

## **Enhancing Research Institutes' Development through Adequate Funding in Nigeria**

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### **ABSTRACT**

*This paper discussed the importance of providing adequate budgetary allocation for the administration of various research institutes in Nigeria. Secondary data were used in the paper. The data were collected from both print and online publications. The paper concluded that adequate funding of research institutes in Nigeria will lead to availability of adequate funds for implementation of research programme, employment of more research officers, development of infrastructure, improvement of capacity building of researcher officers, increment in research publication, preventions of brain-drain in the institutes, conducting of cut edges intensive research and aid socio-economic and technology development in Nigeria. In order to increase the funding of the research institutes in Nigeria, the paper hereby recommended that government should appreciate the roles and importance of research in national development and increase the funding of research institutes by implementing UNESCO 1% recommendation for research development in Nigeria.*

### **Introduction**

Research have been recognized as key to the socio-economic development and technological advancement globally. Research has the capacity to spine development in all aspect of country's development. Akinwale, Ogundari, Olaopa, Siyanbola (2012) submitted that it is no longer news that Research and Development (R&D) does not play a simple role in the development of a country. The world leaders as well as the emerging economies have engaged in various in-depth R&D activities which enabled them to continuously improving the standard of living of their citizens and protecting them against terrorism/war. In three decades, Korea was able to achieve what it took more than a century for the Western industrial countries to accomplish as a result of rigorous efforts concentrated on R&D and innovation. Advanced countries like UK and United States emerged from an agrarian economy into an industrial superpower in the 19th and 20th century respectively as a result of serious investment in R&D. Akinwale, et al (2012) and Kim (2011) stated that one of the most efficient methods to raise competitiveness in an economy for continuous economic growth emanates from R&D activities. R&D involves both absorbing existing knowledge created from outside the country as well as creating new knowledge directly. The critical role of technology and innovation suggests why the developed and emerging



countries must continue to increase their spending on R&D activities.

Given the contribution of research and development (R&D) to productivity, growth and economic performance, it is generally agreed that governments have a role in encouraging appropriate R&D levels and expenditures (Akinwale, et al 2012; OECD, 2003). Nigeria like other countries have established many research institutes with the aims of conducting research for the development and advancement of social, economic and technological development.

For the past decade now, many of these research institutes have been faced with many challenges. Yusuf (2012) noted that 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 while Babalola (2014) observed that most research institutes in Nigeria are underfunded. These constraints constitute serious limitations to the research capacity and research capability of these institutions.

Funding of research institutes in Nigeria have been below the UNESCO 1% of total gross domestic product of the year. The federal and state government have been the major sponsor of public research institutes in Nigeria. The private sector contribution is small and alternatives sources of funding are not fully explored. Akinwale, et al (2012) noted that an average of 70% of the national R&D fund comes from the industrial sector in virtually all the selected countries as against 0.2% in Nigeria based on the available data. This shows that the level of contribution of the industrial sectors towards the research and development is very poor in Nigeria.

### **Statement of Problems**

Government provides bulk of the research fund to research institutes in Nigeria, but this fund is inadequate and irregular. Lower cadres of the researchers in the research institute under study are most affected in term of funding (Babalola (2014)). Research funding is capital intensive. Unfortunately not much funds have been provided for research in Nigeria by the government compared to other countries of the world (Yusuf, 2012). Ogunode eta l (2021) submitted that inadequate research fund is a major problem facing research programme in the Nigerian public institutions. The budgetary allocation for the administration of research programme is not adequate. Globally, adequate funding have been accepted as a major key to the development of research. Adequate Funding is pillar to the realization of research objectives. It is against this background, that is paper discusses the importance of funding research institutes adequately in Nigeria.

### **Conceptual Clarification**

#### **Concept of Research Institute**

Research institutes are institutions established purposely for the execution of research activities. Research institutes are organization saddled with the responsibilities of carrying out research for the advancement of technology and other related social, political and economic issues. The main purpose of Research institutes in Nigeria according to fatherprade (2022) is to carry out research. Thus, research institutes in Nigeria improve and increase the knowledge available about the specific research project as well as broaden the possibilities of how to utilize that knowledge to the best advantage. Although the research institutes in Nigeria are often overlooked to be focused on nature science, there are also many research institutes in the Art/Humanities and Social Science as well, especially for sociological and historical research purposes (fatherprada, 2022).

Research Institutes in Nigeria are formidable institutions and are relatively autonomous, although they are often in resource-dependent relationships with these organizations, funding may come from government sources as well as significant external funding, but research

institutes in Nigeria attempt to maintain their research freedom and usually claim not to be beholden to specific interests (fatherprada 2022).

Roles of Research institutes in Nigeria according to fatherprada (2022) includes; research institutes are crucial partners for supporting the innovation activities of businesses, especially SMEs. Research institutes in Nigeria provide important impulses for the development of new products and cooperate in nearly every stage of the innovation process. Research institutes in Nigeria help to create or expand the curriculum of social or scientific methodology. Research institutes all over Nigeria are part of an active community of institutions that share values, foci, and missions.

These are the 69 Research Institutes in Nigeria and they include

(1) Agricultural Research Council of Nigeria (ARCN) (2), Agricultural Rural Management Training Institute (ARMTI), Ilorin, (3) Animal Health Research Institutes (4) Animal Production, Fisheries and Oceanography Research Institutes, (5) Arable Crops Research Institutes, (6) Center for Energy Research and Development, (7) Centre for Energy Research and Training, (8) Centre for Management Development, (9) Cocoa Research Institute of Nigeria, Ibadan (10)Energy Commission of Nigeria (ECN) (11), Federal College of Freshwater Fisheries Technology, New Bussa (12)Federal Institute of Industrial Research (FIIRO), Oshodi, Lagos, (13) Federal Ministry of Agriculture (14) Federal Ministry of Science and Technology (FMST), (15), Federal Ministry of Water Resources (16), Forestry Research Institute of Nigeria (FRIN), Ibadan (17) Forestry, Horticulture and Tree Crops Research Institutes (18) Institute for Advanced Medical Research and Training, (19) Institute for Agricultural Research (IAR), (20) Institute of Agricultural Research & Extension Services, ABU, Zaria (21)Institute of Agricultural Research & Training, Obafemi Awolowo University, Ibadan (22) Institute of Archaeology and Museum Studies, (23)Institute of Chartered Chemists of Nigeria (ICCON), (24) Institute of Child Health (25) Institute of human virology, (26) Institute of Operations Research of Nigeria (INFORN), (27)International Institute of Tropical Agriculture (IITA), (28) International Livestock Research Institute (29) Lake Chad Research Institute (LCRI) (30) Medical research institutes in Nigeria (31)National Agency for Food and Drug Administration and Control (NAFDAC) (32)National Agency for Science & Engineering Infrastructure (NASENI), Abuja (33)National Agricultural Extension Research and Liaison Services (AERLS) (34) National Animal Production Research Institute, Zaria (35) National Center for Agricultural Mechanization(36) National Center for Energy Research and Development(37) National Center for Technology Management(38) National Centre for Genetic Resources and Biotechnology (NACGRAB) (39)National centre for Technology Management (40) National Cereals Research Institute (NCRI) (41) National Horticultural Research Institute (NIHORT) (42), National Institute for Pharmaceutical Research and Development (NIPRD) (43)National Institute of Freshwater Fisheries Research, New Bussa(44)National Institute of Pharmaceutical Research and Development (NIPRD) (45) National Research Institute for Chemical Technology (NARICT) (46) National Root Crops Research Institute, (47)National Space Research and Development Agency (NASRDA),(48)National Veterinary Research Institute (NVRI, (49)Nigeria Institute of Science Laboratory (NISLT),(50) Nigerian Academy of Science, (51), Nigerian Building and Road Research Institute (NBRRI), (52), Nigerian Educational Research and Development Council, (53) Nigerian Institute for Oceanography and Marine Research (NIOMR), (54), Nigerian Institute for Oil Palm Research (NIFOR), (55) Nigerian Institute for Trypanosomiasis Research (NITR), (56), Nigerian Institute of Food Science and Technology, (57), Nigerian Institute of Medical Research (NIMR), (58),Nigerian Institute of Social and Economic Research (59) Nigerian Stored Products Research Institute (NSPRI),(60) Projects Development Institute (PRODA) (61),Raw Materials Research and Development Council (RMRDC), (62), Research Institutes

organisations in Nigeria (63), Rubber Research Institute of Nigeria (RRIN) (64), Scientific Equipment Development Institute (SEDI-E), (65), Sheda Science and Technology Complex (66), Social Sciences Academy of Nigeria(67), Sokoto Energy Research Centre (SERC(68), The Nigerian Institute of Medical Research and (69) Unilorin Sugar Research Institute (USRI).

### **Concept of Adequate Funding**

The availability of funds plays a significant role in determining the provision of quality research programme in the various research institutes at all levels. The quantity of funds made available during budgeting will go a long way in improving on the quality of research programme in the various research institutes in Nigeria. Adequate funding will be of importance in the advancement of science and technology in Nigeria.

The government is one of the major sponsors of research in most countries of the world. Funding of research programme is one of the major functions of the government at both the federal and state levels. This is done through the preparation of annual budget for meeting the needs of the various sectors of the economy including ministry of science and education. Similarly, the private institutions also supported the funding of research programme in higher institutions. Zeleny (1992) noted that the world over, funds for research come primarily from governments and business firms. Others include foundations and professional societies. In some countries, funding of research is a collaboration effort with governments, bilateral and multilateral agencies and tertiary institutions working together in projects of interest. Adesomoju (2008) submitted that the U.S. Federal Government alone spends 2.284 billion dollars to support research in U.S. Colleges and Universities, while industries provides about 2.188 billion dollars in one year to support research.

Research funding is critical to the ability of research institutes and tertiary institutions to conduct research in the first place, and ultimately to the quality and impact of this research. Most research activities in Nigeria are sponsored by government through government funding agencies like the National Science and Technology Fund (NSTF), the Education Trust Fund (ETF) etc, as well as a number of federal/state ministries, boards and parastatals which directly fund researching institutions or research projects under them (Yusuf 2012). In addition, research projects are occasionally funded by international and philanthropic organisations by way of sponsored research support, endowment funds, foreign aids, fellowships, donations, etc. Unfortunately, there is virtually no industry involvement in funding academic research in Nigeria (Yusuf 2012; Donwa, 2006).

In Africa, research institutes and the universities are among the most important institutions for the development of science and technology (S&T), and they consume a significant amount of national resources devoted to research (Yusuf 2012; Alo, 1995). Funding is unquestionably the most critical factor in development research in the research institutes and universities globally. In Nigeria, the NPST has recommended 5% of GNP be set aside for research, but Nigeria's federal university system is said to spend only 1.3% of its budget on research (Yusuf 2012; Harnett, cited in Saint *et al.*, 2003) and less in the various research institutes.

### **Methodology**

This paper discussed the importance of providing adequate budgetary allocation to the various research institutes. Based on this problem, we adopted content analysis method for the selection of research literatures for the paper. Both primary and secondary data were used. The data were collected from online publications and print materials. The data research site employed for data sourcing include CEON, Elsevier, Hindawi, JSTOR, IEEE, Learn Techlib SAGE, Nebraska and Springer. The researchers considered literatures papers on research institutes in Nigeria and outside the country. More than sixty literatures were collected. With the use of content analysis

method, the literatures were reduced to 35 that actually have concepts to do with the current paper. The literatures were given to researchers to further work on them before arriving in the final list of literatures that was used for the paper.

## **Discussion**

There are many advantages in providing adequate funds to the various research institutes in Nigeria. Adequate funding of research institutes in Nigeria will lead to availability of adequate funds for implementation of research programme, employment of more research officers, development of infrastructure and facilities, improvement of capacity building for researcher officers, increment in research publications, preventions of brain-drain in the institutes, conducting of cut edge intensive research and aid socio-economic and technology development in Nigeria.

### **Availability of Adequate Funds for Implementation of Research Programmes**

Adequate funding of research institutes in Nigeria will lead to availability of adequate financial resources in the various research institutes to carry out their research mandate. Funding is key to the development of research programme, so more funds mean more development in the various research institutes in the country. The realization of the objective of research programme in research institutes depends to some extent the availability of funds. Stable internet services, electricity, water supply, gas and modern laboratories, workshops, research apparatus can be guarantee through adequate funding of institutes. Studies by Akin (2013) showed that adequate funding of research institutes in Nigeria can guarantee development. Ola (2025); Ojo (2014) and Ogunode, & Akimki (2023) noted that availability of funds in the various research institutes will enable effective administration, procurement of human and materials resources for the implementation of research programme.

### **Employment of Professional Researchers**

Declining research productivity in the Nigerian university system is attributable to the following constraints among others: poor and irregular funding, declining research infrastructure, poor research motivation, rising workloads associated with deteriorating staff/student ratio, which leave little time for research, lack of research skills in modern methods, inadequate research personnel and frequent industrial actions (Yusuf, 2012). Adequate budgetary allocation to the various research institutes in Nigeria will enable research administrators of different research institutes employ more research officers. It has been observed that many public institutions including research institutes in Nigeria are understaffed and this has affected the administration and operation of some of the research institutes across the country. Musa (2013); Abubakar (2014) and Ogunode (2017) noted that adequate funding in the research institutions will enable heads of research institutes employ more research officers in their various institutes.

### **Facilities Development**

The availability of fund is very important in the provision of implementation of research programme and activities in various research institutes. More funding will help the research administrators in research institutes in providing more facilities such as laboratory facilities, libraries and research materials. Available facilities will also be provided based on modern development while obsolete facilities will be discarded. This means that the higher the level of funding, the more the infrastructures that will be provided for the conduct of researches. Akinwale, et al (2012) recommended that Nigerian government should also ensure that the approved STI policy is fully implemented so as to bridge the gap between the educational sector and the industrial sector. If this policy is well implemented, the national system of innovation of the country will be strengthened and there will be improvement in the developmental experiment research conducted and funded. This will also make the nature of research that will be carried out in the educational sector relevant and significant in the industry.

### **Effective Capacity Building for Researchers**

The problem of poor capacity building programme in the various research institutes across the country will be solved with adequate funding. Ogunode (2023) have identified poor training and retraining programme as one of the major problems in some research institutes in Nigeria. This problem of poor training of research officers can be linked to poor funding of the institutes in the country. Kunle (2015) noted that adequate funding of the various research institutes in Nigeria will help to tackle the problem and improve welfare of the research officers. Chiemeké *et al.* (2009) and Yusuf (2012) opined that the foundations for research are good research training and motivation, availability of equipment and good library facilities. By their professional calling, academics in Nigerian universities have the mandate to do research – but there is need to raise the present level of research funding and improve on research motivation for effective performance. It is not only career advancement and payment of salaries that motivate academic staff to embark on research. Providing a conducive research environment, giving them opportunity for further (professional) training by way of scholarships, fellowships, sabbaticals etc and recognising and rewarding outstanding performance/result are perhaps more important. In South Africa, for instance, there are incentives for rated researchers for carrying out quality research, for publications and for postgraduate supervision, while still extending some support to non-rated researchers (Yusuf, 2012; Afolayan, 2009).

### **Increment in Research Publications**

Some research officers are spurred to raise money individually to fund research in order to satisfy the need to publish instead of perishing or stagnating. Therefore academic staff finds personal funding as a potent source of research funding to be accessed in order to meet up the demand for promotion and professional growth. This is evident in the use of such publications for assessment of research officers for promotion. Bako (2005) and Akpochofo (2009) observed that the bulk of University research in Nigeria has been self-funded by graduate students, staff-in-training and academic staff who is poorly paid and that over 80% of research funding has been from salaries. Provision of adequate funds to various research institutes in Nigeria will lead to more accessibility to research funds for the research officers to publish their various research findings. Low research publications have been identified as a major challenges research officers in Nigeria are facing. Ayoola, & Abdullahi, (2011) identified the factors causing setbacks for research and development (R&D) in Nigeria to include low allocations of funds by government in national budget, high instability of statutory allocations, uncertainty of intervention funds, and pronounced delays and discrepancies between planned and disbursed funding allocations in both capital and recurrent budgets. Inadequate funding has therefore been ranked on top of the issues facing the country's academic and research institutions (Ragasa, Babu, Abdullahi, Abubakar, 2010). Ali (2013) in their respective studies agreed that adequate funding of research programme in the research institutions will help to solve the problem of low research publications among Nigerian researchers.

### **Preventions of Brain-drain in Research Institutes**

Brain-drain is a major problem research institutes in Nigeria are facing because of poor motivation and poor salaries. Ogunode (2020) viewed Brain-drain as the movement of professionals from developing countries to developed countries for better job offers. Brain-drain is a situation whereby professional individuals are migrating from their countries to another country to seek greener pasture. Many lecturers and researchers are leaving public universities in Nigeria to other part of African countries and Europe for a better job offer and conducive working environment. The availability of funds is very crucial in the employment of quality research officers in the institutes and motivate the researchers to stay. Adequate funding of research institutes will also guarantee effective welfare packages, allowance and benefits. This will help to reduce the problem of brain-drain. Various studies have shown that the income level

is a factor that is used to attract quality researchers. It is therefore necessary that funds should be provided to acquire this crucial human resource. This is because the presence of quality researchers will help in transmitting quality output for the advancement of the technology and social development. Most organizations in developed countries now pay workers based on performance. The payment of high wages and salaries is now used to attract quality researchers and this is based on the availability of funds.

### **Quality and Intensive Research**

When research institutes in Nigeria are properly funded to the minimum level specified by UNESCO at 1% of the annual budget, there will be an improvement in the standard of research programme in the various research institutes in Nigeria and this will increase the level of patronage by private industries and foreign organizations. This in a long run can help to improve on the image of Nigerian research institutes and increase the country's Gross Domestic Product (GDP). Proper funding of research institutes will aid development of research programme in Nigerian research institutes. Akinwale, et al (2012) concluded that for Nigeria to achieve macroeconomic development and assume its rightful position among the committee of emerging economies, it needs to reorder its priorities by committing more funds to R&D activities to meet UNESCO standards of having at least 1% of GDP committed to R&D as well as creating a National R&D Fund (Siyanbola, 2011). South Africa spends 8.5 times more on R&D than Africa's most populous country, Nigeria. As a result of few or no R&D activities in the business sector in Nigeria, it is assumed that government and higher education sector performed 35.1% and 64.9% of the national R&D respectively (Akinwale, et al 2012; AIO, 2010). Also, government provides funds up to the 96.4% for national R&D while the business sector and higher education only provides 0.2% and 0.1% respectively. Titus (2014); Faith (2014) and Abu (2016) remarked that provision of funds to the various research institutions will help research officers to carry out quality cut edge research with great impact to the socio-economic, political and technological advancement.

### **Economic Development**

Adequate investment in the various research institutes in Nigeria can lead to the advancement of technological development. The developed countries believe in research and development (R&D). Consequently, they invest heavily in it. It is the huge expenditure of developed countries such as the United States, Canada and European countries on R&D that explains their enhanced enviable level of industrialization, economic prosperity and self-reliance (Okecha, 1988). He submitted that the huge expenditure on R & D by the fast developing countries such as South Korea, India, Brazil, Taiwan, Hong Kong and Singapore explains their current grip on industrialization, economic development and self-reliance. Akinwale, et al (2012) observed that Nigeria government approved National Research and Innovation Fund (NRIF), a product of the new national STI policy but the modus operandi of the fund has not been spelt out. It is therefore necessary for government to ensure that surcharges from various sources (e.g Raw materials research and development council, Industrial Training Fund etc) towards this fund are monitored. This fund should be provided for the research institutes and any personnel that carry out R & D activities and survey that would contribute to the national development. Enabling environment and fund should also be provided for the scholars and researchers to enable them to improve the number of scientific publication of Nigeria in order to close the gap of the world economies.

### **Conclusion and Recommendations**

From the above discussions, the paper concluded that adequate funding of various research institutes in Nigeria will lead to availability of adequate funds for implementation of research programme, employment of more research officers, development of infrastructure and facilities,

effective capacity building for researchers, increment in research publication, preventions of brain-drain in the institutes, conducting quality and intensive research and aid attainment of socio-economic and technology development. It is therefore, recommended that:

1. The Government should appreciate the importance of research in national development and increase the funding of research institutes by implementing UNESCO 1% recommendation for research development in Nigeria.
2. Management of research institutes in Nigeria should explore alternatives revenue generations such as partnering with private institutions to sponsor researches.
3. Management of institutes should develop modalities for identifying and disseminating information to research officers on research funding opportunities and the conditions for accessing research grants.

### References

1. Afolayan, A. J. (2009) .Funding for Research: The South African Experience. *Paper presented at the 24th Association of Vice Chancellors of Nigerian Universities (AVCNU) Conference*, UNILORIN, June 2, 2009.
2. Akin, F. (2013) Research in Nigeria and Africa: Research and Experimental Development'. 35-76
3. Akinwale Y., Ogundari I., Olaopa O., Siyanbola W. (2012). Global best practices for R&D funding: Lessons for Nigeria. *Interdisciplinary Journal of Contemporary Research in Business* 4(2), 108-125
4. Akpochafo, W. P. (2009). Revitalizing research in Nigerian Universities for National Development. *Educational Research and Review*. 4(5), 247-251. Retrieved from <http://academicjournals.org/ERR>, July, 2009
5. Ayoola, G. B & Abdullahi, A.S (2011) Nationally financed agricultural research: A case study on Nigeria. Background paper prepared for the ASTI–IFPRI/FARA Conference, Accra Ghana, December 5 – 7.
6. Bako, S. (2005). Universities, Research and Development in Nigeria: Time for a paradigmatic Shift. A paper presented at the 11th Assembly of CODESRIA, On Rethinking African Development: Beyond Impasse: Towards Alternatives Maputo, Mozambique, 6th - 8<sup>th</sup> December, 2005.
7. Charles P. A, Ijeoma A. A & John A. U. (2009). Lecturers' Access to Research Fund in Nigerian Universities: Challenges and Strategies for Improvement.
8. Donwa, P. A. (2006). Funding of Academic Research in Nigerian Universities. A paper presented at the UNESCO forum on Higher Education Research and Knowledge creation. November 29-December 1, 2006. Retrieved from <http://portal.unesco.org/education/fr/files>, July, 2009.
9. Fatherprada (2022) list of research institutes in Nigeria.<https://fatherprada.com/info/69-list-of-research-institutions-in-nigeria/>



10. Killian C. I, & Gladys I. (2022) Research is an investment in the wellbeing of humankind: appraising the Nigerian research landscape. <https://guardian.ng/opinion/outlook/research-is-an-investment-in-the-wellbeing-of-humankind-appraising-the-nigerian-research-landscape/>
11. Musa, G. (2013). *Research Development in Nigeria*. Lagos.
12. Nworgu, B. G. (2006). *Educational Research. Basic Issues and Methodology*. Ibadan: Wisdom.
13. Ogunode N, J, Jegede D, Adah, S, Audu E, I, Ajape T, S (2020) Administration of Research Programme in Nigerian Public Universities: Problems and Way Forward. *Riwayat: Educational Journal of History and Humanities*, 3, (2), 21-32
14. Ogunode, N. J, & Akimki, I., M (2023) Addressing Challenges Facing Educational Institutions (Parastatals, Boards and Commissions) for Sustainable Educational Administration in Nigeria. *World of Science: Journal on Modern Research Methodologies* 2(1), 1.13.
15. Ogunode, N. J., & Abubakar, L. (2020) Public Universities Administration in Nigeria: Challenges and the ways forward. *International Journal of Multidisciplinary Sciences and Advanced Technology (IJMSAT)*, 1(12), 25–35
16. Okecha, S. A. (1998). *Science in Africa*. Lagos: Stirling-Holden Publishers (Nig) Limited.
17. Okebukola, P. (2004). Strategies for Stimulating Researches and Development in Nigerian Universities. *Nigerian University Chronicles* 12 (2), 17-18.
18. Okwelogu I., S, Aibe J., N. & Ogunode N. J. (2023).The Plight of Science Academics in Public Universities in Nigeria: Implications for University Administrators to Make Right Decisions For University Development and Sustainability. *Horizon, Journal of humanities and artificial intelligence*. 2(1), 1-12
19. Ola, L. B. (2012). Research Capacity in Nigerian Research Institute. *Journal of Socience*, 3(1), 12-23.
20. Ojo, B. U. (2014). Commercialization of Research Output in Nigeria. *Social Science Journal*, 2(2), 12-32.
21. Paul,. N. (2015). Research in Tertiary Institutions in Nigeria: Issues, Challenges And Prospects: Implication for Educational Managers, *Journal of Humanities And Social Science (IOSR- JHSS) Volume 20, Issue 6, Ver. I (Jun. 2015), PP 45-49*
22. Ragasa, C, Babu, S, Abdullahi, A.,S, Abubakar, B.,Y (2010): Strengthening Innovation Capacity of Nigerian Agricultural Research Organizations. IFPRI Discussion Paper 01050. IFPRI Discussion Paper 01050. International Food Policy Research Institute (IFPRI), 65
23. Saint, W., Harnett, T. A., Strassner, E. (2003). Higher Education in Nigeria: A status Report. *Higher Education Policy*, 16, 259-281.
24. Siyanbola, W. (2011) ‘Progress Report On Nigeria's National Science, Technology And Innovation Policy’. A paper Presented at: The Experts’ meeting on Science, Technology and Innovation Policy Review, May 10th.

25. Zeleny, R. O. (1992). *The World Book Encyclopedia*, 16, (pp. 233-234). London: World Book Inc.
26. Yusuf, A. K. (2012). An appraisal of research in Nigeria's university sector. *JORIND* 10 (2), pp. 98-119.
27. Thisday (2022) Economic Growth: Nigeria Must Invest \$2b in Research Yearly, Says Bogoro <https://www.thisdaylive.com/index.php/2021/02/03/economic-growth-nigeria-must-invest-2b-in-research-yearly-says-bogoro/>