



Evolution and Sustainability of Agriculture in the 21st Century; A Path Way for Food Security in Nigeria

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Abstract

This paper reviewed the evolution and sustainability of agriculture in the 21st century. Majorities of Nigerians live in rural areas of which agricultural sector remains the main source of livelihood for most rural dwellers and a major contribution to Nigerian economy apart from oil and gas sector. Before the advent of crude oil in commercial quantity in the 1968, agriculture dominated the economy and accounted for almost all its foreign reserves. The discovery of oil brought about a paradigm shift from agriculture to petroleum, relegating the multi-functional nature of agriculture to the background. Despite the huge revenue and foreign reserves derived from the oil sector, hunger and poverty rates remain on the increase in Nigeria. Hunger and poverty rates will continue to rise as long as the abundance human and material resources located in Nigeria rural settings are not optimally harnessed. This paper therefore, emphasizes significant improvements and effective harnessing of agricultural sector for meaningful and adequate food production and other socio-economic developments through agricultural reforms. Specifically, the study limits itself to the Contributions of Agriculture to Nation Building and Challenges of Food Production in the 21st century in Nigeria. However, Nigeria's new investment destination for agriculture cannot be sustained through traditional agricultural practice alone. Hence, there is need for the promotion of research and extension responses to the challenges of climate change and other constraints working against agricultural sectors in Nigeria. This calls for strengthening of capacities of the agricultural development projects like River Basin Development authorities and other agricultural industries in Nigeria.

Keywords: Agricultural evolution, Food production, Poverty reduction, sustainability.

INTRODUCTION

Nigeria is blessed with agricultural resources and a large area of land estimated at 91 million hectares of which 81 million hectares allocated for arable crops. However, most parts of the country experience rich soil, well distributed rainfall, not to mention the warm year-round temperatures. In the same vein, about 18 million hectares of land were classified as permanent pasture for livestock production (<http://countrystudies.us/nigeria/57.htm>). More so, for a country to develop such a country must embark on agriculture as an offshoot of development and this formed the decision of the federal government of Nigeria earlier before now to place agriculture in the history of the nation. Based on this, the 'green' colour in the Nigerian flag, displayed the progressive roles it has to play; serving as the major source of livelihood for over 75% of the population in the rural area and 10% in the urban respectively (Integrating Value addition in Agric production. Research Conference University of Lagos).

As at 1960s, Nigeria's poverty level was 15% of her population, but today struggling to reduce it from 70% of its current population of about 190 million. Despite the fact that the country is richly endowed with numerous natural resources, like agricultural and mineral resources, Nigeria's rising extreme poverty numbers become a direct result of years of negligent and ineffective government policies on agriculture, over-dependence on oil for years and an inability to generate non-oil revenue have led it to our problems today.

Over the years, government has initiated various policies to unleash the potentials of Nigerian agriculture to feed its nation and become a leading exporter of food. Those policies are Operation Feed the Nation (OFN), Green Revolution,

National Food Acceleration Production Programme (NAFPP), Directorate of food, Road and Rural Infrastructure (DFRRI) among others. These programmes failed due to policy inconsistencies and corruption (Ifeanacho, Nte and Nwagwu (2009). In recent times, president ‘Obasanjo’ introduced cassava project as a prominent agricultural programme in 2004-2005; President Yar Adua’s 7 point agenda also places emphasis on food security, and President Goodluck’s (the Nigerian immediate past president) initiated agricultural transformation programme. Despite all these, agriculture has failed to keep pace with Nigeria’s rapid population growth. Over 53 million (about 30 percent) of Nigerians remain undernourished and majority of Nigerians (65 percent) remain food insecure (Dada, 2011). Likewise, the poverty statistics show that about 72 percent of Nigerians (118.2 million people) are poor (Nwankpa, 2015). Given the current economic recession in Nigeria coupled with hyperinflation, hunger has increased in the land. Despite the huge earnings from oil, many Nigerians remained poor. This implies that only a few percentage of the Nigerian population benefit from the oil revenue (Demachi, 2012). Worse still, the volatility of the international oil market has adversely affected government revenue and the nations’ foreign reserves since late 2014. Hence, there is an urgent need for the government to diversify the nation’s export base.

Sustainable food production in Nigeria after the Sahel drought of the early 1970s, a decline in agricultural output due to Nigeria’s oil boom led to ideas about investing in sustainable food production and managing water resources. Plans were then instituted to create government agencies spread out within the country based on the drainage systems of various rivers. In 1973, two river basin authorities were established in Sokoto River and Lake Chad river basin. In 1976, the law establishing the River Basin Development Authorities listed eleven agencies with the mandate to develop water resources to boost agricultural productions. It is under this act that Anambra Imo River Basin Development Authority was established (Adegeye and Adeduro, 1982; Akande and Adebo, 2004; Yunusa and Ismaila, 2013).

The World Commission on Environment and Development defines sustainable development as “development which meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable livelihoods definitions are generally more detailed and focus on measurability. For example, the Department for International Development (DFID) has compiled an extensive livelihoods framework composed of five core asset categories (human capital, social capital, natural capital, physical capital, and financial capital) to be used in livelihoods analyses. These five categories are widely recognized as being essential pieces of sustainable livelihoods theory (McLeod, 2001). DFID uses these five asset categories in the context of a larger framework to assess the potential for desired livelihood outcomes, which include “more income, increased well-being, reduced vulnerability, improved food security, and more sustainable use of the natural resource base”.

Food security is the extent of the availability of food and individuals’ capacity to access it. Affordability and access are the variables that qualified food security of a nation. Household food security exists when all members, at all times, have access to enough food for an active and healthy life. Individuals who are food secured do not live in hunger or fear of starvation. Food security incorporates a measure of resilience to future disruption or unavailability of critical food supply due to various risk factors including droughts, shipping disruptions, fuel shortages, economic instability, and wars. Food security can be measured by calorie intake per person per day, available on a household budget. In all, the objective of food security indicators and measurements is to capture some or all of the main components of food security in terms of food availability, accessibility, and utilization/adequacy. Given the current economic recession in Nigeria coupled with hyperinflation, hunger has increased in the land. However, the volatility of the international oil market has adversely affected government revenue and the nations’ income generation. In the light of this, there is need to restore the agricultural glory and sustainability in the 21st century.

Contributions of Agriculture to Nation Building

Nigeria is an agrarian nation and has a large number of potentials that remains untapped. It has an arable land potential of 98.3 million hectare of which only 34.2 million (48%) ha is cultivated while 52% is yet to be exploited. However, research has shown that agriculture employs over 70% of labour force and was a major driver of growth before the oil era (Nwankpa, 2017).

Agriculture remains a pillar upon which other variables depend on for their transformation. Conversion of raw materials from agriculture is just needed for actualization of other useful materials of human desire and that has been the reasons for different faculties in the field of sciences like engineering, biochemical, medical among others for conversion of agricultural products to the useful of mankind. What is different from millennium agriculture and sedentary agriculture is just innovations that characterize the life cycles of the 20th century. Presently, a farmer can feed a nation once there are innovative minds and mechanization upon the adoption of improved technologies disseminated to the farmer via extension professionals. Hence, agriculture remains the discipline that generates massive employment among youths, income generation and food security in totality if its potential is harnessed.

Nigeria is the largest producer of cassava in the world, with about 50 million metric tons annually from a cultivated area of about 3.7 million ha. Nigeria accounts for cassava production of up to 20 per cent of the world, about 34 per cent of Africa's and about 46 per cent of West Africa's. The national average yield of cassava is estimated at about 13.63 MT per ha, as against potential yield of up to 40 metric tons per ha. Close to two-thirds (66 per cent) of total production is in the southern part of the country, while about 30 per cent is in the north-central, and 4 per cent in other parts of the north. The crop is predominantly grown by smallholders on small plots for family consumption and local sale. Large scale commercial plantations are rare (FAO,2019). Nigeria is the continent's leading consumer of rice, one of the largest producers of rice in Africa and simultaneously one of the largest rice importers in the world. As an important food security crop, it is an essential cash crop for it is mainly small-scale producers who commonly sell 80 per cent of total production and consume only 20 per cent. Rice generates more income for Nigerian farmers than any other cash crop in the country. In 2008, Nigeria produced approximately 2 million MT of milled rice and imported roughly 3 million metric tons, including the estimated 800,000 metric tons that is suspected to enter the country illegally on an annual basis. The government and private sector therefore need to join efforts to develop ways to enhance cassava's competitiveness in the international market and improve the efficiency of domestic rice production and processing. Under the ATA, the Government of Nigeria is expressing its determination to end the era of food imports, particularly rice, and develop cassava and rice value chains to produce and add value to these selected products and create domestic and export markets for farmers. A range of policies and initiatives to strengthen cassava and rice value chains, from production to marketing are being put in place. However, because of the country's massive size and diversity, different regions may face different constraints because of a decentralized approach to designing industrial policies and initiatives that may not be in sync with the agricultural policies.

In 1960s, agriculture contributed significantly to the nation's gross domestic product and played major roles in the global communities. It accounted for 42% of the world's export of shelled groundnut in 1961, 27% of the global export of palm oil in 1960 and 18% global export of cocoa in 1961 respectively. Nigeria was the largest exporter of cotton in West Africa but today Nigeria has lost her glory due to the advent of oil boom. The declined in agriculture contribution to GDP from 63% in 1960 to 34% in 1988 was due to the neglect of the sector and not because of increased share of the industrial sector. Positive impact of agricultural growth on rural development was found to be strongest in countries where small farms dominated agriculture (Diao et al 2010 in Nwankpa, 2017). In Africa, particularly Nigeria, given widespread rural poverty and small scale farming, agriculture plays significant roles in economic development and transforming farmers' lives and this implies sustainable economic development for the nation. However, both the agricultural transformation itself and the contribution of agriculture to the rest of the economy depend on three important features: (1) the peculiarities of production function, (2) the importance of home consumption of output for the sector and (3) the role of agricultural sector as a source of reservoir. This is the why Timmer(1988) said that design of agricultural policies that will unleash the potentials of agriculture in a country's development efforts require a recognition of these features.

World Bank (2008) noted that Gross Domestic Product (GDP) originating in agriculture is at least twice as effective in reducing poverty when compared to GDP originating from non-agricultural sectors. This has been the historical experience of China, India, Latin America and recently Ghana that don't have economic recession like Nigeria today (Nwankpa, 2017). The idea should encourage an economy like our country, Nigeria, with huge agricultural potentials to develop its agricultural sector to improve its economy, rather than continue to depend largely on monolithic sector that is prone to resource depletion.

The relevance of agriculture to poverty reduction and wealth sustainability is summarized using the three diamond policies. (a) self-employment and entrepreneurship in life pursuit; (b) small holding subsistence farming for food security (c) paid employment from medium to large farm enterprises and engagement in non-farm activities within the rural area. However, for these diamond-based policies to be achieved successfully in agricultural sector there should be good governance, sound economy and conducive socio-political environment. This is essential in Nigeria because of the different constraints/challenges facing agriculture in the country. Therefore, agriculture serves as a primary stimulant for economic development as well as income generation for both rural and urban dwellers.

Challenges of Food Production in Nigeria

Long before the advent of Nigeria's colonization, our ancestors were sustained primarily on farming as the major occupation with the use of crude implements compared to what is obtained today. Yet, they produced enough food crops to feed themselves like most other Africans and also produced cash crops which used for trade across the Trans Saharan trade to the end of the Atlantic trade. They responded accordingly to the demands of their time and the limitations therein. Today at this computer age, Nigeria with her overgrowing population cannot feed her teaming population simply because we have many chiefs and not enough Indians in our economic and political institutions; including other limitations to agricultural production. Based on this, a lot of constraints beset food production in Nigeria. They are disease and pest infestation, high cost of inputs, bad road network, insufficient government aids to farmers, insufficient

agricultural extension workers to educate farmers, inadequate storage facilities, reliance on rain fed farming, lack of access to credit, poor market institution and use of crude implements. Other constraints includes; youths' perception on agriculture, government attitude to agriculture (inadequate provision of agricultural inputs/subsidies to farmers), farmers' low knowledge in accepting improved technologies, limited adoption of research findings and technologies, technical know-how (lack of training man power), severe flooding, weak agro-business linkages, environmental factors and rapid population growth.

CONCLUSION AND RECOMMENDATIONS

Nigeria's new investment destination for agriculture cannot be sustained through traditional agricultural practice. Hence, there is need for the promotion of research and extension responses to the challenges of climate change and other constraints, these calls for strengthening of capacities of the agricultural development projects like River Basin Development authority and other industries in Nigeria. Even though agriculture still remains the largest sector of the Nigerian economy and employs two-thirds of the entire labour force, the production hurdles have significantly stifled the performance of the sector. Over the past 20 years, value-added per capita in agriculture has risen by less than 1 percent annually. It is estimated that Nigeria has lost USD 10 billion in annual export opportunity from groundnut, palm oil, cocoa and cotton alone due to continuous decline in the production of those commodities. Food (crop) production increases have not kept pace with population growth, resulting in rising food imports and declining levels of national food self-sufficiency (FMARD, 2008). The main factors undermining production include reliance on rain fed agriculture, smallholder land holding, and low productivity due to poor planting material, low fertilizer application, and a weak agricultural extension system among others.

In view of this, it takes pride and pressure to gently remind government that eliminating these constraints will channel Nigerian agriculture in the path of sustainable development required to eliminate hunger and poverty in the land as well as making the country a food basket of the Africa in particular and the world at large. More so, the major policy reform that will set Nigeria in the path of agricultural transformation is for the government to make conscious development efforts to revive the River Basin Rice Projects and other agricultural projects in Nigeria. Revitalization of the agricultural projects in Nigeria will not only make the country a food basket of the continent but also a source of employment generation among the nations.

REFERENCES

1. Adegeye, A.J. (1982). "Establishing river basin development authorities as a strategy for Nigerian rural development". *Agricultural Administration*. 9 (4): 301–311. DOI:10.1016/0309-586X(82)90048-6
2. Akande, S.T and Adebo, A. (2004). The political economy of river basin development authority in Nigeria. A retrospective case study of Owena-River Basin and Rural Development (ORBRDA). *Journal of Human Ecology*. 16(2):pp55-62
3. Demachi, K. (2012). *The Effect of Crude Oil Price Change and Volatility on Nigerian Economy*. Japan: Kobe University.
4. Diao, Xinshen, Hazell, Peter and James Thurlow (2010). *The Role of Agriculture in African Development*. World Development. Online: DOI: 10.1016/j.worlddev.2009.06.011
5. Ifeanacho, M.K; Nte, N.D. and Nwagwu, J. (2009). The State, Politics of Poverty and food Insecurity in Nigeria. *International Bulletin of Business Administration*. EuroJournals, Inc. Online <http://www.eurojournals.com/BBa.htm>
6. <http://countrystudies.us/nigeria/57.htm>
7. Integrating Value addition in Agric production. Research conference University of Lagos
8. Nwankpa, N.N. (2015). Strengthening Small and Medium Enterprises for Poverty Reduction and Technological Advancement in Africa. *Humanities and Social Sciences Review*. 4 (3)
9. Nwankpa, N.N (2017). Sustainable agricultural development in Nigeria: A way out of hunger and poverty. *European Journal of Sustainable Development*. 6 (4):pp175-184
10. Onah, F. O. (1996). *Public enterprises and the Nigerian worker*. Nsukka, Nigeria: Fulladu Pub. Co. pp. 29-40. ISBN:9782967041
11. Timmer, C.P. (1988). *The Agricultural Transformation and Book of Development Economics*, Vol. 1 Edited by H. Chenery and T.N. Srinivasan. Elsevier Science Publishers B.V., Chapter 8.
12. World Bank (2012). *World Bank Development Indications* (online). Available: <http://data.worldbank.org>
13. Yunusa, I. and Ismaila (2013). "Nigeria Has the Capacity to Feed Africa" (Interview). An unpublished Interviewed by Isaiah Benjamin.