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Open Educational Resources Policy for Higher Education in Nigeria

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List of Abbreviations

CC	Creative Commons
COL	Commonwealth of Learning
CVC	Committee of Vice Chancellors
FCT	Federal Capital Territory
FGN	Federal Government of Nigeria
FME	Federal Ministry of Education
ICT	Information and Communication Technology
IT	Information Technology
JAMB	Joint Admissions and Matriculation Board
NBTE	National Board for Technical Education
NCE	National Council of Education
NgREN	Nigerian Research and Education Network
NIALS	Nigerian Institute of Advanced Legal Studies
NITDA	National Information Technology Development Agency
NOUN	National Open University of Nigeria
NTI	National Teachers' Institute
NUC	National Universities Commission
ODL	Open and Distance Learning
OECD	Organisation for Economic Co-operation and Development
OER	Open Educational Resources
RENs	Research and Education Network
SC	Standing Committee
SDG	Sustainable Development Goals
TESSA	Teacher Education in Sub-Saharan Africa
TETFund	Tertiary Education Trust Fund
UNESCO	United Nations Educational Scientific and Cultural Organisation
YCT	Yaba College of Technology

Executive Summary

This report makes a case for open educational resources (OER) in Nigeria and presents a draft OER policy for higher education in Nigeria. In its simplest form, OER are any “educational resources (including curriculum maps, course materials, textbooks, streaming videos, multimedia applications, podcast, and any other materials that have been designed for use in teaching and learning) that are openly available for use by educators and students, without accompanying need to pay royalties or licence fees” (Butcher, 2011). This report comprises four sections. Section one focuses on the status of higher education in Nigeria, covering information on the education system in Nigeria and higher education; issues of access, cost and quality in higher education, as well as a few details on the National Universities Commission (NUC). Section two focuses on information and communication technology (ICT) in higher education institutions, covering the status of ICT in higher education institutions in Nigeria as well as national and international projects and initiatives in this area. With a focus on open educational resources (OER) in Nigeria, section three presents an overview of OER, including short explanations of copyright and open licensing. Some of the institutions using and promoting OER in Nigeria are also highlighted. In section four, the process of validation of the draft OER policy through a national steering committee and national consultation is described. The Appendix provides the validated National OER policy for Higher Education in Nigeria, as distributed by NUC at the 2nd World OER Congress.

The Status of Higher Education in Nigeria

Nigeria: Overview

Nigeria, referred to officially as the Federal Republic of Nigeria, is located in the West African sub-region, bordering Benin to the west, Cameroon and Chad to the east and Niger to the north. The United Nations Department of Economic Affairs (2017) in its world population prospects reported that the total population of Nigeria was 190,886,000, comprising 96,729,000 males and 94,157,000 females. The report further shows that 44 per cent of Nigerians are within the age range of 0–14, 19 per cent are 15–24 years, 32 per cent are 25–59 and four per cent are 60 or above. Nigeria's population as of 5 August 2017 was 192,306 million, a leap from the initial 45.211 million people at the time of independence in 1960 (Worldometers, 2017). It is anticipated that Nigeria will become the third largest country in the world by 2050, with 399 million people (United Nations, 2015). However, the literacy level of Nigerians is reported to be 57 per cent (National Bureau of Statistics, 2014), while the Ministerial Strategic Plan 2016–2019 (FME, n.d.) observes that more than ten million school-age Nigerian children are currently out of school and, if care is not taken, will continue to swell Nigeria's illiterate adult population. Nigeria is also multilingual and has more than 250 different ethnic groups, the three major ones being Hausa, Yoruba and Igbo. Nigeria has a federal system of government with 36 states and the Federal Capital Territory (FCT) of Abuja. Within the states, there are 744 local governments in total (FGN, 2017b).

The Education System in Nigeria

The Nigerian education system is based on the National Policy on Education document of 1977 (last revised in 2013). The policy identified the following national educational goals: a free and democratic society; a just and egalitarian society; a united, strong and self-reliant nation; a great and dynamic economy; and a land full of bright opportunities for all citizens (FGN, 2013a). To meet these goals, the Nigerian educational system is structured into three different sectors: basic education (nine years), post-basic/senior secondary education (three years) and tertiary education (four to six years, depending on the programme of study). Tertiary education is provided in colleges of education, monotechnics,¹ polytechnics and universities (see Figure 1).

The federal, state and local governments oversee the education system. The Federal Ministry of Education is charged with the responsibility of harmonising the educational policies and procedures of all the states of the federation through the National Council of Education (NCE). The NCE is the highest policy-making body in educational matters in Nigeria. It consists of the federal Minister of Education and all the state commissioners for education. It is assisted by the Joint Consultative Committee on Education, which is composed of all the federal and state directors of education, the chief executives of

¹ Monotechnics are institutions that offer instruction in single scientific and technical subjects.

education parastatals and the directors of universities and institutes of education (FGN, 2013a).

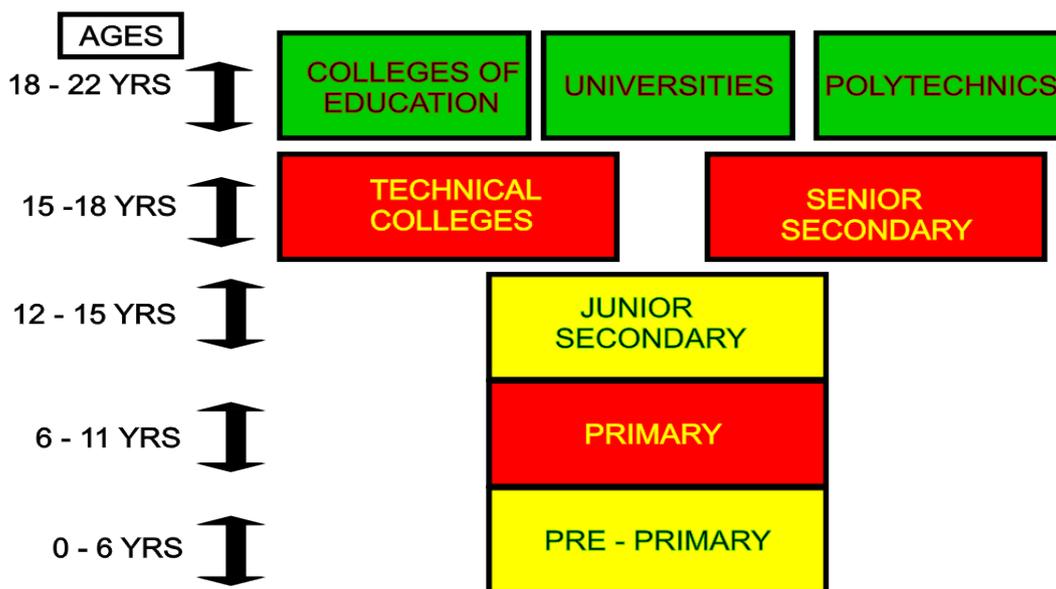


Figure 1. Structure of the educational system in Nigeria (UNESCO, 2011)

The federal Ministry of Education, established in 1988, co-ordinates national policy on education, collects data for educational planning, maintains uniform standards of education, monitors the quality of education, harmonises the educational policies and procedures of the states, develops curricula at the national level and co-operates with international agencies on matters related to education (FME, 2017). To support the implementation of policies, there are many government parastatals and institutions, including the

<p>Federal Ministry of Education, Nigeria</p> <p>Vision: To become an economic model, delivering sound education for public good.</p> <p>Mission: To use education to foster the development of all Nigerian citizens to their full potentials in the promotion of a strong, democratic, egalitarian, prosperous, indivisible and indissoluble sovereign nation under God.</p>

National Universities Commission (NUC). Each of the parastatals ensures the provision of quality education in the educational sector under its jurisdiction. The National Business and Technical Education Board, for example, administers technical and business examinations. The National Commission for Colleges of Education provides advice to the Ministry of Education and co-ordinates all aspects of non-degree teacher education. The National Board for Technical Education (NBTE) is a principal organ of the Ministry of Education specifically created to handle all aspects of technical and vocational education falling outside university education (FGN, 2013a).

Higher Education in Nigeria

Higher education systems intend to:

1. prepare the student for research and teaching;
2. provide highly specialised training courses adapted to the needs of economic and social life;
3. be open to all so as to cater for the many aspects of lifelong education in the widest sense; and
4. promote international co-operation through internalisation of research, technology, networking and free movement of persons and ideas (UNESCO, 1996).

Higher education is indeed the backbone of any society, as its quality determines the quality of human resources and development. Higher education as we see it today is a complex system facilitating teaching, research and international cooperation (Mishra, 2007). In Nigeria, higher education is provided by universities, polytechnics/monotechnics, colleges of education, as well as institutes that prepare candidates for professional courses such as accounting, law, architecture, mass communication, etc.

In terms of ownership, the Ministry of Education owns and funds 40 universities, the state governments own 44 universities, and 69 universities are privately owned. In the same vein, the federal government owns and funds 28 polytechnics; the state governments own 41, and there are currently 44 private polytechnics. The federal government owns and funds 17 federal colleges of agriculture, and the states own 19 (see Table 1).

Table 1: Ownership of Tertiary Institutions in Nigeria

Type of Institution	Federal	State	Private	Total
Universities	40	44	69	153
Polytechnics	28	41	44	113
Monotechnics	22	2	2	26
Federal Colleges of Agriculture	17	19	-	36
Colleges of Health Technicians & Allied Institutions	19	11	6	36
Vocational Education Institutes and Innovative Enterprise Institutes	-	-	140	140
Totals	126	117	261	504

Sources: <http://www.nuc.edu.ng>; <http://www.nceonline.edu.ng/colleges.php>; <http://www.nbte.gov.ng/>

Goals of Higher Education in Nigeria

The National Policy on Education (FGN, 2013a) specified that the goals of tertiary education shall be to:

- contribute to national development through high-level manpower training;
- provide accessible and affordable quality learning opportunities in formal and informal education in response to the needs and interest of Nigerians;

- provide high-quality career counselling and lifelong learning opportunity that prepare students with knowledge and skills for self-reliance;
- reduce skills shortages through the production of relevant skilled workers;
- promote and encourage scholarship, entrepreneurship and community service;
- forge and cement national unity; and
- promote national and international understanding and interaction.

Tertiary educational institutions pursue these goals through:

- quality student intake;
- quality teaching and learning;
- research and development;
- quality facilities, services and resources;
- the generation and dissemination of knowledge, skills and competencies that contribute to national goals and enable students to succeed in a knowledge-based economy;
- access to training funds such as those provided by the Industrial Training Fund (ITF) and the Tertiary Education Trust Fund (TETFund);
- the maintenance of minimum educational standards through appropriate regulatory agencies; and
- an all-inclusive, credible admission policy for national unity (FGN, 2013a).

Higher Education: Access, Cost and Quality Issues

With the vision of “education for change,” the Ministerial Strategic Plan of 2016–2019 (FME, n.d.) observes that the key issues and challenges in Nigerian higher education include:

- governance;
- equity and access;
- teacher quantity and quality;
- infrastructure;
- regulation;
- the disconnect between the higher education curriculum and workplace funding; and
- the frequency and duration of disruptions to the calendar.

The Ministerial Strategic Plan also noted that though much progress has been made in the last decade, universities in Nigeria still lag behind in the use of information and communication technology (ICT) in teaching and learning. In addition, the use of ICT for data gathering, storage, retrieval and utilisation is very low in most Nigerian universities (FME, n.d.).

The Access Issue

Every learner matters and matters equally, irrespective of age, gender, culture, language, disability or economic status. This vision of Nigeria recognises that education is a public

good, a fundamental human right that should be inclusive and equitable. However, the Ministerial Strategic Plan 2016–2019 reports that yearly, only about 17 per cent of those seeking placement in higher institutions in Nigeria are admitted. This is viewed as a significant crisis in the system that requires creative methods of resolution.

As a way of attending to this problem, additional federal, state and private higher institutions were established. Yet even with 153 universities today, there is still upsurge of applicants into university education.

The Joint Admissions and Matriculation Board

The Joint Admissions and Matriculation Board (JAMB) is the entrance examination board for tertiary-level institutions in Nigeria. The board conducts the Unified Tertiary Matriculation Examination for prospective undergraduates into Nigerian universities, monotronics, polytechnics and colleges of education.

The admission statistics from JAMB for 2010 to 2016 indicate that a total of 11,703,709 applications were received, and a total of 2,674,485 students were admitted across the 36 states and the FCT between 2010 and 2015, meaning that on average, 28 per cent of students who applied for admission were admitted across the 36 states and the FCT in a given year (Table 2).

Table 2. JAMB Admission Statistics 2010–2016

Year	Number of applications	Number admitted	% admitted
2010	1,513,940	423,531	28
2011	1,636,356	417,341	26
2012	1,632, 835	447,176	27
2013	1,924,393	463,395	24
2014	1,785,608	437,704	25
2015	1,612,247	485,338	30
2016	1,598,330	–	–
TOTAL	11,703,709	2,674,485	28

Source: National Bureau of Statistics, Nigeria

By implication, every year over a million qualified college-aged young Nigerians are left without a post-secondary education. Open and distance learning (ODL) is seen as an excellent solution to tackle this problem of access. The goals of ODL in Nigeria are to:

- provide more access to quality education and equity in educational opportunities;
- meet the special needs of employers and employees by mounting special courses for employees in the workplace;
- encourage internationalisation, especially of tertiary education curricula;
- ameliorate the effects of internal and external brain drain in tertiary institutions by utilising Nigerian experts as teachers, regardless of their locations or places of work; and
- encourage lifelong learning opportunities (FGN, 2013a).

In pursuit of these goals, the federal government established the National Open University of Nigeria (NOUN) in 1983. It was suspended in 1984 because the government perceived a lack of infrastructure, but it was subsequently reopened in 2002.

NOUN provides functional, flexible, accessible, cost-effective education to the citizens of Nigeria. NOUN's mandate is to deliver university education to the doorstep of every interested Nigerian. It is worth noting that meeting the educational needs of citizens in this highly populous country was beyond the capacity of Nigeria's conventional higher education institutions.

NOUN currently has 78 study centres across 36 states of the federation, with as many as five centres in the mega-states of Abuja and Lagos. NOUN has increased student enrolment from about 16,000 in 2010 to over 400,000 as of July 2017 (Adamu, 2017).

To further strengthen the impact of ODL, the NUC granted permission for the opening of eight distance learning centres in eight conventional universities in Nigeria: University of Ibadan, Ibadan; Obafemi Awolowo University of Ile-Ife; University of Lagos, Akoka; University of Maiduguri, Maiduguri; Modibo Adama University of Technology, Yola; University of Abuja, Abuja; Ladoko Akintola University of Technology, Ogbomoso; and Ahmadu Bello University, Zaira (NUC, 2017).

The Ministerial Strategic Plan of 2016–2019 has set the following targets to improve access:

1. Increase access to university education by seven per cent every year for the next three years;
2. Establish additional higher education institutions.

The Cost Issue

The Ministerial Strategic Plan of 2016–2019 reports that the higher education sector in Nigeria is grossly underfunded, which has compromised the quality of teaching and research.

The education sector in 2017 was allocated NGN 448.01 billion, about six per cent of the NGN 7.30 trillion budget.² Of the sum earmarked for the sector, NGN 398.01 billion was allocated to recurrent expenditure, with the balance of NGN 50 billion assigned to capital projects. Recent education allocations by the federal government in the last five years show variation from six to about 11 per cent of the total national budget.

² See

<http://www.nationalplanning.gov.ng/images/budget/FEDERAL%20MINISTRY%20OF%20EDUCATION.pdf>

Table 3: Nigerian Education Budget (2013-2017)

Year	Allocation to education sector	National Annual Budget	% of Annual Budget allocated to education sector
2017	455,407,788,565	7,298,507,709,937	6.24
2016	480,278,214,688	6,077,680,000,000	7.90
2015	483,183,784,654	4,493,363,957,158	10.75
2014	495,283,130,268	4,642,960,000,000	10.67
2013	427,515,707,889	4,987,220,425,601	8.57

Source: <http://www.budgetoffice.gov.ng/>

It was recently reported that 38 universities in Nigeria increased their tuition fees as a result of poor funding by the federal and state governments (Omole, 2017). Annual tuition fees at Nigerian universities range from approximately NGN 50,000 to as high as NGN 3,000,000 in some private universities.³ Such costs have further exacerbated the problem of access to higher education.

In term of cost in higher education, especially as it concerns students, more emphasis is on tuition fees with less focus on other indirect costs, such as textbooks, study aids and daily living expenses. The cost of textbooks in Nigerian higher education ranges between NGN 5,000 and 40,000 per year.⁴

Students express dissatisfaction about the large-scale practice of being forced to buy textbooks and lecture notes prepared by teachers. The cost of a textbook is NGN 1,200–1,700 (Youdeowei, Uwandu, & Iruoma, 2016).

The Quality Issue

Higher education in Nigeria strives to stimulate and maintain a culture of quality, but observations show that there is room for improvement. Some of the teething issues encapsulated in the Ministerial Strategic Plan 2016–2019 include:

- weak governance and regulatory structures;
- insufficient infrastructural resources in higher institutions;
- non-alignment of graduates with labour and manpower demands and needs;
- lower quality higher education graduates due to lower-quality graduates from basic education;
- inadequate quantity and quality of lecturers in most critical programmes and courses of study;
- frequency and duration of strike action by higher institutions in Nigeria;
- low utilisation of ICT for teaching, research and development; and
- inadequate funding for recurrent/personnel and capital expenditure.

³ See <https://www.nigeriaschool.com.ng/nigerian-universities-and-their-school-fees/>; <https://lifestyle.thecable.ng/20-expensive-universities-nigeria/>.

⁴ Interview with Dr. Saleh Gambo, Chief Librarian, NOUN.

Strategies for improving quality in higher education in Nigeria include:

- strengthening the regulatory agencies;
- regularly reviewing curricula in line with the best practices in the world; and
- improving funding for tertiary education (FME, n.d.).

In addition, some strategies employed by NUC to improve academic standards include:

- employing only PhD holders as lecturers in universities; and
- establishing quality assurance units in all federal and state universities.

It is worth noting that the explosion in the number of universities and the corresponding increase in enrolments, as well as the dwindling financial resources of the government, have introduced enormous challenges for quality control. The overwhelming demand for higher education triggered the emergence of unregulated private universities, and government responded promptly in 1984 by abolishing them and banning the establishment of new private universities. This pointed to a greater need for regulation and enforcement in the system to assure and maintain the quality of education in and graduates from Nigerian universities. In furtherance of this, the National Minimum Standards and Establishment of Institutions, Decree 16 of 1985 was promulgated, empowering the NUC to lay down and enforce minimum standards for all academic programmes offered in Nigerian universities (FGN, 2013a).

The National Universities Commission

Genesis

The National Universities Commission (NUC) was established in 1962 on the recommendation of the Eric Ashby Commission in 1959. The Ashby Commission recommended the establishment of a university in each of the regions and a national one in Lagos. In 1974, the NUC became a statutory body and the Decree 16 of 1985 further empowered the NUC.

Currently, the vision of the NUC is “to be a dynamic regulatory agency acting as a catalyst for positive change and innovation for the delivery of quality university education in Nigeria.” Its mission is “to ensure the orderly development of a well-co-ordinated and productive university system that guarantees quality and relevant education for national development and global competitiveness.”

The mandates of the NUC include:

- approval of courses and programmes;
- determination and maintenance of minimum academic standards;
- monitoring of universities;
- accreditation of academic programmes; and
- provision of guidelines and processing of applications for the establishment of private universities.

Following the enhanced autonomy of federal universities and the expansion in the number of universities, the functions of the NUC, as derived from its principal Act, Decree No. 1 of 1974, as well as the subsequent amendments thereof, are to:

- advise the President and state governors, through the Minister of Education, on the creation of new universities and other degree-awarding institutions in Nigeria;
- prepare, after consultation with the state governments, the universities, the National Manpower Board (NMB) and such other bodies as it considers appropriate, periodic master plans for the balanced and co-coordinated development of all universities in Nigeria;
- lay down minimum academic standards in the Federal Republic of Nigeria and accredit degrees and other academic awards;
- ensure that quality is maintained within the academic programmes of the Nigerian university system;
- make such other investigations relating to higher education as the Commission may consider necessary in the national interest;
- inquire into and advise the federal government on the financial needs, both recurrent and capital, of university education in Nigeria and, in particular, investigate and study the financial needs of university research to ensure that adequate provision is made for this in the universities;
- take into account, when advising the federal and state governments on university finances, such grants as may be made to the universities by the federal and state governments, private proprietors, and persons and institutions in and outside Nigeria;
- undertake periodic reviews of the terms and conditions of service of personnel engaged in the universities and make recommendations thereon to the federal government where appropriate;
- recommend to the visitation panel of a university that a visitation be made to that university as and when it considers this necessary;
- act as the agency for channelling all external aid to the universities in Nigeria; and
- receive block grants from the federal government and allocate them to federal universities in accordance with such formulas as may be laid down by the National Council of Ministers.

Though its mandate was essentially advisory at its inception, the functions of the NUC as a statutory body have been expanded in the last 50 years to include setting minimum academic standards, advising government on the establishment of private universities, and setting up visitation panels to universities.

As the apex body of the Nigerian university system, the NUC has over the years undergone a series of reforms and restructuring in response to government policies on enhanced autonomy, or to growth and expansion in this education sub-sector. These exercises were aimed at repositioning the Commission to better perform its roles as a regulator and quality assurance agency to bring university education in Nigeria on par with global best practices and to meet national human resource needs. The Commission,

which initially had only five departments, presently has 12 directorates and is headed by the Executive Secretary.

The NUC is empowered to advise the universities in matters of academic quality and improving access to education. Therefore, policy guidelines issued by the NUC to all the universities in Nigeria would encourage the adoption of open educational resources (OER) in teaching and learning in Nigeria's higher education system.

ICT in Higher Education Institutions

ICT Infrastructure and Connectivity in Nigeria

ICT connectivity in Nigeria has been growing rapidly in recent years (National Planning Commission, 2017). Today, Nigeria has about 9.8 Tbps of broadband connectivity terminating in Lagos, which is a significant increase compared to less than 3 Tbps in 2010. However, in terms of last-mile connectivity, Nigeria still experiences significant gaps.⁵

A large proportion of Nigerians live in rural areas, and most of these rural communities do not have access to basic ICT services. Current Internet access is about 25 per cent (Table 4). Most broadband operators do not consistently offer 256 kbps connections, and service reliability remains poor. In addition, many urban areas are either not served or underserved.

Table 4: Internet Access, Mobile Access and Broadband Access in Nigeria, 2012–2016

Year	% of Individuals Using Internet	Mobile Cellular Subscription	Fixed Broadband Subscription
2016	25.67	154,342,168	28,090
2015	24.50	150,830,089	14,492
2014	21.00	138,960,320	15,740
2013	19.10	127,246,092	15,045
2012	16.10	112,777,785	14,279

Source: International Telecommunication Union, <http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

The Status of ICT in Education in Nigeria

ICT has transformed virtually all spheres of life, turned the world into a global village and triggered transformations in the world economy. ICT also plays a critical role in the attainment of sustainable development and competitiveness. It is vital for attaining quality education, as it helps improve teaching, learning and educational administration. It also improves access to education at all levels (FME, n.d.).

The National Policy on ICT in Education (FME, 2010) guides the development and deployment of ICT in education in Nigeria. The policy identifies the critical role of ICT in attaining the national vision, the Sustainable Development Goals (SDGs) and education for all. The policy provides the necessary guidance on what is expected for all stakeholders in the entire process of ICT integration in education.

The policy's vision is anchored on ICT-furthered education that is engaging, enriching, empowering and enabling, whilst its mission seeks to meet the human resource requirements of Nigeria by attaining and enhancing sustainable socio-economic development and global competitiveness (FME, 2010).

⁵ http://www.niimp.gov.ng/?page_id=1218

The objectives of ICT in education include to:

- facilitate teaching and learning processes;
- promote lifelong learning;
- enhance the teaching and learning strategies required to meet Nigerians' needs;
- foster research and development;
- support effective and efficient education administration;
- enhance universal access to education; and
- widen access to education in a range of instructional options and opportunities for anywhere, anytime, any pace and any path learning (FME, 2010).

In terms of policy thrust, the policy asserts that government shall:

- build and encourage the development and maintenance of ICT manpower in Nigeria;
- establish and sustain a common ICT infrastructure platform for education and encourage the development of a national education and research infrastructure;
- ensure and encourage ICT research and development;
- engage in and encourage regular stakeholder consultations, sensitisation of the learning community, public awareness and intergovernmental relations to achieve a broad-based consensus on ICT in education;
- provide an appropriate legal, regulatory and security framework to ensure that ICT in education and the conduct of related activities focus on achieving ICT-furthered education; and
- adopt creative financial models for ICT in education (FME, 2010).

The implementation of this policy is expected to transform the teaching and learning of education. This, in turn, is expected to foster the production of graduates who can thrive in contemporary society, sustain national development and compete globally (FGN, 2013a; FME, n.d.).

As a result, efforts are being made to integrate ICT into education. These efforts are focused on: increasing access through distance learning; enabling a knowledge network for students/learners; training teachers and trainers; broadening the availability of quality education materials; and enhancing the efficiency and effectiveness of educational administration and policy (FME, n.d., 2010).

ICT occupies a strategic place in the education sector. This is indicated in the series of initiatives and strategies aimed at integrating ICT into education, and the establishment of the Department of ICT in the federal Ministry of Education to drive the delivery of innovative technology solutions and support services for ensuring that all departments within the ministry are able to leverage modern ICT resources to optimise their respective functions. The department also serves as an ICT co-ordination resource for the education sector at large, ensuring the development of uniform standards and skills acquisition using a convergence-driven approach to eliminate duplicate expenditures. The initiatives and strategies include, amongst others, developing an ICT policy,

strengthening the infrastructure for teaching, learning and research, and building capacity (FME, 2010).

The constitution of Nigeria makes education a shared responsibility of the federal, state and local governments. Thus, while the ICT in education policy and standards are the responsibility of the federal government, their implementation rests heavily on the states and the local governments (FME 2010). The ICT roadmap for the education sector includes the following:

- Using radio for literacy projects that will facilitate access to education for illiterate and semi-literate Nigerians, irrespective of geographical location, gender and cultural setting.
- Providing a massive ICT infrastructure at the institutional level.
- Building ICT capacity in teachers and educational administrators through internationally recognised certificates, with the International Computer Driving License (ICDL) as the basic minimum certification for literacy.
- Applying ICT to ODL through the establishment of the National Open University of Nigeria (NOUN).
- Introducing a computer acquisition scheme, which aims to provide computers to government staff at all levels at preferential rates through a subsidised consumer finance arrangement.
- Articulating policies that drive the development and deployment of ICT in education. Such policies include compulsory computer instruction at all levels of education in Nigeria.
- Developing curricula for computer instruction at all levels of education.
- Developing a national information technology education framework to guide the development of IT in education in Nigeria.
- Establishing an ICT service unit specifically to drive the delivery of innovative technology solutions and support services.
- USING ICT to streamline the education delivery management framework through the establishment of a central education sector database to serve as a repository of education data.
- Introducing eLearning to facilitate teaching and learning.
- Establishing Innovative Enterprise Institutions to address skills gaps in the area of ICT.
- Establishing and strengthening the Computer Professionals Registration Council of Nigeria for the regulation, control and supervision of the computing profession and computing practices in Nigeria (FME, 2010).

Although steps have been taken to enhance ICT in Nigeria, there is a severe shortage of ICT skills and personnel necessary for sustainable development and global competitiveness. The development and deployment of ICT is very cost-intensive, but the value derivable from ICT is worth any investment. Nonetheless, funding of ICT in education has been very poor due to a lack of understanding about the intrinsic value of such investment (FME, n.d.).

Some of the challenges that need to be addressed include:

- poor funding of ICT in education;
- an obsolete ICT in education policy;
- a dearth of critical ICT infrastructure, including bandwidth;
- insufficient ICT resources for teaching and learning;
- a highly insufficient pool of ICT professionals, especially at the school level;
- low capacity of teachers/staff to deploy the existing ICT infrastructure and to transform education delivery;
- intermittent and unpredictable power supply;
- inadequacy of requisite training for professional ICT staff;
- desperate approach to ICT deployment in the sector, leading to high costs, wasted resources and duplicated efforts.
- inability to cope with high dynamism of ICT curriculum, resulting in obsolescence;
- inequities in ICT distribution between urban and rural schools and between public and private schools;
- little research on ICT in education, which inhibits planning, evidence-based decision making and effective buy-in by policy makers and stakeholders;
- lack of innovation in the use of ICT to transform education delivery; and
- poor regulation of IT education, especially in the non-formal sector, leading to a proliferation of training outfits which offer all sorts of certificates and programmes based on undefined curricula (FME, n.d.).

The Status of ICT in Higher Education in Nigeria

The Ministerial Strategic Plan 2016–2019: Strategies for Addressing the Issues and Challenges of ICT in Education asserts that if Nigeria is to attain sustainable development and enhance global competitiveness, innovations that align with global trends must be introduced, especially in the development of its human capital. Building human capital needs to be improved using a new set of knowledge, skills and attitudes so that learners are equipped to be globally competitive and capable of meeting the challenges of a constantly evolving environment.

To achieve this target, the federal Ministry of Education must, amongst other goals, do the following:

- Review the National Policy on ICT in Education and its implementation strategy to reflect emerging paradigms, then print and circulate 30,000 copies nationwide to guide the development and deployment of ICT in education.
- Provide the requisite ICT infrastructure/equipment (hardware, software and networks) in schools at all levels in laboratories/workshops, libraries and for administration, specifically: 120,000 computers and accessories for universities, 100,000 for polytechnics, 80,000 for colleges of education and 5,200 for federal unity colleges; one data centre/server room in each of the 183 federal institutions;

campus networks in the 183 federal schools; and a private cloud in each of the 79 tertiary institutions.

- Establish a co-ordinated programme for the mandatory development of competencies in ICT amongst teachers and educational administrators through training: 27,000 in ICT proficiency programmes; 105,000 teachers to deliver ICT-enabled teaching and learning and to use new pedagogies; and 2,000 IT professional staff in IT professional courses.
- Establish and sustain a common ICT infrastructure platform for education, and strengthen and expand the Nigerian Research and Education Network (NgREN) to interconnect an additional 42 tertiary institutions.
- Restructure the teaching and learning environment to be ICT-driven by providing classrooms in all schools with requisite ICT infrastructure and services, including what is required to accommodate children with special needs (FME, n.d.).

The Nigeria ICT Roadmap for 2017–2020 therefore highlights the following goals:

- The establishment of an ICT university.
- The creation of innovation hubs across the nation.
- The founding of a Digital Literacy Council with the National Information Technology Development Agency (NITDA) as its secretariat.
- ICT skills gap analysis to address identified needs.
- The review and updating of the educational curricula for primary, secondary and tertiary schools to support teaching and learning, and the creation of a monitoring and evaluation mechanism to track ICT human capacity initiatives (FGN, 2013b).

ICT is regarded as the most influential instrument for the development of quality teaching, learning and research in educational systems around the world. Nigerian universities are no different in this regard. According to the Webometrics Ranking of World Universities, the University of Ibadan was first in Nigeria in July 2017 and 1,032nd in the world, followed by Covenant University, which was second in Nigeria but 2,032nd in the world.⁶ Nigerian universities do use websites for educational services; every university in Nigeria has functional website and portal for student supports. Many universities in Nigeria have also adopted the distribution of tablets to students as part of their commitment to providing effective teaching and learning aids. In the same vein, the NUC has granted approval to four Nigerian federal universities to run eLearning programmes: the University of Uyo; NOUN; Usmanu Danfodiyo University, Sokoto; and the University of Maiduguri.^{7,8} Very few Nigerian universities have well-developed repositories of teaching materials.^{9,10}

⁶ <http://www.webometrics.info/en/Africa/Nigeria>

⁷ The NUC in collaboration with Park Association E-learning Group and partnering with Nigerian universities has commenced the first major eLearning degree programme in Nigeria.

⁸ NUC bulletin, 13 March 2017, retrieved from <http://nuc.edu.ng/13th-march-2017-bulletin/>

⁹ <http://elibnouonline.net>

¹⁰ <http://eprints.covenantuniversity.edu.ng>

Towards an ICT University

At a rate of 24.42 per cent growth, the ICT sector is currently the fastest growing in the Nigerian economy (NITDA, 2017). To ensure that Nigeria keeps pace with the rapid pace of technological advancement in the global ICT sector, and to enhance the ICT learning environment, propel innovation, bridge the digital divide and increase contributions to the gross domestic product through the use of ICT, the federal Ministry of Communications recently inaugurated an implementation committee for a proposed ICT University for Nigeria.

The proposed institution would offer a variety of programmes aimed at providing the professional knowledge and expertise required for specialised careers in the fields of telecommunications, the Internet of things, cyber security, robotics, embedded systems, computer forensics, digital media and entertainment technology. The Minister of Communication noted that the proposed institution has been endorsed by the Nigerian government, as well as global leaders in the ICT industry, such as Cisco, Facebook, Huawei, D-link, Lenovo, Samsung, Apple, Siemens, Intel, Motorola, Ericsson, Dell, HP, IBM, MTN and Globacom (NITDA, 2017).

National and International ICT Projects and Initiatives

The Nigerian Research and Education Network

In recognition of the critical role that research and education play in the development path of an education system, and indeed in national development, the NUC in partnership with the Committee of Vice Chancellors of Nigerian Universities (CVC) established a foundation that would ensure universities could communicate about, collaborate on, access and share resources across national and international boundaries, primarily for the purpose of research and learning but with added capabilities to offer the efficiencies of unified communications and consolidated digital content. This foundation later metamorphosed into NgREN, with the hub at the NUC. Twenty-seven universities have been connected, with the intention to link to other research and education networks across Europe, the United States and elsewhere.¹¹

NgREN was set up with the following objectives:

- To provide a world-class networking infrastructure for the use of the research and education community in Nigeria.
- To establish an operational platform that enables resource sharing and facilitates innovation and development.
- To procure more and cheaper Internet bandwidth for member institutions.
- To provide the research community with network services and applications, such as a backbone transmission service, web services (ftp caching and mirroring), a domain name service, e-mail and messaging services, network security, bandwidth

¹¹ <http://ngren.edu.ng/index.php/who-we-are/ngren-at-a-glance/>

management, IP telephony, videoconferencing, identity management, eLearning resources, indexing and searching.

- To leverage technology for the promotion of innovative ways of teaching and learning.
- To promote connections and collaborations between the research community, industry and government within the country and similar institutions globally in order to translate research into commercial products for the benefit of the nation.

NgREN has since entered into an operational phase with universities, already passing traffic. All the member universities, the NUC and the CVC Secretariat have been connected to the network through a national core made up of high-speed fibre-optic rings (underground from Airtel). The main (core) network locations are Lagos, connecting universities in the south, and Abuja, connecting universities in the centre.

The National Information Technology Development Agency

The National Information Technology Development Agency is committed to implementing the National Information Technology Policy. NITDA's mandate is to create a framework for the planning, research, development, standardisation, application, co-ordination, monitoring, evaluation and regulation of IT practices in Nigeria. NITDA's ongoing projects include:

- The establishment of campus-wide area networks in Nigerian tertiary institutions: This entails the establishment of fully functional campus wireless networks in Nigerian universities with a capacity to support 10,000 concurrent users at a time. The project is aimed at giving digital access to the academic community to support effective teaching and learning. Twelve tertiary institutions have benefitted so far.
- The establishment of virtual libraries in tertiary institutions: This eLibrary platform enables access to subscribed online resources (eBooks, journals). The objective is to assist in research and learning.
- The creation of information technology hubs: The hubs are created to serve as meeting places for entrepreneurship skills development and to aid IT start-ups. Two hubs are presently being set up:
 - The State Institute of Technology and Management Katsina, Katsina State.
 - The Oyo State Trade Fair Complex, Sango/Samonda Area, Ibadan, Oyo State.
- PhD and MSc scholarships: NITDA gives out scholarships for further research studies in IT at the master and doctorate levels in reputable universities in Europe and America, with the objective of increasing the resources for IT capacity development in Nigeria. Since the scheme's inception, 30 PhD and 281 MSc scholars have benefitted.¹²

¹² <http://www.nitda.gov.ng>

The UNESCO TVE Revitalisation Project

This project is a collaborative initiative between the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Government of the Federal Republic of Nigeria. Its major objective, in the first phase, is to support the Nigerian federal and state education authorities in their efforts to revitalise, reform and expand technical and vocational education and training (TVET) to meet present and future needs for the nation's rapid socio-economic development.

In addition, the project is expected to:

- support the training and development of TVE managers, technical teachers and other technical personnel;
- review and update TVET curricula and prepare curricula for new disciplines and for other target groups;
- introduce ICT education in all aspects of TVET; and
- support the identification and preparation of feasibility studies and project documents for further projects to strengthen the development of TVET in Nigeria.

The goal of the project is to assist government, specifically the federal Ministry of Education and the NBTE, in their efforts to further strengthen the TVET system as part of human resource and manpower development to meet present and future needs for the nation's rapid socio-economic development. In particular, the project's main objectives are:

- enhancing a continuous TVET staff development system;
- improving the quality of TVET content; and
- strengthening links between non-formal with formal TVET to enhance the employment opportunities of unskilled and illiterate youths.¹³

¹³ <http://www.nbte.gov.ng/unesco/indexr.html>

Overview of Open Educational Resources

The focus of this report is to make a case for OER in Nigerian higher education. In the previous sections, we have discussed the challenges of access to education, the increasing cost of education and the need to improve the quality of teaching and learning in Nigeria. We also discussed developments in use of ICT in education, especially higher education. Whilst Internet access is about 25 per cent in Nigeria, there are several projects in progress to use technology in teaching and learning in higher education institutions. The emergence of OER has paved the way for increasing access to teaching and learning materials and improving the quality of education.

The term OER was created in a meeting at UNESCO in 2002. Since then, the OER movement has progressed all over the world, and in 2012, COL and UNESCO organised the first World OER Congress. This resulted in the 2012 Paris OER Declaration, calling upon all countries to release teaching, learning and research materials developed with public funds under an open licence to allow their reuse, revision, remixing and redistribution without the permission of the copyright holders.

The 2012 Paris OER Declaration defines OER as

teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. Open licensing is built within the existing framework of intellectual property rights as defined by relevant international conventions and respects the authorship of the work. (UNESCO, 2012)

In their simplest form, OER are any “educational resources (including curriculum maps, course materials, textbooks, streaming videos, multimedia applications, podcast, and any other materials that have been designed for use in teaching and learning) that are openly available for use by educators and students, without the accompanying need to pay royalties or licence fees” (Butcher, 2011, p. 5).

OER projects can expand access to learning for everyone, but most of all for non-traditional groups of students, thus widening participation in higher education. They can be an efficient way of promoting lifelong learning, both for individuals and for government, and can bridge the gaps between non-formal, informal and formal learning (OECD, 2007). In other words, OER provide quality, affordable educational materials adaptable to the broadest range of teaching and learning needs.

David Wiley’s framework of 5Rs describes what can be done with OER: *Retain*: the right to make, own and control copies of the content; *Reuse*: the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video); *Revise*: the right to adapt, adjust, modify or alter the content itself (e.g., translate the content into another language); *Remix*: the right to combine the original or revised content with other open content to create something new (e.g., incorporate the content into a

mashup); *Redistribute*: the right to share copies of the original content, your revisions or your remixes with others (e.g., give a copy of the content to a friend) (Wiley, 2014).

Also critical to understanding the real educational potential of OER are the following two concepts: pedagogy and digital. Pedagogically, the concept is underpinned by the notion of using resources as an integral method of communicating the curriculum in educational courses. However, it is the ease with which digitised content can be shared via the Internet that has the potential to unleash the full power of resource-based learning without bankrupting educational systems.

Resource-based learning breaks down the traditional notion that a talking teacher is the most effective strategy for communicating curriculum. Thus, more focus is placed on the design and development of high-quality resources as a strategy for building and assuring the quality of educational provision. It also investigates the potential that the integration of new educational technologies into teaching and learning environments has for supporting, improving or enhancing those environments (Butcher, 2011).

Copyright and Open Licensing

OER is based on the premise that someone has copyright of the content and releases the same with an open licence. Traditionally, the copyright holder reserves the right to control the distribution of the work. As author of the work, the copyright holder can also assign the rights to anyone or license the work for use in a specific manner. Open licences also provide that option to the copyright holder. “Open licence” basically refers to any legally binding instrument that grants permission to access, reuse and redistribute a work with few or no restrictions. While there are different ways to license a work, the most predominant one is provided by Creative Commons (CC).¹⁴ There are six difference types of CC licence, of which four are normally considered open licences. Those licences with a non-derivative clause are not open. For more details on OER and open licences, see COL’s publication *Understanding Open Educational Resources*.¹⁵

In Nigeria, the Copyright Act, Section 5, C28LFN 2004 of the Federal Republic of Nigeria guarantees the exclusive right of the owner of copyright to: reproduce, publish, perform, adapt, distribute, sell and broadcast; prepare derivative works; distribute copies of the original work or derivative works; and, in the case of cinematographic films, perform the work (Nigeria Copyright Act, 2004; Nwabachili, 2016). Nigeria is also a member of and signatory to other international treaties on copyright, such as the Berne Convention (on literary and artistic works), of which Nigeria became a member in 1993. Hence, OER can be used within the copyright laws of Nigeria without any legal hurdles.

The Benefits of Using and Developing OER

Discussion so far indicates that OER should be freely shared through open licences, which facilitate reuse, revision, translation, improvement and sharing by anyone. Resources should be published in formats that facilitate both use and editing and that

¹⁴ <https://creativecommons.org/share-your-work/licensing-types-examples/>

¹⁵ <http://oasis.col.org/handle/11599/1013>

accommodate a diversity of technical platforms. OER should also be available in formats that are accessible to people with disabilities and people who do not yet have access to the Internet.

Hodgkinson-Williams (2010) presents the benefits of OER for a range of stakeholders:

- *Government Perspective:* OER help advance knowledge by unlocking information for the benefit of all. They also stimulate the widening of participation in higher education by expanding access for non-traditional learners. In addition, OER promote lifelong learning, bridge the gap between formal, informal and non-formal learning, and leverage taxpayers' money by sharing and reusing educational resources between institutions.
- *Institutional Perspective:* The benefit of OER lies in the sheer fact that sharing knowledge is congruent with the academic tradition. In addition, this perspective posits that the public image of the institution may be enhanced and new students attracted through OER initiatives. OER also provide resources for students and faculty to support learning and collaboration, attracting alumni as lifelong learners.
- *Educator's Perspective:* This perspective posits that OER can enhance personal gain through increased reputation. They can also enhance publicity or expedite market access, which may result in economic advantages. In addition, OER foster connections with colleagues around the world and preserve a record of teaching innovations, allowing others to build upon them. Most interestingly, OER can accord lecturers the opportunity to leave a legacy after exiting academia.
- *Learner's Perspective:* OER enable an independent learner who has access to the Internet to use materials from the best universities in the world. OER can also promote informal learning, wherein credentials are not needed. Prospective students may also access institutions by looking at their materials made available by other institutions.

Why Are OER Important for Higher Education in Nigeria?

Access to relevant learning resources is an important aspect of lifelong learning, and the ability to provide that access at the necessary scale is proving a challenge. Addressing this challenge is essential for ensuring inclusive and equitable quality education and lifelong learning opportunities for all, as outlined in SDG4, as well as for supporting citizens in gaining sustainable livelihoods. The development of OER is a potential answer to these challenges, as it provides governments, institutions, organisations and individuals with access to some of the best materials available globally, allowing them to adapt the materials to fit local contexts and reduce the costs associated with materials and course development.

During the first World OER Congress, in 2012, governments and institutions were encouraged to leverage taxpayers' money through the open licensing of educational materials produced with public funds. A case in point is the Tertiary Education Trust Fund (TETFund) intervention programme for training and research in tertiary institutions in Nigeria. TETFund intervention focuses on library and book development,

national research grants, the development of curriculum/programme content, academic manuscripts, research journals and institution-based research. To enable the TETFund to achieve this mandate, the TETFund Act, 2011, imposes a two per cent education tax on the assessable profit of all registered companies in Nigeria. The Fund administers the tax imposed by the Act and disburses the amount to tertiary educational institutions at federal and state levels.¹⁶ Without a clear policy on the sharing of these materials through open licences, already impoverished citizens will continue to pay twice for content and resources already paid for by taxpayers. It would therefore be prudent to openly license publicly funded educational resources, for the common good. In addition, and as noted earlier, the emergence of resource-based learning has broken down the traditional notion that a talking teacher is the most effective strategy for communicating curriculum. Thus, embracing OER in Nigeria's higher institutions will provide learners with much-needed access to resources for quality learning experiences.

In addition, OER: help in the provision of quality alternatives for teaching and learning; stimulate increased equal access to quality educational resources; reduce the cost of textbooks; and help enhance access to quality knowledge repositories for learners, teachers and researchers. OER also offer additional opportunities to supplement face-to-face learning and the ODL system, and they can complement the content students receive from their lectures. They can help academics to contextualise global practices and can promote a healthy academic culture of knowledge sharing and openness amongst academics; thus, lecturers can be sharers rather than hoarders of knowledge. Lastly, OER: enhance free and open access to knowledge and provide better engagement for learners; stimulate the transformation of teaching and learning by enabling innovative pedagogical practices; enable free access to knowledge, which can be reused and repurposed in different forms; and promote informal learning, wherein credentials are not needed.

Institutions Promoting and Using OER in Nigeria

National Teachers Institute, Kaduna

The National Teachers Institute (NTI) was established in 1978 with the vision to provide courses of instruction leading to the upgrade, development and professional certification of Nigerian teachers as specified in the relevant syllabuses, using the distance learning system of education delivery. Teacher Education in Sub-Saharan Africa (TESSA) has been the major NTI OER project since 2005. NTI took part in the authoring and versioning of TESSA modules and in the user testing of the TESSA website.¹⁷

The TESSA–NTI collaboration resulted in the development of the Teaching Practice Supervisors' Toolkit. This is a collection of tools which can be used to address certain challenges that occur in the process of teaching practice supervision. The toolkit is an OER that can be edited or adapted by users, and it can be downloaded or printed as a single document or as individual tools.

¹⁶ <http://www.tetfund.gov.ng/>

¹⁷ <http://www.tessafrica.net>

National Open University of Nigeria

NOUN was established in 1983, suspended in 1984 because the government perceived it to have a lack of infrastructure in the ODL mode, then subsequently reopened in 2002. As an ODL institution, NOUN strives to provide education for all and promote lifelong learning.

NOUN's OER activities started in August 2014 with the establishment of an OER unit under the Vice Chancellor's office. NOUN in collaboration with UNESCO and COL had engaged in capacity building in this area. NOUN, being an ODL institution, currently has e-courseware comprised of approximately 2,000 course material items, of which 33 have been converted to OER so far. NOUN has an OER policy approved by the university's senate in June 2016. NOUN's licence type is CC BY-SA.¹⁸

Nigerian Institute for Advanced Legal Studies

The Nigerian Institute of Advanced Legal Studies (NIALS) was established in 1979 to serve as a centre for research and advanced studies in law. NIALS is also the public lead for Creative Commons Nigeria and has, in partnership with the CC Nigeria Affiliate, organised several roundtables to address the relevance of CC in the digital environment. This ensures that the benefit of CC is well known or articulated in Nigeria not only in the educational sector but also in the creative sector. NIALS as the public lead of CC Nigeria has provided a platform for CC Nigeria to engage with and provide adequate knowledge of CC to key policy makers and other stakeholders in industry, academia and beyond.

OER Course Development Workshop at Yaba College of Technology

As part of its effort to increase access to affordable learning opportunities, through the INVEST Africa programme COL organised a six-day workshop on OER course development at the Yaba College of Technology (YCT) in Lagos in May of 2016. The workshop was designed to build capacity at YCT in developing short, non-formal courses using OER content where appropriate and producing learning resources as OER in a range of different media formats.

¹⁸ <http://www.elibnouonline.net>

National Consultation on OER Policy

The National Universities Commission organised two consultative meetings in August 21st and September 12th respectively to create awareness and validate the draft OER policy. A brief report on these meetings are presented below.

National Steering Committee

With the approval of the Ministry of Education, the NUC constituted a National Steering Committee to oversee the development of the OER policy. The first meeting of the steering committee, held on 21st August 2017, was aimed at sharing draft report of the OER policy with members of the National Steering Committee (NSC) on OER, Nigeria. In the meeting, the Chairman thanked the honourable Minister of Education for approving the committee and applauded the Consultant for turning in the Draft National Policy on OER, within five weeks. He also commended Her Excellency, Ambassador Mariam Y. Katagum, Nigeria's Permanent Delegate to UNESCO, for finding time to attend the meeting, despite her very tight schedule and for her inputs on the Draft Policy. He expressed optimism that the academic community in Nigeria would benefit immensely from the OER initiative when implemented and hopes that Nigeria would be well represented as active participants at the Second World Congress on OER. He however emphasised the need to carry along other Higher Education Regulatory Agencies, especially, the National Board for Technical Education (NBTE) and the National Commission for Colleges of Education (NCCE), in the spirit of inclusiveness. Members of the Committee were also unanimous in their resolve to adopt the OER initiative in Nigeria. The meeting observed/suggested the following:

- i. That the following Terms of Reference (ToRs) for the Inaugural Meeting should be adhered to:
 - Review of the draft OER Policy for Higher Education in Nigeria;
 - Adoption of the draft OER Policy;
 - Agree on actionable points that can be presented at the 2nd World OER Congress;
 - Engage stakeholders and identify strategies for mainstreaming OER in Higher Education; and
 - Set up presentations and capacity building in OER.
- ii. To set up a National Repository in the National Universities Commission, called Nigerian Higher Education Open Educational Resources (NgHEOER), with a view to giving Nigeria visibility on the global OER Map. The Committee particularly noted that many other Higher Education Institutions in Nigeria have done so much on OER but unfortunately it is not being reflected on the OER Map of the world. To this end, Professor Peter A. Okebukola, assured the meeting that he would design a template and forward the same to Vice-Chancellors of Nigerian Universities, requesting for information on OER. The information received would be hosted at the NUC Website to kick start the National Repository process.

- iii. To build enabling capacity in Higher Education Institutions to effectively embrace the OER concept as well as the involvement of relevant NGOs in the capacity building programme;
- iv. To develop comprehensive implementable and actionable strategies with deliverable timelines;
- v. The need for Nigeria to utilize the services of COL and UNESCO as member state;
- vi. The need to fully involve NCCE, NBTE and other related Government Agencies, including TET fund on the project;
- vii. The need for the Federal Ministry of Education, to fast track Nigeria's ratification of the Addis Ababa Convention which Nigeria became a signatory to, few years ago.
- viii. The need to put in place an effective Monitoring and Evaluation (M&E) mechanism on OER;
- ix. The need for Nigeria academia to imbibe the culture of digitalization & uploading of materials on the internet;
- x. The need to expand the OER initiative to involve the primary and post basic education;
- xi. The need for the Federal Government to provide the requisite funding needed to promote OER;
- xii. The need to encourage Open Schooling in Nigeria, at the lower level of education;
- xiii. The need to pursue infrastructural development, including the provision of bandwidth needed to drive the OER initiative.

The draft report on the status of higher education and ICTs in Nigeria, including the draft OER policy developed in consultation with COL was presented by Dr. Jane-Frances Obiageli Agbu. After exhaustive discussion on the Consultant's presentation, the meeting divided into two Technical Sub-Committees for:

(1) Review of the Status of Higher Education and OER in Nigeria with members comprising: Professor Olu Obafemi, Chairman, Nig. Academy of Letters – Chairman; Professor Olugbemiro Jegede, former VC, NOUN - Member; Mr. Chris J. Maiyaki - Member; Dr. Jane-Frances Obiageli Agbu-Secretary; Joseph Nte Bisong, ACPO, NUC-Secretariat;

(2) Review of the Draft National Policy on OER for Higher Education with members comprising Prof. Michael O. Faborode, Sec-Gen, CVC - Chairman; Dr. Olamide Adesina, DODE – Member; Dr. Ramon-Yusuf, DRIIT, NUC - Secretary; Mr. Cletus A. Lanshima, ACODEO, NUC – Secretariat; Barr. Paschal Eruaga, ACLO, NUC – Secretariat

The Technical Sub-Committees made several inputs into the document and recommended improvements to further enrich the Draft National OER Policy. The Chairmen of the Technical Sub-Committees were requested to conclude their assignments and revert to the Secretariat through the Director, Directorate of the Executive Secretary's Office & Member/Secretary of the NSC-OER for further necessary action.

National Consultation

The second consultation meeting which was termed ‘validation meeting’ sought to sensitise stakeholders on OER. The meeting held on 12th September 2017 was attended by about 340 people, including Vice Chancellors, Rectors, Provosts, Librarians and Directors of ICT in Nigerian Universities, Polytechnics and Colleges of Education, representatives of national and international non-governmental organisations, embassies and tertiary education regulatory agencies in Nigeria (NUC, NBTE, NCCE) among others. The draft policy was presented in the nation consultation to help the stakeholder understand and go through the draft policy line by line.

Some of the general remarks shared by participants on OER initiative in Nigeria in the national consultation were as follows:

- Knowledge should indeed be shared, thus all stakeholders should embrace the new vision of OER for equity, access and quality in learning and teaching resources
- Need to encourage the open licensing of publicly-funded educational materials
- Need for capacity building on OER
- Need for robust ICT infrastructure and connectivity to aid OER
- Need for regulatory bodies to establish quality mechanisms for OER
- Need to establish a national OER repository in Nigeria.

Subsequently a decision was made by the National Steering Committee on OER to produce few copies of the policy for presentation and distribution at the 2nd World OER Congress in Slovenia.

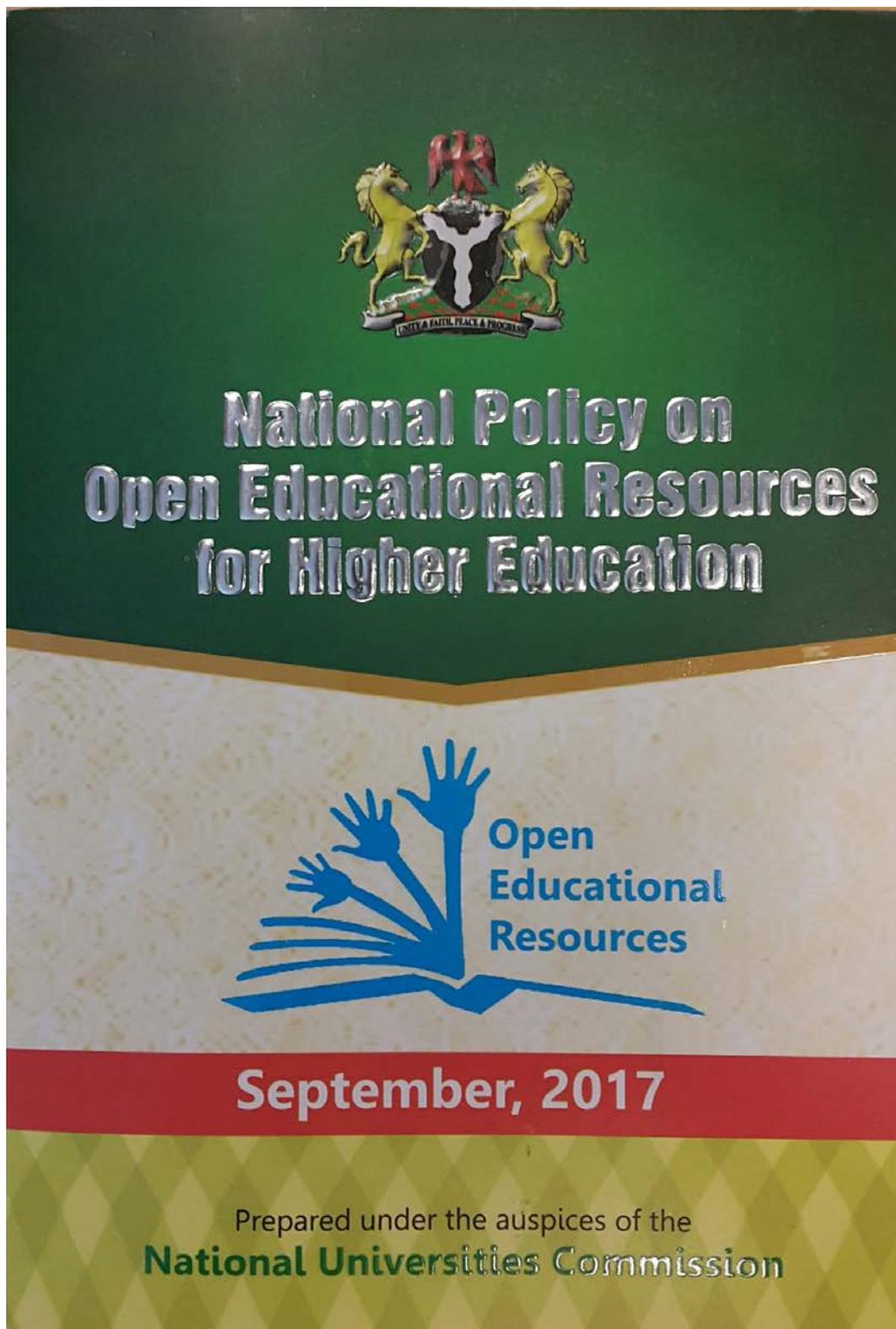
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Appendix-1: National Policy on Open Educational Resources in Higher Education

(Validated on September 12, 2017)



PREFACE TO THE DRAFT NATIONAL POLICY ON OER (OPEN EDUCATIONAL RESOURCES) FOR HIGHER EDUCATION IN NIGERIA

Open Educational Resources (OER) describes educational materials such as curriculum maps, course materials, textbooks, streaming videos, multimedia applications, podcast, and any other material that have been designed for use in teaching and learning that are openly available for use by educators and students, without the need to pay royalties or licence fees. The derivable benefits of OER to Higher Education in Nigeria cannot be overemphasized. Indeed, the fact that OER can be retained, reused, revised, remixed, and redistributed makes it a veritable tool for sustainable educational development. Since the term, OER was coined by UNESCO in July 2002, preceding the First World OER Congress, which held in June, 2012 at UNESCO Headquarters, Paris, France, the OER movement has gathered considerable momentum. In Africa, the consultative discussion on OER began in the Republic of Mauritius, in March 2017, where the participation of stakeholders' in Higher Education, including the delegation from Nigeria was well acknowledged. Participants unanimously agreed to strengthen the development of a supportive environment that would fast track the adoption and use of OER in Africa. Nigeria strategically affirmed its stand to move away from mere intentions to concrete action with the constitution of the National Steering Committee on OER with the approval of the Honourable Minister of Education. This OER Policy for Higher Education in Nigeria is therefore a clear evidence of the concrete action taken by the Government and people of Nigeria to promote OER in Nigeria, with a view to ensure among others, that Higher Education in Nigeria features prominently on OER World Map.

This Draft National Policy on OER in Higher Education in Nigeria, provides guidelines for the creation and use of OER to increase access and support quality teaching, learning and research in the Nigerian Higher Education system. The OER Policy covers the scope goals, teaching and learning, capacity building, OER material development, quality assurance, infrastructure and connectivity, implementation strategy, institutional arrangements, and intellectual property rights and licences. On behalf of the President and Commander in-Chief of the Federal Republic of Nigeria, I commend the efforts of Members of the National Steering Committee on OER, the ICDE Chair in OER/Commonwealth of Learning (COL) appointed Consultant the Advisors, the Secretariat, and all Stakeholders in the Higher Education Sub-sector for their quality contributions.

Mallam Adamu Adamu
Honourable Minister for Education
Federal Republic of Nigeria

1.0 Scope of the Policy

1.1. This Policy provides guidelines for the creation and use of open educational resources (hereinafter referred to as OER) to increase access to and support quality teaching, learning and research in the Nigerian Higher Education System. In doing so, the Policy seeks to strengthen commitment to OER by Higher Education Institutions and all concerned stakeholders. For the purposes of this Policy, higher education institutions shall include universities, polytechnics, monotechnics, colleges of education, innovation centres and research institutes as well as other institutions recognised under this category by the National Policy on Education.

1.2. The Policy shall be applied to all publicly-funded higher education teaching and learning materials, developed by higher education institutions in Nigeria, as well as to various Ministries, Department and Agencies (MDAs). Educational/Research Institutions and autonomous bodies developing teaching and learning materials using public funds shall be guided by this Policy and shall undertake appropriate steps to adopt OER. Also, any university, institution or organisation which develops any educational resource using public funds, donor-provided funds or its own funds, shall apply the Policy. However, in all cases, the release of works under an open licence will follow the Nigerian Copyright Act, CAP C28, Laws of the Federation of Nigeria, 2004.

1.3. Open Educational Resources (OER) are teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adapt and redistribute by others with no or limited restrictions. Open licensing is built within the existing framework of intellectual property rights as defined by relevant International Conventions and respects the authorship of the work.

1.4. Open Educational Resources (OER) are technology-enabled, open provision of educational resources for consultation, use and adaptation by a community of users for non-commercial purposes. Materials that constitute OER include curriculum maps, course materials, textbooks, streaming videos, pictorial materials, multimedia applications, podcast, and any other materials that have been designed for use in teaching and learning environment.

2.0 Goals of the Policy

2.1. provide a comprehensive framework for the use of OER to enhance access to and create qualitative educational resources that support quality teaching and learning in Nigerian higher education;

2.2. strengthen commitment to OER by all concerned stakeholders in higher education in Nigeria;

2.3. improve access to quality learning content developed with public funds by releasing them under a suitable open licence;

2.4. reduce barriers to education, including access, cost, language and format;

- 2.5. engender free access to educational materials that can be re-used and repurposed in different formats;
- 2.6. stimulate a healthy academic culture of knowledge sharing;
- 2.7. ensure equity in access to knowledge, thus expanding outreach to disadvantaged and marginalised communities;
- 2.8. democratise inclusive education for learners with varying abilities;
- 2.9. make available learning objects appropriate to local languages and cultural environment;
- 2.10. encourage active collaboration and partnership for the creation and adoption of OER nationally across institutions of higher learning and related organisations;
- 2.11. establish a system and procedure which encourage the development, accessing and adapting quality OER;
- 2.12. entrench the guidelines of minimum standards for the judicious selection and adaptation of and developing OER; and
- 2.13. actively motivate research and scholarship on various aspects of OER.

Pursuant to the above goals:

- i. Higher Education regulatory agencies and all Higher Education Institutions in Nigeria shall be committed to the philosophy of OER in raising awareness, building capacity and fostering positive attitudes in educators, learners and researchers, regarding the development and use of OER, with a view to enhancing quality and equity in education;
- ii. being educational resources that are freely and openly available, OER shall be used by educators and learners in the production of teaching and learning materials to meet institutional and national curriculum requirements;
- iii. Government shall be committed to the continuous advocacy and capacity building of educators, researchers, academic staff, teachers, ICT personnel involved in OER, various communities and stakeholders in the design, development, access, use and dissemination of information, knowledge and current global status of OER;
- iv. Educators, teachers, learners, researchers and institutions shall be encouraged to pool and share resources in order to develop OER;

- v. Regulatory agencies shall encourage institutions to contextualise the processes for the development of materials in different ways to reward collaborative activity and encourage the production of new materials; and
- vi. the existing enabling environments for ICT - including infrastructure, Internet connectivity and emerging technologies such as mobile technology - shall be fully contextualised to facilitate access to and redistribution of openly licensed teaching, learning and research resources.

3.0 Teaching and Learning

3.1. Educators, teachers, learners and researchers shall be encouraged to harness the potentials of OER to improve learning outcomes.

3.2. The availability of OER shall require teachers to adopt new methods of teaching and learning to facilitate more interactive learning processes.

3.3. To facilitate the updating of curricula with the most recent developments in a given field, academic staff shall be encouraged to integrate OER and contextualise these for teaching, learning and research as appropriate.

3.4. Students shall be oriented towards the appropriate use of OER and guided to explore additional resources beyond their curriculum to develop self-directed learning abilities. Students shall be encouraged to become content producers rather than solely content consumers.

3.5. Appropriate care shall be taken to develop OER for learners with special needs.

4.0 Capacity Building

4.1. Awareness-raising, capacity-building and networking/sharing activities of all stakeholders, shall be encouraged for the development of a full range of competencies required for the effective use of OER. These activities shall aim at fostering a shared vision for open educational practices, which shall be aligned with the government's educational vision and mission.

4.2. Training programmes on copyright and OER shall be supported through appropriate schemes and institutions shall conduct such programmes on a regular basis.

4.3. Institutions shall adopt copyright policies and OER policies to clarify the rights and responsibilities of academics and researchers to use, develop and share educational materials with open licenses.

4.4. Individuals developing quality OER shall be appropriately acknowledged, and institutions shall be persuaded to institute their own mechanisms for rewarding and acknowledging champions supporting OER integration into teaching and learning.

4.5. A national scheme that will acknowledge contributions to OER shall be instituted, to reward collaboration and sharing as well as adoption of existing OER.

5.0 OER Material Development

5.1. As educational resources that are freely and openly available, OER shall be used by academics, students and researchers in the production of teaching, learning and research materials, in line with the institutional and national curriculum requirements.

5.2. Regulatory agencies shall provide support to institutions (individually or collectively) to produce and share high-quality educational resources to update and upgrade curricula and teaching materials.

5.3. OER produced by faculty members shall be seen as intellectual products that count towards professional advancement.

5.4. Efforts shall be made to contextualise and customise the creation of OER in order to promote local content.

5.5. Deliberate steps shall be taken to promote the visibility of OER developed by students.

6.0 Quality Assurance

6.1. Available guidelines for assuring the quality of OER shall be appropriately contextualised, and a mechanism for review and approval (including peer review and user ratings) of OER shall be developed by all Institutions.

6.2. The review of OER shall include quality content, pedagogy and media/presentation.

6.3. Regulatory agencies shall encourage and acknowledge the appropriate adaptation of OER in its criteria for programme accreditation.

7.0 Infrastructure and Connectivity

7.1. A National Repository of Higher Education OER, shall be maintained by the National Universities Commission.

7.2. The requisite environment for ICT, including infrastructure, Internet connectivity and emerging technologies such as mobile technology, shall be fully integrated to facilitate access to and redistribution of openly licensed teaching, learning and research resources.

7.3. Broadband access in Higher Education Institutions shall be strengthened and supported by relevant agencies.

7.4. Educational Institutions shall set up their own repositories of OER.

7.5. All OER shall be released in open, non-proprietary formats.

7.6. In the event that a proprietary software/format is used, the source file in its final version along with the relevant application programme interfaces shall be made available to facilitate reuse.

7.7. Guidelines for the development of digital content and repositories with World Wide Web Consortium compliance shall be established.

8.0 Implementation Strategy

8.1. A Standing Committee at each regulatory agency shall be responsible for the implementation of the OER Policy in each of the different clusters of higher education institutions.

8.2. The standing committee shall include eminent educationists, Heads of Institutions, Librarians, Directors of ICT, media experts, legal experts and other relevant stakeholders. The committee shall develop norms, specifications, guidelines, monitoring and evaluation criteria and any other related best practices, to guide the implementation of the OER Policy.

8.3. The Standing Committee may meet as and when needed. However, it should meet at least once a year to review progress and adjust to new circumstances that may arise.

8.4. Each regulatory agency shall be the nodal agency for undertaking capacity building and research on OER in its cluster of higher education Institutions.

8.5. The OER Policy shall be reviewed every five years, effective from the date of implementation.

8.6. Educational Institution shall be encouraged to develop ICT policy to drive OER efficiently and effectively.

9.0 Institutional Arrangements

9.1. All higher education institutions shall be encouraged to develop their own institutional OER Policy aligned with the national OER Policy.

9.2. All institutions shall create institutional repositories to share teaching, learning and research materials on the Web.

9.3. In addition to encouraging Faculty members to develop complete textbooks and courses using multiple media, institutions shall facilitate the reuse, revision and remixing of existing openly licensed materials in their teaching.

9.4. Institutions shall be encouraged to develop contextualized and customized materials reflecting the peculiarities of their localities.

10.0 Intellectual Property Rights and Licenses

10.1. All teaching, learning and research materials, developed with public funds and other sources of funding, including donor agencies and development partners, shall be released with an appropriate open licence and made available online in editable digital formats.

10.2. Teaching, research and learning resources shall be openly licensed when the copyright of the work is held by publicly funded institutions.

10.3. Teaching, learning and research resources shall be openly licensed when created by a grantee or contractor receiving public funds.

10.4. The preferred open licenses are the most current versions of the Creative Commons Attribution (CC BY), Creative Commons Attribution-ShareAlike (CC BY-SA), Creative Commons Attribution-Non Commercial (CC BY-NC) and Creative Commons-Non Commercial-ShareAlike (CC BY-NC-SA) licenses.

10.5. Institutions shall reserve the right to license their copyrighted work using the most current version of the Creative Commons Attribution-No Derivatives (CC BY-ND) or Creative Commons Attribution-Non Commercial-No Derivatives (CC BY-NC-ND) licenses under the following conditions:

- i. Where any derivative would affect the reputation of the agency or the integrity and authenticity of the work (CC BY-ND is suggested).
- ii. Where the derivative or otherwise commercial circulation of the work would adversely affect the agency's operation and economic viability.

10.6. Exceptions: The OER Policy shall not apply to any work if releasing the work under an open license would:

- be contrary to legislation, court order or specific government Policy;
- constitute a breach of contract or lead to disclosure of a trade secret; and/or
- prevent the patenting of an invention.

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11.2. The policy does not apply to institution-related documents, such as policies, trademarks, logo, patents, and personal information.

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