | | | | |
| 3 | Cooperative society | | | | | |
| 4 | Town development union | | | | | |
| 5 | Age grade/Alumni association | | | | | |

**Social capital – Social items/benefits**

| S/No | How would you rate the level of | Low | Average | High |
|---|---|---|---|---|
| 1 | Patronage you enjoy? | | | |
| 2 | Mutual relationship you enjoy from your nuclear family? | | | |
| 3 | Interaction you have in your neighbourhood? | | | |
| 4 | Trust that exist among your business partners? | | | |
| 5 | Working relationship you enjoy in your occupational groups? | | | |
| 6 | Unity that exists within your social groups? | | | |
| 7 | Mutual relationship you enjoy from your friends? | | | |
| 8 | Mutual relationship you enjoy from your extended family? | | | |

**Human capital within the household**

1. How many members of your household work with you on your income generating activities: .....
2. How many of them have completed secondary school: .....
3. How many of them can work for more than 5 hours per day: .....
4. How many of them have all the necessary skills: .....
5. How many of them have up to 5 years experience: .....
6. How many of them are always available to you: .....
7. How many of them can you entrust your business to: .....

**Human capital outside the household (or staff)**

1. How many people outside your household work with you on your income generating activities: .....
2. How many of them have completed secondary school: .....
3. How many of them can work for more than 5 hours per day: .....
4. How many of them have all the necessary skills: .....
5. How many of them have up to 5 years experience: .....
6. How many of them are always available to you: .....
7. How many of them can you entrust your business to: .....

**Financial capital**

| S/No | In the next 30 days, how much can you access from your | Nothing | < ₦10,000 | ₦10,001-₦25,000 | ₦25,001-₦50,000 | >₦50,000 |
|---|---|---|---|---|---|---|
| 1 | Savings account in bank(s) | | | | | |
| 2 | Current account in bank(s) | | | | | |
| 3 | Investments | | | | | |
| 4 | Informal savings and credit account(s) | | | | | |
| 5 | Bank(s) as loan | | | | | |
| 6 | Cooperative(s) as loan | | | | | |
| 7 | Friends as goodwill gift | | | | | |
| 8 | Friends as loan | | | | | |
| 9 | Family members as goodwill gift | | | | | |
| 10 | Family members as loan | | | | | |
| 11 | Employer in cash | | | | | |
| 12 | Customer in cash | | | | | |

**Physical capital**

1. How many motor-able roads connects your community to other communities: Zero ( ); One ( ); Two ( ); Three ( )
2. How many effective GSM service providers is accessible in your community: Zero ( ); One ( ); Two ( ); Three ( )
3. How many working machines (fuel using equipments) do you have access to in your livelihood activities: Zero ( ); One ( ); Two ( ); Three ( )
4. How adequate are the tools (non-fuel using equipments) you use in your livelihood activities: Inadequate ( ); Fairly adequate ( ); Adequate ( ); Very adequate ( )
5. How sufficient are the inputs you use in your livelihood activities: Insufficient ( ); Fairly sufficient ( ); Sufficient ( ); Very sufficient ( )
6. How many un-plastered mud house with thatched roof do you have: Zero ( ); One ( ); Two ( ); Three ( )
7. How many plastered mud house with thatched roof do you have: Zero ( ); One ( ); Two ( ); Three ( )
8. How many plastered mud house with iron roof do you have: Zero ( ); One ( ); Two ( ); Three ( )
9. How many concrete block house with iron roof do you have: Zero ( ); One ( ); Two ( ); Three ( )

**Natural capital**

1. How many acres of farmland do you cultivate in all: .....
2. How many acres of farmland do you possess but do not cultivate: .....
3. How many plots of land do you have in the suburban/town/village: .....
4. How many plots of land do you have in the urban/city: .....
5. Tick all the water sources that you make use of: Borehole/Pipe Borne ( ); Well ( ); Stream/other natural sources ( ); Rainwater ( ); .....,.....
6. Tick all the natural resources you pick from the river/other natural water bodies: Nothing ( ); Fish ( ); Crabs ( ).....
7. Tick all the natural resources you pick from the forest: Nothing ( ); Timber ( ); Snail ( ); Bush meat ( ); Spices ( ); Medicinal plants ( ).....
8. The air you breathe in your community, is it: Clean ( ); Fairly clean ( ); Dusty ( ); or Foul ( )?

***Livelihood activities***

| S/No | Are you involved in the following occupations? | No | Yes | If 'Yes', what is the change in income? | | |
|---|---|---|---|---|---|---|
| | | | | Decreasing | Unchanged | Increasing |
| 1 | Food crop farming | | | | | |
| 2 | Cash/Tree crop farming | | | | | |
| 3 | Fruit farming | | | | | |
| 4 | Fruit vegetable farming | | | | | |
| 5 | Leafy vegetable farming | | | | | |
| 6 | Livestock rearing | | | | | |
| 7 | Trading/Business | | | | | |
| 8 | Agricultural processing | | | | | |
| 9 | Unskilled daily-waged labour | | | | | |
| 10 | Artisan/Handicraft | | | | | |
| 11 | Salary job | | | | | |

**Section C: Participation in UBAES activities**

| S/No | **How often do you participate in the following UBAES activities?** | **Never** | **Rarely** | **Sometimes** | **Often** |
|---|---|---|---|---|---|
| 1 | Group formations | | | | |
| 2 | Group meetings | | | | |
| 3 | Field/practical sessions | | | | |
| 4 | Group excursions | | | | |
| 5 | Group incentives | | | | |
| 6 | Group donations/cooperatives | | | | |
| 7 | Group loan | | | | |

**Section D: Benefits of UBAES activities**

| S/No | **What is the degree of the listed benefits that you enjoy from UBAES?** | **To a low extent** | **To an average extent** | **To a large extent** |
|---|---|---|---|---|
| 1 | Higher patronage | | | |
| 2 | Higher technical skill | | | |
| 3 | More inputs | | | |
| 4 | Mechanization | | | |
| 5 | Value added products | | | |
| 6 | Lower production cost | | | |
| 7 | Higher managerial skill | | | |



**Section E: Perceived health status**

| S/No | How often do you feel these body symptoms? | Never | Rarely | Sometimes | Often | Always |
|---|---|---|---|---|---|---|
| 1 | Joint pain | | | | | |
| 2 | Stomach upset | | | | | |
| 3 | Head ache | | | | | |
| 4 | Internal body heat | | | | | |
| 5 | Profuse sweating | | | | | |
| 6 | Weakness | | | | | |
| 7 | Loss of weight | | | | | |
| 8 | Loss of appetite | | | | | |
| 9 | Dizziness | | | | | |
| 10 | Breathing difficulty | | | | | |
| 11 | Sleepless night | | | | | |
| 12 | Diarrhoea | | | | | |
| 13 | Eye itching | | | | | |
| 14 | Nasal discharge | | | | | |
| 15 | Body itching | | | | | |



**Section F: Food security**

| S/No | How often do you find yourself in these food insecurity situations? | Never | Rarely | Sometimes | Often |
|---|---|---|---|---|---|
| 1 | Food just does not last | | | | |
| 2 | I cannot afford to eat balanced meals | | | | |
| 3 | There would be no food of any kind to eat | | | | |
| 4 | I skip meals because we do not have enough food | | | | |
| 5 | I lose weight because we do not have enough to eat | | | | |
| 6 | I cannot afford to feed the children with balanced meal | | | | |
| 7 | The children skip meals because we do not have enough food | | | | |
| 8 | I rely on only few kinds of low-cost food to feed the children | | | | |
| 9 | I cut the size of our meals because we do not have enough food | | | | |
| 10 | I worry whether food would run out before it could be replaced | | | | |
| 11 | I may not eat for a whole day because we do not have enough food | | | | |
| 12 | I get very hungry but would not eat because we do not have enough food | | | | |
| 13 | I cut the size of the children's meals because we do not have enough food | | | | |
| 14 | Children would not eat in a whole day because we do not have food | | | | |

**Section G: Vulnerability to poverty**

| S/No | Have you experience changes in the listed items? | No | Yes | If 'Yes', what is the effect of the change? | | |
|---|---|---|---|---|---|---|
| | | | | Negative effect | Unchanged | Positive effect |
| 1 | Labour affordability | | | | | |
| 2 | Commodity prices | | | | | |
| 3 | Patronage | | | | | |
| 4 | Crop health | | | | | |
| 5 | Livestock health | | | | | |
| 6 | Household health | | | | | |
| 7 | Communal clashes | | | | | |
| 8 | Mechanization | | | | | |
| 9 | Farm harvest | | | | | |
| 10 | Soil fertility | | | | | |
| 13 | Household unity | | | | | |
| 14 | Indebtedness | | | | | |
| 15 | Labour availability | | | | | |

**Section H: Influence of transforming structures**

*'Respondents are to write 'YES' or 'NO' in the respective cell if these institutions -* ***Federal Govt, State Govt, Local Govt, ADP, Fadama, UBAES, NGOs****) have ever provided them with any of the listed items*

| S/No | Have these institutions ever provided you with these items? | Institutions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | FG | SG | LG | ADP | Fadama | UBAES | NGOs |
| 1 | Seeds | | | | | | | |
| 2 | Tools | | | | | | | |
| 3 | Machines | | | | | | | |
| 4 | Introduction of new enterprise | | | | | | | |
| 5 | Capacity building training | | | | | | | |
| 6 | Nutrition training | | | | | | | |
| 7 | Health management training | | | | | | | |
| 8 | Market affiliation | | | | | | | |
| 9 | Credit/Loan | | | | | | | |
| 10 | Subsidized input | | | | | | | |
| 11 | Farm/business structure or building | | | | | | | |

**Appendix II**

## Qualitative report

### FUNAAB's UBAES

The In-Depth Interview (IDI) shown in Plate 9 was conducted to elicit information for the University-Based Agricultural Extension System (UBAES) of Federal University of Agriculture Abeokuta (FUNAAB). The interview was with Mr Dayo Jagun, the Farm Overseer of one of the four Centres for Community Based Farming Schemes (COBFAS) where students of FUNAAB go for their Farm Practical Year Programme (FPYP). The signpost of this scheme is shown in Plate 3. This particular COBFAS is in Iwoye-Ketu, a community of Imeko-Afon Local Government Area of Ogun State. The community is a neighbouring community of Derin Community (popularly known as the French Community) of the Republic of Benin. The other COBFAS are in Odogbolu, Odelemo and Ishaga Communities in Ogun State. Mr D.P. Jagun is a twenty-eight years old Egba born with a National Diploma in Agricultural Technology, and five years' experience as Farm Overseer with FUNAAB.

About 50 farmers benefit directly from the COBFAS in the community, mostly maize and cassava farmers. Cultivation of cotton is recently introduced to some of the farmers. There are about 15 communities directly benefitting from FUNAAB's UBAES. This gives about 750 (50 x 15) beneficiaries of the system. The farmers benefit from farming inputs and training, and the community benefits from infrastructure such as borehole water as shown in Plate 10. The borehole water is powered by COBFAS officials in the community for irrigation and communal/domestic use. Seventy-five percent of the beneficiary farmers were adult men, and the remaining 25.0% were adult women. Male youths were more interested in male-oriented artisanal activities and transportation business, basically motorcycling, and female youths were more interested in female-oriented artisanal activities, food processing (*Samosa* – Rice delicacy) and trading.

The population were 60.0% Christians, 35.0% Muslims and 5.0% Traditionalists. The Traditionalists were basically the settled Fulanis from the Republic of Benin. Poverty is endemic in the community, with 80.0% being poorer than average, 15.0% average, and 5% better than average. This distribution could be highly influenced by relative comparison with the population in Abeokuta Community, the capital city of the State, because of high cosmopoliteness.

COBFAS was formed by FUNAAB to obtain hectares of land for FPYP to teach students the art and science of farming, and to learn about rural lives and livelihood directly. Fifty hectares of land was obtained from Iwoye-Ketu for this purpose in return for community services. The University has been able to work with existing farmers' group, establish new farmers' groups, collaborate with Federal Government Programme such as the National Fadama Development Programmes (NFDPs) and State Government Programme like the Agricultural Development Projects (ADPs), with the facilitation of Local Government Administration (LGA), to provide agricultural trainings, introduce agricultural innovations, capacity building on best management practices for cultivated crops, new crops, and livestock. Other community service activities were provision of cultivars and Small Plot Adoption Techniques (SPAT) on the University's farm.

The King of the community, the Ooye of Iwoye, His Royal Highness, Oba Joel Ademola Aremu Alaye and the Traditional Council were supportive of the initiative. They encouraged all Farmers' Groups to attend and participate in every meetings organised by COBFAS. The meetings held at the Palace and the King with his Council attends sometimes. The Community Development Associations (CDAs) were the only type of Community Based Organisations (CBOs) in the community, and they encouraged potential beneficiaries to participate in COBFAS activities. Representatives of the CDAs also attended COBFAS meetings. There was no known presence of the activities of any Non-Governmental Organizations (NGOs) in the community.

Concerning socioeconomic characteristics, civil servants and politicians were the ones that seemed to be living above average, while the migrant farmers live below average, not because they had so little, but because they save their prospects for their homeland. This is believed because the migrant farmers farm extensively and had bumper produce. Their children did not go to school because they had to join the household farming activities. They had more children, wives and consequently unpaid household labour than any other did. The migrant farmers are more of Fulanis, Bororos and Ohoris. The cattle keepers among the migrant farmers engage in bush burning for pathways along the forest and level the forestland enough for cattle to graze on grasses and shrubs, and sometimes allow cattle to graze on cultivated land. This is a big challenge to farmers and their activities; however, they feel powerless because the Fulani Pastoralist could be ruthless, as their violent news precedes

them. The King and the Nigerian Police have at one time or the other intervened to avert such violence.

Indigenes of Iwoye-Ketu farm on family/inherited land, while the migrant farmers farm on rented land that is mostly free of any charge because of the hospitality of the people and surplus land. The borehole in the community was only one, therefore some inhabitants still depend on wells and streams for drinking and domestic uses. Farming activities in the community was arable, because the loose sandy soil would not support tree/cash crop farming. This is also responsible for the low farm income of the people. The livestock kept by were sheep, goats, rams and dogs. Dogs were kept as livestock because some consider dog-meat a delicacy. The presence of students of FUNAAB has helped the community economically. Students rent houses and patronise farm produce like yam, processed food like *samosa*, and artisans like carpenters, tailors and cobblers. There were also socially tangible benefits resulting from the interactions of the student with the local community. Students play soccer with the youths, they watch English Premiership Football Clubs' matches together, and likely to encourage the local youths to further their education beyond secondary school. The social and intellectual elegance of the female students likewise has the potential to motivate local female children/teenagers/youths towards education.

Coupled with the challenge emanating from the Fulani Pastoralists, some migrant farmers, especially the Fulanis that were arable farmers, claim ownership of land both in Derin Community of Republic of Benin and Iwoye-Ketu Community. This led to a major crisis in 2002, involving combats, abductions, killings and destruction of properties. Consequently, both governments and stakeholders legally established land boundaries. However, the strife between these people and communities was perceived to be enduring. This indicates vulnerability and a minus for livelihood promotion. Other minuses for livelihood promotion were insufficient financial capital that limits livelihood choices, and poor health (measles in children because of inadequate portable water, fever in youths and adults because of proximity of bushes, and blindness in aged because of dust from the sandy soil) with little modern medical service. The community had one ill-equipped health centre with old women with little medical training as medical personnel. Inhabitants had to complement the modern services with indigenous health products and services.

The Focus Group Discussion (FGD) shown in Plate 4 was conducted to elicit information on Iwoye-Ketu. It was a community assessment to understand factors associated

with the communities' livelihood. The discussion was with old and young males and females of the community. The communal characteristics goes thus: 55.0% females and 45.0% males; 35.0% children, 20.0% youths, 20.0% young adults, 20.0% adults and 5.0% aged; 60.0% Christians, 35.0% Muslims and 5.0% Traditionalists; and lastly 40.0% single, 40.0% married, 5.0% separated or divorced and 15.0% widowed. Moreover, 35.0% had no formal education, 35.0% had primary education, 20.0% had secondary education and 10.0% had tertiary education. Male-headed households were 85.0% and female-headed households were 15.0%. Monogamous families were 95.0% and polygamous families were 5.0%. Household size of less than six people were 25.0%, household size of between six and ten were 65.0%, %, household size of between eleven and fifteen were 5.0% and household size of more than 15 was 5.0%. Indigenes were 85.0% and non-indigenes were 15.0%. Economically, poorer than average were 50.0%, 40.0% were on the average and 10.0% were better off.

Cultural/Traditional practices are important to the community. *Oro* is done to appease the gods for rainfall. This is done more often these days because of unpredictability, low frequency and intensity of rainfall, which is grossly affecting farming activities negatively. It is a taboo for females to witness the practice. Females who either intentionally or unintentionally witness it are doomed to be captured and killed for ritual. It was also learnt that indigenes and non-indigenes alike are implored not to use umbrella, either under rainfall or sunshine. There is no stringent measure against this, other than offenders will not be in good fate with the gods of the land. Cultural sites/shrines and gods are Osa Oluwa within the community, Saperi and Ogun Agbaje in the forest, and Yewa in the river. Each of these shrines was overseen by ascribed Priest that are responsible for keeping the people in good fate with the gods, and vice versa.

In addition to the farming challenges mentioned in the IDI report, it was learnt that the soil was not only sandy but also infertile and only do well with the use of both organic and inorganic fertilizers. This FGD report corroborates the IDI report on the financial challenges that reduces livelihood choices, the conflict of Iwoye-Ketu farmers with Fulani pastoralists, the land dispute, the health status and the medical service. Nonetheless, it was reported that the community is food secure in availability and accessibility, mostly because they were arable farmers. On the negative side, it was reported that English Premiership Football Clubs matches watched together by male students and male youths of the community was a potential reason for conflict. Especially because there had been at least one occurrence of

serious magnitude – where an aggrieved male youths of the community hit a male student on the head with a glass bottle that led to the students collapse. The need assessment of the community is presented in a pair needs' ranking on Figure 3.

| | Boreholes | A. Roads | Soft loans | F. Inputs | Hospitals | Farm M. | Jobs | Teachers | Score | Rank |
|---|---|---|---|---|---|---|---|---|---|---|
| Boreholes | | Boreholes | Boreholes | Boreholes | Boreholes | Boreholes | Boreholes | Boreholes | 7 | 1st |
| A. Roads | | | A. Roads | A. Roads | A. Roads | A. Roads | A. Roads | A. Roads | 6 | 2nd |
| Soft loans | | | | Soft loan | Soft loan | Soft loan | Soft loan | Soft loan | 5 | 3rd |
| F. Inputs | | | | | F. Inputs | F. Inputs | F. Inputs | F. Inputs | 4 | 4th |
| Hospitals | | | | | | Hospitals | Hospitals | Hospitals | 3 | 5th |
| Farm M. | | | | | | | Farm M. | Farm M. | 2 | 6th |
| Jobs | | | | | | | | Jobs | 1 | 7th |
| Teachers | | | | | | | | | 0 | 8th |

Figure 3: Pair needs' ranking of Iwoye-Ketu Community

Note: A. Road stands for access road that connects the community to many other communities in the environs. F. Input stands for farm inputs such as cultivars, agrochemicals and tools. Farm M. stands for farm machines such as tractors and its implements

**OAU's UBAES**

The In-Depth Interview (IDI) shown in Plate 8 was conducted to elicit information for the University-Based Agricultural Extension System (UBAES) of Obafemi Awolowo University (OAU) termed Isoya Integrated Rural Development Project (Isoya IRDP). The interview was with Mr E.O. Bamgboye, the Extension Officer of the Isoya IRDP. The signpost of this scheme is shown in Plate 2. Dr. E.O. Bamgboye is a forty-nine years old Yoruba man with a Master of Technology in Agricultural Extension and Rural Development, and nine years experience as Extension Officer with Isoya IRDP. About 420 farmers benefit directly from the Isoya IRDP. Men in the Savannah area were mostly arable farmers and men in the forest area were mostly tree/cash crop farmers. About half of the women were arable farmers, with the other half engaging in either petty trading or agricultural/food processing. Beneficiaries benefit from up-to-date innovations, capacity building, occupational empowerment, advisory services and revolving soft loans.

The Teaching and Research Farm of the University was also used to organize Small Plot Adoption Techniques (SPAT), Demonstration Plots, and On-Farm Adaptive Research (OFAR) to disseminate recommended farming practices to beneficiary farmers. More importantly, the IRDP facilitates the process of enlisting their beneficiaries into every

developmental project available in the axis. Plate 2 shows the partnership of the IRDP with DelPHE Project 643 and Plate 16 shows the National Fadama Development Programme III inputs to one of Isoya communities (Iyanfoworogi), which was facilitated by Isoya Extension Officers to reach the community and more particularly, the beneficiaries of the IRDP.

About twenty percent of the beneficiary farmers were adult men, 75.0% were adult women, and 5.0% were youths. The population were 55.0% Christians, 43.0% Muslims and 2.0% Traditionalists. Socioeconomically, 50.0% were poorer than average, 35.0% were average, and only 15.0% were better-off than average. Civil servants, traditional rulers and politicians were the ones that seemed to be living above average, while the migrant farmers live below average, not because they had so little, but because they save their prospects for their homeland. The situation was similar to that of FUNAAB's Iwoye-Ketu. This is believed because the migrant farmers farm extensively and had bumper produce. Their children did not go to school because they had to join the household farming activities. They had more children, wives, and consequently free household labour than any other. The migrant farmers are more Northern Nigeria. The cattle keepers among the migrant farmers engage in bush burning for pathways along the forest and level the forestland enough for cattle to graze on grasses and shrubs, and sometimes allow cattle to graze on cultivated land. This is a big challenge to farmers and their activities; however, they feel powerless because the Fulani Pastoralist could be ruthless, as their violent news precedes them. It is worthy of note that there had been no known crisis between the two factions.


Plate 18: Signpost of Isoya IRDP in Obafemi Awolowo University

The Isoya Project had been able to work with existing farmers' group, form new farmers' groups, collaborate with Federal Government Programme like the National Fadama Development Programmes (NFDPs). Including State Government Programme like the Agricultural Development Projects (ADPs), with the facilitation of Local Government Administration (LGA), to provide agricultural trainings, introduce agricultural innovations, capacity building on best management practices for cultivated crops, new crops and livestock. Other community service activities were provision of cultivars in partnership with research institutions like International Institute of Tropical Agriculture (IITA) and Cocoa Research Institute of Nigeria (CRIN). Isoya IRDP is very responsive to the felt needs of the beneficiaries, given that recent surveillance study done revealed lower yield of cassava, nematode infestation of banana and abortion in goats. These challenges had been taken to the concerned scientists and the solutions, most of which were indigenous, were on the way.

The King of the community, the Adagba of Iyanfoworogi, His Royal Majesty, Oba Adebolu Fatunmise Adegoke I and the Traditional Council had been supportive of the initiative. They encouraged all Farmers' Groups to attend and participate in every meetings organised. The meetings held at the Palace and the King with his Council attends sometimes. In return of the honour, they were always invited to every social gatherings of the University, especially the Faculty of Agriculture. The only known Non-Governmental Organization

presence in the Isoya Axis is that of the Justice Development and Peace Commission (JDPC). They work with their own farmers along Egbedore Area. There was no known presence of the activities of Community Based Organisations (CBOs) in the community.

Inhabitants of Iyanfoworogi depend on wells and streams for drinking, domestic and agricultural uses. There is no record of conflict in any Isoya Community, indicating low vulnerability and a plus for livelihood promotion. Environmental challenges include higher temperature, lower rainfall and stronger wind. Another minus for livelihood promotion was insufficient financial capital that limits livelihood choices. Many beneficiaries had complained that they had no capital to embark on income generating activities, for which they been trained. There had been no observation of unusual health issue or medical condition among the people. However, little modern medical services in the area necessitated the complement of indigenous health products and services.

The Focus Group Discussion (FGD) shown in Plate 5 was conducted to elicit information on Iyanfoworogi. It was a community assessment to understand factors associated with the communities' livelihood. The discussion was with old and young males and females of the community. The communal characteristics goes thus: 60.0% females and 40.0% males; 30.0% children, 15.0% youths, 15.0% young adults, 30.0% adults and 10.0% aged; 60.0% Christians, 30.0% Muslims and 10.0% Traditionalists; and lastly 20.0% single, 58.0% married, 2.0% separated or divorced and 20.0% widowed. Moreover, 15.0% had no formal education, 50.0% had primary education, 30.0% had secondary education and 5.0% had tertiary education. Male-headed households were 95.0% and female-headed households were 5.0%. Monogamous families were 40.0% and polygamous families were 60.0%. Household size of less than six people were 50.0%, household size of between six and ten were 40.0%, %, household size of between eleven and fifteen were 5.0% and household size of more than fifteen was 5.0%. Indigenes were 90.0% and non-indigenes were 10.0%. Economically, poorer than average were 25.0%, 60.0% were on the average and 15.0% were better off than average.

Cultural/Traditional practices are important to the community. *Oro* is done to appease the gods for peace and tranquillity. Cultural sites in the community include tens of stone sculptures that the ancestors of the community met in the *Agidi* Area of the community called *Agidi* Monument. Another is *Awoyaya* Waterfall at the boundary of *Adagba* and *Akeredolu*. Lastly is the *Onile* Festival - held in November of every year - where indigenes home and

abroad come for blessing for the coming year. The traditional council, women leader, youth leader and political leader (ward councillor) were responsive to the need of the people within their limited capacity. The Federal Government gave the community electricity in 2001 – it is however no longer working - the community was in total dark. Through the NFDP III, the Federal Government gave grinding machine, fridge, and knapsack as shown on Plate 17. The State Government gave a borehole and health centre in 2006, and primary school in 2008.

In addition to the farming challenges mentioned in the IDI report, it was learnt that reduced rainwater has hampered agricultural production. Likewise, bush burning by game hunters – sometimes, cocoa trees was burnt in the process. This FGD report corroborates the IDI report on the financial challenges that reduces livelihood choices. In addition, the lack of government (Ministries, Departments and Agencies) presence, manufacturing industries, income generating skills and little patronage were responsible for the low socioeconomic status of the community. Unlike Iwoye-Ketu, there was no record of past or potential conflict in Iyanfoworogi. Besides stroke in aged and fever in all others, the health of the people was good. Similarly, they were food secure, given their vast engagement in arable farming. It was reported that the only food items they miss were the exotic/processed ones such as beverages and groceries. The need assessment of the community is presented in a pair needs' ranking on Figure 4.

| | Electricity | Borehole | Soft loan | C. Market | MDAs | F. Input | A. Road | S. School | Score | Rank |
|---|---|---|---|---|---|---|---|---|---|---|
| Electricity | | Electricity | Electricity | Electricity | Electricity | Electricity | Electricity | Electricity | 7 | 1st |
| Borehole | | | Borehole | Borehole | Borehole | Borehole | Borehole | Borehole | 6 | 2nd |
| Soft loan | | | | Soft loan | Soft loan | Soft loan | Soft loan | Soft loan | 5 | 3rd |
| C. Market | | | | | C. Market | C. Market | C. Market | C. Market | 4 | 4th |
| MDAs | | | | | | MDAs | MDAs | MDAs | 3 | 5th |
| F. Input | | | | | | | F. Input | F. Input | 2 | 6th |
| A. Road | | | | | | | | A. Road | 1 | 7th |
| S. School | | | | | | | | | 0 | 8th |

Figure 4: Pair needs' ranking of Iyanfoworogi Community

Note: C. Market stands for community market that operates every five days like many others in the State. MDAs stand for governments' ministries, departments and agencies that would offer employment opportunities to the inhabitants. F. Input stands for farm inputs such as cultivars, agrochemicals and tools. A. Road stands for access road that connects the community to many other communities in the environs. S. School stands for secondary school – the only one that the community has needs functional structures and teachers.

**UI's UBAES**

The In-Depth Interview (IDI) shown in Plate 7 was conducted to elicit information for the University-Based Agricultural Extension System (UBAES) of the University of Ibadan (UI). The interview was with Mr Rasaq Yusuf, the Liaison Officer of UI's UBAES. The signpost of one of the project (Community Information Centre) of this UBAES is shown in Plates 1 & 14. Mr Razak Yusuf is a forty-five years old man with a Higher National Diploma in Agricultural Technology, and ten years' experience as Liaison Officer of UI's UBAES. About 175 farmers benefit directly from the UBAES in the community. Their occupations ranges from arable farming (maize, cassava, vegetables), food processing (garri and palm oil processing), cane rat keeping (shown in Plate 19), Moringa production, processing and marketing, snail keeping, blacksmith and transport business (motorcycles, cars and buses). The farmers benefit from farming inputs and training, and the community benefits from physical capitals such as cassava graters in Plate 12 and oil processing mill in Plate 13.

Plate 19: Cane rat pen in Ileogbo Community, provided by UI UBAES

Twenty percent of the beneficiaries were elderly, 30.0% were adult men, 40.0% were adult women and the remaining 10.0% were youths. The population were 40.0% Christians, 50.0% Muslims and 10.0% Traditionalists. Socioeconomically, 30.0% were poorer than

average, 60.0% were average, and 10.0% were better than average. This distribution could be highly influenced by relative comparison with the population in the cities around the axis, because of high cosmopoliteness. This UBAES was formed by UI to obtain hectares of land for Farm Year Training Programme (FYTP) to teach students the art and science of farming, and to learn about rural lives and livelihood directly. Two-hundred and eighteen hectares of land was obtained from Ileogbo for this purpose in return for community services. The University has been able to work with existing farmers' group, form new farmers' groups, collaborate with grant-giving organizations like MacArthur Foundation, to provide agricultural trainings, introduce agricultural innovations, physical capitals to ease food processing, capacity building on best management practices for cultivated crops, new crops and livestock. Other community service activities were provision of cultivars, livestock and Small Plot Adoption Techniques (SPAT) on the University's farm.

The King of the community, the Olu of *Ileogbo*, *Oba* Abeeb Adetoyese Agbaje, Arowo Okun Joye 11 and the Traditional Council were supportive of the initiative. They encouraged all Farmers' Groups to attend and participate in every meetings organised. However, there was no known presence of the activities of any Community Based Organizations (CBOs) and Non-Governmental Organizations (NGOs) in the community. Concerning socioeconomic characteristics, civil servants and politicians were the ones that seemed to be living above average, while the migrant farmers live below average, not because they had so little, but because they save their prospects for their homeland. This is believed because the migrant farmers farm extensively and had bumper produce. This poses a challenge for farmers in the community, because the produce of the migrant farmers get to the market first, and thus got better patronage and pricing. There were also challenges with bush burning and strong wind that pulls down trees.

Indigenes of Ileogbo farm on family/inherited land, while the migrant farmers farm on rented land that is mostly free of any charge because of the hospitality of the people and surplus land. Federal Government presence was little with supply of fertilizers and seeds through the Growth Enhancement Scheme (GES) of the Agricultural Transformation Agenda (ATA). State Government presence was likewise little with few supply of farm inputs by the Osun State Agricultural Development Projects (OSADEP). The contribution of the Local Government was in collaboration with the State Government in providing access road in 2002. An illustrious son of the community gave ten boreholes to the community many years

ago. However, none of them were working at the time of the survey, because inhabitants would not contribute towards their maintenance and sustenance. They therefore depend on well water for drinking and domestic uses.

Socially, all the groups and associations for religious, savings and credit, development, and relaxation activities had free entry and exit. This is in tandem with the peculiarity (peaceful and hospitable) of the community that made the University enter the partnership initially. Vulnerability to poverty was low because there had not been any recorded conflict or potential reason for conflict in the future. Livelihood promotion however is limited because of bush burning and infertile soil that is always requiring fertilizers that increases production cost. Insufficient financial capital, low business management skills, and low quality artisanal skills limit livelihood choices, and proximity of bushes disposes people to fever. With little modern medical service, inhabitants had to complement with indigenous health products and services.

The Focus Group Discussion (FGD) shown in Plate 6 was conducted to elicit information on Ileogbo Community. It was a community assessment to understand factors associated with the communities' livelihood. The discussion was with old and young males and females of the community. The communal characteristics goes thus: 60.0% females and 40.0% males; 30.0% children, 20.0% youths, 15.0% young adults, 15.0% adults and 20.0% aged; 30.0% Christians, 50.0% Muslims and 20.0% Traditionalists; and lastly 30.0% single, 63.0% married, 2.0% separated or divorced and 5.0% widowed. Moreover, 3.0% had no formal education, 62.0% had primary education, 25.0% had secondary education and 10.0% had tertiary education. Male-headed households were 95.0% and female-headed households were 5.0%. Monogamous families were 40.0% and polygamous families were 60.0%. Household size of less than 6 people were 20.0%, household size of between 6 and 10 were 20.0%, %, household size of between 11 and 15 were 50.0% and household size of more than 15 was 10.0%. Indigenes were 93.0% and non-indigenes were 7.0%. Economically, poorer than average were 45.0%, 50.0% were on the average and 5.0% were better off.

Cultural/Traditional practices are important to the community. There is a tree with a white cloth tied around it. The tree is at centre of the community and it is called *Ore.* The tree was met in the community by the founding fathers. They consult the spirit of the tree for protection and whenever the spirit came out (a woman in white wrapper), businesses in the community would boom. Other traditional culture exists around *Osogiyan* (yam festival), *Oro*

(consulted for warfare), masquerades and their corresponding priests, and the passage of Osun River across the community. Leadership in the community comprises of the King, traditional council, women leader, youth leader, and political leaders (ward councillors). Socioeconomically among farmers, it was reported that migrant farmers seemed to be better off than average because of their bumper agricultural harvest as reported in the IDI. It was reported that cocoa used to be a major source of income for capital projects like education expenditures of children. The degeneration of cocoa plantation caused by neglect had resulted in children stopping their education at the secondary school level. Reports of the FGD about the significance of the three tiers of government, CBOs and NGOs corroborate that of the IDI. Similar to this is the report about challenges to livelihood promotion and vulnerability. Food security varies largely on crops grown and income, and the only contribution of UBAES in the area of health is the introduction of nutritive food items like moringa, cane rat and snail, to boost food security. The need assessment of the community is presented in a pair needs' ranking on Figure 5.

| | F. Inputs | F. Market | UI | F. Mech | F. Storage | Industries | Irrigation | Scholarship | Score | Rank |
|---|---|---|---|---|---|---|---|---|---|---|
| F. Inputs | | F. Inputs | F. Inputs | F. Inputs | F. Inputs | F. Inputs | F. Inputs | F. Inputs | 7 | 1st |
| F. Market | | | F. Market | F. Market | F. Market | F. Market | F. Market | F. Market | 6 | 2nd |
| UI | | | | UI | UI | UI | UI | UI | 5 | 3rd |
| F. Mech | | | | | F. Mech | F. Mech | F. Mech | F. Mech | 4 | 4th |
| F. Storage | | | | | | F. Storage | F. Storage | F. Storage | 3 | 5th |
| Industries | | | | | | | Industries | Industries | 2 | 6th |
| Irrigation | | | | | | | | Irrigation | 1 | 7th |
| Scholarship | | | | | | | | | 0 | 8th |

Figure 4: Pair needs' ranking of Iwoye-Ketu Community

Note: F. Input stands for farm inputs such as cultivars, agrochemicals and tools. F. Market stands for farm markets to boost patronage and discourage poor pricing. UI stands for more presence of the University of Ibadan or any other educational institute to provide academic, employment and business opportunities. F. Mech stands for farm mechanisation such as the provision of tractors and complementing implements. F. Storage stands for farm storage such as silos and barns do discourage poor pricing and encourage all-year-round availability of produce. The industries are to bring economic opportunities. Irrigation is to promote all-year-round farming. Lastly, the scholarship is for bright secondary school leavers that would have ended their academic pursuit because of insufficient income of parents and guardians.

PS. The farming activities of Iwoye-Ketu, Iyanfoworogi and Ileogbo were similar and presented in the seasonal calendar in Table 51.

Table 51: Seasonal calendar of Iwoye-Ketu, Iyanfoworogi and Ileogbo

| **Month** | **Activities** |
|---|---|
| January | Harvesting of late maize and land clearing for early maize and other crops |
| February | Ditto |
| March | Planting all sort of crops depending on rainfall |
| April | Ditto |
| May | Harvesting of early maize and other crops start |
| June | Ditto |
| July | Ditto |
| August | Harvesting of yam and land clearing for dry season farming |
| September | Planting of late maize, cassava, and harvesting of yam continues |
| October | Heaps making for yam |
| November | Planting of yam and harvesting of late crops |
| December | Ditto |