



# "AGRICULTURAL FINANCE: A PANACEA FOR AGRICULTURAL AND RURAL DEVELOPMENT"

## 24<sup>th</sup> Inaugural Lecture

of the Federal University of Technology,  
Owerri (FUTO), Imo State.

Delivered On  
**Wednesday, 26<sup>th</sup> March, 2014**

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**24<sup>th</sup> INAUGURAL LECTURER**



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## 1.0 INTRODUCTION

### 1.1 Conceptual Definitions

#### 1.1.1 *Agricultural Finance*

Horme (1977) defines finance by looking at what finance managers do. He argues that finance managers take three main decisions which are financing, investment and dividend decisions. He went further to define financing decision as that aspect of the finance manager's work that has to do with raising funds needed, what instrument to use and what price to pay for fund. We can therefore define finance as a body of principles and theories that deal with raising and employing funds for individuals and organizations in private and public sectors of the economy.

Igben and Eyo (2002) see agricultural finance as an aspect of agriculture where the principles and tools of finance are used in solving financial and management problems in agriculture. They further defined agricultural finance as an area of study which exposes the tools and principles which guide the acquisition and the use of financial resources in the agricultural sector and the protection of owners' equity capital from risk and uncertainties of the sector.

Adegeye and Dittoh, (1985) defined agricultural finance as the economic study of the acquisition and use of capital in agriculture. It deals with the demand and supply of funds in the agricultural sector. Agricultural finance needs not imply credit (process of obtaining control over the use of money, goods and services in the present in exchange for a promise to repay at the future date) obtained, even though it almost always does. It can refer to finance of agriculture at the national level or at the farm level. At the national and state levels, agricultural finance is concerned with agriculture's contribution to and share of, the national or state resource as well as the role banks and other financial institutions play in the financing of agriculture as a sector of the economy.

At the farm level, agricultural finance refers to the financial management of the farm. The terms "agricultural finance" and "agricultural credit" are commonly used interchangeably. This is because the study of the acquisition and use of capital naturally leads to the process of obtaining and using credit.

Evbuomwam (1993) exposed the following specific policy objectives in financing agriculture as basis for the government interest in agricultural finance;

- attainment of self sufficiency in basic food items, particularly commodities, which consume considerable share of Nigeria's foreign exchange (presently put at 11 billion dollars per annum).
- Increased production of food and agricultural raw materials to meet the growing needs of an expanding industrial sector,
- Increased export earning enhanced by further processing of agricultural produce and value addition,
- Modernization of agricultural production, processing, storage and distribution through the infusion of improved technology and management so that the sector can be more responsive to various demands of a developing economy,
- Creation of more rural employment opportunities and maintenance of rural infrastructural facilities,
- Improvement in the quality of life of rural dwellers through the provision of social amenities such as potable water and improved health and educational facilities,
- Continuous protection of agricultural land resources from drought, desert encroachment, soil erosion and flood.

Administration of agricultural finance involves decision making on the amount of credit, the promising sector which carries anticipated profit, the probability of achieving success despite the risks and uncertainties involved in the use of finance. However, the financial manager requires a sound knowledge of the sources of funds if the financial resources must be acquired and effectively used. Thus

agricultural financing can make possible the creation of food surplus, a stimulated degree of urbanization and brings about improvement among the populace.

The concern for rural development is due to the fact that over 70% of Nigerians reside in this sector and produce more than 95% of the food consumed, provide an appreciable quantity of raw materials needed by industries as well as employ many hands and earn foreign exchange for the country (Eze, 1996). It is therefore only equitable that these rural people benefit from infrastructural development efforts which their urban counterparts enjoy. Hence developing the rural areas, would not only stem migration but would make for a more stable polity.

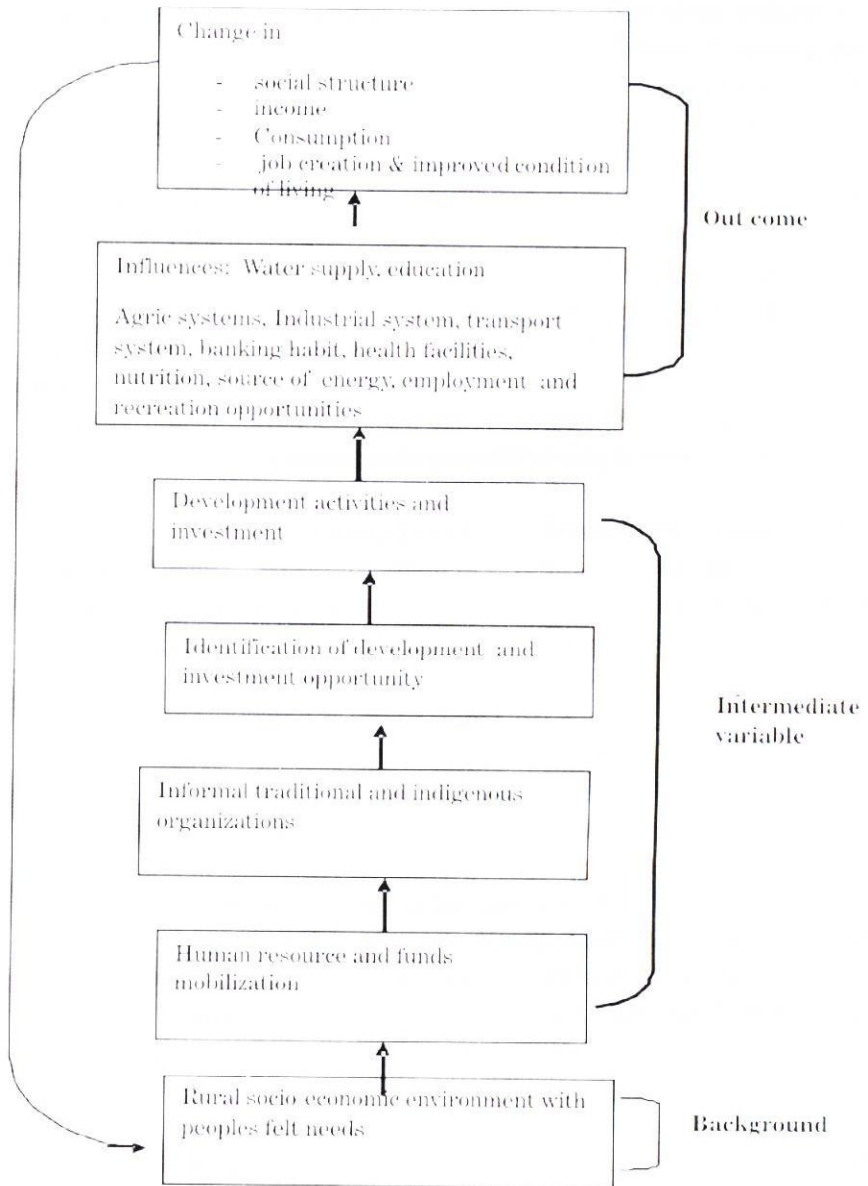
Governments in Nigeria in their quest to accelerate rural development have adopted several strategies to help develop the rural areas using integrated rural development strategy, rural banking scheme, small scale industrialization strategy, establishment of a Directorate for Food, Roads and Rural Infrastructures, Better Life Programme , Family Support Programme, Peoples Bank and Community Banks. Although the efforts have helped in rural development, some have left the communities worse off (Okorji and Arua, 1992; Okorie and Miller, 1976). Despite the above efforts of government, studies have shown that the slow pace of agricultural and rural development is attributable, among other things to the poor financial status of the individuals in the rural areas. This explains to a large extent the low investment and productivity levels of the people and hence the existence of the Vicious Cycle of Poverty in the rural areas of Nigeria (Ijere, 1992). There is therefore the need to improve upon these low levels of investment and productivity which will consequently result in the economic and physical or structural development of the rural areas of Nigeria.

### ***1.1.2 What then is Development?***

The term development, according to FAO (2013), does not refer to

one single phenomenon or activity, nor does it mean a general process of social change. All societies, rural and urban areas are changing all the time. This change affects each area's norms and values, its institutions, its methods of production, the attitudes of its people and the way in which it distributes its resources. Development is more closely associated with some form of action or intervention to influence the entire process of social change. It is a dynamic concept which suggests a change in or a movement away from a previous situation. There are studies on different nations and their levels of development. This has given rise to the use of the terms developed and developing or even underdeveloped nations. It means therefore that some nations have advanced or changed more than others and these nations are now used as models for other developing nations to emulate. This process of development can take different forms and have various objectives. Therefore, we can say that:

- (i) Development involves the introduction of new ideas into a social system in order to produce higher *per capita* output and levels of living through modern production methods and improved social organization,
- (ii) Development implies a total transformation of a traditional or pre-modern society into types of technology and associated social organization that characterize the advanced stable nations,
- (iii) Development is building up the people so that they can build a future for themselves,
- (iv) Development is an experience of freedom in deciding what people choose to do. To decide to do something brings dignity and self respect and builds up integrity. Development efforts therefore start with people's potentials and proceed to their enhancement and growth. This is graphically illustrated in Figure 1, as demonstrated by informal traditional and indigenous organizations in Imo State, Nigeria.



**Figure 1:** Simple Framework for Analyzing Development from within among informal Traditional and Indigenous Organizations **Source:** (Eze, 1996)

Literature on the process of development show that development comprises of three elements;

- i) **Economic:** the development of the economic or productive base of the area which will produce the goods and materials required for life ,
- ii) **Social:** the provision of social amenities and services (for instance, health, education, welfare, public utilities) which care for the non-productive needs of society yet these are important elements in production,
- iii) **Human:** the human capacity development of the people themselves, both individually and communally, to realize their full potential to use their skills and talents and to play a constructive part in shaping their society.

### ***1.1.3 Agriculture and Rural Development***

The concept of rural development must be considered with particular reference to agriculture since agriculture is the basis of the livelihood of most rural families and households. The government's emphasis on rural development derives from the fact that rural areas are just as important as the urban and industrial areas. Moreover, development has two legs; urban industrialization and rural improvement. Most importantly, more than half of the world population and a vast majority of the people of the developing world (Asia, Africa, and Latin America) reside in rural areas and gain part of (or all) their livelihood from some form of agricultural practice. Most of these people are still poor and dependent on agricultural practices that have benefited little from modern technology. They live in isolated and often inhospitable places, with little access to resources they need to improve their farming. In Nigeria, Olatunbosun (1975) refers to the rural populace as Nigeria's neglected rural majority and Ijere (1992) described Nigeria's rural people as the other Nigerians with poverty linked characteristics, lacking purchasing power enough to maintain a minimum standard of living. An index of the poverty in the rural

areas is the low *per capita* output for crops and animals produced by its dwellers. There is the technical inefficiency of agriculture in that crop yield per hectare cultivated is low. The difference in yield ranged between 20% and 400% for such crops as millet, sorghum, rice, cassava, yam, cowpea and groundnuts from nation to nation. For e.g a recent hybrid maize , stress tolerant extra early maturing , released by International Institute for Tropical Agriculture , Ibadan Ife maizehyb-6 and Ife maizehyb-5 yield as much as 5.5tonnes/ha and 6 tonnes/ha respectively against 1.2tonnes/ha of some old varieties of maize. These differences showed the great potential that remains untapped if production methods and inputs are improved. Other limiting factors are poor storage, processing, power supply, and transportation facilities which lead to more than 40% post harvest losses (Ijere, 1992). At the continental level, the president of International Fund for Agricultural Development (2013) stated that 20 % to 40% of crops produced deteriorate after harvest because they cannot be safely stored. Also, post harvest grain losses in Sub-Saharan Africa averaged about 4Billion USD every year. This food could meet the nutritional needs of about 50 million people, this scale of losses are scandalous particularly in a continent where millions go hungry on a daily basis. A vital limiting factor to high productivity in agriculture is the smallness of cultivable land owned by the farmers. Most farmers had farms which are respectively less than one hectare. This picture has continued to deteriorate due to population increase, urbanization and industrialization. In Nigeria , for instance , the birth rate is presently put at 3.8% per annum and the rate of urban growth has also been on the high side such that agricultural lands are being substituted for buildings at a fast rate.

The rural areas are not only a sector of woes, there are positive aspects of the sector in that the rural sector is the producer of 95% of Nigeria's food crops and animals for both rural and urban population consumers and of cash crops for the international

market to earn foreign exchange. In the process, demand is stimulated for other products and services, and employment opportunities emerge to absorb the unemployed. As the cycle develops, the increasing agricultural production causes an increasing demand for inputs and other vital resources required to maintain the agricultural production. According to IFAD (2002), rural households generate income from agriculture or employment in non-farm rural activities. Agricultural income originates from small-scale production and revenues from sale of agricultural produce, or other forms of employment in agriculture. The rural non-farm sector provides goods and services linked to agriculture such as input preparation, repair of machinery and implements, output processing, transportation and marketing. Accordingly, income earned from agricultural activities creates demand for the output of small rural enterprises. Initial productivity-induced growth in agricultural output will create multiplier effects in non-farm economies, increasing the income of those involved. It will also raise the income of those directly involved in farming.

There are many definitions of rural development but the most acceptable one is that used in conjunction with the UN- sponsored second development decade in the 1970s. This definition equates rural development with far-reaching transformation of the social and economic structures, institutions, relationships and processes in any rural area. It conceives the goals of rural development as not simply agricultural and economic growth in the narrow sense, but as balanced social and economic development. Rural development is a process integrated with economic and social objectives, which must seek to transform rural society and provide a better and more secure livelihood for rural people. Lacroix (1985) explained the difference between agricultural and rural development in such a way that Agricultural Development meant Capital Development, while Rural Development is the Development of Human Capital. Diejemaoh (1972) stressed that rural development is a process of not

only increasing the level of *per capita* income in the rural areas, but also the standard of living of the rural population; with the standard of living being dependent on such factors as food supply and nutritional levels, health, education, housing, availability of energy (electricity), recreation and security etc. Rural development embodies both agricultural and non-agricultural social, economic and cultural life of the rural people. Rural development can be seen as a process of analyzing, identification of problems and proposing possible answers. This process is usually encompassed within a programme or a project which seeks to tackle the identified problems. The identifiable problems can be physical (including lack of water, poor infrastructure, lack of health facilities, soil/flooding or desertification) and non-physical (which may be social and political conditions of rural dwellers, for example, limited access to land, credit, non-contact with government services or dependence on bigger farmers). The strategies to adopt in solving these problems must differ from one area to another to be meaningful. Different areas have different kinds of problems and the strategies to use must be different. Three strategies have been found useful in rural development though none is mutually exclusive. These are as follows:

- a) **Technological:** Here the emphasis is on technological transformation of different aspects of the rural area example, cropping practice or better water supply, by the provision of the inputs and skills required to bring about the needed transformation.
- b) **Reformist:** This is similar to technological transformation, but the reformer must provide the means by which the rural operator can play a bigger part in rural development, for example, through organizational development, or participation in rural development programmes.
- c) **Structural:** This strategy try to transform the economic, social and political relationships which exist in

rural areas in such a way that those who were previously disadvantaged by such relationships find their position improved. These strategies are not iron cast and needs to be manipulated towards achieving improvement in the rural dwellers living condition.

In executing rural development, there are basic principles to follow. These are as follows:

- i) **Access:** Here we ensure that the programme and its benefits reach those in need and beware of the consequences if some have access to the programme while others do not;
- ii) **Independence:** Devise a programme which helps and supports the rural dweller but which does not make his livelihood dependent on the programme;
- iii) **Sustainability:** Ensure that the programmes' plans and solutions are relevant to the local economic, social and administrative situation of the farmers;
- iv) **Going forward:** Technological aspects of rural development programmes should help the farmers to take the next step in his development and not demand that he take a huge technological leap. It is better to secure a modest advance which can be sustained than to suggest a substantial advance which is beyond the ability of most of the beneficiaries;
- v) **Participation:** Always try to consult the local people, seek out their ideas and involve them as much as possible in the programme;
- vi) **Effectiveness:** A programme should be based on effective use of local resources and not necessarily on their most efficient use. For example, the maximum use of fertilizer is beyond the means of most rural farmers. But an effective use of resources

which are within the capabilities of most farmers will have a better chance of a wider impact. The implication of these definitions and issues on rural development is that rural development involves the development of rural dwellers in such a continuous manner so that they can most effectively and efficiently apply their intellect in acquiring new technology and other available resources for further development of themselves and their natural and man made resources for a better living condition. In order to efficiently harness these resources, there is need to improve the financial capacity of the rural dwellers, hence, the need to discuss the rural dwellers' need for and sources of credit.

## **2.0 THE NEED FOR AND SOURCES OF CREDIT IN RURAL COMMUNITIES**

Graber (1982) maintained that credit if properly combined with other developmental tools can be used for 3 major activities namely, production, investment and consumption. Aleem (1990) emphasized the need for credit between the period of cultivation and harvesting due to the uncertain nature of farm income flow. Wells (1982) stressed that credit is needed for the adoption of technological innovations and marketing of farm produce while Allens (1987) maintained that credit is needed to enhance income redistribution towards the rural poor, thus increasing their capability to invest. Credit *per se* cannot be effective as a production, consumption and investment tool, except if it is appropriately combined with other factors. Belshaw (1959) showed that credit alone is not an open sesame but a necessary key which must be used with others to open the door to a more plentiful future. Bhatt (1989) reported that credit is one of the strategic factors that determine the pace and pattern of socio-economic development. It facilitates as well as

stimulates the development process and has externality or spillover effects. Vogel (1982) however, argued against the provision of credit at subsidized low interest rates since credit is “fungible” and therefore difficult and costly to tie subsidized credit to specific agricultural activities. In addition, the main beneficiaries of such credit are not the rural poor farmers but the relatively rich businessmen that have nothing to do with farming.

Adegeye and Ditto (1985) stated that credit could be from an organized or an unorganized sector in the economy. The unorganized credit lending sources include; the village shop traders, the land lords, money lenders, relations, traditional self help groups while the organized sector sources, are cooperatives, development and commercial banks. Also Eze (1991) maintained that credit could be obtained by inheritance, meeting umunne, meeting umuagbogho, palm wine tappers associations, Esusu, gifts, personal savings, age grades etc. In obtaining these facilities, collaterals may or may not be pledged; where collaterals are demanded such items as land, tree crops, livestock, houses and the taking of oath or even machines may be used.

Ijere (1998) observed that agricultural credit is necessary to enable farmers take advantage of new technologies and to pay for such items as; farm machinery, improved varieties of crops and livestock, fertilizers, labour and other running costs. But the realization of this is difficult since according to Shaw (1993), the structure of financial system in most developing countries is characterized by market distortions and financial repression which is the main reason why poor and small borrowers do not have access to formal financial services to achieve their goals. Also, agricultural credit encompasses all loans and advances granted to farmers to finance and service agricultural production activities relating to processing, marketing, storage and distribution of products resulting from these activities (CBN, 2004). As observed by Williams and Ogunniyi (2007) the critical factors that affect productivity at the farm level include, but are not limited to the factors of production such as

land and capital, agricultural research, technology, infrastructure and access to support services such as extension and credit services

The government most often may think it is necessary to intervene in the operation of the financial system with the intention of correcting the short comings of the price-fixing mechanism to ensure that what is commercially rational for an individual bank is approximately rational for all. Socially, interest rate charged by banks could be regulated to encourage savings mobilization, ensure and foster adequate investment for rapid growth and development bearing in mind the view of Goldsmith (1969) that the financial superstructure of an economy accelerates economic performance to the extent that it facilitates the migration of funds to the best user, that is, to the place in the economic system where funds yield the highest social return. Also Akiri and Adofu (2007) reported that the existence of externalities and imperfection in the financial markets of most developing economies have often called for intervention by the government through its appropriate agent to encourage investment and to re-channel credit to those economic units with good social rate of returns but low commercial rate of returns like agriculture. Credit is important because equity capital is seldom sufficient to meet the expenditure on production.

Thus, the need for credit is more acute in the rural areas because access to local financial resources is restricted by the low productivity and wide spread poverty of rural people which has led to the dualistic structure of developing countries as they have a large traditional agricultural sector with low productivity and a small modern sector of industrial and other highly productive export - related activities. Inadequate credit hampers small-holder farmers' adoption of mechanical, biological and chemical innovations necessary for the structural transformation and expansion of rural agricultural production. Moreover, Stiglitz (1994) noted that in rural areas, there are few financial institutions and this limits competition and therefore restrict borrowing among the rural economic

operators including farmers.

Nwosu and Ogunfowora (1977) described the economy of the present farmers as a vicious web of low productivity. For the Cycle to be broken, the farmers must be helped to realize their productive potentials through the provision of the required productive resources, especially capital. When this is lacking, it has been identified as one of the factors militating against rapid agricultural modernization in Nigeria. In the opinion of Chidebelu (1983) the inadequate and often times dearth of credit for financing agriculture in Nigeria has been a major impediment to the country's agricultural development over the years. This major impediment has resulted in the economy of the present farmers being described as a Vicious Cycle of Poverty.

The reasons for financing agriculture and rural Development by government are based on the fact that:

- (i) the rural sector is populated by more than 70% of the entire population,
- (ii) the majority of the rural population derives its income from agriculture and allied economic activities,
- (iii) apart from the entire rural population, there is also a large portion of the low income population in the urban sector, which depends primarily on the employment generated by agro- allied industries or businesses,
- (iv) the entire population in the urban and rural areas depends for their sustenance on the food and supplies that come mainly from the rural sector. All these make rural development a central issue to the overall growth and development of the economy and for improving the living standards of the entire population that derives its livelihood from agricultural production (Ajakaiye, 1998).

### **3.0 AGRICULTURAL DEVELOPMENT**

Agricultural development is a process involving the adoption by farmers of new and better agricultural practices leading to increased productivity and overall welfare of the economy. Lacroix (1985) stressed that agricultural development tries to raise agricultural production and productivity, and is of a technical nature. It is similar to efforts to develop physical capital as a means for economic growth. It should be noted that credit is not an end in itself, but a means for increasing productivity or expanding production or even increasing consumption. There must be a viable income generating activity to invest at the farm level or agro processing before the request for credit. Borrowing for production makes sense only if the returns from the production can pay for the cost of capital borrowed and this must apply to poor farmers. Access to market as well as an orientation to produce marketable products is therefore essential for profitable utilization of credit (Alhassan, 1998).

The increasing recognition of the need for agricultural financing stems from the desirability to enhance the position of on-farm capitalization in Nigerian agriculture and the fact that farmers' own savings are normally inadequate to finance the various farming activities. This capital injection into the agricultural sector is imperative in view of the unfavourable terms of trade facing agriculture, declining productivity, low level of adoption of improved technologies and the fact that many investors are in favour of low cost quick returns and less risky ventures, compared to agriculture (Oni and Olomola, 1989).

### **4.0 ROLE OF FINANCE IN AGRICULTURAL DEVELOPMENT**

Agriculture is the oldest industry known to mankind, and it is the source of food and raw materials for many industries. In fact, it can be justifiably referred to as the world's primary industry. However,

progress in agriculture was slow, until the industrial revolution in Europe and America. Countries such as United States of America and Britain have dispensed with primary and laborious methods of farming and adopted mechanized and more productive technological methods. Many parts of the world particularly Africa and parts of Asia are still groping in the pre-industrial revolution era. However, technology can not by itself develop agriculture if the conveyor is absent. And that conveyor is finance. Lot (1998) reported that technology cannot reach the entrepreneur unless funds are available for him to acquire it. Also the principles of economics and finance have shown us that by using other peoples fund along with his own, an entrepreneur is most likely to improve his business substantially than if he had depended solely on his equity. The aim of agricultural development is to prop up farmers to make substantial investment in agriculture and stimulate increased productivity. Since the present economic threshold of traditional agriculture cannot sustain any capital formation, the capital required for investment in agriculture must necessarily be injected from outside. Thus an agricultural credit scheme is considered as an important component of the agricultural development programme.

As Ijere (1998) put it, credit constitutes the power or key to unlock latent talents, abilities, visions and opportunities which in turn act as the mover of economic development. It means that credit ( finance ) acts as a catalyst or elixir that activates the engine of growth, enables it to mobilize its inherent potentials and to advance in the planned or expected direction. It means that the greater the influx of capital, the more the propensity of the economy to move in its given path, all things being equal (*ceteris paribus*). Conversely, if the economy receives less than its due share of fund/credit input, its potentials would be dormant. This means that if the factors of production (capital, land, labour and management) were not combined in the right proportion we will not get the expected result.

## 4.1 Capital

Capital is a man-made instrument of production. The reward for capital is interest. Capital consists of three physical goods which are produced for use in future production. A country's capital is its stock of produced or man-made means of production consisting of such items as buildings, factories, machineries, tools, equipment and inventory of goods in stock (Gill, 1975). Capital can be classified as "fixed capital" and "working capital". Fixed capitals are durable producer goods which are used in several production cycles until they wear out. Machineries, tractors, buildings, houses and farming tools are examples of fixed capital. They are fixed because money spent to purchase them remains fixed or unrealized for a long time, and do not change with the volume and size of business in the short run. Working capital includes those producer goods which are used up in one production cycle, which changes with the size or volume of business. Raw materials, feeds, fertilizers, seeds and fuel are examples of working capital.

Money spent in purchasing working capital is realized as soon as goods made with them are sold. Fixed and working capitals are called physical capital (Ahuja, 2004). Another variant of capital is human capital. Human capital is the stock of people equipped with such qualities as education, skills and good health. Human capital formation is as important in increasing production and productivity as the physical capital formation. The two main ways in which human capital is acquired are through education and on the job training (Lipsey and Chrystal, 2004). Capital occupies a central position in the process of economic development because of its role in raising production. Therefore, accumulation of capital is necessary to provide people with tools and implements of production. Capital formation leads to increase in the size of national output, income and employment thereby solving the problems of inflation and balance of payments, and making the economy free from the burden of foreign debts (Jhingan, 2000).

## 4.2 Land

Land comprises all those natural resources which are useful and scarce, actually or potentially (Dewett, 2005). It is a fixed resource. The reward for land is rent. The quantity and quality of agricultural land and other natural resources like mineral deposits, water, forests and climate play vital roles in national economic development. Without a minimum of natural resource endowment, there is not much hope for economic development (Ahuja, 2004). Natural resources are classified as exhaustible/non-renewable natural resources and non-exhaustible /renewable natural resources. The exhaustible/non-renewable resources are those natural resources which when used once cannot be renewed or increased. Natural resources such as mined deposits of iron ore, coal and petroleum get depleted as they are exploited and used. Their stocks are limited and cannot be renewed or increased. Non-exhaustible/renewable resources are those which go on being used again and again and year after year for production without its depletion. Agricultural land, water resources, fisheries and forest resources are renewable resources. Productivity of agricultural land can be maintained and also improved by addition of organic and inorganic fertilizers (Lombia, 1999).

## 4.3 Labour

Labour is the human effort entailed in the production process and its reward is wage. Labour requirements for farm operations such as clearing, tilling, weeding, fertilizer application and harvesting are very considerable. Labour constitutes a high proportion of total cost of agricultural production because it accounts for over 50% of the total cost of producing some crops (Anozie and Okoronkwo, 2009). The cost of labour is influenced by location and nature of the job to be done. Atobatele and Olayide (1980) classified labour as family labour, community/communal labour, group labour and hired labour. Family labour is the labour of the farmer, his wife(s) and children which are available on his farm. Community labour is labour supplied by members of the community for a common project. Group labour is the labour supplied by farmers Cooperatives or Self Help Mutual

Groups in rotation on members' farms. Group labour can help ease labour balance by either employing surplus household labour or through reciprocity of securing group labour for use on farmers' fields during key bottleneck periods. Hired labour is paid labour engaged in farming activities. The hired labour is either paid daily or paid per assigned task. Since adult males and females and children are involved in farm work, there should be a way of comparing their labour. Hours worked are expressed in terms of a common denominator like man day(s) or man hour(s) to make the comparison. Seven hours is equal to one Man-day (Olukosi and Erhabor, 1988). To compare adult male and adult female on one hand and adult male and children on the other; one Man-day is equal to 2 woman-days and one Man-day is equal to 2 boy days (Ngoka, 1996). This ratio is not rigid because it depends on the environment and type of farm operation. Okorji (1983) reported that women were more efficient than men in weeding while men were more efficient than women in tilling. In some farm operations, men and women are equally efficient and so there is no justification to distinguish between the sexes.

#### **4.4 Entrepreneur**

The decision-making power resides in the *Management or Entrepreneur*. Physical resources such as land, labour and capital will remain most unproductive unless they are organized and coordinated by someone who makes the necessary decisions and carries them out (Upton, 1978). The entrepreneur combines other factors of production to produce goods and services; sets the course of the business, innovates new products, new production techniques or even new forms of business organizations and bears all the risks of the business (Brue, 2005). The reward of the entrepreneur's time, efforts and abilities is profit or loss. If his revenue is more than his cost, he earns profit, other wise, he makes loss. The entrepreneur risks not only his own equity in the business, but also the investments of his associates and stock -holders.

AFRACA (2008) enumerated the challenges to the agricultural

financing that could hinder the agricultural entrepreneur from achieving his/her goal to include:

1. Inherent risks – seasonality of agribusiness and climatic change – which hinder financial institutions from lending to rural farming communities;
2. Lack of loan collateral by farmers (in other words, low capacity);
3. High cost of obtaining information on rural farm borrowers (high transactions costs);
4. High interest rate by formal intermediaries and particularly informal intermediaries;
5. The inability of poor farmers to afford insurance cover;
6. Farmers' lack of good business plan for lenders' conviction;
7. Poor rural infrastructure which leads to hike in costs for both borrowers and lender;
8. Repayment problem;
9. Improper client services and delivery strategies;
10. Lack of re-financing facilities; and
11. Inconsistency in (and, at times, the lack of appropriate) rural and agricultural policies.

## **5.0 AGRICULTURAL CREDIT AND ECONOMIC DEVELOPMENT**

In Nigeria, agriculture provides food and income mainly through the small scale farmers. This category of farmers accounts for about 95% of the country's food products (Mafinisebi *et al.*, 2007). Small scale farming is characterized by low asset base, low fixed capital, labour intensive production, small farm size, low investment and expenditure on farm inputs, resistance to changes, poor management, low productivity and crude tools and equipment. These attributes are finance-related and the consequences are inability to optimize potentials, food insecurity and poverty at individual, community, local government, state and national levels.

Lack of adequate finance will make it impossible for small scale farmers to graduate to medium and large scale farmers. Consequently, the attainment of the Millennium Development Goals' target of alleviating extreme poverty and hunger will be a mirage (Koyenikan and Abiola, 2011). Udoh *et al.* (2002) reported that there is need for injection of capital into agricultural activities in rural areas since the fund required for farm expansion and greater use of modernized and improved inputs could not be provided by the resource poor farmers owing to widening demand-supply gap for investible funds. Sule (2006) observed that credit financed investments help the rural poor to produce for the market, generate cash surplus and accumulated savings which will be the basis for future income growth or production.

A country caught up in the quagmire of the vicious circle of poverty requires, not labour, land or management but an injection of capital to extricate it from that cobweb. By arguing for the importance of credit in development we are not assigning it a position of *primus inter pares*. We do not follow the line of thought of the mercantilists and bullionists who see capital accumulation as the *summum bonum* of all human activity. But are considering credit

from its ability to energize or motivate other factors of production in achieving the goal of its user. For instance, it can make the latent potential or under used capacities functional and rewarding.

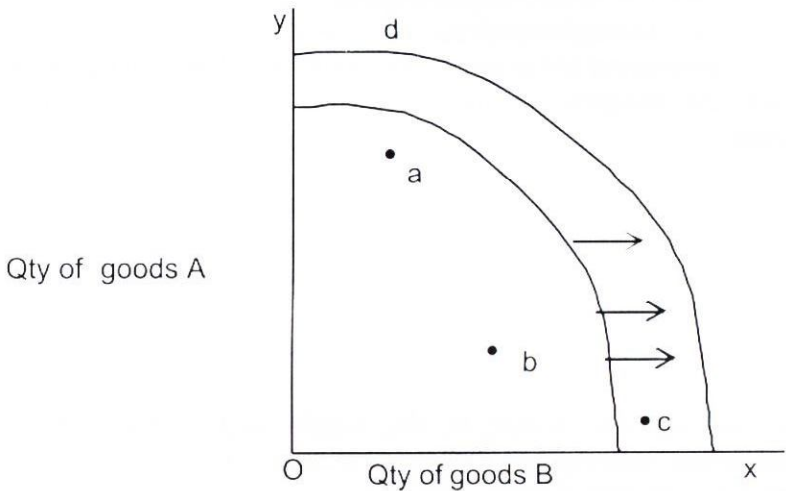
There are many instances where the influx of credit can be seen to be positively related to the rate of economic development. Consider the case of the farmer who uses simple implements such as hoes, machetes and diggers. He employs family labour because he cannot pay for the hired labour; relies on farm yard manure because he lacks money to buy fertilizer of the quality and quantity that his crops would require; limits himself to cultivating food crops when he could have added vegetable gardening, fish and poultry farming; and above all, sells his products in the local market patronized by poor clients instead of transporting them to distant and richer markets with greater possibilities for profit.

Okpi (1962) having observed such scenario in Nigeria quoted Guistino Fortanato, an Italian, who depicted the poor man as a person who has no credit because he is poor, and he is poor because he has no credit, and so he moves on helplessly in the same vicious cycle from which there is no way of escape. However, if that poor man possessed capital, he would overcome his poverty by applying credit to purchase needed equipment, goods and services, pay for labour and seek a better combination of the same to attain a more efficient use, weed, prune, harvest and process better, be able to transport his commodities to the point of greatest profit. Credit in the poor farmers' hand will, enable him reap the economies of scale, discover new and cheaper products, create demand where none exists and provide utilities to satisfy a widening market. Furthermore, it will generate in him the optimism and determination to venture into new fields by diversifying his business and therefore help in improving the economy of the area. After all, irrespective of the smallness of the farm, the small farmer if successful, he can provide a variety of jobs, decent income and food security. The small-holder farmer is also a businessman, they are not waiting for government, they are waiting for economic opportunities to grow their businesses. They are by so doing part of the solution to food sufficiency and security.

## **6.0 AGRICULTURE, ECONOMIC GROWTH AND ECONOMIC DEVELOPMENT**

Economic growth represents the expansion of a country's potential Gross Domestic Product (GDP) or national output. This happens when the Production Possibility Frontier (PPF) shifts upwards indicating an increase in production. This means that economic growth is achieved by increase in input factors and improvement in technology. A successive expansion in the process of shifting the production frontier upwards accompanied by certain institutional and structural changes can lead to economic development.

Economic growth means more output while economic development implies a combination of more output and changes in the technical and institutional arrangement by which output is produced and distributed. It implies changes in the composition of output and in the allocation of inputs by sectors. For instance, in the production of goods A and B in an economy, points a and b are possible within the frontier curve 1 while production at point c is not possible within frontier curve 1 but possible when we consider PPF curve 2. Point d is out of reach since it is outside the PPF but we can produce at point d if the PPF is expanded due to economic growth. Figure 2 shows the upward shifting of the PPF due to economic growth that resulted from increased production of goods A and B in an economy.



**Figure 2 :** The upward shifting of the PPF by economic growth.

In this case, if the economy remains on the production possibility frontiers it will be possible to increase the production of all goods over time, moving from point a to point c.

Economic development describes the underlying determinant of growth such as technologies and structural changes. An economy can grow but may not develop because poverty, unemployment and inequalities persist due to the absence of technological and structural changes. This picture depicts Nigeria's situation since 2004, with the economy grown by between 6% and 7% in national output but has not translated into improved welfare for the majority due to the non-provision of the needed infrastructure and employment for the citizens irrespective of the national growth. This we refer to as motion without movement. Generally, development consists of:

- increased material wealth for individuals and the nation,
  - eliminating unemployment,
  - eliminating poverty and want,
  - eliminating inequality,
  - increasing the general availability of labour saving devices,
- hence the modern emphasis on technology and technological growth.

The main purpose of economic development is to build capital equipment of a sufficient scale, to increase productivity in agriculture, mining, plantation and industry. The capital is needed to construct schools, hospitals, roads and railways among others, in the creation of economic and social overhead capital.

The agricultural sector is the single largest employer and contributor to the Gross Domestic Product in most African nations including our own Nigeria. The sector accounts for 30% of Africa's GDP and over 50% of the value of Africa's non-oil exports, and 70% of the population depend on agriculture for their livelihood (Jones, 2004). According to Oge (2007), a strong and efficient agricultural sector would enable a country to feed its growing population, generate employment, earn foreign exchange and provide raw materials for industries. This he further explained is because the agricultural sector has a multiplier effect on any nation's socioeconomic and industrial fabric, because of the sector's

multifunctional nature which has made it the engine of growth in virtually all developed economies. It is not surprising that IFAD (2013) stated that growth in agriculture equates to a reduction in poverty since growth generated by agriculture is eleven times more effective in reducing poverty than gross Domestic Product Growth in any other sector. Hence their strong advise to African Governments to invest in the agricultural sector:

Eicher and Wilt (1964) noted that there are no cases of successful development of a country in which a rise in agricultural productivity did not precede or accompany industrial development. They concluded that socio-economic development over the long run is not likely to occur if it is not tied to either an agricultural or industrial development. For instance, Brazil's stupendous economic growth and current status as a Newly Industrialized Nation (NIN) was facilitated by a sustained agricultural investment that revolutionized its farm sector. And this revolution could not have taken place unless and until the Vicious Cycle of Poverty arising from poor investment, small farm size, little output and little sales and inability to acquire new and use technologies were broken, hence the need for access to credit and its investment in the agricultural sector of the economy for its transformation and subsequent development.

In about forty years, the world population is expected to grow to over nine billion people, significantly increasing the demand for food and other agricultural products. It is also estimated that world food production will need to move up by 70% to feed a population of nine billion in 2050. The World Economic Forum (2013) recognizes that in order to achieve this, the world will need a new vision for agriculture – delivering food security, environmental sustainability and economic opportunity through agriculture. Agriculture cannot achieve these without adequate financing and development of the rural areas.

Arising from above and in line with Ijere (1998), the following

guidelines for credit policy are proposed :

1. ensuring that credit is provided in sectors actually in need of it,
2. preventing the starving of needy sectors of the means of growth because of ignorance of their requirements,
3. preventing credit flow into unproductive areas,
4. regulation of credit to serve as one of the weapons for income redistribution; as uncontrolled capital injection into the economy can lead to misallocation of funds as well as the build-up of large reserves against the weak and poorer segments of society,
5. ensuring that the provision of credit aids in the achievement of government set objectives of self sufficiency in food production, even development, equitable income distribution, job creation, training of adequate manpower,
6. ensuring that social inequalities are not aggravated by ill-formulated and ill-administered credit policies,
7. ensuring that there is provision for the acquisition of new technologies capable of raising production substantially.
8. coordinating production plans with household plans to ensure that loans for production are not diverted to consumption. This arrangement will ensure that provision is made for consumption credit in the production plan,
9. lowering high administrative and credit delivery costs by providing infrastructure, storage, processing and marketing facilities at cheap rates,
10. ensuring that credit does not enslave the farmer borrower through exorbitant interest rates, stringent repayment schedules, erratic price structure and other restrictive market prices,
11. proper understanding of the economics of credit use by those who administer credit schemes. Salient areas are
  - using credit to meet real investment needs and not for consumption,
  - applying credit in such a way that it will not lead to inflation or other price distortions,

- regulate credit injection in order to reflect the scale of preferences and priorities in the economy,
- reappraisal of interest rates chargeable on different kinds of loans to ensure that farmers get the best bargain,
- giving credit when there are possibilities of productive use and debt repayment.
- giving credit for consumption after investment .
- giving credit for adoption of innovations and technologies .

## **7.0 MY CONTRIBUTIONS TO KNOWLEDGE OF AGRICULTURAL ECONOMICS (Rural Financing and Development) SINGLY AND JOINTLY WITH OTHER RESEARCHERS**

Mr. Vice-Chancellor, sir, ladies and Gentlemen, I hereby present the summary of my humble contributions to knowledge individually and jointly with other co-researchers in Agricultural Economics.

Over the years, I have focused my research efforts on the economics of agricultural enterprises, especially among small scale farmers: determining profitability, resource availability, accessibility to finance, resource use efficiency, gender issues, poverty, rural and environmental development issues using survey research design for data collection; and analyzing them using relevant economic logic, statistical, econometric, financial and management tools.

### **7.1 Community Development and Household Income and Expenditure Pattern**

As far back as the mid nineties we had conducted a study on the structure and conduct of Community Development Associations (CDAs) in Imo State, Nigeria and found that most of the CDAs date back to 1940s; and they are at the apex of traditional indigenous associations in Imo State ( **Eze**,1999). Allied associations are found in the communities and they have some direct and/or indirect link with the apex CDAs. The functions of the CDAs do not differ

significantly. The objectives of the CDAs are mainly centred on fund mobilization for community development and maintenance of, peace and unity among its members (Eze, 1996). Membership of the CDAs is mandatory for all adult males and their wives. The relative membership index of the CDAs was 44% between 1989 and 1993 while the membership range was 4,784 to 8,951 persons with a mean of 6,904 persons per community. Figure 2 is the organizational structure of CDAs.

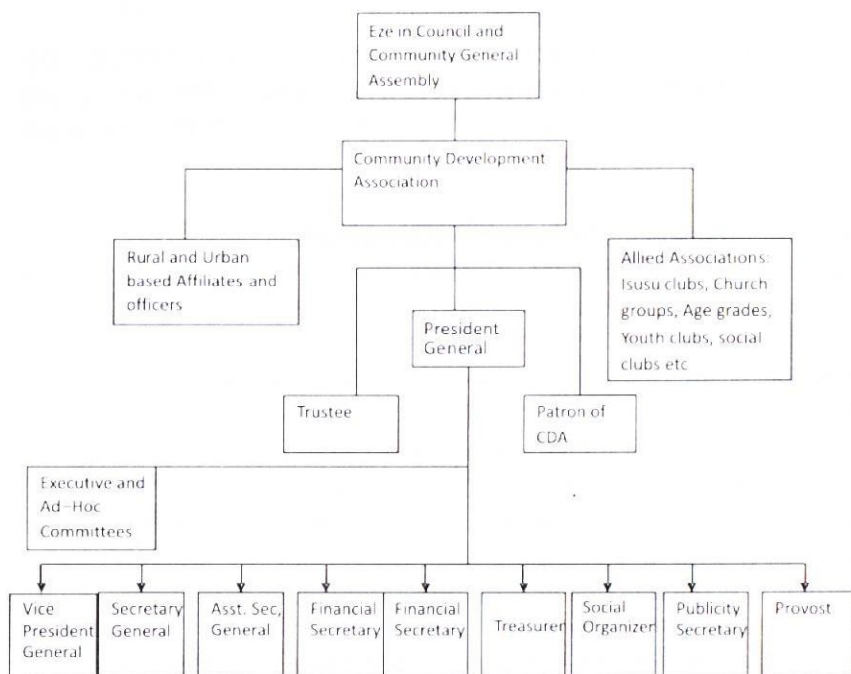


Figure 3 : Organizational Structure of CDAs (Source: Eze, 1999)

It was concluded that CDAs, though informal and traditional in orientation and nature, have adopted modern *modus operandi* that distinguish them from other traditional organizations and therefore could form the pivot for the modernization of our rural communities

by Governments and other foreign Non-governmental organizations.

In another study by **Eze** and Okorji (2002) on Fund Mobilization Sources and Members' Patronage of Community Development Association Activities in Imo State, Nigeria, we found that CDAs are not credit disbursement and loan issuing associations rather they are veritable rural based indigenous Associations whose priority is in the mobilization of the community for development purposes through internal generation of such developmental funds using various strategies for the fund mobilization such as levies, *imachiukwu*, registration, launching etc. With such funds the communities invest in the provision of rural social infrastructural (development) projects within the community. In general, we found that CDAs are organizations involved in labour, community, and fund mobilization, organization of local self help, planning and implementation of specific projects that would benefit their entire community members (**Eze**, 1996).

An understanding of households' consumption behaviour is important in household income and expenditure planning. Such information is needed to guide producers, consumers, programme planners and decision makers. Hence, Onyemauwa, Odi, Lemchi and **Eze** (2008) analyzed households' consumption of cereals in Owerri Municipal Area of Imo State, using descriptive statistics and ordinary least squared multiple regression technique.

The results showed that cereals were consumed in processed forms such as rice, maize, noodles, spaghetti and macaroni and 17% of their monthly income were spent on these cereals as against 10% spent on substitutes such as yams, plantain and garri. The prices of substitutes, household size and income variations were the statistically significant determinants of the quantity of cereals consumed. The results further showed that the households have high marginal propensity to consume (0.75); which implies that they spent a high percentage of their income on consumption and saved

only about 25% of such income with this being a hindrance to investment in any business even in cost saving processing devices for household use.

Furthermore food consumed in the households constituted the major area of expenditure among households. Eze and Olaoye (2003) showed that male-headed and female-headed households spent 64% and 66.80% of their income on food items respectively in the Abakaliki Area of Ebonyi State.

**Table 1: The Amount Spent on Areas of Expenditure by Households**

Items of Expenditure	Males Amt ₦	Percentage	Females Amt ₦	Percentage
Food	31538.50	64.00	25045.32	66.80
Non -food items	8525.30	17.30	7948.52	21.20
Savings & investment	9215.20	18.70	4499.16	12.00
Total	49279	100.00	37493.00	100.00

*Source: Eze and Olaoye (2003)*

**Table 1** shows that male-headed farmer households saved and invested more than their female counterparts. These men saved and invested in livestock, agricultural inputs and implements for either further production or for the rainy day. The balance of the farmers income are devoted to purchasing non-food consumables needed in the households such as clothing, medicaments, cosmetics, home cooking utensils etc.

Women expended 21% of their income on these non-food items and this goes a long way to show that women are better home carers than the males since they spent about 88% of their income on food and non-food domestic items needed in the homes. The study exposed

the resilient nature of women income generating activities in the rural communities of Nigeria. In spite of their indispensable role in the home as child bearers, and rearers and home maintainers as well as income earners, their activities are somehow not duly recognized in Gross National Product (GNP) accounting.

The common view is that the rural areas are driven almost entirely by agriculture. Policy-makers view policies to combat rural poverty as policies to enhance farm productivity. Hence, Ibekwe, **Eze**, Onyemauwa, Henri-Ukoha, Korie and Nwaiwu (2010) examined the determinants of farm and off-farm income among farm households in South East Nigeria. The data collected from the sampled households were analyzed using simple descriptive statistics and ordinary least squared (OLS) method of regression analysis. The aggregate household income from farm and off farm were computed as N216,317.17 and N153,428.24 per hectare respectively. This means that of a total amount N369,737.41/ha generated for the period, 58.50% and 41.50% were from farm and off-farm incomes respectively. Though these activities had something to do with farming they are adjunct to farming. Farm size, age, educational level, occupation and hours spent on the farm were found to be the important determinants that influenced both the farm and off-farm incomes of the farmers. Age showed a negative relationship to income of both farm and non-farm operators while other variables such as farm size, occupation, household size, farm investment and value of farm output showed a negative relationship to off-farm income of the farmers. It was only educational attainment that showed significant and positive relationship with farm income. Education and training produce a labour force that is mobilized, more skilled, prone to risk taking and adaptable to the needs of a changing economy. The implication of this study however, is that agriculture is not the only economic operation farmers carry out in the rural communities, since over 40% of income are also generated from off-farm economic activities in the study area.

Ibekwe and **Eze** (2005) used the income distribution (Gini-

coefficient) model and incidence of poverty index to measure the poverty level in Imo State. The results showed that the elites or the richest households represent an abnormal subset of the observed distribution of income pattern. They were economically better with a mean household income of more than twice the overall *per capita* income of N7,524.73. The ratio of mean *per capita* income between the poorest deciles and the richest deciles was 1.6. This ratio showed that income levels were not highly concentrated, but varied around the low overall mean level of N7,524.73. This is expected in a population whose mean earnings do not greatly exceed the subsistence level of income. Gini coefficient of 0.488 was determined and indicated higher level of income disparity among the farm households. The incidence of poverty (head count of poverty) was 34%, extreme poverty 2%, depth of poverty 20% and severity of poverty 21%. This picture was determined at a poverty line of 2/3 of *per capita* income and 1/3 *per capita* income for extreme poverty. It was concluded therefore that since the majority of Nigerians (95%) reside in the rural areas, the growth of the Nigerian economy should not be detached from the development of rural agriculture and economic activities. And if such is not done, the income distribution in the country would worsen. Therefore we recommended equity in income distribution, structural changes in composition and availability of employment and financing agricultural production which are associated with broad based sustainable rural growth and development.

In Nigeria and in most developing countries the vast majority of working children are engaged in agricultural work and mainly in farms owned or operated by their parents (International Labour Organization, 1996) . And International Labour Organization defined child labour in Convention no. 138 as economic activity performed by a person of less than fifteen years of age excluding some part-time work performed by children more than twelve years old . Castle and Diarra(2004) associated child labour with income poverty and often reflects the fragility of a country's struggle toward greater economic prosperity. In low-income countries, child

labour declines when the Gross Domestic Product(GDP) *per capita* increases (UNESCO,2007) . Hence, we say child labour is not only a symptom of poverty, it is a contributing factor. Therefore, Ben-Chendo, Lemchi, Ohajianya, **Eze**, Emenyonu and Ehirim(2012) decided to examine household poverty and its effects on child labour use among palm oil processors in Abia State, Nigeria using Foster-Greer-Thorbecke (FGT) poverty index. We were able to establish a poverty threshold using the two-third of **per capita** income (a relative poverty threshold ) estimated at N8,998. Table 2 shows that households whose children are engaged in child labour were poorer than those whose children were not engaged in child labour activities, this applied to the three variants of FGT poverty measure. Within the group of households whose children engage in child labour less than 28% are living below poverty threshold compared to 18% and 22% for households whose children do not engage in child labour activities and all households respectively.

**Table 2: Poverty Profile of Households**

Categories	PO	P1	P2
All households	0.223	0.143	0.087
Households engaged in child labour	0.274	0.200	0.124
Household not engaged in child labour	0.175	0.075	0.044

*Source: Ben-Chendo et al., 2012*

The poverty gap was also larger for households that engaged in child labour activities, the average poor households income fall by 20% compared to 8% and 14% respectively for households without child labour activities and all households . Also poverty is more severe for households whose children engaged in child labour activities because the opportunity cost for education is work which in no way contribute meaningfully to human capital development . Moreover, these children involved in child labour are faced with hazards which affects their social, mental and physical development. Among the hazards these children are involved fall from trees (23.31%), snake

bites(19.5% ), poor performance at school (19.55%) and absence from school (16.54%) were the severe hazards while the minors were aches and pains (1.5%), and lateness to school (4.51%). We concluded that if the Millennium Development Goal on education for all by 2015 must be met, the level of poverty must be reduced through employment generation in the agricultural sector; education and enlightenment of parents, entrepreneurship skills training and provision of needed credit to fund their choice businesses.

In 2013, Maduike, Adesope, **Eze** , Njoku , Nwaiwu and Korie (2013) examined the factors that affect rural livelihood opportunities in providing sustainable income for the Youths of Imo State. The field data showed that the youths were engaged in both non-agricultural and agricultural economic activities and realized a mean income of #8,624.97 and #4,054.23 per month respectively. This implied that the non-agricultural economic activities sustains these youths since it was above the poverty line(\$1.86) , using the \$1.25 a day index (at the rate of #156 per dollar) while the mean for agricultural activities was below the poverty index (\$0.87). Though these youths believe in their skills and abilities to continue generating their livelihoods in the rural areas , inadequate capital, poor electricity supply, inaccessible roads and lack of potable water were the major factors militating against the rural youths' livelihood sustenance . Hence we recommend that apart from provision of the utilities lacking in the rural areas, agricultural and non-agricultural entrepreneurship skills be developed among the youths to ensure their sustainable livelihood and rural development . In a similar study, Maduike, Adesope, Eze , Nwaiwu and Ukoha (2014) reported that youths spend their income on clothing , transportation , feeding and family care. The rural livelihood interest assessment showed that the youths seek economic independence which have interest in rural livelihood generation. Though they believed that there are more and better opportunities in the cities , they felt highly committed towards the development of their communities. We recommended that youths should be empowered in their local areas of interest so as to ensure a better living and development.

Social Capital comprises of the social resources (e.g. network, membership of groups, relationships of trust, access to wider institutions of society) upon which people draw in pursuit of livelihoods. There are ample anecdotal evidence of the influence of social capital on access to different types of employment and an increasing amount of empirical research that support this also. Narayan and Paritchett (1997) demonstrated with an econometric model for Tanzania, that social capital has a higher influence on household income than human or physical capital. Hence, we investigated the influence of social capital on rural livelihood income generation strategies of farm households in Imo State, South East Nigeria (Korie , **Eze**, Ibekwe , Lemchi, Obasi and Ohajianya,2012 ). The results showed that rural farm households depend on motorcycle and bicycle for transportation and mobile handset operators ensured information flow and made reasonable income for the household use. The nearness of health centers, hospitals and rural activity centers influenced income generation in rural areas. Also rural markets serve as a focal point for economic activities for the households. We concluded that social capital injection by Government and Non-Governmental agencies will positively affect income generating activities of the rural economy through employment creation and resource diversification for sustainable rural development.

A three stage least squares (3SLS) model was used to determine the farm income generating strategies among the rural farm households in Imo State , Nigeria. In this study, Korie, Okorji, Nwagbo, **Eze**, Lemchi, Ibekwe, Ohajianya, Onyeagocha, Nwaiwu and Osugiri (2012) found that age and gender of household members significantly but negatively influenced income generation of the households. Variables such as education, farm size, crop and animal production activities, access to credit, labour experience, sales from forest products, palm wine tapping and membership of social organizations significantly and positively determined the income of the households. The coefficient of multiple determination was computed as 0.9007. This implied that 90.07 percent of the

variation in farm income generated by the households was explained by the independent variables captured in the model. In a related study, Ibekwe, Okorji, Nwagbo, Eze, Henri-Ukoha, Osuji and Enyia (2012) used Logit regression model which showed that farm size, education, value of agricultural produce, land ownership, livestock value, early planting, distance to market, presence of secondary school, access to hospital and company were positively and significantly related to farmers income generation. However, age and migration were negatively and significantly related to income generation of the farmers. We concluded that a diverse portfolio of activities had positive effect on the total household income of the farmers investigated. We emphasized that livelihoods should seek to maximize welfare in terms of multiple household objectives including secured provision of food and essential subsistence goods and services, savings and social security as well as risk coping within the milieu of their operations. Also, Enyia, Ibekwe, Eze, Obasi and Ohajanya(2013) using multivariate logit model on farmers off farm income activities found that education, household head age, family size, migration, presence of secondary school, access to hospital, distance to major road, access to electricity, access to pipe born water, skilled/unskilled, presence of company and late planting significantly influenced the farmers decision to participate in off farm income activities. However, the female headed households had less income from their off farm income activities than their male counterparts.

## 7.2 Agricultural Marketing

Eze and Orebiyi (2005) using net return analyses to determine the profitability of pineapple marketing in Owerri, Imo State, Nigeria. The marketers' efficiency was also determined using the ratio of marketing input and marketing output. The decision rule was based on Kohls and Uhls (1980), that is, if the ratio is high above 0.5, it means that the market is efficient and if it is low below 0.5, it means that the market is inefficient. The results showed a gross return of N60,285/tonne sold and the Net Return to risk and management was N9,703.77 per tonne. The efficiency of marketing was 1:70 or

70%, indicating that the pineapple marketing was efficient. This level of efficiency could be improved if the marketers could overcome the challenges of high costs arising from transportation due to weak road network, spoilage, poor power infrastructure, storage and credit facilities in the area as well as improving the marketing channel.

Orebiyi and Eze (2005) exploratorily surveyed the process of marketing of rice in Anambra State with particular reference to rice processing, storage and pricing. The results of the analyses showed that old people who are mostly illiterate but highly experienced engaged in rice marketing business. Furthermore, there was a significant difference in the marketing prices of processed and unprocessed rice as well as stored and un-stored rice. A greater percentage of the rice marketers process their rice through the local mills, which have no facilities for de-stoning or polishing before they are sold. Local or crude storage facilities such as bags, sacs, drums and warm rooms, which are susceptible to pests and diseases infestations, are commonly used. These findings have been largely responsible for the inefficient marketing system of rice in the State. An efficient processing and storage facility will act as an incentive which will increase the output level of rice and the farm and marketing income(s) with a multiplier effect of better living standards for the producers and marketers, majority of who live in the rural areas. Also an injection of adequate capital into the business will enhance its operators' income and livelihood.

In 2006, Eze and Anumihe examined the efficiency of onion marketing in Ikeduru Rural Markets in Owerri Zone of Imo State, Nigeria. The results showed that trading stock and transportation contributed the highest to total variable costs with 82.48% and nine percent respectively. A gross margin of N20,165 per tonne (14.14%) of sales receipts was realized by the marketers. The marketers' productive efficiency as measured by the production function showed that the marketers operated in the stage one of the production surface with a return to scale of 0.882. This means

inefficiency in the application and use of the productive market resources. This implies that as long as resources are not fully used and appropriately applied in marketing of onions or any other crop or business, so long would the market operators continue to earn low returns in the structurally inefficient rural markets with its attendant poverty related implications on the operators . It was recommended that the operators should form groups to take advantage of resource pool to reduce their costs, obtain credit and enhance their educational level through seminars and workshops, as well as improve on their storage facilities and security of their businesses.

Nigeria has always been referred to as the house of palm trees. This unique environmental endowment was seen to translate into economic and commercial benefits for owners of palm trees. Hence we conducted an evaluation of processed and unprocessed oil palm fruits in Imo State, Nigeria (Eze, Orebiyi and Eze, 2008). Our findings showed that the predominant method of processing palm fruits was a combination of hand/manual pounding and mechanical processing. The average gross return for those who harvested and sold the palm bunches was N202,500.00 per tonne while those who harvested and processed palm fruits into palm oil and palm kernel realized a gross return of N356,589.26 per tonne. The net returns for those who sold palm fruit after harvest was N153,550/tonne with a standard deviation of 49,018.12 while the net return for those who processed palm fruit was N241,859.26/tonne with a standard deviation of 12,076.31. The Z-calculated value was computed as 10.56 which was significant at 5% ( $Z_{tab} = 1.73$ ). The implication of this result is that the method of harvesting and processing (in which value is added ) before sale is more profitable than the method of harvesting and sale of bunches. An OLS analysis shows that farm size, volume of credit, labour cost, season of harvest, operating expenses and age of palm trees significantly affected the net returns of the palm fruits processors. However, the rigors in processing palm fruits has been the reason behind the reduced interest in the processing. We therefore recommended the processors forming

cooperatives to enable them purchase machines and new technologies for easier processing of palm fruits into palm oil.

**Eze (2007)** analyzed the marketing margin and determinants of net returns of beef marketing in SouthEast Nigeria using costs-returns principles, multiple regression analysis and descriptive statistics. The results showed that the marketers' gross margin for trading was N9,790 per 250kg dressed beef, with a net return of N8,605 and an average sales receipt of N78,400/250kg. The purchase price of meat (beef), transport costs, other costs (garage fees, storage, taxes), experience in the trade and level of education significantly ( $P < 0.05$ ) affected the traders' net returns. Insufficient capital, inadequate stock supply, high transport and storage costs were identified as major problems associated with meat trading. The beef market inefficiency has been attributed to these problems since the meat may not be readily available in sufficient quantity, at the right price and quality. From this analysis, it is not surprising that meat consumers in the area could not be in position to buy the quality of beef to satisfy the recommended minimum of 28g of protein daily (Ibe, 1999).

**Eze et al. (2006)** analyzed land snail marketing in Owerri Agricultural zone of Imo State, Nigeria using profitability principles. It was found that the marketing cost for wet and dry season snails were N25,940 and N40,630 per 50kg sac bag while their gross return was N28,175 and N43,680 per 50kg sac bag for the same periods respectively. The economic marketing efficiency for snail was 1.09 and 1.08 for wet and dry seasons respectively. The inefficiency of the snail market was attributed to the problems of marketing such as the nature and source of supply, (mainly from "gatherers"), poor storability, seasonality and excessive cost price. With our population and the nutritional value of snail, snail could be a very profitable venture but where is the pull that can push this to achieve our meat sufficiency intention. Hence our recommendation that snail farming should be encouraged and its nutritional values advanced for the benefit of man instead of our current reliance on

“limited” or gathered” snail.

*Garcinia kola* (bitter Kola) is a tropical tree crop found in Nigeria, other West African Countries and Central Africa. Its seed has both economic and medicinal values. **Eze and Eze (2007)** showed that the income potential from the bitter Kola seed resulting from its demand by the Medical industries, beverage industries, traditional medicine practitioners and socio-cultural users will give a farmer who domesticated the trees the challenge of meeting the needs of those varied users at any point in time. Also **Ngene (2006)** reported that the commercialization of bitter Kola has contributed in improving the standard of living of the villagers who trade on it. We sampled three rural markets in Enugu State that have the reputation for marketing bitter Kola nuts and randomly selected 180 sellers of the product. We used costs –returns and regression models in analyzing the data. It was found that the marketing of the bitter Kolanuts during dry season had a profitability index of 1.85 while that of the wet season was 1.17. This result is not surprising because, most demand and use for bitter Kola nuts are made during the festive periods which usually come up during the dry season. Also the regression analysis showed that 76.30% and 95.30% of the socio economic variables such as age, sex, educational level, trading experience and household size explained the variations in the marketers' net returns for the wet and dry seasons respectively. We concluded that bitter kolanuts was of great economic value to the marketers and could be a business for poverty alleviation if well funded and the right facilities provided for storage and evacuation. In 2013, **Ben-Chendo, Eze and Asiabaka (2013)** examined Value addition to Plantain by women Entrepreneurs in Imo State , Nigeria and found that these women employed an average of four workers for production and six sellers for distribution of plantain chips to retailers and supermarkets . From a mean startup capital of #86600.30 sourced from personal savings and informal credit sources, the plantain chips business yielded a net profit of #388,173. per annum with a return to investment of 48 kobo per one hundred naira investment. The success of these women stems from the

training the women received from non-governmental organizations and mentoring by fore-bearers in the business.

### 7.3 Production and Resource Economics

Increased agricultural productivity depends on the acceptability of the innovations and the willingness to invest in them. For farmers to adopt and successfully use improved farming techniques, effective agricultural extension services is needed. This will go a long way in helping the Nigerian government to address the national food question. Consequently, **Eze et al.** (2006) studied costs and returns analysis of improved and alternative cassava production technologies in Enugu State, Nigeria. Data were collected from a random sample of 250 farmers and 30 extension staff in Enugu State and were analyzed using descriptive and costs-returns principles. The results showed that the improved cassava technologies users made more returns when compared with farmers who used alternative technologies. The ratio of the gross margin of improved cassava technology to the gross margin from the farmers' alternative technology was found to be 3:1. This implies that the improved cassava technologies are three times more profitable than the farmers' alternative technologies. This holds some promise for improved cassava technologies and has implications for farm level investment by the farmers, particularly if the farmers adopted the complete package for the cassava technology, including adequate credit supply in the study area.

In Imo State, three cassava processing methods exist, namely modern, traditional and what we called a "hybridized trade-modern mechanical method" (Okorji, **Eze** and **Eze**, 2003 ). Six processed cassava products were identified among rural women cassava processors in Owerri Agricultural Zone of Imo State, Nigeria. These products were produced after undergoing about 15 operational processes depending on the different products which include garri, akpu, akara-akpu, tapioca, starch and flour. The time spent on producing any of the products depends on the technique of processing adopted. An average of eleven(11) and eighteen (18

hours respectively was spent on processing 100kg of cassava tubers into garri product using trado- modern mechanical and traditional methods. Twenty eight (28) hours was spent in processing cassava tuber into tapioca, using traditional methods. It was found that using trado-modern mechanical method in cassava tuber processing was more efficient in terms of output, labour input and costs than traditional method. This corroborates the records of IFPRI (1995) which reported that farm capital contributes positively to yields and processors that can ill afford them are likely to have lower yields.

The time wastage in the processing of 100kg cassava tuber into various products using what we referred to as trado-modern mechanical method amounts to serious human resource wastage(Okorji, **Eze** and.Eze, 2003). This is despite the availability of cassava processing equipment developed by the International Institute for Tropical Agriculture (IITA) Ibadan. But the question is; can the processors afford them? This therefore brings to the fore the challenge to those of us in Technological Universities in designing and fabricating low cost and efficient processing equipment and other items that will reduce both the time spent on each operation and the tedious labour requirement for each farm activity which leads to low yield and poverty among our farmers.

Irrespective of the problems we face in processing our cassava products, Nwankwo, Nwajiuba and **Eze** (2010) found that the quality of industrially produced cassava products in Nigeria is suitable for export markets and that the alleviation of poor power supply, bad road network and poor financial base will further improve the products qualities. For instance, National Root Crops Research Institute (NRCRI) obtained the best moisture content MC (6.0%) and hydrogen cyanide (HCN) 6.5mg/kg for cassava flour and M.C (7.3%) and HCN 8.2mg/kg for garri against the internationally accepted quality of 10% MC and 10mg/kg of HCN for flour and 7.0MC and 20.0mg /kg HCN for garri (Sanni *et al.*, 2005).

In a study, Korie, Eze and Ugochukwu (2006) assessed the pattern of land tenure system and entitlement, crop production practices and resource use among the farmers in Imo State, Nigeria. The results showed that majority (74%) of the respondents operated on less than 3 ha farmland which they inherited from their parents. The farm size is not surprising due to continual fragmentation of land along the family lineage from father to son, and from son(s) to son(s). This is a continuous process and farmers who depend on this type of farm land ownership cannot produce beyond subsistence level. Majority allow their farmlands to fallow for only one year, some planted cover crops while others carry out mulching as a means of improving the fertility of the soil. Table 3 shows the distribution of the respondents according to labour resources in use.

**Table 3: The Distribution of the Respondents According to Labour Resources in Use**

Labour Type	Clearing Frequency		Land Preparation		Planting		Weeding		Harvesting		Average
Hired	51	56.7	40	44	28	32	26	28.8	22	24.4	37.18
Family	39	43.3	50	56	62	68	64	71.2	68	75.5	62.82
Total	90	100	90	100	90	100	90	100	90	100	100

*Source: Korie, Eze and Ugochukwu (2006)*

Sixty-three percent of the labour used were sourced from the family while 37% were hired for the different farm operations. With this source of labour, the farmers are entrapped in the Vicious Cycle of poverty because they will continue to produce for the household and at subsistence level and at low economic value which cannot help to expand their farms or acquire new innovations, hence the cycle continues.

In a study on Land tenure system and agricultural productivity in Ihitte/Uboma Area of Imo State, South East Nigeria, Eze et al

(2012) showed that 85% of farmland holding was on individual basis, 13% on a combination of individual and communal basis while 2% practiced communal land tenure system. The majority (41.67%) acquired their farmland holdings through inheritance and purchase, 15% by inheritance, 13.33% acquired land by inheritance and leases. Ten percent of the respondents acquired their land by a combination of inheritance and communal means. Only about 2% acquired land by communal means. These means of farmland tenure system and acquisition were found to be hindrances to crops farms consolidation, mechanization, adoption of innovations and commercialization in the study area.

We also tried to look at resource use efficiency in arable crop production among smallholder farmers in Owerri zone using farmers who planted cassava, maize and egusi(melon) crop mixture during the preceding farming year (Eze, Amanze and Nwankwo, 2010). Multiple regression model was used to determine the influence of various inputs on the crop output. The Cob Douglas (Double log) function was used. Allocative efficiency of the resources used was assessed based on the ratios of the Marginal Value Product (MVP) to the Marginal Factors Cost (MFC). A firm maximizes its profit with respect to an input if the ratio of its MVP to its MFC is one. A ratio of less than unity shows over utilization of the resource and profit would be increased by decreasing the rate of use of that input. A ratio greater than unity shows under utilization of resources. And an increase in the rate of use of that input will increase the level of profit of the firm (Eze, 2003; Olayide and Heady, 1982). The results of the analysis showed that resources were not efficiently allocated by the farmers and there was an increasing return to scale (1.28) in crop production. Also the input used in production had significant effect on the output of the farmers. To reduce the negative consequences of inefficient resource use, therefore farmers should be educated by Government and Non-Governmental agencies on the fundamental farm management skills which will enable them to plan, evaluate, appraise and predict their farm business activities for increased productivity. For the reason of

highlighting the need to preserve some crop species and enrich research on cocoyam production in Imo State, we engaged in a study on resource use efficiency in cocoyam production in Ihitte /Uboma Area of Imo State, Nigeria. Cross sectional data were collected from women cocoyam farmers who cultivated cocoyam in the preceding year. The major tool of analysis was the ordinary least squared multiple regression model. It was found that the Marginal Value Product (MVP) ratio to the Marginal Factor Cost (MFC) showed that farm size was the most efficient resource used while the least was fertilizer. **Eze** (2003) showed that generally, the resources used were not used within the rational range or at economically optimal level. Reduction in the use of some resources like labour and farm size and enhanced use of fertilizer could increase the level of profit in the production of cocoyam in the study area.

In another study, we found that cocoyam production is profitable both under improved and local technologies, yielding a net return of N162,983.81 and N134,482.91 per hectare, for improved and local technologies users respectively, despite the neglect and under rating of cocoyam by farmers, consumers and researchers (**Eze and Okorji, 2004**). We recommended that farmers should adopt and effectively use improved technologies that are available in the cultivation of the crop. These may include fertilizer application at the right quantity and quality, mini-sett seed cocoyam and the intensification of extension services in the area (**Eze and Okorji, 2004**).

In our study on resource use efficiency and productivity of food crop farmers in Idemili North of Anambra State, Nigeria, we found that farm size, labour and planting materials influenced farm revenue, there was positive partial and total factor productivity of resources applied in the food crop farms. Table 4 shows the partial and total factor productivity of farmers in Anambra State.

**Table 4: Partial and Total factor productivity of farmers surveyed**

<b>Variables</b>	<b>Values(N)</b>
Average Returns	189,148.13
Average total cost	101,109.83
Average amount of equity capital	54,890.56
Average cost of labour	87,370.15
Average cost of fertilizer	7,947.30
Average cost of planting materials	1,484.38
Average rent on farmland	3,322.38
Average depreciation of assets	985.38
Productivity of equity capital	3.45
Productivity of labour	2.16
Productivity of planting materials	127.43
Productivity of fertilizer	23.79
Productivity of farm lands	56.93
Productivity of farm assets	191.94
Total Factor Productivity (TFP)	1.87
Standard deviation of TFP	1.44
Variance of TFP	2.07

*Source: Onyemauwa, Eze, Emenyonu, Osugiri, Nuadi and*

Though the farmers inefficiently used farm size, labour and planting materials, *ceteris paribus*, in the production of food crops, yet these resources contributed jointly towards the output recorded by the farmers particularly their return to scale of 7.19 which signified increasing returns to scale with the farmers operating in stage one the production function. We concluded that improvement in the utilization of these resources will lead to improved output to the benefit of the farmers and the consuming public. Eze, Okere, Maduike and Ben-Chendo(2013) investigated the efficiency of resource use and returns to scale among broiler farmers in Imo State. This study showed that broiler farmers operated in the region of increasing returns to scale with 1.141 elasticity of production(EP)

. The farmers made an average net revenue of #291,192.10 with 66.0 kobo return on investment. We concluded that though the farmers made profit from broiler business, yet they inefficiently allocated the resources which affected the overall returns to the farmers. We recommended that farmers should either keep labour constant and increase their farm size or keep the farm size constant and decrease their use of input for increased profitability of their enterprises. Also, Iruo, Eze and Nwosu (2013) estimated the resource use efficiency of small-holder fish farmers in the Niger Delta region, Nigeria. We reported that the fish farmers over-utilized the resources of fingerling, labour, feed, pond size and under-utilized capital. The fish farmers were producing at the region of increasing returns with 3.36 EP. This implies that the farmers did not efficiently use the resources available to them in fish production. We concluded that these farmers should be educated on efficient resource use management techniques particularly on feed formulation and production, stocking density of fingerlings and pond management.

#### **7.4 Technological Adoption and Impact Assessment**

Eze *et al.* (2006) determined the adoption of improved cassava production technologies among farmers in Enugu State, Nigeria. We were able to identify the cassava production technologies at different stages of adoption by the respondents. These are adoption of improved cassava cuttings, use of herbicide(s) and pesticides, use of fertilizers, machinery, weeding interval, harvest time, improved storage and processing and planting angle. The overall mean adoption score and index were 0.96 and 0.191 respectively. The low level of adoption was attributed to cost of the adoptable technologies, its inappropriateness, scarcity or non-availability of the technologies in the study area. Heidhues (1994) noted that an agricultural innovation could be adopted if among other factors the input and output relationship is more favourable, procurement cost is low and the risk of adoption is low. Hence success of the innovation becomes visible sooner or later and the innovation is simple to handle. The analyses showed that level of education, age of farmers, farm size,

farm income and extension visits were the major determinants of the adoption of cassava production technologies at 5% level of significance. It should be noted that wealth (finance) and adoption of innovations have very strong relationships (Madukwe, 1993). This is because new ideas are costly to adopt and requires an initial large amount of capital outlay. Our observation was that the farmers who adopted most of the improved technologies were the well to do farmers in the study area. We therefore recommended that the agricultural authorities should critically consider these determinants and other reasons for non-adoption of innovations in the study area towards assisting the farmers achieve the much talked about self-sufficiency in food production and enhancement of the farmers' income and well being. It was our view that sustainable long term agricultural performance and transformation would mostly centre on investments into value addition and creation and the brand equity it generates, while productivity and innovation schemes will assist in re-engineering agricultural production and create employment and improved well being.

Agriculture in Nigeria as in most other developing countries is dominated by small scale farm producers. These small-holder farmers although they seem individually insignificant, they collectively form an important foundation upon which Nigerian Agriculture rests (Amanze, **Eze** and Eze, 2010). Small-holder farmers are farmers whose production capacity falls between 0.1 and 4.99 hectares holding (Federal Office of statistics, 1999). A small-holder farmer has among his or her objectives the need to satisfy household food needs and achieve a little surplus for the market. These farmers face poor soil fertility and the problem of how to improve the fertility of the soil and hence the productivity of the soil for increased agricultural production. Amanze, **Eze** and Eze (2010) examined the factors influencing the use of fertilizers in arable crops production among small holder farmers in Owerri Agricultural zone of Imo State using multivariate logistic regression analysis. The farmers used for this survey were those who planted cassava, maize and egusi (melon) intercrop/ crop mixture during the

preceding farming season. The average farm size of the farmers was found to be 1.39 hectares and they had only two (2) extension contacts per month. The multivariate logistic analysis showed that output of crop, level of education, farm size, farming experience, extension contact and price of fertilizer were significant at  $P > 0.01$ , implying that the variables are the important ones influencing farmers use of fertilizer in arable crop production in the study area. All the significant variables had positive relationship with use of fertilizer, except price of fertilizer; implying that the farmers respond to the dynamics of the market forces of demand and supply. We recommended the need for reduction in fertilizer prices and putting to work more extension staff, who will visit, interpret and demonstrate research findings to the farmers for greater output.

### **7.5 Agricultural Finance and Rural Development**

Nigerian agricultural policy provides, among others, for adequate financing of agriculture. The role of finance in agriculture, just like in the industrial and service sector, cannot be over emphasized given that it is the oil that lubricates production (Eze *et al.*, 2010). Public expenditure on agriculture has however been shown not to be substantial enough to meet the objective of the government agricultural policies (IFPRI, 2008). For a developing country with a mono-product (oil) economy such as Nigeria, inadequate financing of agriculture portends great danger for many reasons. For one, fluctuating food prices are a precursor of inflation. Secondly, from the expenditure approach to national income accounting, it is likely that Engel's law that a large chunk of expenditure in developing economies goes to food, holds meaning. Hence occasional and undue shocks to the domestic agricultural production and supply could be damaging to price stability. Thirdly, there is the perspective of food security, in an era when food has been used as a weapon of war (UN oil for food deal in Iraq) and as bargaining tool (North Korea - US food deal). Even within Nigeria, the Federal Military Government during the Nigeria - Biafra war used food blockade as tool of war. In the light of the above, the Nigeria government's objective in agriculture financing is to establish an effective system of

sustainable agricultural financing schemes, programmes and institutions' macro credit facilities for the micro, small, medium and large scale producers, processors and marketers. The agrarian sector has a strong rural base, hence, concern for agriculture and rural development become synonymous because they are from a common root. Eze *et al.* (2010) examined agricultural financing policies and rural development in Nigeria. The results showed that between 1990 and 2002 the budgetary allocations to agriculture was a mere 2.96% of the total annual budget for the period, the worst was in 1999 when only 1.28% was budgeted. However, the actual expenditure was grossly inadequate and fell far short of the budgetary allocation. Between 2001 and 2005, study by IFPRI (2008) showed that public spending on agriculture was less than 2 percent of total Federal expenditure. Public expenditure on agriculture in Nigeria has been shown not to be substantial enough to meet the objective of government agricultural policies. Also anecdotal evidence suggests that returns to investment by these public expenditures have been disappointing. The principal factors for this, other than low levels of funding *per se* include poor linkages between research, extension services, farmers and policy makers. This spending contrasts dramatically with the contributions of the sector to Nigerian economy which ranged between 20% to 30% of Gross Domestic Product between 1996 to 2000 and between 41% and 42.30% in 2001 – 2007 (CBN 2007) and falls far below the 10% agriculture expenditure goal set by African leaders in 2003 called the "Maputo agreement" and short of 25% set by the International Fund for Agricultural Development (Anyanwu *et al.*, 2010; Akroyd and Smith, 2007). At the State level and particularly in Imo and Enugu States 2.3% and 2.4% agricultural expenditure were recorded respectively. The average for the States in 2005 was 8% (HOR, 2005).

Nearly 60% of total capital spending in agriculture goes to government purchase of fertilizers and to buyer of last resort grain purchase. Public agricultural projects and programmes implementation approaches most times differed significantly from

those described in the policy documents. Most of the time very low funds are made available for activities considered vital for promoting agricultural productivity gains, thereby leading to none execution of pro-poor growth in such areas as basic and applied agricultural research, agricultural extension and capacity building, agricultural credit, irrigation development and agribusiness and rural development . At the end we recommended among other things that the Government of Nigeria needs an adequate level of strategically targeted investment in agriculture, hands off fertilizer procurement, upgrade rural infrastructure, boost productivity, increase the competitiveness of farm out-put through value addition and making the anti-corruption agencies more effective and efficient.

**Eze** (2006) investigated the provision of credit by indigenous financial institutions in South East Nigeria using descriptive and repayment rates to analyze the data. The results showed that out of N2,380,000 demanded, N1,950,000 (82%) was obtained by the respondents and 85% of the sum was invested in farm business and ten percent went into payment of school fees of children. These borrowers paid interest on their loan(s) at an average annual rate of 20.8%. The repayment rate recorded was 73.64%. Though there were cases of loan diversion, yet the rate of default was 26.36%. Each beneficiary obtained an average of N16,250 for business or consumption. With this low amount granted, sustainable farm business or any business is far- fetched. A policy which links the indigenous financial institutions to the formal institutions should be encouraged and advocated to enable these indigenous financial institutions to effectively play their role in agricultural lending, agricultural production and rural development; as well as fully act as organ(s) for liberating the people from the Vicious Cycle of Poverty.

In 2011, Orebiyi, **Eze**, Henri-Ukoha, Akubude and Ibitoye investigated the demand for institutional credit from NACRDB by small scale farmers in Imo State, Nigeria. The field data we analyzed showed that the farmers demanded an average of N231,896.29 while an average amount of N 211,655.56 was granted

to them as loans. This means that the farmers were granted loans within the range of the bank policy of N250,000.00 maximum for micro credit in Nigeria. A further analysis showed that farm income, interest rate, household size, distance to the bank, expenditure on labour were significant at one percent while education and farming experience were significant at 5% level of probability. It was also found that most farmers do not demand for NACRDB credit due to their inability to provide the needed collateral of two guarantors and meet other credit conditions set out by the bank. Hence we recommended a review of the policy so as to make farmers have easy access to the institution's loan facility to enhance their businesses.

Mr Chairman, Distinguished Ladies and Gentlemen, We also looked at the determinants of loan repayment under the indigenous financial system in South East Nigeria using multiple regression model. The amount of loan(s) received, age of beneficiaries, household size, years of formal education and occupation were important determinants of loan repayment under the indigenous financial system (Eze and Ibekwe, 2007). This study showed that indigenous financial institutions, though a small source of funding, play important financial role(s) in funding and providing scarce capital to small holder farmers who have no other direct or close source of credit. Agricultural credit is one of the most valuable instruments for agricultural transformation and farmers should be assisted to help them transform agriculture and provide food and industrial raw materials for the nation. These indigenous financial institutions provide the forum for rural credit savings and capital accumulation and therefore an indispensable organ through which a break-through in agricultural development could be achieved in Nigeria. We recommended that indigenous financial outfits such as the Isusu clubs and daily contributions collectors and money lenders be encouraged financially through the government poverty alleviation programmes to enhance their loanable and available funds which will be at the disposal of these institutions for onwards lending to the capital/ credit striped farmers in the study area.

Eze and Ugochukwu (2004) evaluated access of women to

agricultural credit from different sources in Imo State. We collected data from women farmers who used agricultural credit during the study period in Okigwe and Owerri zones of the State. The data were analyzed using descriptive statistics and ordinary least squared multiple regression model. Results of the analyses indicated that there was efficient utilization of credit by women farmers. Out of the total amount of loan demanded only 46% was obtained (accessed); and repayment performance stood at 98.19% while they recorded a default of 1.81%. Positive relationships were found between output of women farmers and actual amount of credit obtained, years of experience of farmers, level of education, capital and labour costs while negative relationships were found between output of women farmers and family size, interest rates paid on loan, age of the farmer and amount of credit used for non-agricultural activities. These results implied that agricultural credit is very crucial in agricultural production and indispensable if the country's objective of sustainable development in the agricultural sector, poverty alleviation, improved standard of living and sustained economic growth and development are to be achieved.

**Eze** (2006) determined women's access to credit from selected commercial banks in Imo State, Nigeria using descriptive and multiple regression technique to analyze the data. The analyzed results showed that the women's repayment performance was 94.20% though their accessibility to the loan from the commercial banks was only 39%. The major economic activities the women engaged in were farming, palm fruit processing and super market businesses. The major determinants of the women's access to commercial bank credit was found to be age, education, interest charge and economic activities and these were significant at 10% and 1% confidence limits respectively. From the findings of **Eze** (2006), for our economy to grow and develop, there is need for women to have access to institutional credit to enhance their economic activities, which will imperatively have multiplier effects on the livelihood of the household and the nation in general. Also, there is the need for Central Bank of Nigeria to put up policies on

special credit for women at reduced interest rate regime(s) so as to encourage borrowing as well as reduce the emphasis on collateral requirement by commercial banks. The women on their part should form self-help groups or Cooperatives Societies to take advantage of population and group action to attract attention and assistance of both government and financial institutions.

However, in another study on women's accessibility to credit from selected commercial banks for poverty reduction in South East Nigeria, **Eze, Ibekwe and Korie (2009)** showed that the women had 64.98% accessibility to commercial banks credit for their various economic activities such as farming, maternity business, palm oil (fruit) and kernel processing, and the processing and preservation of various food items; and trading in manufactured goods etc. However, when this 64.98% credit limit of the women is compared with the total population of women who seek credit, the figure becomes insignificant. Moreover, these beneficiaries are those who own and operate account(s) with the banks surveyed, the millions of women who do not even have access to banks let alone owning and operating account(s) with any of them are schemed out of access to bank loans. The study focused on women who resided in rural areas and who borrowed from selected commercial banks during the study. From a sample frame of 788 women who applied for and obtained loans from the banks, a random sample of 105 was made comprising 35 women per bank. The field data were analyzed using descriptive and logistic model(s). The logistic regression analysis showed that socio-economic factors significantly influenced women's access to commercial banks credit at 1% level of probability. The age of the respondents showed a negative relationship with access to credit which is not surprising because as the age of respondents increases the more risk averse they become and the less their productivity. Educational attainment of borrowers had positive relationship with access to bank credit. Education, generally improves access to good things of life including access to credit.

An enlightened borrower is not frightened about the bottlenecks associated with the process of borrowing or opening a bank account. Experience of the women in their businesses had a positive relationship with access to bank credit. This result is not surprising, because of the repayment performance of the respondents. They must have been so experienced in their businesses that they could manage it so efficiently and effectively as to realize enough profit to repay both the principal and the interest and other charges on the borrowed fund. A repayment performance of 90.28% among the women showed that the women were able to invest in economic activities that gave good returns on capital invested; hence their ability to repay their loan(s) with minimal default. The loanees' ability to repay their loans had positive implications for poverty reduction among the women surveyed.

The Nigerian economy cannot thrive and prosper relying on production of primary agricultural products. Eze (2007) decided to do an evaluation of selected commercial banks financing of Agro-based enterprises in Ikot Ekpene LGA of Akwa Ibom State, Nigeria using descriptive statistics. The results showed that the agro-based enterprises are faced with the problems of insufficient collateral, high interest rate(s) and poor documentation, while the banks are faced with the problems of loan diversion by beneficiaries, irregular loan repayment and non-presentation of perfectible collateral by the beneficiaries. Commercial banks are usually influenced to give out loans to businesses that can present "good" collateral, the business scale of operation, profitability, post repayment records and the integrity of the business manager or ownership. It was found that of the sum of N10,900,000 which the agro-businesses applied for, only N3,450,000 (31.54%) was approved and disbursed at an interest rate of 21% per annum. The agro-business repayment performance was 72% (N2,984, 828) out of N4,150,000 (interest charges inclusive) which by all standards is high, bearing in mind the sector and the risks involved. However, in a volatile economic system such as ours, where cost of things change fairly rapidly creditors should not be caught off-guard because of their poor administrative control(s)

over their loan portfolios. It behoves the credit and loan monitoring officers of banks therefore to carefully monitor and supervise the end use of credit to ensure that the beneficiaries do not wittingly divert them to other purposes than the one(s) stated in their loan application(s). From the above, we can see that the loan performance of the agro-based enterprises studied was far above average and encouraging while the financing performance of the banks was poor and could be related to the fear of the banks of the risk inherent in the agricultural sector and other limitations of the agro-based enterprises that reduce their chances of obtaining the required amount of credit for their businesses. Hence our thinking is that a superior force must be brought to bear on both parties to smoothen the link between the agro businesses and the banks through policies on credits that will make the borrowing and lending process a win-win issue. We also recommended that the agro-businesses form cooperatives to take advantage of group action in their loan activities and be given attention by funding institutions.

#### **7.6 Agricultural Cooperatives and Group Enterprises**

Literature is replete with recommendations that small scale operators should form Cooperative Societies to take advantage of group action and attention from financial and Government Institutions with the notion that adequately financed Cooperatives would increase agricultural productivity and employment opportunities in the rural communities and therefore bring about rural development. Therefore, **Eze, Obasi and Korie (2007)** investigated agricultural enterprises being financed by cooperative societies in Mbaise Area of Imo State, Nigeria using descriptive statistics and profitability model. Ten viable and strong Cooperative Societies were chosen purposively and eight members chosen at random for the study. The sources of fund for the societies include subscription for shares, savings by members, monthly dues, fines /penalties occasional grants from government and funds for on-lending from community banks (now Microfinance Banks). The Cooperative Societies financed such activities as agricultural production, fertilizer, pesticide and herbicide supplies among

others. The average amount disbursed per borrower during the period was N128,306.66 at an interest rate of 10% per annum. A total of N11,290,986.30 was disbursed including the Interests and Principal. Poultry and cassava- based enterprises were the dominant businesses financed by the Cooperative Societies and they had net returns of N782,699.25 and N37,676.62 respectively. The repayment performance of the loanees was 94.62% with only 5.38% default. In the poultry enterprise, the major cost item was feed which amounted to N4,050,200 (61%) followed by cost of day-old chicks while in the cassava based enterprise labour (50.29%) constituted the major cost item, followed by transportation 16%. Summarily, we found that truly Cooperative Societies are vital and indispensable organs of credit acquisition and rural economic financiers for rural empowerment and development.

Eze, Korie and Lemchi (2007) did a comparative economic analysis of snail production systems in Owerri Agricultural zone, Imo State, Nigeria, using costs return ratio analysis to analyze the data collected. Three production systems were identified, namely hutch box, concrete trench and pen systems. The production stock for each system was 1000 baby snails with a five percent (5%) mortality rate for a one year production season. The net returns for the three production systems were N20,764.40, N31,794.81 and N51,282.15 per 50kg sac bag respectively. This gave a Benefit-Cost ratio of 1.70:1 for pen production system users while it was 1.49:1 and 1.33: 1 for concrete trench and hutch box production systems respectively. This implies that snail domestication and rearing/production is profitable. However, the pen production system is more profitable because it gave higher returns and was better managed than the other two systems. Overall, each of the management systems has the potential capacity to financially compensate the operator in the long run, if the management techniques are improved and this will as well provide the needed protein in the households. However, low capacity utilization was observed due to lack of funds for expansion of the business.

## 7.7 Climate Change/Environmental Economics and Food Security

The devastating effects on environment (and farm lands in particular) by erosion, especially water erosion in Imo State led us to review the socio-economic implications of soil erosion in Imo State, Nigeria (Eze, 2008). The study showed that at least 70% of the communities in Imo State have several erosion sites ranging from gullies and rill, sheet and stream bank erosion sites. Given the high precipitation amount, intensity and duration of rainy season (March – October), the fast rate of deforestation, prevalent poorly consolidated topsoil and subsoil materials and a wide range of careless to indifferent predisposing human activities, the soil surface is slowly and steadily but inexorably peeled off in thin layers from the top and as the top most layer is washed off, the next layer is exposed and subsequently removed by erosive agents. The effects of soil erosion are expected to get worse, since climate change is expected to influence the characteristics of rainfall in ways that will increase erosion. Once the disaster occurs, social and economic costs are involved in the resettlement of the displaced population, as well as replacement of the lost property due to erosion. The psychological stress and fear of the unknown among residents of erosion prone areas is better imagined than observed or quantified. People normally raise alarm in severe cases for government aid, and sometimes God of luck hears them; at other times, before the aid arrives their existence had ended as they will be no more. We therefore recommended the need for systematic assessment of the social, economic, environmental and psychological costs of soil erosion and conservation. There is an urgent need to strictly regulate land use and protect the soils and water resources today so that our grand children would feed tomorrow from the same land. Also apart from the existence of National Emergency Management Agency, there is the need for government to establish an erosion emergency fund from which victims of erosion disasters could be rehabilitated and compensated.

As we speak today, Eze's (2002) findings on food insecurity, poverty and investment dimensions in South East Nigeria show that no

agency (Governmental or Non-Governmental) keeps accurate data on agricultural and industrial food supply and demand. As a result, the magnitude of the gap between food demand and supply cannot be determined with certainty in South East, Nigeria. Data from Imo Agricultural Development Programme (ADP) and Enugu ADP in particular showed that only food production data without the accompanying demand data were kept and this can give room to planning without data. For instance, Enugu State between 1998 and 1999 recorded a supply deficit of 5.25% in cassava production, 3.50% in yam production, 23.30% in maize and 23% in cocoyam and melon production. Imo State recorded a deficit of 8.7%, 12.7% and 10.7% in yam, cocoyam and melon production in 1998 and 1999 respectively. The continued scarcity of food in the region and its inability to invest tangibly in Agriculture would continue to impede socio-economic and development aspirations of the area. To achieve stable food supply and demand, Governments in Nigeria should, as a matter of urgency, establish and equip Offices of Planning, Research and Statistics whose function is to gather accurate and reliable information on food demand and supply at Federal and State levels. Since efforts geared towards food supply without knowledge of food demand would be an effort in futility.

In 2008, **Eze et al.**, studied Climate Change, Crop Production and Adaptation Strategies in Nigeria. We found that location, size and relief give rise to a variety of Climate, ranging from tropical rainforest in the coastal areas to Sahel in the North. We reported temperature increase of about 0.2°C to 0.3°C per decade in the ecological zones and increased rainfall in the humid South with the attendant increase in cloudiness and rainfall intensity. These changes will imperatively affect crop growth, soil water availability, soil fertility, pests and diseases and rise in sea level and hence the productivity of crops planted. The challenge before scientists in Nigeria is determining what percentage of decline or increase in crop production is due to the impact of climate change and the adaptation capacity of our farmers. We therefore recommended the following adaptation strategies;

*“altered planting dates, changing to crops more adaptable to the new climate situation, application of irrigation facilities, changes in the levels of fertilization, changes in agricultural systems and adopting on-farm adaptation system such as planting quicker or slower maturing varieties, use of pests and diseases resistant crops, as well as alteration of tillage methods. There is also need to develop decision support tools and pilot adaptation options as well as inform and encourage adaptation and engage industry in participatory research, communication and review; since no one sector benefits or suffers more than the other where there is climate change”.*

**Eze et al.** (2010:b) reported that Nigeria's domestic food production has consistently lagged behind the National Food Demand . The increasing pattern of the annual shortfalls is a dangerous pointer to the fact that the nation may be on the threshold of food insecurity. But for the regular (though unorganized) internal transfers or exports of food from North to West and East and vice versa, the challenges of food insecurity could have been higher. Table 3 shows Nigeria's food supply and demand in millions of metric tonnes for the period 1994 – 2001 .

**Table 5: Nigerian Food Supply and Demand in Millions of Metric Tonnes (1991 – 2001)**

Year	Qty supplied	Qty demanded	Deficit	%
1994	86.70	87.23	-0.53	0.61
1995	89.25	89.55	-0.30	0.34
1996	93.35	96.26	-2.91	3.12
1997	95.64	99.07	-3.43	3.60
1998	98.74	101.87	-3.13	3.20
1999	100.41	104.60	-4.19	4.20
2000	102.12	107.46	-5.34	5.23
2001	103.86	110.37	-6.51	6.30

*Source: F.O.S. (1999); CBN (2002)*

production positively, thereby leading to food sustainability and security (**Eze et al.**, 2010:b). Although the average Nigerian farmer is deemed ignorant and has rather low level of formal education, yet they are gifted with high levels of indigenous knowledge of their environment and their economic activities such that when properly trained they can effectively combine modern production techniques with the local ones to achieve success in their farm business. For instance, for them to benefit from economies of scale, agro-biodiversity and maximize land space in crops and livestock production, most farmers in Southern Nigeria adopted (and are adapted to) mixed cropping, intercropping and mixed farming. These not only act as a strategy in spreading risk of crops and animals failure but offers a way to maximize labour use on the farm for critical operations like weeding. This also improves income expectation and maintains the biodiversity, especially if tree crops are left alongside the arable crops and livestock. This means that before western technology, Nigerian rural farmers knew how to maintain not only the farm but also the ecosystem, so as to sustain the environment, not only for themselves, but for their generations yet unborn. Changes in quantity and pattern of rainfall have an effect on the water balance which is of great importance to plants and animals. Climate change and its effects on agriculture has made certain parts of Nigeria to either engage the services of rain makers or prayer warriors to ask God to send down the rain to water their farmlands to enable them farm as exemplified in Borno and Kebbi States between June and July 2009 (**Eze et al.**, 2010:b). We concluded that food production, agro-biodiversity and sustainable rural development in Nigeria will be meaningful if crops and animals are grown in such a way as to meet simultaneously the goal of economic profit, social benefits to the farm families and the community as well as the conservation of the environment on a sustainable basis.

In 2012, **Eze** and Nwaiwu reviewed and discussed Africa in the 21<sup>st</sup> century: The challenges of environmental degradation. We found that the environmental challenges of the world have been

exacerbated by various anthropogenic factors and have been of concern to scientists and policy makers because of its severe negative implications on biodiversity. Africa was found worst hit because of her obvious weak capacity to adapt to the impacts of the fast degrading environment occasioned by the activities of the developed economies. Africa has poor technological development and her agricultural practices are largely rain-fed with rudimentary capital. An exploratory approach to literature was adopted to facilitate the discernment of the concept and methodological effects of environmental degradation, the impact on the socio-economic status of Africa and the efforts of the world community to promote mitigation and adaptive strategies. We concluded that the resilience and adaptive capacity of the continent should be improved upon. Hence, the need for a synergy between the African Governments and the world at large to develop appropriate mitigation and adaptive strategies that are suitable to the peculiar nature and position of Africa.

A further work on effects of climate change on labour time allocation to food crop production in SouthEast , Nigeria was done by Nwaiwu, Ohajianya, Orebiyi, Ibekwe and **Eze (2013)** . The results showed that temperature, and hours of sunshine indicated a statistically significant increasing trend over the period of 40 years (1972-2011) . Also, excess of these climatic indicators (heat, temperature, volume of rain fall and frequency of dry spell ) significantly and negatively affected labour time allocation in South East Nigeria. And this has very important consequence on labour time allocation and use efficiency and food crop output. We recommended that Metrological Authorities in the country should intensify climate change abatement measures awareness to the populace particularly to farmers through radio broadcasts to enable them plan their farming routine operations with higher precision so as to avoid loss of time and energy.

According to World Commission on Environment and Development (1987) sustainable agricultural production systems involve those

approaches to food production that ensures constant increases in productivity without compromising the chances of future generations to provide for themselves. It involves production practices that ensure environmental conservation and no or minimal disturbance to the national eco support system, hence protects the potentials of the natural regeneration of the flora and fauna. This made Nwaiwu, Ohajianya, Orebiyi , Eze and Ibekwe (2013) to examine the determinants of agricultural sustainability in the South East , Nigeria- the climate change debacle. The field results we analyzed indicated that farm size, annual income , household size , level of education and climate change are significantly and inversely related to sustainability of the farmers . Labour cost was significantly and directly related to agricultural sustainability. We recommended that all levels of Government and Authorities that deal with climate change and agriculture should make effort towards improving the mitigation and adaptation strategies against climate change and make them available to farmers at more affordable rates, early before inception of climate change events and user friendly through extension education on the appropriate uses of such technologies in a more sustainable manner. Eze, Orebiyi, Henri-Ukoha and Onyenwe(2014) in a study “ multivariate analysis of non-biodegradable wastes disposal in Imo State , Nigeria” reported that farmers cultivated 2.80Ha of land during the survey , out of which 1.08Ha was found to be dumped with wastes. This means that 38.6% of the farmers cultivated farmland was taken over by wastes and should be of serious concern for agriculturalists and policy makers particularly in Imo State which is widely known as a land hunger area. The logistic multivariate regression showed that residential area, manufacturing firms, nearness to road , nearness to public place, fallow length , income level, dump site and awareness significantly influenced the dumping of non-biodegradable wastes on farmlands at one percent level. We recommended a strict enforcement of laws on wastes disposal and technologies that would come up with containers and materials that are recyclable and usable instead of being dumped as wastes in farmlands.

## CONCLUSION

Mr Chairman, Sir, distinguished ladies and gentlemen, Agriculture plays a big role in Nigeria's economy: it employs 70% of the labour force, contributes 15% of exports and 40% to the GDP. Women accounted for 75% of the farming population in Nigeria both as farm managers, primary owners and suppliers of labour. Therefore, the need to invest more on women farmers and ensure that efforts are geared towards removing all constraints that hindered agricultural production for farmers or their ability to raise their farm productivity and income. To play their role properly in the Nigerian context, women must have access to finance, land and other farm inputs just like their males counterparts. Hence the need for creating special credit facilities for women by development banks, reduction in the cost of registering land and a positive review of the land inheritance law or the land use Act so as to accommodate those who have weak right to land but have agribusiness need for it. Any institution seeking to provide financial services to the rural farmers needs to adopt approaches that make it attractive for them to make savings and to make effective lending feasible (from both borrower and lender perspectives).

Credit access activities in Nigeria have faced severe difficulties as to

- a) how to ensure that a large number of borrowers can access loan;
- b) how to provide a mechanism for screening-out bad borrowers (in terms of character and/ or projects) in the absence of written records and business plans;
- c) and how to give borrowers who cannot offer collaterals an incentive to repay or compel them to repay on time.

The access problem can be overcome either directly by excluding borrowers who are too rich to be eligible or indirectly charging market-related interest rates, or by providing loans so small that only the poor will want them, or by adopting requirements to which the wealthy will not agree (eg. compulsory attendance to weekly

meetings, contribution of manual labour, etc)

The incentive to repay can be approached by the use of either sticks (intensive loan monitoring and supervision, directly by the lender, or indirectly through joint liability groups) or carrots (offering progressive larger loans for good borrowers, or reward to borrowers, bank staff, and local officials for achieving repayment targets). If all fail, compulsory savings schemes can be taken up to check default by beneficiaries.

Nigeria's food problem can be solved by our leaders looking inwards and harnessing the agricultural potentials of the nation, to become a net exporter of food through genuine investments in the sector. Nigerian leaders should know that her dependency on oil and its cheap money is not sustainable hence the need to grow the economy in a manner that would create jobs through real investment in commercial agriculture and rural infrastructure provision . Once the economy is growing, development will surely follow. Creation of incentives for both direct foreign and local investors in the sector such as tax holidays, duty free importation of essential machineries will go a long way in boosting the sector. The current risk-sharing facility through which the Central Bank of Nigeria will leverage \$3.5 billion into the agricultural sector is commendable and should be sustained through the supervision, monitoring, evaluation of loans given to the farmers for projects and removal of the "Nigerian Factor".

In modern agriculture, value addition has become a necessity. If management adopts the point of departure that they are compelled to create value for the consumers of their products, the involvement of the supply and demand chain becomes a reality and a necessity for sustainable success. Value addition at farm level can be either horizontal (this refers to increased quality of products, increased reproduction levels) or vertical (this refers to the addition of value to the basic products, by providing additional value to the consumers). The supply and demand chain commences with the purchase of inputs at the beginning of the production season and proceeds

through a series of activities ending when the consumer purchases the product.

Mr Chairman Sir, Distinguished Ladies and Gentlemen, With unemployment put at 23.9% in Nigeria in 2013, we must discard the perception of farming as a tradition and take it as a business to enhance the realization of our real potential as the giant of Africa. We ought to invest properly and give adequate attention to rural agriculture and development, otherwise we may be faced with an unprecedented restiveness by hungry and angry youths who are marching across the nation searching for non-existent jobs which are abundant in the villages they left behind in form of agribusiness. Financial incentive apart, there is need for provision of infrastructural facilities that will make the sector attractive to be in having enjoyed such facilities in their school days in urban centers. The effect of this is increased agricultural productivity and increased farm incomes which are pre-requisite for structural transformation. Increased farm incomes lead to derived demand for non-farm products, which in turn leads to the growth of small and medium size enterprises in rural villages, small towns and larger urban areas. Developing agriculture in the rural sector requires that the vicious cycle of low output level, low savings and low investments must be removed through massive injection of funds into the agricultural sector as well as proper and firm management of such funds from farms.

To make agricultural financing a panacea for agricultural and rural development, the agricultural sector must be the starting and finalizing phase in agricultural, economic and rural development of the country. The important basic infrastructure is land reformation, supply of cheap seedlings, fertilizers and pesticides as well as repair and increase of irrigation facilities which presently stand at about 40,000 ha instead of our potential of 3.14 million ha. This 40,000 ha is less than 1% of irrigable land actually in use against Indonesia's 22.4% irrigable land that is in use. Creating and designing a financing system which needs those in agricultural sector, designing

an input supply system and creating a domestic and international agricultural output markets as outlets for products of the farm.

The land use policy of Nigeria needs reformation to make it easy and cheaper for farmers and prospective farmers to acquire and use land for agricultural purposes. You cannot commercialize agriculture on a less than one hectare farm (which is the dominant landholding pattern in Nigeria) especially crop farming that needs large expanse of land for viability and profitability. It is strongly therefore recommended that the nation should:

- 1) Encourage diversification and specialization in agricultural production and value chain addition. A nation that relies on importation of food and exportation of oil and gas without agriculture is living on a keg of gun powder;
- 2) Re-energize and re-invigorate her extension services division of the Ministry of Agriculture and Natural Resources or Agricultural Development Programmes (ADP) in the States through capacity building, training and provision of necessary equipment to carry out its functions. They are the only group that understand the farmers, their needs and idiosyncrasies, and therefore have the ability to transfer farm inputs and technologies including improved seeds, livestock breeds, fertilizers and farm machinery;
- 3) Take steps to encourage young school leavers to engage in agricultural production through the provision of rural infrastructure. These young men and women should be encouraged to stay and work in the rural areas where there will be less bills to pay through the provision of good roads, communication networks, potable water, constant power supply, quality market, standard, functional and stable agricultural food policies that will lead government's indirect financial investment in the sector;
- 4) It is our view that policy makers should focus on the development of agro-based industries with emphasis on promoting effective agro-value chains as a means of further

expanding the leading role of agriculture in economic growth and poverty reduction. Such chains uniquely integrate natural sources of supply with the dynamics of food and fibre demand. Their development has a positive effect on employment creation in both rural and urban areas in off-farm processing and income diversification. It also offers market access to rural farmers and creates business linkages to the small, medium and large scale agro-based enterprises. It will in addition build up responsible and sustainable relationships among chain actors as well as enhances food and fibre production for the rapidly growing population;

- 5) In view of the fact that our governments cannot do agricultural financing and rural development alone, foreign direct investments should be allowed as alternative. These foreign direct investments can only come if the risk and transaction costs are low, the financial markets are developed and transparent, the human capital of the country is developed and the infrastructural facilities are there for the use of the prospective investors,
- 6) Micro-finance and other rural financial institutions can mobilize substantial resources to enable the rural operators become more productive by providing loans and mobilizing savings. Financial institutions should promote the channeling of remittances into productive rural activities to enhance rural development. The strategic funding of agricultural businesses and rural development will lead to growth and bring the country out of its deep poverty and enhance its potential in economic growth and development.
- 7) Providing and promoting linkages in form of information and knowledge sharing , on-lending operations, and other sustainable relationships (investment in rural finance infrastructure for sharing ) among the formal , semi- formal and informal agricultural financial out-fits for reduction of risk and cost of transactions.

- 8) Policy makers should provide appropriate and effective macroeconomic policy mix to allow fund tunneling to the agriculture-dominated rural areas and hence deepen the rural financial markets and promote the development of the financial intermediaries.
- 9) The judicial and financial administration system should be reformed to be more effectively used to enforce contracts, register and ensure foreclosure of property as well as step up monitoring and examination of formal financial institutions using the prudential guideline.
- 10) Development of suitable New products, services and delivery options continually by financial intermediaries that must be made tailor-made to meet specific client needs and easily adaptable to clients needs.
- 11) Intensive consistent investment on agricultural Research and Development by both the public and private concerns in core areas of (i) plant biology, (ii) plant breeding and production of seed and planting materials, (iii) agrochemicals including chemicals for plant protection, fertilizers, and biotechnological applications, (iv) food processing, storage and transport, (v) animal and livestock improvement, (vi) agricultural equipment and machinery, (vii) food markets and (viii) agric-financial markets. Continuous investment in agricultural research and development is critical to the enhancement of agricultural productivity, improved investment in agriculture and other economic rural activities, improved income, poverty reduction and hence rural development.
- 12) All levels of Government and Authorities that deal with climate change and agriculture should make effort towards improving the mitigation and adaptation strategies against climate change and make them available to farmers at more affordable rates, early before inception of climate change events and user friendly through extension education on the appropriate uses of such technologies in a more sustainable manner.

13) irrespective of the threats of climate change , the country has the right conditions to feed itself, enjoying fertile land, adequate fresh water resources and climate that support the flourishing of agriculture. What are we waiting for? The time to act is now!

*“There is one quality which one must possess to win, and that is definiteness of purpose, the knowledge of what one wants, and a burning desire to possess it” (Napoleon Hill).*



## ACKNOWLEDGEMENT

*“Let us rise up and be thankful, for gratitude is not only the greatest of Virtues, but the parent of all the others” (Cicero).*

With humility, I will like everyone here to help me in thanking my father, the Creator , who knew me even before I was born, for His special love, kindness, favours and care for me. I most humbly request this great audience to please kindly sing with me: *“Thank You, Thank you Lord (x2), thank you Lord for everything You have done in my life”*. He gave me life even when all hope was lost, He kept me even when my twin sister died in the delivery room, as I was told. To Him alone be all the glory, praise and adoration forever and ever. Amen.

I most humbly acknowledge the zeal, interest and kindness shown to me by my dear parents Late Chief Godwin Uwalaka Eze ( a retired railway clerk) and Lolo Christiana Egoigwe Eze in bringing me up in a good Christian way, and sponsored my education up to the M.Sc. Degree. My father never relented in satisfying my educational needs and always asked God not to take him up until *“my son Chiedozie becomes a graduate”*. God granted his prayer , he died a month after my NYSC in 1987. I am ever indebted to this couple for denying themselves so many things in order to train me. I warmly appreciate and thank my brother Chikadibia and his family for being there for me. I also thank my cousin and her husband, Chief (Mrs) Eucharia Okwu (nee Eze ) and Chief Hillary Okwu for all the encouragement and interest in our family since the death of my father. My cousin , Bishop David Ukaegbu and his wife are specially remembered and acknowledged for what God has used them to do spiritually in our family and Community. My Lord, I cannot thank you enough. I did not forget Mr Chukwuemeka and family and other members of Umu-Amaechi Korie Nweze for their support and

patience. To all of you I cannot thank enough.

I thank every member of the Umuchinemere/ Elugwu , Elugwu/ Umuchienta and Nkwumeato Autonomous Communities . I thank His Royal Highness Eze Desmond Anyanwu and Members of his Cabinet for their support and interest in everything that concerns me. I thank the members of my age grade, Oganihu age grade, for laying my followership and leadership foundation .

I wish to remember in a special way late Ugoeze Virginia Ogoke (nee Ogbuehi) a teacher of teachers, who helped to tame my rascality early in life.

I wish to specially acknowledge my parents-in-law; Late Felix Okafor Ifediora and Ezinne Eunice Ifediora of Ndigbu Otolu, Nnewi, Anambra State, for being kind to me and allowing me have the hand of their daughter in marriage. I thank my brothers-in-law Jerry and Chidebeze, my sisters-in-law Chinwe and Ifeoma for their show of love and support since I married their baby.

Mr. Vice-Chancellor Sir, I thank God for my wife, the mother of my children, Mrs. Victoria Chinedum Eze (*nee* Ifediora), for agreeing to be my wife. We met in an academic environment as postgraduate students, and I thank God for giving me my 'V.C'. when He did. Both on campus and out of campus, till now, she has been very supportive, caring and loving, even in the face of challenges. I cannot thank you enough. God favoured us with three (3) beautiful children: Chibuikem, Chimnanu (our queen) and Chukwunonyerem. They all are enjoying their early education, and we love them dearly.

Also of special mention is my maternal step mother, uncles and aunties, entire family of Late Elder Jonathan Keke of Umuderim Autonomous community, for giving my father my mother who gave birth to me. May God bless all of you.

I want to use this opportunity to thank in a special way Professor Eugene Chukwuemeka Okorji (Okosisi) and his wife Professor Ijeoma Okorji, for helping in making me what I am today. I must confess that Professor E. C. Okorji is my academic father and

mentor. God used him to re-direct and re-shape my focus in life even under serious resistance by me. He either supervised my work as sole supervisor or in cooperation with another academic. However, our relationship went beyond academics, such that every member of Okorji family knows Eze C. C. For your show of love and care, God will surely keep you and extend same love and care to you and your very kind wife and children.

My thanks also go to the family of Nze Ozichukwu Chukwu (oyima-oburu) and his wife Chief (Mrs) Comfort Chukwu for your unparalleled show of care and love since I made the first contact with your family in 2002. You recommended me to His Excellency, Chief Dr. Ikedi Ohakim without any pre or post condition. For your good deeds, God will reward you accordingly. I also thank His Excellency Chief Ikedi Ohakim for finding me worthy to serve the people of Imo State in the capacity of an Honourable Commissioner. The experience will remain fresh all the days of my stay on planet earth.

I thank the sixth substantive Vice-Chancellor, Prof. Chigozie Cyril Asiabaka, former vice chancellors, the Deputy Vice-Chancellors professors B.N. Onwuagba and F.C. Eze, other Principal Officers of the University and the entire University Community for being ever ready to assist me towards carrying out my assignments. I specially thank my Vice-Chancellor for welcoming me back after my six months leave of absence. I wish to once again congratulate you on having the mantra "***Quest for Excellence***" which is the propelling force behind the positive and visible things you are doing to change the face of our university. It is my prayer that God will make you to remain focused so that by the end of your tenure, F.U.T.O. must have achieved excellence in most areas of its mandate. I want to thank you for recommending me for the first appointment I got in F.U.T.O. as Associate Dean, Post Graduate School without my soliciting for it. As VC, you appointed me Head of Department of Agricultural Economics for two years running. I appreciate. Also, I most sincerely thank Engr. Prof. Chidi D. Okereke for accepting to have me as his Associate Dean. The experience was worthwhile and I

thank God for it.

My dear colleagues in the Department of Agricultural Economics are hereby acknowledged for being supportive and providing healthy academic and administrative environment for us to operate. Prof. J. E. Njoku (our 4<sup>th</sup> substantive vice chancellor), Prof. J. S. Orebiyi, Prof. M. A. C. A. Odii, Prof. N. N. O. Oguoma, Prof. P. C. Obasi, Prof. J. I. Lemchi, Dr. D. O. Ohajianya and Dr. U. C. Ibekwe, Dr. Steve Onyeagocha, Dr. O.C. Korie, Mr. Nnamdi Ehirim, Mr. Osugiri I.I., Mr. F.O. Nwosu, Dr. C.A. Emenyonu, among others, are highly and most sincerely acknowledged. Irrespective of our minor differences, we still agree to jointly and severally work together. I must thank Prof. J.E. Njoku for appointing me a lecturer 1 in 2001 without which today may not have been real. Other staff and students of the Department deserve my warm acknowledgement for their unalloyed support especially the Administrative, Professional and other support staff of the Department. My younger academic colleagues are especially remembered for always being ready to work the extra mile towards moving the Department forward especially Dr. (Mrs) Ada Henri-Ukoha, Dr. (Mrs) N. G. Ben-Chendo, I. U. Nwaiwu, Sab Onyemauwa, Maryann Osuji, Igwe Ukoha, Comfort Chikezie, U.A.Essien, O.B. Ibeagwa, Melissa Nwachukwu, Ifeyinwa Onwuagba, Ifeanyi Maduike and I.O. Oshaji.

I appreciate My Lordship, Bishop the Rt. Rev. David Onuoha of the Anglican Communion, Okigwe South Diocese and his wife, the clergy and other men of God who have been assisting us spiritually. I thank Venerable Professor Ernest Ukaejiofor of Chapel of Redemption UNEC for being a dedicated spiritual father for me while I was in Enugu.

Mr. Chairman and V. C. Sir; I cannot end this acknowledgement without mentioning the class of 1986 of the Faculty of Agriculture, University of Nigeria, Nsukka. This class is a special class and as at today, we have given Nigeria six Professors namely; Prof. C. U.

Nwajiuba (IMSU), Prof. J. A. Mbanasor (MOUAU), Prof. Eni-Akpabio (UNIUYO), Prof. Okey Alimba (ESU), Prof. Andrew Iheanacho (Uni Agric, Makurdi ) and my humble self. Still approaching are Dr. Peter Onoh (FUTO) ,Dr. K. O. Onwuka (UNIZIK) and Dr Innocent Enwelu (UNN). I thank Prof. Nwajiuba for being one of the pulls that pushed me back to academics.

I appreciate the role National Board for Community Banks and its staff played in my life. I remember with nostalgia some members of staff like Prof. Akin Magobunje ,Prof. M.O . Ijere, Alhaji Isa Chawi, Mr Ikanem, Mr Sam Ukanwa, Mr Aloy Manufor; Dr Charles Onugu, Eno Usen, Mr. (Dee ) Boni . Chibundu (NOW HRH EZE), Mr Ben Ahanonu , Barr. Ifeanyi Ekwere, Barr. Kingsley Nkemakosi, Mrs Helen Onuoha, Mrs Nonye Egbuchulam, Mr Jerome Ewulu, Mr Elijah Agi, Ebele Esiobu, Mr Manasseh , Late Emma Udoh etc. whom I had opportunity of working together . I thank you all for meeting you on my way to the top.

I mention with appreciation the Council for Development Economic and Social Research in Africa (CODESRIA), European Union – Erasmus Mundus Scholarship Commission, UNDP, Galilee International Institute Israel, Agricultural Society of Europe, Ghent University Belgium, Wageningen University of Research Netherlands, Humbolt University Berlin, Germany and Slovak University of Agriculture Nitra, for their various forms of assistance, research grants, Scholarships, Fellowships and other contributions to my career development.

Finally, I humbly thank my students (former and current) for being part of my growth and development. I am particularly appreciative of my Ph.Ds and M.Ses whose theses I was privileged to have been part of their supervision, namely Dr Oliver Nwankwo, Dr Peter Onoh ,Dr. Mrs Nkiru Glory, Ben-Chendo, Mr Felix Iruo and Mrs Ajoke Kadiri, Anumihe E.C., Oguegbuchulam M. N. ,late mrs Ugwo R.A. ,Anumkua F.I. ,Ibigweh I.N., Agulanna Olivia Chizoma

,Nwaigbo B.O.,Enyia C.O. , Onyenwe , Toonna Etheldria , Ukoha Igwe Ikenna , Iwuanyanwu Emeka Chibueze , Udensi Ibe Udensi , Amadi, Samuel N, Ojinnika Cleopetra Chinwe and my over 100 undergraduate students .

I thank everyone present here today for finding time to make it to my inaugural lecture. May the Good Lord who made your journey to FUTO safe, take you back to your respective destinations. Thank you , Thank you all and God bless all of us.

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# FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI

## PREVIOUS INAUGURAL LECTURES

S/No.	LECTURE	TOPICS	DATE
1.	Prof. C.O.G. Obah	<i>"Communication in the Service of a Nation"</i>	Dec. 12, 1986
2.	Prof. E.O.I. Banigo	<i>"Food Processing and Preservation: Paths to Self Sufficiency"</i>	Jan. 18, 1989
3.	Prof. V.O. Nwoko	<i>"Where Rust Doth Corrupt"</i>	Nov. 14, 1990
4.	Prof. S.C.O. Ugbohue	<i>"In the Throes of Polymer and Textiles"</i>	Dec. 11, 1996
5.	Prof. O.O. Onyemobi	<i>"Mineral Resources Exploitation, Processing and Utilization: A Sine Qua non for Nigeria's Industrial Development"</i>	Jul. 17, 2002
6.	Prof. A.B.I. Udebibie	<i>"Insearch of Food: FUTD and the Nutritional Challenge of <i>Camararia</i> Seeds"</i>	Sept. 18, 2003
7.	Prof. E.O. Okorafor	<i>"Expendable Polystyrene Pattern Casting Process: A Revolution in Metal Casting"</i>	March 17, 2004
8.	Prof. B.B.U. Achi	<i>"Acquisition of Indigenous Machinery Design Manufacturing and Control Technology: The Engineering Education and Training Perspectives"</i>	June 2, 2004
9.	Prof. M.I. Nwafu	<i>"Securing the Harvest to Ensure Food for All: A Plant Pathologist's Perspective"</i>	July 28, 2004
10.	Prof. M.U. Iloeje	<i>"The Chicken or the Egg: Nature and Nurture, New Genetic Spread Sheet and Gene Pool in the Breeding and Evolution of A New Nigerian Man"</i>	Nov. 17, 2004
11.	Prof. J.O. Uzuogbu	<i>"Salvaging our Food from Fungi Rot to Ensure Food Security"</i>	Oct. 29, 2008
12.	Prof. C.S. Nwadiaro	<i>"Inland Water Data Base As: A Sine Qua Non for Fisheries Development in Nigeria"</i>	May 7, 2009
13.	Prof. M.C. Ofoh	<i>"Food Security and Mitigation of Climate Change Through Ecosystem-Based Agriculture"</i>	May 27, 2009
14.	Prof. B.O.Esonu	<i>"Unconventional Feed Resources for Livestock Development and Food Security: Paradigms for Nigerian Livestock Industry"</i>	June 24, 2009

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ISBN: 978-219-131-0

seamless digital content. ISBN: 978-219-131-013-8



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