**AEE 512**

**AGRICULTURAL RESOURCE ECONOMIC**

**15/SCI07/002**

**ASSIGNMENT 2**

**QUESTIONS**

**QUESTION 1**

* Explain the trends to overcoming the challenges of agricultural production in Nigeria

**DISCUSSION**

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. Thus, it is believed that with these current trends listed below, Nigeria’s agricultural production levels will increase significantly.

* **Urban agro-commerce/online marketplace:** farm produce in most Nigerian cities is very expensive. Should a moderate alternative be provided, many will definitely select for it. Startups looking to innovate can seize this opportunity to create an online marketplace to probably source cheap farm produce, directly from the farmers. People looking to buy in bulk can also purchase through the online platform. This way, less overhead costs are incurred in selling farm produce, and really fresh products can be obtained. It is also a way of connecting rural farmers to customers in the suburbs and cities. A possible revenue model is taking percentage commissions per sale via the platform.
* **Modern Irrigation Techniques:** Modern irrigation control methods have made it possible to improve farm productivity using better control measures. Many irrigation equipment like pumps, dams and sprinklers are now used. The River Basin and Rural Technology Development Authority should be encouraged by the Nigerian government to boost agricultural production in Nigeria.
* **Maintaining Good Animal Health:** Better drugs for animals should be encouraged and veterinary medicine should be promoted by the Nigerian government. This will boost agricultural production.
* **Soil improvement:** Certain crops require certain soil conditions for productivity. Example soil that is good for rice may not be good for groundnut. More measures should be taken to improve the soil. Science and technology give more insight regarding the nature of soil and also how it can improve.
* **Crop and Animal Improvement:** There are certain plants and breeds of animals that are improved. The government should encourage such use of improved varieties as they lead to higher productivity. Example, a new breed of cows has been formed by cross the Friesian breed which is exotic and good milk producer with the White Fulani Cow which is disease resistant. The product from this is a cow that is highly resistant to adverse weather conditions.
* **Crop Protection:** Certain pesticides and herbicides protect the crops from weeds and pests that reduce yield. Better pesticides and herbicides should be introduced and harmful ones should be avoided. Simazine, Roundup (for rice), Gamalin 20 (for controlling cocoa pests) are examples of pesticides that can be used.
* **Better Storage, Processing and Transportation Methods:** Science and technology has encouraged the transportation of farm products from one part of the country to another. Example is the transportation of fish and meat using refrigerated trucks. Chemicals are also used as a means of preserving harvests. You can buy some agricultural products here. Tomato processing plants, palm oil mills and rice mills of can be increased by the government for processing agricultural products. Better silos, improved rhombus and bins should also be encouraged.
* **Use of Agro-Standards:** The use of standards can be used to improve the economy of Nigeria. Standard processing and storage of agricultural products should be encouraged by the Nigerian government to promote exportation of agricultural products to other countries. The following agricultural areas need better standards in Nigeria:
* **Standardized price control:** Unstable prices can disrupt the marketability of farm produce. This can make people not settle down into agriculture is an occupation. Better standardized price measures should be introduced to stabilize the price of agricultural products. : Local market volatility is the biggest threat to entrepreneurs in agriculture.The farmers are taking a lot of risks in marketing their products due to unstable prices. Sometime, areas that have been designated as markets for the meeting of buyers and sellers are sometimes adjusted due to political eruptions. Also, those who patronize the sellers do not use a stable and standardized price system thereby bringing down the market operation system. Stabilization of the market system will boost agriculture in Nigeria.
* **The quality of products:** The quality of our products varies from one part of the country to another and this has brought less value in terms of the price of the market. There is need for more extension of services by extension personnel and government agencies to implement most of the papers that has been documented for the promotion of industry standards. This will enable meeting up to better industry standards.
* **Land availability for agriculture:** The government should take more measures to make land available for farmers who need them. Government statements should be matched with an action plan that will make land obtainable to farmers. Due the increase in the cost of land, less land is available to many farmers who have the potential to promote agricultural productivity.
* **Packaging and preservation standards:** Better packaging and preservation standards will promote the market both within and outside Nigeria. There is improvement in yields as a result of more farmers exchanging information on modern methods of practicing agriculture.
* **Use of agro-based loans by the government to encourage farmers:** The government of Nigeria should encourage farmers by giving loans for agricultural activities. This will help farmers meet up with financial needs in terms of purchasing some seeds, hiring machines etc thereby boosting agriculture in Nigeria. The use of such loans will encourage small scale farmers to take measures that will make them large scale farmers.
* **More government programs to boost agriculture:** The government of Nigeria should introduce more government programs like Green Revolution, Operation Feed The Nation, Agricultural Credit Guarantee Scheme etc. These programs will make the government to be more active in agricultural production in Nigeria.
* **Local Awareness Creation:** Measures should be taken to make create local awareness of these government programs. This can be done by the government using different communication patterns. It is not enough for the government to introduce these programs but also necessary to make the common man aware of them.

**QUESTION 2**

* Give an overview of policy interventions in the Nigerian agricultural sector?

**INTORDUCTION**

With the world’s seventh-largest population, which continues to grow rapidly from a base of 170m, agriculture is an exceptionally important element of Nigeria’s economy. After decades of declining production, trends have been moving in the opposite direction in the past several years as overall food supply rises. Guided by the Agricultural Transformation Agenda (ATA), which was launched in 2011 as part of a push to overhaul productivity and output in the sector, short-term goals have included eliminating market distortions and improving transparency while delivering more and better inputs to farmers. The medium-term goal is to achieve self-sufficiency in a number of key staples, such as rice, and to develop the agribusiness sector and export markets. Below are some of the policies explained.

**Chinese and Nigerian Government initiative:** The South-south Cooperation (SSC) initiative is mechanism in which important development solution, knowledge, policies, technology, skill and resources is been shared and exchanged 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).

**ATA Mandate:** Under the framework of the ATA, the ministry is looking to address agriculture from a wider perspective than was done previously. The ATA was launched with the goal of adding 20m tonnes of food to the domestic supply by 2015 and creating 3.5m new jobs in the process.Early interventions, including programmes to boost farmers’ access to extension services, have helped to boost yields by improving inputs such as liberalizing markets for seeds and fertilizers. The overall availability of food has increased to such an extent that the country has met one aspect of the UN Millennium Development Goals three years in advance of the 2015 deadline: by 2012 it had already reduced hunger by 66%, fulfilling one aspect of goal one.

The plan considers foreign investment as a key input, and the ATA is looking to attract large-scale investors to help secure supply of agricultural outputs from local, small shareholder farmers by guaranteeing they will buy output at market prices, along with providing inputs. Local processing is growing in part not only because of the push from the government but also due to a rise in local consumption that has seen an increase in formal retailing and quick-service restaurants (QSRs).

These out-grower-based relationships form a key component of the regionally customized industrial parks that the ATA refers to as staple-crop processing zones (SCPZs). The zones are still in developmental phases, but once operational should allow farmers that can guarantee steady supply at predictable qualities access to large buyers looking for steady commercial relationships. That growth is a process that predates the ATA but presents the type of commercial arrangement the plan envisions.

**Sharing the Wealth:** As of late 2014 the main buyers of agricultural output – ranging from vegetables to cash crops such as cocoa and rubber – remain traders who operate in the informal economy. In the ad hoc deals they strike with farmers, they often capture up to half of the value of the harvested yield; however, the formal-sector buyers are keen to abandon the intermediaries they depend on and lower costs by working with the suppliers directly.

Shoprite, a retailer from South Africa, has established a process in which it inspects farms and farmers’ processes, and maintains an approved list of them from which it will buy produce, for example. QSR companies are in some cases making upstream investments in order to secure a reliable supply. For farmers, the ministry is hoping to give them a greater share of the value they create by reducing informal intermediation, and allow the emergence of long-term relationships to reduce risks in the growing process. If the agricultural sector matures along these lines, the contributors to this value chain could find it easier to access bank loans or other forms of credit, and that would address another key complaint of Nigeria’s small-scale farm.

**Enhancing Output:** One of the key components of the ATA is the Growth Enhancement Support Scheme (GESS), which subsidizes input costs such as seedlings and fertilizers. The programme began in 2012 and had 4m registered farmers that year. GESS has grown rapidly and as of late 2014 included over 14m Nigerian farmers, some 60% of the total farming population in the country. The rapid growth is understandable, as the incentives are high. With the support of federal and state officials, farmers enrolled in the programme receive a 50% subsidy on their inputs. The government manages the distribution of inputs through an electronic-wallet system that has reduced the chances of corruption that plagued previous subsidy programmes.

The emphasis on improving inputs for farmers is also likely to have an impact on yields. In many staple crops, the country performs reasonably, but has much room for improvement. In Cassava, for example, Nigeria’s average yield in 2013 was 14 tonnes per ha, compared to 16.7 tonnes per ha in Ghana, according to the UN Food and Agriculture Organization (FAO). While Nigeria’s performance was above the continental average of 11.1 tonnes, it paled in comparison to several Asian and Caribbean countries, where yields exceed 20 tonnes per ha. In India, for example, the average yield in 2013 was 35 tonnes.”

**Maximizing Yields:** A focus on seeds and fertilizers, amongst other factors, should help push Nigeria’s production volume up and improve quality. The Nigeria Root Crops Research Institute (NRCRI) is one of a number of bodies working to introduce high-yielding cassava varieties into the Nigerian market. In August 2013 the International Institute of Tropical Agriculture announced that, in conjunction with the NRCRI, it had released two new varieties in Nigeria with maximum potential yields of between 49 and 53 tonnes per ha. The varieties, UMUCASS 42 and UMUCASS 43, are also pest resistant and disease resistant, and contain moderate levels of vitamin A. It is not only research and development organisations that are focusing on maximising yields. The African Agricultural Technology Foundation’s (AATF) Cassava Mechanisation and Agro-processing Project has had a significant impact on yields. Following the introduction of fertilisers, herbicides, mechanised equipment and new cassava varieties under the project, farmers in Osun State reported yields of between 28 and 33 tonnes per ha in 2014, compared to a normal average yield of 7 tonnes per ha.

The project is also delivering other benefits. George Marechera, the business development manager at the AATF said in a press release, “The harvested tubers also attracted higher purchase prices through structured market linkages between farmers and processors facilitated by the project. Processors collected the cassava tubers from farmers’ fields, reducing the duration of time to market, which is key to preserving the quality of the tubers and ensuring [they are] processed within 12 hours of harvest.” Thus far, the project has been rolled out in four Nigerian states – Kwara, Kogi, Ogun and Osun.

**Sectoral Contribution:** Agriculture, once the backbone of the Nigerian economy in the pre-oil era, continues to be a key contributor to the economy, comprising 22% of GDP in 2013, according to the Nigeria Bureau of Statistics. Farming provides a livelihood for 60% of the population. The typical profile in Nigeria is a subsistence farmer working a small plot of land and selling the surplus to traders. An estimated 80% of farmers live on less than a dollar a day and farm a plot smaller than one ha, according to research carried out by the US Department of Agriculture (USDA). On these farms rainfall is one of the main risks, as irrigation systems are uncommon, and manual labour is sometimes the only option for ploughing, as there are less than 30,000 tractors available in the whole country, the USDA found. This is a problem that is more pronounced in certain areas. Crops account for 85% of all agricultural activity, while livestock, poultry, fisheries, forestry and other segments comprise the balance. The staple crops include rice, cassava, yam, sorghum, millet, groundnuts and palm oil. Amongst the main cash crops are cocoa, rubber and shrimp. The sector is considered to have been in decline for the past four decades, since the country was self-sufficient in the 1960s. The food import bill stood at N1.2trn ($7.3bn) in 2012, according to the Central Bank of Nigeria (CBN), equal to 12.9% of total imports. Only oil (24.6%) and industrial imports (18.5%) surpassed that share. The ministry’s goal is to ensure food is a shrinking part of the mix. The five crops singled out by the ATA are rice, cassava, sorghum, cocoa and cotton, and the overall value of the crops produced has been climbing in recent years, reaching a total of N12.112trn ($73.88bn) in 2013, up from N12.107trn ($73.85bn) the previous year, according to figures published by the CBN. The figure has climbed every year since the 2010 total of N11.65trn ($71bn).

**Land Use:** There are 84m ha of arable land in Nigeria, of which the ministry has said only 40% is cultivated and just 10% is optimized. That may be a measure of potential, but access to land counts as one of the chief obstacles to increased production. Most land for agriculture is provided on a 50-year leasehold basis, but acquiring documentation is a long and difficult process, and using land as collateral for accessing credit is impossible for most farmers. An occupancy certificate requires 14 steps and takes six to nine months, according to the FAO. Land is governed by the 1978 Land Use Act, which gives states control over land designated as urban, and local governments control over land considered rural. For foreign investors in particular, land acquisition can be a challenge, and for this reason the FMARD is promoting out-grower schemes, in which an investor can establish relationships with local farmers who do the growing for them. In the typical exchange, investors are encouraged to provide support and inputs, and act as a guaranteed off-taker at market prices in exchange for exclusive right to the harvest.The ATA reforms are structured around several key areas: getting fertilizer to farmers at subsidized rates and providing them with high-yield seeds; creating marketing boards for key crops to help farmers get the best possible prices; establishing the SCPZs; and an overall de-risking of the agricultural process. The common theme across the various reforms in the plan is a mental shift away from viewing agriculture as a development activity or a government programme towards approaching it as a business. This means considering the entire supply chain, including growing crops for which there is demand, and having a plan to ensure that produce reaches market in sufficient time. The ATA bills itself as a comprehensive “farm-to-fork” approach.

**Value Chain:** At the base of that process are agricultural inputs, and the ATA has prioritized the distribution systems as a first step. It liberalized the markets for seeds and fertilizer, which were previously handled by public agencies. Government involvement in these markets had led to a distribution system in which middlemen and large-scale farmers were benefitting at the cost of the millions of small-scale growers, both in terms of access to quality inputs and prices paid. In both cases, the government is no longer the sole supplier.The market response has been a massive increase in seed suppliers, from 11 before the reform to 77 in 2013. For fertilizer, the old system entailed the government selling to distributors at a subsidized rate, and trusting them to resell to farmers with the discount reflected in the price. Instead, distributors were largely pocketing the difference, according to the ATA. Now the government has opened up room for importers and there are currently 17 suppliers. The state also eliminated the distributors’ role in the subsidy process. Farmers instead receive vouchers that they present as part of the payment to fertilizer sellers, who then redeem the vouchers for cash. This transaction can also be done via the e-wallet system. Nonetheless complaints persist of a lack of access to fertilizer, and in certain cases and areas, such as Delta State, some poultry farms have been reselling chicken manure as a cheaper alternative.Marketing boards for key products, such as cassava, cocoa and livestock, are also being rolled out to help farmers by promoting consistent pricing for their outputs. This removes the burden of negotiating with a middleman, who may have a better sense of the market. The boards, as envisioned, will also help by promoting Nigerian products at home and abroad, and serving as a lobby group to interact with the government on relevant issues. Moving further down the value chain, the ATA sees SCPZs attracting large-scale food processors and other industrial users of agricultural products that will drive demand and work together with farmers to ensure reliable supply at consistent quality. These are envisioned as industrial parks based on the crop best suited for the area they are situated in.

According to a presentation by the UN Industrial Development Organisation (UNIDO) at the World Economic Forum conference in Abuja in May 2014, multilateral development agencies including the World Bank, the African Development Bank and the International Fund for Agricultural Development have committed $350m to help create the SCPZs. Their projects include supporting infrastructure and capacity-building programmes for small farmers. UNIDO has aided the FMARD in developing master plans for the SCPZs (see analysis).

**Pricing:** There are also moves going on to strengthen the Abuja Securities and Commodities Exchange, a course that was set up in 1998 and converted to a commodities exchange in 2001. It has never managed to trade volumes high enough to achieve the desired impact, however, in part because the storage facilities needed to facilitate trades are lacking. After years of inactivity, 2015 is likely to see a change in the exchange’s ownership. According to the director-general of the Securities and Exchange Commission, Arunma Oteh, discussions began in January 2014 to transfer ownership of the exchange to Heirs Holdings, a Lagos-based conglomerate.

**Investors:** One of the most prominent domestic investors in Nigeria’s agriculture and food-processing sectors is Dangote Group, which in May 2014 announced a new commitment of $2.3bn aimed at agriculture in Nigeria’s northern states, to be spent over a three-to-five-year period. The goal is to develop 250,000 ha of land for sugar cane and 130,000 for rice farming, with SCPZs to host downstream buyers. The announcement came in part as a response to the unrest related to Boko Haram militants in the northern half of the country. Other companies have also indicated that they may take similar action, including Cargill, Olam, Blackstone, The Carlyle Group and Nestlé. Two government support programmes also aim to boost the agriculture sector while providing jobs for Nigeria’s youth. The first initiative, the Fund for Agricultural Finance in Nigeria (FAFIN), was launched in July 2014 and is an agriculture-focused investment fund sponsored by the FMARD, the Nigeria Sovereign Investment Authority and Germany’s KfW Development Bank. Currently valued at $34m, the fund is managed by Sahel Capital and seeks to invest in small and medium-sized enterprises (SMEs) throughout the agricultural value chain. In addition to providing funding, FAFIN includes a technical assistance component that aims to help SMEs make the most of invested funding. In December 2014 FAFIN made its first successful investment, securing a 25% stake in dairy producer L&Z Integrated Farms.

The second initiative, launched in late 2014, is the Youth Employment in Agriculture Programme (YEAP), which seeks to create jobs for young people. With a total of N37bn ($225.7m) in funding and support from a range of international partners, including the Word Bank and USAID, YEAP aims to create employment for more than 750,000 youth over a five-year period. The initiative has a dual focus: 1) supporting young entrepreneurs who are active in agri-business; and 2) linking these entrepreneurs with young, market-oriented farmers who can provide the needed agricultural inputs.

**Reforms in the Rice Industry:** In terms of crop focus, one of the first crops to be singled out for attention by the FMARD was rice, for which a protectionist import-replacement effort is under way: tariffs have been rising and Nigeria plans to ban imports starting in 2015. The story is indicative of the wider challenge of import replacement in Nigeria. Rice is generally seen as a first choice at mealtime, and Nigeria has long been dependent on imports, predominantly from Thailand. Nigeria produced 2.4 tonnes of rice in the 2012-13 market year, according to USDA data, with 2.8m tonnes expected for 2013-14. Nigeria typically spends $2bn a year on imports, according to the International Food Policy Research Institute (IFPRI). Imports total about 3m tonnes of parboiled rice per annum, according to the USDA, and the market share of domestic rice has been falling for the last 25 years. Nigerian rice accounted for 75.5% of supply in the 1990s, 55.1% in the 2000s, and 53% from 2010-12. The country’s plan to become self-sufficient in rice has included additional investment in milling, along with the distribution of higher-yield seeds and fertiliser. While domestic rice production has increased, the plan to become self-sufficient has a significant obstacle to overcome in the form of widespread smuggling.

**Cassava**

Another key crop singled out for focus in the early stages of the ATA is cassava, the tuber that is often ground into a flour for further processing or mashed into local mealtime staples such as garri or fufu. Nigeria harvested over three times more cassava than the next-largest producers, Ghana and the Democratic Republic of Congo. The country has made cassava flour an important element of its food-processing goals. Cassava presents a different problem from rice, however. It is not imports that provide the obstacle to domestic growth but the crop’s quickness to rot before consumption, a process that takes about two days. Production levels aside, there is no short-term fix for the problem of the national road network. Given its shortcomings, it is difficult to get output to markets and into homes fast enough, so progress here is more likely to be achieved via the SCPZ approach. A cassava-focused SCPZ is in development in which cassava can be refined into multiple outputs with a longer shelf life, including cassava-based sweeteners, flour, pellets and chips (see analysis). Indeed, the Jonathan administration hopes that the development of such products can help with the federal import substitution programme and make a significant contribution to the reduction of the country’s bloated food import bill.

The Ministry of Agriculture, for example, is pushing for the use of cassava flour in bread and other baked goods as a means of reducing the country’s dependence on wheat. Given that imports of the staple grain cost the country around N635bn ($3.9bn) annually, the introduction of 50% cassava flour bread could save Nigeria more than N315bn ($1.92bn) each year, according to Adesina. While the government has taken steps to mandate 20% cassava flour in domestically baked bread, the success of the broader cassava strategy will be dependent to some degree on demand amongst end consumers and the appetite amongst retail outlets for products that can be created from intermediate inputs such as cassava flour, chips and sweeteners. So far, the early signs are promising. “Cassava is moving up the value chain.

**Support Services:** Nonetheless, as decision-makers grapple with the challenges presented to them and their goals, there is increasing evidence that the elemental mix of better inputs, extension services, and access to credit will result in higher yields. Evidence on a smaller scale comes from Doreo Partners, an impact-investment firm with a targeted programme called Babban Gona, which means “great farm” in Hausa. Doreo uses a franchise model in which franchisees are local groups of farmers or grassroots organisations, and Doreo provides the land, inputs, marketing and financing. Thus far 400 franchises have been created, all in Kaduna State and all growing corn. The groups typically have four to five members. Yields can rise to 6.9 tonnes per ha, as opposed to 0.8 tonnes or below outside the Babban Gona system, according to Doreo. Access to financing is a critical part of that mix. Nigeria has struggled for years to coax its banks to lend to agriculture, and in a wider sense to entrepreneurs across all sectors in its real economy. One of the more successful programmes now and in the past has been the Commercial Agricultural Credit Scheme (CACS), which is offered through the CBN and FMARD in partnership with local banks. The programme accounts for the increase in bank lending in 2013 and 2014, Ijewere told OBG. Other development programmes spearheaded by the CBN include the Agricultural Credit Guarantee Scheme Fund, the Nigeria Incentive-based Risk Sharing System for Agricultural Lending and the Agricultural Credit Support Scheme. Overall, agriculture’s share of total bank credit has climbed from 1.4% in 2008 to 4% as of the middle of 2014.

**QUESTION 3**

* Appraise the performance of agricultural institutions under Nigeria’s development plans?

The performance of the agricultural institution under Nigeria’s development plans are explained below:

**IITA (International Institute of Tropical Agriculture):** The IITA was founded in 1967. It has its headquarters in Ibadan, Nigeria. It also has stations in other parts of Nigeria, in Benin, Cameroon, Côte d'Ivoire and Uganda. As one of the 16 international agricultural research centres funded by the Consultative Group on International Agricultural Research (CGIAR), IITA adheres to the CGIAR standards of excellence in scientific research and management. It is a non-profit institution that generates agricultural innovations to meet Nigeria’s most pressing challenges of hunger, malnutrition, poverty, and natural resource degradation. Working with various partners across sub-Saharan Africa to improve livelihoods, enhance food and nutrition security, increase employment, and preserve natural resource integrity. IITA recognizes the agricultural sector as a vital element to sub-Saharan Africa’s economic development employing nearly two-thirds of its population. IITA also recognizes that agriculture is a complex network of skills and expertise which includes the conception of an idea for a specific agricultural product until it nourishes a satisfied customer. Operating from a number of stations across sub Saharan Africa, its scientists work towards the development of technologies that reduce risk for producers and consumers, increase local production and wealth generation.

**National Root Crop Research Institute (NRCRI):** It has the mandate to improve the root and tuber crops such as yam, cassava, cocoyam, sweet potato, Irish potato and ginger have great potential for contributing to national economic development. The institute conducts research into the genetic improvement of economically important root and tuber crops such as cassava, yam, cocoyam, sweet potato, Irish potato, ginger, rizga, Hausa potato, sugar beet and Turmeric. It also researches subjects such as crop cultivation techniques, storage, processing and utilization of the crops, concentrating on requirements of farmers in the south-east zone of Nigeria. The institute runs a diagnostic survey of the farming systems of the zone to obtain information on status of agricultural activities and to identify production construals and opportunities, conduct of up-stream (on-station) research to tailor down commodity research results to suit farmers’ conditions. Conduct Monthly Technology Review Meetings (MTRMs), where scientists from research institutes and universities train the Subject Matter Specialists (SMSs) from the state Agricultural Development Programmes on improved technologies (Udealor 1999). The institute provides training of middle level agricultural workers, awarding National Diplomas and Higher National Diplomas and providing specialized vocational training to farmers. Technology generation is influenced by determination of needs, and research and management of technology generating institutions (World Bank, 1994). The National Root Crop Research Institute (NRCRI) helps in the development and transfer of production packages-crop varieties, optimum spacing, optimum rate and time for fertilizer application, weed control measures and crop compatibilities, stacking methods in yam-based systems, harvesting for maximum productivity of technologies. Weed control in root and tuber crops-based mixtures, cocoyam/maize/pigeon pea at 2.0m inter-row and 1.0 inter-row spacing. Development of complementary use of both cassava compositeroot meal and cassava composite meal with commercial feed in the feeding of broilers and laying birds (Udealor 2001). To enhance adequate food production in Nigeria, demands that farmers should be reached with appropriate technologies that are economically viable and culturally acceptable (Sokoya 1998). Therefore, this study was to examine the contribution of agricultural research institutes with reference to National Root Crop Research Institute (NRCRI), Umudike for national development. Sokoya, G.O (1998). “Extension in the Service of Small-Scale Farmers in Nigeria.

**IART (Institute of Agricultural Research & Training):** The institute conducts research on various cereals and legumes such as maize, jute, kenaf and sisal hemp, soil and also on fertilizer use and farming systems. It has sub stations at Ilora, Ile-Ife, Balla-Ilorin, Ikenne, and Orin-Ekiti.

**Lake chad research institute (LCRI):** It **w**as established by the Research Institute’s (establishment Act) Order, 1975. However, the Institute’s actual physical existence began with the location of its headquarters at Maiduguri in 1976. It helps in genetic improvement of wheat, barley and millet. Investigation of the problems of production of all agricultural food crops grown in the broad ecological zone covered by Borno, Yobe, Adamawa, Bauchi and Gombe States, with emphasis on farming systems including integration of livestock, tree crops and agro-forestry into production systems. Conduct Agricultural Extension and Research Liaison Services with the relevant Federal and State Ministries, Primary Agricultural Producers, Industries and other users of Research. Provide laboratory and other technical services to farmers, agro-based industries and others needing these services.

**Note:** They are more agricultural institutions, the ones highlighted above is just to give a broad spectrum of the roles of agricultural institutions in Nigeria.

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