

SOCIAL AND ADMINISTRATIVE SCIENCES REVIEW

Volume 6, Number 1, February 2020

ISSN: 2545-5826



**UMYU Journal of the
Faculty of Social and Management Sciences**

SOCIAL AND ADMINISTRATIVE SCIENCES REVIEW

Volume 6, Number 1, February 2020

ISSN: 2545-5826



©A peer reviewed journal published by the
Faculty of Social and Management Sciences,
Umaru Musa Yar'adua University, P.M.B. 2218, Katsina State-Nigeria.

SOCIAL AND ADMINISTRATIVE SCIENCES REVIEW

Volume 6, Number 1, February 2020

ISSN: 2545-5826

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- i. To promote the spirit of critical scientific inquiry in the field of Social and Management Sciences;
- ii. Establish a strong, respected and viable medium through which researchers, inquiries, new discoveries, and discourses from within Faculty and University would be disseminated to the wider academic community; and
- iii. Deepen the intellectual tradition in the Faculty and the University through providing a vibrant platform for debates about issues of local and global interest to social scientists.

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ACHIEVING FOOD SECURITY IN NIGERIA: CHALLENGES AND WAY FORWARD

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Abstract

This paper examined the challenges and ways of achieving food security in Nigeria while relying on secondary data and descriptive statistics as its methodology. The paper noted that, achieving Food security has attracted national and international attention. In Nigeria, several agricultural policies and programmes have been formulated to curtail food security challenges. Despite these efforts, Nigeria is far from achieving the goal of food security owing to challenges arising from insecurity, poverty, corruption, population growth national policies that do not promote infrastructural development, adequate funding and equal access to food for all. As such the study relying on the Public-Private Partnership theory concluded that food security can be achieved if the efforts of Government and other stakeholders such as the private sector to combat food insecurity will not only make food available but also ensure that that people can consistently afford to make it ready for consumption, hence, ensuring that all the four components viz.; availability, accessibility, utilization and stability are present. The paper therefore, recommended the need for agricultural policies that will provide for a system of mechanized farming, regulate the use of chemical to prevent soil degradation, tackle insecurity which causes displacement of farmers and public-private partnership in terms of increased private sector investment in the agric sector; these without doubt will help to address the challenges confronting the agricultural sector in delivering the gains of food security in Nigeria.

Keywords: Food Security, Availability, Agricultural Policies, Accessibility & Utilization, PPP

Introduction

Nigeria is a very large country, spanning an area of 910.8 thousand square kilometres out of which 77.7 per cent is cultivable (World Bank, 2016). The topography can support various crops and livestock possibilities. It has the largest population in Sub-Saharan Africa estimated at 180.7 million in 2014 (Central Bank of Nigeria (CBN), 2014), and it is one of the ten most populated country in the world. Thus, the country is rich in both human and natural resources.

In spite of the abundant natural and human resources which Nigeria is blessed with (land area of 98.3 million hectares, 74million hectares of arable land), it is worrisome that less than half of this being explored. The population involved in farming is about 60-70%, yet there is threat of hunger and poverty, 70% of the population lives on less than 1 dollar per day (Fadipe, Amolegbe & Afun (2013)). This is due to the fact that, Nigeria agricultural system is largely characterized by small holder farmers which constitute about 80% of all farm holdings. Their production system is inefficient, and there is regular shortfall in national domestic production (Kikafunda, 1994). In this regard, Idachaba (2009), holds that with this abundant agro-ecological resources and diversity in Nigeria, has unfortunately become one of the largest food importers in sub-Saharan Africa.

Not surprising that, Ban Ki Moon, the UN Secretary-General at a World Food Summit in Rome in 2009, warned that six million children die of hunger every year; 17,000 die of starvation every day and by 2050 the world will need to feed two million more mouths. This has rekindled the idea of achieving food security in all countries of the world including Nigerian (Metu, Kenechukwu & Olisa, 2016). As clothing and shelter serves as the basic necessities of life, food remains the most vital because of its centrality to human existence. It is a known fact that the search for food has shaped human history, provoking wars, driving migration and underpinning the growth of nations.

World Bank (2012), estimates the population of Nigerian to be above 160 million people, the largest in Africa almost accounted for 47% of West Africa's total population. As the population increases, the country's demand for food increases, while the ability to produce food diminishes due to pressures from the growing population in form of desertification, climate change and erosion impacting on the already diminishing resources and further threatening food production. In this sense, The International Fund for Agricultural Development (IFAD) (2012), rates Nigeria as the number one producer of yam, cassava and cowpea in the world; yet Nigeria remains a food insecure nation and relies heavily on importation of grains, livestock products, and including fish. As previously opined by Omorogiuwa, Zivkovic and Ademoh (2014), Nigeria has about 75 percent of its land suitable for agriculture, but only 40 percent is actually

cultivated. Majority of the rural populace engage on subsistent farming on small plots of land to feed their households and relying on seasonal rainfall. Lack of access to necessary infrastructures such as roads has further worsen the rural poverty situation by disconnecting the rural farmers from required inputs and the markets (IFAD, 2012).

Consequently, various international organizations and individual countries embarked on aggressive food security crusades to remedy the situation in order to make food affordable to all. For instance, in Nigeria successive government have initiated various programmes and policies to address the challenge of food security such as Farm Settlement Scheme, National Accelerated Food Production Programme (NAFPP), Operation Feed the Nation, River Basin and Rural Development Authority, Green Revolution and World Bank funded Agricultural Development Project (ADP) and Babangida's Directorate for Food, Road and Rural Infrastructure (DFRRI), MDG and SDG policies that addresses the need for food production to halt the spate of hunger and starvation. In spite of all these, the food crisis still persists. It is in the light of this that, this study intends to examine the challenges of food security in Nigeria with a view to suggesting ways of addressing them.

Conceptual Overview

Concept of Food Security

The term "food security" first emerged in the mid-1970s, at the World Food Conference (1974). During the conference food security was defined in terms of supply of food-"assuring the availability and price stability of basic foodstuffs at the international and national level" (World Food Conference cited in Matemilola, & Elegbede, 2017). The World Food Summit, 1996, agreed that food security "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2008).

In the above regard, Honfoga and Vanden Boon, (2003) opines that, Food security involves access and availability of food stuff, stability of supplies and the quality of the diet Food security in its most basic form is defined as the access to all people to the food needed for a healthy life at all times (FAO and WHO, 1992 in Eide, 1999). Though, in a simple language, a country is food-secured when majority of its population have access to food of adequate quantity and quality consistent with decent existence at all times (Idachaba, 2004). What is implied in this definition is that food must be available to the people to an extent that will meet some acceptable level of nutritional standards in terms of calorie, protein and minerals which the body needs; the possession of the means by the people to acquire (i.e. access) and reasonable continuity and consistency in its supply (Davies, 2009).

According to Eboh in Idachaba (2004), food security simply refers to the ability of individuals and households (especially the rural and urban poor) to meet stable food needs all year round'. Eboh (1995) added further that, the above description is essentially intra-generational food security as opposed to inter-generations to meet their food needs, on season and off season. According to the World Food Summit (1996) food security is the people's right to define their own policies and strategies for the sustainable production, distribution and consumption of food that guarantees the right to food for the entire population on the basis of small and medium sized production, respecting their own cultures and the diversity of peasant, fishing and indigenous forms of agricultural production, marketing and management of rural areas, in which women play a fundamental role. More so, Gurkarm (2005), describes food security as a state of affairs where all people at all times have access to safe and nutritious food to maintain a healthy and active life.

Reutlinger, (1985), conceives food security to mean access by all people at all times to sufficient food for an active, health life. In the same vein, food security has been promoted by the United Nations as the most basic human need and as a central indicator of absolute poverty and physical well-being. Food security refers not only to an adequate aggregate supply of food, but also means that "all people at all times have both physical and economic access to basic food". This requires not just enough food to go around. It requires that people have ready access to food (Jenkins and Scanlan, 2001). This is measured using two indicators: (i) food supply is measured as the mean daily per capita supply of calories and protein, and (ii) the child hunger rate is measured by the percentage of children under age 5 who are undernourished.

To Carter in Okpanachi (2004), food security is the ability of food-deficit regions or countries, or households within these countries, to meet target levels of consumption on a yearly basis. For Okpanachi (2004), 'food security can be defined simply as access by all people at all times to enough food for an active and healthy life. Similarly, Abudullahi in Dauda (2004), adds that food is not only a basic need; it also provides the physiological foundation upon which other considerations and human activities are structured. Food security is not simply having sufficient and adequate quantities of our various staple foodstuffs but it also entails access to the entire citizenry to these food items at affordable prices. It further means that not only must we engage in mass food production, but we also need to ensure that most Nigeria have sufficient purchasing power to acquire food items that guarantee good feeding and nutrition.

From the foregoing it is evident that food security has certain elements. According to Adeoti (1989) the central elements of food security are: (a) the availability of food and (b) the possession of the ability for its acquisition. In addition, Nwaniki (2007), opine that food security has three aspects; food

availability, food access and food adequacy. Food availability has to do with the supply of food, that is, food should be sufficient in quantity and quality and also should be in variety. Food access is the people having the resources to acquire the food they require for healthy life, while food adequacy is having variety of food in sufficient quantity and quality.

According to FAO (2013), the core determinants of food security are availability, accessibility, utilization and stability.

- i. Food Availability: Availability of food plays a conspicuous role in food security. Having enough food in a nation is necessary but not adequate to ensure that people have satisfactory access to food. Over the years, population has increased faster than the supply of food thus resulting in food unavailability per person.
- ii. Food Accessibility: The ability to have access to food depends on two major variables; Economic access and physical access. Economic access depends on one's income, the price of food and the purchasing power of the people. Physical access depends on the availability and quality of infrastructure needed for the production and distribution of food. Lack of economic access to food is as a result of the increase in the rate of poverty.
- iii. Food Utilization: Food utilization is measured by two outcomes indicators which reflect the impact of inadequate food intake and utilization. The first outcome is measured by under-five years of age nutrition level while second measurement is quality of food, health and hygiene. According to FAO, measuring the nutritional status of under-five years of age is an effective approximation for the entire population.

Challenges of Food Security in Nigeria

The challenges of food security in Nigeria are multi-faceted. The root cause was the emergence of oil sector which marked the imminent end of the agriculture sector as the huge revenue generated from the petroleum products shifted attention from agriculture. To this, Otaha (2013) opines that, the government embarked on importation food and local production shrunk away, especially as wealth from oil has changed the status and tastes of many Nigeria in favor of foreign goods.

This couple with socio-political instability which precluded the economic downturn, civil war, dwindling human resource base, gender inequality, education decadence, poor health facilities and the general loss of good governance have coexisted to further degenerate food accessibility. The case of Civil insecurity born out of the Boko Haram conflict is a point in reference, which had caused population displacement and limiting crop production below average because farmlands have been converted to battle field and farmer are now

banished to camps where they have to depend on aids for survival, restricting market and trade activities and causing higher food prices compared to other areas of the country.

In the words of Uche, Eme and Onyishi (2014), the challenges of food security in Nigeria emanates as a result of the apparent inconsistency in government's targeted policy intervention and implementation strategies. More so, weaknesses and threats to food security in Nigeria include:

- (a) Poor access to credit, technical inputs, machines and farm implements (i.e. fertilizers, seeds, pesticides, tractor, plow, harvesters etc) by farmers
- (b) Degradation of agricultural natural resources especially soil and water bodies.
- (c) Poor infrastructure (i.e. rural roads, water supply, storage facilities and market infrastructure)
- (d) Bad and inconsistent government policy
- (e) Poor budget allocation to agricultural sector
- (f) Poor and inadequate irrigation facilities
- (g) Uncontrolled grazing and livestock migration in some areas and
- (h) Poaching and settlement within protected areas and bush fires.

Other environmental factors that may affect food security includes soil degradation, soil pollution and deforestation. Also air and water pollution from industrialization threaten both human and natural resources to an extent that food securities capabilities are damaged. Again, Corruption in Nigeria has been on the increase leading to money budgeted for public utilities being siphoned for private use. This leads to decay in infrastructure especially rural infrastructure where majority of the farmers live and operate from. For instance, we have seen situations where money meant for importation of fertilizers are siphoned (Metu et al, 2016).

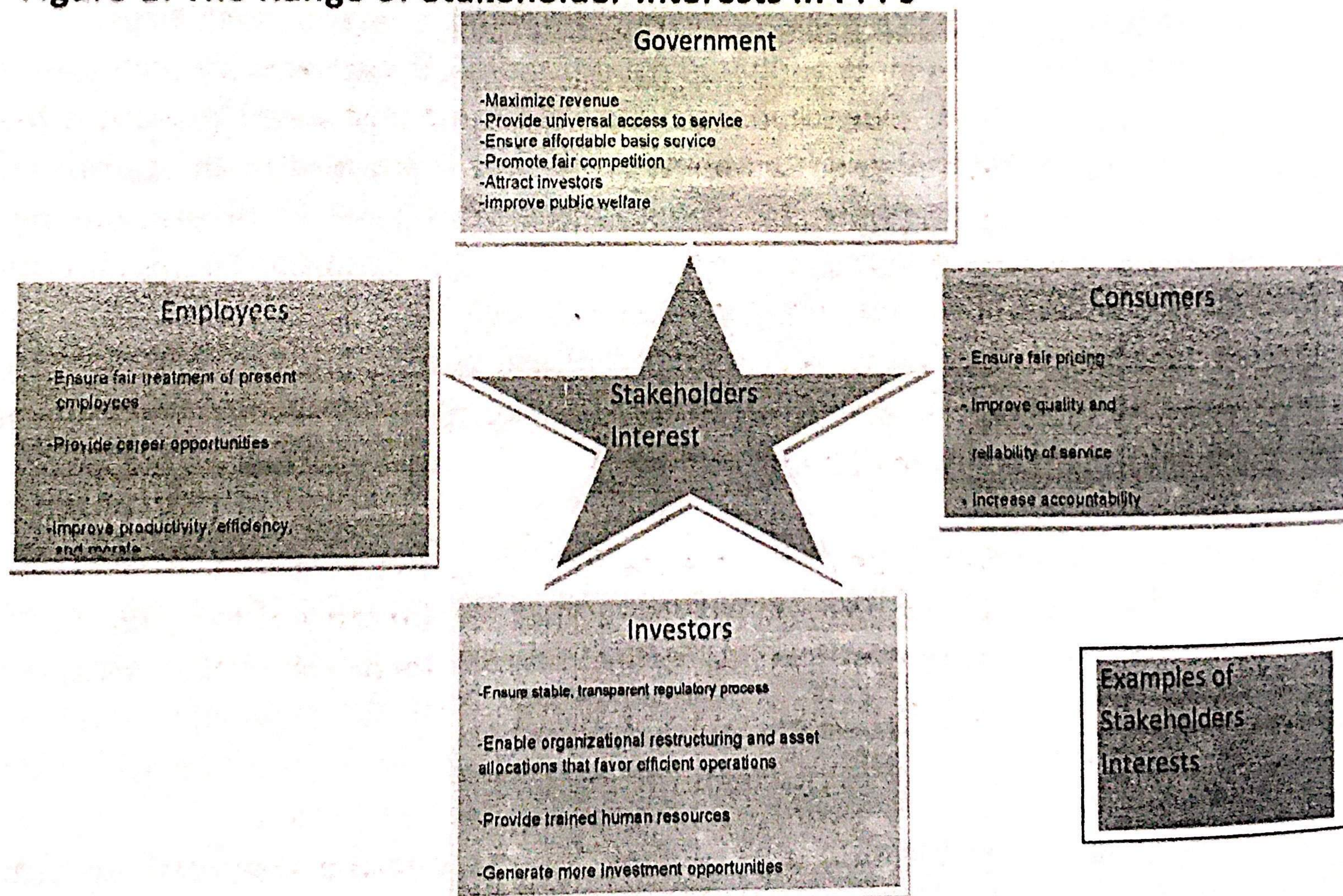
Theoretical Framework

This study is anchored on the Public-Private Partnership (PPP) Theory with emphasis on the Stakeholder interest on PPP by Heather and Kathleen (2007). According to the World Bank PPP refers to arrangements, typically medium to long term, between the public and private sectors whereby some of the services that fall under the responsibilities of the public sector are provided by the private sector, with clear agreement on shared objectives for delivery of public infrastructure and/ or public services. In another definition, the World Bank and other Institutions adopt a broader view to define PPP as a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration, is linked to performance (Public Private Partnerships Reference Guide, 2014).

PPP arrangement has become imperative as society progresses, the obligations on part of the government to meet the expectations of its citizens are ever increasing. Therefore, while the Government on the one hand is obliged to provide certain services to its citizens, it is also constrained by the extent to which it can raise the money required for these expenses, hence, the need to attract private investment using the PPP paradigm.

The analysis of the PPP implementation experience in countries at different stages of social and economic development have shown that such partnerships have been successfully applied in transport (roads, railways, airports, seaports, pipelines) and social (healthcare, education, entertainment, tourism) infrastructure, housing and public utilities (water supply, electricity supply, water treatment, gas supply) and other spheres (penitentiary system, military defense, military facilities) (Jütting, 1999 cited in Matraeva, Konov, Belyak, Erokhin & Vasyutina, 2016). Heather and Kathleen (2007) provide a paradigm of stakeholders interest in PPP in the diagram below:

Figure 1: The Range of Stakeholder Interests in PPPs



Source: Heather Skilling and Kathleen Booth (2007).

It is believed that the PPP can be fully adopted in the agric sector to engender food security as it will leverage on:

- attracting private capital investment (often to either supplement public resources or

- release them for other public needs) especially in the production of agricultural commodities;
- increasing efficiency and use available resources more effectively; and
- reforming the agric sector through a reallocation of roles, incentives, and accountability
- government relying on private sector investment for re-establishment of selected commodity marketing boards e.g. Cocoa Marketing Corporation and storage facilities

Methodology

This study relied on secondary through careful exploration of published and unpublished works of researchers in areas similar to this research. Tables, frequency counts, percentage were used to analyzed the data using descriptive method.

Data, Results and Analysis

Table 1: General Indicators

	Ave. 01-05	Ave. 06-10	2008	2009	2010	2011	2012	2013
Total Population (millions)	132.7	151.4	151.2	155.4	159.7	164.2	168.8	173.6
Rural population (% of total population)	62.6	58.3	58.3	57.4	56.5	55.6	54.8	53.9
Rural population growth (annual %)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Agriculture, value added (% of GDP)	38.4	31.7	32.9	37.1	23.9	22.3	22.1	21.0
Employment in agriculture (% of total employment)	44.6							
Population density (people per sq. km of land area)	145.7	166.2	166.0	170.6	175.4	180.3	185.4	190.6

Source: FAO - Food Balance Sheets - 2014

The Nigeria population is on the increase from 151 millions to 173 millions in 2013 with the annual rural growth of 1.2%. Strikingly the crop or food production is not increasing at a commensurate rate with this increase in the population thereby worsening the food supply in the country.

Table 2: Land Area

	Ave. 00-08	Ave. 04-08	2010	2011
Land area (1000 sq. km)	910.77	910.77	910.77	910.77
Agricultural land (% of land area)	82.40	84.32	83.67	83.67
Arable land (% of land area)	37.03	39.42	39.53	39.53
Permanent cropland (% of land area)	3.18	3.29	3.51	3.51
Land area per capita (sq. km per capita)	0.01	0.01	0.01	0.01

Source: FAO - Food Balance Sheets - 2011

Nigeria having a Land Area of 910.77 on the average, only about 3.18%, 3.29%, 3.51% & 3.51% are regarded and cultivated as permanent cropland for 2010 and 2011 respectively which is far less than half of the arable land. This shows that, Nigeria is not maximally utilizing her arable land for agricultural food production accounting for low supply of domestic food products which is not enough to feed the teeming population.

Table 3: Production data for major agricultural crops in Nigeria, 2010

Agricultural resource	Production area (thousand ha)	Total production (thousand metric tons)
Cowpea	2860	3368
Cassava	3482	42533
Maize	4149	7677
Cotton	399	602
Soybeans	291	356
Groundnut	2785	3799
Sorghum	4960	7141
Millet	4364	5171
Rice	2433	4473

Source: Simonyan and Fasina (2013)

Table 4: Nigeria Main crops (2011) - Domestic Supply

	Production, 1000 tonnes	Domestic supply, 1000 tonnes	Export, 1000 tonnes	Import, 1000 tonnes	Net Trade, 1000 tonnes
Maize	9,180	9,226	0	46	-46
Sorghum	6,897	7,411	0	14	-14
Rice (Milled Equivalent)	3,046	5,377	0	2,195	-2,195
Tomatoes	1,505	1,913	0	408	-408
Sugar Cane	1,450	1,450	0	0	0
Onions	1,238	1,238	0	0	0
Potatoes	1,100	1,109	1	10	-9
Wheat	165	4,216	3	4,054	-4,051
Dates		5	0	5	-5
Olives		0		0	

Source: FAO - Food Balance Sheets - 2012

Table 5: Main crops (2013) - Production

	Area Harvested, Ha	Yield, Hg/Ha	Production, 1000 tonnes
Cassava	3,850,000	140,260	54,000
Maize	5,200,000	20,000	10,400
Sorghum	5,500,000	12,182	6,700
Millet	3,800,000	13,158	5,000
Rice, paddy	2,600,000	18,077	4,700
Sweet potatoes	1,115,000	30,493	3,400
Groundnuts, with shell	2,360,000	12,712	3,000
Cow peas, dry	3,200,000	7,813	2,500
Sugar cane	74,000	195,946	1,450
Potatoes	264,000	45,455	1,200

Source: FAO - Food Balance Sheets - 2014

Table 3, 4 and 5 above shows the meager domestic food production for major crops for various years which from all intent and purpose is not adequate to cater for the over 195 million Nigeria food consumption. Not surprisingly, the shortage is augmented from importation and a growing index of import trade creating an unfavourable balance of trade for the country. The data in table 6 below speaks volume.

Table 6: Nigeria Agricultural Statistics

	2016	2017	2018	2019 (Estimated)
Total Market Size	37500	60,000	72,000	80,000
Total Local Production	7,500	10,000	12,000	15,000
Total Exports	0	0	0	0
Total Imports	30,000	50,000	60,000	65,000
Imports from the U.S.	4,757	10,087	7,125	8,000
Exchange Rate: 1 USD	197	359	359	359

Source: Federal Ministry of Agriculture and Rural Development, 2019

In Nigeria, there are over 30 million hectares of farmland under cultivation season to season, falling substantially short of the estimated 78.5 million hectares of land that is required for farming to feed Nigeria's growing population. The country's agricultural sector is dominated by smallholder farmers who work an average of 4–5 acres each, under rain-fed conditions. Most of them

lack knowledge of modern practices, have insufficient capital and own little or no equipment of their own. Because of this scenario, the Nigeria domestic food supply has not been able to meet the market demand as depicted in table 6 above, wherein the total market size are for 2016, 2017, 2018 and 2019 respectively are; 37,500, 60,000, 72,000 and 80,000 however, the local production accounts for 7, 500, 10,000, 12,000 and 15,000 for the respective years. It therefore means that, Nigeria depend largely on importation of food to be able to meet its local demand.

Conclusion and Recommendation

Food security has been a challenging goal in Nigeria even though the government tries to augment the domestic production through importation of food in addition to the various programmes put in place overtime to boost food production, food security is far from been achieved in Nigeria owing to several challenges such as; poverty, corruption, national policies that do not promote equal access to food for all, environmental degradation, population growth, low levels of education, social and gender inequality, poor health status, cultural insensitivity etc.

Going by its definition, food security however will not be achieved by simply increasing the production of food. Even when food is sufficiently available, a poor hungry man will remain food insecure as long as he cannot afford to buy it. Hence, all four components viz.; availability, accessibility, utilization and stability must be present. Efforts to combat food insecurity will therefore, not only make food available but also ensure that that people can consistently afford to make it ready for consumption. In addition, recommendation for ensuring food security in Nigeria include among others the following:

- i. Government must address security challenges in the country such as the Boko Haram, Herders-Farmers crisis which has caused displacement of farmers and wanton destruction of crops
- ii. Regulation of the use of fertilizers and other agro-chemicals. Measures should be taken to control the usage of fertilizers and pesticides by farmers through trainings using professional extension workers as improper application of fertilizer can pose serious environmental consequences to soil nutrients, plants and even aquatic lives when washed into the stream, rivers and/or lakes.
- iii. Government at all levels as well the private institutions should be encouraged to invest significantly on dams and equipments necessary for the practice of effective irrigation system to all-year farming possible and increase food production. In this regard, Oni, Nkonya, Pender, Phillips and Kato (2009) observed that irrigated farms in the dry savanna agro-ecological zones give higher productivity than non-irrigated farms in the

same region. This system will be particularly useful in most part of the northern Nigeria.

- iv. There is the need to promote mechanized agriculture in Nigeria to improve production through the use of equipments, machineries and implements especially among small-holder farmers to encourage large scale farming as alternative to subsistence farming. To achieve an overall inclusive agricultural mechanization, the Nigerian government needs to engage other public and private corporations as well as financing institutions

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