Problems of Research and Development in Nigeria

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Abstract

Research plays an important role in the life of any country because it remains the bedrock of development. While countries zealously yearning for development invest heavily in research through adequate funding and the institutionalization of proper development policies, most countries in sub-Saharan Africa do not invest in research and development (R&D). This probably explains why Africa is underdeveloped. The world over, economies and technology are dependent on research input and output. In Nigeria however, little attention is given to research, both in policy and funding, and this accounts for the setbacks the country faces in its quest for development. This study, therefore, interrogated the factors stifling the growth of research and development in Nigeria. It suggests that unless political leaders in Nigeria invest adequately in research through funding of education, the country will continue to lag behind in its developmental quest.

Keyword: Research and development investment, adequate funding, national growth and development, Nigeria

Introduction

Innovation and technological development appear as strong economic indicators that increase both productivity and economic growth simultaneously. It is inevitable to adopt innovation activities along with technological development to compete worldwide in the era of competition and globalization. Research and Development expenditures play a vital role in innovation activities and increase productivity and economic growth. Moreover, investment in R&D is very important to achieve growth economically… Hence, it is necessary to increase R&D

expenditure to gain sustainable economic growth and to realize continuous change. (Hafeez, Syed and Qureshi, 2019: 163)

Research and development (R&D) are of utmost importance in the creation and advancement of knowledge, products, and technologies (Szarowska, 2017; Freimane and Balina, 2016; Marcelino-Jesu et al., 2017). According to the Congressional Research Service (CRS, 2019: 1), "R&D plays a central role in advanced economies in areas such as economic growth and job creation, industrial competitiveness, national security, energy, agriculture, transportation, public health and well-being, environmental protection, and expanding the frontiers of human knowledge understanding." This confirms the strong relationship that exists between research and development in advanced economies (Jones and Williams, 2000; Gumus and Celikay, 2015; Inekwe, 2015). "Consequently, countries across all regions worldwide are facing increased demand to strengthen their capacities for research and knowledge production. This demand . . . has also given new importance to national knowledge-oriented institutions, and often necessitated urgent efforts to renew systems and structures of higher education in order that countries take their place in knowledge-based societies which are both competitive and volatile" (Kearmey, 2009).

Research and development is serious business, and nations that want to move forward accord it great priority by investing a quantum of resources in research. The world over, there is much focus on R&D, especially in the era of knowledge economy (Danjibo, 2015), paving the way for innovation and scientific breakthrough in all spheres of life, leading to healthy competition among nations. Research and development is responsible for generating new ideas, production of new products and the emergence of new markets globally (Pessoa, 2010). Anyanwu (2001) noted that nations which fail to invest in research automatically fail to develop. Research paves the way for innovation, which in turn paves the way for human capital, economic, technological, and scientific development. Table 1 gives an illustration of countries that are making progress through R&D, as summarized by the Global Innovation Index (GII) and the World Intellectual Property Organization (WIPO).

Table 1: Innovation Achievers in 2019 by Income group, region and year

Economy	Income Group	Region	Years of Achievement
Vietnam	Low-middle income	South East Asia	2019,2018,2017,2016,2015,2014, 2013,2012,2011 (9)
India	Low-middle income	Central Asia	2019,2018,2017,2016,2015,2014, 2013,2012,2011 (9)
Moldova	Low-middle income	Eastern Europe	2019,2018,2017,2016,2015,2014, 2013,2012,2011 (9)
Kenya	Low-middle income	Sub-Saharan Africa	2019,2018,2017,2016,2015,2014, 2013,2012,2011 (9)
Armenia	Low-middle income	North Africa	2019,2018,2017,2016,2015,2014, 2013,2012, (8)
Ukraine	Low-middle income	Eastern Europe	2019,2018,2017,2016,2015,2014, 2012 (7)
Rwanda	Low income	Sub-Saharan Africa	2019,2018,2017,2016,2015,2014, 2012 (7)
Malawi	Low income	Sub-Saharan Africa	2019,2018,2017,2016,2015,2014, 2012 (7)
Mozambique	Low income	Sub-Saharan Africa	2019,2018,2017,2016,2015,2014, 2012 (7)
Mongolia	Low-middle income	South East Asia	2019,2018,2015,2014,2013,2012, 2011 (7)
Thailand	Low-middle income	South East Asia	2019,2018,2015,2014,2011 (5)
Montenegro	Low-middle income	Eastern Europe	2019,2018,2015,2013,2012 (5)
Georgia	Low-middle income	North Africa	2019,2018,2014,2013,2012 (5)

Economy	Income Group	Region	Years of Achievement
Costa Rica	Low-middle income	Latin America	2019,2018,2013 (3)
Burundi	Low income	Sub-Saharan Africa	2019,2017 (2)
South Africa	Upper-middle income	Sub-Saharan Africa	2019,2018 (2)
Philippines	Upper-middle income	South East Asia	2019 (1)
North Macedonia	Upper-middle income	Eastern Europe	2019 (1)

Source: GII Database and WIPO, 2019.

Whereas developed nations commit so much resources to research and development, most developing countries, especially in Africa, do not even think it is necessary to invest in research and development. This has further widened the gap between the developed and developing countries.

The Nigerian story is a paradox (Barrow, 2007). As at 2020, there were 170 universities (comprising 43 federal, 48 state, and 79 private owned) and over 50 research institutes spread across Nigeria (Statista, 2020). The number of universities had risen to 193 as at May 2021 with the approval of 20 more universities by the Nigerian government (NUC, 2021). The philosophy behind the establishment of universities was not only to provide formal education, but to also conduct research for the development of the Nigerian state (National Policy on Education, 2004; Yusuf, 2012). In the words of Afolayan (2015:63), "The overall goal of Nigerian tertiary education is the production of Nigerians that are highly skilled and who will be well prepared for the world of work, sustainable national development, and global competitiveness in terms of expertise." The research institutes were also established to conduct research for scientific improvement and development. Going by the large number of institutions, Nigeria probably has more universities and research institutes than any other country in Africa; yet compared with countries in North Africa, such as Algeria, Egypt, Libya, Morocco and Tunisia, and even ,with South Africa, Nigeria is still lagging behind in terms of R&D. What

accounts for Nigeria's under-development is not the lack of skilled professionals or the resources but the total lack of commitment to the cause. This is because research is not given the desired priority. In 1997, the first ever gathering of heads of research institutes in Nigeria attributed the failure of R&D in Nigeria to a number of reasons, which include the following (Okeke, 2007: 3):

➢ Insufficient awareness of the relevance of research and development among people and policy makers;

➢ Low priority accorded to research and development;

➢ Poor working conditions for research and development, including lack of adequate training and poor remuneration;

➢ Lack of central coordination to forestall duplicity in roles;

➢ Lack of sufficient information system;

➢ Lack of proper funding for research and development;

➢ Absence of national policy on research and development; and

➢ Lack of database on which research and development can be built.

The main purpose of this work, therefore, is to critically analyse some of the daunting challenges that affect R&D in Nigeria.

Methodology

This is a theoretical paper and it relied on secondary sources of information and desk research of published and unpublished materials such as books, journal articles, commissioned papers, and university publications including PhD theses, internet sources, and publications of Nigeria's National University Commission. Data were content-analysed using themes.

Conceptual Clarification

The two major concepts to be clarified in this study are those of 'research' and 'development'.

Research

Olayinka et al. (2006) are of the opinion that:

(1) research is 'a systematic investigation designed to develop or contribute to general knowledge';

(2) 'Research is a form of inquiry that involves seeking of evidence to increase knowledge. It involves a systematic process for recognizing the need for information, acquiring and validating that information and deriving conclusions from it.'

(3) 'Research with experimental development is a creative work undertaken on a systematic basis in order to increase knowledge, including knowledge of humanity, culture and society and the use of this stock of knowledge to device new applications.'

Research does not just stop at getting new fact and information; it extends to proffering solutions to problems and anticipated problems. It is because of the elastic nature of the word 'research' that Wana (1981) opined that the term research could be broadly defined as the process of finding the solution to a problem. Oladipo (1999: 7) is of the view that:

> . . . the culture of inquiry involves systematic investigation of phenomena — natural or social — with a view to enhancing our understanding of their nature. These investigations demand not only systematic observation of things and processes in nature and society, they also involve the use of reason to conceive of possible explanation to what we observe. Thus, the culture of inquiry is usually propelled by the pursuit of meaning. It 'involves seeking and purposeful effort' aimed at creating a better world. Research generally involves three stages, planning, investment and output. Research has to be planned for both in terms of the direction of the research and its funding; research requires both material and human capital investment; and the out-put of research must serve the needs of the environment.

Research is not an end in and for itself; it is a means to arrive at an end and the end target of research is development. Oladipo (1999) and Olu-

Owolabi (2011) have posited that for Africa to develop, it needs to imbibe the culture of both thought and scientific inquiry.

Development

The term development is perhaps as old as the human species in terms of process and progression and this is responsible for the varied definitions that abound in scholarship. However, with regards to this topic of investigation, we shall adopt a dynamic understanding of the concept as defined by Illich (1979: 206) when he wrote, thus:

> Fundamentally, development implies the replacement of general competence and abundant subsistence activities by the use and consumption of commodities. Development implies the monopoly of wage-labour over all other work. It implies the redefinition of needs in terms of goods and services produced on a mass basis according to expert design. Finally, development implies the rearrangement of the environment in such a fashion that space, time and materials, and design favour production and consumption while they degrade or paralyze use-value oriented activities that satisfy needs directly. And all such world-wide homogeneous changes and processes are valued as inevitable and good.

The World Bank (1994: 37) defined development as "improving standards of living over a long term" and part of the developmental philosophy of the World Bank, is to emphasize the strong correlation between R&D and economic growth (Helpman & Hoffmaister 2009; Samimi & Alerasoulin, 2009; Peng, 2010; Kim, 2011; Buzkurt, 2014). As apt as this definition is, it has not provided any explanation concerning the indicators of what constitutes standard of living. An elder statesman in Somalia presented five attributes of development. He noted that development is about human beings who need five basic things in life. The first is "water", because it is needed to live; without it, a plant, animal or human dies. The second is food; without enough of it, life will be miserable and short. Health is another need; otherwise people will be sick and unproductive. Fourth is education — to open new horizons and unlock new possibilities. The fifth need is peace, order and security (Danjibo, 2011; 2012).

Development must be people-centred; it must seek to improve the human person and not just concentrate on infrastructure. A nation may have good and developed infrastructure, but if there are no well-developed people to man them, such infrastructure will amount to nothing. It therefore means that the sole purpose of research and development is to improve the standard of the human person. This line of thought has been corroborated by Gould (1989: 282) who opined that:

> We work with our strength of rich diverse data recording the consequences of past events; we do not bewail our inability to see the past directly. We search for repeated pattern, shown by evidence so abundant and so diverse that no other coordinating interpretation could stand, even though any item taken separately would not provide conclusive proof.

Research and Development in Nigeria

Anyanwu (2001), has argued that institutions and countries that have failed to carry out research necessarily do so at their own developmental peril because research is the bedrock of development. Research and development in Nigeria has been a long-standing project that started right from the colonial period. Bamiro (2011) observed that the colonial development plan for Nigeria was in three phases: 1914-1945, 1945-1954, and 1955-1960. In all three stages, agriculture was the main focus of development. However, the problem with this development agenda was that it was not actually meant to develop Nigeria; but agriculture, during these periods, was to provide raw materials for the industrialization of Britain and to support Britain to execute both the First and Second World Wars.

After Nigeria gained independence from the British colonial government on October 1, 1960, it set its First National Development Plan, which was to cover the period 1962–1969. The agenda was to establish the growth of industries to reduce over-dependence on foreign goods by promoting the production of local goods. This brought about the construction of the Ajaokuta Steel Industry complex and the Kainji Hydro Electricity Dam. The Second National Development Plan of 1970-1974 was strictly meant to address the post-Civil War issues, which included the rehabilitation and construction of infrastructure like roads and energy dams. It was also meant to increase proper management of government-owned and private

companies. The Third National Development Plan of 1975-1980 had five main objectives (see Bamiro, 2011):

➢ Establish a very strong, united and self-reliant nation;

➢ Achieve a great, dynamic and prosperous economy;

➢ Promote a just and egalitarian society;

➢ Make Nigeria become a land of bright and full opportunities for all citizens;

➢ Promote a free and democratic society.

This dream was short-lived because of the coup d'état that toppled the military administration of General Yakubu Gowon.

The Fourth National Development Plan of 1980-1985 was proposed during the civilian administration of President Shehu Shagari. The plan did not materialize because the government was beset with a dwindling economy and massive corruption. Moreover, the Shagari-led government was short-lived as it was toppled by the General Muhammadu Buhari-led military junta in December 1983. That coup ended the prospect of national development plans in Nigeria until the General Sani Abacha-led military government reawakened Nigeria's development agenda in 1996 by inaugurating a 247 member committee led by Chief Earnest Shonekan to launch the Vision 2010. The committee was mandated to:

➢ Constructively analyse why after 36 years of political independence, Nigeria's development had been unimpressive despite the country's great potentials;

➢ Envision where Nigeria would like to be at the time the nation would celebrate 50 years of independence; and

➢ Develop the blue print and action plans for transforming the vision into reality.

The committee recognized that knowledge-driven economy would help Nigeria to place less emphasis on an oil-driven economy by investing in R&D. However, the death of Abacha stalled the implementation of the Vision 2010 project. Worse still, the Olusegun Obasanjo-led government

deliberately decided to kill the Vision 2010 project as a form of personal vendetta against late General Sani Abacha. It would be recalled that Abacha's military government incarcerated Obasanjo for about five years because he was implicated in the 1995 coup. This made Omotosho (cited in Bamiro, 2011: 6) to conclude that:

> The general expectation was that as soon as the democratically elected government in 1999 settled down, it would pick up the Vision 2010 Report and adopt it with any attendant modification it might wish to make and put it into use even to suit its own manifesto upon which it got its own mandate of (sic) Nigerians. Unfortunately, the administration jettisoned the Report in a rather disparaging manner. Even if the new administration did not have any respect for the initiator for whatever reasons while he was in power, this good initiative coming from him should not have been thrown away in a manner of throwing the baby away with the bath water.

This clearly shows that policy inconsistency is one of the major problems affecting development prospects in Nigeria, as successive governments do not want to continue with the projects of their predecessors, no matter the nobility and laudability of such projects. The Obasanjo administration did not come up with a clearly-defined development agenda but adopted the global United Nations agenda on the Millennium Development Goals (MDGs). Apart from adopting the MDGs, the Obasanjo administration came up with the National Economic Empowerment Development Strategy (NEEDS), a homegrown plan for developing Nigeria by improving on key social and economic indicators with the projection that by 2007, the government would have provided about 9 million jobs for its citizens; it would have provided water for 70% of the citizens; it would have provided 10,000 megawatts of electricity; it would have 65% of its citizens literate; and it would have constructed and rehabilitated 4000 roads. By the time Obasanjo left government in May 2007, the country's roads had gone from bad to worse, to the extent that his government was unable to construct 50 kilometres of roads at a stretch. Mass literacy had dropped considerably; the government retained the embargo policy on jobs to the extent that millions of Nigerian youths, including graduates were not employed; electricity generation dropped from about 3000 megawatts to less than 2,500 megawatts. Both the MDGs

and the NEEDS targets were not met, because no attention was paid to research and development.

Challenges of Research and Development in Nigeria

There are several challenges confronting research and development in Nigeria as captured by Yusuf (2012:322) when he wrote that "Admittedly, poor motivation, poor and irregular funding, obsolete research infrastructure, inadequacy of qualified research personnel, general lack of research focus and poor linkage between researchers and the industrial sector are yawning gaps in Nigeria's higher education research". This section will be devoted to analysing a few of the major challenges that impede the growth of research and development in Nigeria.

Poor work conditions

Most of the research institutes and universities in the country are in bad working condition because workshops and laboratories are dysfunctional or do not work to optimal capacity. Apart from that, a country needs adequate and constant power supply to drive its research capacity. Laboratories need constant supply of electricity to function, yet Nigeria cannot generate up to 3000 megawatts (Danjibo, 2011). Research staff and students are not able to carry out experiments because of lack of constant electricity supply and basic equipment. In most of the universities, postgraduate students have to carry out their research experiments in private laboratories or abroad because the laboratories lack the facilities and equipment needed for research. It is embarrassing to note that science laboratories in Nigeria's public universities do not have Bunsen burners; students are therefore forced to use kerosine stoves to carry out experiments that require heat. There are no cold rooms to house experiments that need cold temperature. Added to this are the lack of infrastructure such as good teaching and learning facilities, lack of internet facilities, obsolete chairs and tables, overcrowded lecture halls, and lack of basic natural elements such as water. As a newspaper editorial observed, most Nigerian university libraries lack journals, books and cannot even buy newspapers; laboratories are empty to the extent that students of Chemistry and Physics and other science fields of study have to buy pipettes, burettes and conical flasks for their experiments. Departments of Computer Sciences and Secretarial Studies lack computers (see, *Vanguard*,

Thursday, October 15, 2009, p. 34).   In this era of the Corona Virus (COVID--19) pandemic, it is needless to say that most Nigerian universities do not even have the required basic online facilities to function.

Poor funding of research

Research and development require heavy capital investment, the world over. Nations that place great priority on development know the value of extensive research and therefore, invest large sums of money on research. In 2018, the UNESCO Institute for Statistics documented some of the regional commitments to funding R&D globally as follows:

- 1.7% for the world

- 0.5% for Arab states

- 1.0% for Central and Eastern Europe

- 0.2% for Central Asia

- 2.1% for East Asia and the Pacific

- 0.7% for Latin America and the Caribbean

- 2.5% for North America and Western Europe

- 0.6% for South and East Asia

- 0.4% for sub-Saharan Africa

It is clear that sub-Saharan Africa and Central Asia invested the least in R&D, yet investing in R&D, especially in higher education, is what will make Africa meet its developmental challenges (Meek, Teichler & Kearney, 2009). Presently, according to the Congressional Research Service Report (CRS, 2019), the United States of America is the leading nation that invests in research and development, followed by China and Japan as illustrated in Table 2. However, China is adjudged to be the leading country that is investing the highest percentage of resources on R&D in the sense that it moved from less than 200% in 2000 to 1400% in 2017; far ahead of the United States that moved from less than 200% in 2000 to less than 400% in 2017. In fact, the CRS (2019) report shows clearly how the

USA declined from investing 69% in 1960 to 28% in 2017. In a related study, India's investment in R&D rose by 300% between 1960 and 1989 (Lederman and Saenz, 2005).

Table 2: Countries with the highest expenditure on R&D, 2017

Rank	Country	Amount
1	United States	$543.2 billion
2	China	$496.0 billion
3	Japan	$170.9 billion
4	Germany	$132.0 billion
5	South Korea	$91.0 billion
6	France	$64.7 billion
7	United Kingdom	$49.3 billion
8	Russia	$41.9 billion
9	Taiwan	$39.3 billion
10	Italy	$33.5 billion

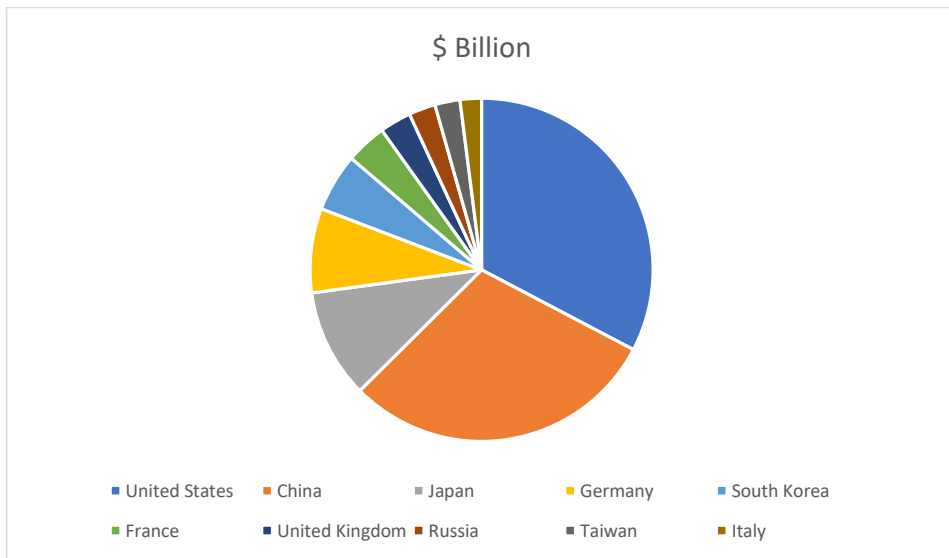*Source:* Congressional Research Service, 2019.

Figure 1: Pie chart showing different countries and their investments in R&D

Whereas developed nations are able to address and minimize their problems through research and development, the underdeveloped continue to wallow in their problems and have to rely on the developmental expertise of those that are developed. In Nigeria, funding of education, and indeed research, is one major challenge confronting both universities and research institutes. Okeke (2007:3) observed that the Nigerian government commits far less than one percent of its GDP to funding research. This was explicitly stated by the former Governor of the Central Bank of Nigeria and former emir of Kano, Sanusi Lamido Sanusi in a lecture he presented to the 42nd graduation ceremony of the Nigeria Air Force Institute of Technology when he stated:

> Overall, in the low income and developing countries, the correlation between research and economic development remains grossly remote and insignificant, compared to the cases of the industrialized economies. Research funding coupled with the issue of diversification of funding as well as the general funding of higher education remains poor across the region. In Africa, the gross domestic expenditure on research and development as a percentage of the Gross National Product continued to remain under 0.5 per cent in the past two decades. For example, while as of 2010 the average expenditure (as percentage of GDP) on research and development was 2.7 per cent ($405.3bn) for USA; 2.0 per cent ($296.8bn) for China; 3.67 per cent ($160.3bn) for Japan; 3.74 per cent ($55.8bn) for South Korea, it was 0.23 per cent ($0.910bn) for Egypt; 0.39 per cent ($0.13bn) for Uganda; and 0.42 per cent ($0.11bn) for Botswana. (Sanusi, see, *The Punch*, Thursday, July 25, 2013, p. 36)

The case of Nigeria is quite disturbing. Though a very rich country, successive governments in Nigeria have not been able to fund research with more than 0.5 per cent of GDP. Table 4 presents the amount of money released to 27 federal government universities between 1999 and 2009. The 2008/2009 academic session received the highest allocation of one hundred and five million, seven hundred and fifty-one thousand naira and 67 kobo (105,751.67). With the exchange rate of ₦150 to a dollar at that time, it amounted to $705,000 only. The *Vanguard* newspaper did an analysis of 10 years budgetary allocation to the education sector with the

caption "Scandalous Poor Funding: Education gets ₦4.57 trillion of ₦61.48 trillion budget in 10 years" (*Vanguard*, January 6, 2019, online; retrieved 14/8/2020) as illustrated in Table 3. It should be noted however, that budgetary allocations do not amount to the actual releases which are usually far less than what was budgeted. In Table 4, a study by Ikotun and Oluleye (2011) showed the paltry sums released by the Nigerian government to all the federal universities for R&D from 1999 – 2009.

Table 3: Budgetary Allocation to Education, 2010-2020

Year	Budget (₦trn)	Allocation to Education (₦bn)	Percentage
2010	5.160	249.09	7.25
2011	4.972	303.3	6.16
2012	4.877	400.15	8.20
2013	4.987	426.53	8.55
2014	4.962	493.0	9.94
2015	5.068	392.2	7.74
2016	6.061	369.6	6.10
2017	7.444	550.0	7.38
2018	9.12	605.8	7.03
2019	8.83	462.24	5.23
2020	9.00	541.0	6.70
Total	10.8		

Source: Vanguard, January 6, 2019; *Vanguard*, July 23 2020 online; retrieved 14/8/2020, updated by author.

Table 4: Government Financial Releases to Nigeria's Federal Universities for R&D

Academic Session	Appropriation (in Naira)	Amount Released	Difference
1999/2000	10,507.39	11,831.93	+1,324.54

2000/2001	33,788.94	30,143.00	-3,645.94
2001/2002	31,844.32	32,646.41	+802.09
2002/2003	33,778.32	30,351.48	-3,426.84
2003/2004	34,411.32	34,203.05	-208.27
2004/2005	53,024.65	53,466.29	441.73
2005/2006	62,215.63	58,275.97	-3,939.66
2006/2007	83,376.69	82,376.68	-1,000.01
2007/2008	90,565.26	90,565.26	00
2008/2009	105,751.67	105,751.67	00

Source: Ikotun and Oluleye, 2011.

In 2012, both the Nigerian government and the Academic Staff Union of Universities (ASUU) set up a needs assessment team for all federal universities in Nigeria. The report of the team found that it would require about ₦800bn ($500m) to revamp university education in four years. From Table 5 below, Nigeria ranks 25 out of 32 listed countries and with available data for 2007 only. The non-availability of expenditure data from 2008 to 2017 suggests that the country is not even interested in keeping records of R&D expenditure.

Table 5: R&D Expenditure % of GDP of African Countries

Rank	Country	Value	Year	Rank	Country	Value	Year
1	South Africa	0.82	2016	17	Mozambique	0.34	2015
2	Kenya	0.79	2010	18	Chad	0.32	2016
3	Senegal	0.75	2015	19	Sudan	0.30	2005
4	Morocco	0.71	2010	20	Mali	0.29	2017
5	Burkina Faso	0.67	2017	21	Zambia	0.29	2008
6	Egypt	0.61	2017	22	Togo	0.27	2014
7	Ethiopia	0.60	3013	23	Eswatini	0.27	2015

8	Tunisia	0.60	2016	24	Seychelles	0.22	2016
9	Gabon	0.58	2009	25	Nigeria	0.22	2007
10	Botswana	0.54	2013	26	Uganda	0.17	2014
11	Algeria	0.53	2017	27	The Gambia	0.13	2011
12	Tanzania	0.53	2013	28	Burundi	0.12	2011
13	D.R. Congo	0.41	2015	29	Cote d'Ivoire	0.09	2016
14	Ghana	0.38	2010	30	Cape Verde	0.07	2011
15	Mauritius	0.36	2017	31	Lesotho	0.05	2015
16	Namibia	0.34	2014	32	Madagascar	0.01	2017

Source: UNESCO Institute of Statistics (http://uis.unesco.org/retrieved 6 August, 2020); https://www.indexmundi.com/facts/indicators/GB.XPD.RSDV.GD.ZS/rankings/africa

However, according to Nigeria's Federal Ministry of Education, from 2009 to 2013, the Nigerian government, through the Tertiary Education Trust Fund (TETFUND) released the sum of ₦94,129, 572.348 for Capital Projects, Direct Teaching and Laboratory for Cost (DTLC), and Teaching and Research Equipment (T&RE) purchases as shown in Table 6. This money was meant to service all federal universities. Table 7 depicts the amounts budgeted, appropriated and actual releases by the Nigerian government to the Nigerian universities for capital and recurrent expenditures and other services between 1990 and 2008.

Table 6: Capital Allocation to Nigeria's Federal Universities through the National Universities' Commission 2009-2013

Year	Amount (N)	DTLC (N)	T&RE (N)	TOTAL (N)
2009	9,995,998,748.00	1,682,342,021.00	1,114,832232.00	12,793,173.001
2010	20,429,524,442.00	1,755,380,165.90	1,448,568,035.78	23,633,472.624
2011	15,670,146,988.00	1,813,954,489.00	784,317,293.00	18,268,418,770
2012	17,450,657,390.65	1,656,405,306.00	1,026,920,375.96	20,133,983.073
2013	15,960,779,622.00	2,147,779,881.00	1,191,920,377.00	19,300,479.881
Total	79,507,107,171.43	9,055,861,862.90	5,566,558,313.74	94,129,527.345

Source: Federal Ministry of Education, 2014.

Table 7: Federal Government Allocations to Universities, 1990-2008

Year	Budget (Billion)	Amount Appropriated	Amount Released
1990	1,216.6	748.3	734.8
1991	1,453.3	779.3	783.8
1992	3,663.2	2,989.0	2,985.2
1993	5,075.9	4,532.2	3,801.5
1994	7,342.9	5,469.3	4,370.9
1995	11,328.5	6,392.6	6,056.8
1996	12,442.7	7,535.6	7,535.6
1997	15,820.2	7,059.2	5,348.2
1998	22,767.5	8,196.5	9,798.4
1999	40,884.1	10,507.4	11,831.9
2000	65,580.0	33,788.9	30,143.0
2001	68,911.8	31,844.3	32,646.4
2002	62,155.5	33,778.5	30,351.5
2003	78,762.1	34,411.3	34,203.1
2004	216,622.7	53,024.6	53,466.3
2005	—	62,215.6	58,276.0
2006	—	82,376.7	82,376.7
2007	—	90,565.30	90,565.3
2008	—	105,751.7	105,751.7

Source: Bamiro, 2012.

Financing education has never been on the priority list of the Nigerian government. Apart from the regime of former President Shehu Shagari which, in line with UNESCO's recommendation, devoted about 26 percent of the national budget to education, and the regime of General Abdulsalam Abubakar which devoted 11 percent, all other successive governments have devoted less than 10 percent of the budget to education at all levels; this includes primary schools, secondary schools, colleges of education, polytechnics, research institutes and universities. During the Obasanjo administration, budgetary allocation to education experienced a steady decline from 8.36% in 2000, 7.0% in 2001, 5.9% in 2002, to 1.83% in

2003 (see, *Nigerian Tribune*, October 30, 2003, p. 12). Table 8 shows how Nigeria is lagging behind compared to some sub-Saharan African countries.

Table 8: Budgetary Allocation to Education in Some Selected African Countries, 2012-2016

Year	Republic of Benin	Botswana	Kenya	Nigeria	South Africa	Tanzania
2012	25%	27%	21%	10%	19.0%	17%
2013	22%	10%	26%	8.70%	18.10%	17.60%
2014	27%	27%	22%	10.63%	18.40%	17.20%
2015	27%	28%	22%	9.50%	18.60%	17
2016	27%	28%	22%	8.44%	19.10%	16

Source: Ololube (2016).

Instability in academic calendar

Perhaps, there is no country, the world over, where the academic calendar suffers more disruption which ultimately has a negative effect on research and development than in Nigeria. Nigerian universities are beleaguered with incessant strike actions leading to a large number of man-days and man-hours being lost. Ayelari (2017:82) found that the total number of man-days and man-hours lost by Nigerian universities to strikes embarked upon by the Academic Staff Union of Universities (ASUU) between 2009 and 2013 were 356,473 and 2,851,784 respectively. The Academic Staff Union of Universities has embarked on several strikes to demand better conditions of service and learning environment in Nigerian universities (see Egbokhare, 2001; Fashina, 2001). Other unions too have embarked on strikes to demand mainly better conditions of service. Table 9 presents the number of times ASUU went on strike between 1992 and 2009.

Table 9: Strikes Embarked upon by ASUU

1992	May-June 1992	Two Months
1996	March 8th 1996	A day
1996	April 9th Oct. 29th 1996	Seven Months
1998	September, 1998	-
1999	Sept. 5th – December 1999	Four Months
2001	April 2nd – May 6th 2001	Five Weeks
2002	Dec. 29th 2002 – Jan. 18th 2003	Three weeks
2003/2004	-	Six Months
2006	April 25th – 27th 2006	Three days
2007	March – June 2007	Three months
2009	May 18th – June 1st 2009	Two weeks
2009	June – Oct. 2009	5 months
2010	-	Five Months/7days
2011/12	-	Three Months
2013	From July 10- December	Six Months
2016	-	Seven days
2017	-	One month/6days
2018	November- December	Two months
2020	February till date	Into the 7th month

Source: Compiled by the author, and cf. also *The Punch*, Friday August 28, 2009, p. 33. Vanguard, January 6, 2019, online; retrieved 14/8/2020

Inadequate remuneration for academic staff

Psychologists of the workplace believe that there is a strong correlation between staff motivation and quality of work output. Workers who are properly motivated tend to work harder to produce good results while those who are poorly motivated lose interest in the work. Compared with the resources and wealth of Nigeria, university workers are still among the least paid in the country, or when compared to their counterparts in other parts of the world. Table 10 gives an insight into the salary differentials of political office holders and academics, with the latter receiving a ridiculously low salary. It should be noted that the naira as at 2020 has further been devalued, exchanging for ₦509 to a dollar, which suggests that the purchasing power of an academic staff, and indeed all Nigerians, who are dependent on salaries is low.

Table 10: Comparing Emoluments of Civil Servants and Academics in Nigeria

S/N	Offices/Positions	Current Wage in Naira (N)	Dollar equivalent as at 2008 ($)
1	Professor (at the bar)	525,010.00	1, 300
2	Local Government Councillor	1,129,647.92	7,060.300
3	Local Government Chairman	1,154,324.60	7, 201, 453
4	Ministers, SGF, Head of Civil Service, Chairmen of Boards	2,659,650.00	16, 602, 281
5	Justice of the Court of Appeal, Chief Judge of the Federal High Court, Chief Judge of the FCT, President National Industrial Court, Chief Judge of the State	2,743,716.50	17, 104, 820
6	Justice of the Supreme Court, President of the Court of Appeal	3,406,026.25	21, 208, 776
7	Chief Executive of Parastatal Agencies and Government Companies, Permanent Secretary, Executive Secretary (e.g. NUC Auditor-General of the Federation, Director General	1,885,742.81	11, 708, 589

S/N	Offices/Positions	Current Wage in Naira (N)	Dollar equivalent as at 2008 ($)
8	Special Advisers to the President	1,902,742.81	11,809, 213
9	Vice Chancellors	1,833,333.33	11, 405, 833
10	Member, House of Representatives	2,991,666.67	18, 609,791
11	Senators	3,066,666.67	19,166, 666

Sources: National Salaries, Income and Wages Commission, the Presidency, Abuja; Budget Office of the Federation; Ministry of Finance, 11 December 2008.

Poor remuneration accounts for the massive brain drain of scholars who are forced to leave the country in search of greener pastures in other parts of the world. Table 11 depicts clearly the remuneration of university academic staff members in six African countries. From the table, it is obvious that the academic staff members in South Africa are the highest paid while those in Nigeria are the least remunerated. If you compare Tables 10 and 11, the value of what a Professor earns in Nigeria has further depreciated by close to $300. The Academic Staff Union of Universities (ASUU, 2009) attributed academic brain drain to poor remuneration when it wrote:

> The need to make conditions of service — salary and non-salary, attractive enough for Nigerian scholars to stay at home even though they are not doing as well as they would do if they were in Europe and America, was the major reason the negotiating committee agreed and even insisted that Nigerian academics should be paid the African average, i.e. the level of remuneration close to what obtains in the African countries to which Nigerian academics emigrate.

Table 11: Comparison of the Salaries of Academic Staff Members in Selected African Countries in USD

Country	Lecturer	Senior Lecturer	Professor
South Africa	15,000	30,000	55,000
Zimbabwe	12,000	24,000	48,000
Ethiopia	3,600	4,800	6,000
Kenya	3,600	4,500	5,400
Ghana	1,800	3,000	4,800
Nigeria	222	736	1,052

Source: Compiled by the author.

Conclusion

Research is the scientific quest for meaning and there is a strong link between research and development. However, research and development require enormous resources to pursue. While developed nations accord it high premium by investing in it heavily, developing and underdeveloped nations do not see the need to invest in research and development. In the case of Nigeria, it is obvious that successive leaders have not, and, in fact, are not willing to invest in education. Investing in research and development is relegated and neglected, to the extent that universities, polytechnics, and research institutes are becoming less and less productive and efficient. However, until the Nigerian government places greater priority on research, the country will continue to face problems in its quest for development.

Recommendations

➢ Funding and investing in higher education must be a priority of the Nigerian government and corporate institutions. If government invests heavily in R&D in higher education, it would have the moral right to set innovative targets for technological development for the higher

institutions and institutions that are not able to live up to expectation could then be scrapped.

➢ A policy on national content should be applied to the tertiary institutions, most especially the universities and polytechnics, whereby they are forbidden to give contracts that can be executed by students and staff of faculties and departments of the institutions. Is it not ridiculous to give a building contract out in a university that has a faculty of engineering? Such contracts should be domiciled in the university so that the students improve on their practical skills while the university also generates or saves resources. It is also a contradiction for universities not to be able to generate their own resources such as electricity, water and laboratory equipment.

➢ Nigerian universities and polytechnics should embark on exchange programmes with notable institutions, both within and outside the country, for knowledge and skills acquisition, while efforts are geared towards the development of home-grown technologies. For example, there is a wealth of technical skills in Ikeja Computer Village in Lagos, Alaba Market in Lagos, in the garment and shoe industries in Aba Market in Abia State, the leather industry in Kano, the arms industries in Nnewi in Anambra State, Innoson Motors in Enugu and so on and so forth. In terms of technological acquisition, collaboration with such institutions such as the Massachusetts Institute of Technology (MIT) and other notable technological agencies would be helpful.

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