

Agriculture as a Potent Economic Growth Driver for the Nigerian Economy

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SUMMARY

Past agricultural production and productivity estimates in Nigeria by various agencies or organizations all show that the country's agriculture sector has performed below expectations. Recent FAO, World Bank, United Nation's Economic Commission for Africa, and Central Bank of Nigeria estimates of per capita food production index (in grain equivalents) confirm that average Nigerian had less than 400 kg of grain equivalent of food available. On the other hand, the Central Bank of Nigeria, National Bureau of Statistics, and Nigerian Population Commission indicate that while Nigeria's population has been growing at 3 percent per annum, that of food production has been increasing at only 1.5 percent per annum in the last five years. Consequently, the food self-sufficiency ratio of the country has been decreasing from a 98 percent level in the early 1960s to less than 60 percent in the early 1980s and less than 54 percent by 1989. In the 1990s, the situation did not improve even up to early 2000's. Many reasons have been advanced to explain this pitiable and seemingly unending poor agricultural productivity sector performance. Among these reasons is the low level of adoption of modern improved technologies in the agriculture sector.

This study is an attempt to assess the place of agriculture as a potent economic growth driver in the Nigerian economy. Essentially, the study explores information concerning the critical roles of agriculture to the Gross Domestic Product (GDP) and or economic growth of Nigeria; the study went forward to identify various endogenous and exogenous factors that have hindered the maximum performance of the agricultural sector in the country. Furthermore, the study, identifies other economic growth drivers that can accelerate the repositioning of agriculture as a major economic growth driver in Nigeria and Africa and finally, it the study explores the various strategies that can be adopted to position Nigeria and indeed Africa on the path of prosperity through the development of the agricultural sector of the economy.

Meanwhile, several approaches and models to position Nigerian Agricultural sector for optimum productivity and development cannot be over-emphasized. Therefore, in order to ensure sustained and increased inflow of investment in agriculture, agricultural policies must endure and even outlive the government that formulated them. The practice of changing macroeconomic policies with successive federal governments is inimical to long-term investments in agriculture. The various tiers of government should act in concert with the economic reforms agenda, which entails promotion of greater private-sector roles in agricultural production, processing and marketing of farm commodities, as well as provision of farm inputs.

The common constraint to implementation of presidential initiatives which will help in agricultural productivity is poor funding. The associated issues are poor planning and poor infrastructural support for the various presidential pronouncements. One of the key recommendations for maximum agrarian productivity in Nigeria is institution of adequate and timely release of approved budgets so that projects do not remain mere good intentions on paper.

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TABLE OF CONTENTS

SUMMARY.....	ii
TABLE OF CONTENTS.....	iv
1.0 BACKGROUND	1
1.1 Research Objectives	2
2.0 REVIEW OF RELEVANT LITERATURE	3
2.1 Agricultural Productivity Growth and Poverty Reduction in Nigeria	3
2.2 Concept and Measurement of Agricultural Productivity as Effective Driver of National Economy	5
2.3 Performance of the Agricultural Sector in the Nigerian Economy.....	6
2.3.1 Pre-SAP Era (1970 - 1985).....	6
2.3.2 The SAP-Era (1986 - 1993)	7
2.3.3 Era of Guided Deregulation (1994-1999).....	8
2.4 Climate Change and Agricultural Productivity.....	8
2.5 Determinants of Agricultural Productivity in Nigeria	10
2.6 Brief information on Importance of Agriculture.....	11
2.7 Appraisal of Agricultural Policies in Nigeria.....	13
2.8 Critical Challenges of Agricultural Output in Nigeria.....	16
2.9 Agricultural Productivity in Nigeria based on International Comparisons	18
3.0 RESEARCH METHODOLOGY.....	20
4.0 FINDINGS OF THE RESEARCH	21
4.1 Roles of Agricultural Sector as an Accelerator for Economic Growth in Nigeria	21
4.2 Endogenous and Exogenous Constraints to Agricultural Productivity in Nigeria....	22
4.2.1 Technical Progress	23
4.2.2 Quality of Labour Force.....	23
4.2.3 Capital Intensity.....	24
4.2.4 Availability of Raw Materials.....	24
4.2.5 Policy Inconsistencies.....	24
4.2.6 Inadequate Funding of Research Development	24
4.2.7 Socio-Economic Factor.....	24
4.3 Economic Growth Drivers and Agricultural Productivity in Nigeria	25
4.4 Strategies to be adopted to position Nigerian Agricultural Sector for Development	28
5.0 SUGGESTIONS TOWARD MAKING AGRICULTURE A POWERFUL ECONOMIC GROWTH DRIVER	30
BIBLIOGRAPHY.....	32

1.0 BACKGROUND

Nigeria is a leading producer of some agricultural products in the African region; due to this, agriculture still remains the backbone of the national economy. The country is blessed with cultivated land, forest, rangeland, water resources, wildlife and biodiversity are the productive bases for primary economic sectors including agriculture (rain-fed and irrigated production), forestry, livestock and fisheries. The non-oil sector in 2005 grew by 8.2% and about 80 per cent of this growth originated from agriculture. Similarly in 2010, evidence from the CBN suggested that agricultural growth was more pronounced in the rural economy which is the home to over 70 million Nigerians with those employed in agriculture being over 60%. Agriculture since 1970 has contributed on average a third of the Gross Domestic Product (GDP). Despite the rich endowment of natural resources and her agricultural potentials, Nigeria is still regarded as a very poor country.

Meanwhile, agricultural productivity and growth in Nigeria is based on all states average yields in the recent time. The trends indicate some modest increases in productivity and growth over time. Moreover, their yield levels are far below potentials and still less than levels required for global competitiveness. Low productivity in agricultural sector which leads to less growth is associated with a variety of management, institutional and technological conditions suffered by the Nigerian farmer. Central to the productivity problem is the low incidence of efficient inputs and technologies which need to be researched upon.

Despite the potential positive impact of agricultural growth in poverty reduction in poor areas, it is doubtful whether the Nigeria situation provides affirmative evidence. For example, despite the relatively high agricultural growth in the past five or more years, it is not certain that poverty has reduced in commensurate proportions in Nigeria as indicated above (Ebohet *al* 2010). Over a third of African's poor are found in Nigeria. Data indicate that poverty incidence is still high, even though, it declined from 70% of the population estimated to earn less than US\$1 a day in 2003 to 56% in 2005. Even though the percentage has dropped, the absolute numbers are still alarming. The majority of the poor depend on agriculture for their livelihoods and 64% of the people in the rural areas are not able to meet their basic needs. Of this, well over 50% of rural women still engage in subsistence agriculture for survival (World Bank, 2004). As such, improved agricultural performance in Nigeria is critical to poverty reduction. The situation calls for more reflection about the

sources and patterns of agricultural growth and the imperatives for poverty reduction within the overall macroeconomic context.

Therefore, as Nigeria's agricultural sector has a high potential for further growth and its productivity is low, the hope is that it can be improved. The rapid expansion of the oil sector has played a role in eroding the competitiveness of agriculture. Nigerian government seems recognizes that agricultural growth is key to achieving poverty alleviation, food security and the Millennium Development Goals (MDGs) and that further effort is urgently needed.

1.1 Research Objectives

The primary objective of the study is to explore ways of enhancing economic growth through agriculture by virtue of its potency as a major growth driver of the Nigerian economy and the African continent as a whole. Essentially, the specific objectives of the study are to:

1. Critically examine the role and contributions of agriculture to the Gross Domestic Product (GDP) and or economic growth of Nigeria.
2. Identify the various endogenous and exogenous factors that have hindered the maximum performance of the agricultural sector as a major economic growth driver in Nigeria and Africa.
3. Identify other economic growth drivers that can accelerate the repositioning of agriculture as a major economic growth driver in Nigeria and Africa, and:
4. Explore the various strategies that can be adopted to position Nigeria and indeed Africa on the path of prosperity through the development of the agricultural sector of the economy.

2.0 REVIEW OF RELEVANT LITERATURE

2.1 Agricultural Productivity Growth and Poverty Reduction in Nigeria

The Millennium Development Goals (MDG) of 2000 was a commitment by the states to reduce global poverty levels and halve the extreme poverty and hunger by the year 2015

through agricultural productivity growth and other numerous activities of mankind. This is because agriculture is seen as a potent economic growth driver of any national economy including that of Nigeria.

According to Farmers' World Network (2002), today the world's population is 6.2 billion people; however, 1.2 billion live on less than US\$ 1 a day. Out of these, 799 million are in the developing countries which include Nigeria. The Food and Agriculture Organization (FAO) observed that 153 million children are malnourished and among them six million die out of hunger each year which may be as a result of inadequate attention toward agricultural productivity which is a potent economic growth driver of any national economy. An estimated 2 billion people in developing countries depend on small and inadequate subsistence agriculture for their income and subsistence. Most of these people are poor and mainly are located in the rural areas (FAO, 2001) where agricultural productivity is at the lowest level.

In Sub-Saharan Africa, the ratio of poor people is higher, with almost every country's rural dwellers exceeding three-quarters of the total population. Today, Africa faces enormous food security challenges and the projections for food improvement in Africa, in Nigeria as a nation and even in south-east Nigeria as a region are not encouraging. This is due to lack of adequate agricultural productivity in this region, thereby making poverty reduction very difficult as agriculture is the greater employer of labour in this area. As the population of Sub-Saharan Africa projects a two-fold increase during the next quarter century (World Bank, 1995), it is also expected that food insecurity will grow and population growth will increase pressures on natural resources. Approximately 39% of people are malnourished within Sub-Saharan Africa, and FAO (2001) forecasts an increase in food insecurity through 2010, while the rest of the world continues progressing in this area. The number of hungry children in sub-Saharan Africa will increase by 24% to 39% by 2020 (Pretty, 2000). This statistics did not exclude Nigeria which is part of sub-Saharan Africa.

However, many researchers agree that, despite the complexities of food insecurity in Sub-Saharan Africa, there will have to be increase in food production from existing agricultural land and technology that are locally available. "Sustainable agriculture, offers

new opportunities, by emphasizing the productive values of natural, social and human capital. All these assets are in abundance in Africa and further more they can be regenerated at low financial cost” (Pretty, 2000) especially when they are adequately followed by the development of improved planting materials.

Meanwhile, for many years now, productivity has been a key issue for agricultural development strategies because of its impact on economic and social development. It is generally believed that the surest means through which mankind can raise itself out of poverty to condition of relative material affluence is by increasing productivity especially agricultural productivity. Productivity improvement especially in agricultural sector creates the wealth that can be used to meet present needs and for investments to better meet the needs of the future. Productivity in its broad sense is a measure of how efficient and effective resources are used as inputs to produce products and services needed by the society in the long run. It is the rate of flow of output when compared with rates of flow of resources used in producing the output of goods and services. In financial terms, productivity (even in a agricultural sector) is the value of output divided by the cost of inputs used in a given period. The basic resource inputs consist of labour, capital and natural resources. Since resource inputs seldom grow much faster than population, obviously the main source of increase of output per capita is through the growth in productivity.

There is a direct relationship therefore between individual resource productivity and nation building, because improvement in productivity of each worker or farmer leads to improvement in earnings of investors as well as more financial capital for management, and more revenue for government. Improvement in productivity is the most important factor in attaining growth in the economy and this is more so for agriculture which provides means of livelihood for over 65.0 per cent of the populace through subsistence production which is a predominant feature of agricultural production in Nigeria. Of the 98.3 million hectares of land in Nigeria, 71.2 million hectares can be cultivated. However, only about 34 million or roughly one-third of the area is under cultivation. Output of the sector is adjudged consequently, low and labour intensive. In spite of all these limitations, the agricultural sector in Nigeria still provides the main source of food for all, raw materials for industries, foreign exchange earnings through exports and employment.

2.2 Concept and Measurement of Agricultural Productivity as Effective Driver of National Economy

Productivity means the ability to accomplish some specified objectives irrespective of the quantum of resources used. This is often referred to as output-centred productivity. To another class of people, productivity will be synonymous with the ability to allocate resources judiciously and to avoid waste. This represents the cost-oriented concept of productivity. The latter class of adherents stress cost-consciousness and in most cases looks out for opportunities to insist on budget ceilings. The cost oriented conception of productivity is a sharp contrast to the output-centred one. Whereas, the former stresses the need for economic use of resources, the latter places emphasis on the achievement of objectives. The premise upon which the output-centred argument is based is that conservation of resources amounts to creating a false economy especially when the basic objectives of an economy or establishment are not achieved.

Adam Smith was of the opinion that division of labour was the basis of efficiency and productiveness while Sangha (1964) the French Physiocrats believed that surplus resulted only from agriculture when labour is utilized. He stated that the same amount of labour if utilised in manufacturing could not yield surplus. What is now regarded as productivity was termed production and the rate of production, the term product net was applied to the difference between the gross output from agriculture and the cost of producing it, including the subsistence of the cultivators. For conceptual or analytical simplification, the term labour productivity is commonly used to refer to the volume of goods and services produced per worker within some specified period of the year, month, week, day or hour. The adoption of this simplified concept does not take cognizance of the fact that labour productivity is a unit resulting from the interdependent contribution of labour and other factors of production. However, the practice of using labour, especially direct labour, as the most common factor in measuring productivity is due partly to the fact that labour inputs and costs can be ascertained and quantified more easily than those of other factors, and partly due to a legacy of classical economic and Marxist thought which not only tend to regard labour as the sole source of value but also tend to regard all forms of indirect labour as ‘unproductive’ labour.

In most cases average annual yield per hectare does not significantly vary in one country compared with another section in the country. This is explained by the fact that no matter how the land is prepared for planting, the soil has its limitations beyond which production per hectare may not be expected to increase. If, however, output per farm worker or per man hour expended in producing a given amount of output is calculated, substantial

differences in productivity exist among individual countries. Average productivity of a farmer from a developed economy is several times higher than that of his counterparts in Nigeria. This difference is traceable largely to technical factor, with the use of a tractor a farmer could plough almost 100 hectares a day as against about 2 or 3 hectares in Nigeria, where the farmer spends the whole day behind the plough drawn by a pair of bullocks or using cutlasses and hoes.

2.3 Performance of the Agricultural Sector in the Nigerian Economy

Over the years farmers have through the application of science and technology, evolved methods of increasing agricultural productivity. Some of the methods include the use of improved crops and stock, fertilizers and soil conditioner, better cultural and husbandry practices and provision of and more efficient use of water. Agricultural productivity which has been growing over the years at different rates can be described as low. For ease of analysis the periods will be divided into three. These are 1970-1985 which is regarded as pre-SAP era; 1986 - 1993 - SAP era; and 1994 - 1999 - Era of guided deregulation.

2.3.1 Pre-SAP Era (1970 - 1985)

The performance of the agricultural sector in terms of output can be gauged from the reports of CBN statistical bulletins as stated by Ukeje, 2010. In these reports, its data revealed a decline of 0.9 per cent in the growth rate of agricultural production for the period 1970-1985. Livestock and fishery output fell by 2.4 and 2.0 per cent, respectively. Crop and forestry production, however, rose by 0.3 and 2.5 per cent, respectively. During the period, the Gross Domestic Product (GDP) registered an average growth of 2.6 per cent, while agriculture's GDP rose by 3.4 per cent. The share of agriculture in total GDP averaged 29.7 per cent, while manufacturing and crude oil accounted for 9.2 and 13.9 per cent, respectively Ukeje, 2010. The value of agricultural exports fluctuated from N=265.2 million in 1970 to N=192.1 million in 1985, representing a growth rate of 7.8 per cent and 3.4 per cent of the value of total exports during the period. As a result of the decline in agricultural output, domestic food supply had to be augmented with large imports. The food import bill rose from a mere N=57.7 million in 1970 to a peak of N=1,819.6 million in 1981 before declining to N=940.6 million in 1985, representing an average of N=750.2 million per annum during the period and a growth rate of 25.4 per cent. It accounted for 11.4 per cent of total imports and 1.6 per cent of total GDP. In spite of the importation of food, domestic price for food remained high as the increase in consumer price index for food averaged 43.4 per cent, during the period. The

values of imported food/agricultural products more than outweigh the value of agricultural exports. The performance of the agricultural sector during this period as reported by Ukeje, 2010 was undermined mainly by disincentives created by the macro-economic environment. Notable among these were:-

- the over valuation of the naira exchange rate and the sharp increases in foreign exchange earnings which resulted from rising oil revenues and consequently aided large food imports. The changing taste arising from importation resulted in low demand for traditional food crops such as local rice, yams and beans, with the adverse consequence of reduction in production of these crops by farmers in spite of the huge subsidy on domestic production. The over-valuation of the naira, also put agricultural exports at a disadvantage;
- the increased inflow of petro-naira which encouraged increased wages in the public sector also drained labour from the rural areas, thereby depriving the agricultural sector of the much needed manpower for its labour intensive activities, and
- the protection of domestic industry through tariff concessions made it more lucrative to invest in industry, thus, shifting the terms of trade in favour of industry. Specific policy measures targeted at the agricultural sector under SAP included institutional reforms, improved pricing policy and specific production schemes for local staples.

2.3.2 The SAP-Era (1986 - 1993)

The performance of the agricultural sector under SAP was an improvement over the preceding period, for instance, aggregate agricultural production grew at an average annual rate of 9.0 per cent. This was an impressive performance when compared with a negative growth of 0.9 per cent recorded in the previous era. All the sub-sectors of agriculture (crops, livestock, fishery, other crops and forestry) contributed to this improvement as they all recorded positive growth rates, unlike in the previous period when only two sub-sectors recorded positive growth rates. The GDP grew at an annual average of 4.8 per cent and the share of agricultural output was 40.0 per cent, compared with 29.7 per cent in the preceding period. The productivity of the sector as measured by the output per hectare showed that grain recorded an average output of 1.1 tonnes per hectare while roots and tuber, pulses and industrial crops posted outputs of 9.6, 0.5, 1.3 tonnes per hectare, respectively. As a reflection of the increase in agricultural output and the trade liberalization policy of SAP, the value of agricultural exports rose on the average by 52.0 per cent while its share in total exports stood at 3.1 per cent. Also, the value of food imports during the period rose by 45.5 per cent, while

the value of food import as a ratio of total imports was 10.2 per cent, reflecting largely the depreciation in the naira exchange rate. The profitability of some agricultural enterprises increased considerably resulting in expansion in their scale of operation. Others with high foreign components in their inputs became less profitable, owing to high cost of these inputs.

2.3.3 Era of Guided Deregulation (1994-1999)

This period represented the period of shift in policy from deregulation to guided deregulation. The growth in the output of agricultural products during this period was slower, as aggregate output rose on the average by 3.6 per cent and agriculture's GDP grew by 3.4 per cent. Its share of total GDP was 39.3 per cent. All the sub-sectors of agriculture recorded lower growth rates except fishery which grew by 9.7 per cent. Available data from the Federal Ministry of Agriculture and Rural Development indicated that productivity of grains and roots and tubers farmers increased to 1.6 and 10.2 tonnes per hectare, respectively. The productivity of pulses farmers remained at the SAP level while that of industrial crops farmers declined to 1.0 tonnes per hectare compared with 1.3 tonnes per hectares achieved during the SAP era. Food imports rose to an average of N=70,484.1 million, representing an annual growth of 78.1 per cent and 11.9 per cent of total import, reflecting the continued depreciation in the naira exchange rate, the lower output in the agricultural sector, and the reduced capital expenditure (in real terms) on the sector.

2.4 Climate Change and Agricultural Productivity

The agricultural sector has a multiplier effect on any nation's socio-economic and industrial fabric because of the multifunctional nature of the sector (Ogen 2007). It has the potential to be the industrial and economic springboard from which the country's development can take off (Stewart 2000). This sector remains the main source of livelihood for most rural communities in developing countries in general. In Africa, agriculture provides a source of employment for more than 60 per cent of the population and contributes about 30 per cent of Gross Domestic Product (Kandlinkar and Risbey 2000). Rain-fed farming dominates agricultural production in sub-Saharan Africa, covering around 97 per cent of total cropland and exposes agricultural production to high seasonal rainfall variability (Alvaro et al. 2009). According to Mayonget *al* (2005) agriculture is the main source of food and employer of labour for about 60-70 per cent of the population in Nigeria. It is a significant sector of the economy and the source of raw materials used in the processing industries as well as a source of foreign exchange earnings for the country (Mohammed-Lawal and Atte 2006). Since

agriculture in Nigeria is mostly rain-fed, it follows therefore that any change in climate is

bound to impact its productivity in particular and other socio-economic activities in the country. The impact could, however, be measured in terms of effects on crop growth, availability of soil water, soil erosion, incident of pest and diseases, sea level rises and decrease in soil fertility (Adejuwon 2004). The issue of climate change has become more threatening not only to the sustainable development of socio-economic and agricultural activities of any nation but to the totality of human existence (Adejuwon 2004). As further explained by UNFCCC, the effect of climate change implies that the local climate variability which people have previously experienced and adapted to is changing and this change is observed in a relatively great speed.

The threat that climate changes pose to agricultural production does not only cover the area of crop husbandry but also includes livestock and in fact the total agricultural sector. African farmers also depend on livestock for income, food and animal products Nin, Ehui, (Benin 2007). Climate can affect livestock both directly and indirectly (Adams et al. 1999; Nzeh and Eboh, 2012; Manning and Nobrew 2001). Direct effects of climate variables such as air, temperature, humidity, wind speed and other climate factors influence animal performance such as growth, milk production, wool production and reproduction. Climate can also affect the quantity and quality of feed stuffs such as pasture, forage, and grain and also the severity and distribution of livestock diseases and parasite (Niggol and Mendelsohn 2008). Hence the totality of agricultural sector is considered by examining agricultural productivity.

Rainfall is by far the most important element of climate change in Nigeria and water resources potential in the country (Adejumo 2004). The northeast region of Nigeria is increasingly becoming an arid environment at a very fast rate per year occasioned by fast reduction in the amount of surface water, flora and fauna resources on land (Obioha 2008). Consistent reduction in rainfall leads to a reduction in the natural regeneration rate of land resources (Fasona and Omojola 2005). This makes people to exploit more previously undisturbed lands leading to depletion of the forest cover and increase on sand dunes/Aeolian deposits in the northern axis of Nigeria. Climate change is the most severe problem that the world is facing today. It has been suggested that it is a more serious threat than global terrorism (King 2004). The southern area of Nigeria largely known for high rainfall is currently confronted by irregularity in the rainfall and temperature is gradually increasing in the Guinea savannah zone of the country. In addition, the northern zone faces the threat of desert encroachment (FME 2004). All these affect agricultural productivity in negative ways

and lead to low rate of poverty reduction in the economy especially in the rural areas of

South-East, Nigeria.

Climate change affects food and water resources that are critical for livelihood in Africa where much of the population especially the poor, rely on local supply system that are sensitive to climate variation. Disruptions of existing food and water systems will have devastating implications for development and livelihood. These are expected to add to the challenges climate change already poses for poverty eradication (De Wit and Stankiewicz

2006). According to Obioha (2009), the sustainability of the environment to provide all life support systems and the materials for fulfilling all developmental aspirations of man and animal is dependent on the suitability of the climate which is undergoing constant changes. The effect of these changes is posing threat to food security in Nigeria.

2.5 Determinants of Agricultural Productivity in Nigeria

Agricultural sector was the mainstay of the Nigerian economy before independence and immediately after it, until the oil boom of the 1970s. In the period before the 1970s, agriculture provided the needed food for the population as well as serving as a major foreign exchange earner for the country. However, with the subsequent increase in the foreign exchange earnings from crude oil trade, import of finished goods such as industrial inputs, food and services became dominant in the Nigeria economy. On the other hand, Ojo 1994, posits that the Nigeria's agricultural sector was indeed rendered less competitive overtime through the over-valued currency, inappropriate pricing policies and dearth of farm labour caused by the immigration of the youths to the urban centers in pursuit of wage employment in the non-agricultural sectors.

The aforementioned reasons notwithstanding, many other factors have militated against agricultural output in Nigeria, some of which are declining arable land area per capita, erratic rainfall, poor input supply such as fertilizers to resuscitate the depleted soils, low capital expenditure and poor financial resources available to farmers in forms of loans and advances necessary in all the stages of production. It is very obvious, that the sustainable growth rates of the Nigeria's economy cannot be achieved in the absence of increased agricultural output in the country. Harsch 2004, points out that higher output will directly reduce hunger and bring down the cost of food imports as well as have wider economic benefits, stimulating rural incomes and providing raw materials for African industries.

It was the shock in the crude oil market in 1980 that led the country to pursuing various policy measures in order to improve the economy. The earlier measures that proved

abortive were that of stabilization, restrictive monetary policy and stringent exchange control. In July 1986, Structural Adjustment Programme, (SAP) was introduced, and one of its major policy measures was the reduction of the excessive dependence of the economy on crude oil as a major foreign exchange earner by the promotion of non-oil export of which agriculture is chief. Prior to SAP and after, governments after governments in the country have evolved one policy measure or the other in an attempt to proffer solution to the dwindling agricultural productivity, but the envisaged results are still farfetched vis-à-vis the growing hunger and poverty. But in the meantime, agricultural production in the nation as ranked by FAO 2012 shows that tuber crops are with high production level in terms of metric tons and even monetary values (See table 1 below).

Table 1: Top Agricultural Production in Nigeria – 2012

Rank	Commodity	Production (\$)	Production (MT)
1	Yams	5652864	35017000
2	Cassava	3212578	44582000
3	Groundnut	1806834	3900000
4	Millet	1300298	9064000
5	Citrus fruits	1221280	3400000
6	Vegetables	1070543	5705000
7	Sorghum	947613	9318000
8	Rice	864799	4179000
9	Maize	688353	7525000

Source: FAOSTAT, 2012

2.6 Brief information on Importance of Agriculture

The potential gains from the growth and development of agricultural sector in Nigeria as well as in other African regions are large. Watkin(2003) points out the fact that in West Africa alone, 10-11 million people depend on cotton cultivation as a source of income, and the crop is also a major source of foreign exchange and government revenue. In the case of Nigeria, agricultural sector’s output was the mainstay of the economy until the oil boom of the 1970s as it accounted for significant proportion of its foreign exchange earnings.

The pervading importance of agriculture in the national economy is glaringly obvious to merit further emphasis. Ajayi(1977) adds that if agriculture is thought of in terms of the need to provide food for feeding the Nigeria’s populations, its importance is manifest in at least two directions: first, that food is a basic necessity and secondly, it is only on a firm basis of food production that a virile industrial economy can be founded. It can be added here that one of the direct contributions of agriculture to any economy besides food supply is in the area of raw material supply to the industrial sector, which culminates in import substitution.

Usman 1991, states that agriculture import can play an important role in foreign exchange conservation in Nigeria since a significant proportion of local industry process agricultural raw materials, which are usually in short supply. The significance of import substitution strategy lies in the fact that right from the 1970s to 1980s a significant import proportion of foreign exchange expenditure in Nigeria has always been on the importation of food and agricultural raw materials. Therefore, to find domestic substitute for these imports obviously stands to check the unwholesome trend and effect the conservation of the country's foreign exchange earnings.

The Nigerian Economic Summit Group (NESG) in 2001 asserts that agriculture would remain one of the key routes to Nigeria's prosperity in the new millennium if stakeholders give the sector the attention it deserves. Furthermore, apart from contributing the largest share to GDP, it is the largest non-oil export earner, the largest employer of labour and a key contributor to wealth creation and poverty alleviation, as a large percentage of the population derives income from agriculture and related activities. The belief and reality that the growth and the development of Nigeria's agricultural sector will transform the economy and enhance the implementation of industrial development policies are not in doubts. According to the Central Bank of Nigeria 2003 the main thrust of agricultural development effort, therefore, has been to enhance and sustain the capacity of the sector to play the assigned role, with particular emphasis on the attainment of a sustainable level in the production of basic food commodities, especially those in which the country has comparative advantage. It also involves developing the capability to increase production of agricultural raw material to meet the growing needs of an expanding industrial sector as well as the production and processing of exportable cash crops to boost the nation's non-oil foreign exchange earning capacity.

Therefore, the importance of the Nigerian agricultural sector to the entire economy is well noted by many. As stated in several literatures, it was a dominant source of foreign exchange income before the emergence of oil in 1970s. More than 90 percent of the agricultural output is accounted for by small scale farmers with less than two (2) hectares under cultivation. It is estimated that about 75 percent (68 million ha) of the total land area has potential for agricultural activities with about 33 million hectares under cultivation. Statistics shows that Nigeria is Africa's largest agricultural producer when measured by physical production (FAOSTAT, 2012). Table 2 presents details of Africa's largest agricultural producers.

Table 2: African Largest Agricultural Producers in 2012

Countries	Total Outputs (000 tonnes)	Proportion of Total
Nigeria	156, 093	22.27
Egypt	85 100	12.14
South Africa	50 230	7.17
Ethiopia	28 094	4.01
Sudan	27 307	3.90
Tanzania	27 119	3.87
Uganda	26 147	3.73
Ghana	25 326	3.61
DRC	24 162	3.45
Kenya	22 288	3.18
Africa Total	700 811	100

Source: FAOSTAT, 2012

2.7 Appraisal of Agricultural Policies in Nigeria

Prior to independence and immediately after it, limited government policy existed as far as agricultural development was concerned. The policy focus was on the production and marketing of export crops with the hope that in the process adequate food will be provided in the country through small-scale farming. The first decade of Nigeria independence was characterized with political upheaval that culminated in a civil war, which lasted for about 3 years. Within this period, there were no meaningful and effective agricultural development policies and projects put in place. In short, major agricultural policy and programmes came to the limelight in the period immediately after the civil war. However, Awoseyila(1997) posits that Nigerian government initiated a number of agricultural policies, programmes and projects, largely with the framework of National Economic Development between 1962 and 1985. Given the significance of agricultural sector the overall objectives of the policies, programme and projects were to:

- ensure food supplies in adequate quantity and quality to keep pace with increasing population and urbanization, having regards to changing taste and the need for fair and stable prices;
- expand the production of export crops with a view to increasing and further diversifying the country’s foreign exchange;
- increase significantly the production of agricultural raw materials to support domestic manufacturing activities especially in the field of agro-based industries in addition to export;

- create rural employment opportunities to absorb more of the increasing labour force in the nation and minimizing the tendency for inadequate and insufficient use of human resources in the rural areas generally and;
- evolve appropriate institutional and administrative framework to facilitate a smooth integrated development of the agricultural potentials of the country as a whole.

Some of the popular policy instruments for achieving the planned objectives were prices and tax incentive, provisions of credit, land reform and the strengthening of primary agricultural institutions. The failure of the development plan documents of the period of 1962 and 1985 proved to the government that there is the need for well-designed and articulated agricultural policies and programmes for boosting agriculture output in Nigeria. Though there was the launching of a new agricultural policy for Nigeria in 1988 by the Ministry of Agriculture, but the only difference was the policy document emphasizing ecological specialization. This addition did not make for a significant difference in Nigeria agricultural productivity.

The National Agricultural Land Development Authority (NALDA) established in 1991 was to ensure the availability of contiguous land as well as reduce the burden of land preparation for agricultural activity CBN, 2003. NALDA's role was to execute a national agricultural land development programme designed to moderate the chronic problem of low utilization of abundant farmland. However, it became obvious that the performance of NALDA saw no light due to high cost of agricultural equipment, maintenance and lack of spare parts, which culminated in poor farmer's operations and low levels of agricultural outputs in Nigeria.

Federal Government of Nigeria in 2004 comments that, however, over the years, the rate of growth in agricultural production has stagnated and failed to keep pace with the needs of a rapidly growing population resulting in a progressive rise in import bills for food and industrial raw materials. Furthermore, that the potential of agricultural business sector as a major employer of the growing labour force and earner of foreign exchange has also been undermined. As a result, a large majority of the population, many of who live in the rural areas remain poor. Central Bank of Nigeria CBN in 2002 and 2003 pointed out earlier that Nigeria's agricultural development policy over the years has been informed by the belief that the development of agriculture is a *sine-qua-non* for the overall growth and development of the economy. This understanding constituted the basis of all efforts made in the planning and design of programmes and projects to ensure growth in the sector. It is, however, noted that despite these laudable efforts, Nigeria's agricultural sector is still characterized by low yields

attributed to the use of crude implements, low level of other inputs, etc. Statistics shows that in spite of the improved performances of the sector, 4.0 percent growth recorded was lower than 5.8 percent projected annual growth target set in the 2002-2003 National Rolling Plan. Government agricultural policies also have been poor, providing only weak economic incentives to rural producers. In the absence of a sound private sector, this causes “severe dislocation of production, farm trade and farmer support services”.

Meanwhile, it is important to recall that agriculture constitutes the principal livelihood of 70 per cent of the world’s poor and is the primary means of food security. The poor, who depend on agriculture for sustenance and livelihood is currently faced with the challenges of changing climatic conditions and even inconsistency in the yield of the agricultural products. In Nigeria, agriculture is a dominant livelihood activity of the rural poor and even more than 70 per cent of the citizenry are engaged in agricultural production with less productivity from the sector to show for their numerous efforts. Agriculture in this area is highly dependent on climatic parameters especially rainfall even in the South-East part of the country that is therefore particularly vulnerable to climate change. The rate of the agricultural productivity shows to be at higher growth rate in the region but this is not practicable due to the higher incidence of poverty in Nigeria especially in the South-East. Compared to the other regions of the country, and the national poverty incidence within the year 1980 to 2010, one may be forced to believe that agricultural productivity growth should be high in this zone, but the reverse is the case due to the various problems listed below.

Table 3: Poverty Incidence in Nigeria 1980 – 2010

Analytical categories	1980	1985	1992	1996	2004	2010
North East	35.6	54.9	54.0	70.1	72.2	76.3
North West	37.7	52.1	36.5	77.2	71.2	77.7
North Central	32.2	50.8	46.0	64.3	67.0	67.5
South East	12.9	30.4	41.0	53.5	26.7	67.0
South West	13.4	38.6	43.1	60.9	43.0	59.1
South –South	13.2	45.7	40.8	58.2	35.1	63.8
Urban	17.2	37.8	37.5	58.2	43.2	61.8
Rural	28.3	51.4	46.0	69.3	63.3	73.2
National	28.1	46.3	42.7	65.6	54.4	69.0

Source: Onwuemele, 2012

Both in the recent time and in the past, the importance of the Nigerian agricultural sector to the entire economy is well noted by many even in the South-East of the country. It was a dominant source of foreign exchange income before the emergence of oil in 1970s. In the South-East part of the country their major product was oil palm among other produce; as other zones of the country has their own comparative crop advantage. Notwithstanding, more

than 90 percent of the agricultural output in the country and even South-East is accounted for by small scale farmers with less than two (2) hectares under cultivation as their poverty reduction level in this sector is still low. In Nigeria, in general, it is estimated that about 75 percent (68 million ha) of the total land area has potential for agricultural activities with about 33 million hectares under cultivation.

2.8 Critical Challenges of Agricultural Output in Nigeria

In addition to the known numerous factors that affect agricultural productivity in Nigeria below are some other critical challenges of agricultural output in Nigeria. In the study of Ogburn (1984) it is implied that despite the aftermath of the haphazard policy implementation on agricultural productivity in Nigeria, massive rural-urban migration caused by the advent of oil and the concomitant boom in the construction and services sectors have aggravated the situation.

In the same vein, Ojo, (1994) asserts that the Nigeria agricultural sector was indeed rendered less competitive over time through the over-valued currency, inappropriate pricing policies and dearth of farm labour caused by the migration of the youth to the urban centers in pursuit of wage employment in the non-agricultural sectors. Nigeria as a matter of fact presently experiences higher proportion of youths in the urban areas of its geographical sovereignty in addition to the glaring evidence of youths (living in rural areas) resisting any encouragement to take farming as a major profession.

The Central Bank of Nigeria (CBN, 2000 and CBN, 2003) stressed that in spite of the country's natural and human resources endowment and the laudable efforts of the government(s), the agricultural sector has continued to stagnate and is still characterized by low yields, attributed to the crude implements, low level of inputs and limited areas under cultivation. Other factors militating against agricultural production specified are inadequate working capital, low rate of adoption of appropriate technologies, diseases and pest infestation, poor postharvest technology, environment hazards/ecological menace, labour constraints, absence of infrastructure and drought. These constraints interact to exhibit a significant impact on the ability of agricultural sector in achieving economic and social objectives in the country.

NESG 2002 opines that the gross inefficiency in the agricultural sector explains why Nigeria which used to be a large exporter before independence became a major importer a couple of decades after independence. Widening food supply demand gaps, rising food import bill, decrease in foreign exchange earnings from agriculture and decline in agriculture

labour force characterize this era. The country spends up to \$2 billion annually on the importation of such basic food items as rice, wheat, frozen fish, milk, tinned foods and packaged fruit among others. The study of Watkin (2003) presented the global dimension of the problem of agricultural productivity in the less developed and the developing countries, Nigeria inclusive. The study further stressed emphatically that industrial countries' agricultural support is destroying the livelihood of the poor farmers across the developing world, reinforcing an unequal pattern of globalization in the process. The implication here is that higher levels of agricultural support translate into increased output, fewer imports and more exports than would otherwise be the case. Therefore, small farmers in developing countries such as Nigeria suffer damage through various channels. For instance their entrance into the developed countries markets become almost impossible, and because the local markets are not large enough to absorb these agricultural output locally, there would be a fall in the prices which in turn discourages farmers in developing countries.

The Federal Government of Nigeria, 2004 identified the following major constraints inhibiting the transformation of agricultural production in Nigeria, such as rapid shift of population from rural to urban, shift from the consumption of local to imported food items; lack of funds; inadequate processing and storage facilities; input supply and distribution; oil boom, policy inconsistency and declining political commitment to agriculture; absence of price support mechanism and pervasive distortions in macro-economic sectorial policies, misaligned exchange rate, heavy explicit taxation of agriculture exports; inadequate incentive framework and pervasive distortions in the macro-economy, continued dependence on rain-fed agriculture and the absence of economies of scales; land tenure system that inhibit the acquisition of land for mechanized farming and inadequate agricultural extension services and lack of indigenous capacity technologies responsive to local conditions. It is evident from here that the problems of agricultural productivity are so glaring in the country that even the government cannot claim ignorance of them. In the words of Sharp and Kone (1992) Africa is preoccupied over-whelming with soil erosion, desertification, loss of trees, uncertain rainfall and a wide range of problems related to extreme poverty. They went further to state that the marginalization of small farmers with few exceptions, the people who should be the backbone of Africa's economy, a large proportion of their women, are pushed out to the margin of economic life and given little support. Even when they are included in economic policy, they are often encouraged to adopt crops or farming practices liable to impoverish them further. Another factor identified in their work was the low productivity on fragile

terrains, which sometimes forces the men to migrate for long period, for jobs, thus accentuating the cycle of rural impoverishment.

Generally, overdependence on oil which has shifted the strong commitment from agriculture since the discovery of oil has always reflected in budgetary allocation to the agric sector in Nigeria. The Nigerian Economic Summit Group (2001) points out that agriculture has been starved of investment and that many African governments devote less than 1 percent of their budget to agriculture. In addition, not only have the overall donors' aid levels declined, but donors' priorities have simultaneously shifted away from agriculture toward other sectors. Worldwide, the amount of aid allocated to primary agriculture declined from \$11 billion in 1990 to \$7.4 billion in 1998 and the decline has been especially sharp in the case of the World Bank which provided 39 percent of its total lending to agriculture in 1987, but only 7 percent in 2000. Given the low-income levels in the developing countries as well as in Nigeria, the shortfall of these sorts of aids stands to reduce the level of agricultural outputs.

2.9 Agricultural Productivity in Nigeria based on International Comparisons

Agricultural productivity in Nigeria based on all states average yields during the recent time is low and far from satisfactory relative to comparator countries and their high potentials. The trends indicate some modest increases in productivity over time. But, the yield levels are far below potentials and still less than levels required for global competitiveness in agriculture. Low productivity is associated with a variety of management, institutional and technological conditions suffered by the Nigerian farmer. Central to the productivity problem is the low incidence of efficient inputs and technologies.

For example, Nigerian agricultural (crop) production is predominantly reliant upon rain-fed systems. Irrigated land constitutes less than 1% of the country's arable land. In fact, only about 10% of the FADAMA lands have been developed for irrigation as reported by Ebohet *al*(2010). Current fertilizer use is estimated at 0.5million tonnes/year, much short of the potential put at 3-5million tonnes/year. Fertilizer procurement by the federal government declined from 1.3million tonnes in 1990 to less than 200,000mt in 2002 and about 245,000mt in 2004, despite large expansion in cultivated areas recorded by many crops. It is not surprising, therefore, that fertilizer use per arable land (kg of nutrients/ha) decreased from

13kg in 1989 to 6kg in 2002 (World Bank, 2004). Similarly, existing use of improved seeds/planting materials is put at 12% of potential demand. Nigeria can regain

competitiveness in grains if fertilizer and other yield-increasing technologies are widely used. There is need to change policy emphasis from increasing output through expansion of cultivated area to increasing output through increases in productivity or yields, in order to achieve international competitiveness and sustainable agricultural growth in Nigeria and South-East in particular.

Meanwhile, agricultural growth in Nigeria and South-East specifically has not resulted in significant poverty reduction. Agricultural growth occurs in terms of increased output. In principle, such increases in output as reported by Ebohet *al*(2010) can come from sources. One is increases in land area under cultivation. The other is increases in agricultural productivity. Growth can come simultaneously from both sources, but in variable proportions or combination. Growth in outputs has come through growth in land cultivated rather than increases in productivity. Even though recent growth trends to reveal some modest increases in productivity over time, yield levels are generally below potentials (Eboh, 2004). This reflects the facts that much of the growth or increases in output has come from expansion in the land area under cultivation. The indication that output growth was accounted for more by expansion in area cultivated than by productivity improvements is reinforced by the significant correlation between output and area harvested compared to the correlation between output and yield (Eboh, *et al* 2006).

Despite the potential positive impact of agricultural growth in poverty reduction in poor areas, it is doubtful whether the Nigeria situation provides affirmative evidence. For example, despite the relatively high agricultural growth in the past five or more years, it is not certain according to Eboh, *et al*(2010) that poverty has reduced in commensurate proportions especially in the South-East, Nigeria. Over a third of African's poor are found in Nigeria. Data indicate that poverty incidence is still high, even though, it declined from 70% of the population estimated to earn less than US\$1 a day in 2003 to 56% in 2005. Even though the percentage has dropped, the absolute numbers are still alarming especially in the South-East region of Nigeria. The majority of the poor depend on agriculture for their livelihoods and 64% of the people in the rural areas are not able to meet their basic needs. Of this, well over 50% of rural women still engage in subsistence agriculture for survival (Word Bank, 2004). As such, improved agricultural performance in Nigeria and especially in South-East part of the country is critical to poverty reduction. The situation calls for more reflection about the sources and patterns of agricultural growth and the imperatives for poverty reduction within the overall macroeconomic context.

3.0 RESEARCH METHODOLOGY

The study focuses on Nigerian agricultural productivity in the context of the African continent as a whole. This is because of the size and population of Nigeria as well as her position as the largest and most populous country in Africa. The study also examines the economies of the other African countries and sub-regional groups among others.

The research involves data collected on the past and present performance of agricultural productivity programmes within the country (Nigeria) and African Nations. The study relies heavily on published and unpublished information from various sources especially that concerning agricultural productivity within the African region. Other sources of information about different agricultural programmes were also explored. These include internet sources, grey literature and published opinions of experts. Meanwhile, the secondary information used were generated from published works such as CBN reports, National Bureau of Statistics (NBS) publications as well as technical documents and reports from the National Planning Commission (NPC), Ministries of Agriculture at both Federal and States levels, Federal Ministry of Finance, Agricultural research Institutions across the nation, Universities of Agriculture across the country/other universities where relevant information about the subject matter can be found among other agencies that involve in agricultural activities. Other key documents consulted included materials produced, case studies, recent research reports including annexes and internal learning documents from development partners including the World Bank, UNICEF, UNDP, EU as well as ECOWAS, among others.

4.0 FINDINGS OF THE RESEARCH

4.1 Roles of Agricultural Sector as an Accelerator for Economic Growth in Nigeria

Agriculture has contributed little to the economic growth of Nigeria in the past 15 years, according to World Bank report 2013 when compared with the period before 1970. An analysis of issues shaping “Africa’s Economic Future” released by the World Bank said that agriculture had contributed more to the economic development in resource-poor nations than in resource-rich nations such as Nigeria. Rather than grow their economies through agriculture, resource-rich nations on the continent, including Nigeria, have depended more on rents from mineral resources as reported by World Bank (2013).

The report further shows that though resource-rich countries have been growing faster on average in the period 1996-2011, some resource-poor countries such as Ethiopia, Rwanda, and Mozambique have also grown fast driven by services and agriculture. “In contrast, in Angola, Nigeria, and Zambia, three of Africa’s long-standing resource-rich and faster growing countries, resource rents and services make up the lion’s share of growth instead of agricultural productivity and growth.

The difference in the contribution of agriculture to growth is particularly striking (2.5 percentage points per year in the three fast growing resource-poor countries versus only one per cent in the three fast growing resource-rich countries). These differences in the composition of growth will prove important in understanding differences in performance between the two groups in poverty reduction. There is also larger volatility in the growth pattern of the resource-rich countries, mainly reflecting the volatility in resource rents.

Studies in Nigeria are still dominated by the debate around the development of agriculture and its contribution to the growth of the economy. It is however obvious from all the analysis that though agriculture has contributed positively to economic growth, there are fundamental problems attributable largely to the characteristics of Nigerian agriculture. It is also evident that poor implementation of economic policies have been detrimental to output growth in the sector. Thus, the pace of modernization of the sector has been very slow. These problems and other outstanding constraints discussed in detail in this work have prevented the sector from contributing to the achievement of the set objectives including laying a solid foundation for Nigerians agrarian base *vis-a-vis* increase in agricultural productivity and even much needed to the national GDP. Taking advantage of this research which was carried out by means of secondary data only, information shows that agricultural total production,

agricultural import, agricultural export, foreign direct investment in the sector need to be looked into well to re-examine the question of whether agriculture could serve as an engine of growth for the Nigerian economy or otherwise. Results from the empirical analysis of many researches show that the productivity in agricultural sector has impacted positively on economic growth in Nigeria and even in the national GDP, but more need to be done to make the sector the major contributor to the national economy. It is on record that agriculture has suffered from years of mismanagement, inconsistent and poorly conceived government policies, neglect and the lack of basic infrastructure, but still, the sector accounts for over

27.5% of GDP in 2008; 35.8 in 2011 as reported by Onwuemele, 2012 and Nzeh, 2013 and more than two-thirds of employment in the country. See table 4 below for agricultural sub-sectoral contribution to the GDP from the period 2000-2011.

Table 4: Growth in Agriculture Sector’s Contribution to GDP in Percentage (2000–2011)

	Share of Total %										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2010	2011
Crop Production	22.00	28.50	29.20	29.06	30.48	29.02	28.50	29.55	27.45	36.40	35.83
Livestock Production	2.60	3.30	3.40	2.04	2.14	2.15	2.04	2.10	2.02	2.61	2.58
Forestry Production	0.50	0.60	0.60	0.14	0.45	0.42	0.40	0.40	0.40	0.52	0.51
Fishery Production	1.20	1.60	1.70	1.09	1.14	1.17	1.06	1.09	1.00	1.34	1.32
Total Agriculture	26.30	34.00	34.90	32.60	34.21	32.76	32.00	33.15	30.87	40.87	40.24

Source: Onwuemele, 2012 and Nzeh, 2013

Summarily, agricultural productivity estimates for Nigeria showed a decline in productivity growth from the 1960s to the 1980s. Nigeria has witnessed strong economic growth in the past few years, averaging 8.8 percent real annual GDP growth from 2000 to 2007. However, the agriculture sector has lagged behind GDP growth, growing at 3.7 percent in 2007. Reviewing the production and postharvest constraints affecting agricultural productivity in Nigeria is an important step in formulating policies to reverse these trends in the future.

4.2 Endogenous and Exogenous Constraints to Agricultural Productivity in Nigeria

Agriculture employs nearly three-quarters of Nigeria’s work force, as is the case in most of Sub-Saharan Africa (SSA). Agriculture is the principal source of food and livelihood in Nigeria, making it a critical component of programs being sought to reduce poverty and attain food security in Nigeria. Recent interest in changing agricultural productivity stems from the knowledge that income growth comes from productivity growth and savings-supported investment.

In the meantime, the largely subsistence agricultural sector in the country has not kept up with rapid population growth as reported by Nzeh, (2013). Nigeria was once a large net exporter of food but now she imports a large quantity of her food products, though there is resurgence in manufacturing and exporting of food products in the recent time. In Nigeria today, more than 90% of the agricultural output is from the small scale farmers, with less than two hectares under cultivation on average. Their poverty reduction level has been affected further by the unstable or unsteady nature of the economy in the present time.

Meanwhile, there are several endogenous and exogenous factors that have hindered the maximum performance of the agricultural sector in Nigeria but the major constraints which are sector and commodity specific that prevent much increasing agricultural productivity in Nigeria can be summarized as direct participation of the government in the provision of many farm inputs and services, and in the production, processing, and marketing of farm commodities; policy reversals and inconsistencies as reported by Nzeh, *et al* (2008). Others are obsolete and inefficient processing equipment, and the inability to install new processing equipment due to high offshore costs; high on-farm costs of agrochemicals for small-scale farmers, so these farmers rarely apply fertilizers and insecticides at recommended levels, constant threats to seed multiplication schemes by fertilizer shortages and lack of protection for the out growers.

In the recent time, studies have shown that even compounding of feeds, which are affected by the low availability and low quality of the constituent raw materials are among the factors that hinder maximum performance of agrarian sector in the country.

Other critical endogenous and exogenous factors affecting productivity in the agricultural sector could be classified under:

4.2.1 Technical Progress

Technological innovations in most cases lead to greater improvements in output per worker. Consequently, a country that has achieved a high level of technological growth tends to have higher worker productivity. This leads to a more capital intensive and labour saving operations. In Nigeria, the level of technical progress is still very low as more than half of the population is still involved in agricultural production using rudimentary technology (cutlasses and hoes).

4.2.2 Quality of Labour Force

Attainment of higher productivity presupposes the availability of skilled labour force. Skilled labour force is required to transform the static past into a dynamic present and prosperous

future. The inadequacy of skilled farm labour is further compounded by unavailability of labour, particularly when it is required to satisfy seasonal labour demand. This labour shortage has been aggravated by a substantial reduction in the supply of family labour due to the persistent rural-urban drift.

4.2.3 Capital Intensity

Increased technological developments augment productivity. As the capital stock per worker tends to be high, there would be an increase in worker productivity. Most farmers who are small scale farmers do not have adequate capital to expand their scale of operations and take advantage of profitable packages of technology to boost productivity.

4.2.4 Availability of Raw Materials

It is a well-known fact that no uninterrupted advance in real standard of living can be expected unless resources are domestically produced. Only very few countries, manage to achieve higher rates of productivity over a longer period of time if they depended on the import of raw materials. Productive soil, abundance of water supply, forestry and fishery are great assets to an economy. Equally important is the technical knowledge, not only to harness natural resources but also to retain their quality.

4.2.5 Policy Inconsistencies

Policy inconsistencies often send the wrong signals to stakeholders in agriculture and prevent private sector long term capital investment that could engender increased productivity in the agricultural sector. Frequent policy reversals also results in non-response to government policies by stake holders.

4.2.6 Inadequate Funding of Research Development

Research development which is a major source of increased productivity in the agricultural sector has not been adequately funded in the past. In addition, research findings have not been properly coordinated and transmitted to farmers that are expected to be the ultimate beneficiaries.

4.2.7 Socio-Economic Factor

The nature and character of socio-economic set up prevailing in an economy is a factor that is germane to productivity. There may be adequate amount of raw materials and abundant supply of technical knowhow; however, if the existing political, economic and social

institutions are not conducive to improvement, it would be difficult to anticipate substantial gains in productivity.

Even with the numerous endogenous and exogenous constraints to agricultural productivity in Nigeria, one can still say that agriculture is a potent economic growth driver in the Nigerian economy. This is because comparative analysis of the contributions of agricultural sector to some of other important selected sectors in the national GDP in the recent time shows that agriculture is still in the leading position as depicted by Table 5 below.

Table 5: Comparative Contribution of Agriculture, Industry, Building, Trade and Services to GDP – 1960–2010 in percentage

Year	Agriculture	Industry	Building and Construction	Wholesale & Retail Trade	Services	Total
1960	63.5	6.0	4.2	12.7	13.6	100
1965	54.4	11.5	5.7	13.1	15.3	100
1970	48.8	17.3	5.1	12.7	16.1	100
1975	27.3	27.2	8.5	20.2	16.8	100
1980	20.1	40.6	7.4	19.4	12.3	100
1985	39.2	26.8	2.3	13.5	18.2	100
1990	31.5	43.2	1.6	13.4	10.3	100
1995	32.1	45.2	0.7	14.2	7.8	100
2000	26.0	51.5	0.6	11.5	10.3	100
2005	32.8	41.8	1.5	12.8	11.1	100
2008	30.9	41.7	1.2	14.6	11.6	100
2010	40.8	25.5	33.6	18.7	14.9	100

Source: Central Bank of Nigeria, 2011.

4.3 Economic Growth Drivers and Agricultural Productivity in Nigeria

Agricultural productivity in sub-Saharan Africa even in Nigeria has been rising gradually since the 1980s. Agricultural research, assisted by policy reforms that improved economic incentives to farmers, has spurred adoption of new technologies and has been a major driver of higher productivity in sub-Saharan African agriculture as reported by Eboh, *et al*(2010).

Despite these gains, agricultural productivity growth in the region remains well below that of other developing countries, and formidable challenges remain to narrow the gap. Productivity growth in agriculture is a driver of economic development and poverty reduction in low-income countries. Some of the lowest levels of agricultural land and labor productivity in the world are found in Sub-Saharan Africa. As a consequence, this region suffers from high rates of extreme poverty and food insecurity. Boosting agricultural productivity in the region would not only raise the income of farm households--which make up over

half the region's population--but would also lower food costs for the nonfarm population, which

spends most of its income on food. This would also promote broader economic growth by stimulating demand for nonfarm goods and services, creating a surplus for public and private investment, saving foreign exchange, and freeing resources, such as labor, for the growth of nonfarm economic sectors. Through these mechanisms, improving agricultural productivity in Sub-Saharan Africa is an important strategy for creating inclusive economic development and reducing extreme poverty.

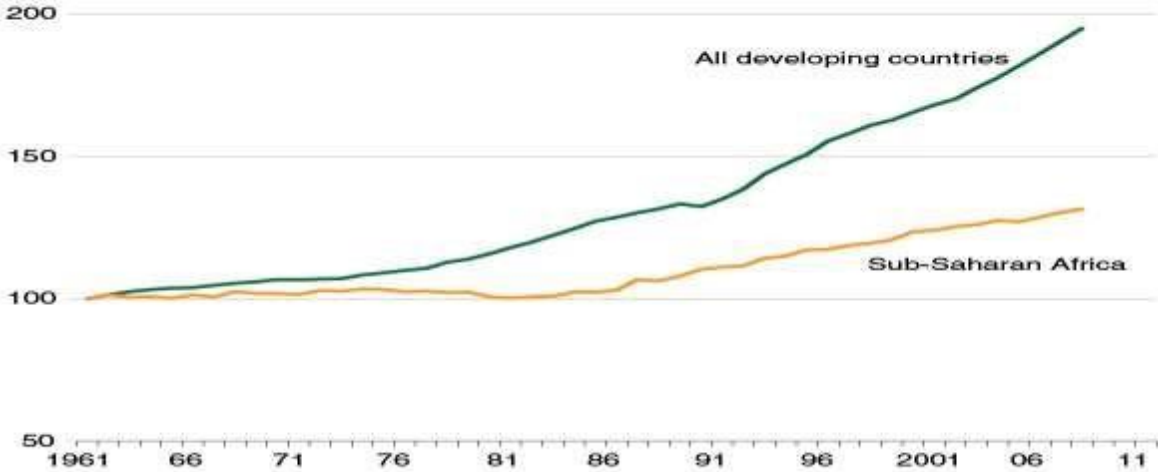
Most agricultural output growth in Sub-Saharan Africa has come from adding land, labor, and other resources to production. This resource-based growth has enabled agricultural production to grow by about 2 percent annually since at least the 1960s. But since the mid-1980s, agricultural productivity in SSA has shown gradual improvement as well. This productivity-based growth raised average farm output per unit of input, adding another percentage point to agricultural output growth, resulting in average growth of about 3 percent per year in total during the period. With this sustained rise in productivity, by 2010, agricultural output in the region was 30 percent higher than it would have been if the region had continued to rely on resource-based growth alone.

Despite this improvement, however, agricultural productivity in Sub-Saharan Africa lags far behind other regions of the world. Moreover, the productivity gap is widening over time. Growth in agricultural Total Factor Productivity (TFP)--a broad index that compares the total outputs of crop and livestock commodities to the total inputs of agricultural land, labor, capital and material resources--has been about 2 percent per year for developing countries as a whole, twice the rate of agricultural TFP growth in SSA. Moreover, productivity performance has varied widely within the SSA region. Some countries continue to experience little or no productivity improvement while others have been able to sustain modest rates of improvement for several decades (See figure 1 below).

Figure 1: SSA and Developing Countries Growth in Agricultural Productivity 1961-2011

Growth in agricultural total factor productivity in Sub-Saharan Africa picked up in the 1980s but still lags behind that of other developing countries

Total factor productivity (TFP) index (1961-65=100)



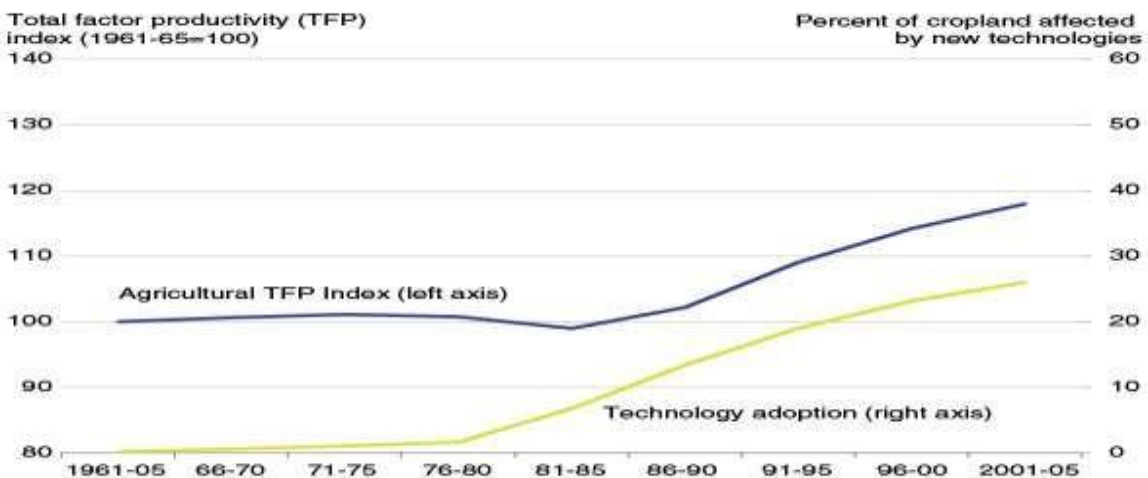
Source: USDA, Economic Research Service.

Source: Adapted from USDA 2011

In some SSA countries, agricultural productivity growth was spurred by local and global investments in agricultural research and development (R&D) that have helped deliver improved technologies to farmers. These technologies include improved crop varieties, biological control of insect pests, control of livestock diseases, and better methods of natural resources management. By 2005, these new technologies had improved productivity on at least 25 percent of the region’s cropland (USDA, 2011). These adoption rates, however, remain far below those of other developing countries, where most crops are now grown using varieties that are being improved continually.

Figure 2: Agricultural Productivity in SSA grew as new farm technologies were adopted

Agricultural productivity in Sub-Saharan Africa grew as new farm technologies were adopted



Source: USDA, Economic Research Service.

Source: Adapted from USDA 2011

Many of the new technologies adopted by farmers in SSA came from research conducted by both local and international agricultural research centers especially in Nigeria. The research centers focus heavily on raising small-holding productivity of food staples, as well as working to improve ruminant livestock production, natural resource management, aquaculture, and forestry.

Overall, these systems remain seriously underfunded, and only a small proportion of their staff hold advanced scientific degrees. Since few years ago, however, spending on national agricultural research in the region has risen, but this growth has been concentrated in just a few countries, namely Nigeria, Ghana, Tanzania, and Uganda. Closely related to investments in research is public support for farmer education and agricultural extension. These “human capital” investments help farmers learn about and use new technology to its best advantage. While comprehensive evidence of trends in agricultural extension capacity in the region is not available, in many SSA countries, extension services are poorly funded and do not reach many rural farmers especially in Nigeria as reported by Mgbada (2013).

4.4 Strategies to be adopted to position Nigerian Agricultural Sector for Development

In order to ensure sustained and increased inflow of investment in agriculture and its development, agricultural policies must endure and even outlive the government that formulated them. The practice of changing macroeconomic policies with successive federal governments is inimical to long-term investments in agriculture. The various tiers of government should act in concert with the economic reforms agenda, which entails promotion of greater private-sector roles in agricultural production, processing and marketing of farm commodities, as well as provision of farm inputs.

The common constraint which impedes strategies for agrarian sector development in the country *vis-a-vis* the implementation of presidential initiatives is poor funding of the sector. The associated issues are poor planning and poor infrastructural support for the various presidential pronouncements. The key recommendation is institution of adequate and timely release of approved budgets so that projects do not remain mere good intentions on paper. As soon as those strategies are adhered to strictly Nigerian agricultural development will take its stand in the nation and agriculture will be seen as a commercial enterprise thereby enhancing productivity of the sector.

There is a need to promote private-sector participation, especially by attracting foreign investors in local provision and production of needed machinery, equipment, and

farm inputs. In the long run expanded local production of these inputs will likely lead to reduced unit costs through economies of scale and this is tied to the need for a stable policy environment. The practice of contract arrangements between out-growers and private companies needs to be strengthened because it may be difficult to promote and enforce such contract details with any tier of government. There is a need for government to support the NARIs by promoting awareness of the technology prototypes they have on the shelf. Linkage is needed among private agro processing SMEs, NARIs, and financial institutions (especially commercial banks) to develop the prototypes into commercial products.

Private ownership and operation of silos should be promoted alongside those of the federal government. This will help to both expand storage capacity nationally and relax the financial burden on the government. Since most of the community-level agro processing occurs through cooperative organizations, these agro processing cooperatives must be strengthened to ensure their ability and capacity to attract credit.

Furthermore, one of the critical strategies expected to be of concern to the government remains urgent need for government for intervention in order to ease problems posed by traditional land tenure systems, which make land acquisition for purpose of agriculture production and productivity difficult. State governments are to assist corporate bodies or cooperatives in acquiring large parcels of agricultural land for large-scale agriculture towards enhancing agricultural development of respective states. The process of issuance of certificates of occupancy should be eased for such corporate bodies and cooperatives.

In addition, other areas which require considerable attention in view of their potential contribution to agricultural growth are input procurement/distribution and application of suitable technology. This will assist the agro-based entrepreneurship development. Adoption of modern farming/husbandry/seedlings, agricultural chemicals for pests and disease control and fertilizers to enhance yields, is generally recognized as a means of minimizing the problem of low agricultural yield/output and therefore should be sustained.

Economic cooperation among regions and states is highly encouraged as one of the strategies to be adopted to position Nigerian Agricultural sector for development. The benefits of such cooperation are the ability to pool resources together in order to embark on projects that are adjudged to be beyond individual states or regions. It also allows the cooperating states to reap the benefits of economics of scale, thereby improving the welfare of the people. The ultimate goal of co-operating states should be to achieve acceleration in the rate of economic development by being able to mobilize finance on a large scale to undertake industrialization.

5.0 SUGGESTIONS TOWARD MAKING AGRICULTURE A POWERFUL ECONOMIC GROWTH DRIVER

One of the first initiatives launched by the African Union (AU) after its establishment in 2002 (replacing the earlier pan-African organization, the Organization of African Unity) was a new policy framework that emphasized the social and economic development of the continent. Recognizing a critical role of agriculture in economic development, poverty reduction, and food security, the African Union called for increasing public and private investments in agriculture and raising the agricultural growth rate to at least 6 percent per year.

Another suggestion is investing more in agricultural research and continuing policy reforms which are economical solutions to further boost agricultural productivity in Nigeria and even SSA. Of greatest importance also is ensuring farmers' access to inputs and to markets for outputs. Therefore, private sector should be encouraged to participate in the supply of inputs which would lead to a gradual reduction of the role of the state in this area. It should also be the main driver of competitive commodity value chains and the promoter of farmer group/out-grower marketing schemes, with Government providing an enabling environment for commercial operations. Small farmers must be helped to organize themselves into viable associations or groups that would enable them to respond to market demands. This when implemented will assist in making agriculture a powerful economic growth driver hence it will be seen and taken as a commercial enterprise by the stakeholders.

There is need for public-private partnerships (PPP). Such partnerships would ensure an integrated approach to producer, processor, trader and marketer arrangements. The most successful precedents in Nigeria have involved clusters of farmers being organized around major agro-based industries, notably in the supply of rice and other cereals for processing and food manufacture. The private sector's willingness to participate in such arrangements is likely to depend on the Government's commitment to: (i) financing the social element of basic transport and handling infrastructure; (ii) providing policy continuity for, and judiciously applied subsidies to, small farmers; and (iii) undertaking an active programme of sensitization, advocacy, training and mentoring of State and LGA agencies and their field staff with regard to development approaches, partnerships and collaboration. As the drivers of economic growth of any nation especially Nigeria which agriculture is envisaged to be, government at all levels should get her agrarian programme into PPP.

Provision of business/technical advice and services is also a necessity. The lack of reliable access to credit is a major impediment to improving small farm operations and

enhancing the livelihoods of rural households that are involved in agricultural productivity. Priority attention should be given to resolving the problem of microfinance in much greater depth across Nigeria. The national agricultural research institutes are potential sources of much more effective advice and services, particularly if they are better resourced and their operating paradigms are oriented to the commercial, rather than just the technical/scientific aspects of agriculture. The support of the government is required for commodity-based marketing groups and for marketing information systems.

Finally, in its efforts to support the renewed focus on small farmers that are committed towards agricultural production especially in the rural areas of the country and region, Nigeria is in a strong position to take advantage of its experience in West Africa, other parts of the continent and elsewhere concerning agricultural activities to increase her agricultural productivity levels. This implies pro-active and strategic use of knowledge management and policy dialogue with other stakeholders in the sector.

BIBLIOGRAPHY

Ajayi, A. (1977). Agriculture and the nation's overall economy. *Bullion* 2(3&4).

Awoseyila, A. (1997). In-house Seminar on Reviving Nigeria's Non-Oil Sector for Economic Development. *Economic and Financial Review* 17(4).

Central Bank of Nigeria (2002). Annual report and statement of accounts for the year, ended 31st December.

Central Bank of Nigeria (2003). Contemporary economic policy issues in Nigeria. In Nnenna, O.J., Alade, S.O. and Odoko, F.O. (eds). KAS Arts Service, Nigeria

Eboh, E.C., Ujah, O.C, and Nzeh, C.E. (2010). The Global Financial and Economic Crisis as an Opportunity to Re-thinking Nigeria's Agricultural Sector Strategy, pages 159-200. Book Chapter on "*The Global Economic Crisis and Nigeria – Taking the Right Lessons Avoiding the Wrong Lessons* edited by Eboh, E.C and Ogbu, O (2010) and published by African Institute for Applied Economics (AIAE), Enugu. ISBN 978-37955-3-8.

Eboh, E.C., Kalu, K.O., Achike, A.I., Ujah, O.C., Amakom, U.S., Oduh, M.O., Nzeh, C.E.P and Larsen, B.K. (2006): Renewable Natural Resources, Sustainable Economic Growth and Poverty Reduction in Nigeria. AIAE Research Paper 1, ISSN 0794-4187, Enugu Nigeria.

Food and Agricultural Organization, (2001). Committee on world food security: Assessment of world food security situation, Rome

Farmers' World network.(2002). *Sustainable agriculture, sustainable life*. Arthur Rank Centre, National Agriculture Centre, Stoneleigh, Warks CV8 2LZ, UK.(http://www.unilever.com/Images/Sust_Ag_Sust_Life.pdf, accessed on 20 September 2013)

Federal Government of Nigeria (2004). Nigeria: National economic empowerment and development strategy – NEEDS. National Planning Commission, Abuja.

Federal Ministry of Agriculture and Water Resources (FMA&W) and NEPAD Nigeria (2013). Review of ongoing agricultural development efforts in Nigeria.

Harsch, E. (2004). Agriculture: Africa's engine for growth small-scale farmers holds the key says NEPAD plan. *Africa Recovery* 17(4).

Mgbada, J.U. (2013). Gender issues and children in agriculture; A Keynote Address presented At the 10th National Conference and Network Meeting of CYIAP at the ObafemiAwolowo University Conference Centre, Ile-Ife, holding from 11th to 14th March, 2013, Unpublished.

Nigerian Economic Summit Group (2002). Report on the Eighth Nigeria Economic Summit. Spectrum Books Ltd. Ibadan. 17-19 October.

Nigerian Economic Summit Group NESG (2001). Economic indicators 7(4).

Nzeh, E.C. (2013). Nigeria's Present Day Economy and Implications for National Development. Unpublished paper presented under consultancy for Impact for Change and Development, Lagos at radio programme of FRCN, Enugu Zonal Station.

Nzeh, C.E.P, Amakom, U., Ujah, O.C. and Omeye, S.C. (2008). Population Density and Agricultural Land Use in Enugu Agricultural Zone of Enugu State, Nigeria. Book of Proceedings of 10th Annual National Conference of Nigerian Association of Agricultural Economists (NAAE), held at 750 Seater Lecture Theatre, Main Campus University of Abuja, Nigeria, 7-10th October, 2008, Pages 591-602.

Ogbe, N.E. (1984). A review of the Nigerian economy (1960-1983). Bullion. Silver Jubilee Edition, July.

Ojo, M.O. (1994). Non-oil exports in Nigeria's changing policy dispensation. Bullion 18(2).

Onwuebele, A. (2012). Rural poverty reduction under a changing climate: is agriculture still the key in Nigeria? Paper presented at Nigerian Institute of Social and Economic Research, Ibadan, Nigeria.

Pretty, J. (2000). *Can Sustainable Agriculture feed Africa? New Evidence on Progress, Progresses and Impacts*. Centre for Environment and society, University of Essex, Colchester, UK

Sharp, R. and Kone, M. (1992). A future rooted in Africa's soil: environment, development and the search for sustainability. Africa Recovery 5

Usman, M.I. (1991). Backward integration and foreign exchange conservation. Bullion 15(1).

Watkin, K. (2003). Farm fallacies hurt the poor. Development Outreach 5(2)

World Bank.(1995). World Development Report 1995. Oxford: University Press for the World Bank.

World Bank (2004). Nigeria: Value and Supply chain study. First draft report prepared by Consilium International Inc. Seattle, Washington, D.C., November, 2004.

World Bank (2013). Agriculture and its contributions to Nigeria's growth, Washington DC.