

KOLA NUT WEALTHY NIGERIA AND THE EDUCATION CHALLENGE: ISSUES AND CONCERNS

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Abstract

Education value and utility is important for the purpose of; re-positioning the Nigerian enterprise functionality; unemployment and poverty reduction; present and future self-help projects that drive skills; economy and education sectors effectively, efficiently and profitably. The realities of the globalising economy requires children, youths and under-privileged adult Nigerians especially to acquire and utilise the knowledge attained in formal and non-formal schools and, the Federal government of Nigeria introduces, implements genuinely and emphasise entrepreneurship in the curricula of all the three tiers of education system in Nigeria for the purpose of producing empowered school-leavers and graduates to live effectively and efficiently in the present and contribute to the future in terms worth functionality and utility. Thus, this study expands on the potentials of a kola nut wealthy Nigeria and recommends that skill-innovation, knowledge-engineered technology and entrepreneurship is a sine qua non for the curricula of the Nigerian education system.

Keywords: *Education, agriculture, skill-innovation, knowledge-engineered technology, entrepreneurship*

Introduction

Kola nut is an evergreen tree that grows wild in the wet and moist zones of Nigeria, Ghana, and the Republic of Congo and in subtropical or tropical moist lowland forests of Nigeria, Senegal, Sierra Leone, Liberia, Ghana, Gabon, Ivory Coast, Democratic Republic of the Congo,

Cameroon and Benin Republic (Guardian Life, 2019; Icheke et al., 2018). The plant kola nut belongs to the family Sterculaceae. It is produced mostly in Africa and is cultivated to a large quantity with outstanding growth performance in Nigeria. Ghana, Brazil, Ivory Coast, and the West Indian Islands also cultivate kola nut (Asogwa et al., 2012). According to Asogwa et al (2012) and Food and Agriculture Organization (2021), Nigeria accounted for about 70% of the total world production of kola nut in 2011 and presently about 50.2 percent of the total world production of kola nut respectively. Likewise, Ivory Coast accounts for about 19.3 percent, Cameroon, 18.3 percent, Ghana, 9.0 percent, Sierra Leone 3 percent and, Benin 0.2 percent respectively. Annual production from these African countries alone is in excess of 250,000 tons. Kola nut is a caffeine-containing nut of the evergreen trees of the genus *Kola*, primarily with the species – *Kola acuminata* and *Kola nitida* (Burdock et al., 2009; Ndagi et al., 2012). Whilst it has been difficult to obtain information regarding the history of *Garcinia kola* (bitter kola) in Nigeria, may be because the *Garcinia kola* seed is a lesser known food plant in parts of Nigeria despite having local commercial importance however, cultivation of the tree is known and has progressed wherein it is now been planted in farms to serve as a shade tree in cocoa plantations (Farombi, 2011). *Garcinia kola* is traditionally used during ceremonial displays and as a gift to nobles, because it is believed to influence longevity, and has been used in the treatment of ailments since ancient times (Farombi et al., 2002). Also known as bitter kola, *Garcinia kola* contains various nutrients, including lipids, carbohydrates, vitamin C, proteins, potassium, calcium, caffeine and iron (NEOGRIC, 2023).

While generally Kola nut is used as a masticatory stimulant in the tropics, it has a social and a traditional significance and it used ceremonially and philosophically in many traditional ceremonies in Nigeria. It also has industrial use in pharmaceuticals, production of soft drinks, wines and in confectionaries (Asogwa et al., 2011). In Nigeria, there is a common saying that, kola is produced in the west by Yorubas, consumed in the north by Hausas and worshiped in the east by Ibos. It enjoys special favor with the people of northern Nigeria who have

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accepted the *Kola nitida* variety as a stimulant substitute for alcoholic drinks. The South easterners are more interested in *Kola acuminata*, which features prominently in most traditional ceremonies and social functions such as marriages, weddings, coronation, installation of high chiefs, and traditional rulers (Asogwa et al., 2012).

On the other hand, the seeds of *Garcinia kola* is notably the most valued product of the tree and, are commonly eaten to prevent/cure gastric disorders and for their typical astringent taste (Terashima et al., 2002). Vast evidence in literature (Icheke et al., 2018; Guardian Life, 2023; Mikstas, 2022; NEOGRIC, 2023; The Cable, 2022; Pulse, 2023) abound that bioactive components of the seeds can serve as alternative medicine to treat/prevent severe illnesses such as hepatitis, malaria, and immune-destructive diseases.

As a multipurpose tree indigenous to West and Central Africa, kola nut especially *Garcinia kola* Heckel (*Clusiaceae*), known as bitter kola is, highly preferred as one plant species germanene according to Babatunde and Hamzat (2005) to, economic, social, traditional, human health and animal-nutritive well-being. Thus, kola nut (*Garcinia kola* Heckel) is called the wonder plant because all of its parts can be used as medicine (Crichton, 2001). Despite this species' economic, pharmaceutical potential and *Garcinia kola*'s high preference by West and Central African communities, *Garcinia kola* (bitter kola) is still at the conventional beginning of its domestication process in most West and Central Africa including Nigeria (Mañourová et al., 2019). Thus, this study aims to harness the full kola nut value as an important economic cash crop to a significant proportion of Nigerian economy and population who are involved in kola farming, trading and industrial utilization and reiterates the World Health Organization (WHO) Plant and Traditional Medicine Strategy for 2014–2023 position of the potential of kola nut given its economic and health benefits especially its bio-nutritional benefits potential as a plant medicine, thus, improve population-nutritive health and animal health.

Also, amid several issues including climate change, Nigeria accounts for a below potential 70% of the total world production of kola nuts despite high kola nut demand in the tropics for its masticatory,

stimulant, social, traditional significance and the kola nut pod husk – a by-product from processing the nut – that is widely used for animal feeding because of its high nutritive quality. Thus, the need for the work.

Further, this study will advance additional knowledge, hence contributing as a useful reference material to the different stakeholders in evolving innovative approaches and enacting policies that would develop a lucrative and competitive kola nut economy for Nigeria; envelopment of excluded poor people, in a bid to make economic development, financially included growth, and poverty reduction, social and economic well-being possible whilst enhancing economic, social, traditional, human health and animal-nutritive outstanding growth performance importantly shown as in the case of broilers fed with kola nut pod husk meal diets. Thus, the relevance, need and importance of kola nut cannot be over-emphasized.

Determinants of kola nut-economic wealthy-Nigeria

Agricultural growth and productivity

Agricultural productivity is one of the major determinants of Agricultural growth and the growth of the economy at large. Agriculture was the largest contributor to the Gross Domestic Product (GDP) in Nigeria prior to the country's independence in 1960; the sector was the highest employer of labour, and also earned foreign exchange for the country (Ayanda and Ogunsekan, 2012). In 2008, agriculture's contribution to total real GDP of Nigerian Economy was 42.07 percent with the crop sector accounting for 37.5%, livestock sector accounting for 2.65%, forestry and fishery 1.37 and 0.53 percent, respectively (Central Bank of Nigeria (CBN), 2008). This implies that the crop sub-sector contributed 89.2 percent of agriculture GDP. Furthermore, agriculture provides employment for over 70 percent of the total labour force, provides raw materials for industries and for exports and, perhaps most importantly, provides over 80 percent of the food needs of the country (Adegboye, 2004; Onwuemenyi, 2008; CBN, 2008). Nigeria's agricultural performance in recent times remains inadequate and indeed

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far less than its potentials. This has largely been attributed to the problem of consistency in productivity-enhanced agriculture.

In the third world countries, most primary producers in agriculture are small holder farmers in rural areas, who in most cases lack ownership of land. Hence, agricultural production activities are mainly practiced through land lease or sharecropping. These farming systems make it difficult for these farmers to access loans or credit from formal financial institutions because of constraints like lack of collateral (Demirgüç-Kunt et al., 2008). According to the Central Bank of Nigeria, funding in the Nigerian Agricultural sector is about 2 per cent of total financing by banks (CBN 2011 NIRSAL).

It is interesting, though disturbing, to note that Sub-Saharan Africa (SSA) with its very large population and agricultural potential happens to be the poorest region in the world (Chauvin et al., 2012); and since agriculture is the major occupation in this region, the rise in production costs and consumer prices faster, and higher than the price of farm produce has adversely affected smallholder farmers' livelihoods and the agricultural sector economic wealth. Consequently, the production of notable crops such including staple, economic and cash food crops has been on the decline in many countries of SSA, and generally lags behind the rate of population growth (Chauvin et al., 2012). Kola nut production is known for its important role in food security, alleviating poverty, raw material for agro allied industries both in Nigeria and for exportation (IITA, 2002). Kola nut provides wealth for a vast population worldwide and it is one of the most important nutrient-crop in the diets of Africans.

The education utility challenge for economic-kola nut wealthy Nigeria

The Organization for Economic Corporation and Development, OECD (2009) argues that since literacy is linked to finance, accessing financial bank products such as, borrowing, saving, and spending patterns among diverse units of consumer needs, literacy cum education is important for economic growth and financial stability. Every day, human knowledge volume quadric-multiplies (Ray, 2021). This knowledge volume doubling every 12 hours is supposed to help

individuals such as the poor to acquire, understanding of concepts and risks, skills, motivation, and confidence in applying such knowledge in effective decision making across a range of economic and sustainable development contexts (OECD, 2009).

Efforts appear to favour harvesting this knowledge faster than the mind can process it for the required learning and transformation to take place. Hence, pupils, students especially among persons who lack financial knowledge and skills and undergraduates enter their respective schools as raw unemployable materials, and “graduate” being the same and unable to commercially engage selves for economic self-reliance (Eneh, 2009).

Genuine implementation and emphasis on entrepreneurship in the curricula of the Nigerian three tiers of education system for employability, enterprise-readiness and economic self-reliance for school dropouts, school-leavers and graduates of the Nigerian education system especially among persons who lack financial knowledge and skills is sine qua none to improved financial wellbeing, wealth creation and generation especially among the agricultural economic space (Eneh, 2009).

According to FME (2007), Eneh (2009) a particular goal of the Federal Government is to promote functional education for life-skills acquisition, job creation and poverty eradication. This responsibility of government is meant to ensure; every Nigerian has equal educational opportunity irrespective of gender, social status, age, religion, ethnic background, geographical location and any peculiar challenges; develops and responds to individual talents and aspirations that is relevant in terms of knowledge and skills to the needs of the Nigerian and global economy in the 21st Century; nurtures the mind and inculcates the right values and morals; motivates by promoting and providing a learner-friendly environment, incentives for students, teachers, education personnel and other stakeholders, continued professional development for all that is efficient, effective, accountable and transparent; the dissemination of education data and information

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for good governance that provides opportunities for partnering with all stakeholders an excellent global environment.

Climate change challenge

The kola nuts production industry in Nigeria is one industry greatly influenced by climate change, affecting significantly the, kola nut cash crop area under production, income fraction of farmers and its social- and philosophical-affluence in the indigenous cum local cultural life (Ndagi et al., 2012). This unfavorable consequences of climate change or climate change crisis factors affecting however, the production of kola nuts in Nigeria include; rising temperatures (Haider, 2019), irregular rainfall patterns, increase in pests attack (Taiwo, 2017; IPCC, 2022) and incidence (WHO, 2020).

Amidst these, climate-related upheavals that threaten agricultural industry export, productivity cum stability, also, hurting local economies, the overall economic growth and development at the national centre and, jeopardizing the kola nut-related cultural legacy, climate change crisis is additionally, contributing in no small way to the dwindling production of agricultural kola nut and kola nut derived products; overall unsustainability affecting; its yield, quality; challenging its agricultural production, storage, processing; posing, significant, vital connotations to kola nut Nigeria-economy as this, cultural resource faces a bleak future resulting from the combine effects of; warring climate and erratic rainfall patterns, extreme weather events-climate problems militating its production in Nigeria and putting at risk, the livelihoods of millions of farmers and the rich cultural heritage associated with kola nut in Nigeria (Bajwa, 2020; Asogwa et al., 2011; Udemezue et al., 2019). In so doing, despite Nigeria being the world's largest producer of kola nuts, the country only earns a meager sum from the export of the commodity. Similarly, only about 329 tonnes (1.9%) of the 171428.84 tonnes of kola nuts produced in 2021 was exported to other nations (FAOSTAT, 2021).

Effect of Climate change on agriculture and potential kola nut-wealth of Nigeria

Scientific evidence acquaints the rise in concentration of greenhouse gases, particularly carbon-di-oxide, in the atmosphere of the Earth's, the rise in temperature occasioned by variability in climate or climate change to, a current greenhouse gases stock-level of 430 parts per million (ppm) CO₂ or around this (in equivalent) in the atmosphere, compared to only 280ppm before the industrial revolution (Stern, 2006). This accumulation occasioned by climate change is already affecting kola nut crop yields in many countries (IPCC, 2007; Deressa et al, 2008; BNRCC, 2008). This is particularly true in low-income countries, like Nigeria where, climate is the primary determinant of agricultural productivity and where farmer, farm-production adaptive capacities are low (SPORE, 2008; Apata et al, 2009). In Nigeria, like many African countries, kola nut export and production economy especially is, largely based on weather-sensitive agricultural productions systems, particularly, vulnerable to climate change (Dinar et al, 2006).

Projected effects of climate change on kola-nut and productive agriculture

Evidence has shown that climate change as predicted by climate smart scientists may occasion, at least a 77% chance – and perhaps up to a 99% chance, depending on the climate model used – of a global average temperature rise exceeding 2°C, vis-à-vis or in tandem with the current level of accumulation of CO₂ (Stern, 2006; UNDP, 2007). This temperature rise is heating up invariably and, that may lead to a catastrophic, irreversible change in the world's agriculture and physical geography. Further, in heating up, and alterations in rainfall patterns, water levels and volumes of lakes, ponds, rivers, and streams, and the frequency of drought and storms brought about by a change in climate, drought-affected areas in Sub-Saharan Africa could expand by 60-90 million hectares, with dry land zones suffering losses of US\$26 billion by 2060 (2003 prices), a figure in excess of bilateral aid to the region in 2005 (UNDP, 2007). A case in point, for example – Lake Chad, was once one of Africa's largest bodies of fresh water, commanding, an area of more than 26,000km², making it the fourth largest lake in Africa, in

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the 1960s, has, shrunk to 1500km², only 5% of its original size, by 2000 (Eleri, 2007). This is economically significant to kola nut export and production in Nigeria as Lake Chad borders the four countries of, Cameroon, Chad, Niger, and Nigeria and supports the livelihoods of more than 20 million people especially kola nut farm production livelihoods.

Other constraints impeding wealthy-kola nut production Nigeria

Other constraints in kola nut production and wealthy Nigeria exist. These include: interspecific hybrid nut; finance and loan repayment conditions which do not take account of the long “gestation” period before kola nut tree crops begin to yield profits; market and remunerative price; scarcity and high cost of labour traceable to rural/urban labour migration and causing competition for labour with other sectors of the economy such as the industry and the other food crops production sectors; maintenance and weed control cost; government non-provision of infrastructures and supporting services and the serious difficulty of mechanization especially needed to carry out all farm operations of kola nut tree crop plantations in the tropics due to the high rainfall and difficult terrain that hamper on extensive kola nut mechanization and development (Asogwa et al., 2012; Ndagi et al., 2012; Ariyo, 2021).

For instance, interspecific hybrid nuts derived when *C. nitida* is cross pollinated with *C. acuminata* or vice versa often give rise to sterile trees when sown. Thus, the widespread interplanting of both *C. nitida* and *C. acuminata* in Nigerian kola groves over the years is believed to have given rise to a high level of unproductivity, where 75% of the fruits are produced from 25% of the trees. The result is that the national average production is as low as 250 fresh nuts per tree per hectare (Asogwa et al., 2012; Ndagi et al., 2012; Ariyo, 2021; Ndubuaku and Asogwa, 2003).

Also, institutional factors in Nigeria like: government policies and regulations related to kola nut-agriculture, such as licensing requirements, permits, and regulations on water usage and environmental impact, can significantly impede a wealthy-kola nut

production Nigeria. Invariably, favorable policies can encourage growth, while excessive regulations or lack of supportive policies may hinder the kola nut economic-industrial development (Asogwa et al., 2012; Dorji, 2022).

Access to finance and research and extension services

Further, access and availability of affordable financing options that aid investment in quality infrastructure, equipment, and better management practices, such as loans and grants, can constrain expansion and modernization efforts sine qua non to a wealthy-kola nut production Nigeria. Also, the presence of effective agricultural extension services and research institutions can provide kola nut marketers and farmers with knowledge about innovative marketing techniques, improved production techniques, disease and management optimization and other best practices particular for kola nut marketers, exporters and producers. Access to such information can lead to higher productivity and profitability (Ndagi et al., 2012; Deng, 2020).

Market infrastructure

Efficient market infrastructure, such as transportation, storage, and processing facilities, can reduce kola nut crop damage and losses either due to long-distance transportation and conduce kola nut marketers wider reach to effective customers and, potentially market-enhancing profitability to farmers (Ariyo, 2021; Eltholth, 2018).

Input supply chains

Availability at affordable price of quality kola nut production inputs directly affect production costs and overall profitability of the kola nut sub-agricultural sector. Efficient supply chains can ensure consistent access to these inputs (Ndubuaku and Asogwa, 2003; Ewepu, 2019).

Technical assistance and training

Training programs and workshops organized by agricultural agencies, NGOs, or private companies can equip kola nut producers, marketers and middlemen with necessary skills to optimize the kola nut enterprise, manage diseases, and implement sustainable practices significant to production (Asogwa et al., 2012; Eltholth, 2018).

Access to information

Access to timely market information regarding demand, pricing trends, and consumer preferences can enable kola nut farmers make informed decisions about production levels and pricing strategies (Ndagi et al., 2012; Eyankware, 2021).

Cooperatives and farmer associations

Cooperative and farmer associations and groups can facilitate collective bargaining, bulk purchasing of inputs, and shared marketing efforts, which can lead to cost savings and improved profitability. Yet sometimes also facilitate infrastructure and utilities. This is because adequate access to utilities and infrastructures such as water resources, electricity, and other basic infrastructure can significantly impact the operational costs and efficiency of kola nut enterprise operations (Asogwa et al., 2012; Ndagi et al., 2012; Ariyo, 2021; Ndubuaku and Asogwa, 2003).

Environmental regulations

Compliance with environmental regulations is crucial for sustainable agricultural growth, kola nut wealthy Nigeria and profitable kola nut marketing enterprise and farming. Hence, regulations and practices that protect, preserve and conserve the environment and its quality are increasingly important in maintaining profitability in the long term (Asogwa et al., 2012; Ndagi et al., 2012; Ariyo, 2021; Ndubuaku and Asogwa, 2003).

Theoretical framework

The theory of Inclusive Growth

According to Vellala et al. (2014), inclusive growth involves both improved agricultural productivity performance and, poverty and inequality reduction. The theory of inclusive growth states that inclusive growth can only be achieved in an economy when all the weaker sectors of the society, of which agriculture and small-scale enterprises are inclusive, are supported and brought on the same level with other sectors of the society in terms of economic development (Kalu et al., 2018). Kakwani & Pernia (2000) in describing growth phases in an economy used the term “inclusive” to reference the contents of pro-poor growth

to mean that which empowers the poor to be involved actively and benefit from the growth process. Pro-poor growth (PPG) as defined by Kakwani & Pernia (2000) is the increase in the income proportion of agricultural production stakeholders and the poor (in other words, the growth rate of the economy is subject to incomes of the agricultural production stakeholders, the poor, women and thus should be higher than those of the non-poor altogether then, the economy will grow inclusively; and the poverty level of the economy will decline at a faster rate than it would if, all incomes had grown at the same rate).

Asian Development Bank (ADB) (2013) further enumerates that inclusive growth theory implies an economic growth that results in a wider access to sustainable socio-economic opportunities for a broader number of people, regions or countries while protecting the vulnerable, all being done in an environment of fairness, equal justice and political plurality. According to the theory, increase in gross domestic product (GDP) signifies that a society is making efforts to increase its economic development. A sustained increase in agricultural production and growth with inclusiveness in the society is best for all and thus, policies for inclusive growth are pertinent components of most government strategies for enhancing sustainable growth (Commission on Growth and Development, 2008).

The Solow-Swan growth model

The Solow-Swan growth model recognises the importance of knowledge-engineered technologies in the process of economic growth. This is especially substantial in deviate uniquely from other neoclassical growth theories as an increase in the amount of raw input does not automatically result in an increase in output growth in the long-run because of diminishing returns in accumulated inputs. By continuing an improvement in knowledge-enhanced-technology development, the model can allow accumulating production function inputs over time and thus the positive rates of per capita growth can persist for long term such that these growth rates have no clear tendency to decline. Technical progress offsets the diminishing returns to capital investment that would

otherwise limit growth (Liu and Premus, 2000; Petrakos *et al.* 2007). However, the obvious limitation in Solow-Swan growth model is that the long-run per capita growth rate depends on exogenous elements – the rate of technological progress and population growth (Barro and Sala-i-Martin, 2006 and Acemoglu, 2009). Moreover, the Solow-Swan model does not explain the determinants of long-run per capita growth (Acemoglu, 2009; Barro and Sala-i-Martin, 2006; Snowdon, 2009).

The Solow-Swan growth model neoclassical theory was developed by Solow and Swan in 1956 as an endogenous type model which includes knowledge-engineered technologies, labour as a factor of production and does not assume fixed capital labour ratio (Reyes and Useche, 2019). The central point to the Solow-Swan growth model is the production function with some key assumptions on it. However, by acknowledging a constant-saving-rate rule, the Solow-Swan growth model production function (Cobb-Douglas) creates a simple general-equilibrium model in which it is impossible to achieve sustained long-run economic growth and given an economy can be stagnated at its zero-growth dynamic equilibrium (Savvides and Stengos, 2008).

Conclusion

The reality of human capital development, which is the whole essence of education and the single most critical factor in socio-economic and political transformation require yet little appreciation of the link between education and national development for the banishment of poverty, hunger and disease. There is, hence only 8% of the national annual budget and 5% of GDP allocated to education. Thus, government needs yet to awaken academic institutions such that, research agencies and personnel through research funding give birth to astonishing successes and accomplishments similar to technological institutions/institutes that are in leading global position today. This phenomenon of education-human-capital development and knowledge-enhanced skill-innovation and technological prowess is depriving our schools of the human resources required to meet development aspirations of, accomplished school-leavers, competitive economy, enriched manpower for local and foreign institutions, research agencies cum corporate organisations vital

in the industrialised mandate adequate to the potentiality of a kola nut and citizens wealthy blossoming Nigeria

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