



INVESTMENT CASE OF EARLY CHILDHOOD EDUCATION (ECE) IN NIGERIA

Report

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ABBREVIATION

ACE	: Advanced Certificate in Education
ACIE	: Advanced International Certificate of Education
ADB	: African Development Bank
BECE	: Basic Education Certificate Examination
DP	: Development Partners
e.g.	: For Example
ECCDE	: Early Child Care and Development Education
ECCDE	: Early Child Care and Development Education
ECCDE	: Early Child Care Development and Education
ECE	: Early Childhood Education
EFA	: Education For All
EPSSim	: Education Policy and Strategy Simulation
ESP	: Education Sector Plans
FCT	: Federal Capital Territory
FGD	Focus Group Discussion
FME	Federal Ministry of Education
GDP	: Gross Domestic Product
GER	: Gross Enrolment Rate
GMR	: Global Monitoring Report
GPE	: Global Partnership for Education
HDI	: Human Development Index
HND	: Higher National Diploma
IMF	: International Monetary Fund
JAISCE	: Junior Arabic and Islamic Studies Certificate Examination
LGEA	: Local Government Education Authorities
₦	Naira
NBC	: National Business Certificate
NCE	: National Council on Education
NCE	: Nigerian Certificate in Education
NEMIS	: National Education Management and Information System
NERDC	: Nigeria Educational and Research Development Council
NGO	: Non-Governmental Organizations
NIPEP	: Nigerian Partnership for Education Project
NPA	: National Personnel Audit
NPE	: National Policy on Education
NTC	: National Technical Certificate
NUC	National Universities Commission
NVC	: National Vocational Certificate

OND	: Ordinary National Diploma
PTR	: Pupil Teacher Ratio
SESP	: State Education Sector Strategic Plan
SDGs	: Sustainable Development Goals
SEMIS	: State Education Management and Information System
SimuED	: Simulation for Education
SMoE	: State Ministries of Education
SUBEB	: State Universal Education Boards
TC	: Teacher Certificate
UBEC	: Universal Basic Education Commission
UNDP	: United Nations Development Program
UNESCO	: United Nations Educational, Scientific and Cultural Organization
US\$: United States Dollar
WASSCE	: West African Senior School Certificate Examination

EXECUTIVE SUMMARY

This investment case study on Early childhood education in Nigeria is part of UNICEF's support to the Nigerian government for the purpose of contributing to generating evidence for policy reforms that will boost basic education in Nigeria through qualitative and quantitative improvement in investment in Early Childhood Education (ECE)¹ for children whose ages are between 3-5years. Investing in early childhood Education is a cost-effective way to boost shared prosperity, promote inclusive economic growth, expand equal opportunity, and end extreme poverty.

The under-investment in Early Childhood Education is often particularly detrimental to ECE population whose future depends on it. Despite ECE's place on the global policy agenda, in Nigeria, it is among the most underfunded sub-sectors. The share of exclusive pre-primary education expenditure in total education expenditure stood at 0.66% in 2020, while in 2013 UNESCO recommended that a minimum of 10% of all education expenditure (or two percent of government total expenditure) be allocated to pre-primary education (UNESCO, 2015).

Since 2013, modest improvements have occurred in both the planning process and their alignment with international goals. Renewed interest in planning at the world level (through the GPE and UNESCO's International Institute for Educational Planning) has stimulated government interest in educational planning, including ECE in Nigeria, resulting in the revised National Policy on Education (2013). Despite these efforts, the results are not very encouraging, requiring that targeted actions be taken including strengthening financial support. In the process of conducting this investment case, three key issues were analysed: (i) the performance of the Nigerian Education sector and challenges, (ii) the costs and financing of ECE in Nigeria over the period (2014-2021) and (iii) the estimation of the cost and financing of early childhood education in Nigeria for the coming years (2022-2030).

Analysis of the performance including spending review and costing of Early Childhood Education in Nigeria.

The analysis of the performance including spending review and costing of Early Childhood Education in Nigeria revealed modest improvement, but considerable challenges still remain.

Disparities in early childhood education coverage as well as access in Nigeria and an insufficient and unequal allocation of resources

From the analysis of geographic coverage, it is apparent that the South West zone has the highest proportion of enrolment (863,156 males against 866,479 females in

¹ ECCDE, ECE and Pre-primary education may mean the same thing across the document, as in the UBEC reports

2018) according to UBEC (2019) report, while when considering average annual enrolment by state over the period 2014-2018, Sokoto leads with the highest number of students (34,890 males against 25,298 females in 2015/2016 academic year), followed by Adamawa (17,788 males against 16,900 females in 2015/2016 academic year), Kwara (26,667 males against 26,007 females in 2015/2016 academic year) and Rivers states (7,851 males against 8,124 females in 2015/2016 academic year). With a predominantly female teaching staff (82% of 54,217 staff) at the federal level, Anambra recorded the highest number of staff (8,439), followed by Rivers (6,674), Osun (4,164), Kwara (3,770), Adamawa (2,404) and Sokoto (1,066).

Disparities in access based on socioeconomic characteristics analysis indicated that access to ECE is positively determined by the head of the household and the child being male, as well as household wealth and negatively by either being Christian or Muslim.

Early Childhood Education in Nigeria is characterized by relatively low quality in terms of supervision and instructional materials as well as facilities coverage.

In addition, Early Childhood Education in Nigeria is marked by a high pupil-teacher and pupil-classroom ratios (46.42 pupils per teacher at national level, 83.3 and 31.54 respectively at public and private institutions), while the minimum standards stated in the NPE is 25 (UBEC, 2010). Instructional materials are not sufficiently provided in both public and private schools, one Textbook (for all types) being shared by at least 10 pupils nationwide and 26 pupils in public schools.

Most ECE schools lack adequate facilities which are unequally distributed among the states. Adamawa State has the lowest access in terms of electricity (54%) as well as in health facilities while Rivers has the highest access in source of electricity and Kwara, the highest access (92.5%) in health facilities followed by Sokoto and Osun. Moreover, the comparative presentation of States situation in the most current year (2020) shows that Adamawa and Anambra States have the highest unit costs of pupil's school needs, while lower costs are recorded in Kwara, Osun and Rivers State.

Inequalities in the cost of Educating an ECE learner by type of institution, geographical location and residential area.

Analysis based on literature review showed also that Early Childhood Education has become a lucrative business for most profit-driven private institutions, resulting in a failure to meet national policy standards. This has led to a differentiation or categorization of the Early Childhood Education centers in the private sector into, namely (i) low-cost private preschool center where costs per annum range between ₦ 5,000 and ₦ 30,000, (ii) average-cost preschool centers where costs range between ₦ 30,000 and ₦ 100,000 and (iii) high-cost centers where costs are in the range of between ₦ 100,000 and ₦ 300,000.

Kayode (2013) indicated that the unit cost of preschool education per child per annum in urban area was ₦ 29,000 against ₦ 10,500 in rural centers. In private institutions, this cost was ₦ 26,000 compared to ₦ 15,000 in public ones. Ordinarily, this

cost is usually higher in private institutions than in public ones. This cost is ₦ 20,000 in the North, as noticed in Jigawa state², and ranged from ₦ 5 500 (low-cost preschools) to ₦ 41 500 (high cost-preschools) in the South, as seen in Bayelsa state³.

From the study conducted, it was observed that, the share of exclusive expenditure on early childhood and pre-primary education in the total education expenditure is far below the 10% recommended by UNESCO and has even worsened over 2014-2020.

The share of exclusive expenditure on Pre-primary education in total expenditure of education sector has fallen from 0.77% in 2014 to 0.66% in 2020, i.e., an average annual fall of 0.35% over the period, representing an average of 0.86% per year.

To achieve Early Childhood Education for all in line with the SDG 4 targets, Nigeria will have to make considerable efforts to mobilize sufficient finance to cover the requirements in terms of human and material resources

In a **first scenario** (target of 100% of GER and a PTR of 15), the average annual cost of early childhood education in Nigeria would amount to USD 6.818 billion over the period 2022-2030, implying a financial gap of USD 3.742 billion. In a **second scenario** (GER of 80% and a PTR of 15), the annual cost and financial gap would respectively be USD 5.51 billion and USD 2.49 billion. The average annual cost and financial gap would be USD 4.55 billion and USD 1.52 billion respectively under 2022-2030 period, in a **third scenario** (assuming a GER of 80% and a PTR of 25).

Recommendations

From the findings and analysis made, recommendations at several levels have been made. The recommendations are structured around four issues or axis, namely (i) Strengthening Education Provision, Demand and Equity in the Nigerian Early Childhood Education System, Strengthening the supply of educational materials and equity in the Nigerian education system, (ii) Improving the quality of education services, (iii) Early Childhood Education Financing (iv) Management of the early childhood education system

Axis 1: Strengthening Education Provision, Demand and Equity in the Nigerian Early Childhood Education System

- Strengthen early childhood education system
 - *Initiate construction of new centers/classrooms*
 - *Ensure that most primary schools have a pre- primary section.*
 - *Recruit, train and assign new ECE teachers in a rational and supportive manner, consistent with the priorities and needs of each state*
 - *Further modernize the human resources management system*
- Reducing inequities in access to early childhood education

² Jigawa State Education Sector Strategic Plan 2013-2022

³ Asodike (2012)

- Sensitize households that are reluctant to enrol their children in ECE
- Provide financial support to households that do not have sufficient financial resources to send their children to ECE centers
- Addressing disparities
 - Continuing the actions in favor of the schooling of children with special needs.
 - Continue to provide adequate infrastructure and equipment, giving priority to states/ LGAs where school indicators such as pupil/school ratio, pupils/classrooms, etc. are high.
 - Redeploy education personnel in a rational and supportive manner, consistent with the priorities and needs of each state.
 - Strengthen actions for low enrolment states by supporting school feeding actively for example.
 - Expand early childhood education throughout the country in both urban and rural areas and define the respective roles of the different actors to ensure participatory and inclusive education

Axis 2: Improving the quality of educational services

- Improve the availability of basic resources in quantity and quality
 - Conduct a diagnosis of the supply channels for textbooks and teaching materials in order to remove bottlenecks
 - Strengthen national capacity for the domestic production and distribution of quality textbooks and learning materials
 - Strengthen the capacity of schools in the management of textbooks and teaching materials
 - Provide one free school manual per pupil and meet the needs of new curricula in a timely manner; a manual-to-student ratio of 1 is highly desirable for effective learning
 - Teaching and learning materials for both teachers and pupils should be made a vital provision in all learning centers for effective teaching and learning
 - Ensure that each early childhood education center is well fenced and has relevant facilities
- Improve the student-teacher ratio
 - Engage in the construction of new specialized early childhood teacher training centers and strengthen existing ones
 - Effective measures should be ensured in the training of early childhood/pre-primary teachers through adequate scholarships, approving the study of such programmes in all Universities, Institutes of Education and Colleges of Education
 - Ensure a maximum of 15-25 pupils per teacher for effective teaching and learning; in accordance with the NPE.
- Increase the number of qualified teachers and improve curriculum
 - Provide in-service training for teachers through training seminars, conferences and workshops; this will prevent stagnation of knowledge

- *ECE teachers and Caregivers must be trained in Information and Communication Technology*
- *It is also suggested that the government should compile and produce an anthology of Nigerian and African songs, stories, games, poems, riddles, and tongue twister in form of Handbook for parents and caregivers.*
- *Ensure a regular quality control in ECE Schools*
 - *There is the need for the Government to sustain ECE as emphasized in the provisions of National Policy on Education*
 - *There is the need for State Ministries of Education officials to enforce the regulations laid down by the Federal Ministry of Education with regards to the provisions of early childhood education for continuous improvement.*
 - *Set up an appropriate legislation to ensure that only people who have relevant qualifications in Early Care Education are allowed to own or manage ECE schools*
 - *Regular supervision and monitoring with stiff penalties for offenders will help to maintain standards*
 - *Effective monitoring units should be set up and strengthened by the Federal and state Ministries of Education, and the Universal Basic Education Boards (at Federal and state level) and provided with necessary materials and financial resources to maintain the monitoring framework in both public and private pre-primary institutions in Nigeria.*

Axis 3: Early Childhood Education Financing

- *Significantly increase funding for Early Childhood Education and ensure sufficient level of public and international resources for this sub-sector*
 - *The government must increase the budget for Education (At least 20%) and early childhood education to at least 10% of the total education budget, and ensure that this budget is allocated in an equitable manner geographically (south against North) and across states.*
 - *Donors should lead by example by adopting the same commitment and allocating at least 10% of their investments in education to this sub-sector*
 - *For quality education based on the sufficient supply of learning materials and improved pupil-teacher and classroom ratios, the government and its partners should commit to devote at least 4%, 14% and 20% of early childhood education expenditures to the purchase of learning materials, teacher training and classroom construction respectively*
 - *Create an attractive salary scale which will provide incentives that would retain the best minds in the profession and regulate fees to encourage parents*
 - *Policymakers, international partners and donors must commit to full accountability for financing ECE in order to enhance advocacy at the international level and sustainable financing.*
- *Establish a common vision for the sub-sector between state governments, the Federal government, donors, and partners, and priorities in a complementary*

manner so that funding and technical assistance are available when and where they are most needed

- *The realization of a broad coalition of partners supporting multiple service providers-including public, private, and non-profit organizations and actors such as faith based and civil society organizations, and parents of pupils.*
- *In the early childhood education sub-sector, the role of the FME will be different from that in other sub-sectors: It will need to be more flexible, with a greater emphasis on quality assurance and the establishment of a supportive regulatory framework for service providers. Once programs are rolled out, the FME will also have a role to play in ensuring equity, emphasizing quality and ensuring that those most in need of services have the greatest access to public funding*
- *National and international partners play a critical role in investing in this nascent sub-sector, providing scalable resources to fill gaps that national funding alone cannot fill. Capacity building, training, and other technical assistance will be fundamental, as will a commitment to work with local institutions and ensure the transfer of capacity to a stable ECE sub-sector*
- *Families and communities must also be involved in this process as they accompany children in their learning at home and are primarily involved in the development of quality programs that can help them get a good start in life*

Axis 4: Management of the early childhood education system

- **Design an ECE sub-sectoral framework to define an early childhood policy with action plans**
 - *Develop annual plans on the basis of a technical note (for the various actors) based on annual evaluations and lessons learned*
 - *Draw up an annual framework letter for the financial resources of the Technical and Financial Partners (TFP) in addition to that of the State budget, discussed with the national party*
 - *Carry out budgeting consistent with annual plans in line with updated priorities and approaches*
- **Further operationalize the mechanism for coordinating and monitoring indicators and resources allocated to early childhood education**
 - *Systematize the periodic (annual) production of progress reports*
 - *Define with state and federal governments realistic and achievable flexible options with minimum thresholds for a gradual increase in school indicator values in relation to the Sustainable Development Goals*
 - *There must be regular collection and management of information on early childhood education (ECE), including what funds are being spent on and where it is coming from*
 - *In the upcoming years, undertake a Public Expenditure Tracking Surveys (PETS) including external funds to ensure efficient use of resources with appropriate recommendations for the targets proposed in this investment case.*
- *Establish a committee to monitor the recommendations made*

1. INTRODUCTION

1.1. Context

Macroeconomic situation

After three years of recovery with GDP growth estimated at 0.81% in 2017, 1.92% in 2018, 2.21% in 2019, the Nigerian economy slipped into a recession in 2020 with a GDP growth estimated at -4.28% (World Bank, 2020). The fall in crude oil prices due to the fall in global demand and containment measures to fight the spread of COVID-19, are the main causative factors.

The fiscal deficit estimated at 4.3% in 2019, widened to 5.2% in 2020, financed mostly by domestic and foreign borrowing. The situation is due to pandemic-related spending pressures and revenue shortfalls (African Development Bank (ADB), 2020) with total public debt which stood at USD 85.9 billion (25% of GDP) as at 30 June 2020 which is 2.4% higher than a year earlier. Domestic debt represented 63% of total debt, and external debt, 37% (ADB, 2020).

This macroeconomic situation is more challenging now than in 2015-2016, when oil prices fell sharply and Nigeria experienced its first recession in 25 years. In the current situation, Nigeria has fewer buffers and policy instruments to cushion adverse effects. The Excess Crude Account is depleted, external reserves are highly reliant on short-term flows, and policy uncertainty affects investor confidence. Before the 2016 recession, Nigeria's economy was growing fast at 6.3%. By contrast, before COVID-19 struck, the economy was growing at 2.2%. Inflation was in single digits in 2014, compared to about 12% in 2019. The general government fiscal deficit was 4.4% of GDP in 2019, compared to 1.8% in 2014.

Social situation and poverty

According to the Human Development Index, Nigeria ranked 158 of 189 countries with a Human Development Index (HDI) estimated at 0.534 which is considered as low (United Nations Development Program (UNDP), 2019). Considering the Human capital index, Nigeria occupies the 168th place out of 174 countries with a value fixed at 0.36 (World Bank, 2020).

High unemployment (27%), poverty (40%) and growing inequality remain major challenges in Nigeria (ADB, 2020). Indeed, inequality, in terms of income and opportunities, remains high and has adversely affected poverty reduction. The lack of job opportunities is at the core of the high poverty levels, regional inequality, and social and political unrest. Without the COVID-19 shock (the counterfactual scenario), about 2 million Nigerians were expected to fall into poverty in 2020 as population growth outpaces economic growth (World Bank, 2020). With COVID-19, the recession is likely to push an additional 5 million Nigerians into poverty in 2020, bringing the total newly poor to 7 million this year.

Focusing on children, it is noted that Nigeria ranks among the ten countries with the largest number of children at risk of poor development (Lancet, 2016). UNICEF noted

that the country is putting its children at risk of under-development because more than half of Nigerian children under five risk poor development due to lack of Early Childhood Development (ECD) support (Nigeria's Minister of Health, 2017). A 2016 national survey indicated that 31% of children under the age of five are moderately or severely underweight in Nigeria.

The under-investment by the different tiers of government in the provision of social services and pre-primary education in particular is detrimental to Early Childhood (under-5 population) Education whose future depends on it. Despite ECE's place on the global policy agenda, it is among the most underfunded sub-sectors, with estimates suggesting that spending on one year of high-quality pre-primary education alone must increase annually from USD 4.8 billion in 2012 to USD 31.2 billion annually on average between 2015 and 2030 to reach ECE targets (Results for Development Institute, 2016). In Nigeria, the share of exclusive pre-primary education expenditure in total education expenditure stood at 0.66% in 2020, while in 2013 UNESCO recommended that a minimum of 10% of all education expenditure (or two percent of government total expenditure) be allocated to pre-primary education (UNESCO, 2015).

The objectives of the Nigeria early education programme include: to prepare the child for the primary level of education; to enable a smooth transition from the home to the school; to provide adequate care and supervision for the children while their parents are at work (on the farms, in the markets, offices, etc). The objectives also include to inculcate social norms; to inculcate in the child the spirit of enquiry and creativity through the exploration of nature, the environment, art, music and playing with toys; to develop a sense of co-operation and team spirit; learn good habits, especially good health habits, and to teach the rudiments of numbers, letters, colours, shapes, forms etc, through play (NPE,2004).

In 2018, 7,159,262 children of which 3,588,604 were male and 3,570,658 were female, in Nigeria were attending early education programs. The Early Childhood Care and Development Education (ECCDE) is offered in Nigeria by both private and public schools. Overall, the number of children reached in total was 3,662,776 pupils (of which 1,834,002 were male and 1,828,774 were female) in public institutions and 3,496,486 (of which 1,754,602 were male and 1,741,884 were female) in private schools. The number of public schools amounted to 33,214 nationwide, of which the largest number was recorded in the North-Western states, with 10,900 schools (UBEC,2019).

Obviously, Early Childhood Care and Development Education (ECCDE) objectives can only be achieved when there are adequate professional teachers, adequate infrastructural facilities, adequate instructional materials, and adequate supervision. In his study, Nwuche (2018) posited that in Nigeria early childhood education as it concerns the teachers who teach, the quality is still generally low.

Context of the study

The responsibility for Education Policy in Nigeria is shared between Federal, State and Local Government authorities, with concurrent education authorities existing at state and federal levels. While state and federal ministries of education hold the core policy mandate for education, the Universal Basic Education Commission (UBEC), and State Universal Basic Education Boards (SUBEBs) administer basic (pre-primary, primary and lower secondary) education. The education budget in Nigeria is also split between authorities, with the primary sources of funding being households, direct federal transfers to local government authorities, the Universal Basic Education intervention fund, and state budgets (both from federal transfers and locally generated revenues). Schools operate a 1-6-3-3-4 system, with one year of pre-primary, six years of primary, three years of lower and upper secondary, and four years of tertiary education.

There is a long history of the release of funding being linked to the production of state level education sector plans (ESPs) in Nigeria. This has included development agencies and government departments and units (Universal Basic Education Commission UBEC). In previous years, plans were used predominantly for NIPEP (Nigerian Partnership for Education Project)⁴, occasionally by Development Partners (DPs) but not by states. This incentivised plan development, rather than plan implementation has resulted in plans being built for funding requirements rather than alignment to a sector-wide strategy at state level or a national strategic framework.

Over the years, this has resulted in a plethora of plans, not aligned with each other or with the actions required to achieve the goals of the plan. Improvements or stagnation in the quality and use of plans is predominately driven by individuals in key roles at the national and state levels and the relationships between them. However, between 2013 and 2019 modest improvements have taken place in both the planning process and in plan alignment and content, due to the increased focus on planning at the national level. A renewed focus on planning globally (through both the GPE and UNESCO International Institute of Education Planning) stimulated DPs focus on planning in Nigeria, and during the evaluation period several DPs provided support to plan development, monitoring, and utilization at the state level.

The Revised National Policy on Education (2013) stipulates that a one-year pre-primary education should be an essential component of the 10-year formal basic education programme to be implemented, funded, and managed by the government in Nigeria. This is an important development that characterises Early Childhood Education (ECE) which has now been segmented into ECE (age 3–5) and

⁴ The Nigeria Partnership for Education Project (NIPEP) is funded by a grant from the Global Partnership for Education (GPE) in the amount of US\$100 million. The Project was approved by the Africa Region RVP on May 8, 2015 and became effective approximately six months after, on November 2, 2015. The project development objective of NIPEP is "to improve access and quality of basic education in selected states, with particular attention to girls' participation." The project aims to achieve this through activities supported under three components: (1) Promoting School Effectiveness and Improved Learning Outcomes; (2) Increasing Access to Basic Education for Out-of-School Children with particular focus on Girls; and (3) Strengthening Planning and Management Systems including Learning Assessment and Capacity Development. The NIPEP targets its support to five states –Jigawa, Kaduna, Kano, Katsina and Sokoto (WB-NPEP, 2015).

1-year pre-primary education (age 5–6). The 0-5 years component is about promoting care, protection, stimulation, and early learning, while the 5-6 years component aims to give one-year Education to children aged 5 years prior to their entering to primary school and make them ready for a formal school environment. The government's responsibilities are to set and monitor minimum standards as well as to develop suitable curriculum for each component.

In this context, UNICEF therefore believes that it is imperative to make investing in early childhood education (age 3-5) a priority in every country to achieve the 2030 goals. Investing in early childhood education is a cost-effective way to boost shared prosperity, promote inclusive economic growth, expand equal opportunity, and end extreme poverty. This is the reason UNICEF is working to increase investment in family-friendly policies, including paid parental leave to care for young children and access to quality, affordable childcare, which makes good sense for governments because it helps economies and businesses, as well as parents and children.

It is within this framework that this study has been launched to develop an investment case of early childhood Education (ECE) in Nigeria.

The general objective of the study is to contribute in generating evidence for policy reforms that will boost basic education in Nigeria through qualitative and quantitative improvement in investment in Early Childhood Education (ECE, age 3-5).

The general objective can be broken down into four specific objectives:

1. provide better understanding of comprehensive financial needs to ensure planned ECE results;
2. make available estimated level of ECE results including wider development impact one could achieve with the right resources;
3. provide a clear analysis of ECE funding flows and in-country plans and options of how-to step-up efforts to meet needs in a sustainable manner;
4. provide a clear roadmap towards financial sustainability of ECE interventions.

1.2. Structure of the report

In this study we sought to generate evidence for policy reforms and action in order to improve the situation of ECE. The report is structured in six (6) sections as follows:

- the first section presents the general background and context of the study. It presents the challenges of ECE in the world in general, and particularly in Nigeria; and the need for conducting the study to generate evidence for policy action;
- the second section presents the methodology used to conduct the study. It shows the process adopted to conduct the study, the issues and analytical questions and the challenges faced in conducting the study;
- in the third section, the performance and challenges of Nigerian education sector were analysed. In this section, the Nigeria education system structure is first presented, with focus on the key reforms engaged in the sector. The

sector was also analysed according to its performance in terms of accessibility to ECE and quality of ECE services;

- in the fourth section, the cost and financing of ECE were analysed. The section presents the structure of services financing (State, NGOs, Household and Communities financing) and the cost of ECE services;
- in the fifth section runs some projection models to estimate the cost and financing of ECE services were presented;
- based on all results gotten in previous sections, the last and sixth section contains some of the recommendations made.

2. PROCESS AND METHODOLOGY

2.1. Progress of the study

The implementation process of conducting this study was structured in three main steps as follows: (i) the inception of the study, (ii) the data collection and processing, and (iii) the analysis, reporting and validation of results.

- **Inception of the study**

The inception of the study took place from February 18th to March, 17th, 2021. The inception of the study allowed to make preliminary analysis of the institutional context of early childhood education (ECE) in Nigeria. During the inception period, a delineation of the scope of the study was done and clarification of the areas and questions of analysis was agreed on. The inception of the study also allowed to make consultations, gather information and do a sensitization of key stakeholders.

The inception of the study involved several activities such as:

- A technical meeting to launch and coordinate the study. The meeting took place on February, 17th, 2021. The meeting enabled UNICEF and AMD to have the same comprehension of the objectives of the study and the different approaches to use to conduct the study.
- A preliminary literature review and the analysis of the draft of the inception report also took place from February, 18th to March, 2nd, 2021. This activity allowed to determine the methodological approach, the work plan and the data collection tools. The draft of the inception report was transmitted on March, 3rd, 2021.
- Key stakeholders were also consulted and informed in order to better determine the scope of the study and better get their expectations about the study. This activity took place from February, 18th to March, 2nd, 2021.
- A technical meeting held at Abuja from March, 10th to March 11th, 2021. The meeting was prepared from March, 4th to March 9th, 2021. It allowed for the review of the draft of the inception report and to make sure that the expectations expressed in the Terms of Reference (TOR) were well addressed. The meeting resulted in the elaboration of a final inception report which took into account the different suggestions made during the Abuja meeting and was transmitted on March, 17th, 2021.

- **Data collection and processing**

The data collection and processing took place from March, 22nd to May, 29th, 2021. The activities undertaken during this step involved: (i) preparations of missions/visits to the six focal states, (ii) field missions/visits to the six States in order to meet key stakeholders, and gather relevant information required for analysis, (ii) Request and transmission of additional data (not available at the time of the visit), (iii) Debriefing

session with UNICEF/Steering Committee, (iv) Data processing and (v) Constitution & clearance of the database (production of tables and graphs). At the end of this step, a database was available in order to make further analysis.

- **Analysis, reporting and validation of results**

The third step of the study process took place from June-November 2021. This final report was produced during this step and submitted for amendment. A meeting for the restitution and validation of the results of the study was held on November 15, 2021 in Abuja.

This final report incorporates the amendments made to the draft report.

2.2. Issues and analytical questions

Rationale

The National Policy on Education (1977 and revised eds. 2013) and the Universal Basic Education (UBE) Act (2004) mandate every public primary school to have a pre-primary school linkage to cater for children aged 3-5 years. This linkage was supposed to serve as a strategy for getting children ready for school and increasing enrolment and transition to Primary One. However, the Education Digest (2010) released by Federal Ministry of Education, reports a somewhat slow rate of increase in enrolment at pre-primary school level over a period of five years, 2006-2010: 2,106,508 in 2006 to 2,715,077 in 2010, representing respectively 49,57 and 56,21 percent of total pre-primary school age population (WB- Education Statistics, 2020). UBEC's recent National Personnel Audit puts total Gross Enrolment in ECE/Pre-Primary education at 7,159,262; constituting 19.12 percent of total ECE/Pre-Primary school age population with the South West geopolitical zone having the largest proportion of enrolment (UBEC-NPA, 2018; WB- Education Statistics, 2020).

The implication is that the government guideline mandating the Universal Basic Education Commission to establish pre-primary school linkages in all public primary schools has not been as successful as planned even though 5% of the 70% UBE matching grant was statutorily allocated for ECE (Early Childhood Education) by States.

As part of building evidence on investment in children, UNICEF seeks to support the Federal Government on the required investment for planned results in ECE. The proposal thus sought to conduct an investment case that will contribute to inform appropriate and targeted policy decision addressing the bottlenecks to the equitable access to basic education by the most disadvantaged children.⁵

An investment case is a national economic and political analysis of current and potential interventions to prevent and control effects. The aim is to define the costs of inaction or the status quo response, identify priority areas for action, and quantify

⁵ Programme ID & Specific Project Involved: Outcome – Output 5.2 – More teachers have core knowledge and competencies to use proven teaching methodologies to deliver appropriate quality education.

the benefits of these actions. Our case for investment incorporates both economic and political perspectives to ensure that the recommendations are made in the context of institutional capacities and economic and political environments.

Analytical questions

The key analytical questions based on the terms of references and the inception meeting, can be stated as follows:

- Which policies for early childhood education development are existing and what is/are their status?
- What are the implementation frameworks and mechanisms of these policies?
- Which qualitative and quantitative improvement are key to early childhood education development?

2.3. Difficulties encountered in conducting the study

In the process of the study, the team faced many challenges. Some of these challenges are:

- Lack of current data and reports on ECE situation in the different States visited due to insufficient archiving;
- Lack of effective education data management and information system in States visited;
- Unavailability of some stakeholders, which made data collection a bit difficult;
- Global health situation due to Covid 19 which also made difficult some movement and data collection efforts.

3. PERFORMANCE OF THE NIGERIAN EDUCATION SECTOR AND CHALLENGES

3.1. Structure of the education system

Overall structure of the Education system

The legal frameworks of Education in Nigeria are the Constitution of the Federal Republic of Nigeria, 1999; the Compulsory Free, Universal Basic Education Act, 2004 and Other Related Matters. Moreover, several National policies which have force of law, have been introduced and are being implemented by the Federal Ministry of Education and Education Agencies, as well as other competent ministerial agencies in the case of integrated inter-sectoral policies. For education sector, the last one is the National Policy on Education (NPE) published in 2007.

In the NPE, the education system is divided into formal and non-formal education. Formal education in Nigeria involves four different levels. Indeed, the system is structured into:

- Early Childhood Care and Development Education (ECCDE) for children aged from 0 to 4 years;
- Basic Education for children aged from 5 to 15 years. The Basic Education involves one year of Pre-Primary Education for 5 years old children; 6 years of Primary Education for children aged from 6 to 12 years; and 3 years of Junior Secondary Education for children aged from 13 to 15 years. It is compulsory (by law) for all children of school to attain this level of education;
- Post-Basic Education and Career Development involving 3 years in Senior Secondary Education Schools or Technical Colleges;
- Tertiary Education which is provided in Colleges of Education, Monotechnics, Polytechnics and Universities.

There is a common entrance examination for transition from Primary to the Junior Secondary school. Each State and Federal Capital territory organize smooth transition from Primary to the Junior Secondary school. After successful completion of 10-years formal schooling, a student has to write the Basic Education Certificate Examination (BECE). These examinations are organized by State Governments and Federal Capital Territory administrations.

Learners holding a BECE are allowed to receive a Post-Basic Education and Career Development. It includes: (i) senior secondary education, (ii) higher school, (iii) continuing education given in Vocational Enterprise Institutions to either Basic Education graduates who are not proceeding to Senior Secondary Schools, or Senior Secondary graduates that are not proceeding to the tertiary level, to prepare them for the world of work, wealth creation and entrepreneurship. At the end of the Post-Basic Education and Career Development, students are allowed to write West African Senior School Certificate Examination (WASSCE), the National Examination

Council (NECO) Exams, National Technical Certificate (NTC), National Business Certificate (NBC), National Vocational Certificate (NVC) or Senior Arabic and Islamic Studies Certificate (SAISC) which are continuous assessment and national examinations.

Tertiary education is given after Post Basic Education in institutions such as Universities, Nigeria Arabic Language Village, Nigeria French Language Village, National Institute of Nigerian Language, Innovation Enterprise Institutions, Colleges of Educations, Monotechnics, Polytechnics, Colleges of Agriculture, Schools of Health and the National Teachers' Institutes. It is open for students who have successfully completed their Post Basic Education certificates.

Non-formal education in Nigeria refers to basic education given to adult, children and youths of formal school age, outside the formal school system. It provides basic education for adults and youths who have never had the advantage of formal education or who left school too early.

The Education system in Nigeria is under the responsibility of Federal Ministry of Education (FME) supported by State Ministries of Education (SMOEs), FCT Education Secretariat, Local Government Education Authorities (LGEAs), Universal Basic Education Commission (UBEC) and State Universal Basic Education Boards (SUBEBs).

The FME has the overall responsibility of formulating national education policies, coordinating implementation of policy provisions and quality control in service delivery, according with National Council on Education (NCE) resolutions and directives. NCE comprises the Minister of Education (as Chair), Ministers of State for Education, State Commissioners of Education and the FCT Education secretary as members. The NCE is a room for consensus building on education policy directions.

Focus on ECCDE and Pre-Primary

For policy coordination and monitoring, ECCDE and Pre-Primary Education are under the management of Universal Basic Education Commission (UBEC) whose responsibilities according to FME (2012) include:

- a. Formulate the policy guidelines for the successful operation of the Universal Basic Education Programme in the Federation;
- b. receive block grants from the Federal Government and allocate to the States and Local Governments;
- c. prescribe the minimum standards for basic education throughout Nigeria in line with the National Policy on Education;
- d. collate and prepare after consultation with the States and Local Governments, and other relevant stakeholders, periodic master plans for a balanced and coordinated development of basic education in Nigeria including areas of possible intervention in the provision of adequate basic education facilities which include:
 - i. the provision of adequate basic education facilities in Nigeria;

- ii. carry out in concert with the States and Local Governments at regular intervals, a personnel audit of teaching and non-teaching staff of all basic education institutions in Nigeria;
- iii. monitor Federal inputs into the implementation of basic education;
- iv. present periodic progress reports on the implementation of the Universal Basic Education to the President through the Minister;
- v. develop and disseminate curricula and instructional materials for basic education in Nigeria;
- vi. establish a basic education data bank and conduct research on basic education in Nigeria;
- vii. support national capacity building for teachers and managers of basic education in Nigeria;
- viii. carry out mass mobilization and sensitization of the general public and enter into partnerships with communities and all stakeholders in basic education with the aim of achieving the overall objectives of the Compulsory Free Universal Basic Education in Nigeria.

ECCDE is the care, protection, stimulation and learning promoted in children aged from 0 to 4 years in crèche or nursery fully held by private sector, public schools and social development services. Pre-Primary education on the other hand is the one-year education given to children aged five (5) years prior to their entering primary school. The objectives of both (ECCDE and Pre-Primary) are to:

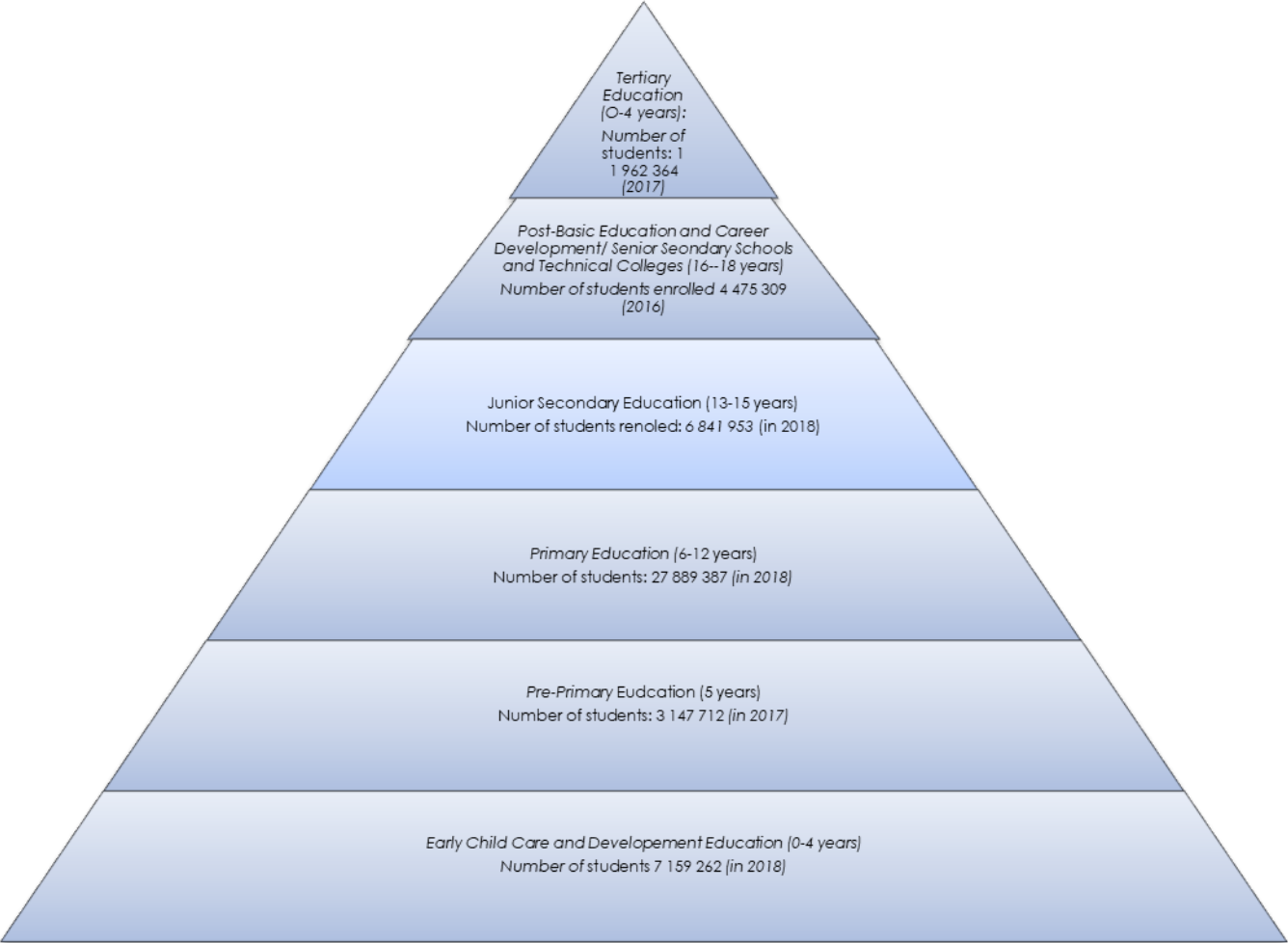
- Effect a smooth transition from the home to the school;
- Prepare children for the primary level of education;
- Inculcate social, moral norms and values;
- Inculcate in the child the spirit of creativity and enquiry through the exploration of nature, the environment, art, music, use of toys, etc.
- Develop sense of cooperation and team-spirit;
- Stimulate in the child good habits;
- Teach the rudiments of numbers, letters, colors, shapes, forms, etc., through play.

Since the commencement of the implementation of the National Policy on Education in Nigeria which seeks to ensure an optimal and qualitative Early Childhood Education (ECE), several concerns have been raised by stakeholders in respect of the quality of education in ECE and its actual implementation. Despite all measures put in place by the Federal Ministry of Education in Nigeria, there are still some lapses in the implementation and non-implementation of this programme. There is no doubt that the implementation of ECE requires the collaborative effort/input of all stakeholders, including the government, parents/guardians, and school authorities.

The Federal Government jointly with the Nigerian Education and Research Development Council (NERDC) and in collaboration with UNICEF, produced a national curriculum for the education of children between the ages of 3 to 5 years plus. This was later reviewed in 2004 to cover ages 0-5 years plus. Also in 2014, another curriculum for the One-Year Pre-Primary Education was produced by these bodies. This curriculum was meant to guide the implementation of the compulsory one-year pre-primary education. It was the first attempt by the government to provide free preschool education for Nigerian children because in the past, the provision of preschool education rested in the hands of private individuals and organisations. Besides the curricula, several policies were made, and policy documents including standards were provided to guide the implementation of ECE in Nigeria.

Figure 1: Structure of the Nigerian Education system

Source: Federal Ministry of Education, World Bank: National Personal Audit, UBEC (2019); Nigeria University System



Statistical Digest, NUC (2018); Nigeria digest of education statistics, FME (2017)

3.2. Key reforms carried out in the education sector

Education system as a whole

The current version of National Policy on Education (NPE) is the sixth edition of such a policy. The first version has been published in 1977, followed by revised 2nd, 3rd, 4th,

and 5th editions respectively published in 1981, 1988, 2004 and 2007. The current edition recalls national goals and the philosophy of education and clarifies all conditions that are required for building a qualitative education environment. The main conclusions of the policy are:

- The consolidation of Pre-Primary, Primary and Junior Secondary education to 10-years Basic Education in line with UBE and its establishment act;
- Improved quality assurance, restructuring and enhancing the capacity of Federal and States/FCT inspectorate Services through effective performance evaluation;
- The development and maintenance of a credible and up to date National Education Management and Information System (NEMIS) and corresponding State Education Management and Information System (SEMIS);
- The effective use of strategic planning to improve the quality of education provision and service delivery;
- Improving teacher quality through professionalizing the teaching profession in Nigeria and the provision of more in-service training opportunities and other incentives for teachers;
- Better coordination, collaboration and networking of activities, programmes and interventions of all tiers of government, development partners and all other stakeholders in the Nigeria education sector to eliminate overlaps, achieve and sustain synergy.

Focus on ECE

The NPE identifies three levels of education that make up Early Childhood Education in Nigeria with their respective goals. Two of these levels are preschool education while the last one is part of primary education. These levels are identified as:

- Early Childhood Care, Development and Education (ECCDE), which is meant for children between ages 0 to 4 years plus;
- Pre-primary Education, a one-year education given to children between ages 5 to 6 years plus, prior to their entry into primary school;
- Primary class (I to III), which is the lower level of primary education and it is meant for children ages 6 to 8 years plus.

The teacher-pupil ratios, for effective teaching/learning exercise, were also stipulated in the NPE as follows:

- At ECE level, crèche (ages 1-2years plus) shall be of ratio 1:10, while nursery (ages 2-4years plus) shall be of ratio 1:25;
- Kindergarten class shall be of ratio 1:25;
- Lower primary classes shall be of ratio 1:35.

Since there cannot be a good educational system without curriculum, the policy emphasizes the development, production and dissemination of curricula and necessary curriculum materials for these levels of education.

In order to protect all Nigerian languages and ensure that a child's development is appropriate for his or her environment, NPE provides a policy on the language of instruction. To this end, it is stated that the language of an immediate community (or mother tongue) shall be the language of instruction up to Primary III class during which English language shall be taught as a school subject.

The National Minimum Standards for ECE Centres (NERDC, 2007) states that the three types of ECE that can be established are day care/crèche (for 0 – 2years plus), prenursery/play group (for 2- 4 years plus) and nursery/kindergarten (4 – 5 years plus). These National Minimum Standard for Early Child Care Centres in Nigeria (NMSECCC) was produced by Nigerian Educational Research and Development Council (NERDC) with support from United Nation Children's Fund (UNICEF) and was first published in the year 2007. NMSECCC contains the rationale behind the setting up of the minimum standards, the objectives, the strategy to be adopted, the prescribed minimum standards (which cover types of centres, location, ownership, and characteristics of an effective centre), stakeholders' involvement, supervision, human resources, health care and materials, protection issues and stakeholders' roles.

Besides the types of ECE centres, the minimum standards also declare that there must be enough space for children to play and that the playground should be covered with either grass or sand; the dimension of the classroom should be 16m² for 20 – 25 children and must be well ventilated with two doors, the classroom floor must be protected and safe to play on; there must be science, health and nutrition, drama and shopping corners; 15 statutory record books, ranging from admission and withdrawal register up to school diary must be acquired by the centres. The furniture suggested include child-size chair (one per child and a round table per four children). It was also part of the standards that the ECE centers must be fenced for security and safety purposes.

Other concerns of the minimum standard are necessary human resources. One caregiver and some help should be in custody of 20-25 children. Health facilities such as weighing scales, growth charts and other first aid materials were suggested. Assessment methods that give proper record of growth and development were suggested. The use of growth monitoring equipment and child assessment records (which should cover all round development) was suggested. Others include government, community and parental involvement, quality of nutrition and nutrition facilities, safety measures, stakeholders' roles and supervision organogram.

Another policy document that was studied is Early Childhood Development Standards for Nigeria. This policy document presents the developmental domains that must be covered by the ECE centers for a holistic development. The social, emotional, physical and intellectual development should be equally and

adequately emphasized by the centers among other developmental factors such as nutrition, health, safety, protection and security, water and environmental sanitation. The responsibilities of the government in order to ensure that the standards set are met are also presented. Some of these are that adequate budgetary provision for regular training of ECE administrators and caregivers should be made by the government; and regular evaluation of ECE facilities should be institutionalized to ensure quality among others.

3.3. Coverage and access to early childhood education services

There are three kinds of private pre-schools in Nigeria, namely the (i) Low-cost private preschool centres, (ii) Average-cost Preschool Centres and (iii) High-cost Preschool Centres.

Table 1 provides an explanation of these pre-school centres

Table 1: Different kind of pre-school centers

Low-cost private preschool centers	The Average-cost Preschool centers	The High-cost Preschool centers
<p>Low-cost private preschool centres are usually owned by individuals, and they are profit making enterprises. Therefore, tuition fee is charged. However, because of available facilities and resources which are almost like what obtain in public centres, the fee charged is relatively low. This ranges between N5,000 to N30,000 per term</p>	<p>This class of preschool centres in Nigeria is established either by organisations such as religious bodies or institutions, averagely rich individuals, or people with background experience in the education of children. Irrespective of who the owner is, the centres are meant for profit making and tuition fees are charged, within the range of N30 000 to N100 000 per term</p>	<p>This set of preschool centres is owned by individuals that are well-to-do in the society who have been exposed to the education of young children internationally. Most of them have received background education in ECE or have acquired one kind of training or the other abroad in the education of children. The centres are also profit-making businesses, and they charge between N100,000 to N300,000 per term. This type of centre is so few that you can only see less than 5 of them in major cities and they often have few children enrolled</p>

Source: AMD International

Kayode (2013) in his study titled 'analysis on cost and financing of preschool education in Nigeria' indicated that expenditure on preschool include tuition fees which varied from ₦ 10 to ₦ 12 000 per annum, learning materials which range between ₦ 69 and 8,900 per annum per child, clothing materials varied from ₦32.5 to ₦ 8,441.25 (the mean cost on clothing per child per annum was ₦ 559.40) and; cost of miscellaneous items which was between ₦ 9.85 and ₦ 8,560. The analysis showed that the total unit cost per child per annum in preschool in Nigeria was ₦19,440.50 on average with disparities according to the residence area as well the type of institution. The table 2 shows that the unit cost of preschool in urban area is higher

than that of rural centres. Similarly, this cost is higher in private institutions than in public ones.

Table 2: Mean Unit cost in pre-school in Nigeria

Institution/Area	Unit cost (₦)	Unit cost (USD)
Private	26 000	159.147
Public	15 000	91.8156
Urban	29 000	177.51
Rural	10 500	70.3919

Source: AMD International from Kayode (2013)

For illustrative purposes, in the Jigawa State Education Sector Strategic Plan 2013-2022, which is in northern Nigeria, parent questionnaires administered in 2008 showed that the social unit cost per child per year in pre-schools was ₦ 20 000. Ordinarily, an analysis conducted by Asodike (2012) for Bayelsa State in southern Nigeria reveals that the unit cost per child per year in preschools ranges from ₦ 5 500 (for low-cost preschools) to ₦ 41 500 (for high-cost preschools). These costs include tuition, exams, uniforms, and textbooks, among others. Table 3 presents details for Bayelsa State (southern Nigeria), while details for Jigawa State (northern Nigeria) are not available.

Table 3: Private preschool Education cost in Bayelsa State (Southern Nigeria)

Cost item	Low-cost Preschool (Average cost in ₦)	High-cost Preschool (Average cost in ₦)
Tuition	6 000	20 000
Registration fees	1 000	5 000
Examination fees	500	2 000
PTA Levy	500	1 500
Excursion/welfare	2 000	4 000
Uniforms	3 000	3 000
Text book and writing materials	2 000	5 000
Development Levy	500	1 000
Total	15 500	41 500

Source: AMD International from Asodike (2012)

Evolution of the number of structures and staff

The number of ECE Centers has increased from 13,545 to 40,883 in five (5) years (from 2015 to 2020) even if there was a small decrease in 2018. According to the number of staff, it was observed that it has also increased over seven years (from 62,951 in 2011 to 154,217 in 2018). The number of staff even tripled from 2013 to 2018 meaning the sector is growing.

It was also recorded that 82% of the 154,217 staff personnel are female while 12% are male teachers. The private schools recorded more female teaching staff (93%) than

public schools (87%). This is because the female gender is far more naturally inclined towards the early stages of child development than males.

According to States considered in the study, Anambra recorded the highest number of staff (8,439) followed by Rivers (6,674), Osun (4,164), Kwara (3,770), Adamawa (2,404) and Sokoto (1,066)

Evolution of the number of children enrolled in ECE

Over the three years (2010-2013), children were more enrolled in public preschool than private preschool. This situation may be due to the availability of public facilities compared to private facilities.

In 2018, the Global enrolment rate was estimated at 39% of which 50,13% were male and 49,87% were female. In public schools, the GER was estimated at 21.09% consisting of 50,13% for male and 49,93% for female. In private school, the GERs were estimated at 14.21% (at national level) with 50,18% and 49,82 respectively for male and female (UBEC, 2019). The figures mean that public schools offer more opportunities to parents in terms of access than private schools. In early childhood education (3-5 years), with a gross enrolment of around 7 million for the whole of the Federal and States, public institutions account for 51% while private institutions represent 49% (UBEC, 2019).

In addition, more children were enrolled in nursery (age 3-4) for the four years recorded (2,684,264 in 2013/2014; 4,423,800 in 2014/2015; 2,418,752 in 2015/2016 and 3,677,474 in 2017/2018) compared to kindergarten (age 4-5) and pre-primary.

Evolution of preschool coverage

In the 2013/2014 academic year, about 4,3 million out of over almost 33 million of Nigeria children were enrolled in preschool. For 2014/2015 academic year, it was about 6,7 million of over 34 million and about 4 million of over 35 million for the following academic year (2015/2016). The figures mean that 13%, 20% and 12% of children who were supposed to start school have effectively started respectively in 2013/2014, 2014/2015 and 2015/2016 and in 2018, ECE enrolment rate was 39%.

Relative to enrolment rates of 2013/2014, 2014/2015 and 2015/2016 academic years, the 2017/2018 academic year rate shows Nigeria's progress, but it still falls short of the targets set in the NPE which makes compulsory basic education including ECE and Pre-primary education a deliberate policy.

Moreover, compared to West Africa and European Union (EU), it is observed that, in mean, Nigeria has the better enrolment rate in West Africa. But the rate is very low compared to the EU, meaning that there are still challenges for West African Governments in the development of the education sector, and improvement of its quality.

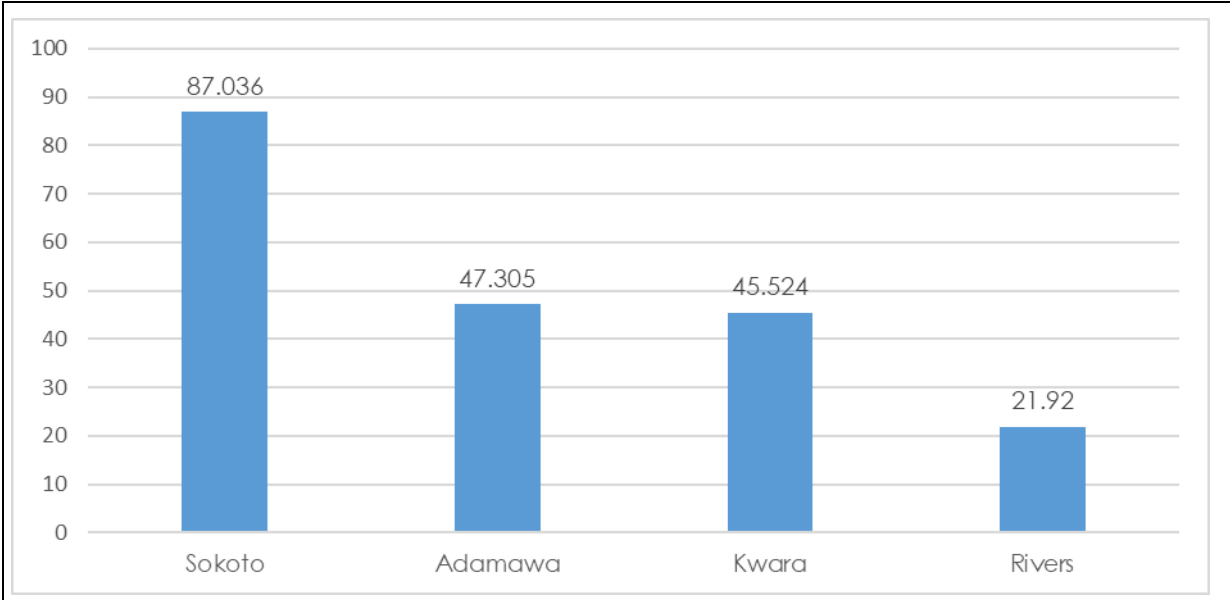
Disparities in access to ECE schools

It was observed that males are more enrolled in preschool than females, even if the disparity is very low, except for 2013/2014 academic year. Indeed in 2013/2014 academic year, the share of enrolment was 52,44% for male, compared to 47,56% for female. These shares were 51,05% (males) and 48,95% (female) in 2014/2015 and 50,41 (male) and 49,59% (female) in 2015/2016⁶.

According to State, Anambra State has the highest enrolment rate (0.28 for 2013/2014, over the three periods. The GER in that State is even higher than the National enrolment rate which ranged from 0.12% to 0.20%. For the other States, the enrolment rates were very low compared to the national enrolment rate, meaning these States are facing some challenges to enhance ECE.

Moreover, considering the total number of students enrolled by State, Sokoto comes first for the six years recorded, the number of students enrolled was the highest (34,890 males against 25,298 females in 2015/2016 academic year). Indeed, it was recorded that at least almost 60,000 students enrolled for each year with a peak at 87,000 students enrolled in 2016/2017. Adamawa (17,788 males against 16,900 females in 2015/2016 academic year) and Kwara States have around 40,000 to 50,000 students enrolled (26,667 males against 26,007 females in 2015/2016 academic year) while Rivers State recorded around 20,000 to 40,000 students enrolled (7,851 males against 8,124 females in 2015/2016 academic year) (Graphic 1)⁷.

Graphic 1: Number of Student enrolled in ECE centre in 2016/2017 academic year



Source: AMD International from UBEC, 2019

⁶ Federal Ministry of Education: <https://education.gov.ng/nigeria-digest-of-education-statistics/>

⁷ Data for Anambra and Osun were not available.

In order to better explain disparities in access to preschool learning, we did a regression model in order to identify socio-economic characteristics which have an impact on children access to preschool learning. Access is measured through enrolment status of children (from 0 to 5 years) and socio-economic characteristics refer to gender (children and head of household), household poverty situation measured through monthly expenditures, household head matrimonial status, place of residence (urban or rural), household head education status (not educated and educated), household head religion (Christian, Muslim, Animist) and State. The Table 4 summarizes information about the regression variables. Since the dependent variable is measured through the enrolment status of children (dichotomous variable), a Probit model was used for regression. Data used for regression were data collected in 2020.

Nigeria ECE enrolment status is mainly explained by household social status and marginally by household financial conditions

The results of the regression of the Nigeria preschool access determinants, listed in table 3 show that indicators of household social status are the factors that have the greatest explanatory power on ECE enrolment, by the value of their coefficient and their significance level.

Indeed, access to ECE is positively determined by the head of the household and the child being male (male children are more likely to attend preschool than female children, as well as male heads of household are more likely to send their children to preschool than female heads of household) and negatively by either being Christian or Muslim.

Head of household religion (Christian, Muslim, Animist)

These variables capture the influence of religion on children's school enrolment. The regressions show that the coefficient of this indicator is negative (-0.43) and significant at the 10% level. This means that if the religion of the household head is Christian or Muslim, the probability that the child will attend preschool decreases by 0.43 percentage point. A possible explanation for this situation is the existence of religious instruction centers such as Quranic schools that enrol children at the expense of formal schools. Thus, if the head of the household is of a religion that has these centers of instruction, the child of that household is more likely to be sent to these centers instead of going to preschool. These results are consistent with those found by World Bank (2017), which argues that in Nigeria's predominantly Muslim north, education demand barriers include cultural opposition to formal education, especially for girls. This argument is also consistent with the findings of UNICEF (2017) which reports that in the North-Eastern and North-Western states, 29 percent and 35 percent of Muslim children, respectively, receive a Quranic education, which does not include basic skills such as reading, writing, and arithmetic and the government considered children attending these schools to be officially out of school.

The Gender of child and household head

The child gender and household head gender variables account for the effect of gender on children's chances of enrolling in preschool. The regression results indicate

that their coefficients are negative (-0.24 and -0.54, respectively) and significant at the 5% level.

These variables significantly determine preschool access in Nigeria. In fact, all other things being equal, when the child is male, his likelihood of attending preschool increases by 0,24 percentage points compared to female children. Similarly, when the head of the household is male, the probability that children will attend preschool increases by 0,54 percentage points relative to children whose household head is female. This could be explained by the fact that men have more decision-making power than women and therefore can quickly take responsibility for sending children to school even at an early age. In contrast, women who are the head of the household, perhaps because the husband is not around, may be very reluctant to take responsibility for sending children to school early. Another tangible explanation is that very often men are more productive and may have more financial resources than women to send their children to school and even to a private institution, which is often more expensive than a public one. Households led by women face more financial constraints than household led by men.

Household poverty situation

It was observed that as household wealth has a positive influence on enrolment in ECE centers, its coefficient, although marginal (0,00012), is positive and significant at the 10% level. Then, if the wealth level of the household head increases by one monetary unit, the probability that the child in that household will access the ECE center improves by 0,00012 percentage point. This result means that the more the household is financially stable the more the child has a chance to be enrolled in ECE school. Having a higher level of wealth allows the household to have financial resources to pay for children's schooling fees and to meet their needs for school supplies among other things.

Table 4: Probit regression results

Variables	Coefficients	Significant ⁸
State residence	.0026827	NS
Sector	-.2606432	NS
Head of household gender	-.5479777	**
Head of household marital status	.0648358	NS
Head of household religion	-.4328856	*
Head of household education status	-.0042786	NS
Household wealth	.0001231	**
Child gender	-.2407232	**

Source: AMD International from probit estimation

⁸ *= significant at 10% (p<0.1); **= significant at 5% (p<0.05); NS=not significant

3.4. Quality and efficiency of preschool education services

Supervision condition for children benefiting from school

As presented in Table 5, in 2018, the ratio (children/teacher) was respectively estimated at 83.3, 31.54 for public and private sectors; meaning one teacher was in charge of about 83 students in public schools and of about 32 students in private schools. At the national level, this ratio was estimated at 46.42. Then, one teacher in public school supervises more of almost double of pupils compared to his counterpart in private school; meaning that pupils in public schools are numerous while teachers are not recruited in adequate number/proportion in order to fit the increased number of pupils.

Table 5: Supervision rate (children/teachers' ratio) in 2018

Sector	Number of pupils	Number of teachers	Ratio
Public	3 662 776	43 968	83.30
Private	3 496 486	110 849	31.54
National	7 159 262	154 217	46.42

Source: Universal Basic Education Commission, 2019: 2018 National Personal Audit

In addition, when analysing the number of pupils compared to the number of schools (Table 6), it appears that public sector has the higher number of pupils in one school on average. Indeed, in one public school, we counted on the average 110 pupils (meaning 45 students by classrooms on average), while in a private school, the average number of students is 72 (meaning 19 students by classrooms on average). This situation may hinder the quality of teaching in public schools and may be due to the financial accessibility of public schools.

Table 6: Supervision rate (children/schools' ratio) in 2018

Sector	Number of pupils	Number of schools	Ratio
Public	3 662 776	33 214	110.28
Private	3 496 486	48 348	72.31
National	7 159 262	81 562	87.77

Source: Universal Basic Education Commission, 2019: 2018 National Personal Audit

Qualification of educational staff

A major issue that constitutes a challenge to Early Childhood Education in Nigeria is the quality and commitment of teachers and caregivers at this level of education. Schools are staffed with teachers with little or no qualification and experience on Early Childhood Care and Education. Privately owned pre-primary schools engage mostly secondary school leavers as teachers. Private proprietors of pre-primary schools engage unqualified teachers to teach the children in order to minimize cost involved in the payment of staff salaries. Closely related to the problem of untrained teachers at the pre-primary level of education in Nigeria is the issue of teachers' devotion to duty. A good number of these teachers have been crippled with poor condition of service and irregular payment of salaries. This situation makes them to

be disillusioned and less committed to their job. All stakeholders of pre-school education in Nigeria should motivate the teachers in one way or the other. This will arouse the teachers' interest to do their work effectively. It is equally important to create an attractive salary scale which will provide incentives that would retain the best minds in the profession. The issue of inadequate trained pre-school teachers and caregivers will be solved when the government trains more pre-primary teachers since presently the stipulated teacher – pupil ratio of 1:25 as stated in the Policy document is not attainable due to the fact that new pre-primary centres now mushroom all over the states in Nigeria, there should also be provision for retraining of caregivers and pre-school teachers by exposing them to workshops, conferences and other viable programmes to enable them acquire mastery experiences to lead and teach the children better. This will also prevent stagnation of knowledge.

Educational teaching staff with a NCE and by experience

A Nigerian Certificate in Education (NCE) is the lowest qualification required to teach in basic education in Nigeria. At this level of education, a qualified teacher means that the teacher possesses NCE and/or a degree in another subject.

According to the national personal audit published in 2018, public schools recorded the highest more qualified teaching staff (73%) compared to private schools (53%) in Nigeria.

But, in ECE, private schools recorded more qualified teachers (53,317) than public school teachers (35,169). In addition, more female teachers in public schools (31,645) and private schools (50,208) were more qualified than their male counterparts.

According to State, Adamawa (60%), Kwara (60%) and Sokoto (60%) recorded the same percentage of qualified teachers. This percentage is almost the same for Anambra (58%) followed by Rivers (49%) and Osun (48%).

As many as 40% of teachers had only limited experience (0-5 years), even in private ECE schools that had been around since the 1970s. This could be due to regular movement of teachers from private to public schools where they are sure of job security.

Educational teaching staff by diploma

As indicated in Table 7, NCE is the qualification most held by teachers in ECE (32,722 in 2013 and 35,839 in 2014). The reason may be that it is the minimum qualification required to teach in ECE school. In addition, it was also observed that not a negligible number of teachers in ECE possesses higher degree, meaning that ECE can be as interesting in terms of opportunities as other levels of education. Finally, the number of qualified teachers in ECE has been on the increase (52,810 to 56,588 from 2013 to 2014). This situation may be consistent with the increasing number of school and students enrolled in ECE schools.

Table 7: Qualification of ECE school teachers by diploma

Diploma	2012/2013	2013/2014
Higher degree with teaching qualification	372	863
Higher degree with teaching	304	352

Diploma	2012/2013	2013/2014
qualification		
First degree with teaching qualification	3779	4544
First degree without teaching qualification	818	857
HND with teaching qualification	568	601
HND without teaching qualification	1 291	1 098
NCE	32 722	35 839
Diploma in education	1709	2 550
OND	698	709
ACE, ACIE or equivalent	410	387
TC II or equivalent	4 750	4 144
TC II referred	1 022	1 213
Below TC II	4 367	3 431
Total	52 810	56 588

Source: Federal Ministry of Education/<http://education.gov.ng/Nigeria-digest-of-education-statistics/2021>

In 2018, there were 35,169 qualified teachers against 14,188 unqualified teachers in public ECE school. In addition, the 2018 National Personnel Audit reported that in these public school, out of a total of 23,336 teachers, 2,017 received training, while 21,319 did not in the last five (5) years (UBEC,2019).

Availability of manuals and curriculum

Instruction materials are not sufficiently provided in both public and private school, though the situation is better in private schools. Indeed, one Textbook (for all types) is shared by at least 10 students at the national level. In public schools, sciences and technology textbooks are of a higher ratio since the textbook is shared among 26 students followed by social studies (one for 23 students), Mathematics (one for 19 students) and English (one for 15 students) textbooks. In private schools, social studies textbooks are the least provided in sufficient number (one for 15.12 students) followed by Sciences and Technologies (one for 14 students), Mathematics (one for 9 students) and English (one for 8 students) textbooks.

The majority of the ECE centres in public primary schools do not have the national curriculum and all the policy documents that have been published since 2007. The few centres that had the documents claimed it was as a result of the extra efforts of the school's head teachers who heard about the documents during self-sponsored development programme they had attended. Only a few of the centres have any of the curriculum materials such as scheme of work (based on the Nigerian ECE curriculum, or the one-year pre-primary curriculum) and instructional resources that could facilitate the implementation of the curriculum. In fact, the caregivers who had access to the curriculum complained that it was too complex to comprehend which makes it difficult to implement. Majority of the centres rely on either primary

one curriculum, adopted the foreign curriculum used by the private centres or the experience of the teachers to get what to teach the children.

Table 8: Situation of instructional material in 2018

Instruction Materials	Public	Private	National
Total number of ECE enrolment	3,662,776	3,496,486	7,159,262
Total number of English Textbooks	245,401	461,038	706,439
Learners/English Textbook Ratio	14.92	7.58	10.13
Total number of Mathematics Textbooks	193 669	403 199	596 868
Learners/Mathematics Textbook Ratio	18.91	8.67	11.99
Total number of Basic Science & Tech Textbooks	137 570	241 309	378 879
Learners/Basic Sc & Tech Textbook Ratio	26.62	14.49	18.89
Total number of Social Studies Textbooks	152 638	231 243	383 881
Learners/Social Studies Textbook Ratio	22.99	15.12	18.65

Source: Universal Basic Education Commission

State of infrastructure

Effective teaching and learning process usually take place in a conducive environment with adequate provision of spacious, well-ventilated classroom space, tables, chairs, instructional materials, play materials and toilet facilities for pre-schoolers. However, most of these facilities are lacking in most nursery and pre-primary institutions in Nigeria. Early childhood education is now a lucrative business that anybody can embark on as long as you have the resources to rent or buy a house. These schools are often located in noisy and unhealthy environments with limited open spaces for children to play and exercise their limbs. This situation on ground for most nursery schools is not conducive for young children to learn.

Most nursery schools lack adequate toilet facilities for the pre-schoolers, the classrooms are small in size and often crowded. Thus, the sitting arrangement does not provide space for movement of teachers and pre-schoolers. This situation of crowded classrooms greatly limits quality interaction between the teacher and the pupils. To solve this problem, proprietors of pre-school institutions should adhere closely to government stipulations on establishment of nursery schools in Nigeria. The government apart from making policies, should build more schools and set down policies to guide their operations. This would drastically reduce the problem of crowded classroom in the pre-school sector.

Nursery schools in urban centres can boast of substantial quantity of didactic materials for children to explore nature, the environment, art and music. On the other hand, nursery schools in rural areas are scantily equipped with didactic materials and thus stifling impression which the children can make of the world by exploring these materials. The above problems associated with lack of facilities and equipment in our nursery schools can also be solved when quality assurance in nursery schools in the various Local Government Areas in Nigeria is vigorously pursued by the state government by monitoring the nursery schools in the Local Government Areas to ensure they maintain standards.

Assuming that most primary schools have an ECE supply (ECE centres integrated into the primary schools), this section covers three types of facilities available in primary schools: safe water facilities, source of electricity facility and health facilities. As

presented in Table 9 health and safe water facilities are the most provided in all the six States, meaning electricity facilities are the more difficult to acquire for primary schools. For Safe water facilities, Adamawa (74%) and Anambra (75%) are the States with the lowest access in percentage, while Rivers is the State with the highest access in percentage. Adamawa has also the lowest access in source of electricity (54%) while Rivers has again the highest access. Finally, Adamawa has again the lowest access in health facilities while Kwara has the highest access (92.5%) followed by Sokoto and Osun.

On the average and considering the six States, it appears that facilities are well provided in primary schools even if there are several gaps to fill.

Table 9: Situation of school's facilities in 2018 by State (Primary schools)

States	Safe Water	Source of Electricity	Health facility
Adamawa	534 (74.06%)	387 (53.68%)	546 (75.73%)
Anambra	1368 (74.84%)	1334 (72.98)	1508 (82.49%)
Kwara	1264 (86.16%)	984 (67.08%)	1357 (92.50%)
Osun	1719 (86.56%)	1329 (66.92%)	1829 (92.09%)
Rivers	1070 (92.54%)	1558 (89.44%)	1574 (90.36)
Sokoto	194 (89.58%)	167 (86.98%)	177 (92.19%)

Source: Universal Basic Education Commission (2019)

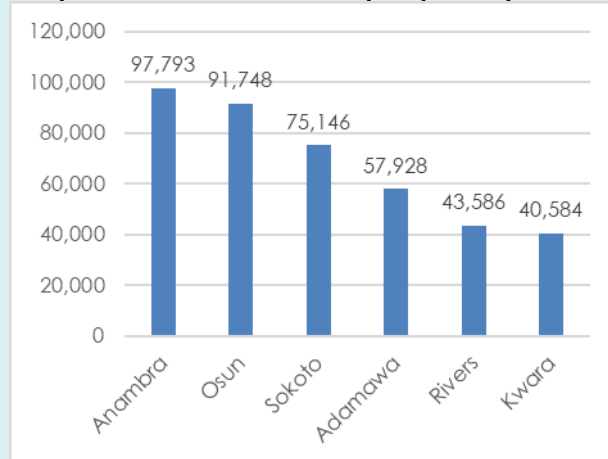
Comparative presentation of States situation in the most current year (2020)

The comparison of the States situation outlines a statistical description of the total enrolments in pre-primary school and associated cost of pupil's school needs in the six states involved in this study. In addition, the number of ECE trained teachers and associated cost as well as their average salary are presented.

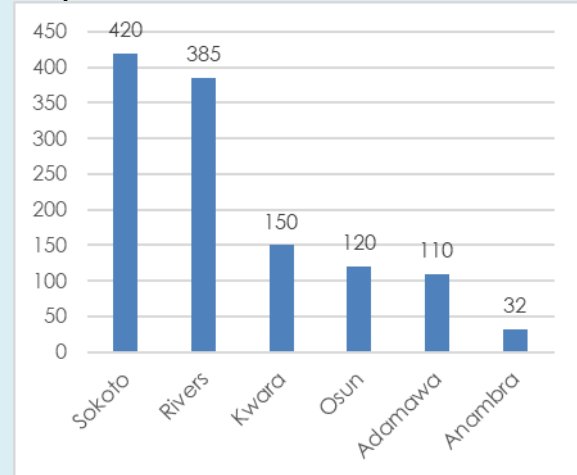
Total enrolment in pre-primary school and number of trained teachers in the six States considered in this study

The graph 2 and graph 3 present the total number of enrolments and teachers in the six states included in this study. The graphic 2 shows that Anambra state has the highest (maximum) enrolment of 97,793, followed by Osun (91,748), Sokoto (75,146) and Adamawa (57,928), while the average enrolment for the six States is 67,797.50. Kwara and Rivers states come in last position with a total enrolment of 40,584 (minimum) and 43,586 respectively.

According to graph 3, Sokoto State has the highest teacher number of 420 (maximum), followed by Rivers (385), Kwara (150), Osun (120) and Adamawa (110). Anambra state has the lowest trained teacher number of just 32 (minimum), compared to an average of 202.83 for the six states.

Graph 2: Total enrolment in pre-primary school

Source: Field mission (Data Gathering)

Graph 3: Number of trained teachers

Source: Field mission (Data Gathering)

Estimated unit cost (per child per annum) of pupil school needs in the six States

The estimated unit costs of pre-primary pupils school needs in the six states of this study, i.e., uniform, learning materials, feeding and transportation, are shown in graphs 4, 5, 6 and 7, respectively.

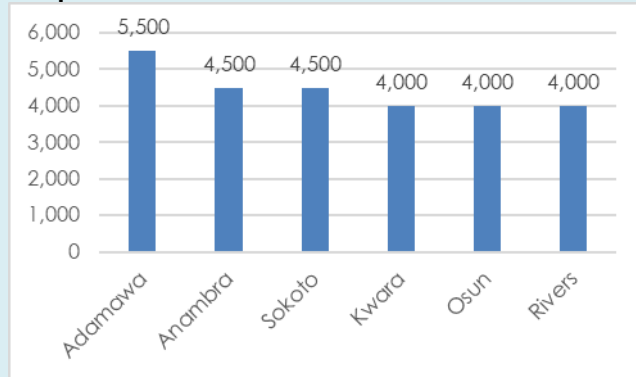
According to the graph 4, Adamawa state has the highest (maximum) cost of uniform (5 500 ₦), followed by Anambra and Sokoto (₦ 4 500), whilst the average cost across the six states under consideration is ₦ 4 850. Kwara, Osun and Rivers have the same and lower cost (minimum) of ₦ 4 000.

From graph 5, it appears that the most expensive material costs are recorded in the order by Adamawa [₦ 8 000 (maximum)], Anambra (₦ 6 500) and Sokoto (₦ 5 500), while the lowest are registered by Osun [₦ 2 500 (minimum)], Rivers (₦ 3 000) and Kwara (₦ 3 600), resulting in an average cost of ₦ 4 850.

The graph 6 reveals that in order, pupils feeding is relatively more expensive in Adamawa state [₦ 117 000 (maximum)], Anambra (₦ 110 500) and Sokoto (₦ 78 000). In order, it is less expensive in Osun state [₦ 40 000 (minimum)], Rivers (₦ 54 000) and Kwara (₦ 60 000), in comparison to an average cost of ₦ 76 583.33 for the six States.

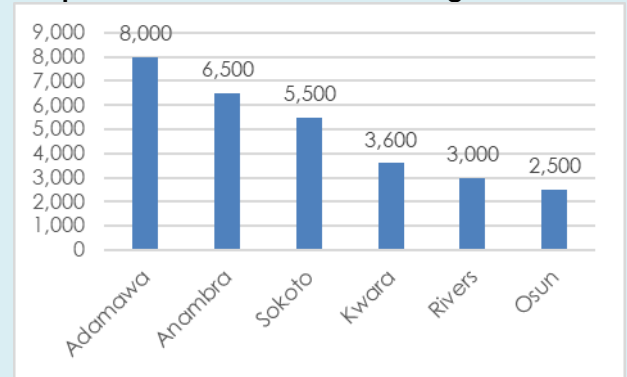
Graph 7 illustrates that pupils transportation is most high (maximum) in Adamawa State (₦ 78 000) which is followed by Anambra (₦ 65 000), Kwara (₦ 40 000) and Sokoto (₦ 39 000). Osun and Rivers have almost the same and lowest cost of ₦ 34 000 (minimum) and ₦ 36 000 respectively, making an average cost of ₦ 48 666.67.

Graph 4 : Estimated cost of uniform



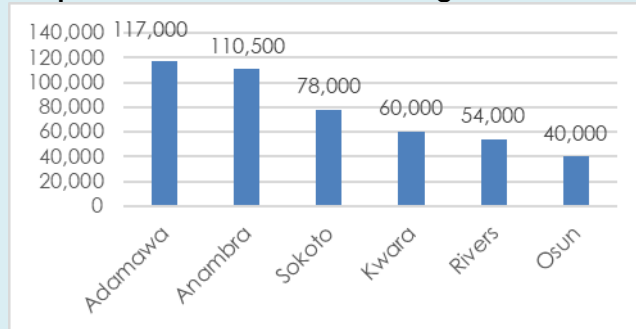
Source: Field mission (Data Gathering)

Graph 5: Estimated cost of learning materials



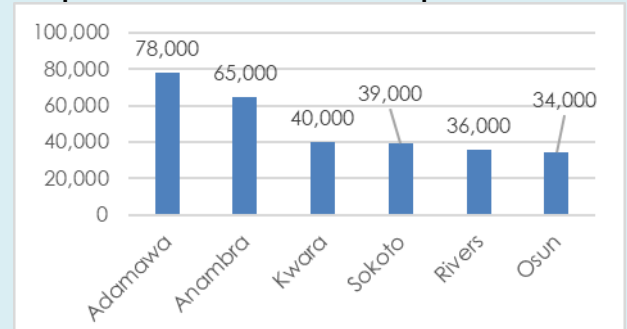
Source: Field mission (Data Gathering)

Graph 6: Estimated cost of feeding



Source: Field mission (Data Gathering)

Graph 7: Estimated cost of transportation



Source: Field mission (Data Gathering)

Estimated cost of training ECE teachers (per annum) and their average salary (per annum) in the six States of the study

The graph 8 and the graph 9 show respectively the estimated cost of training ECE teachers in a tertiary institution for a period of three years and the average salary of those trained teachers in the six States.

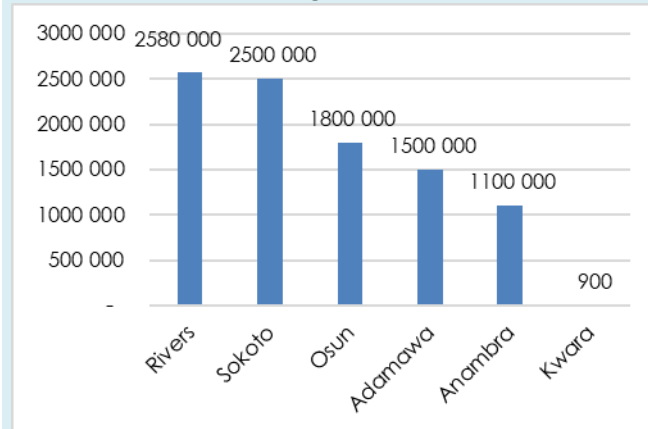
As shown in the graph 8, the cost of training an ECE teacher in tertiary institution is highest in Rivers state (₦ 2 580 000), closely followed by Sokoto State (₦ 2 500 000). Then come the States of Osun (₦ 1 800 000), Adamawa (₦ 1 500 000) and Anambra (₦ 1 100 000). The lowest cost is registered in Kwara State (₦ 900 000), compared to an average of ₦ 1 730 000 for the six states.

The graph 9 illustrates that Rivers State has the highest (maximum) salary of an ECE trained teacher (₦ 64 000). It is followed by Osun (₦ 38 000), Anambra (₦ 30 000) and Adamawa (₦ 25 000). The lowest average salaries are observed in Sokoto [₦ 18 700 (minimum)] and Kwara (₦ 20 000) States. For the six States, the average salary is set at ₦ 32 616.67 (per annum). The details for the averages, maximums and minimums are presented in a table in annex 6.

A simple descriptive statistic of the figures of the situation in each of the States for year 2020 also speak to the peculiarities of the factors that impacts on enrolment, availability of trained teachers and pupil retention. For example, States with lower cost of feeding a pupil and lower cost of learning materials paid for by the parents

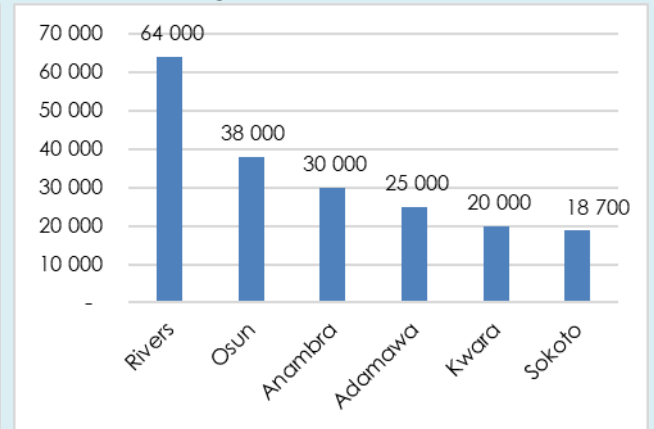
shows better enrolment except for Sokoto where the government still supports school feeding actively.

Graph 8: Cost of training ECE teacher



Source: Field mission (Data Gathering)

Graph 9: Average Salary trained teacher



Source: Field mission (Data Gathering)

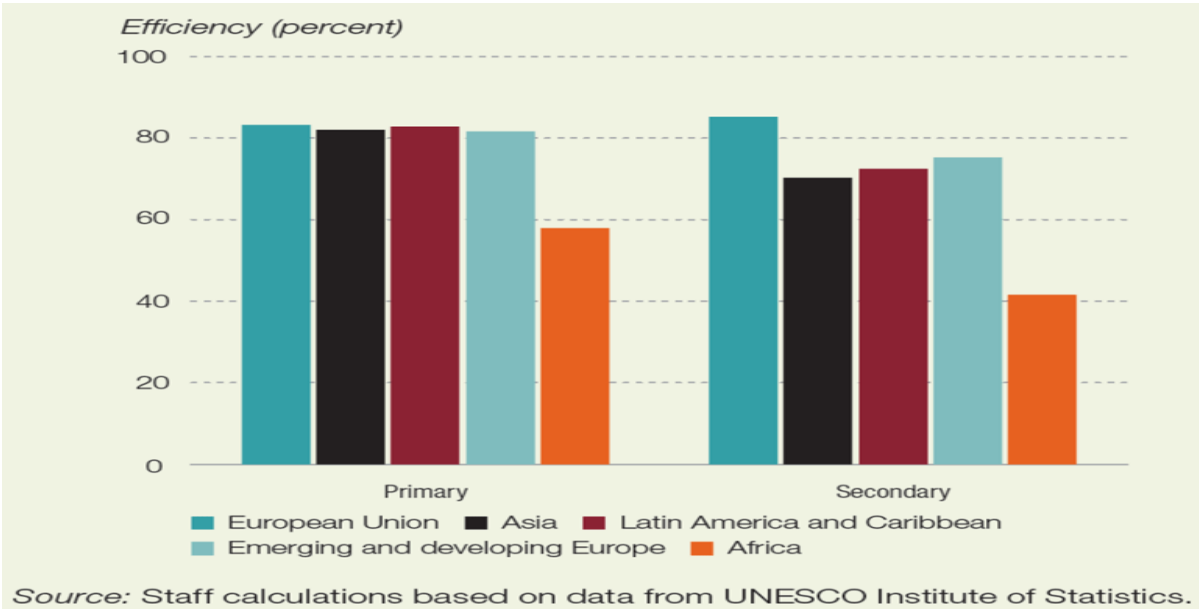
4. COSTS AND FINANCING OF EARLY CHILDHOOD EDUCATION SERVICES IN NIGERIA

4.1. Analysis of Education Spending in Nigeria

While African countries are devoting significant resources to education, the region has the worst education spending efficiency. According to the report, Africa has a 58 percent efficiency score for primary education and 41 percent efficiency for secondary education, both more than 20 percentage points lower than the second-worst performing region (graph 10). According to the report, if public spending efficiency in Africa were at the level of Latin America, the region’s primary school completion rate would rise from 79 percent to 98 percent. Within Africa, Southern Africa has the highest education spending efficiency (ADB, 2020).

The report provides recommendations on how governments can improve education spending efficiency and mobilize additional resources, as the region currently faces an annual \$40 billion gap in education financing. On efficiency, the report recommends strengthening Public Expenditure Tracking Surveys, using performance-based financing to improve outcomes, and raising teacher quality to reduce school repetition. For additional financing, the report highlights the potential of public-private partnerships—such as implementing service contracts for schools and increasing private financing of research—and increasing private sector involvement in vocation-training programs.

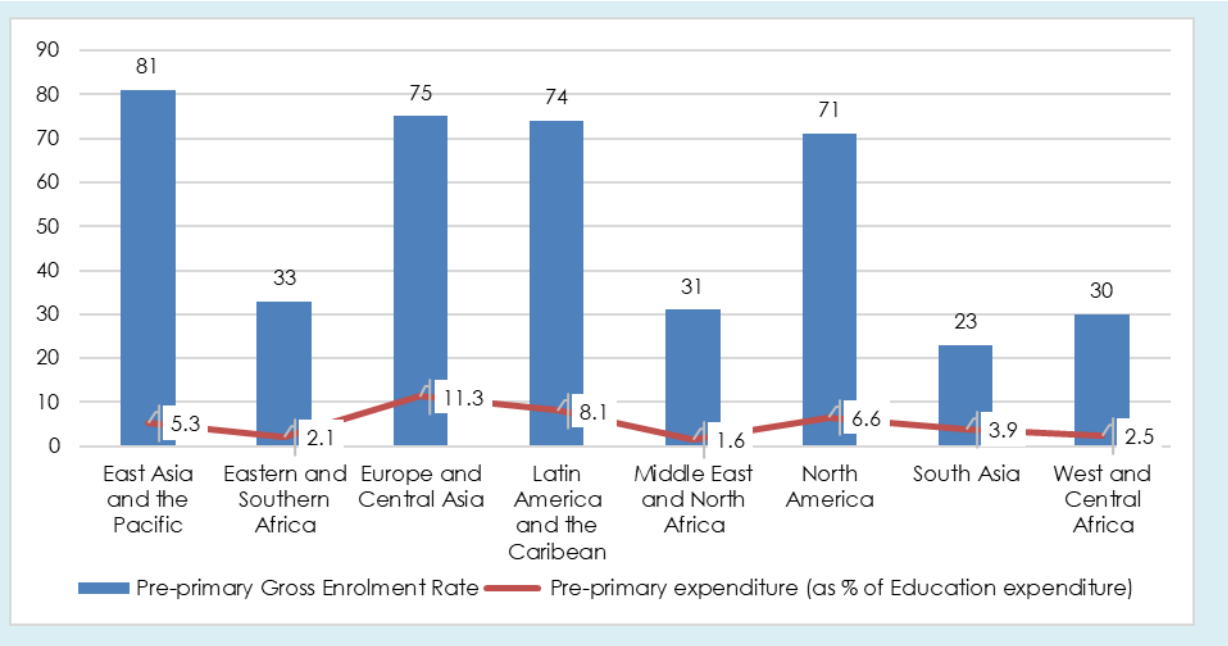
Graph 10: Comparative analysis of the education spending efficiency in the world different regions (African Development Bank, 2020)



Graph 11 shows a comparative analysis of the gross enrolment ratio (GER) resulting from government Pre-primary specific expenditure (as a percentage of the education budget) in different regions of the world. According to the graphic 11, East Asia and the Pacific regions have the highest GER of 81% (resulting from a

budget share of 5,3%), while West and Central Africa which includes Nigeria record the lowest GER of 30% (resulting from a budget share of 2,5%). In terms of the share of the education budget dedicated to pre-primary education, Europe and Central Asia have the high share of 11,3% (with a GER of 75) while Middle East and North Africa have the lowest of 1,6% (with a GER of 31%). This analysis shows that compared to others regions like East Asia and Pacific, Europe and Central Asia as well as North America, the West and Central African regions to which belongs Nigeria, have a long way to go to meet the SDG4.2 targets for universal pre-primary education.

Graph 11: Comparative analysis of 2017 GER (%) resulting from Pre-primary budget (% of total education budget) in the world different regions



Source: AMD International from UNICEF (2019) Global report

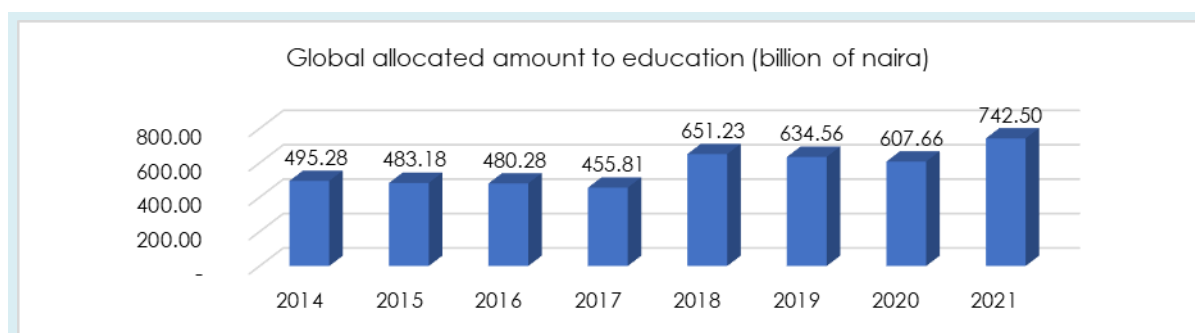
Public funding for education comes from four main sources in Nigeria: (a) federal statutory allocations to federal, state and local governments; (b) state and local governments' internally generated funds; (c) funding from the Universal Basic Education Commission (UBEC) and other federal earmarked transfers for education; and (d) development partners' funds.

Increased spending on education

Overall spending on the education sector in Nigeria has increased overall over the period 2014-2021 (7.16% average growth). It declined continuously between 2014 (₦ 3.12 billion⁹) and 2017 (₦ 455.81 billion¹⁰) before increasing to ₦ 651.23 billion¹¹ in 2018 and then declining in 2019 (₦ 634.56 billion¹²) and 2020 (₦ 607.66 billion¹³) to rise again in 2021 (₦ 742.5 billion).

However, the considerable depreciation of the naira against the US dollar over the period 2014-2021 makes it more expensive to acquire external capital and could therefore negatively influence financing in the sector.

Graph 12: Evolution of public expenditure in Education in Nigeria over the period 2014-2021



Source: 2020 four quarter and consolidated budget implementation report

Education expenditure is mainly absorbed by current expenditure

On the average, current expenditure accounts for 88.8% of education sector expenditure compared to 11.20% for investment over the 2014-2021 period. The highest level of investment in the sector was in 2021 (17.15%), i.e., ₦ 127.3 billion against ₦ 23.52 billion in 2015.

Graph 13: Evolution of public expenditure in Education in Nigeria by nature (percentage of overall expenditure)

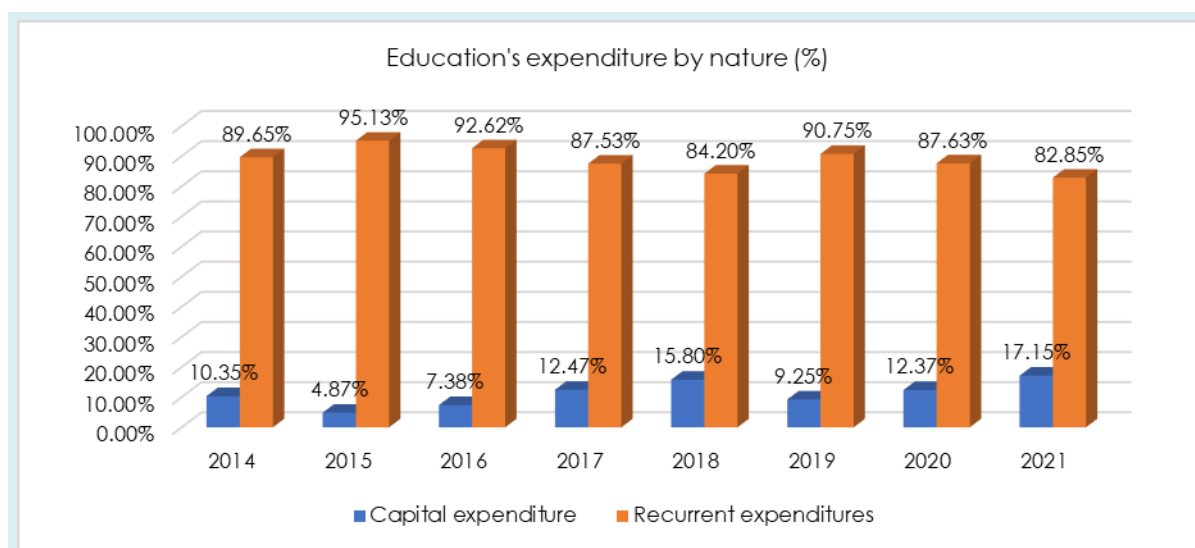
⁹ 3,12 billions of dollars US (1 dollar=158,6 naira)

¹⁰ 1,49 billions of dollars US (1 dollar=305,8 naira)

¹¹ 2,13 billions of dollars US (1 dollar=306,1 naira)

¹² 2,07 billions of dollars US (1 dollar=306,9 naira)

¹³ 1,69 billions of dollars US (1 dollar= 358,8 naira)



Source: Appropriation act of 2014 to 2019 and appropriation amendment of 2020

The share of the overall state budget allocated to the education sector has decreased over the period 2014-2021 and is below the target of 20%¹⁴ of public expenditure to be devoted to education.

The share of education expenditure in total government expenditure has decreased overall between 2014 and 2021 (4.37% average annual decrease). In fact, it went from 10.55% of total state expenditure in 2014 to 6.30% in 2021, i.e., an average share of 7.95% over the period. Thus, over the period 2014-2021, Nigeria was far from achieving the UNESCO target of devoting 20% of public expenditure to education.

The share of education expenditure as a percentage of GDP declined over the 2014-2021 period and fell short of the target of devoting at least 5.4%¹⁵ (or even 6%¹⁶) of GDP to the education sector

The share of education expenditure as a percentage of GDP has declined overall between 2014 and 2021 (7.04% average annual decline). In fact, it went from 0.57% in 2014 to 0.42% in 2021, i.e., an average share of 0.47% over the period, far from the international standard in favor of education and that of UNESCO (respectively 5.4% and 6% of GDP should at least be dedicated to the education sector).

Table 10: Evolution of public expenditure in Education in Nigeria in percentage of global public expenditure and in percentage of GDP

2014	2015	2016	2017	2018	2019	2020	2021	Average 2014-2021
Public expenditure to education (billions of naira)								
495,28	483,18	480,28	455,81	651,23	634,56	607,66	742,40	568,80
Public expenditure to education (% of global public expenditure)								
10,55%	10,75%	7,92%	6,13%	7,14%	7,12%	6,09%	6,30%	7,75%
Public expenditure to education (% of GDP)								

¹⁴ UNESCO Recommendation to States.

¹⁵ International engagement

¹⁶ UNESCO Recommendation to States.

0,57%	0,52%	0,47%	0,40%	0,54%	0,46%	0,39%	0,42%	0,47%
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Source: Appropriation act of 2014 to 2019 and appropriation amendment of 2020, 2020 four quarter and consolidated budget implementation report and WDI indicator

4.2. Analysis of the share of education spending devoted to Early Childhood.

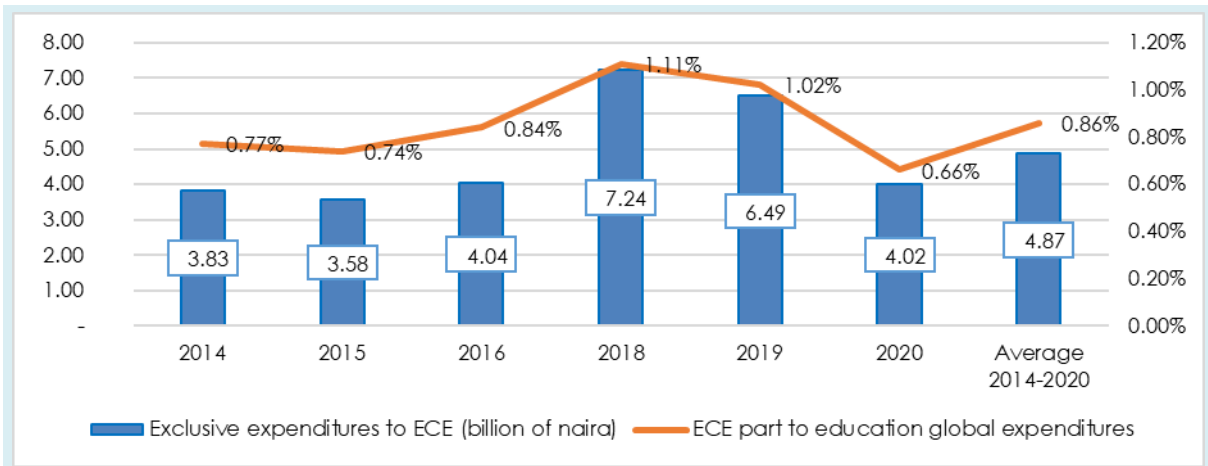
Expenditure on education exclusively for early childhood and pre-primary education¹⁷, though low, has improved slightly.

Expenditure exclusively on early childhood and pre-primary education has improved slightly over the period 2014-2020, rising from ₦ 3.84 billion in 2014 to ₦ 4.02 billion in 2020, an annual average increase of 6.66%.

However, the share of exclusive expenditure on early childhood and pre-primary education in the total expenditure of the education sector is declining and well below the UNICEF recommendation of 10%¹⁸ of the overall education budget for preprimary education.

As for the share of exclusive expenditure on Pre-primary education in total education sector expenditure, it has fallen from 0.77% in 2014 to 0.66% in 2020, i.e., an average annual fall of 0.35% over the period: this represents an average of 0.86% per year.

Graph 14: Evolution of ECE and pre-primary expenditure



Source: Appropriation act of 2014 to 2019 and appropriation amendment of 2020

Box: Estimating exclusive early childhood expenditure

Exclusive expenditure on early childhood and pre-primary education was determined in two stages:

(1) projects dedicated to early childhood and pre-primary education included in the 2014-2020 Finance Acts were retained. However, cross-cutting projects, i.e., projects that include other actions/activities in addition to those related to early childhood and pre-primary education, were not taken into account.

¹⁷ Cross-cutting projects (projects that include other actions/activities in addition to those related to early childhood and pre-primary) have not been taken into account in determining early childhood and pre-primary expenditure

¹⁸ UNICEF, 2019, Un monde prêt à apprendre : accorder la priorité à une éducation préscolaire de qualité

Projects exclusively dedicated to early childhood and pre-primary are presented in Annex 4

(2) 5%¹⁹ of the Universal Basic Education (UBE) Commission's expenditure was allocated to early childhood and pre-primary education.

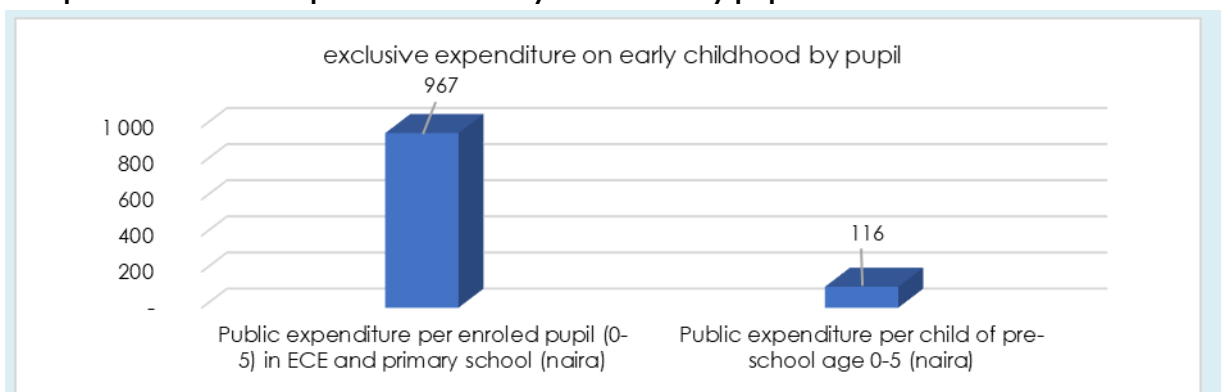
(1) +(2) the sum of the different amounts obtained made it possible to estimate the expenditure exclusively dedicated to early childhood and pre-primary education.

In addition to these projects exclusively dedicated to early childhood education, there are projects from other levels of education that include early childhood. Since we do not have information on the exact share exclusively dedicated to early childhood education, these projects, presented in Annex 5, have not been taken into account in the calculation.

Exclusive expenditure on early childhood and pre-primary education per child (0-5 years) is low or insignificant

In 2016, the exclusive expenditure on early childhood and pre-primary education per child in school (0-5 years) was ₦ 967. This amount would have been 8 times less if all early childhood and pre-primary children were in school, which was ₦ 116.

Graph 15: exclusive expenditure on early childhood by pupil in 2016



Source: Appropriation act of 2016, ministry of education data

Nigeria has room to improve its efficiency in terms of access to early childhood and pre-primary education

Regional comparisons reveal two trends. Nigeria leads several countries in spending on early childhood and pre-primary education.

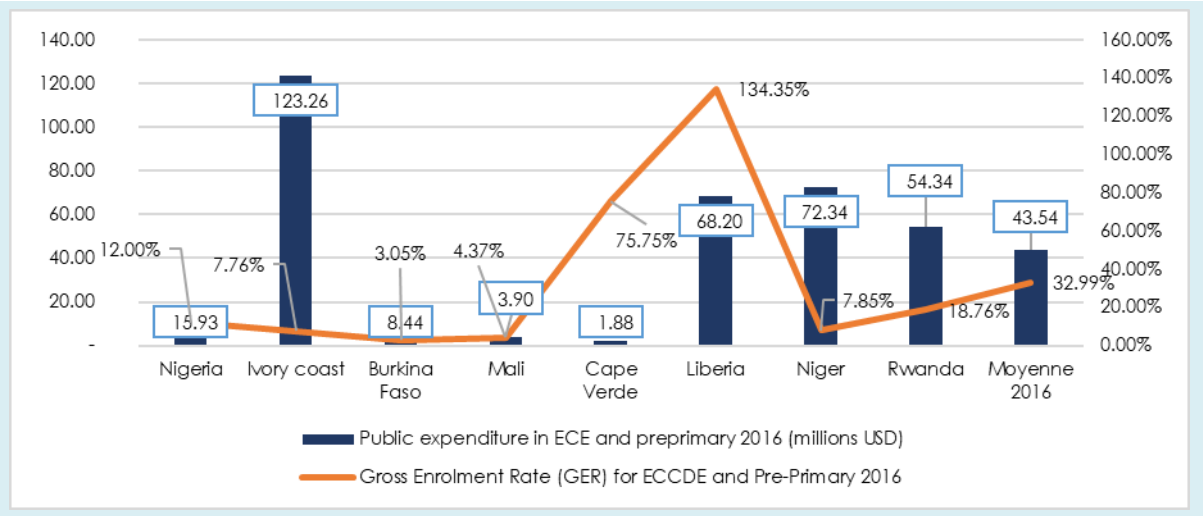
Overall, in 2016, these countries spent an average of USD 43.54 million for an average enrolment rate of 32.99%. At USD 15.93 million for a 12% enrolment rate, Nigeria is well below some countries in terms of spending and enrolment in early childhood and pre-primary education.

All else being equal, Nigeria could improve access to early childhood and pre-primary education by using resources allocated to early childhood and pre-primary education efficiently, by comparison with other countries. Indeed, the inefficiencies of early childhood education would be due to a number of problems among which are misapplication of funds, inappropriate costing among others and the resolution of which could enable Nigeria to raise the level of this education sub-sector. Sooter

¹⁹ UBE law

(2013), analyzing issues and problems of Early Childhood Education in Nigeria showed that the Education system becomes inundated with diverse crisis since independence and Early Childhood Education is not left out these crises which tend to make the gains education less spectacular. According to the same source, the level of ECE teachers is low and there is a lack of supervision to ensure quality teaching. Likewise, Ogunode (2021) argues that inadequate teachers, political instability, institutional corruption and poor supervision are the challenges facing early childhood education in Nigeria.

Graph 16: Comparison of public expenditure in ECE and preprimary with other countries in 2016



Source: Appropriation act of 2016, ministry of education data

Financing early childhood and pre-primary education in sub-Saharan Africa

While the critical importance of pre-school for child development (physical, cognitive, linguistic, socio-emotional) has long been demonstrated, pre-school education continues to suffer from underfunding by states. Indeed, recent literature shows that investments in ECCE are particularly cost-effective, yielding a return of USD 6 to USD 18 for every \$1 invested in low- and middle-income countries.

Among the major challenges in early childhood education is the need to develop clear and coherent strategies for effectively allocating public resources to priority areas. Early childhood education in sub-Saharan Africa is characterized by under- or non-existent public funding for pre-school education. Significant public funding is therefore needed to help build a sustainable and equitable early childhood system.

In order to achieve funding targets for the pre-school sector, the first step should be to rebalance public spending and international donor support for early childhood and pre-primary education.

5. ESTIMATION OF THE COST AND FINANCING OF EARLY CHILDHOOD EDUCATION IN NIGERIA

5.1. Adopted Methodology

This sub-point is composed of two essential elements, which are the justification and the specification of the model.

5.1.1. Justification

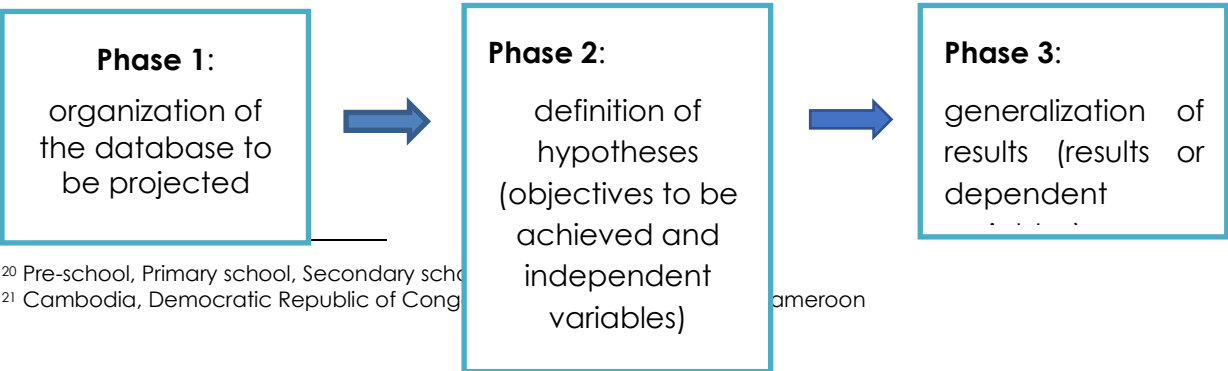
Education Costing in Nigeria will be treated with a simulation model of the policy and strategic education named *Simulation for Education (SimuED)*, developed by UNESCO.

SimuED is an Excel-based Education Sector -wide simulation model covering every sub-sector in Education²⁰. It also allows users to project selected SDGs 4 key indicators to facilitate the national planning exercise. *SimuED* is different from other simulation models like EPSSim in its modular structure and its new modular structure prevents it from the rigidity of this type of models (more than hundred modules are already available and it is possible to create new modules). Moreover, its interface facilitates its use and ensures its integrity, preventing formulas from being changed or tampered with, an issue often encountered with other simulation models.

Users can select relevant modules from the 'library' without entering or modifying complicated formulas in Excel, reducing significantly the time needed. It has been successfully implemented in many countries²¹. This document uses *SimuED* to make Nigeria ECE sub-sector cost projections.

5.1.2. Model specification

The first need is the definition of dimensional early childhood. And *SimuED* use the dimensional early childhood for pupils between 3 and 5 years old. *SimuED* is based on the one hand on demographic and educational data (base years) and on the other hand on national or international policy objectives (like Sustainable Development Goals, SDGs) as decision variables to derive resource requirements and ensure a balanced budget by trade-offs between and within education sub-sectors. The simulation modelling process takes place in three phases:



²⁰ Pre-school, Primary school, Secondary school

²¹ Cambodia, Democratic Republic of Congo, Cameroon

Simulation for Education start by calculating projected admission, enrolment and flow rates based on demographics, enrolment status, and policy goals. The number of enrolments by level of early childhood education, combined with current and future modalities of use of resources²² makes it possible to estimate future needs for teachers, non-teaching staff, learning materials, educational facilities, etc. These projected needs, together with the cost data and assumptions, provide information on the financial needs and possible financing gaps associated with certain education policy objectives.

The processes is as follows:

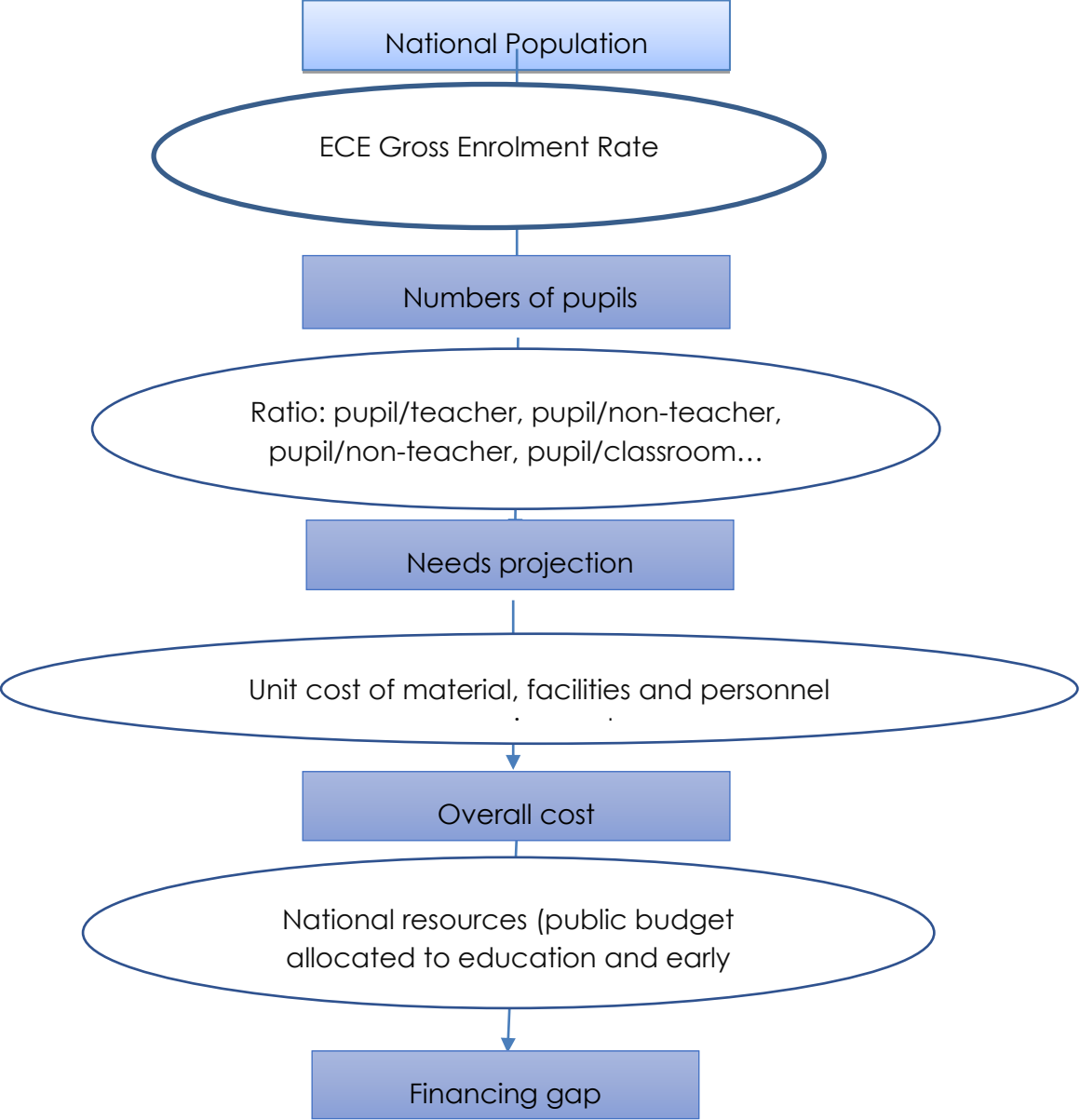
- I. **The demography** is based on inscriptions and the school-age population needs.
- II. **The number of students** is deducted from the coverage rate (gross enrolment rate).
- III. **Personnel, classrooms, and schools supplies needs** is deducted from the previous enrolments numbers and educational policy objectives in using of human, infrastructure, and materials resources.
- IV. The data projection allows to quantify, from needs and cost, the **overall cost** of the envisaged policy.
- V. overall cost of the envisaged policy is compared to the estimated available national resources, and finally allows examining the existence or not of a **financial gap**

Data needed.

Figure 3 shows the data needed to project the costs of early childhood education in Nigeria in a logical framework.

²² School Personnel, Equipment, infrastructure, etc.

Figure 2: Data needed to project the costs of early childhood education in Nigeria



Source: AMD International

Model Formalization

Let TC be the yearly total cost of the proposed early childhood education strategy.

Let us denote by IQ , the quantity of inputs necessary, the inputs being the needs in material, in personnel, etc., according to the total number of pupils projected; and UC , the unit cost of each input.

$$TC = \sum_{i=1}^N IQ_i * UC_i;$$

In our equation, i represents each required input (teaching staff, non-teaching staff, classrooms, learning materials, etc.) and N the number of these required inputs.

The cost projections are based on baseline situation on the one hand and on United Nations Population estimates, mainstreaming ECE age population on the other. The projections cover the period 2018-2038. We have chosen 2018, as baseline according to the availability of data. The 2038 horizon is defined by the model (SimuED), depending on the base year selected. However, since most of the target values for the indicators like SDGs targets are projected for 2030 in official documents, we have limited ourselves to the 2030-time horizon for our analyses.

Sources of data

Detailed information on the Early childhood Education of Nigeria was collected for 2018 base year. Data included information on the size of the school-age population, school indicators (e.g., number of pupils enrolled, number of teachers and non-teachers, pupils-teacher ratio, number of classrooms), key costs such as those related to teachers, classrooms, and data on domestic expenditures and financing. Three main international data sources and national sources were used:

- the United Nations World Population Prospects database for information on school-age populations and population growth projections;
- the World Bank database and IMF reports for information on macroeconomic indicator (e.g., GDP, inflation rate);
- Nigeria Federal Ministry of Education including Universal Basic Education Commission for information on pupil's enrolment, teacher and non-teacher staff, pupils-teacher ratio, classrooms and teacher training cost;
- the Nigeria Federal Ministry of Finance, Budget and National Planning reports for information on education financing.

These data were supplemented by other sources, including Boner, Das, Leathes and Wakeham (2011), as well as Ogunyinka (2013), for information on learning material and classroom construction cost.

5.2. Model assumptions

The cost projections exercise was carried out by applying various assumptions, together constituting a 'scenario', to the historical data base. Each scenario comprises programming assumptions for the projections period, covering:

- basic Nigeria macroeconomic variables
- Nigeria Education sector
- Nigeria ECE sub-sector

For each scenario, some of the assumptions lines were set as simple number (growth rate, percentage of public expenditure, etc.). Many of the assumptions, however, were constructed from other assumptions.

The assumptions about Nigeria's macroeconomic context concern, on the one hand, the evolution of the population, particularly the population of early childhood education age. Second, these assumptions relate to the country's economic state, because economic growth determines the availability of domestic resources likely to finance education. Assumptions have also been made about the evolution of inflation in order to take into account the level of inflation on the cost of services and goods required by the projections. Finally, assumptions have been made about indicators relating to the percentage of public spending on education and the percentage of the education budget allocated to early childhood. Table 11 summarizes these assumptions by presenting the values and target years of the selected indicators, as well as their sources.

Table 11: Cost projections key assumptions

Indicators	Target value	Time horizon	Source
Real GDP	7.10	2030	SDG Target
Consumer Price index	10.30	2025	IMF Nigeria (2020) Projections
Population growth	2.40	2030	SimuED projections
Share of public expenditure as a percentage of GDP	18%	2030	IMF Nigeria (2020) Projections
Education budget (% of total Gov.expenditure)	20.00	2030	SDG Target (UNESCO, 2017)
ECE teacher staff attrition rate	5%	2019	EFA-GMR (2010)

Source: AMD International

5.2.1. Projections for preschool enrolment

This subsection presents the number of pupils as well as required personal need projected.

5.2.1.1. Education targets

In this point, the number of pupils, projected by early childhood education goals is presented. Projections with SimuED indicated a baseline Gross Enrolment Rate (GER) for Nigeria ECE of 39 percent in 2018 (all for public and private). In public institutions, projections show a baseline Teacher Pupils Ratio (TPR) of 84,5.

In all, three scenarios were defined on the base of the GER and TPR. The first assumes SDGs 4 target of 100 percent of GER will be reached by 2030. This target is consistent with the UBEC's goal of making basic education compulsory for all children, including those of early childhood education age. The second is based on IMF Nigeria (2020) projections that makes a hypothesis of 80 percent of GER by 2030, according to current level of schooling. The third scenario is based on the hypothesis of 80 percent of GER and raises the TPR from 15 (SDG 4 target) to 25 (Nigeria National Minimum Standard). The number of Nigeria ECE pupils projected under the 100% and 80% GER assumptions are presented in Table 12

Table 12: Number of projected pupils (in million)

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average 2019-2030
3-5 Age group population	18.77	19.10	19.42	19.76	20.08	20.37	20.68	21.01	21.38	21.76	22.13	22.46	20.58
GER=100%													
Number of Public Pupils	7.71	8.08	8.45	8.84	9.23	9.62	10.03	10.46	10.92	11.40	11.88	12.36	9.92
Number of Private Pupils	7.27	7.52	7.76	8.02	8.27	8.51	8.75	9.01	9.29	9.57	9.85	10.11	8.66
Number of Total Public + Private Pupils	14.99	15.59	16.22	16.86	17.50	18.13	18.79	19.46	20.21	20.96	21.73	22.46	18.58
Growth Rate		4.07%	3.98%	3.99%	3.76%	3.62%	3.62%	3.61%	3.82%	3.75%	3.64%	3.38%	3.75%
GER=80%													
Number of Public Pupils	7.55	7.75	7.94	8.15	8.34	8.54	8.74	8.94	9.18	9.41	9.65	9.87	8.67
Number of Private Pupils	7.12	7.21	7.30	7.39	7.47	7.55	7.62	7.71	7.81	7.90	8.00	8.08	7.60
Number of Total Public + Private Pupils	14.67	14.95	15.24	15.54	15.82	16.08	16.36	16.65	16.98	17.32	17.65	17.95	16.27
Growth Rate		1.94%	1.90%	1.96%	1.79%	1.69%	1.74%	1.76%	2.01%	1.98%	1.91%	1.69%	1.85%

Source: AMD International from SimuED calculations

Under the assumption that by 2030, Nigeria will achieve 100% enrolment of its 3–5-year-old children, the overall number of early childhood education pupils in public and private institutions is projected to increase from nearly 14,985,079 in 2019 to more than 22,463,691 in 2030, an increase of about 7,478,612. The number of pupils enrolled in public institutions, accounting for approximately 55% of total enrolment, would increase from 7,714,506 (2019) to 12,355,030 (2030), making an annual average of 9,915,310 pupils over the period. The projection results indicate that the number ECE pupils enrolled in private institutions will increase from 7,270,573 to 10,108,661, an annual average of 8,659,703 over the period. The number of students projected under the 80% assumption is lower than that projected under the 100% assumption.

Assuming a GER of 80%, the total number of students enrolled in public and private institutions should increase by 3,277,862 (compared to 7,478,612 with a 100% rate), from 14,670,627 in 2019 to 17,948,489 in 2030. In public institutions, enrolments will be 8,672,442, as an annual average over the period 2019-2030, increasing from 7,552,622 in 2019 to 9,871,669 in 2030. In private institutions, the number of pupils will increase too. The projected number of students is expected to rise from 7,118,005 in 2019 to 8,076,820 in 2030, an increase of only 958,815, compared to an increase 2,838,088 in the case of 100% GER. The next point is related to staff change in the projection exercises.

5.2.1.2. Staff changes

This point outlines the evolution of personnel, particularly teachers, in this projection exercise under three scenarios. The teacher-staff change results are shown in the following table 13.

Table 13: Number of projected teachers' staff under three scenarios

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average 2019-2030
Scenario 1													
Public													
Teacher*	49.42	56.39	64.79	75.19	88.10	104.65	126.78	157.70	204.19	280.34	426.97	823.67	204.85
Pupil per Teacher	156.09	143.26	130.44	117.61	104.78	91.96	79.13	66.31	53.48	40.65	27.83	15.00	85.54
Personnel to be recruited in the year*	8.22	9.43	11.23	13.63	16.67	20.95	27.36	37.26	54.38	86.35	160.65	418.05	72.02
Private													
Teacher*	123.07	136.48	152.04	170.43	192.00	217.88	249.88	290.32	343.70	415.75	518.08	673.91	290.29
Pupil per Teacher	59.08	55.07	51.06	47.06	43.05	39.04	35.04	31.03	27.02	23.01	19.01	15.00	37.04
Personnel to be recruited in the year*	17.76	19.57	22.38	25.99	30.10	35.48	42.90	52.93	67.90	89.24	123.12	181.74	59.09
Scenario 2													
Public													
Teacher*	48.39	54.07	60.89	69.28	79.64	92.83	110.42	134.90	171.62	231.59	346.83	658.11	171.55
Pupil per Teacher	156.09	143.26	130.44	117.61	104.78	91.96	79.13	66.31	53.48	40.65	27.83	15.00	85.54
Personnel to be recruited in the year*	7.19	8.11	9.52	11.43	13.82	17.18	22.22	30.00	43.47	68.55	126.82	328.62	57.24
Private													
Teacher*	120.48	130.88	142.89	157.04	173.55	193.27	217.62	248.33	288.87	343.46	420.84	538.45	247.97
Pupil per Teacher	59.08	55.07	51.06	47.06	43.05	39.04	35.04	31.03	27.02	23.01	19.01	15.00	37.04
Personnel to be recruited in the year*	15.18	16.42	18.55	21.30	24.36	28.40	34.02	41.59	52.95	69.04	94.55	138.66	46.25
Scenario 3													

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average 2019- 2030
Public													
Teacher*	48.13	53.45	59.75	67.37	76.59	88.05	102.83	122.57	150.51	192.19	260.89	394.87	134.77
Pupil per Teacher	156.92	144.93	132.94	120.94	108.95	96.96	84.97	72.97	60.98	48.99	36.99	25.00	90.96
Personnel to be recruited in the year*	6.93	7.73	8.97	10.61	12.59	15.28	19.19	24.88	34.07	49.21	78.30	147.02	34.57
Private													
Teacher*	118.81	127.04	136.22	146.65	158.24	171.33	186.56	204.41	226.11	252.16	283.91	323.07	194.54
Pupil per Teacher	59.91	56.74	53.56	50.39	47.22	44.04	40.87	37.70	34.52	31.35	28.17	25.00	42.46
Personnel to be recruited in the year*	13.50	14.17	15.53	17.25	18.91	21.01	23.80	27.18	31.92	37.35	44.37	53.35	26.53

*= Thousand

Source: AMD International from SimuED calculation

The number of teachers required differs from one scenario to another and is higher in public institutions than in private institutions. Additionally, it goes without saying that a GER of 100% will require more teachers than an 80% rate. The same is true for a lower student-teacher ratio (15, SDG4 target) than a higher one (25, Nigeria National Minimum Standard). Thus, in scenario 1, considering a GER of 100% associated with a PTR of 15, the projected number of teachers is expected to rise from 49,424 in 2019 to 823,669 in 2030, i.e., an increase of 774,245 over the period in public institution. New recruitments will total 864,195 over 2019-2030 period, due to an average recruitment of 72,016 per year. In private institution, the rise is expected to be lower than that of public institutions, and overall new recruitment will be 709,085 over the analysis period, an annual average of 59,090. These figures are greater than that of scenario 2.

By reducing the GER from 100% to 80% and maintaining the PTR at 15, the projected number of teachers in public institutions should increase from 48,386, in 2019 (compared to 49,424 in scenario 1) to 658,111 in 2030 (compared to 823,669 in scenario 1). The new recruitments will total 686,935 (compared 864,195 in scenario 1), due to an average annual recruitment of 57,245, a decrease of 14,772 compared to the average annual recruitment of the first scenario. In private institutions, new hires will total 555,010, or an average of 46,251 per year. These numbers in scenario 2 are in turn higher than in scenario 3.

In the third scenario, considering a GER of 80% associated with a PTR of 25, public teacher number will increase from 48,129 in 2019 to 394,867 in 2030, an annual average number of 134,767. At the level of private institutions, the projected number of required teachers is expected to be lower than that of public institutions. New recruitments will total 318,338, due to an average recruitment of 26,528 per year, while in public institutions, the recruitment of new teachers will total 414,784, i.e., an annual average of 34,565 (compared to 57,245 and 72,016 respectively in scenario 2 and scenario 1).

In all scenarios, the number of teachers projected in public schools is higher than in private schools. The same is valid for the number of pupils, which is higher in public institutions than in private ones. This could be due to the fact that education in private institutions is more expensive than in public ones. A plausible explanation would be that private education is offered for profit, the founders being more concerned with what they earn than with the welfare of the enrolled pupils. In the same line of thought, Matthew (2015), in analysing issues of Nigeria private sector in the provision of early childhood care, development and education, argues that private education is often limited to those who can afford to pay school fees, leaving out the most vulnerable and marginalized children. Furthermore, Kayode (2013) in his analysis of cost financing of preschool education finds that in Nigeria, the unit cost of preschool education in the private sector is about 50 percent higher than the public pre-schools. Even low-cost private schools can be much more expensive than public schools, which can exclude the poorest children from accessing the education system according to World Bank (2017).

It is in addressing these issues that this Nigeria early childhood education costing has been engaged, the aim being to support the government on the required investment for planned results in ECE for the achievement of quality education for all in tandem with the Sustainable Development goals. Thus, for the remainder of this report, the cost projections focus on public institutions in line with UNESCO (2021) which aims to make education free and compulsory for all the early childhood education category.

5.2.2. Cost Projections

Costs include capital and recurrent expenditures. Capital expenditures are composed of classroom construction expenses as well as costs related to the training of newly hired teachers. Recurrent expenditures consist of personal expenses, pupil needs expenses and classroom furniture expenses. Classroom furniture is made up of tables and chairs, while personnel expenditure includes expenditures for teacher and non -teacher salaries. For pupil, current expenses are composed of expenses in pupil learning material such as textbook, notebook/drawing books, pencils, physical education material, etc. This class of cost comprises also clothing/ accessories like school uniform and socks, school bags and miscellaneous items such as lunch in school, examination fees, sports and game as well as end-of-year-activities (Ogunyinka, 2013). The overall cost was compared to estimated available domestic resources, and ultimately allows assessing the existence or not of a financing gap.

5.3. Results analysis

This point outlines the results of the cost projections and financial gaps under assumptions defining the three proposed scenarios. The table 14 shows the first scenario results with a target of 100 percent of GER by 2030.

Table 14: Base scenario results

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average (2019-2030)	Average 2022-2030
Total expenditure (billion USD)	1.85	2.18	2.57	3.02	3.57	4.28	5.20	6.50	8.46	9.44	10.66	10.24	5.66	6.82
Recurrent (billion USD)	1.12	1.34	1.58	1.86	2.18	2.56	3.01	3.57	4.30	5.29	6.73	9.12	3.55	4.29
Percentage (%)	60.51%	61.27%	61.51%	61.54%	61.02%	59.78%	57.91%	54.92%	50.87%	56.04%	63.16%	89.02%	61.46%	61.59%
Capital (billion USD)	0.73	0.84	0.99	1.16	1.39	1.72	2.19	2.93	4.16	4.15	3.93	1.12	2.11	2.53
Percentage (%)	39.49%	38.73%	38.49%	38.46%	38.98%	40.22%	42.09%	45.08%	49.13%	43.96%	36.84%	10.98%	38.54%	38.41%
Recurrent unit cost	263	275	287	302	319	340	365	397	439	498	586	738	401	443
Capital unit cost	172	174	180	189	204	229	266	326	424	390	342	91	249	273
Total unit cost (USD)	435	448	467	491	524	569	631	724	864	888	928	829	650	716
Global gap (billion USD)	1.83	2.09	2.35	2.61	2.89	3.20	3.60	4.22	5.26	5.08	4.80	2.48	3.37	3.79

Source: AMD International, SimuEd projections

Based on the GER target of 100 percent by 2030, the Nigeria ECE total cost is projected to increase from around USD 1.85 billion (2019) to USD 10.24 billion (2030) of which 89.02% is for recurrent expenditures and 10.98% for capital investments. The results show an average cost of USD 8.07 billion (counting 61.46% for current expenditures and 38.54% for capital expenditures) and USD 9 (Counting 61.59% for current expenditures and 38.41% for capital expenditures) respectively for the periods 2019-2030 (entire projection period) and 2022-20230 (coming years). Over the analysis period (2019-2030), current expenditure as a percentage of Nigeria ECE total costs should be higher (average of 61.46%) than capital expenditure (average of 38.54%). While the share of current expenditure in total cost increased over the period from 61% (2019) to 54% (2030), the share of capital investment decreased from 39.49% (2019) to 10.98% (2030). This difference in the evolution of the two types of expenditures can be explained. In fact, the projections foresee an increase in the number of pupils from nearly 4 million to more than 12 million between 2019 and 2030. thus, it goes without saying that the different needs of pupils will increase, and hence the relevant cost (current expenditure). In contrast, the results predict that the needs for new classrooms and staff will decrease. For example, the number of classrooms that will need to be built will drop from 21,909 in 2019 to 12,000 in 2030, reflecting a decrease in the total cost (capital expenditure) of building classrooms. Another explanation is that the investments of previous years can constitute a stock and thus decrease the capital need (classrooms, personnel) of the current years.

Moreover, the projections shows that unit cost (per ECE pupil) will raise from USD 565 to USD 735 over the analysis period. This cost will produce a financing gap that will rise from USD 1.83 billion to USD 2.48 over the period. These results are similar to Education for All Global Monitoring Report, EFA-GMR's (2020) projections which estimates that by 2030, the cost of preschool education per pupil will be USD 421 and USD 854 respectively for low-income counties and for all low-and middle-income countries including Nigeria. In fact, in 2030, our projections state the Nigeria ECE cost per pupil will be USD 829.

The summary of these base scenario (scenario 1) is presented in the table 15.

Table 15: base scenario key results over the period 2022-2030

Results	Scenario 1
Total Expenditure 2022-2030 (billion USD)	61.364
Average overall expenditure 2022-2030 (billion USD)	6.82
Average total cost per pupil 2022-2030	716
Total financing gap 2022-2030 (billion USD)	34
Average financing gap 2022-2030 (billion USD)	3.75

Source: AMD International from SimuED calculation

Under the projections resulting from the base scenario assumptions, Nigeria ECE overall expenditure would reach a total amount of USD 61.37 billion, an average of USD 6.82 billion over the period 2022-2030. On this period, total cost would average USD 716 per ECE pupil, producing a total financing gap of USD 34 (average gap of USD 3.75). Indeed, these results could be compared to those found by the EFA-GMR (2010) projections which projected an average financing gap of USD 2.16 billion for Nigeria early childhood education over the period 2015-2025. This gap is below our results and this could result from the fact that in EFA (2010) report, the enrolments rate was 52% while it is 100% in our case, according to the SDG 4 target.

Given the current level of early childhood education, which is 39 percent, the target of 100 percent may be too ambitious. Furthermore, the Education for All Global Monitoring Report, EFA (2015) recognizes that there is a large gap to fill to achieve the post-2015 education agenda and that national resources will not be sufficient to meet key education targets by 2030. Then, alternative scenario has been proposed in this analysis. The assumptions of alternative scenario are the same as those of the base scenario, except those one or two assumptions lines are changed. Comparing each alternative scenario with the base scenario indicates the order-of magnitude consequences for the total cost of changed assumptions, given the projection's other assumptions.

MFI Nigeria (2020), by analysing the additional expenditures for high performance in education according to the Sustainable Goal foresee a rate of 80 percentage of GER by 2030, given Nigeria's current enrolment rate. On the base of this assumptions, and maintaining the PTR at 15, we propose a first alternative scenario (scenario 2) which results are showed in the table 16:

Table 16: keys projections result for scenario 2

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average (2019-2030)	Average 2022-2030
Total expenditure (billion USD)	1.67	1.92	2.22	2.57	3.00	3.54	4.25	5.27	6.79	7.54	8.47	8.20	4.62	5.51
Recurrent (billion USD)	1.08	1.24	1.43	1.65	1.90	2.19	2.54	2.97	3.54	4.30	5.43	7.28	2.96	3.53
Percentage (%)	64.58%	64.73%	64.47%	64.12%	63.27%	61.75%	59.63%	56.40%	52.13%	57.09%	64.03%	88.82%	63%	63%
Capital (billion USD)	0.59	0.68	0.79	0.92	1.10	1.35	1.72	2.30	3.25	3.23	3.05	0.92	1.66	1.98
Percentage (%)	35.42%	35.27%	35.53%	35.88%	36.73%	38.25%	40.37%	43.60%	47.87%	42.91%	35.97%	11.18%	37%	37%
Recurrent unit cost	263	275	287	302	319	340	365	397	439	498	586	738	400.91	442.83
Capital unit cost	144	150	158	169	185	211	247	307	403	374	329	93	230.99	257.71
Total unit cost (USD)	408	424	446	471	505	551	613	705	843	872	915	831	631.89	700.54
Global gap (billion USD)	1.64	1.83	2.00	2.16	2.31	2.47	2.66	2.98	3.59	3.18	2.62	0.44	2.32	2.49

Source: AMD Internatinal from SimuED calculations

Whereas, by 2030, the GER for Nigeria ECE will be established at 80 percent but not 100 percent, the Nigeria ECE total cost is projected to increase from about USD 1.67 billion, composed of 64.58% by current expenses and 35.42% by capital expenditures to USD 8.20 billion, composed of 88.82% by current expenses and 11.18% by capital expenditures over the period 2019-2030. The results indicate an annual average cost of USD 4.62 billion and USD 5.51 respectively for the periods 2019-2038 and 2022-20230. On the average, the shares of recurrent and capital expenditures remained stable over the two periods and were respectively 63% and 37%. Moreover, the projections show that unit cost (per ECE pupil) will rise from USD 408 to USD 831 over the analysis period. These costs are always similar to those found by EFA-GMR (2020). As for the financial gap, it will grow from USD 1.64 billion to USD 2.49 billion between 2019 and 2030. The table 17 indicates the differences between the base scenario (scenario 1) results and the first alternative scenario (scenario2).

Table 17: Difference between scenario 1 and scenario 2

Results	Scenario 1	Scenario 2	Variation
Total Expenditure 2022-2030 (billion USD)	61.36	49.628	-11.74
Average total expenditure 2022-2030 (billion USD)	6.818	5.51	-1.30
Average total cost per pupil 2022-2030	716.3	701	-15.72
Total financing gap 2022-2030 (billion USD)	34.15	22	-11.74
Average financing gap 2022-2030 (billion USD)	3.752	2.49	-1.26

Source: AMD International from SimuED calculations

The Scenario 2 attempts to be more realistic with respect to the current level of Nigeria ECE enrolment and considers a rate of 80 by 2030. It follows a decrease in the cost of early childhood education resulting from the decrease in the number of pupils and therefore in need for personnel and materials. Then, the total expenditure over the period 2022-2030 fall from USD 61.36 billion (scenario 0) to USD 49.63 billion (scenario 1), a decrease of USD 11.74 billion. This is equivalent to a decrease of a unit annual average cost from USD 716.3 to USD 701, resulting in the financing gap annual average reduction of USD 1.26 billion.

Although the lower PTR of 15 according to SDG4 target might be desirable, from an increased quality perspective, it was also recognized it might not be feasible, given that the current ratio is around 84 pupils per teacher. According to Ogunode (2021), the Nigeria's national policy (2014) has proposed a standard minimum ratio of 25 pupils per teacher for ECE with the aim to have good quality education. Assuming that instead of considering a ratio of 15, Nigeria could at least meet this national standard ratio of 25 by 2030 and maintaining the GER at 80, a second alternative scenario (scenario 3) is proposed whose results are shown in Table 18.

Table 18: Scenario 3 key results

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average (2019-2030)	Average 2022-2030
Total expenditure (billion USD)	1.65	1.89	2.16	2.47	2.84	3.28	3.83	4.53	5.38	5.98	6.67	5.95	3.89	4.55
Recurrent (billion USD)	1.08	1.23	1.41	1.62	1.84	2.10	2.40	2.76	3.19	3.72	4.39	5.28	2.59	3.03
Percentage (%)	65.20%	65.50%	65.43%	65.35%	64.90%	63.94%	62.71%	60.89%	59.22%	62.27%	65.92%	88.73%	66%	66%
Capital (billion USD)	0.57	0.65	0.75	0.86	1.00	1.18	1.43	1.77	2.20	2.26	2.27	0.67	1.30	1.51
Percentage (%)	34.80%	34.50%	34.57%	34.65%	35.10%	36.06%	37.29%	39.11%	40.78%	37.73%	34.08%	11.27%	34%	34%
Recurrent unit cost	262	272	284	296	310	327	346	369	396	430	475	535	358.50	387.05
Capital unit cost	140	144	150	157	168	184	206	237	273	261	245	68	185.98	199.82
Total unit cost (USD)	403	416	433	453	478	511	552	605	669	691	720	603	544.48	586.87
Global gap (billion USD)	1.62	1.79	1.94	2.06	2.15	2.21	2.23	2.24	2.19	1.61	0.81	1.81	1.59	1.52

Source: AMD International from SimuED calculations

With PTR of 25 and a GER of 80 percent assumptions, the Nigeria ECE total cost is projected to rise from near USD 1.65 billion (2019), represented by 65.20% of recurrent expenses and 34.80% of capital expenses to USD 5.95 billion (2030), represented by 88.73% of recurrent expenses and 11.27% of capital expenses. These figures are equivalent to an average annual cost of USD 3.89 billion (2019-2030) and USD 4.55 (2022-2030), made up of 66% by recurrent expenses and 34% by capital expenditures. Furthermore, the unit cost (per ECE pupil) will increase from USD 403 to USD 603 over the analysis period. These costs are always similar to those found in EFA (2020) report, according to which, by 2030, the per pupil cost of preschool education ranges from USD 421 (for low-income countries) to USD 854 (for all low- and middle-income countries). From this situation, it will result in a financial gap that will increase from USD 1.62 billion to USD 1.81 billion. These results for scenario 3 are below those of the scenario 1 and these differences are presented

Table 19: Difference between base scenario 1 and scenario 3

Results	Scenario 1	Scenario 3	Variation
Total Expenditure 2022-2030 (billion USD)	61.36	40.93	-20.44
Average total expenditure 2022-2030 (billion USD)	6.82	4.55	-2.27
Average total cost per pupil 2022-2030	716.26	586.87	-129.39
Total financing gap 2022-2030 (billion USD)	34.15	13.71	-20.44
Average financing gap 2022-2030 (billion USD)	3.75	1.52	-2.23

Source: AMD International from SimuED calculations

Under a PTR of 25 in respect of Nigeria Minimum Standard ECE PTR and A GER of 80 percent, the Nigeria ECE total expenditure would amount to USD 40.93 billion over the period 2022-2030 (compared with USD 61.39 billion in scenario 1), a decrease or reduction of USD 20.44 billion from the base scenario. The 2022-2030 overall expenditure annual average will be USD 4.55 billion (compared with USD 6.26 billion in scenario 1), whereas the unit cost will decrease by USD 20.27, from USD 34.15 in the baseline scenario to USD 13.71 in scenario 3 over the 2022-2030 period. The financial gap will decrease by USD 2.23 billion, from USD 3.75 billion in the baseline scenario (scenario 1) to USD 1.52 billion in scenario 3. These results are supplemented by unit cost estimates made taking into account geographic disparities and place of residence. The simulation for the cost is supported by some quantitative data gathered through FGD in the six targeted states, divided in Northern (Adamawa, Kwara and Sokoto) and Southern (Anambra, Osun and Rivers). These data allowed to derive the unit cost of educating an ECE child according to the geographical area (Northern and Southern) and the place of residence (rural and urban) as well as the estimated cost of constructing a block of three classrooms, classroom furniture, toilets, and the head teacher's office.

The estimates show that the unit cost of educating a ECE (0-5) child is ₦ 494,000 in rural area against ₦ 511,375 in urban area. Furthermore, the results show that this unit cost is higher in the South (₦ 520,250) than in the North (₦ 450,000) of Nigeria. Of the six states targeted by this study, the state of Rivers which belongs to South has the highest unit cost (₦ 926,500), followed by Anambra (500,000), still belonging to the South. The state of Osun has the lowest cost (₦ 134,250), followed by the state of Adamawa (₦ 450,000), belonging to the Northern (table 20)²³.

Table 20: Unit cost of Educating an ECE child

Area/State	Cost (₦)	Cost (USD) ²⁴
Rural	494,000	1185.6
Urban	511,375	1227.3
South	520,250	1248.6
North	450,000	1080
Adamwa	450,000	1080
Osun	500,000	1200
Rivers	134,250	322.2
Sokoto	926,500	2223.6

²³ Due to data unavailability, unit costs were not able to be estimated for Kwara and Sokoto.

²⁴ ₦ 1=0.0024 US\$: https://www.exchangerates.org.uk/NGN-USD-01_09_2021-exchange-rate-history.html

Source: AMD International estimates from data gathered through FGD

In addition, data gathered through FGD allowed to have an estimated cost of constructing an ECE centre. Then the cost of three blocks of classrooms, classroom furniture, toilets, and the head teacher's office, as a simple requirement for setting up ECE centre either standalone or integrated into the primary schools, result in an amount of ₦ 35,801,982.91 (USD 85,924.759).

Box: Estimating the cost of setting up an ECE centre

The cost of setting up an ECE centre was estimated as follows: the unit cost of building one classroom was multiplied by three to have a block of three classrooms. The unit cost of furniture for one classroom was also multiplied by three to get the cost of furniture for three classrooms. To these two costs (construction of three classrooms and furniture for three classrooms) were added the unit costs of toilets and the head teacher's office.

cf. Annex 7 for details of the costs of each element and by State.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

The general objective of this study is to contribute in generating evidence for policy reforms that will boost basic education in Nigeria through qualitative and quantitative improvement in investment in Early Childhood Education (ECE).

The analysis revealed disparities in early childhood education coverage as well as access in Nigeria and an insufficient and unequal allocation of resources.

In terms of geographic coverage, the Southwest geopolitical zone has the highest proportion of enrolment, while when considering average annual enrolment by state over the 2014-2018 period, Sokoto leads with the highest number of students (34,890 males against 25,298 females in 2015/2016 academic year), followed by Adamawa (17,788 males against 16,900 females in 2015/2016 academic year), Kwara (26,667 males against 26,007 females in 2015/2016 academic year) and Rivers states (7,851 males against 8,124 females in 2015/2016 academic year). With a predominantly female teaching staff (82% of 54,217 staff personnel) at Federal level, Anambra recorded the highest number of staff (8,439) followed by Rivers (6,674), Osun (4,164), Kwara (3,770), Adamawa (2,404) and Sokoto (1,066).

Inequalities in access based on socioeconomic characteristics were analyzed with a probit model. The results revealed that access to preschool is positively determined by the head of the household and the child being male as well as household wealth and negatively by either being Christian or Muslim.

An analysis of Early Childhood Education quality and efficiency demonstrated low quality and inequalities in service delivery. The results showed that the quality of education is marked by high pupil-teacher and pupil-classroom ratios, which can more than triple the required values as national norms. Public schools recorded the highest Pupils-Teacher and Pupils-classroom ratios compared to private schools in Nigeria. Instruction materials are not sufficiently provided in both public and private schools, one Textbook (for all types) being shared by at least 10 pupils at the national level and 26 pupils in public schools. Most ECE schools lack adequate facilities which are unequally distributed among the states. On the state Adamawa State has the lowest access in terms of electricity (54%) as well as in health facilities while Rivers has the highest access in source of electricity while Kwara has the highest access (92.5%) in health facilities followed by Sokoto and Osun. Moreover, the comparative presentation of States situation in the most current year (2020) shows that Adamawa and Anambra States have the highest unit costs of pupil's school needs, while the low costs are recorded at the State of Kwara, Osun and Rivers.

Analysis showed also that Early Childhood Education has become a lucrative business for most profit-driven private institutions, resulting in a failure to meet

national policy standards. With a such situation, there is no doubt that the quality of early childhood education in Nigeria could be at stake, raising questions about how children are prepared for the next stage of education. Therefore, there is need for enhanced government commitment through dedicated budgeting for Early Childhood Education and enhanced partnership with the private sector.

The costs and financing analysis of preschool education services in Nigeria reveals that the share of exclusive expenditure on early childhood and pre-primary education in the total expenditure of the education sector is declining and well below the UNICEF recommendation of 10% of the overall education budget for early childhood. In addition, over the 2014-2021 period, the average share of current expenditure as a percentage of total expenditure was much higher (88.8%) than that of capital expenditure (11.20%).

These results show that Nigeria still has a long way to go in order to achieve the education goals whether they are set at the national level or at the international level. This pathway is accompanied by a cost estimate covering the federal level according to three scenarios with a simuED model, developed by UNESCO. Thus, in a **first scenario** (reaching SDGs 4 target of 100% of GER and a PTR of 15 incorporating Nigeria UBEC goals), the average annual cost of early childhood education in Nigeria would amount to USD billion 6.818 over the period 2022-2030, implying a financial gap of USD billion 3.742. In a **second scenario** (assuming a GER of 80% and a PPTR of 15), the annual cost and financial gap would respectively be USD billion 5.51 and USD billion 2.49. The average annual cost and financial gap would be USD billion 4.55 and USD billion 1.52 respectively under 2022-2030 period, in a **third scenario** (assuming a GER of 80% and a PTR of 25).

Based on the results, some recommendations are made to inform appropriate and targeted policy decision addressing the bottlenecks to the equitable access to basic education by the most disadvantaged children.

Strengthen sensitization activities

These sensitizations should target female, Christian and Muslim head of households who are reluctant to send their children to early childhood education schools. They should also target households with girls who currently have a lower chance of receiving early childhood education than boys.

The state, supported by its technical and financial partners, must increase human and materials resources allocated to early childhood education and ensure that they are equally distributed

Actions such as sensitization and the fight against insecurity must be undertaken to raise the level of enrolment in the six states in general and in particular in the states of Adamawa, Kwara, Osun, Rivers where enrolment levels are low compared to Sokoto.

Resources must be mobilized by both the government and its partners to initiate construction of new infrastructures (classrooms, health facilities, source of electricity),

recruit and train new teachers, and ensure that states like Adamawa that are currently less endowed be well provided for. Also, pupils learning materials must be in sufficient number, at best the pupils to learning material ratio such as textbooks must be 1.

These investments require the government to increase the share of its resources allocated to education in general and early childhood education in particular

In line with SDG targets, the Federal government, must allocate at least 20% of its budget to education, by 2030. Moreover, the share of early childhood education resources in the education budget, which is currently less than 5 percent according to Results for Development (2016), must be increased and established at least at 6 percent by 2030.

The simulated financial gaps call for advocacy efforts by the Federal government and its partners in order to attract donors to support Nigeria in achieving its Early Childhood Education goals as formulated under three scenarios in this study.

In the first scenario, these efforts should mobilize an average of USD 3.75 billion per year over the period 2022-2030 to fill the existing financing gap. This amount will be USD 2.49 billion in the second scenario and USD 1.52 billion in the third scenario.

6.2. Recommendations

In order to boost basic education in Nigeria through qualitative and quantitative improvement in investment in Early Childhood Education (ECE), the mission formulated recommendations and proposed priority actions based on the findings. These recommendations are structured in four axis, namely (i) Strengthening Educational Provision, Demand and Equity in the Nigerian Early Childhood Education System Strengthening the supply of education and equity in the Nigerian education system, (ii) Improving the quality of education services, (iii) Early Childhood Financing (iv) Management of the early childhood education system.

Table 21 summarizes the recommendations made, the priority actions proposed, the persons responsible and the implementing partners.

Table 21: Major findings, recommendations and priority actions

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
Axis 1: Strengthening Educational Provision, Demand and Equity in the Nigerian Early Childhood Education System					
<ul style="list-style-type: none"> A still limited educational offer for early childhood 	<ul style="list-style-type: none"> Strengthen early childhood education supply. 	<ul style="list-style-type: none"> Initiate construction of new centers/classrooms 	Basic and Secondary Department	From 2022	State and Federal Ministries of Education, State and Federal Ministry of Labor and Employment National Bureau of Statistics, National Teacher's Institute (NTI), Universal Basic Education Commission (UBEC), General Directorate of Finance, Office of School
		<ul style="list-style-type: none"> Ensure that most primary schools have a pre-primary section. 	Human Resources Management Department	2022-2030	
		<ul style="list-style-type: none"> Recruit, train and assign new ECE teachers in a rational and supportive manner, consistent with the priorities and needs of each state 	Reform Coordination and Service Improvement Department	2022-2030	
		<ul style="list-style-type: none"> Further modernize the human resources management system (increased dematerialization) 		From 2022	

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
		of the human resources management system through new information and communication technologies, NICT)			Infrastructure, Equipment and Maintenance (Specialized Offices and Structures)
<ul style="list-style-type: none"> There are inequalities in access to education 	<ul style="list-style-type: none"> Reducing inequities in access to early childhood education 	<ul style="list-style-type: none"> Sensitize (Muslim, Christian, and female head) households that are reluctant to enrol the children in ECE 	Basic and Secondary Education Department	2022-2030	State and Federal Ministries Education
		<ul style="list-style-type: none"> Undertake actions towards girls who are currently disadvantaged compared to boys in terms of access to ECE 	National Centre for Women Development	2022-2030	State and Federal Ministries of Women Affairs and Social Development, NGOs
		<ul style="list-style-type: none"> Provide financial support to households that do not have sufficient financial resources to send their children to ECE centers 		2022-2030	Pupils Parents Association, Civil Society Organization, General Directorate of Finance, FTPs, Human Resources Directorate,
<ul style="list-style-type: none"> Existence of disparities in early childhood education in Nigeria based on zones and states 	<ul style="list-style-type: none"> Addressing disparities 	<ul style="list-style-type: none"> Continuing the actions in favor of the schooling of children with special needs 	Basic and Secondary Education Department	From 2022	State and Federal Ministries of Education and Women Affairs and Social Development,
		<ul style="list-style-type: none"> Continue to provide adequate infrastructure and equipment, giving priority to states/LGAs where school indicators such as pupil/school ratio, 			2022-2030

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
		<p>pupils/classrooms, etc. are high</p> <ul style="list-style-type: none"> Redeploy education personnel in a rational and supportive manner, consistent with the priorities and needs of each state Strengthen actions for low enrolment states by supporting school feeding actively for example. Expand early childhood education throughout the country in both urban and rural areas and define the respective roles of the different actors to ensure participatory and inclusive education 		<p>2022-2030</p> <p>2022-2030</p> <p>2022-2030</p>	<p>(UBEC), Human Resources Directorate, General Directorate of Finance, Office of School Infrastructure, Equipment and Maintenance (Specialized Offices and Structures)</p>
Axis 2: Improving the quality of educational services					
<ul style="list-style-type: none"> Basic resources are in very short supply 	<ul style="list-style-type: none"> Improve the availability of basic resources in quantity and quality. 	<ul style="list-style-type: none"> Conduct a diagnosis of the supply channels for textbooks and teaching materials in order to remove bottlenecks Strengthen national capacity for the domestic production and distribution 	<p>Library Services</p> <p>Department Procurement</p> <p>Department Education Quality Assurance Services</p> <p>Department</p>	<p>From 2022</p> <p>From 2022</p>	<p>Educational Planning and Research Department, TFPS; NGOs, private sector investor</p>

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
		of quality textbooks and learning materials			
		<ul style="list-style-type: none"> Strengthen the capacity of schools in the management of textbooks and teaching materials 		From 2022	
		<ul style="list-style-type: none"> Provide one free school manual per pupil and meet the needs of new curricula in a timely manner; a manual-to-student ratio of 1 is highly desirable for effective learning 		2022-2030	
		<ul style="list-style-type: none"> Teaching and learning materials for both teachers and pupils like television sets/computer systems, toys and models, charts and well drawings and playing equipment like see-saw, merry-go-round, slides etc. should be made a vital provision in all learning centers for effective teaching and learning. 		From 2022	
		<ul style="list-style-type: none"> Ensure that each early childhood education center is well fenced and has infrastructure such as toilets, 		From 2022	

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
		safe water facilities, source of electricity facility and health facilities			
<ul style="list-style-type: none"> Most of the classes were also found to be overpopulated and a high Pupil Teacher Ratio 	<ul style="list-style-type: none"> Improve the student-teacher ratio 	<ul style="list-style-type: none"> Engage in the construction of new specialized early childhood teacher training centers and strengthen existing ones 	Basic and Secondary Department Human Resources Management Department (HRMD)	2022-2030	States and Federal Ministries of Education Human Resources Department, General Directorate of Finance, Office of School Infrastructure, Equipment and Maintenance (Specialized Offices and Structures)
		<ul style="list-style-type: none"> Effective measures should be ensured in the training of early childhood/pre-primary teachers through adequate scholarships, approving the studying of such programmes in all Universities, Institutes of Education and Colleges of Education 		2022-2030	
		<ul style="list-style-type: none"> Ensure a maximum of 15-25 pupils per teacher for effective teaching and learning in accordance with the NPE 			
<ul style="list-style-type: none"> The number of qualified teachers needs to be reinforced. 	<ul style="list-style-type: none"> Increase the number of qualified teachers and improve curriculum 	<ul style="list-style-type: none"> Provide in-service training for teachers through training seminars, conferences and workshops; This will prevent stagnation of knowledge. 	Department of Human Resources Management Department (HRMD) Education Quality	From 2022	States and Federal Ministries of Education HRMD Training branches General Directorate of Finance,

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
		<ul style="list-style-type: none"> ECE teachers and Caregivers must be trained in Information and Communication Technology (Computer software that has educational content in introducing concepts such as numbers, color matching and shapes, and audio-visual materials) It is also suggested that the government should compile and produce an anthology of Nigerian and African songs, stories, games, poems, riddles, and tongue twister in form of Handbook for parents and caregivers. Such materials would have direct relationship to Nigerian cultural values 	Assurance Services Department	From 2022	
<ul style="list-style-type: none"> Unprecedented explosion of early childhood education provision owned and run by 	<ul style="list-style-type: none"> Ensure a regular quality control in ECE Schools 	<ul style="list-style-type: none"> There is the need for the Government to sustain ECE as emphasized in the provisions of National Policy on Education (i.e., following of the policy recommendation of using stories, play-way method, toys etc.) 	Department of Human Resources Management Department (HRMD) Education Quality Assurance Services Department	From 2022	States and Federal Ministries of Education HRMD Training branches

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
private organizations and individuals with poor quality of teaching (untrained and uncommitted teachers, lacking of most facilities and instructional materials which make for effective teaching and learning)		<ul style="list-style-type: none"> There is need for State Ministries of Education officials to enforce the regulations laid down by the Federal Ministry of Education as regards to the provisions of early childhood education for improvement 		From 2022	
		<ul style="list-style-type: none"> Set up an appropriate legislation to ensure that only people who have relevant qualification in the Early Care Education are allowed to own and manage ECE schools. There should be standard guidelines regarding the operation of Early Childhood centers, which should be produced by the government and made available to qualified people wishing to operate Early Childhood Education in rural areas and urban centers. This will enhance standard in the operation of Early Child Care Education. 			
		<ul style="list-style-type: none"> Regular supervision and 		From 2022	

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
		<p>monitoring with stiff penalties for offenders will help to maintain standards (the teacher-pupil ratio, minimum infrastructural requirements, etc.)</p> <ul style="list-style-type: none"> Effective monitoring units should be set up and strengthened by the Federal and states Ministries of Education, <i>and the Universal Basic Education Boards (at Federal and state level)</i> and provide with necessary materials and financial resources maintained in both public and private pre-primary institutions in Nigeria 		From 2022	
Axis 3: Early Childhood Financing					
<ul style="list-style-type: none"> Insufficient financing for early childhood education 	<ul style="list-style-type: none"> Significantly increase funding for Early Childhood Education and ensure sufficient level of public and international resources for this 	<ul style="list-style-type: none"> The government must increase the budget for Education (At least 20%) and early childhood education to at least 10% of the total education budget, <i>and ensure that this budget is allocated in equity manner</i> 	<p>Finance and Accounts Department</p> <p>Educational Planning and Research Department</p>	2022-2030	<p>State and Federal Ministries of Education</p> <p>Ministry of Finance and Budget</p> <p>FTPs (UNICEF, UNESCO, WB, GPE, etc.), private sector investor</p>

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
	sub-sector	<i>geographically (south against North) and across states</i>			
		<ul style="list-style-type: none"> Donors should lead by example by adopting the same commitment and allocating at least 10% of their investments in education to this sub-sector, in order to foster and complement public resources and fill the gaps 		2022-2030	
		<ul style="list-style-type: none"> For quality education based on a sufficient supply of learning materials and improved pupil-teacher and classroom ratios, the government and its partners should commit to devote at least 4%, 14% and 20% of early childhood education expenditures to the purchase of learning materials, teacher training and classroom construction respectively. 		2022-2030	
		<ul style="list-style-type: none"> Create an attractive salary scale which will provide incentives that would retain the best minds in the profession and regulate fees 		From 2022	

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
		<p>to encourage parents</p> <ul style="list-style-type: none"> ▪ Policymakers, international partners and donors must commit to full accountability for financing ECE in order to improve monitoring and advocacy at the international level. 		From 2022	
<ul style="list-style-type: none"> ▪ Low number and involvement of partners 	<ul style="list-style-type: none"> ▪ Establish a common vision for the sub-sector between states governments, Federal state government, donors, private sector investor, partners, and priorities in a complementary manner so that funding and technical assistance are available when and where they are most needed. 	<ul style="list-style-type: none"> ▪ The realization of a broad coalition of partners supporting multiple service providers- including public, private, and nonprofit actors such as faith-based and civil society such as faith-based and civil society organizations, and parents of students 	<p>Basic and Secondary Education Department</p> <p>Reform Coordination and Service improvement Department</p>	From 2022	<p>State and Federal Ministries of Education</p> <p>Pupil Parents Associations</p> <p>Civil Society Organizations</p> <p>FTP, private sector investor</p>
		<ul style="list-style-type: none"> ▪ In the early childhood education sub-sector, the role of the FME will be different from that in other sub-sectors: It will need to be more flexible, with a greater emphasis on quality assurance and the establishment of a supportive regulatory framework for service providers. Once programs are rolled out, the FME will 		From 2022	

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
		<p>also have a role to play in ensuring equity, emphasizing quality and ensuring that those most in need of services have the greatest access to public funding</p> <ul style="list-style-type: none"> National and international partners play a critical role in investing in this nascent sub-sector, providing scalable resources to fill gaps that national funding alone cannot fill. Capacity building, training, and other technical assistance will be fundamental, as will a commitment to work with local institutions and ensure the transfer of capacity to a stable ECE sub-sector. Families and communities must also be involved in this process as they accompany children in their learning at home and are primarily involved in the development of quality programs that can help them get a good start in life. 		<p>2022-2030</p> <p>From 2022</p>	
Axis 4: Management of the early childhood education system					

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
<ul style="list-style-type: none"> The report on the executed budget is available, but with expenditures dedicated to ECE consolidated with expenditures in other sub-sectors, making it impossible to assess the specific allocations to ECE and to make decisions to finance the non- or under-funded components 	<ul style="list-style-type: none"> Design an ECE sub-sectoral framework to define an early childhood policy with action plans. 	<ul style="list-style-type: none"> Develop annual plans on the basis of a technical note (for the various actors) based on annual evaluations and lessons learned 	Basic and Secondary Department Educational Planning and Research Department	From 2022	State and Federal Ministries of Education Information and Communication Technology Department
		<ul style="list-style-type: none"> Draw up an annual framework letter for the financial resources of the Technical and Financial Partners (TFP) in addition to that of the State budget, discussed with the national party 	Finance and Account Department	From 2022	Ministry of Finance and Budget
		<ul style="list-style-type: none"> Carry out budgeting consistent with annual plans in line with updated priorities and approaches 		From 2022	
<ul style="list-style-type: none"> Unavailability of some data on indicators 	<ul style="list-style-type: none"> Further operationalize the mechanism for coordinating and 	<ul style="list-style-type: none"> Systematize the periodic (annual) production of progress reports 	Basic and Secondary Department	From 2022	State and Federal Ministries of Education
		<ul style="list-style-type: none"> Define with state and 	Educational Planning	2022-2030	Information and

Key's observations	Recommendations	Priority actions	Implementing Responsible	Implementation period	Implementing Partners
and financial and material resources allocated to early childhood education	monitoring indicators and resources allocated to early childhood education	federal governments realistic and achievable flexible options with minimum thresholds for a gradual increase in school indicator values in relation to the Sustainable Development Goals.	and Research Department		Communication Technology Department National Bureau of Statistics
		<ul style="list-style-type: none"> There must be regular collection and management of information on early childhood education (ECE), including what funding is being spent on and where it is coming from 		From 2022	
		<ul style="list-style-type: none"> In the first coming years, undertake a Public Expenditure Tracking Surveys (PETS) including external funds to ensure efficient use of resources with appropriate recommendations for the targets proposed in this investment case achievement 		From 2023	
		<ul style="list-style-type: none"> Establish a committee to monitor the recommendations made. 		From 2022	

Source: AMD International

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ANNEX

Annex 1: Base scenario projection detailed results

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average (2019-2030)	Average 2022-2030
Recurrent total Expenditure	1,12	1,34	1,58	1,86	2,18	2,56	3,01	3,57	4,30	5,29	6,73	9,12	3,55	4,29
As % of total Cost	60,51%	61,27%	61,51%	61,54%	61,02%	59,78%	57,91%	54,92%	50,87%	56,04%	63,16%	89,02%	61%	62%
Teacher-Salaries	0,38	0,47	0,58	0,72	0,88	1,10	1,37	1,74	2,25	3,00	4,18	6,28	1,91	2,39
AS % of Recurrent expenditure	0,34	35,08%	36,72%	38,55%	40,61%	42,94%	45,61%	48,70%	52,35%	56,72%	62,09%	68,87%	46,82%	50,71%
As % of total Cost	20,33%	21,49%	22,59%	23,73%	24,78%	25,67%	26,41%	26,74%	26,63%	31,79%	39,22%	61,31%	29,22%	31,81%
Non-Teacher-Salaries	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,03	0,03	0,04	0,02	0,02
AS % of Recurrent expenditure	0,48%	0,48%	0,49%	0,50%	0,51%	0,51%	0,51%	0,51%	0,50%	0,49%	0,46%	0,40%	0,49%	0,49%
As % of total Cost	0,29%	0,30%	0,30%	0,31%	0,31%	0,31%	0,30%	0,28%	0,26%	0,27%	0,29%	0,36%	0,30%	0,30%
Classroom Furniture	0,24	0,29	0,34	0,40	0,46	0,53	0,61	0,70	0,81	0,93	1,07	1,22	0,63	0,75
AS % of Recurrent expenditure	21,64%	21,59%	21,49%	21,33%	21,10%	20,76%	20,29%	19,65%	18,76%	17,53%	15,82%	13,41%	19,45%	18,74%
As % of total Cost	13,10%	13,23%	13,22%	13,13%	12,87%	12,41%	11,75%	10,79%	9,54%	9,82%	9,99%	11,93%	11,82%	11,36%
Learning material	0,09	0,10	0,12	0,13	0,15	0,16	0,18	0,20	0,22	0,24	0,26	0,28	0,18	0,20
AS % of Recurrent expenditure	7,99%	7,73%	7,45%	7,15%	6,82%	6,46%	6,06%	5,62%	5,12%	4,56%	3,90%	3,12%	6,00%	5,42%
As % of total Cost	4,83%	4,74%	4,58%	4,40%	4,16%	3,86%	3,51%	3,08%	2,61%	2,55%	2,46%	2,78%	3,63%	3,27%
Clothing/Accessories	0,13	0,15	0,17	0,19	0,22	0,24	0,27	0,29	0,32	0,35	0,39	0,42	0,26	0,30
AS % of Recurrent expenditure	11,71%	11,33%	10,92%	10,48%	9,99%	9,46%	8,88%	8,24%	7,51%	6,68%	5,72%	4,58%	8,79%	7,95%
As % of total Cost	7,09%	6,94%	6,72%	6,45%	6,10%	5,66%	5,14%	4,52%	3,82%	3,74%	3,61%	4,08%	5,32%	4,79%
Lunch and other goods and services	0,28	0,32	0,36	0,41	0,46	0,51	0,56	0,62	0,68	0,74	0,81	0,88	0,55	0,63
AS % of Recurrent expenditure	24,59%	23,79%	22,93%	21,99%	20,98%	19,87%	18,65%	17,29%	15,76%	14,03%	12,01%	9,61%	18,46%	16,69%
As % of total Cost	14,88%	14,58%	14,10%	13,53%	12,80%	11,88%	10,80%	9,50%	8,02%	7,86%	7,59%	8,56%	11,17%	10,06%
Capital Expenditure	0,73	0,84	0,99	1,16	1,39	1,72	2,19	2,93	4,16	4,15	3,93	1,12	2,11	2,53
As % of total Cost	39,49%	38,73%	38,49%	38,46%	38,98%	40,22%	42,09%	45,08%	49,13%	43,96%	36,84%	10,98%	38,54%	38,41%

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average (2019-2030)	Average 2022-2030
Construction	0,50	0,55	0,62	0,70	0,79	0,91	1,06	1,26	1,48	1,74	2,05	0,35	1,00	1,15
AS % of Capital expenditure	67,67%	65,38%	63,06%	60,15%	56,85%	53,07%	48,46%	43,07%	35,54%	41,93%	52,19%	31,52%	51,57%	46,98%
As % of total Cost	26,72%	25,32%	24,27%	23,13%	22,16%	21,34%	20,40%	19,42%	17,46%	18,43%	19,22%	3,46%	20,11%	18,34%
Teacher Training	0,24	0,29	0,36	0,46	0,60	0,81	1,13	1,67	2,68	2,41	1,88	0,77	1,11	1,38
AS % of Capital expenditure	32,33%	34,62%	36,94%	39,85%	43,15%	46,93%	51,54%	56,93%	64,46%	58,07%	47,81%	68,48%	48,43%	53,02%
As % of total Cost	12,77%	13,41%	14,22%	15,33%	16,82%	18,87%	21,69%	25,66%	31,67%	25,52%	17,61%	7,52%	18,42%	20,08%
Total Cost (US\$)	1,85	2,18	2,57	3,02	3,57	4,28	5,20	6,50	8,46	9,44	10,66	10,24	5,66	6,82
Unit cost of current expenses (US\$)	263,40	274,63	287,41	302,15	319,43	340,09	365,38	397,32	439,33	497,77	586,02	737,95	400,91	442,83
AS % total unit cost	60,51%	61,27%	61,51%	61,54%	61,02%	59,78%	57,91%	54,92%	50,87%	56,04%	63,16%	89,02%	61,46%	61,59%
Unit Cost of capital Expenditure (US\$)	171,90	173,58	179,83	188,82	204,07	228,81	265,52	326,18	424,26	390,41	341,76	91,01	248,85	273,43
AS % total unit cost	39,49%	38,73%	38,49%	38,46%	38,98%	40,22%	42,09%	45,08%	49,13%	43,96%	36,84%	10,98%	38,54%	38,41%
Unit Cost of total Expenditure (US\$)	435,30	448,21	467,24	490,97	523,50	568,90	630,90	723,51	863,60	888,18	927,77	828,97	649,75	716,26
Gap on current expenses	1,10	1,27	1,43	1,59	1,75	1,90	2,08	2,28	2,56	2,98	3,72	5,24	2,32	2,68
In % of current expenses	98,16%	94,80%	90,46%	85,48%	80,10%	74,52%	69,01%	63,84%	59,48%	56,37%	55,28%	57,45%	73,75%	66,84%
Gap on capital expenditures	0,73	0,82	0,92	1,02	1,14	1,30	1,53	1,94	2,71	2,10	1,08	-2,76	1,04	1,12
In % of current expenses	99,21%	97,04%	93,35%	88,18%	81,99%	75,58%	69,75%	66,03%	65,12%	50,52%	27,50%	-245,00%	47,44%	31,07%
Global Gap	1,83	2,09	2,35	2,61	2,89	3,20	3,60	4,22	5,26	5,08	4,80	2,48	3,37	3,79
as a % of total expenditures	98,57%	95,67%	91,57%	86,52%	80,84%	74,94%	69,32%	64,83%	62,25%	53,80%	45,05%	24,24%	70,63%	62,42%
*= billion US\$														

Source: AMD International

Annex 2: Scenario 2 projections detailed results

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average (2019-2030)	Average 2022-2030
Recurrent total Expenditure*	1,08	1,24	1,43	1,65	1,90	2,19	2,54	2,97	3,54	4,30	5,43	7,28	2,96	3,53
As % of total Cost	64,58%	64,73%	64,47%	64,12%	63,27%	61,75%	59,63%	56,40%	52,13%	57,09%	64,03%	88,82%	63%	63%
Teacher-Salaries*	0,36	0,44	0,53	0,64	0,77	0,94	1,16	1,45	1,85	2,44	3,37	5,02	1,58	1,96
AS % of Recurrent expenditure	0,34	35,08%	36,72%	38,55%	40,61%	42,94%	45,61%	48,70%	52,35%	56,72%	62,09%	68,87%	46,82%	50,71%
As % of total Cost	21,69%	22,70%	23,68%	24,72%	25,69%	26,51%	27,20%	27,47%	27,29%	32,38%	39,76%	61,18%	30,02%	32,47%
Non-Teacher-Salaries*	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,02	0,03	0,01	0,02
AS % of Recurrent expenditure	0,48%	0,48%	0,49%	0,50%	0,51%	0,51%	0,51%	0,51%	0,50%	0,49%	0,46%	0,40%	0,49%	0,49%
As % of total Cost	0,31%	0,31%	0,32%	0,32%	0,32%	0,32%	0,31%	0,29%	0,26%	0,28%	0,29%	0,36%	0,31%	0,30%
Classroom Furniture*	0,23	0,27	0,31	0,35	0,40	0,45	0,51	0,58	0,66	0,75	0,86	0,98	0,53	0,62
AS % of Recurrent expenditure	21,64%	21,59%	21,49%	21,33%	21,10%	20,76%	20,29%	19,65%	18,76%	17,53%	15,82%	13,41%	19,45%	18,74%
As % of total Cost	13,98%	13,97%	13,86%	13,68%	13,35%	12,82%	12,10%	11,08%	9,78%	10,01%	10,13%	11,91%	12,22%	11,65%
Learning material*	0,09	0,10	0,11	0,12	0,13	0,14	0,15	0,17	0,18	0,20	0,21	0,23	0,15	0,17
AS % of Recurrent expenditure	7,99%	7,73%	7,45%	7,15%	6,82%	6,46%	6,06%	5,62%	5,12%	4,56%	3,90%	3,12%	6,00%	5,42%
As % of total Cost	5,16%	5,00%	4,80%	4,58%	4,31%	3,99%	3,61%	3,17%	2,67%	2,60%	2,50%	2,77%	3,76%	3,36%
Clothing/Accessories*	0,13	0,14	0,16	0,17	0,19	0,21	0,23	0,24	0,27	0,29	0,31	0,33	0,22	0,25
AS % of Recurrent expenditure	11,71%	11,33%	10,92%	10,48%	9,99%	9,46%	8,88%	8,24%	7,51%	6,68%	5,72%	4,58%	8,79%	7,95%
As % of total Cost	7,56%	7,33%	7,04%	6,72%	6,32%	5,84%	5,30%	4,64%	3,91%	3,81%	3,66%	4,07%	5,52%	4,92%
Lunch and other goods and services*	0,27	0,30	0,33	0,36	0,40	0,43	0,47	0,51	0,56	0,60	0,65	0,70	0,47	0,52
AS % of Recurrent expenditure	24,59%	23,79%	22,93%	21,99%	20,98%	19,87%	18,65%	17,29%	15,76%	14,03%	12,01%	9,61%	18,46%	16,69%
As % of total Cost	15,88%	15,40%	14,78%	14,10%	13,27%	12,27%	11,12%	9,75%	8,22%	8,01%	7,69%	8,54%	11,59%	10,33%
Capital Expenditure*	0,59	0,68	0,79	0,92	1,10	1,35	1,72	2,30	3,25	3,23	3,05	0,92	1,66	1,98
As % of total Cost	35,42%	35,27%	35,53%	35,88%	36,73%	38,25%	40,37%	43,60%	47,87%	42,91%	35,97%	11,18%	36,58%	36,97%

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average (2019-2030)	Average 2022-2030
Construction*	0,40	0,44	0,49	0,55	0,62	0,71	0,82	0,98	1,14	1,33	1,56	0,30	0,78	0,89
AS % of Capital expenditure	67,10%	64,82%	62,53%	59,60%	56,28%	52,50%	47,88%	42,52%	35,00%	41,24%	51,32%	32,88%	51,14%	46,58%
As % of total Cost	23,77%	22,86%	22,22%	21,38%	20,67%	20,08%	19,33%	18,54%	16,76%	17,69%	18,46%	3,68%	18,79%	17,40%
Teacher Training*	0,19	0,24	0,30	0,37	0,48	0,64	0,90	1,32	2,11	1,90	1,48	0,62	0,88	1,09
AS % of Capital expenditure	32,90%	35,18%	37,47%	40,40%	43,72%	47,50%	52,12%	57,48%	65,00%	58,76%	48,68%	67,12%	48,86%	53,42%
As % of total Cost	11,65%	12,41%	13,31%	14,50%	16,06%	18,17%	21,04%	25,07%	31,12%	25,21%	17,51%	7,50%	17,80%	19,58%
Total Cost*	1,67	1,92	2,22	2,57	3,00	3,54	4,25	5,27	6,79	7,54	8,47	8,20	4,62	5,51
Unit cost of current expenses (US\$)	263,40	274,63	287,41	302,15	319,43	340,09	365,38	397,32	439,33	497,77	586,02	737,95	400,91	442,83
AS % total unit cost	64,58%	64,73%	64,47%	64,12%	63,27%	61,75%	59,63%	56,40%	52,13%	57,09%	64,03%	88,82%	63,42%	63,03%
Unit Cost of capital Expenditure (US\$)	144,45	149,66	158,37	169,10	185,45	210,70	247,35	307,19	403,47	374,09	329,15	92,87	230,99	257,71
AS % total unit cost	35,42%	35,27%	35,53%	35,88%	36,73%	38,25%	40,37%	43,60%	47,87%	42,91%	35,97%	11,18%	36,58%	36,97%
Unit Cost of total Expenditure (US\$)	407,86	424,28	445,78	471,25	504,88	550,79	612,74	704,51	842,81	871,86	915,16	830,82	631,89	700,54
Gap on current expenses*	1,06	1,18	1,28	1,38	1,46	1,54	1,60	1,68	1,79	2,00	2,41	3,41	1,73	1,92
In % of current expenses	98,08%	94,42%	89,49%	83,64%	77,12%	70,21%	63,23%	56,53%	50,71%	46,37%	44,51%	46,75%	68,42%	59,90%
Gap on capital expenditures*	0,59	0,65	0,72	0,79	0,85	0,93	1,06	1,30	1,80	1,18	0,20	-2,96	0,59	0,57
In % of current expenses	99,02%	96,31%	91,67%	85,12%	77,22%	68,99%	61,48%	56,63%	55,38%	36,52%	6,58%	-323,18%	34,31%	13,86%
Global Gap*	1,64	1,83	2,00	2,16	2,31	2,47	2,66	2,98	3,59	3,18	2,62	0,44	2,32	2,49
As a % of total expenditures	98,42%	95,09%	90,26%	84,17%	77,16%	69,75%	62,52%	56,57%	52,95%	42,14%	30,87%	5,40%	63,77%	53,50%
* = billion US\$														

Source: AMD International from SimuED calculations

Annex 3: scenario 3 projection detailed results

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average (2019-2030)	Average 2022-2030
Recurrent total Expenditure*	1,08	1,23	1,41	1,62	1,84	2,10	2,40	2,76	3,19	3,72	4,39	5,28	2,59	3,03
As % of total Cost	65,20%	65,50%	65,43%	65,35%	64,90%	63,94%	62,71%	60,89%	59,22%	62,27%	65,92%	88,73%	66%	66%
Teacher-Salaries*	0,36	0,43	0,51	0,60	0,72	0,85	1,02	1,23	1,50	1,86	2,34	3,01	1,20	1,46
AS % of Recurrent expenditure	0,33	34,56%	35,88%	37,31%	38,88%	40,61%	42,53%	44,69%	47,14%	49,94%	53,19%	57,04%	42,93%	45,70%
As % of total Cost	65,20%	65,50%	65,43%	65,35%	64,90%	63,94%	62,71%	60,89%	59,22%	62,27%	65,92%	88,73%	65,84%	65,99%
Non-Teacher-Salaries*	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,02	0,03	0,01	0,02
AS % of Recurrent expenditure	0,48%	0,49%	0,50%	0,51%	0,52%	0,53%	0,54%	0,55%	0,56%	0,56%	0,56%	0,56%	0,53%	0,54%
As % of total Cost	0,31%	0,32%	0,33%	0,33%	0,34%	0,34%	0,34%	0,34%	0,33%	0,35%	0,37%	0,50%	0,35%	0,36%
Classroom Furniture*	0,23	0,27	0,31	0,35	0,40	0,45	0,51	0,58	0,66	0,75	0,86	0,98	0,53	0,62
AS % of Recurrent expenditure	21,72%	21,76%	21,78%	21,77%	21,71%	21,61%	21,44%	21,18%	20,80%	20,28%	19,53%	18,50%	21,01%	20,76%
As % of total Cost	14,16%	14,25%	14,25%	14,22%	14,09%	13,82%	13,44%	12,90%	12,32%	12,62%	12,88%	16,42%	13,78%	13,63%
Learning material*	0,09	0,10	0,11	0,12	0,13	0,14	0,15	0,17	0,18	0,20	0,21	0,23	0,15	0,17
AS % of Recurrent expenditure	8,02%	7,79%	7,55%	7,29%	7,01%	6,72%	6,40%	6,06%	5,68%	5,27%	4,82%	4,31%	6,41%	5,95%
As % of total Cost	5,23%	5,10%	4,94%	4,76%	4,55%	4,30%	4,01%	3,69%	3,36%	3,28%	3,18%	3,82%	4,19%	3,88%
Clothing/Accessories*	0,13	0,14	0,16	0,17	0,19	0,21	0,23	0,24	0,27	0,29	0,31	0,33	0,22	0,25
AS % of Recurrent expenditure	11,75%	11,42%	11,07%	10,69%	10,28%	9,85%	9,38%	8,88%	8,33%	7,73%	7,06%	6,32%	9,40%	8,73%
As % of total Cost	7,66%	7,48%	7,24%	6,99%	6,67%	6,30%	5,88%	5,41%	4,93%	4,81%	4,66%	5,61%	6,14%	5,70%
Lunch and other goods and services*	0,27	0,30	0,33	0,36	0,40	0,43	0,47	0,51	0,56	0,60	0,65	0,70	0,47	0,52
AS % of Recurrent expenditure	24,68%	23,98%	23,23%	22,44%	21,59%	20,68%	19,70%	18,64%	17,49%	16,22%	14,83%	13,27%	19,73%	18,32%
As % of total Cost	16,09%	15,70%	15,20%	14,67%	14,01%	13,22%	12,35%	11,35%	10,36%	10,10%	9,77%	11,77%	12,88%	11,96%
Capital Expenditure*	0,57	0,65	0,75	0,86	1,00	1,18	1,43	1,77	2,20	2,26	2,27	0,67	1,30	1,51
As % of total Cost	34,80%	34,50%	34,57%	34,65%	35,10%	36,06%	37,29%	39,11%	40,78%	37,73%	34,08%	11,27%	34,16%	34,01%

Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average (2019-2030)	Average 2022-2030
Construction*	0,40	0,44	0,49	0,55	0,62	0,71	0,82	0,98	1,14	1,33	1,56	0,30	0,78	0,89
AS % of Capital expenditure	69,20%	67,58%	66,10%	64,19%	62,17%	60,03%	57,59%	55,16%	51,78%	59,15%	68,85%	44,95%	60,56%	58,21%
As % of total Cost	24,08%	23,32%	22,85%	22,24%	21,82%	21,65%	21,47%	21,58%	21,12%	22,32%	23,46%	5,07%	20,91%	20,08%
Teacher Training*	0,18	0,21	0,25	0,31	0,38	0,47	0,61	0,79	1,06	0,92	0,71	0,37	0,52	0,62
AS % of Capital expenditure	30,80%	32,42%	33,90%	35,81%	37,83%	39,97%	42,41%	44,84%	48,22%	40,85%	31,15%	55,05%	39,44%	41,79%
As % of total Cost	10,72%	11,18%	11,72%	12,41%	13,28%	14,41%	15,82%	17,54%	19,66%	15,42%	10,62%	6,21%	13,25%	13,93%
Total Cost*	1,65	1,89	2,16	2,47	2,84	3,28	3,83	4,53	5,38	5,98	6,67	5,95	3,89	4,55
Unit cost of current expenses (US\$)	262,47	272,47	283,61	296,14	310,38	326,75	345,85	368,54	396,07	430,38	474,68	534,65	358,50	387,05
AS % total unit cost	65,20%	65,50%	65,43%	65,35%	64,90%	63,94%	62,71%	60,89%	59,22%	62,27%	65,92%	88,73%	65,84%	65,99%
Unit Cost of capital Expenditure (US\$)	140,07	143,54	149,82	156,99	167,87	184,24	205,66	236,76	272,73	260,82	245,36	67,93	185,98	199,82
AS % total unit cost	34,80%	34,50%	34,57%	34,65%	35,10%	36,06%	37,29%	39,11%	40,78%	37,73%	34,08%	11,27%	34,16%	34,01%
Unit Cost of total Expenditure (US\$)	402,54	416,01	433,43	453,13	478,25	510,99	551,51	605,30	668,80	691,20	720,03	602,59	544,48	586,87
Gap on current expenses*	1,05	1,17	1,26	1,35	1,41	1,45	1,47	1,46	1,45	1,41	1,38	1,40	1,35	1,42
In % of current expenses	98,08%	94,38%	89,35%	83,30%	76,46%	69,00%	61,15%	53,13%	45,33%	37,97%	31,50%	26,50%	63,84%	53,81%
Gap on capital expenditures*	0,57	0,63	0,68	0,72	0,75	0,76	0,77	0,77	0,75	0,20	-0,58	-3,21	0,23	0,10
In % of current expenses	98,99%	96,15%	91,20%	83,98%	74,84%	64,54%	53,66%	43,73%	33,99%	8,96%	-25,32%	-478,49%	12,19%	-15,57%
Global Gap*	1,62	1,79	1,94	2,06	2,15	2,21	2,23	2,24	2,19	1,61	0,81	-1,81	1,59	1,52
As a % of total expenditures	98,40%	94,99%	89,99%	83,54%	75,89%	67,39%	58,36%	49,46%	40,71%	27,02%	12,14%	-30,44%	55,62%	42,67%
*= billion US\$														

Source: AMD International from SimuEd calculations

Annex 4: List of projects related exclusively to early childhood (naira)

	2 014	2 015	2 016	2 017	2 018	2 019	2 020
FEDERAL COLLEGE OF EDUCATION KANO	35 000 000-	-	78 734 328	25 367 164	-	-	-
CONSTRUCTION/FURNISHING OF ECCE	35 000 000						
COMPLETION OF CONSTRUCTION OF EARLY CHILD CARE CENTER			48 367 164				
COMPLETION OF EARLY CHILDHOOD CARE EDUCATION CENTRE				25 367 164			
EARLY CHILD CARE EDUCATION			30 367 164				
FEDERAL MINISTRY OF EDUCATION - HQTRS	-	-	-	37 000 000	125 364 650	357 771 985	-
ANNUAL INTEGRATED EARLY CHILDHOOD DEVELOPMENT CONSULTATIVE COMMITTEE (IECDCC) MEETING, CAPACITY BUILDING OF CAREGIVERS/ REVIEW OF ECD POLICY				4 200 000			
CONDUCT OF 2018 ANNUAL INTEGRATED EARLY CHILDHOOD DEVELOPMENT CONSULTATIVE COMMITTEE (IECDCC) MEETING, PURCHASE INDOOR PLAY EQUIPMENT FOR THE FME RESOURCE CENTRE AND CRECHE, REVIEW INTEGRATED EARLY CHILDHOOD DEVELOPMENT POLICY(IECD) AND PRINTING OF NATIONAL ENROLMENT DRIVE FRAMEWORK(NERDF), TRAIN OF TRAINERS (TOT) FOR MASTER TRAINERS ON CHILD CENTRED PEDAGOGY AND REGGIO EMILIA APPROACH FOR ECD/PRE-PRIMARY SCHOOL CAREGIVERS/TEACHERS SELECTED FROM 36 STATES AND FCT(SDG)					10 000 000		
RE-EQUIPING OF 500 HEAD TEACHERS AND PROPRIETORS OF ECCDE CENTERS ON EDUCATION QUALITY ASSURANCE PROCESSES				32 800 000			
RE-EQUIPPING OF 2000 HEAD TEACHERS AND PROPRIETORS OF BASIC EDUCATION SCHOOLS WITH ECCD CENTRES IN SIX GEOPOLITICAL ZONES, RE -TOOLING OF 2000 EVALUATORS					26 364 650	7 771 985	
CONSTRUCTION OF ECCDE CENTRE WITH SCHOOL CLINIC AND EQUIPMENT AT IGBO ODUN ALAFIA					89 000 000		

	2 014	2 015	2 016	2 017	2 018	2 019	2 020
CONSTRUCTION/FURNISHING & EQUIPPING OF ECCDE CENTRE AT A SELECTED LOCATION IN MARKE, DINDERE, KAROFIN YASHI AND KWAMI						100 000 000	
CONSTRUCTION/FURNISHING & EQUIPPING OF ECCDE CENTRE AT A SELECTED LOCATION IN DELTA STATE						100 000 000	
CONSTRUCTION/FURNISHING & EQUIPPING OF ECCDE CENTRE AT A SELECTED LOCATION IN TOFA, D/TOFA AND RIMINGADO KANO, STATE						150 000 000	
NATIONAL INSTITUTE FOR EDUCATION PLANNING & ADMINISTRATION	-	-	-	16 500 000	16 500 000	8 500 000	9 159 450
EARLY CHILDHOOD SKILL ACQUISITION				16 500 000			
SDG'S EARLY CHILDHOOD SKILL ACQUISITION						8 500 000	9 159 450
SDGS' EARLY CHILDHOOD SKILL AQUISITION					16 500 000		
NATIONAL TEACHERS INSTITUTE	-	-	-	595 000 000	473 476 212	-	-
SDGS PROJECT TRAINING COMPONENT 'A' SPECIAL EDUCATIONAL NEEDS AND DISABILITIES (SENDS) AND EARLY CHILDHOOD EDUCATION INTERVENTION TRAINING COMPONENT 'B' MORAL HIV AND AIDS AWARENESS				595 000 000			
TRAINING COMPONENT "A" SPECIAL EDUCATION NEEDS & DISABILITIES (SENDS) AND AWARENESS ON EARLY CHILDHOOD INTERVENTION AND TRAINING. TRAINING COMPONENT "B" FAITH BASED MORAL HIV AND AIDS AWARENESS.					473 476 212		
NATIONAL EDUCATION RESEARCH & DEVELOPMENT COUNCIL	-	-	8 586 058	64 474 619	66 090 889	28 731 934	17 365 967
MONITORING AND EVALUATION OF DISTRIBUTION OF ONE PRE-PRIMARY EDUCATION CURRICULUM AND TEACHERS GUIDE TO 36 STATES AND FCT			8 586 058	22 000 000			
1 YEAR PRE-PRIMARY EDUCATION CURRICULUM PROJECTS				42 474 619			
TO DEVELOP THE GUIDELINE FOR THE IMPLEMENTATION OF THE 1 YEAR PRE-PRIMARY					20 536 717	14 365 967	
PRINTING AND DISTRIBUTION OF 40,400 COPIES EACH OF 1 YEAR PRE-PRIMARY EDUCATION CURRICULUM TO THE 36 STATES AND FCT AT					45 554 172		

	2 014	2 015	2 016	2 017	2 018	2 019	2 020
N603.96 PER COPY							
DEVELOPMENT OF GUIDELINES FOR THE IMPLEMENTATION OF THE 1 YEAR PREPRIMARY EDUCATION CURRICULUM						14 365 967	17 365 967
General Total	35 000 000	-	87 320 386	738 341 783	681 431 751	395 003 919	26 525 417

Source: AMD International

Annex 5: List of early childhood education projects associated with projects related to other education levels (billions of naira)

PROJET	2 014	2 015	2 016	2 017	2 018	2 019	2 020
FEDERAL COLLEGE OF EDUCATION OBUDU	0,02	-	-	-	-	-	-
CONSTRUCTION OF EARLY CHILDHOOD CARE DEVELOPMENT CENTRE AND HOME ECONOMICS LAB	0,02						
FEDERAL MINISTRY OF EDUCATION – HQTRS	0,06	-	0,05	-	0,04	0,03	0,03
RENOVATION AND EXTENSION OF FME RESOURCE CENTRE AND PURCHASE OF GENERATOR SET N1.5+ DEVELOPMENT AND PRODUCTION OF 10+000 COPIES OF ECD GUIDELINES IMPLEMENTATION POLICY. N3M+ CAPACITY BUILDING WORKSHOP FOR INTEGRATED EARLY CHILDHOOD DEVELOPMENT CONSULTATIVE MEMBERS. N2M+ ANNUAL INTEGRATED EARLY CHILDHOOD DEVELOPMENT CONSULTATIVE COMMITTEE (IECDCC) PLANNING AND ADVOCACY. N1.5M+ HIGH LEVEL ADVOCACY AND SENSITISATION MEETING IN THE 6 GEO-POLITICAL ZONES ON THE IMPLEMENTATION OF THE ONE-YEAR EARLY CHILDHOOD EDUCATION INTO THE NIGERIA EDUCATION SYSTEM N1M+ DEVELOPMENT + PRODUCTION AND DISTRIBUTION OF BASIC EDUCATION CERTIFICATE EXAMINATION SYLLABUS N2M	0,01						
CONSTRUCTION OF A BLOCK OF 3 CLASSROOMS AT PROGRESS NURSERY AND PRIMARY SCHOOL, ST. MICHEAL ANGLICAN CHURCH, UMUDIOKA, DUNUKOFIA LGA, ANAMBRA STATE	0,02						
CONSTRUCTION OF A BLOCK OF 3 CLASSROOMS AT ALL SAINTS NURSERY AND PRIMARY SCHOOL, OJOTO, IDEMILI SOUTH LGA ANAMBRA STATE	0,02						
CONSTRUCTION OF A BLOCK OF 3 CLASSROOMS AT ST. BARNABAS NURSERY AND PRIMARY SCHOOL, OJOTO, IDEMILI SOUTH LGA ANAMBRA STATE	0,02						
CONSTRUCTION OF 1 BLOCK OF 3 CLASSROOMS WITH VIP TOILETS AT STATE NURSERY/PRIMARY SCHOOL, ARAKAN BARRACKS, APAPA, LAGOS	0,01						
MONITORING THE IMPLEMENTATION OF ECD ACTIVITIES IN 37 STATES AND FCT AND STATE LEVEL ADVOCACY MEETINGS.			0,05				
CO-ORDINATION OF THE IMPLEMENTATION OF THE NATIONAL ENROLMENT DRIVE ACTIVITIES IN 36 STATES AND FCT , ADVOCACY AND SENSITIZATION OF POLITICAL, RELIGIOUS AND COMMUNITY LEADERS IN THE SOUTH EAST AND SOUTH SOUTH ZONES ON REDUCTION OF THE OUT-OF- SCHOOL BOY-CHILD SYNDROME, EARLY CHILDHOOD EDUCATION, AND GIRL-CHILD ACCESS TO EDUCATION.					0,02		
REVIEW OF INSTRUMENT/TOOL FOR MONITORING AND EVALUATION OF CURRICULUM CONTENT OF SUBJECTS IMPLEMENTATIONN AT BASIC AND POST BASIC LEVELS, MONITORING PEDAGOGICALS MONITORING PEDAGOGICAL SKILLS AND CURRICULUM CONTENT IMPLEMENTATION OF SUBJECTS AT ECCDE LEVEL ACROSS THE 6 GEO POLITICAL ZONES.					0,02	0,00	0,03

PROJET	2 014	2 015	2 016	2 017	2 018	2 019	2 020
COORDINATION OF THE IMPLEMENTATION OF THE NATIONAL ENROLMENT DRIVE ACTIVITIES IN 36 STATES AND FCT, ADVOCACY AND SENSITIZATION OF POLITICAL, RELIGIOUS AND COMMUNITY LEADERS IN THE SOUTH SOUTH ZONES ON REDUCTION OF THE OUT-OF-SCHOOL BOY CHILD SYNDROME. EARLY CHILDHOOD EDUCATION AND GIRL CHJLD ACCESS TO EDUCATION						0,02	
RE-EQUIPPING OF 2000 HEAD TEACHERS AND PROPRIETORS OF BASIC EDUCATION SCOOLS WITH ECCD CENTRES IN SIX GEO-POLITICAL ZONES. RE- TOOLING OF 2000 EVALUATORS						0,01	
COORDINATION OF THE IMPLEMENTATION OF THE NATIONAL ENROLMENT DRIVE ACTIVITIES IN 36 STATES AND FCT, ADVOCACY AND SENSITIZATION OF POLITICAL, RELIGIOUS AND COMMUNITY LEADERS IN THE SOUTH WEST AND NORTH WEST ZONES ON REDUCTION OF THE OUT OF-SCHOOL BOY CHILD SYNDROME, EARLY CHILDHOOD EDUCATION AND GIRL CHILD ACCESS TO EDUCATION							
NATIONAL TEACHERS INSTITUTE	-	-	0,28	0,60	0,47	0,10	-
TRAINING COMPONENT 'A' - SPECIAL EDUCATIONAL NEEDS AND DISABILITIES (SENDS) & AWARENESS ON EARLY CHILDHOOD EDUCATION INTERVENTION AND TRAINING COMPONENT 'B' - MORAL HIV AND AIDS AWARENESS			0,28	0,60	0,47	0,10	
NATIONAL EDUCATION RESEARCH & DEVELOPMENT COUNCIL	-	-	0,04	-	-	-	-
PRINTING AND DISTRIBUTION OF 50,000 SETS @ N600.00 PER SET OF 1 YEAR PRE PRIMARY EDUCATION CURRICULUM AND TEACHERS GUIDE FOR PUBLIC BASIC SCHOOLS IN NIGERIA			0,04				
General Total	0,08	-	0,37	0,60	0,52	0,13	0,03

Source: AMD International

Annex 6: Enrolment, teacher number and associated unit costs in the six states

S/ no	Item	Adamawa	Anambra	Kwara	Osun	Rivers	Sokoto	Mean	Stdev	Minimum	Maximum
1	Total enrolment in pre-primary school	57,928	97,793	40,584	91,748	43,586	75,146	67,797.50	24,296.24	40,584	97,793
2	Estimated cost of uniform	5,500	4,500	4,000	4,000	4,000	4,500	4,416.67	584.52	4,000	5,500
3	Estimated cost of learning materials	8,000	6,500	3,600	2,500	3,000	5,500	4,850	2,171.41	2,500	8,000
4	Estimated cost of feeding per session	117,000	110,500	60,000	40,000	54,000	78,000	76,583.33	31,334.35	40,000	117,000
5	Estimated cost of transportation	78,000	65,000	40,000	34,000	36,000	39,000	48,666.67	18,282.96	34,000	78,000
6	Total number of trained pre-primary school teachers.	110	32	150	120	385	420	202.83	159.88	32	420
7	Estimated cost of training an ECE teacher in a tertiary institution	1,500,000	1,100,000	900,000	1,800,000	2,580,000	2,500,000	1,730,000	701,284.54	900,000	2,580,000
8	Average salary of an ECE Trained Teacher	25,000	30,000	20,000	38,000	64,000	18,700	32,616.67	16,921.04	18,700	64,000

Source: Field mission (Data Gathering)

Annex 7: Enrolment, teacher number and associated unit costs (₦) in the six states

State	Unit Cost of an ECE classroom	Cost of classroom furniture	Cost of a toilet	Cost of head teacher's office
Adamawa	5 333 333,00	340 000,00	1 032 000,00	-
Anambra	11 000 000,00	255 000,00	13 750 000,00	10 000 000,00
Kwara	12144396,19	225 000,00	-	174 448,05
Osun	6 920 207,86	450 000,00	2 841 457,50	2 703 977,17
Rivers	6 790 000,00	1 325 000,00	1 990 000,00	3 575 000,00
Sokoto	-	350 000,00	-	-

Source: Gathered through FGD