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A review of sustainable agricultural development and economic growth: Nigerian experience

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Abstract

Nigeria agricultural sector used to be one of the pillars of the country's economic growth. However, after the oil boom in 1970s; the sector started dwindling, despite the different policies and programmes put in place by different administrations to promote investment and diversification in the agricultural sector have not been able to yield good or desired results up to present day. There are myriads of challenges that constitute a drawback to the progress of agriculture in Nigeria; some of these problems include the effect of climate change, couple with the destructive traditional system of farming. These problems have the tendencies to affect economic growth and food security in the country. One strategy that has been developed as a panacea to these problems is the practice of sustainable agriculture. Therefore, this paper would attempt to discuss the concepts of sustainable agriculture, economic growth and the role of sustainable agricultural development on economic growth, with a view of highlighting their implications on the health care system as it affects community and social life in Nigeria.

Keywords: Agriculture; Sustainable; Economic; Development; Nigeria

1. Introduction

In Nigeria, it is a common knowledge that before the oil boom in the 1970s, agriculture was the mainstay of the economy. However, the discovery of oil caused a paradigm shift from agriculture to petroleum, thereby relegating the multi-functional nature of agriculture to the background. Unfortunately, studies have shown that despite the huge revenue and foreign reserves derived from the oil sector, hunger and poverty rates with its attendant effects on health remain on the increase in the country [1]. Consequently, there are calls and to some extent, government policy framework with the view to diversifying the economy through agriculture to provide economic growth and food security in the country among others [2]. Such calls and policy framework are predicated on the believed that agriculture has the potentials to stimulate broader economic growth, health and social wellbeing of the citizens. While the researcher does not doubt the capacity of agriculture in achieving the above desires, there is however problems. Soil in most part of the country is no longer as fertile as it used to be. There is also the effect of climate change as well as soil erosion across some part of the country, couple with the destructive traditional system of farming. These problems have the tendencies to affect economic growth and food security in the country. One strategy that has been developed as a panacea to these problems is the practice of sustainable agriculture. Therefore, this paper would attempt to discuss the role of sustainable agricultural development and economic growth, with a view to highlighting their implications on the health care system as it affects community and social life in Nigeria.

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2. Conceptual Clarifications

The same words may have different meaning to different people, especially if the people are in different disciplines. The provision of conceptual clarification of terms that are central and are used throughout this paper which do not have a common meaning or whose meaning have the possibility of being misunderstood is important. These terms are operationally defined or explained in the context of this paper. Of a particular note are the following key concepts: Sustainable Agricultural Development and Economic Growth.

2.1.1. Sustainable Agricultural Development

Sustainable agricultural development was defined by [3] as a new approach to agricultural production that enhances the economic and social benefits for the generations without compromising the capacity of the future generation to fulfill their proper agricultural demands and without injuring the ecological process. This definition implies that any degradation or pollution of the environment and ecological processes must not be sustainable on long-time terms; rather the permanent conditioning of soil quality and the environment must permanently be given priority. One of the strategies or approach through which Sustainable agricultural development can be achieved is through sustainable farming. Sustainable farming system includes being sustainable in agricultural production, sustainable in rural economy and being sustainable in environmental and ecological agricultural system. Sustainable farming system is closest to natural process. It minimizes waste and does less damage to the environment and yet it's still profitable (Figure 1).

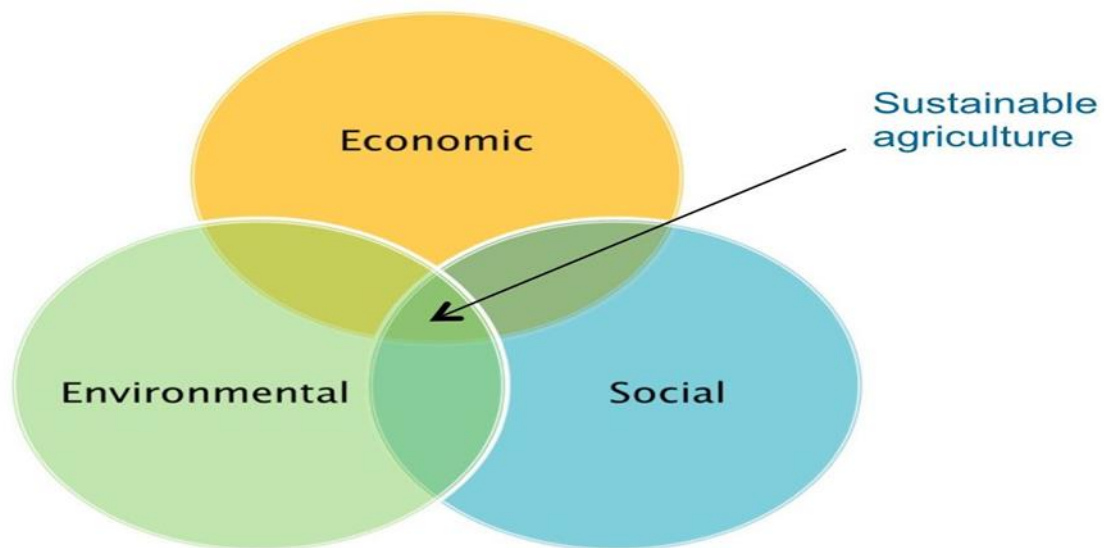


Figure 1 Diagram showing sustainable Agriculture

When a farm system is sustainable, the product of the farm will be nutritious, and not contaminated by substance that may be 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. 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 [4]. It is also important to avoid these substances, because of the potential damage they can do to the environment, the effect they have on human and animal health. For example, organophosphates are a common pesticide used in crop production 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 of this chemical to the public [5].

Experts are also of the opinion that apart from the protection of the environment, definitions of sustainable agriculture by necessary implication include the human dimension with its two key components of farmers and customers. There are farmers who are making use of advanced technologies to perform sustainable agriculture that meet the food, health and ecological demands of the customers [6]. In this context therefore, sustainable agricultural development applies to the relationship between human beings and the environment. To this end, it is believed that there are three major components that are interlinked that have to be considered at all times. The first is sound environmental management and conservation of the natural resource base must be ensured. Secondly, the attainment and continued satisfaction of

human needs for present and future generations must be assured. Finally, sustainable agriculture in the long term can only be successful if these are agreed, and implemented by the entire society [7].

2.1.2. Economic Growth

[8] defined economic growth as changes in material production during a relative short period of time, usually one year. The author further explained that the concept of economic growth implies an annual increase of material production expressed in value, the rate of growth of GDP or national income. [9] were of the view that economic growth implies an economy in which a single homogeneous output produced two inputs (capital and labor). Here is the growth of labor out of the reach of economics and is not affected by the economic determinants. In the analysis of economic growth, these economists emphasize the need to increase capital equipment, which means that the amount of capital per worker is constantly increasing. Examples include the increase in capital equipment multiplication of agricultural machinery and irrigation systems in agricultural production, rapid railways, highways in transportation, computer and communication systems in banking, etc.

Though, it is imperative to note however that economic growth, measured by the percentage increase in national income per capita, cannot really be realistic indication of the achieved level of economic development. Economic development is not just an increase in gross domestic product (GDP) and national income, but all the long-term socio-economic changes in the economy of a country. It is very important that, above all, political economy, deals with the problems of economic development.

3. Sustainable Agricultural Development in Nigerian

Nigeria is a vast agricultural country endowed with substantial natural resources which include an arable land potential of 98.3million ha consisting of 72.2 million ha (72.4 percent) cultivable (about 23 percent of arable land across all the West Africa) and only 27.1 million ha (27.6 percent) non-cultivable land; fresh water resources covering about 12 million hectares, 960 kilometers of coastline and an ecological diversity which enables the country to produce a wide variety of crops and livestock, forestry and fisheries products [10]. I have explained above in some details, the meaning and characteristics of sustainable agriculture. However, the question that readily comes to mind at this juncture is whether the culture and practice of sustainable agriculture has been well domesticated in Nigeria? In answering this question, a look at the trajectory of agricultural policies in Nigeria would provide an insight.

3.1. Brief Trajectory of Agricultural Policies in Nigeria

In Nigeria, until the early 1970s, agriculture dominated the economy. But since then, oil has held the principal position consequently relegating agriculture to a secondary economic position [11]. Though, considering the danger of relying on crude oil revenue to fund the economy, various policies were introduced to unleash the potentials of Nigerian agriculture to feed the nation. These according to [12] included: Operation Feed the Nation (OFN); Green Revolution; National Food Acceleration Production Programme (NAFPP); Directorate of food, Road and Rural Infrastructure (DFRRI) among others. Obasanjo's regime also introduced the National Cassava Initiative as an agricultural programme in 2004-2005. Similarly, President Yar Adua's 7-point agenda also places emphasis on food security. This is in addition to President Good lucks' Agricultural Transformation Programme.

Despite these policies however, Nigeria could not effectively meet the domestic food requirements and export at quality levels to stimulate economic growth in the country. It was in view of this that a new Agriculture Promotion Policy (2016 – 2020) was developed. The declared aims of the policy are to: (i) attain food security, (ii) increase production and productivity, (iii) generate employment and income, and (iv) expand exports and reduce food imports thereby freeing resources for critical infrastructure development and delivery of social services." In effect, the policy advocates and conceptualizes a transformation in agriculture that would ensure food security, the right to sustainable development for all and adaptation to the climate change challenges. The policy is also meant to stop Nigeria from food imports by boosting domestic food production. In addition, using agriculture as a key to long-term economic growth and food security means that the policy aims to ensure that the commercialization of agriculture including technologies, financial services, inputs supply chains, and market linkages that directly engage rural poor farmers; because rural economic growth will play a critical role in the country's successful job creation, economic diversity, improved security and sustainable economic growth.

Interestingly, the policy also aimed at mitigating the effect of climate change and enhancing agricultural or environmental sustainability. The idea is to encourage sustainability of the use of natural resources (land and soil, water and ecosystems) with the future generation in mind while increasing agricultural production, marketing and other forms of agricultural activities. One of these for instance, is nutrition sensitive agriculture. This is particularly targeted

at addressing the issues of stunting, wasting, underweight and other manifestations of hunger and malnutrition with particular reference to the vulnerable groups, which include children under 5, nursing mothers and persons with chronic illness and disabilities. To some reasonable extent therefore, one can say that this policy is not only comprehensive, but commendable as far as sustainable agriculture is concern.

4. Sustainable Agriculture and Economic Growth in Nigeria

It has been shown above that the National Policy on Sustainable Agriculture in Nigeria is still at an inception stage. Thus, at the moment, there are no comprehensive records readily available to assess how it has significantly contributed to economic growth in Nigeria at the national scale. What is certain however is the fact that, given the nature of poor soil fertility and the effect of global warming as well as soil erosion across some parts of the country, the traditional farming system cannot effectively guarantee economic growth in Nigeria. Therefore, sustainable agriculture becomes not only imperative, but also indispensable. Sustainable agriculture has the capacity to enhance economic growth in Nigeria since it would not disrupt ecological systems or overexploit soil fertility [13]. It would maintain the physical condition of the soil in terms of wastes, weeds, and pests as well as suppressed diseases and contained erosion. Furthermore, given that sustainable agriculture is regenerative, minerals and nutrients removed by crops would be replenished in the soil. This would consequently minimize over dependence on imported chemicals and fertilizers with attendant effect on human health [14].

The above analysis clearly indicates that Nigeria suffering from the problems of poor soil fertility and the effect of climate change. Therefore, only sustainable agriculture can guarantee continuous reliable production levels, creating surpluses above the family needs for minimum survival. This would extend to producing raw materials or recyclable industrial materials to fuel the growth in the economy [15]. Apart from direct economic growth, sustainable agricultural would be an important medium for combating poverty in two ways in Nigeria. First, by providing employment to the poor, who have also generally low skills and education. Secondly, greater supply of food-stuffs at lower prices for the benefits of both rural and urban poor [9]. In summary, when economic growth comes from sectors that most poor people work in, poverty is reduced faster [16].

Unfortunately, in Nigeria today, agriculture has not really contributed tangibly in the economic well-being of a larger proportion of the population especially the rural populace whose primary occupation is agriculture. For most of these people, agricultural development has not resulted in economic growth that translates into poverty reduction, enhanced food security, educational capacity and empowerment of youths and women in rural Nigeria [17]. In fact, agriculture's actual contribution to the Nigerian economic growth appears to be short of its overall potential over the years. The average value added in the agricultural sector as percent of GDP for Nigeria during the period of 1981 to 2017 was 22.84 percent with a minimum of 12.24 percent in 1981 and a maximum of 36.97 percent in 2002. The latest value from 2019 is 21.91 percent (Figure 2). This is partly because majority of Nigerian labour force (70-80%) are peasants practicing traditional subsistence farming.

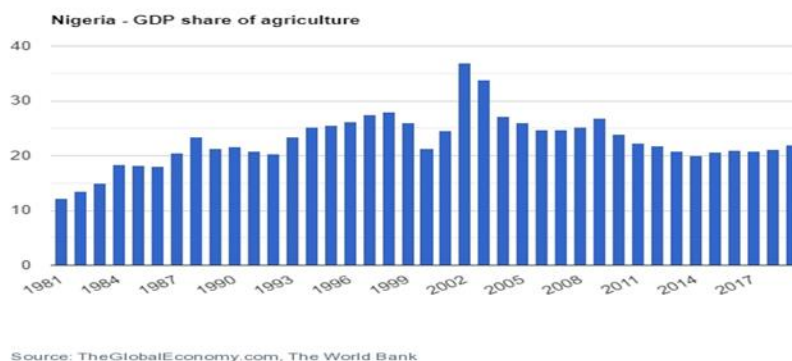


Figure 2 Contribution of Agriculture to GDP in Nigeria

5. Implications of Sustainable Agriculture on Health and Social Life in Nigeria

On health and social life of Nigerians, sustainable agriculture particularly at small holding practice by some farmers, has shown that it has the capacity to enhance nutrition security. It can manage the link between poverty and nutrition by providing the citizens particularly children with an opportunity to reach their full potential [18]. To this end, one may say that the implication of sustainable agriculture is multi-dimensional. The system provides a paradigm shift towards healthier diets as well as ensuring the supply of safe, nutritious food to all through increasing agricultural productivity on existing crop and pasture land and making it more resilient to climatic extremes. In fact, to say it more broadly, sustainable agriculture plays a role in the management of nature such as water, land, bio-diversity and air. Given this context, sustainable agriculture has the potentials to improve the health and social wellbeing of Nigerians.

6. Challenges of Sustainable Agricultural Development in Nigeria

Nigeria has tried to be sustainable when it comes to agriculture and have been successful in some aspect and have also faced some problems or obstacles. Specifically, these problems include cultivated land loss, environmental degradation, wastewater disposal and unsustainable use of pesticides. In broader terms however, the challenges faced relate to domesticating the practice of sustainable agriculture in Nigeria that would enhance the health and social life of the people is in working out ways of bringing about a society that is materially sufficient, socially equitable, and ecologically sustainable and one that is not obsessed by growth only, but motivated by satisfying human needs and equity in resource allocation and use. Such sustainable agriculture must meet economic, social and ecological challenges. All these challenges are closely related. These features of sustainable agriculture should be considered as a package, and no single feature should predominate over the others. Sustainable agriculture needs to protect the natural resource base, prevent the degradation of soil and water; conserve biodiversity; contribute to the economic and social well-being of all; ensure a safe and high-quality supply of agricultural products; and safeguard the livelihood and well-being of agricultural workers and their families. Interestingly, some of the main tools to be use to domesticate sustainable agriculture in Nigeria are policy, agrarian reform, participation, income diversification, land conservation and improved management of inputs.

Ideally, 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 developed 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. This is possible because the government is putting legislations and programs to support sustainable farming [19]. In Nigeria however, achieving a sustainable agriculture is very difficult to achieve as there are many cultural obstacles preventing the implementation of specific practices and technologies. The result has been the apparition of some agricultural community lacking the flexibility needed to positively respond to various modern agricultural practices or technologies.

7. Conclusion

In Nigeria, given widespread rural poverty and small scale farming; agriculture plays relative roles in economic development, implies sustainable economic development for the nation. The paper has shown that agricultural policies that will unleash the potentials of agriculture in the citizens' economic growth, health and social wellbeing have been developed. This is predicated on the believe that improved farming systems and new technologies and business models can create decent jobs, allow the overcoming of resource constraints, enable greater market participation, and also lessen physical hardships in agriculture. New technologies will make it possible for sustainable agriculture to become the New Nigeria Agricultural Standard (NNAS). The challenge however, remains whether there would be political will to effectively implement this policy. Without this, the progress of implementing the policy would be slow and consequently the objective for sustainable agricultural development as enshrined therein will not be met. Most importantly, good models for implementation the policies are needed that would unlock the real potential of farmers, public and private sectors in solving complex food security problems. The small farm holders and private sector will be a key player in sustainable agriculture and food systems. Good governance will be essential, including supporting farmer groups, managing risks, and deploying tools and accountability measures that foster greater private sector investment in agriculture.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that they have no conflict of interest.

References

- [1] Felix EO, Bassey EA. Agriculture Promotion Policy 2016-2020 and Rural Development in Nigeria: Challenges and Prospects, *Journal of Humanities and Social Science*. 2018; 23(2): Ver. 4-24.
- [2] Obuks AE, Banake ES. Developing a Sustainable Agricultural, Industrial, Infrastructural Thriving Nigeria: A Logic Model Approach for Development, *International Journal of Development and Economic Sustainability*. 2015; 3(6): 12.
- [3] Zaharia C. Sustainable Agricultural Development—Concepts, Principles, Eco-Efficiency, Eco-Equity, Eco-Conditioning, *Cercetări Agronomice în Moldova*. 2010; XLIII (3): 143.
- [4] Food and Agriculture Organization of the United Nations. The state of food and agriculture: Innovation in family farming. 2014.
- [5] Daniel L. Sudakin, Laura E. Power. Organophosphate Exposures in the United States: A Longitudinal Analysis of Incidents Reported to Poison Centers, *Journal of Toxicology and Environmental Health, Part A*. 2007; 70(2): 141-147.
- [6] Cristian-Marian B. Agriculture, Environment and Sustainable Development of Rural Areas, *International Journal of Academic Research in Business and Social Sciences*. 2012; 2(9): 243.
- [7] Graham DH, Gauthier H, de Barros JRM. Thirty years of Agricultural Growth in Brazil: Crop Performance, Regional Profile and Recent Policy Review. *Journal of Economic Development and Cultural Change*. 1987; 36(1): 232.
- [8] Mladen M. Ivic. Economic Growth and Development, *Journal of Process Management – New Technologies, International*. 2015; 3(1): 56.
- [9] Dim C, Ezenekwe U. Does Agriculture Matter for Economic Development? Empirical Evidence from Nigeria, *Journal of Finance and Economics*. 2013; 1(1): 61.
- [10] Adebayo O, Olagunju K. Impact of Agricultural innovation on improved livelihood and productivity outcomes among small holder farmers in Rural Nigeria. A paper prepared for presentation at the 5th MSM Annual Research conference. *Managing African Agriculture: Markets, Linkages and Rural Economic Development*. 4th September. MSM, Maastricht. The Netherlands. 2015.
- [11] Ayodele OS, Obafemi FN, Ebong FS. Challenges facing the achievement of the Nigeria vision. *Global Advanced Research Journal of Social Sciences*. 2013; 27: 143.
- [12] Nneka NN. Sustainable Agricultural Development in Nigeria: A Way Out of Hunger and Poverty”, *European Journal of Sustainable Development*. 2017; 6(4): 180.
- [13] Adesina A. Transforming Agriculture to Grow Nigeria’s Economy. Convocation Lecture delivered at the Obafemi Awolowo University, Ile-Ife by Honourable Minister of Agriculture and Rural Development. December 13. *Agriculture Promotion Policy*. (2016 – 2020); 12.
- [14] Lademerin EA, Adedeji TO. Developing an approach for a sustainable agricultural revolution: A prescription for the private and public sectors in the Southern states of Nigeria, *International Journal of Vocational and Technical Education*. 2010; 2(3): 29.
- [15] Sam IO. Achieving Sustainable Poverty Reduction and Rural Development in Nigeria through Local Economic Development Strategies. *American Journal of Rural Development*. 2014; 2(1): 15.

- [16] Grewal B, Ahmed A. Agriculture and Poverty Reduction: Literature Review and Outstanding Issues, International Workshop on the Role of Agriculture in Poverty Reduction. Centre for Strategic Economic Studies Victoria University, Melbourne. May 2011.
- [17] Oyakhilomen O, Rekwot GZ. Agricultural Production and Economic Growth in Nigeria: Implication for Rural Poverty Alleviation, Quarterly Journal of International Agriculture. 2014; 53(3): 213.
- [18] Oyeshola P. Sustainable Development: Issues and Challenges for Nigeria. Ibadan: Daily Graphics Nigeria Limited. 2008.
- [19] OECD. Building resilience for adaptation to climate change in the agriculture sector: Proceedings of a joint FAO/OECD workshop, Rome.2012.