

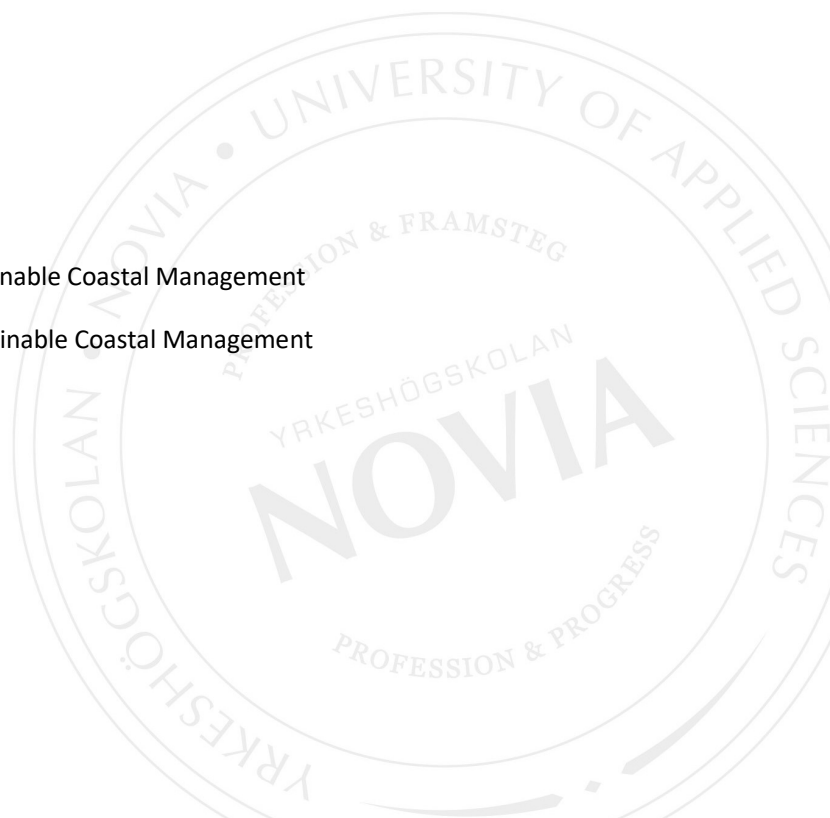
**Nigeria Agriculture and Sustainability: Problems and Solutions**

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**Abstract:**

The Nigeria government have tried many ways, initiated lots of policy and programmes which is aimed at restoring the country's agricultural sector to its pride (Adama J.I. et al, 2016). The Nigeria agricultural sector used to be one of the pillars of the country's economy and this was achieved in a sustainable way. The different ways, policies and programmes put in place to promote investment and diversification in the agricultural sector have not been able to yield good or desired results. The huge potential of investment and export diversification in order to get the Nigeria agricultural sector to add to the economy as it does in the before (1960s) have remain locked and untapped, because of a number of constrained and factor that must be addressed (Oni T.O, 2013). Some stakeholders that have gone into the agriculture sector are trying to achieve success in an unsustainable way.

The purpose of this thesis is to discuss the Nigeria agriculture system and problems relating sustainable farming and proffer possible solution that could be implemented to get rid of the constraints affecting the development of the agricultural system. Getting the agricultural system back to its best will speed up the reduction of poverty and rapidly improved the economy. Some of these constrains include lack of interest in agriculture by the population, lack of good infrastructure, marketing problems, unstable prices, the environment and the economy. Policies and programmes that should be put in place to tackle this problems must include environmental management, effective agricultural spending, increase funding dedicated to agriculture and sustainable farming. Since most to the agricultural activities are carried out in the rural area, the government must turn to the rural area and invest a lot in the infrastructure and development of the rural area as this will greatly help in combating the constraints.

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**Language:** English

**Key words:** Nigeria, Agriculture, Sustainable, Constraint, Development, Problems, Solution

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# 1 Introduction

The idea sustainable farming started last century and has become more popular in our present days. This popularity is due to the governments and companies trying to reduce the damage done to our ecosystem in the name of farming and also to produce a better and healthier food. Sustainable farming has been going on for many years done in a numbers of ways and have been described with different names.

So now what is sustainable farming or agriculture? In order to understand what sustainable farming is, lets us first try to understand what sustainability means. The word sustains means to maintain and to keep in existence for a long period. (Hawken, 1994) also defines sustainability as an economic state that does not reduce the capacity of the environment because of the demand put on it by people. Also he stated an economic golden rule: “Leave the world better than you found it, take no more than you need, try not to harm life or the environment, make amends if you do” (Hawken, 1994). Now we know what sustainability means, what is sustainable farming?

Sustainable farming is the farming system that is closest to natural process, minimizes waste, does less damage to the environment and yet it’s still profitable. When a farm system is sustainable, the product of the farm will be nutritious, and not contaminated by substance that maybe unsafe for humans to consume. Sustainable farming systems are set in order to maximize advantage of the existing soil nutrients, soil organism and energy flow and water cycles, (Eap.mcgill.ca, 1989).

These systems are made to be friendly to our environment and ecosystem. An eco-friendly environment is achieved by avoiding the use of dangerous pesticides i.e. organophosphates, synthetic compound fertilizers and additive to farm animal feeds (Than, 2017). It is also important avoid these substance because of the potential damage they can do to the environment, the effect they have on human and animal health. For example organophosphates is a common pesticide used and it was blamed for killing 25 children in India and precaution are been taken by the US environmental protection agency to limit the availability to the public (Than, 2017).

Organisation use large amounts of water, energy, chemicals, supplies, and disposable items, thereby generating lots of waste such as polluted water and solid waste. According to Caribbean Environmental Investment Study (2001), Environmental management is a systematic approach to finding practical ways for saving water, energy, and materials, and reducing negative environmental impacts. A proactive environmental management program is a win-win-win proposition because it can help a property save money, get recognized for environmental leadership, and preserve and protect our environment.

Sustainable farming includes being sustainable in agricultural production, sustainable in rural economy and society and being sustainable in environmental and ecological agricultural system. Nigeria has tried to be sustainable when it come to agriculture and have been successful in some aspect and have also faced some problems or obstacles. These problems

include cultivated land loss, environmental degradation, wastewater disposal and unsustainable use of pesticides.

In the western world especially in Europe and in North America the adaptation of sustainable farming has been increasing rapidly. Farmers are not the only ones who are interested in sustainable farming, political leader, consumers and conservationist are also interested sustainable farm practices. Farmers across these develop world are seeing and reaping the reward of sustainable practices. Farm practices that are not successful sustainable are going through rigorous scientific investigation so farmers can be help to produce food that are health risk free (Benbrook, 1991). This is possible because the government are putting legislations and programs to support sustainable farming. Many farmers from these parts of the world have accepted the change and are now actively pursuing research and training in sustainable farming.

## **2 Background/Problem description**

In Nigeria, there are four major sectors that contribute to the country's economy, which are petroleum/oil, services, manufacturing and agriculture. The agricultural sector is then divided into crop production, forestry, livestock and fishing. The petroleum sector is the largest sources of public revenue and of the foreign exchange earnings for the country. The agricultural sector always has been the highest contributor to Nigeria GDP, followed by the petroleum industry, service and manufacturing. In 2013 the Agriculture sector contributed about 22% of Nigeria GDP while Crude Oil 14% telecommunication 9% and manufacturing 7% (US Department of State, 2014). Services, telecommunications, finance and construction contributes about 52% of the GDP, and at 2016 the agriculture sector contributed 24.18% of the GDP more than oil and manufacturing combined (CBN, 2016). This shows that agriculture is important and essential to the reviving and development of the Nigeria economy that is not doing well at present, and as well as in improving the living standard of the people. The federal government of Nigeria believes that revenue generation will help in growing of the economy and get Nigeria out of the current recession, if areas such as Agriculture and manufacturing are concentrated on.

In the 1940s to 1950s, over 75% of the Nigeria yearly merchandise export commodities were from the agriculture sector (Ekpo and Egwaikhide 1994; Oyejide 1998; Okoruwa et al 2003). During those times (in the 40s to 60s) the government was able to carry out important projects with the money earn from the export of the agricultural product. The Nigeria economy was dominated by the agricultural sector and foreign trade of agricultural product have greatly improved the economy. Agricultural products being exported include rubber, palm oil, cocoa, coffee, groundnut and palm kernel. The exportation of these items played an

important role in the development of the economy by providing capital needed for different projects. The reliance on the agriculture sector was the case during and just after the declaration of the Nigeria independence.

However, the introduction of petroleum into the export trade in Nigeria changed everything, the structure and composition of the export trade. The oil sector which was just a moderate contributor to the economy becomes very important in the 1970s. According to (CBN 2011) the Nigeria is over dependant on the oil sector, it provides 95% of the foreign exchange earning and 65% of the national budget revenues. The Nigeria government have tried different programmes and initiated different policies aiming at bring back the pride of the agricultural sector to the economy. The Nigeria agricultural sector used to be one of the pillars of the country's economy, achieved in a sustainable means, has lost its place. The different ways, policies and programmes put in place to promote investment and diversification in the agricultural sector have not been able to produce desired results. (CBN 2003) report that the share of the agricultural sector relating to foreign exchange earnings have decline from 11% on average per person in the 1970s to 2% an average person in the 1990s. All effort to bring back the agricultural sector to it place continue to yield very little result, as the agricultural export remain under 5% since the introduction of structural adjustment programme, while the oil sector dominates the export trade (Oni, 2007).

From a sustainable agricultural point of view in the Nigeria, one of the main constraints is the agricultural system, which has slow response to technology adoption when it comes to agriculture, low productivity, low return of investment and rural poverty. As (Schaller, 1993) stated when it comes to sustainability, food security has to be guarantee, the living standard has to improve, and there have to be economic development and prosperity in the rural area. Agricultural commercialization and investment are some key strategies for promoting, modernizing and attaining a sustainable growth and development. One challenge for Nigeria is identifying the constraints that limit the growth and development in the agricultural sector, and removing them and replacing them with something better will attract investors and therefore improve the sector as well as the economy.



## **3 Theoretical Framework**

### **3.1 Lack of Development**

Lack of development in general is a problem when it comes to Agriculture in Nigeria. The lack of development include: social development (development relating her people and the country), economic development (development relating finance and wealth of the country), and environmental development (development relating to quality of the air, water, soil etc), and political development (development relating to political system). Identifying and tackling development constraints in the Nigeria agricultural system will help create a climate to improve performance, and will help promote and accelerate the growth in this sector. In (Oni, 2013) some of the main factors affecting development in Nigeria was discussed and some of these factors will be discussed briefly below.

#### **3.1.1 Marketing problem**

Marketing involves the conveying of agricultural product from farmers to consumers. Some of the problems of marketing affecting the Nigeria agricultural system include poor transportation means, poor packaging and poor quality. If you have poor packaging system (making product look good and attractive to customers) and your competitor have a better packaging system than you, then customers are more likely to buy from your competitor even if the qualities are the same. Good road are needed in order to effectively transport good from one place to another. Unfortunately, the overall marketing system of the country is primitive. Departments that have been assign to build road and railways for transportation takes many years and sometimes up to a decade to get a network constructed because of corruption. Even the little road and rail constructed normally crumbles due to poor maintenance (Oni, 2013).

#### **3.1.2 Storage and processing**

The lack of storage and processing facilities affect both national food security and household food security. Even when there is a lot of harvest and the production of farm product seem enough, because of lack of good storage it will still lead to food scarcity as the food will not be available or be in a good condition when it's time for consumption. Good storage and processing are required to ensure that food is available in good condition when ever it's required. Simple and effective method for storing perishable food like tubers, fruits and vegetables are not really developed and well known in Nigeria when compare to that of grains (Oni, 2013). Storage is a problem for Nigeria as a large number of food produce perishes, because of the lack storage and processing facilities. The traditional methods of storage used contain flaws, like having low base, which therefore becomes easily accessible to rodent and having wooden floor which is an easy target for termite and also some of the storage are non moisture proof surface which could get damage by water. Due to the inadequate storage and processing system, farmers loss heavily and especially when it's time for profuse harvesting. Safe places to store product from farms are not efficient and are inadequate. Improved storage system and technique have been developed by experts from different institute but these systems have not been adopted and sometimes not even known to farmers.

### **3.1.3 Lack of good Infrastructure**

In this case infrastructure will include physical structure, such as health and educational facilities, social services (stable electricity and safe water) and effective communication system. Agriculture in Nigeria suffers greatly because of the lack of developed infrastructure. For example in the rural area where most of the farmers operate without good infrastructure in place, is a major problem, as it affect investment, trade, and agricultural production. This problem is mostly caused by the government, as the government favours urban development over rural development by a great margin. The lack of infrastructure continues because of bad political leadership, poor governance, government neglect, poor maintenance culture and poor funding. Electricity, safe water and health facilities is often not enough for those living in the rural area, as the urban area is favoured more by the government. For example people living in the rural area can be without electricity for up to a week on a regular bases and even the urban area does not have stable electricity. Some places in the villages have one tap for water which does not always work because of lack of electricity, so water used in the farm and houses are gotten from the rivers, and this could take hours to fetch as the river could be far from the houses and the farms.

### **3.1.4 Unstable prices**

One of the problems affecting external and internal investment in Nigeria is the escalating cost of important farm tools and machines. The average cost of tools and machine such as cutlass, hoe, tractors and combine harvester have been increasing for many years. These unstable prices are caused by the unstable macroeconomic policy which then lead to inflationary pressures and high interest rate and then lead to a volatile exchange rate (Oni, 2013). All these have the tendency to cause rising prices in fuel, transportation, farm inputs and therefore increase cost of production.

### **3.1.5 Agricultural labour**

The traditional system used in Nigeria affects the use of farmland because of the availability of labour. In Nigeria the agriculture system is mainly done without machines and thus human labour becomes important in the production system, accounting for about 90% of the farm operations. While under a semi-mechanized system human labour is still up to 70% of the farm operations (NISER, 2001). So labour could be and is affected by the continuous migration of able bodied young men to the urban area which in turn causes labour shortages and in time when labour is required for land preparation and harvesting. The main cause of this migration is the perception by young men that farm labour cannot support them and their families (Chemonics, 2003).

### 3.2 Population

The Nigeria Population in 2011 was about 162 million, at present about 190 million and it is estimated to be about 230 and 430 million people in 2050, and as of 2015 52.2% of the population lived in the rural area while 47.8% lived in the urban area (Fao.org, 2015). Nigeria is seeing a growing population and could be the third largest most populated country in some years while more than half of the population earn less than US\$ 2 per day (Nwajiuba, 2013).

As Nigeria population increases, so does the food security challenges, and this will grow with its population. At the current rate in which Nigeria population grows, Nigeria remains unable to feed its population. Due to over population, the traditional method of fallowing is shortened and there is not enough time for the soil to regenerate its properties, putting pressure on the land. There is increase in demand of livestock which also leads to overgrazing.

As stated earlier Nigeria's urban population is more than its rural population, and it's estimated that the urban population will continue to grow more and more as there is mass migration from the rural area. The urban population relies on market food supplies and are not into food production. Nigeria population are mainly youths, and they are mostly moving to the urban area. This is making it hard to employ and educate the next generation farmers. Due to the problems mentioned above, lack of farmers, growing population, low income and people not being interested in food production or being a farmer anymore, is making the unsustainable farmers get away with their practices.

### 3.3 Economy



Image: Makinwa, (2017).

When it comes to agricultural economy, it can be said that Nigeria has transited from era of sustainable farming to an era of unsustainable farming. After the United Nations declared the 1960s as the first development decade for developing countries, many developing countries were able to achieve an impressive growth rate of an average of 6-8% per year (Onyeiwu, et al 2009). Better still these impressive growth rates were achieved mostly through the agricultural sector, and was considered as being sustainable from the economy point of view. Early after independence these economic achievements were not just the talking point but the

way it was done was. These results were achieved by Nigeria without causing or posing any significant damages or threat to the environment and the ecosystem.

In the 1960s, Nigeria agricultural export was about 85% of the total export and did contributed to 60% of the country's GDP with about three quarter of Nigeria land been cultivated (Cohen, 1981, p.39). Agriculture then in Nigeria was base on well known tested method like shifting cultivation, crop rotation, and organic farming and farming without broad use of chemicals and fertilizers.

**Table 1: Indicating Economic Sustainability of Agriculture in Nigeria, 1961-2005**

Indicator	1961	1964	1966	1969	1987	1998	2000	2001	2002	2003	2004	2005
<b>Arable land, hectares per person</b>	1	1	1	1	0	0	0	0	0	0	0	0
<b>Agric. Value added as % of GDP</b>	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	49	43	34	32
<b>GDP per Capita* At 2000\$</b>	297	328	314	302	317	365	369	370	367	394	426	438

Source: World Development Indicators (World Bank online database)

However, after about a decade in the 1970s things began to take a U-turn. The role of agriculture in the Nigeria economy began to falter and the agricultural system began sliding into the other way which proved to be bad for the environment, the ecosystem and also unsustainable. Instead of treating or replacing infected trees or plants, farmers most time use new farmland for farming. By intense farming, soil nutrient are being wear out and lack of knowledge of the use of pesticide leads to unhealthy use of pesticides and other farm chemicals. These practices are bad for the quality of the local water and for the soil, and are unsustainable. As the agricultural value began to down slide in Nigeria in the in the 70s, area and land that were devoted for agriculture were increasing. For example, the percentage of agricultural land use in some area increased from 77% in 1969 to 81% in 2005 and arable land use increase from 30% to 35% in the same time period (Onyeiwu, et al 2009). Notice from Table 1 that the GDP per capital in 1960s is very different from that in the 2000s; this is because in the 1960s agriculture was equitable and farmers were able to produce decent income levels. This phenomenon shows an ugly truth, the beginning of a new era “decline of productivity in the agriculture sector” in Nigeria. The new system of agriculture adapted by Nigeria from 1970s till date has been unsustainable for a number of reasons. Despite the increased use of agricultural and arable land, the agricultural values added to the country's

GDP dropped and continues to down slide. Also despite the increased use of Arable land, arable land per person in Nigeria dropped from one person per hectare to at present approximately 0.188 (Data.worldbank.org, 2017), which is almost zero and still remain at approximately zero, meaning that there is lack of land for agricultural product (see Table 1).

### **3.4 Environment**

The most common forms of agricultural environmental degradation in Nigeria are soil erosion and deforestation. Soil erosion is caused by a poor farming system, which includes improper road constructions and poor and unsustainable maintenance system. In many places deforestation has been used as the solution for lack of land for farming, a means of getting materials for building, collecting of timber and non timber product, all of which is sometime done in an unsustainable manner. Some of the impact of environmental degradation includes loss of flora and fauna, food security, and the decline of underground and surface water (Medugu, 2006). As we all know land is very important when it comes to agricultural production. No significant agricultural activities can really be done if a land's resource productivity is low. The same things applies to livestock and crop production, for a livestock and crop production to be successful element such as water, sunshine, soil nutrient and adequate plant nutrient are present in the fertilizer been used in the right quality and quantity. Plants use the process of photosynthesis in making their own food and for this process to take place, sunlight and water is needed. When plants do not have or are stave enough sunlight and water they do not come out looking good and healthy as those which do. If a soil or a farmland lacks nutrients, then crop production will be low and enough and quality food e.g. grain will not be available to feed the livestock.

The absence of good and adequate policy has an undesirable effect on the environment and therefore the quality of the agricultural and rural sector. As stated earlier, one area where the environment is suffering is the shorten fallowing period which leads to over grazing, erosion due to over cropping, and as a result environmental degradation and quality reduction. The Sahara desert for over five decades has invaded one million square kilometre of land and is rolling southward toward Nigeria at a rate of six kilometres per year (NAP 2002).

### 3.5 Climate change



Nigeriatoday, (2016)

Our planet's climate is changing, and so is Nigeria climate and this change is affecting the country's agriculture sector. The Nigerian meteorological agency has recorded a remarkable change in the country's weather pattern from 1941 to 2000. Most part of the country especially the northern part have received shorter rainfall recently when compared to previous years, While the southern part experiences increase in rainfall. Records show that the decline in rainfall in the northern part has worsened from the 1970s up till date, while temperature has increase all over from an average of 1.4-1.9 degree Celsius and scientist have warn that it could further increase from 2 to 5 degree Celsius before the century ends if no drastic action is taken (Nwajiuba, 2013). Nigeria farmers are also contributors to global warming mostly through deforestation. Some believe bush burning is an easier and cheaper way to stop the infestation of weed.

Climate change is affecting the Nigeria agriculture especially in the northwest, northeast, and southwest of the country where they have extreme weather conditions. The consequences of higher temperature are decrease in agricultural production and productivity and a high evaporation rate will result in the reduction of soil moisture, thereby lowering the surface water and also the reduction of ground water. The higher temperature also lower the human labour use in the farm, and since most work is done by human effort in Nigeria agriculture, productivity will be reduce which will lead to reduction and waste of farm products. Labourers get tired quicker and are less productive when the temperature is high than when compare to a mild temperature.

## **4 Methodology**

Data obtain for this thesis was mainly obtain from a different sources. These data includes publications from banks, economics, statistic bulletin, books, publish thesis, internet source, and annual reports. The types of data collected include statistics of how Nigeria is doing economically in the 1960s and now in the 21 century. Ideas have been taken from some of the books and articles in the reference list in this thesis write up. Some of the data collected are present in tables while other are inputted in the thesis write up and others analyzed and used in drawing up conclusions, such as whether a practice is sustainable or not and what is the best policy to initiated.

## **5 Purpose and Research Question**

The following key question has to be asked about Nigeria agriculture and sustainability:

- Will the Nigeria agriculture remain a large part of its GDP, and continue to provide most of its employment and income for the next few generations?
- Can the Nigeria agriculture take back its place as the main sector of Nigeria future development and be the key player when it comes to Nigeria foreign exchange earning?
- Can the Nigeria agricultural sector be sustainable and ensure food security?

## **6 Ways Forward**

The Nigeria government should invest profoundly in the rural area economy. The rural area infrastructures need to be invested in by the government, as this will attract more private investors in the agriculture sector. For example the electricity in the rural area should be sped up to cover all of the country's villages. Security of life and properties should also be in the government key priorities. Price stability can be achieved through a stable macro environment. If security and stable prices are in place, this will attract foreign and more domestic investors.

Farmers are doing well in the primary activities, which include crop planting and harvesting. There should be improvement in the secondary activities, which are activities done after harvesting has taken place. These post harvest activities are essential in adding value to the agricultural products, as it improves production quality and help makes products them less perishable. This will also improve the market opportunities, promote commercialization and improve the return of investment. The main post harvest activities include storage processing into consumable product, marketing and transportation as well as export trade. Also to better this post harvest activities the government has to provide efficient financial institute, capital, transport services and quality control services.

The agricultural system need to accept and adapt modern farming. For example, planting of better seeds and seedling, the used of safe chemical for pest and insect control, as well as disease control. The used of machineries, like tractors to reduce human labour and farmers should be assisted in finding and adapting to new technologies. There need to an increase in agricultural research and technical staff with special skills. The government need to set a technical team that will research new system and indentify new mechanisms that are sustainable to replace old and unsustainable system. If sustainability is to be achieved, more resources are to be invested in development, especially by the government.

Environmental management should be taken seriously and looked into carefully. Sometimes when the economy is good, it might also lead to an unsustainable behaviour. For example the increase in investment in the agricultural sector can lead to commercialization of products and also can also lead environmental degradation. There could be increase in land degradation, pollution of the ecosystem and overuse of the environmental natural resources. To avoid these problems (Oni, 2013) suggested some strategies, which include promotion of sustainable cultural practice with various technologies recommended by experts, the adoption of new technologies use for post harvest work to improve product and minimise waste as well as control environmental pollution. There are regulations in place to reduce the emission of dangerous gas, this regulations needs to be enforce which touched on land management, bush burning, and land degrading activities. The maintenance of soil nutrient and protecting our ecosystem is vital when it comes to farming in the future.

People are not interested on how the food was made, whether it was in a sustainable means or not. The unsustainable farmers are getting away with the thing they do because nobody is holding them accountable or interested in what they do. This also discourages farmers who want and are sustainable in their practice. The government should monitor and stop organisation and individual who are destroying our environment and are not taken necessary precautions to make sure to make sure that what they produce and sell is safe for the public.

Policies should be put in place to encourage waste conversion, the use of renewable energy from wind farms, biomass and solar. There also need to be a reduction of non biodegradable waste which is possible to achieve. Programmes are needed to educate the new generation that is interested in agriculture and the provision of financial and technological assistant is also needed. The government should help young farmer adapt to new technology and a modernize way of doing things to ensure farmers activities are profitable and are sustainable. The agricultural department needs to be committed to the idea of sustainability, and



programmes initiated should include why sustainability is important in the agricultural system, as this will motivate people more than just telling them what to do. The government have acquired a lot of land because of urbanization, and this land are been sold to the elite group. This should not be so; the government needs to be fair in the distribution of land as there is high demand for land by everyone. The use of chemical in the production of crops and livestock should be discouraged. This important of this will include increase in farm employment and of course health benefits.

There is a great need for the control of climate change. There should be increase in survey of the environment and location that are most affected by climate change. The national climate change department is bringing stakeholder from different department to educate and give suggestions on how to reduce it effect. For now, the recommendations of the National Adaptation Strategy and Plan of Action (NASPA) should be enforce and adopted by the agricultural department some of these recommendation can be found in (Nap 2002).

## 6.1 SWOT analysis of Nigeria Agriculture

In order to develop an effective plan to make the Nigeria agriculture competitive and back to its best, a SWOT analysis will be carried out. Therefore, this part of thesis will be discussing the strengths, weaknesses, opportunities and threats of the Nigeria agriculture. The table below shows the element use in this analysis.

**Table 2: SWOT analysis of Nigeria Agriculture**

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
Great agro and ecological zones Native Farming system Free trade (large domestic and international market) Low cost of labour Large numbers of farmer Large numbers of trained manpower in agriculture International organisational support e.g. World bank, FAO	Too much focus on crude oil Outdated equipment Unstable agricultural policies Unstable economic Lack of support Large numbers of small farmers (low skilled) Poor marketing Lack of current information
<b>OPPORTUNITIES</b>	<b>THREATS</b>
Free trade (large domestic and international market) Large income from crude oil Good telecommunication system Large numbers of trained manpower in agriculture Plenty of raw material e.g. fertilizer Improved and developed planting material	Climate change Unsustainable agricultural practices Pest and disease Religious and ethnic conflicts Unstable policies Unstable government

Nuga, B. O et al (2015)

### **6.1.1 Strengths**

One of the main strength of agriculture in Nigeria is the varied agro climate regions like the Niger delta area in the south with lots of rain and therefore has potential for aquatic farming and same goes with most of the southern part of Nigeria and also the northern part of Nigeria which is often dry has a potential for C4 crop production and livestock rearing. The raining season in Nigeria last for over to 6 months which is good for the cultivation of crops such as rubber, coffee, groundnut and cocoa in exportable quantities and cultivation of staple crops such as yam, rice and maize can be grown in most areas. The native style of farming in Nigeria is easy and simple, and it's not capital intensive and is supported by a large number of farmers whose main occupation is farming. The cost of farm labour in Nigeria is low since a day's wage is about \$20 (Nuga, B. O et al 2015). The numbers of graduates from the department of agriculture have increase gradually over the years and therefore an increase of trained manpower in the agriculture industry. Nigeria has a free trade relationship with most countries in the world which has high demand for her agricultural produce. Base on the strengths mention above and including others not mention might be a reason why international organizations like the FAO and World Bank is interested in Nigeria agriculture.

### **6.1.2 Weaknesses**

Despite a very good natural strengths inherited by the Nigeria agriculture system, its contribution to the Nigeria economy have been hinder by many factors. Many and including the government have stated that the discovery of crude oil in Nigeria is the main reason of the county's slumbered growth and continue down sliding of the agriculture sector. The attention of the government and the populace was diverted from the agriculture sector by the crude oil industry, because of the quick returns with excess funds gotten from oil trade. Due to the neglect of the agriculture system by the government, there was mass urban migration from the rural area. The oil exploration also came with pollution of the environment; rivers, lakes and agricultural lands. Machete and hoe are the main tools used by the average farmer in Nigeria, in today's world this is pretty bad as technology is well advance and no country using machete and hoes as main tools can compete effectively in today's world of agriculture.

Another major constrain in the Nigeria agricultural sector is the unstableness of the government policies as regard industrial development and socio economic. For example a policy on rice and cassava production was abandoned halfway through and thus left many farmers with unsold product and therefore loss. The lack of infrastructure e.g. bad road, electricity, poor storage system etc; is making things worse for the agricultural system. In regards to marketing, farmers have not being encourage or supported when it comes to adding value to their product through packaging, quality, marketing and processing, as this is making their product less competitive in the international market.

### **6.1.3 Opportunities**

There are lots of opportunities for Nigeria to make a comeback in the agricultural sector. A few of these opportunities are; the money gotten from crude oil, some of this money can be invested into reviving the agricultural sector. The availability of a large domestic and international market, because of the free trade relationship with other nation, Nigeria has the opportunities to export her by-products like palm oil, rubber, banana and cotton etc. The product from the petro-chemical industries can be used to enhance farm input like fertilizer, therefore bring down the cost production by bring down the cost of fertilizer. The telecommunication facilities in Nigeria have greatly improved, like the internet, telephone and TV; this can help the average farmers to get information easily. The above opportunities mention should be worked on and improved as it would help in the rejuvenating of the agricultural sector.

### **6.1.4 Threats**

One threat of agriculture everywhere is climate change, and it threatens the rejuvenating of the Nigeria agricultural sector. The effect is likely to be increase by the lack of good management technique and frequent pest and disease incident. As pointed out in Nuga (1998), the effect of climate change can become more pronounce because of land degrading activities, like the decisions on land to be used which are made without or very little thought of the environmental effect and the biophysical status of the soil because economic and political considerations are put first. Oil exploration and other related activities like mining is also a threat to the agricultural sector especially in the south-south region where there is plenty of oil. Rivers and land have been polluted by waste form mining activities. One of the major threat is the frequent change in government policies and administrators, these changes makes it difficult for potential investor to invest in the Nigeria agricultural sector. The northern part of the country have been face with religion and ethnic conflict, which is yet to be fully defused and thus is a threat to development in that region.

## **6.2 Brief Suggestion/advice to farmer**

Here are some suggestions/ advice to farmers on possible solution relating to farm products and by-products such as sewage or waste water, organic waste, and the energy used in the farm. The advice include why farm product and by-product should be used in the farm and how farms could produce less waste and be recycled within the farm area.

Using of organic waste in a farm can increase soil stability, organic matter content in the soil and therefore increase resilience to changing climate conditions. Organic waste has more species on average when compare to than conventional farmland, thereby contributing to the safeguarding of ecosystem services from pollination and nutrient recycling to clean water and air.

As the topic of climate change is very popular and every department of the world is working on keeping our earth alive so is one main reasons for improving energy efficiency in agriculture. Organic farming has the potential to use less energy because of the prohibition of synthetic fertilizers and pesticides. Lower stocking densities and lower inputs of concentrated feed also contribute to better energy balances. The use of renewable energy such as solar power or windmill for electricity in the farm instead of generator and heavy plant should be considered and adopted.

Waste waters that are not properly managed are affecting our environment. Water is a priceless resource, threatened by pollution and overuse, also within the farming sector. It is highly imperative that earth's resources are use sustainably. Coastal pollution have has resulted in different environmental issues, which include loss of life in the coastal water and enrichment of coastal water with organic matter. Some farmers activities have leads to eutrophication, coastal water pollution by chemical e.g. fertilizer. Instead of directing waste water into the rivers and lake, some waste water can serve as good manure for crops.

### **6.3 FAO on Nigeria Agriculture Future**

The South-south Cooperation (SSC) initiative is mechanism in which important development solution, knowledge, policies, technology, skill and resources is been shared and exchange between countries in the global south. The government of China and Nigeria started a programme in 2003 in which experts from china share their knowledge with farmers in the rural area and also help in introducing, demonstrating and adapting to Chinese development technology and innovation. The SSC by china and Nigeria-FAO is a very good model that needs to be shared with other counties. Nigeria needs to increase its food production significantly, and this needs to be done in a sustainable, affordable and scalable manner. Local solution that are truly accessible and affordable are vital in ensuring the agricultural transformation Nigeria needs to end hunger, fight poverty and generate wealth and saving natural resources for the generations to come. Many of the people who benefited from the SSC are young people. The young people in a country are the country's workforce today and the tomorrow future. The Nigeria youths makes up a large number of its population, so finding a new and modern way of creating jobs for these youths, which can be done through agricultural, should be one of Nigeria top priority. When the youths of a country is educated and equipped with the proper skill and with decent working opportunity then this will lead to a great economic development. Programmes like the SSC can help speed up the process of achieving great results. (Akinnifesi and Setshwaelo, 2017)

## 7 Discussion

The potential of domestic and foreign investment in the Nigeria agricultural sector is high in every part of the country. For the aspect of large population, there are available and plenty of resources and raw material as well as opportunities get good return of investment. Recommendations were made as a possible solution to improve the agricultural input to the Nigeria economy, which include the set up and enforcing of environment protection policies, programmes which include the education of farmers on modernize and sustainable practices, survey of the environment and location that are prone to climate change and environmental degradation and the increase investment on research and development by the government on sustainable agriculture.

When a positive man made socioeconomic environment exist, then we will get an increase in agricultural output (Medugu, 2006). In the article Reversing Africa's decline during the discussing on the ecological deterioration and economic decline, (Brown et al, 1985) discussed about report made from soil scientists, agronomists, meteorologists and economists and came to a conclusion that biological production are destined to collapse, and families will not have enough food for themselves and their livestock. This will then lead to a mass migration from the rural area and the shortage of food will then become widespread and will then lead to famine. So our natural resource should be managed in a sustainable way.

The fact is that Nigeria as a country has inherited natural, human, and capital resources. But sadly, the effective use of these resources in the development of the agricultural sector has been hampered by misplaced priority, loss of focus and lack of support and encouragement to key players. Nevertheless there are opportunities at the disposer for Nigeria to rejuvenate its agricultural sector and make it the key player of the economy. To achieve this, the issues mention above like land degradation, religion conflict, unstable policies and attracting investor will have to be dealt with. If the above recommendations are carried out effectively, the Nigeria agricultural sector will get quick win which includes increase in investment and increase in the contribution to the GDP of the country. This will thus create a means of increase in income, revenue source diversification, generation of employment and therefore reduction of poverty.

In conclusion, a strong economy performance can be achieved from the Nigeria agricultural sector. General development of the country especially in the rural area can bring Nigeria food security and agricultural sustainability.

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