REPUBLIC OF KENYA

MINISTRY OF EDUCATION

NATIONAL EDUCATION SECTOR STRATEGIC PLAN

FOR THE PERIOD 2018 - 2022

VISION

Quality and inclusive education, training and research for sustainable development

MISSION

To provide, promote and coordinate competence based equitable learner centred education, training and research for sustainable development

THEMES

Access and Equity; Quality and Relevance; Governance and Accountability

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LIST OF ACRONYMS AND ABBREVIATIONS

ACE:	Adult and Continuing Education
BAB:	Biosafety Appeals Board
Bn:	Billions
CEMASTEA:	Centre for Mathematics, Science and Technology Education in Africa
CS:	Cabinet Secretary
CSOs:	Curriculum Support Officers
CUE:	Commission for University Education
EARCs:	Education Assessment and Resource Centres
ECDE:	Early Childhood Development and Education
FTE:	Full Time Equivalent
GDP:	Gross Domestic Product
GER:	Gross Enrolment Rate
GERD:	Gross Expenditure on Research and Development
GoK:	Government of Kenya
GPI:	Gender Parity Index
HDI:	Human Development Index (HDI)
HELB:	Higher Education Loans Board
KES:	Kenya Shillings
KEYA	Kenya Early Years Assessment
KCPE:	Kenya Certificate of Primary Education
KNALS:	Kenya National Adult Literacy Survey
KNQA:	Kenya National Qualifications Authority
KCSE:	Kenya Certificate of Secondary Education
KUCCPS:	Kenya Universities and Colleges Central Placement Service
NACOSTI:	National Commission for Science, Technology and Innovation
NER:	Net Enrolment Rate
NRF:	National Research Fund
PAUSTI:	The Pan African University of Science, Technology and Innovation
PSEA	Primary School Education Assessment
PHC:	Population and Housing Census
SAGAs:	Semi-Autonomous Government Agencies
ST&I:	Science Technology and Innovation
STEM:	Science Technology Engineering and Mathematics
TPAD:	Teacher Performance Appraisal and Development
TPD:	Teacher Professional Development
TVET:	Technical Vocational Education and Training
TVETA:	Technical and Vocational Education and Training Authority
UFB:	Universities Funding Board
UNHCR:	United Nations High Commissioner for Refugees
VET:	Vocational Education and Training

FOREWORD

The Government of Kenya is committed to ensuring that no child is left behind in terms of access to education. Articles 43(f) and 53(1) (b) of the Kenyan Constitution provide for the right to education and the right to free and compulsory basic education, respectively. The Basic Education Act (2013) guarantees the right of every child to free and compulsory basic education. The government is also committed to implementing international and regional commitments related to education, such as the Education for All (EFA) goals and Sustainable Development Goals (SDGs), among others. In order to honour the above commitments, the Ministry of Education is committed to providing and promoting competence based and equitable learner centred education, training and research for sustainable development. It is important to note that the Government of Kenya continues to invest heavily in the education sector, committing about 5.4% of GDP to the sector.

This National Education Sector Strategic Plan (NESSP) 2018-2022 is an all-inclusive, sector-wide plan that spells out policy priorities, programmes and strategies for the education sector over the next five years. NESSP (2018-2022) builds on the successes and challenges of the National Education Sector Plan (NESP) 2013-2017. The Plan aims at achieving four important strategic objectives for education, training and research, which are: to enhance access and equity; to provide quality and competence based education, training and research; to strengthen management, governance and accountability; and enhance relevance and capacities for Science, Technology and Innovation (ST&I) in education, training, and research for labour markets. The achievement of these strategic objectives will contribute to the realization of the aspirations of Kenya's blueprint, the Vision 2030 (as well as the MTP III which provides direction on planning and investments of the Vision 2030 during the period 2018-2022).

The programmes identified in NESSP 2018-2022 are drawn from the education sector analysis, the lessons learnt from the implementation of the National Education Sector Plan (2013-2017), the Sessional Paper No 1 of 2019 and priorities identified in the Medium Term Plan III. This sector plan is a product of a highly participatory and consultative process bringing together representatives from all the State Departments; the Teachers Service Commission; Semi-Autonomous Government Agencies (SAGAs) in the Ministry of Education; development partners, through the Education Development Partners Coordination Group (EDPCG); Civil Society Organisation(s); and research institutions, led by the Ministry of Education.

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PREFACE AND ACKNOWLEDGEMENT

The provision of quality education and training to all Kenyans is fundamental to the government's overall strategy for socio-economic development. Consequently, reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Kenya Constitution 2010 in terms of human resource capital to support provision of high quality life for all citizens. This National Education Sector Strategic Plan (NESSP) is a sector wide reform programme that gives effect to the legislative frameworks developed to actualize the Sessional Paper No. 1 of 2019.

The NESSP 2018-2022, has been developed through an all-inclusive stakeholder consultative process. Through NESSP (2018-2022), Kenya strives to provide quality and inclusive education, training and research for sustainable development. This will be realised through providing, promoting and coordinating competency based equitable learner centred education, training and research that is relevant to the labour market. This plan purposes to increase access and participation, raise the quality and relevance and improve governance and accountability in education, training and research with an emphasis on Science, Technology and Innovation.

The NESSP 2018-2022 is a five-year plan that outlines the education sector reform implementation agenda in five thematic areas. The thematic areas include Access and participation; Equity and inclusiveness; Quality and Relevance; Sector Governance and Accountability; and Pertinent and Contemporary Issues and Values. Each of the thematic areas is further divided into policy priority, programmes and activities. An implementation plan in the form of a NESSP Results Framework has been developed detailing the outputs from the activities, targeted quantities and the respective financial implication. In addition, a monitoring and evaluation framework has been developed to enable tracking and reporting the implementation of the plan.

The implementation of the plan will be done under a multi sectoral approach with all the relevant stakeholders. For effective alignment and delivery, a NESSP Co-ordination Unit, in the form of a multi-agency secretariat will spearhead the implementation of this plan. The NESSP Co-ordination unit will report progress according to the NESSP Results Framework and the Monitoring and Evaluation Framework.

Financing of the plan will be a joint effort among national government, county governments, development partners, private sector and households. This calls for strengthening of coordination, linkages and collaboration among all the players to mobilise the requisite financial resources. The Government will continue strengthening governance and accountability to ensure value for money.

We wish to acknowledge the role played by the NESSP Technical Working Team and other colleagues in the sector in the conceptualisation and development of this sector plan. We

would also like to thank the development partners, academics, and civil society organisations for their contributions to the development of this Plan. We call upon all players in Kenya's education, training and research sector to support this innovative National Education Sector Strategic Plan.

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CAS & Principal Secretary, State Department of University Education and Research

Dr. Belio Kipsang
Principal Secretary, State Department of Early Learning and Basic Education

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Principal Secretary, State Department of Post Training and Skills Development

EXECUTIVE SUMMARY

This NESSP 2018-2022 outlines policy priorities, programmes and strategies for the Ministry of Education over the next five years. It covers the following sub-sectors: Pre-Primary Education, Primary Education, Secondary, Adult and Continuing Education, Technical and Vocational Education and Training (TVET), University Education, Special Needs Education, and Teacher Education. There are also programmes related to National Qualifications Framework, Quality Assurance and Standards, as well as Science, Technology and Innovations. The Plan is divided into five chapters.

The first chapter provides an analysis of issues that have an implication on education in Kenya, including Kenya's demographic, macro-economic and social indicators, as well as the humanitarian context. Four in every ten Kenyans are of pre-school, primary and secondary school going age (that is age 4-17 years). In relation to the economy, the size of the economy has grown from GDP of about KES 4.8 trillion in 2013 to about KES 8.9 trillion in 2018. There are also improvements in a number of social indicators. For instance, Kenya's Human Development Index (HDI) increased from 0.53 in 2010 to 0.555 in 2015 and further to 0.59 in 2017 with life expectancy at birth increasing from 62.9 years in 2010 to 66.6 years in 2015 and 67.3 years in 2017. Kenya is also ranked as one of the countries with the highest number of refugees, with close to 155,000 school going children among them.

Chapter 2 provides a summary of the trends in education based on the Education Sector Analysis (ESA). Central government spending on education is about 5.3 percent of GDP. A large share, about 92 percent of this expenditure, goes to recurrent expenditure. In terms of access to education, the country has made strides. The number of Pre-Primary centres rose from 40,145 centres in 2012 to 41,779 centres in 2018. The enrolment in Pre-primary education increased from 2,865,348 in 2013 to 3,390,545 in 2018. The Gross Enrolment Rate (GER) in pre-primary education stood at 75.4 % in 2018 while the net enrolment rate was at 77.2% during the same year.

At primary school level, the number of primary schools increased from 28,026 in 2013 to 37,910 in 2018, with enrolment rising from 9.8 million in 2013 to about 10.5 million pupils in 2018. This growth translated to a reduction in GER from 105% to 104% in primary school education, while NER increased from 88.1% in 2013 to 92.4% in in 2018. On gender parity, the government investment in primary education has resulted to improved parity index from 0.96 in 2013 to 0.97 in 2018. The completion rate of primary education has also increased considerably from 80% in 2013 to 84.2% in 2018, while the retention rate increased from 77% to 86% during the same period.

The number of secondary schools increased from 8,734 to 11,399, while enrolment in secondary education grew from 2 million to 2.9 million during the period 2013 to 2018. As outlined in the Education Sector Analysis (ESA), the GER increased from 54.3% in 2013 to 70.3% in 2018 while NER increased from 38.5% to 53.2% during the same period. The gender parity now stands at 0.95 in 2018.

Technical and Vocational Education and Training (TVET) has experienced remarkable growth over the last five years. The number of TVET institutions increased from 700 in 2013 to 1,300 in 2018. Over the same period, enrolment grew by 92.5% from 148,009 in 2013 to 363,884 in 2018. The gender parity index improved from 0.68 in 2013 to 0.78 in 2018.

The university sub-sector has witnessed growth in the last 5 years due to establishment of new universities and expansion of the existing ones. The number of universities increased from 57 in 2012 to 74 in 2018. The total university student enrolment increased by 48.8% from 361,379 in 2013 to 537,733 in 2018. The enrolment by gender was 310,367 (57.7%) male and 227,356 (42.35) female in 2018. Student enrolment, by gender, in public and private universities, from 2013/14 to 2016/17, shows that gender parity stood at 68.89% in 2014, 68.63% in 2015, 71.48% in 2016 and decreased to 70.86% in 2017.

Despite this, the country faces a number of challenges in the sector. At the basic education level, there are important sources of internal inefficiencies. For instance, more than 40 percent of children who start Grade 1 do not go up to Form 4. Another thing is that an estimated 1 million school going children are out of school, mostly in ASAL counties. There are also wide disparities in access to education, based on gender, location and region. For instance, girls are generally left behind in ASAL areas. Another aspect is that nearly 6 out of 10 children from the poorest quintile, who enrolled in Grade 1, are expected to complete Grade 6, compared to 9 out of 10 children from the richest quintile. Another challenge is that more children at basic education level are entering school but not adequately learning. In relation to performance, less than 20 percent of the candidates sitting for KCSE exams scored C+ and above over the last two academic years, which is the entry qualification for university education.

The TVET and university sub-sectors face a number of challenges too. The challenges of TVET include inadequate data, low enrolment among females, poor linkages with the industry, inadequate physical infrastructure and equipment to support the teaching of the Competency Based Education and Training (CBET) curriculum, non-alignment of the curriculum to the CBET curriculum and to the Vision 2030, among others. The university sub-sector, on the other hand, faces a number of challenges such as inadequate funding, low proportion of Science Engineering and Technology (SET) subjects, low enrolment of female students in SET subjects, and inadequate qualified teaching staff, among others.

The policy priorities, goals and programmes identified in this Plan, for each sub-sector, are based on the following thematic areas: access and equity; education quality and relevance; education management, governance and accountability; and labour market relevance. The choice of these thematic areas is based on the challenges facing the education sector in Kenya, as identified in the Kenya Education Sector Analysis; the priorities identified in the Vision 2030's third Medium Term Plan as well as extensive consultations with education stakeholders in Kenya. The actual programme design, discussed in Chapter 3 of the Plan, has, at the top, that is the policy priority level, the goal or general objective that addresses a given identified challenge and is linked to a target as an expected outcome within the results framework. Within each goal or general objective, there are a number of programmes that address the underlying causes of the identified challenge, linked to a target as an intermediate

outcome within the results framework. Finally, within each programme, there is a set of activities outlined to address the underlying challenges identified. The activities, within the results framework, are like output indicators.

The programmes and their associated activities are projected to cumulatively cost KES 2.985 trillion over the 5-year period, with recurrent costs projected to account for about 90 percent of the total projected cost. This projected cost, discussed in Chapter 4, is based on the ambitious increment in enrolment at all levels of education, and the desire to roll out the competence based curriculum coupled with the strengthening of the system for quality service delivery. The education sector is likely to receive, cumulatively, KES 2.32 trillion in budget over the 5-year plan period against the plan cost of KES 2.985 trillion. Without taking into account commitments from development partners, the resource gap is therefore projected to be KES 666 billion (USD 6.66 billion) over the 5-year period.

The Plan will be implemented through the existing structures of the Ministry of Education. As identified in the sector diagnosis, the non-alignment of systems and institutions in the sector stands out as a threat to the implementation of this Plan. The Plan, therefore, proposes the creation of the NESSP Co-ordination Unit, which will take the form of a multi-agency secretariat, to spearhead the implementation of this Plan. The NESSP Co-ordination Unit will be accountable to the Principal Secretaries of the four State Departments. It will report regularly to the Cabinet Secretary, through the Principal Secretaries, about progress according to the NESSP Results Framework and the Monitoring and Evaluation Framework.

DEFINITION OF TERMS

Assessments:	Wide variety of methods and tools that educators use to evaluate, measure and document the academic readiness progress, skills acquisition or educational needs of students
Accreditation:	Process of validation in which colleges, universities and other institutions of higher learning are evaluated
Guidelines:	Recommended practices that organisations should undertake to meet set standards
Quality Education:	One that provides all learners with capabilities they require to become economically productive, develop sustainable livelihoods, contribute to peaceful and democratic societies and enhance individual wellbeing
Refugee:	A person who (a) owing to a well-founded fear of being persecuted for reasons of race, religion, sex, nationality, membership of a particular social group or political opinion is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or (b) not having a nationality and being outside the country of his former habitual residence, is unable or, owing to a well-founded fear of being persecuted for any of the aforesaid reasons, is unwilling to return to it
Summative Evaluation:	A process designed to evaluate a student's learning, skill acquisition and academic achievement at the conclusion of a defined instructional period
Formative Evaluation:	A process designed to progressively evaluate a student's comprehension, learning needs and academic progress during the instructional period
Marginalized Groups:	Groups that have been socially disadvantaged and relegated to the fringe of society and denied involvement in mainstream economic, political, cultural and social activities
Education Assessment and Resource Centres:	Education Assessment and Resource Centres are supposed to play the role of identifying, assessing and placing children with special needs in education and disabilities.

1. THE CONTEXT OF EDUCATIONAL DEVELOPMENT AND REFORM IN KENYA

1.1 Key Demographic and Macro Economic Indicators

Kenya is bordered by Tanzania to the south and southwest, Uganda to the west, South Sudan to the north-west, Ethiopia to the north and Somalia the north-east. It covers 581,309 km^2. Swahili is the national language of Kenya and the first official language, spoken by nearly all the population. The country's long-term development goals are set out in *Vision 2030*, which aims to transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment.

Four in every ten Kenyans are aged 4-17 and are of pre-primary, primary and secondary school going age. Table 1 presents the evolution of total population and Gross Domestic Product. As at 2018, Kenya's population was estimated at 47.8 million, reflecting a 14.4 percent growth rate between 2013 and 2018. The official school age in Kenya is classified as follows: 3-5 for ECDE, 6-13 for primary and 14-17 for secondary. As Table 1 shows, almost four in every ten Kenyans are of school going age. The school-age population grew by almost 13 percent between 2013 and 2018. This has an implication on the provision of education and employment opportunities for young people in the country.

Table 1: Total Population and Gross Domestic Product, 2013-2018

	2013	2014	2015	2016	2017	2018*
Population						
Total Population (Million)	41.8	43.0	44.2	45.4	46.6	47.8
Population (3-17) (Million)	17.3	17.7	17.9	18.1	18.5	19.5
3-17 as % of total population	41.3	41.2	40.6	40.0	40.0	41.0
Gross Domestic Product						
GDP, Market Prices (KES Bn)	4,745.0	5,402.6	6,284.2	7,023.0	8,144.4	8,905.0
GDP Growth, Constant Prices	5.9	5.4	5.7	5.9	4.9	6.3
GDP per capita current (KES)	113,539	125,757.0	142,315.9	154,802.3	174,790.7	186,2967
GDP per capita constant (KES)	87,261	89,430	91,989	94,797	96,788	100,310

Source: Economic Surveys, *Provisional

Kenya's economy recorded a relatively steady growth over the period 2013-2018. The economy increased by 88 percent, from a GDP (market prices) of close to KES. 4.8 trillion in 2013 to about KES. 9 trillion in 2018. Real GDP annual growth rate averaged 5.6 percent, increasing from 5.7 percent in 2016 to 6.3 percent in 2018. The average wealth of Kenyans increased steadily over the period under review. In real terms, the GDP per capita increased by 15 percent, from about KES. 87,000 in 2013 to around KES. 100,000 in 2018. Table 2 shows Kenya's fiscal outturn over the years 2014 to 2018. Revenues including grants, as a share of GDP, have remained constant- marginally increasing from 21.1 percent in 2014 to 21.2 in 2018. Total national government expenditures, as a share of GDP, did not also significantly change- reducing marginally from about 36.2 percent to 34.1 percent. On average, the government has been running a budget deficit. On average, over the years 2014-2018, total national government expenditures, as percent of GDP, were above revenues by about 13 percentage points.

Table 2: Government Resources and Spending

	2014	2015	2016	2017	2018*
Recurrent Revenues and Grants (KES, Bn)	1141.6	1266.0	1429.8	1561.4	1886.0
Total National Government Spending (KES, Bn)	1953.5	2047.4	2283.0	2576.1	3033.6
Recurrent Revenue and Grants, % of GDP	21.1	20.1	20.4	19.2	21.2
Total National Government Spending, % of GDP	36.2	32.6	32.5	31.6	34.1

Source: Economic Surveys, * Provisional

1.2 Key Social Indicators

Kenya has shown improvements in a number of social indicators. Table 3 shows a number of social indicators related to Kenya. The country recorded a marginal growth in the Human Development Index (HDI), from 0.55 in 2013 to 0.59 in 2017. Expected years of schooling, defined as the number of years during which a child entering school can expect to spend in school in the course of their life cycle, based on the current school enrolment increased from 11 in 2013 to 12.1 in 2017. Looking at health indicators, life expectancy at birth increased from 65.7 years in 2013 to 67.03 years in 2017, showing that Kenyans are relatively living longer. Fertility rates (births per woman) reduced marginally, from about 4.1 in 2013 to about 3.9 in 2017. Despite improvements in a number of health related indicators, unemployment remains a challenge. For instance, Kenya recorded 39.1 percent unemployment rate according to a recent report by the United Nations- the Human Development Index (HDI) of 2017, higher than the unemployment rate in Ethiopia, Tanzania, Uganda and Rwanda.

Table 3: Kenya Basic Social Indicators

	2013	2014	2015	2016	2017
Human Development Index (HDI)	0.55	0.55	0.56	0.585	0.59
Education					
Expected years of schooling	11.1	11.1	11.7	11.9	12.1
Health					
Life expectancy at birth, total (years)	65.6	66.2	66.6	66	67.3
Fertility rate, total (births per woman)	4.1	4	3.9	3.85	3.79
Mortality rate, infant (per 1,000 live births)	39.6	38.2	36.5	35.6	34.9
Population and Infrastructure					
Rural population % of total population)	75.2	74.8	74.4	73.95	73
Total mobile money transfer (KES Bn)**		2,372.0	2,816.0	3,356.0	3,638.0
Individuals using the Internet (% of population)	13.0	16.5	21.0	26.0	30.2
Secure Internet servers (per 1 million people)	4.7	7.6	8.9	10.8	12.3
Secure Internet servers	212.0	350.0	421.0	522.0	623.2
Mobile cellular subscriptions (per 100 people)	71.8	73.8	80.7	81.3	81.9
Mobile cellular subscriptions (Mn)**		33.6	37.7	39.0	42.8

Source: World Development Indicators, 2017. ** based on Economic Survey (2019)

1.3 Education in Humanitarian Context in Kenya

Kenya is ranked as one of the countries with the highest number of refugees and asylum seekers (hereafter referred to as refugees). As of December 2018, Kenya was host to 475,412 refugees and asylum seekers. The majority of refugees in Kenya reside in two camps (Dadaab – 209,979 and Kakuma – 188,513) with an additional minority living in urban areas across the country (76,920). While the number of refugees hosted in Kenya has reduced by 86,365 since the onset of the Voluntary Repatriation Programme to Somalia in 2014, political instability in

neighbouring countries such as Somalia, South Sudan and the Democratic Republic of Congo continues to pose the risk of refugee influx to Kenya.

1.4 Kenya's Education Sector Structure and Policy Framework

The Education Sector in Kenya is committed to the provision of quality education, training, science and technology to all Kenyans. This is aimed at contributing to the building of a just and cohesive society that enjoys inclusive and equitable social development. Its Vision is: *to have a globally competitive education, training and research for Kenya's sustainable development*. Its Mission is: *to provide, promote, coordinate the provision of quality education, training and research for the empowerment of individuals to become responsible and competent citizens who value education as a lifelong process.* The vision and mission are guided by the understanding that quality education and training contributes significantly to economic growth, better employment opportunities and expansion of income generating activities. Education is viewed as an enabler in the achievement of the Big Four Agenda.[1] Quality education is also one of the goals of the Sustainable Development Goals. It is also a contributor to other core SDG goals, including gender equality, poverty eradication, good health and well-being, decent work and economic growth.[2]

At present, a Cabinet Secretary, assisted by four Principal Secretaries, each heading a State Department, heads the Ministry of Education. The four State Departments are: the State department for Early Learning and Basic Education that is responsible for pre-primary, primary, secondary and teacher education; the State department for Vocational Education and Technical Training responsible for promoting technical and vocational education and training; the State department for University Education, responsible for university education; and the State department for Post Training and Skills Development responsible for promoting skills development. Under the state departments, there are Semi-Autonomous and Autonomous Government Agencies (SAGAs), which are charged with various responsibilities. In the education sector, there is also the Teachers Service Commission (TSC), an independent constitutional commission that regulates the teaching service in Kenya.

In the year 2010, Kenya ushered in a new Constitution that introduced a devolved system of government. A number of national government services were devolved to the 47 county governments. Education is one of the service sectors that had some roles and responsibilities being devolved under this new governance arrangement. The Fourth Schedule of the Constitution of Kenya Articles 185(2), 186(1) and 187(2) distributes functions between the National Government and County Governments. The functions of the National Government one education and training are: education policy, standards, curriculum, examinations, granting of university charters, universities, tertiary educational institutions, institutions of research, higher learning, primary schools, special education, secondary schools, special education institutions and promotion of sports and sports education. The functions of the County Government in relation to education are: pre-primary education, youth polytechnics, home craft centres, farmers training centres and childcare facilities.

[1] The Big Four Agenda is a four-point agenda by President Uhuru Kenyatta, outlining what he will be focusing on in his last presidential term to improve the living standards of Kenyans, grow the economy and leave a lasting legacy.
[2] Kenya adopted the SDGs in 2016.

1.5 Structure of the Education System

Kenya follows the 8-4-4 system of education. This consists of 8 years of primary school, 4 years of secondary school and 4 years of university education. Although not mandatory, children also attend 1 or 2 years of pre-primary school, at age 3 to 5, before starting primary school. Public primary education has been free and compulsory in Kenya since 2003, with the curriculum comprising of languages, mathematics, history, geography, science, crafts and religious studies.

The 8-4-4- system follows objective based curriculum, which lays emphasis on summative evaluation. As a result, a new competence based structure of education has been put in place and is set to replace the 8-4-4 system. The new system (2-6-3-3) consists of 2 years of pre-primary (for ages 4-5); 3 years of lower primary and 3 years of upper primary (for ages 6-11); and 3 years of junior secondary as well as 3 years of senior secondary (for ages 12-17 years). The new system follows a Competence Based Curriculum, which seeks to nurture every learner's potential by ensuring all learners acquire the core competencies. The Competence Based Curriculum emphasizes on formative rather than summative evaluations. The government has begun rolling out the new system. The Government hopes to completely phase out the 8-4-4 curriculum by 2026. Figure 1 shows the Structure of the New Education System in Kenya

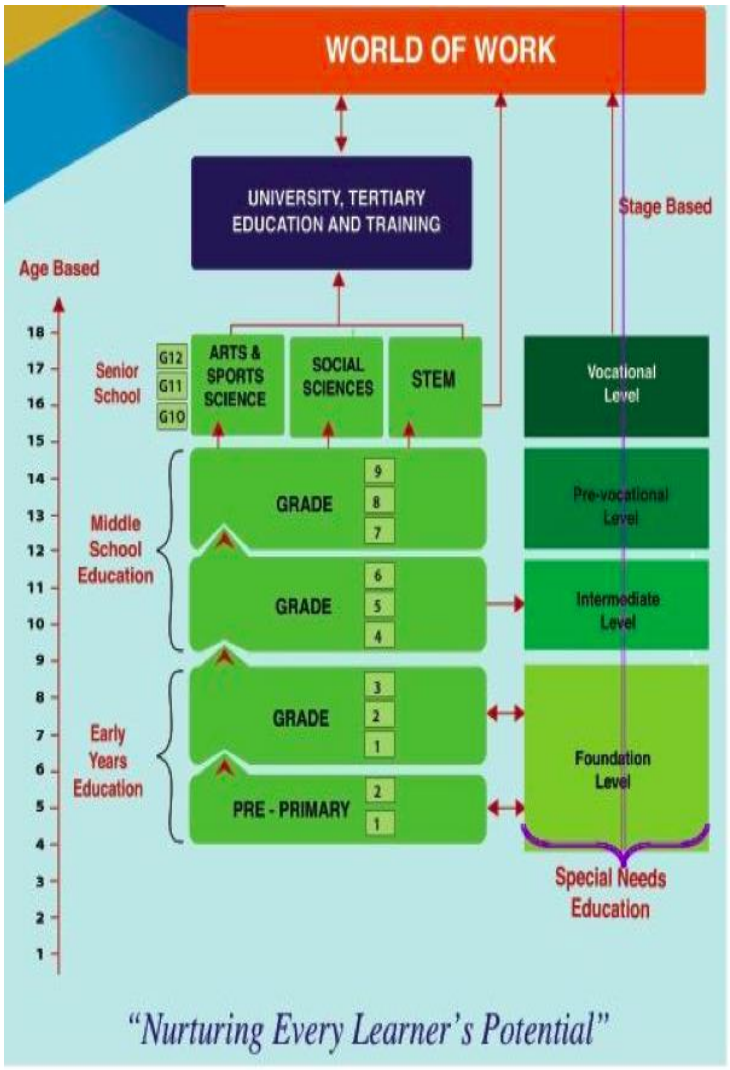

Figure 1: Structure of the New Education System in Kenya

Source: Kenya Institute of Curriculum Development

Figure 2 shows the education and training progression pathways.

MC-Master Crafts Person, GTT-Government Trade Test

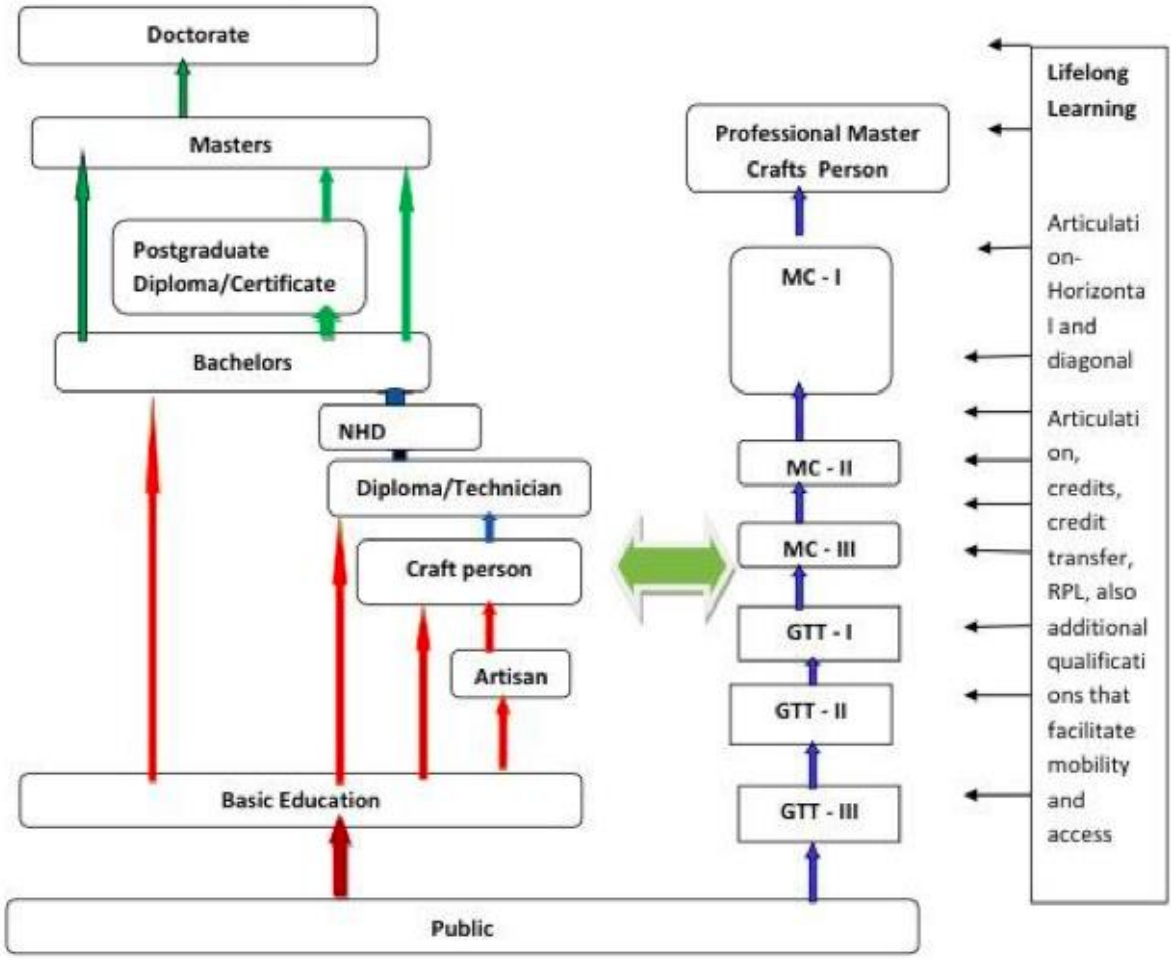

Figure 2: Education and Training Progression Pathways
Source: KNQA 2018

2. THE STATUS OF THE EDUCATION SECTOR AND ONGOING REFORM PROCESS

This chapter summarises access, quality and efficiency issues in Kenya's education sector. The chapter provides a summary of the issues discussed in the evidence based Kenya Education Sector Analysis (2018). Readers are therefore encouraged to refer to the Education Sector Analysis (2018) for more details of the issues presented in this chapter.

2.1 Access and Participation

2.1.1 Pre-Primary Education

More children are enrolling in pre-primary centres although enrolment rates at this level show that a substantial proportion of children at pre-primary school going age are not enrolled. Table 5 shows key indicators in the Pre-primary Sub-Sector for period 2013-2018. In absolute numbers, enrolments in pre-primary schools increased from 2.8 million in 2013 to 3.4 million in 2018. The national pre-primary NER was 77.2 percent in 2018, meaning that accounting for age-school appropriateness, close to 25 percent of children who are supposed to be enrolled in pre-primary centres are not enrolled. A large proportion of them are out of school, while a few are directly enrolled in primary schools. In particular, access at pre-primary levels remains relatively low in arid and semi-arid areas with the NER being as low as 18 percent in Mandera County. At the national level, enrolments rates at pre-primary level do not indicate a significant attendance bias by gender, with the GPI of 0.96 in 2018. This, however, masks the low enrolments of girls, especially in ASAL areas.

Table 5: Trends in Pre-primary Sub-Sector

	2013	2014	2015	2016	2017	2018*
Males	1,411,309	1,476,383	1,607,353	1,634,194	1,681,530	1,730,237
Females	1,454,039	1,543,482	1,560,502	1,565,647	1,612,283	1,660,308
Total	2,865,348	3,019,865	3,167,855	3,199,841	3,293,813	3,390,545
GPI	1.03	1.05	0.97	0.96	0.96	0.96
Gross Enrolment Rate (GER), %	71.6	73.6	76.4	76.6	77.1	78.4
Net Enrolment Rate (NER),%	66.9	70.4	74.6	74.9	76.9	77.2
Number of ECDE Centres	40,145	40,211	40,775	41,248	41,779	42,317
Number of ECDE Trained Teachers	83,814	88,154	92,906	97,717	106,938	112,703
Number of ECDE Untrained Teachers	17,248	16,630	14,281	13,102	11,338	10,452
Total No. of Teachers	**101,062**	**104,784**	**107,187**	**110,819**	**118,276**	**123,155**
Number of ECDE Training Colleges	131	140	143	147	276	

*Source: Economic Surveys, *provisional*

There are a number of constraints facing the provision and development of Pre-primary education in Kenya : marked regional disparities in access to pre-school opportunities; lack of policy establishing a minimum level of funding for Pre-primary; inadequate regulation and enforcement of quality standards; lack of comprehensive system for monitoring children's development across sectors; weak inter-sectoral coordination, which should bring together interventions from key sectors such as health, nutrition, education and social protection for a comprehensive delivery of pre-primary education/child development services ;high turnover of trained teachers and low teacher morale due to lack of scheme of services; shortage of instructional materials and teacher professional development; and lack of a clear implementation framework between national and county governments, as well as personnel capacity gap.

2.1.2 Primary Education

Kenya has made tremendous strides in terms of access to primary education. Table 6 shows key indicators in the Primary Sub-Sector for the period 2013-2018. Over this period, total enrolment in primary rose by 5 percent from 9.8 million to 10.5 million. With a national NER of 91 percent, only 9 percent of children expected to be in primary are not enrolled in primary school. The national GPI shows that Kenya is about to close the gender gap in primary enrolment and in fact, in some regions, especially in high potential non-ASAL areas, there are more girls enrolled than boys. Another important thing to note is that close to 8 out of 10 children who enrol in Grade 1, go up to and complete Grade 8. Also, almost the same number transit to secondary. However, over-age primary enrolments, coupled with high repetition rates, are likely to cause an enrolment bulge, especially at the lower grades.

Table 6: Trends in Primary Sub-Sector

	2013	2014	2015	2016	2017	2018*
Males (thousands)	5,019.7	5,052.5	5,127.9	5,214.5	5,293.9	5,364.3
Females(thousands)	4,837.9	4,898.5	4,962.9	5,054.9	5,109.8	5,178.3
Total Primary (thousands)	9,857.6	9,950.8	10,090.9	10,280.1	10,403.7	10,542.6
GPI	0.96	0.97	0.97	0.97	0.97	0.97
Gross Enrolment Rate (GER), %	105	103.5	103.6	104.1	104.0	104.0
Net Enrolment Rate (NER), %	88.1	88.2	88.4	89.2	91.2	92.4
Primary Completion Rate, %	80	79.3	82.7	83.5	83.6	84.2
Primary secondary transition, %	74.1	76.1	81.9	81.3	81.8	83.3
Number of public primary schools	21,205	21,718	22,414	22,939	23,584	24,241
Number of private primary schools	6,821	7,742	8,919	10,263	11,858	13,669
Total number of schools	28,026	29,460	31,333	33,202	35,442	37,910
Average school size	352	338	322	310	294	278

Source: Economic Surveys, * provisional

The national primary level education outcomes mask disparities based on gender, location and socio-economic factors. As discussed in ESA, estimates from different household surveys show that children from households that are classified as non-poor, those from non-ASAL areas, and those from urban areas, have higher chances of being in primary school and transiting from primary to secondary. For example, estimates from the KIHBS 2015/16 show that primary NER varies from 42 percent in Garissa to close to 96.8 percent in Nyeri. And then, the KDHS 2014 shows that primary NER are about 90 percent for children from top 20 percent quintile relative to 75 percent in the bottom 20 percent quintile. Furthermore, close to 9 out 10 children in urban areas are likely to be enrolled in Grade 6 compared to 7 out of 10 children in rural areas.

There are a number of constraints hindering access to primary education. Children cannot attend primary schools mainly due a number of factors, such as direct costs on uniforms and school meals; indirect costs; poverty; insecurity; long distances covered to schools; as well as lack of food and water at home. Those most affected are children from low economic status, urban informal settlements, and those in ASAL areas, including in refugee camps. For girls, in particular, there are retrogressive cultural practices that, for example, prioritise school attendance by boys and require girls to assume domestic responsibilities in the home. There are also safety issues when girls are in transit and at school. Inadequate sanitary facilities at

schools is another issue, as well as early pregnancy which can contribute to poor school attendance and dropping out of school.

2.1.3 Secondary Education

Despite increases in secondary enrolments in absolute terms, access to secondary schools is still low. Table 7 shows key indicators in Secondary Sub-Sector for the period 2013-2018. In absolute numbers, enrolments at secondary school level increased from 2.0 million in 2013 to 2.9 million in 2018 partly due to the Free Day Secondary School initiative. In 2018, the secondary GER and NER was estimated at 70.3 percent and 53.2 percent, respectively. This means that close to 50 percent of secondary school going age children are not enrolled in secondary schools. Additionally, there are marked disparities in access to secondary schools. For instance, secondary completion in North Eastern and Coast regions is about 3 times less than in Central and Nairobi. In the North Eastern and Coast regions, more than 7 out of 10 do not attend up to the end of secondary education, the majority of whom are girls. While factors that hinder access to secondary school education are similar to those highlighted in the primary section, the main hindrance to secondary school attendance is cost. When a child does not finish secondary school, potential costs are high for boys and girls alike in terms of loss in earning potential and social capital. However, not educating girls has particularly widespread impact on development progress, in part because of the link between low educational attainment, child marriage, and early childbearing, and the risks that they entail for young mothers and their children.

Table 7: Trends in Secondary Education Sub-Sector

	2013	2014	2015	2016	2017	2018*
Males (thousands)	1,127.7	1,213.3	1,348.5	1,396.9	1,450.8	1,505.30
Females(thousands)	967.6	1,118.4	1,210.5	1,323.6	1,380.0	1,437.40
Total Secondary (thousands)	2,095.3	2,331.7	2,558.0	2,720.5	2,830.8	2,942.70
GPI	0.86	0.92	0.90	0.95	0.95	0.95
Secondary GER, %	54.3	58.7	63.3	66.8	68.5	70.3
Secondary NER, %	38.5	47.4	47.8	49.5	51.1	53.2
Public Secondary Schools	7,686	8,297	8,592	9,111	9,111	9,643
Private Secondary Schools	1,048	1,143	1,350	1,544	1,544	1,756
Total # of Secondary Schools	8,734	9,440	9,942	10,655	10,655	11,399
Average school size	267	271	273	266	266	258

Source: Economic Surveys, * provisional

The projected enrolment growth of 8 percent in the secondary sub-sector level indicates the need to invest more in secondary education so as to achieve 100% transition. Currently, secondary education is largely financed through capitation grants, boarding fees by households, county government contributions, income generating projects, sponsors, alumni, private sector, donors, Constituency Development Fund, agencies, and non-governmental organisations (NGOs).

The secondary sub-sector is faced with a number of governance, management and accountability issues. These include: (i) Absence of minimum professional standards and benchmarks for use when appointing institutional managers; (ii) Weak accountable governance structures and weak monitoring and tracking systems; (iii) Inadequate management skills for principals and Boards of Management; (iv) Mismanagement/

misappropriation of resources and funds at the school level; (v) Lack of implementation and monitoring of codes of conduct for management, teachers and other school personnel to prevent school-related exploitation and abuse of learners; (vi) Lack of standards for maximizing physical safety in and around schools; (vii) Lack of a framework on how to engage communities in the establishment, management and governance of schools and; (viii) Undue political interference in the management of schools. An efficient and effective secondary education will require that all stakeholders are aligned towards the goal of safe and equitable learning for girls and boys alike. There is, therefore, the need to have a clear focus, cultivate a collaborative culture, deepen learning and secure accountability in secondary education.

2.1.4 Adult and Continuing Education

Adult and Continuing Education includes all forms of organised education and training that meet basic learning needs of adults and out of school youth. The importance of adult and continuing education is underscored in view of the need to help those who are out of school to meet the ever-changing demands of society for improved skills in literacy and numeracy and other lifelong learning programmes. The role of Adult and Continuing Education (ACE) programmes in Kenya is to provide literacy knowledge and skills to illiterate adults and out-of-school youth, aged fifteen years and above. ACE also provides an alternative pathway for overage learners who drop out of school due to various social and other factors and may wish to continue with learning through ACE primary and secondary programmes. It also has a component of Community Education and Empowerment that is designed to benefit community members and ACE learners by providing them with the needed skills and knowledge that enable them to contribute towards building an informed and economically empowered society whose members are able to participate meaningfully in their own development and influence decisions that affect their lives.

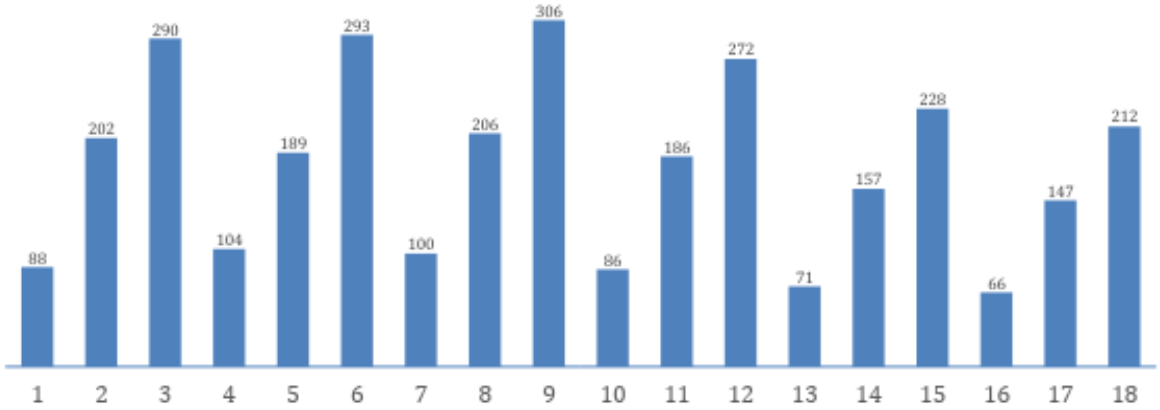

Figure 2: Adult and Continuing Education Enrolment Trends in Kenya
Source: Economic Surveys, * provisional

Figure 2 shows trends in Adult and Continuing Education enrolment trends in Kenya. Generally, access to ACE Programmes in Kenya is low and experiences both gender and regional disparities. For example, the period between 2012 and 2017 witnessed a drop, by about 34 percent, in enrolments among learners in all ACE programmes in Kenya. Enrolments by gender show that generally, there are more female than male learners enrolled in the various ACE programmes across the country. For every male learner, there are two female learners.

Low overall enrolment rates in the sub-sector are due to a number of factors. Some of these factors are**:** lack of qualified teachers; high teacher/volunteer turnover; inadequate learning centres and inadequate facilities in the learning centres; stigma associated with adult learners; family responsibilities on the part of learners; lack of societal information regarding adult learning; and irrelevance of curricula offered in ACE centres. That women and girls access ACE at significantly higher rates than men and boys may be a positive reflection of programmes specifically targeting out-of-school females in order to address gaps in female education and literacy. However, these programmes should not replace efforts to improve female completion of secondary education, especially in ASAL areas, including among refugee-hosting populations.

2.1.5 Technical Vocational Education and Training (TVET)

TVET in Kenya takes the form of Vocational Education and Training (VET) and Technical Education (TE). TVET institutions comprise formal and informal (Jua-Kali) entities. There is, however, inadequate data in this sub sector. The exact numbers of institutions operating in this sector and the types of courses offered, as well as enrolments, are not known since some private owned institutions are not accredited/registered. Nevertheless, available data shows that as at 2018, there were 1,300 institutions, from 700 in 2014. Similarly, trends in student enrolment show that the total enrolments in various TVET institutions rose from 148,009 in 2013 to 363,884 in 2018 as shown in **Table 8**. There are more males than females enrolled in the different TVET courses, especially in public institutions that are STEM oriented.

Table 8: Enrolment Trends in TVET 2013-2018

	2013	2014	2015	2016	2017	2018*
National Polytechnics						
Male	13,166	14,660	12,463	22,754	29,290	47,171
Female	7,329	8,602	8,078	14,161	19,202	32,207
Total	**20,495**	**23,262**	**20,541**	**36,915**	**48,492**	**79,378**
GPI	0.56	0.59	0.65	0.62	0.66	0.68
Public Technical and Vocational Colleges						
Male	31,956	29,632	32,221	17,589	29,584	49,454
Female	23,989	21,232	23,087	9,569	17,982	34,948
Total	**55,945**	**50,864**	**55,308**	**27,158**	**47,566**	**84,402**
GPI	0.75	0.72	0.72	0.54	0.61	0.71
Private Technical & Vocational Colleges						
Male				27,280	35,951	41,623
Female				30,298	38,689	43,997
Total				**57,578**	**74,640**	**85,620**
GPI				1.11	1.08	1.06
Vocational Training Colleges						
Male	42,942	45,473	47,625	46,340	59,756	66,894
Female	28,627	28,222	29,840	34,565	44,685	47,590
Total	**71,569**	**73,695**	**77,465**	**80,905**	**104,441**	114,484
GPI	0.67	0.62	0.63	0.75	0.75	0.71
Grand Total						
Male	88,064	89,765	92,309	113,963	154,581	205,142
Female	59,945	58,056	61,005	88,593	120,558	158,742
Total	**148,009**	**147,821**	**153,314**	**202,556**	**275,139**	**363,884**
GPI	0.68	0.65	0.66	0.78	0.78	0.77

Source: Economic Survey, Various

There are a number of constraints facing this sub-sector despite various interventions by the stakeholders. These are: inadequate data on the number and nature of institutions operating in the sub-sector, as well as types of courses they offer and their enrolment patterns; low enrolment among females, especially in National Polytechnics; TVET programmes in Kenya are generally perceived as being inferior to general academic educations;TVET institutions are spread across different ministries and there is no uniformity in the categorisation of the institutions across the ministries; TVET institutions offer programmes that are not fully aligned to the Competency Based Education and Training (CBET) curriculum and to the Vision 2030. Certification is often based on completion of courses and passing examinations rather than demonstration of competence; There are no proper structures for pre-service and in-service professional development of trainers; most TVET institutions do not have adequate physical infrastructure and equipment to support the teaching of the CBET curriculum;TVET pathways have been rigid, thereby hindering accumulation, recognition and transfer of individual learning from one institution to another. However, with the gazettement of Kenya National Qualifications Authority (KNQA) regulations, this problem is expected to be addressed with the full implementation of these regulations; and TVET Programmes are also characterised by weak industry linkages.

2.1.6 Inclusive Education

Kenya has made commitments to implement inclusive education. Kenya signed and ratified the UNCRPD (2006), adopted the SDGs, and made commitments to implementation of inclusive education during the Global Disability Summit (2018). In line with this, the Basic Education Act (2013), and the Sector Policy for Learners and Trainees with Disabilities (2018), as well as the Persons with Disabilities Act (2003), recognise the need to progressively transit from special education to inclusive education. The sector policy defines Inclusive Education as an approach where learners and trainees with disabilities are provided with appropriate educational interventions within regular institutions of learning with reasonable accommodations and support to enhance their safe participation.

The Ministry of Education (MOE) is taking concrete steps to transform provision of education for learners with special needs and disabilities to inclusive education. The Ministry has developed relevant policies and established institutions to ensure increased access to education by learners with special needs and disabilities. However, there are many learners with special needs and disabilities out of school. According to the MOE Statistical Booklet (2016), there were only 222,700 learners and 11,400 students enrolled in primary and secondary schools, respectively. There are a number of constraints facing Special Needs Education in Kenya, which include: inadequate data on key sub-sector indicators to guide planning and budgeting; ineffectiveness of the EARCs; poor understanding of the concept of 'special needs and disability' among education stakeholders; inadequate adaptable facilities to support children with special needs; poor maintenance of available facilities and assistive devices in learning institutions and EARCs; poor adoption and integration of ICT in teaching and learning; Inadequate number of teachers with prerequisite knowledge and skills to handle learners with special needs and disabilities; inadequate capacity of teachers and EARC's to carry out early identification, assessment and placement of learners; inadequate support to schools and teachers by EARCS, Curriculum Support Officers, and Quality Assurance Officers; stigmatization of learners with disabilities in learning institutions, homes and in the community; inflexible curriculum that is not responsive to the needs of learners with

disabilities; low transitions rates of learners with disabilities across all levels of education; and lack of policy and structures for recruitment and deployment of learning support assistants, as well as inadequate preparation of teachers to implement inclusive education.

2.1.7 University Education

The university sector in Kenya is regulated by the Universities Act. The Act provides for the development of university education; the establishment, accreditation and governance of universities; as well as the establishment of the agencies. The Act is premised on a policy framework whose objectives are to: enhance equitable access to university education and provide quality, relevant education, training and research in our universities; and improve governance and management of universities.

Over the last six years, Kenya witnessed an increase in the number of universities, both private and public. As a result, the university sector has grown immensely. The country has 74 universities in different parts of the country, providing ample opportunity for those interested, to access university education. There are 37 public universities and an equivalent number of private universities. The total enrolment has, as a result, increased two fold, from 251,196 students in 2013 to 520,893 in 2018.The growth was partially driven by the increase in the number of public universities, and public financing of students in private universities, by the Higher Education Loans Board.

Table 9: **Enrolment by Gender in Universities (2013/14 - 2016/17)**

	2013/2014		2014/2015		2015/2016		2016/2017		2017/18	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Public	173,987	115,746	217,164	146,170	258,688	174,068	286,840	192,472	255,875	171,090
Private	39,980	31,666	42,454	37,994	39,125	38,804	43,547	41,648	46,764	39,453
Total	213,967	147,412	259,618	184,164	297,813	212,872	330,387	234,120	302,639	210,543
Grand Total	**361,379**		**443,782**		**510,685**		**564,507**		**513,182**	
GPI public	0.67		0.67		0.67		0.67		0.67	
GPI private	0.79		0.89		0.99		0.96		0.84	
Total GPI	**0.69**		**0.71**		**0.71**		**0.71**		**0.70**	

Source: Commission of University Education, KNBS (2017)

The sub-sector faces a number of quality and relevance issues that are of concern. The number of public universities increased from 8 in 2012 to 32 in 2016. Chartered private universities, on the other hand, increased from 15 to 18 during the same period. The establishment of new universities has, however, not been matched with adequate funding to support infrastructure development. Although gross enrolment increased, enrolment growth among girls is lower than that of boys. The gender disparity, in favour of boys, is less pronounced in private than in public universities, suggesting that income levels may play an important role in females' access to education. In addition, there are very few students with special needs enrolled in the universities regardless of the affirmative action criteria put in place by KUCCPS.

A large component of the programmes offered in Kenyan universities consists of arts and social science based courses. In 2016, almost three quarters of the courses/programmes offered by both public and private universities were in arts and humanities, followed by business related courses. There are fewer courses in Science, Technology, Engineering, and Mathematics (STEM) in the universities. In addition, only 37% of academic staff in

universities have doctorate degrees. Majority of academic staff (53%) have Masters as their highest educational attainment and about 10 percent of the university academic staff hold a Bachelor's degree and below. In addition, there are even fewer academic staff in science and engineering programmes.

The University Funding Board (UFB) has been operationalised and the funding criterion that was developed has been adopted for funding universities beginning from the 2017/2018 financial year. The criterion is based on a Differentiated Unit Cost (DUC) model which ensures that universities are funded according to the number of students in each subject area. However, the DUC does not address development, research and postgraduate funding for universities. Funding from the National Treasury to HELB increased from KES 2.448 Billion in 2014 to KES 6.414 billion in 2016. Over the same period, loan recoveries improved from KES 3.251Billion. However, loan recoveries increased at a slower rate and have lagged behind government capitation as a source of funds for HELB. The value of the loans awarded increased from KES 4.9 billion in 2012/13 to KES 8.158 billion in 2016/17. However, the average loan per student decreased from KES 43,579 to KES 41,730 suggesting that growth in number of applicants has outstripped the growth in funds allocated for student loans. There is, thus, a large financing gap for student loans, and it is likely to grow larger in the forecast period. Therefore, current practices for administering student loans could be more effective in targeting students with the most pronounced financing needs.

2.1.8 Science, Technology and Innovation

The development and application of science, technology and innovation is crucial to the success of national development policies and programmes. Economic, social and cultural development goes hand in hand with scientific and technological transformation. Knowledge-based economy is driven by high investment in education and training, research and development (R&D), the presence of high-quality scientific research institutions, extensive relationships between governments, academia, and industry, and the protection of intellectual property. Science, Technology and Innovation has been identified as one of the key enabling sectors to drive the country's long term development goals as espoused in the Kenya Vision 2030 and its successive medium term plans.

The Science, Technology and Innovation (STI) sector is governed by the Science and Technology and Innovation Act, 2013. The Act provides the legal framework to facilitate the promotion, co-ordination and regulation of the progress of science, technology and innovation of the country; to assign priority to the development of science, technology and innovation, and to entrench science, technology and innovation in the national production system.

There exists a shortage of human resources needed for the development of Science, Technology and Innovation. The 2014 African Outlook Report shows that Kenya had only 13, 012 research personnel in 2010, which translated to 322 research personnel per million people in the population, which is low compared to established knowledge driven economies. More so, data shows that there is low participation by women in research. Similarly, enrolment of females in higher education is lower than males at all levels of training, especially in STEM programmes.

The growth of Science, Technology, Engineering and Mathematics in education and training institutions has not been rapid enough to support the ST&I sector. Universities in Kenya have shifted focus away from Science, Technology, Engineering, and Mathematics (STEM)-based courses. As a result, the large proportion of Kenyan enrolment is concentrated in non-science-related fields. Second, universities do not have enough sufficiently qualified faculty with the capacity to teach STEM related programmes of sufficient quality to meet required standards. Another issue is that costs associated with delivering STEM related programmes are higher than those associated with delivering courses in the social sciences and humanities because of the need to invest in expensive equipment needed in delivering STEM based programmes. In addition, the low number of students transitioning from secondary education with the skills and qualifications required for enrolment in STEM programmes is another factor undermining the admission of students to STEM disciplines in higher education.

The government has increased support for research funding with the establishment of the National Research Fund and subsequent annual allocation of KES 3 billion to the fund. Universities are the central cog in R&D and are expected to allocate more resources towards research and development from both recurrent and capital expenditure. However, there is still need to harmonise the mobilisation and expenditure from the numerous funding sources in the R&D sector. In addition, to keep pace with a rapidly evolving ST&I sector, accelerated development of infrastructure is critical. ST&I Infrastructure is the key foundation upon which ST&I activities are operationalised. They include modern scientific laboratories and equipment.

There is low awareness of Intellectual Property Rights (IPR) among practitioners, stakeholders and policy makers. Furthermore, the existing policy is not flexible to accommodate the ever-emerging issues in Science, Technology and Innovation. Documentation and preservation of indigenous resources and traditional knowledge is inadequate and fragmented. The existing Intellectual Property Rights regime does not adequately facilitate the verification and protection of indigenous knowledge and resources. Furthermore, the level of uptake and commercialisation of intellectually protected products and services is low. Thus, there is still need to raise awareness on IPR to avoid exploitation of Kenya's biodiversity and indigenous knowledge.

The generation, storage and dissemination of ST&I data and information is not coherent and interactive to inform policy decisions for the growth of the ST&I sector. In addition, information on ST&I is neither mapped nor interlinked. The existing system for ST&I information management is not automated. There is also lack of promotion centres at national and county levels to create interest and a culture of science, technology and innovation. Furthermore, the country lacks a tracking system for the establishment of the status of ST&I indices to benchmark the national system of innovation for global competitiveness and inform relevant policy interventions and or actions.

Lastly, there is limited documentation and preservation of indigenous resources and traditional knowledge. The existing intellectual property rights regime does not adequately facilitate the verification and protection of indigenous knowledge and resources. This has led to inadequate ST&I data for inclusion in the national statistics.

2.2 Internal Efficiency in Basic Education

There are various sources of internal inefficiencies within Kenya's education system. As shown in Figure 3a, the system is characterised by a relatively high Gross Intake in Standard 1 with learners generally staying in school up to Standard 7 before a considerable proportion drops out between Standard 7 and 8 and between Standard 8 and Form 1. Although there has been improvement in subsequent years, more than 40 percent of children who start Standard 1 do not complete Form 4. Figure 3b, which shows trends in promotion and repetition rates, further confirms fears relating to the system losing learners, particularly between Standard 7 and 8, between Standard 8 and Form 1, as well as between Form 3 and 4. We observe a sharp drop in promotion rates between Standard 7 and 8 and between Form 3 and 4. The drop in promotion rates in Standard 7 and Form 3 could be attributed to national examinations (KCPE and KCSE) that are essential determinants of progress from primary to secondary in many Sub-Saharan Africa countries.

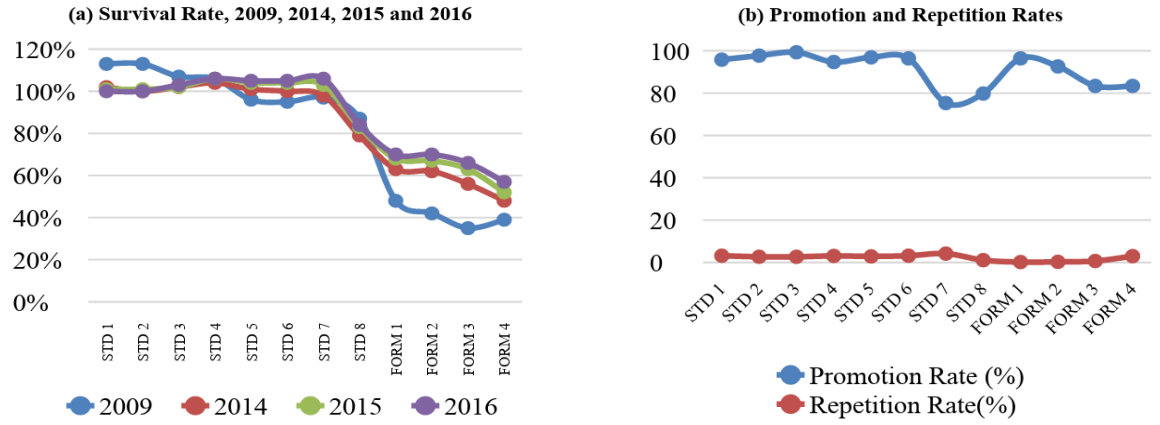

Figure 3: Trends in Survival Rates and Promotion and Repetition Rates

Source: KNBS 2017; KIHBS 2016/17

Another measure of internal efficiency is by looking at Out-Of-School Children (OOSC). Estimates from the 2014 Kenya Demographic and Health Survey (KDHS) show that close to 1 million children are out of school, either because they have never attended, or they dropped out. As shown in Figure 5, most of the OOSC either did not go to school at all or just went to primary school before dropping out. More than half of the OOSC are hosted by 6 counties (Mandera, Turkana, Wajir, Garissa, Nairobi and Bungoma). High costs are the leading reason respondents cite for non-attendance among drop-outs.

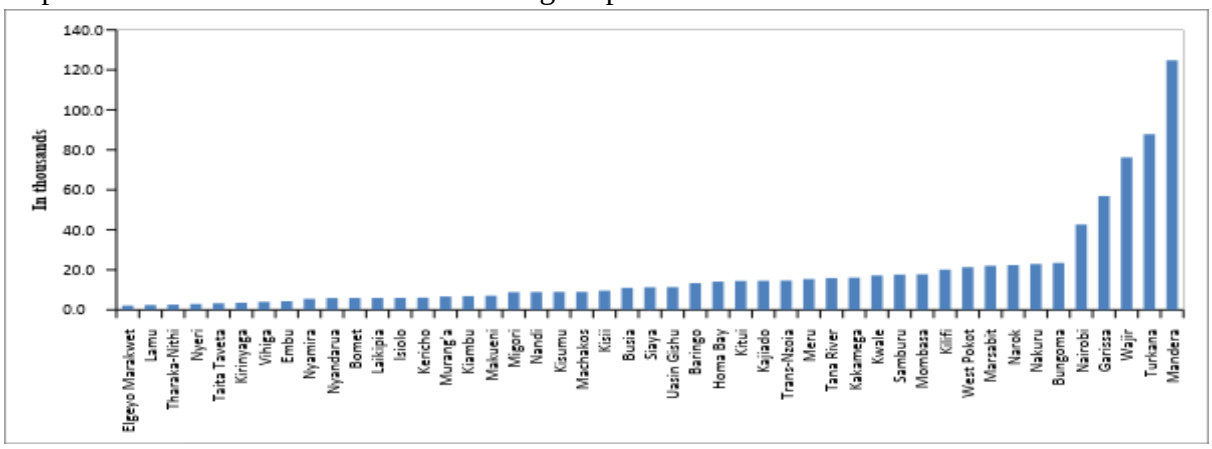

Figure 4: Out of School by County in Thousands, 2014

Source: Author's calculations based on Kenya Demographic Health Surveys

2.3 Disparities in Access to Basic Education

Findings from ESA show wide disparities in access to education based on gender, nationality, disability, location (rural/urban) and region. Generally, access is particularly low among children with special needs and those from rural areas; those in urban informal settlements; those in ASAL and less endowed areas; conflict-prone regions; and those from poor households.

- Participation by rural/urban shows that generally, children in rural areas are less likely to be in school compared to their counterparts in urban areas. However, an interaction of gender and location shows that rural boys have a lower chance of staying in primary, and transiting to secondary school relative to their fellow boys in urban areas and girls from both rural and urban areas. It should not be lost that girls are disadvantaged if we consider the interaction between gender and location in the case of ASAL areas, with significant impacts on girls' access to and completion of secondary education.

- Being born in a rich background increases the child's chance of enrolling and staying in school and transiting from one level to another. For instance, at Standard 8, 9 in 10 children from the richest families are likely to be in school compared to about 6 in 10 children from the poorest families. And then, nearly 6 out of 10 children from the poorest quintile who enrolled in Grade 1 are expected to complete Grade 6 compared to 9 out of 10 children from the richest quintile. At Grade 12 (Form 4), close to 9 out of 10 children from richest families are likely to be in school relative to only 1 in 10 children from poorest families.

- Children, especially girls, from ASAL areas are less likely to enroll and stay in school relative to their counterparts from high potential areas. Figure 5 shows the percentage of a cohort of students enrolled in Standard 1, who eventually reach Standard 8 in selected counties. The system in counties like Turkana and Mandera does very poorly in keeping learners in school once they are enrolled. There is a dramatic fall in the number of learners as they progress in subsequent classes. In contrast, counties like Kirinyaga and Kiambu are doing quite well in keeping the learners through the system.

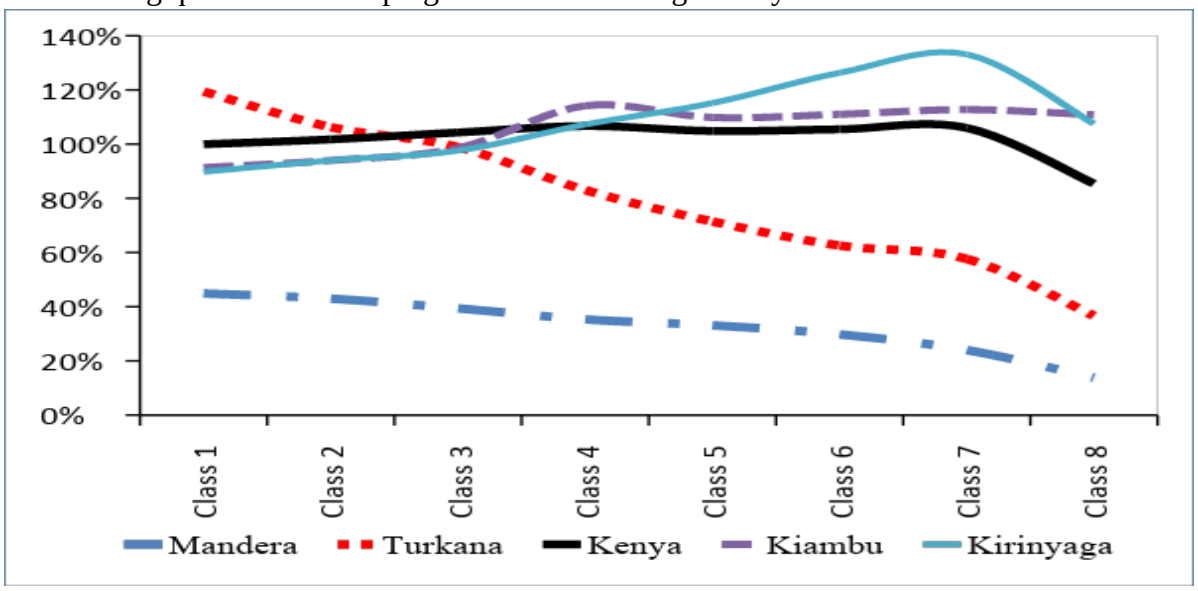

Figure 5: Disparities in Retention by Selected Counties

Source: EMIS, 2014

- There are a number of factors that limit access to learning by girls, especially in ASAL areas with child marriage and early childbearing (teenage pregnancy) being among the major factors. According to a survey by the United Nations Population Fund (UNFPA), close to a quarter a million adolescent girls in Kenya aged between 10 and 19 years became pregnant between July 2016 and June 2017. Levels of early childbearing (teenage pregnancies) in Kenya are more worrying in some regions as compared to others. According to the Kenya Demographic Health Survey (KDHS) 2014 report, 4 out of 10 girls in Narok County got pregnant at a tender age. Other counties that have been put on the spotlight over teenage pregnancies include Homa Bay (33%), Kitui (36%), West Pokot (29%) Tana River (28%), Nyamira (28%), Samburu (26%), Migori (24%), Kwale (24%) and Nairobi (21%). A recent report by the children's affairs department shows that about 14,000 girls aged between 15 to 19 years got pregnant in 2018 in Kilifi County.

- Evidence around the world shows that there are significant negative effects on girls themselves, their families, and the country resulting from child marriage and early childbearing.[3] Girls who marry or drop out of school early, due to early marriage and/or early pregnancy, are more likely to have poor health, larger families, and earn less as adults.[4] In addition, girls who marry or have children at an early age and drop out of school are disempowered in ways that deprive them of their basic rights.[5] They are more likely to be victims of domestic violence due to lack of decision-making power within the household. Child marriage and early childbearing has a fertility effect, with research showing that children of young mothers are at higher risk of dying before age 5, suffering stunting, and doing poorly in school.[6] Estimates by the World Bank, based on Tanzanian data, shows that the loss in earnings for adult women working today due to their marrying as children in the past stands at US$ 637 million (PPP).[7]

2.4 Quality and Relevance of Education

2.4.1 Student Learning Achievements

Results from student assessments by both the government (Ministry of Education) and non-state actors show that learning achievement remains quite low. The KCPE national mean score remained slightly above 50 percent in the last 7 years, characterised by poor performance in English composition. Figure 6 shows the KCSE results for the period 2011 to 2017. The number of candidates achieving a mean grade of C+ (the minimum university entry grade) and above, has been decreasing, more so, during the last two academic years. In addition, a majority of the candidates scored grades that cannot allow them to proceed to higher education or even secure gainful employment. Looking at Figure 6d, during the academic years (2016 and 2017), more than half of the candidates obtained grades D and below, which almost disqualifies them from pursuing any professional course.

[3] World Bank (2018), *The Cost of Not Educating Girls: Low Educational Attainment for Girls and Child Marriage in Africa: Impacts, Costs and Solutions*, Washington, DC: World Bank.
[4] Nour, N.M., 2006. Health consequences of child marriage in Africa. Emerging infectious diseases, 12(11), p.1644.
[5] Nour, N.M., 2009. Child marriage: a silent health and human rights issue. Reviews in obstetrics and gynecology, 2(1), p.51.
[6] Raj, A., Saggurti, N., Balaiah, D. and Silverman, J.G., 2009. Prevalence of child marriage and its effect on fertility and fertility-control outcomes of young women in India: a cross-sectional, observational study. The lancet, 373(9678), pp.1883-1889.
[7] World Bank (2017), Tanzania Economic Updates, Washington, DC: World Bank.

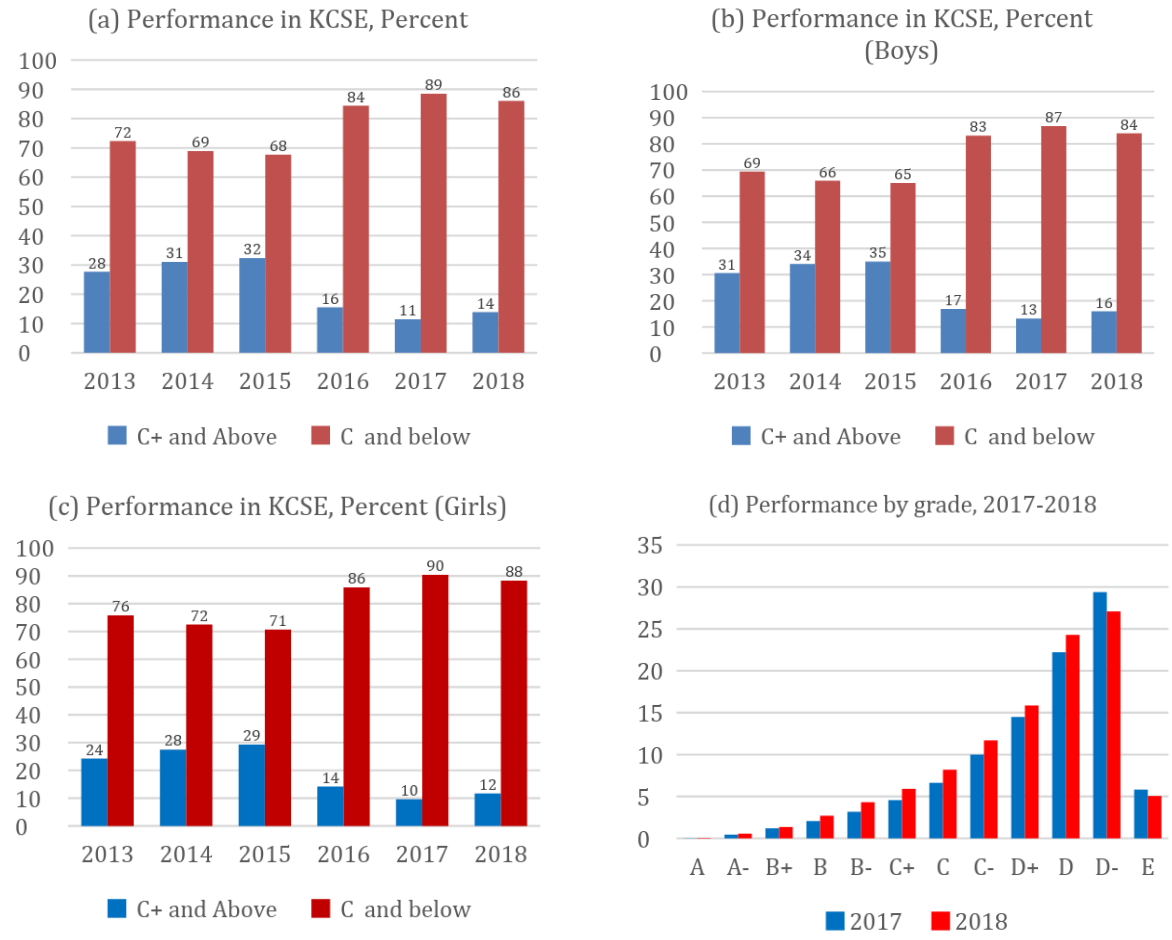

Figure 6: Trends in KCSE Performance
Source: Kenya National Examination Council

10 summarises the magnitude of the learning challenges based on other assessments undertaken by the Kenya National Examination Council. The assessments are National Assessment System for Monitoring Learner Achievement (NASMLA) for Grade 3 and Monitoring Learner Achievement (MLA) for Form 2 (Grade 10).

Table 10: **Quality and Relevance of Education**

Assessment	Subject	Key findings
NASMLA: Grade 3	Numeracy	● Almost 18 percent of Grade 3 pupils cannot add numbers without carrying over or subtract without borrowing; Almost three quarters (29 percent) cannot solve a two-step addition or subtraction involving carrying over and borrowing; Close to 64 percent cannot add or subtract simple fractions and interpret simple common everyday units of measurement such as days, weeks, and shillings; and almost all learners, 95 percent, cannot translate information presented in sentences into simple arithmetic operation.
	Literacy	● Over 85 percent and over 90 percent cannot arrange alphabetical order words in English and Kiswahili, respectively; Nearly 40 percent cannot spell simple everyday words correctly, recognise missing letters in words and use familiar words to complete simple everyday sentences; Close to 62 percent cannot use correct punctuation in simple sentences & interpret meaning by matching words and phrases; Close to 71 percent cannot read for meaning in English- they cannot infer meaning from short passages.
MLA: Form 2 (Grade 10)	Numeracy	● Majority of Form 2 students have not attained minimum competency levels in specific content areas in Mathematics, most of which are covered from primary level. For instance, over three quarters (70 percent) of the students did not attain the minimum competencies in content areas such as Algebra, Geometry, Numbers, Trigonometry and Vectors.
	Literacy	● Majority of Form 2 students have not acquired requisite literacy skills- more especially higher order literacy skills such as Reading Comprehension. For instance, 44.1 percent cannot read for meaning, that is, they cannot infer meaning from short passages and 49.6 percent cannot express themselves well in writing.

The following findings have been observed from National Assessment System for Monitoring Learner Achievement (NASMLA) for Grade 3 and Monitoring Learner Achievement (MLA) for Form 2 (Grade 10):

- The learning crisis is mainly among learners from low socio-economic status and those from ASAL areas.
- Girls perform better in literacy, especially at early grades, while boys perform better in numeracy.
- Absenteeism has been established as something that significantly affects learner achievement.
- Older pupils achieve less than younger pupils, indicating that the aspect of children being overage, and also underage, affects learning.
- Urban and private schools outperform their rural and public counterparts, respectively.
- Pupils sharing textbooks with more than one colleague had low achievement levels.
- Pupils attending schools with regular meals perform better than those attending schools with no feeding programme. Also, pupils who get regular meals (at least two and more) at home, do better than those who receive fewer meals.
- Pupils whose parents meet teachers regularly achieve better compared to those whose parents infrequently hold meetings with teachers.

2.4.2 Curriculum Reforms

Kenya's aspiration of becoming a middle-income country is an ambitious intention, which will heavily depend on the quality of her human capital. The quality of Kenya's human capital in turn, partly depends on the type of curriculum offered in the schooling system. A good curriculum contributes to the development of thinking skills and the acquisition of relevant knowledge that learners need to apply in the context of their studies, daily life and careers. The curriculum, therefore, needs to be a channel that brings about mastery of acceptable global competencies. The curriculum should reflect the Kenya National Development Agenda reflected in the Constitution, Vision 2030, Sessional Paper No. 2 of 2015 and other policy documents. The Sessional Paper recommends reforming the Education and Training Sector to provide for the development of *individual learner's potential in a holistic and integrated manner*, while producing *intellectually, emotionally and physically balanced citizens*. It further recommends a competency based curriculum; establishment of a National Learning Assessment System; Early Identification and Nurturing of Talents; introduction of National Values in the curriculum; and introduction of three learning pathways at Senior Secondary School level.

Kenya's current curriculum, especially its form of assessment (which is largely summative), places too much focus on exam passing rather than skill and knowledge acquisition. The current curriculum was last reviewed ten years ago, although international trends demand that a curriculum needs to be revised every five years. An evaluation undertaken by the Kenya Institute of Curriculum Development in 2009 identified a number of gaps regarding the primary and secondary school curriculum. The study indicated that the curriculum was geared towards passing examination and did not embrace holistic development of the learner. Some of the gaps identified include lack of capacity among curriculum implementers (teachers and field officers), as well as inadequacies in the assessment and in the management structures that support curriculum implementation. It called for more emphasis on practical and vocational education as well as nurturing of talent and de-emphasizing academics. It further

called for the establishment of special schools for talents such as music, athletics, and sports in addition to the mainstreaming of ICT at all levels of Basic and Tertiary education.

It is for this reason that the Kenya Institute of Curriculum Development has developed a new curriculum known as Competence Based Curriculum (CBC) to replace the 8-4-4 system. The CBC seeks to nurture every learner's potential by ensuring that all learners acquire core competencies outlined. It places emphasis on Continuous Assessment Tests (CATs) over one-off examinations. Reform of the curriculum will ensure that the skills taught in educational institutions match the requirements of the industry and will also emphasize national values, integration of science and innovation and adoption of ICT technologies. In the next chapter, this plan highlights the investments and programmes put in place to facilitate CBC implementation.

2.5 Teacher Education, Professional Development and Management

Teachers are the most important inputs affecting learning in schools. The manner in which the country sources, develops, deploys, manages, and supports teachers will largely determine or influence the quality of education. Currently, the government, through the Teachers Service Commission (TSC) manages a working force of 313,542 teachers deployed to 30,892 public basic educational institutions in the country. These include 215,367 teachers serving in 22,263 public primary schools and 98,175 teachers serving in 8,629 public post primary institutions. The Education Sector Analysis (ESA) report of 2018 identifies a number of issues related to teacher education, management and professional development. These include:

2.5.1 Teacher Education

Pre-Service Teacher Development programmes in Kenya are presently handled at three main levels. The first level is at universities and diploma colleges for teachers training for secondary schools. The other one is at Primary Teacher Training Colleges (PTTCs) for primary school teachers and finally, at various training centres targeting teachers for the ECDE level. Although there have been initiatives to transform teaching towards learner-centred approaches, such as the Early Grade Mathematics and Tusome, these have not been fully integrated in the formal teacher pre-service training curriculum. A major reform in the education sector is the introduction of the Competency Based Curriculum. This implies that pre-service teacher training programmes at all levels must be redesigned to adequately prepare persons entering the teaching profession, especially on pedagogical aspects. NESSP must, therefore, seek appropriate interventions and resources to address these challenges. There are a number of constraints facing pre-service teacher education in Kenya. Some of these include:

- Inadequate Teacher Training Institutions infrastructure facilities. There are 26 public primary teacher training colleges and 3 public diploma teacher training colleges, spread across the country. A number of these institutions lack modern facilities capable of delivering the Competency Based Curriculum. There is need to review the model of teacher training with regard to financing as well as infrastructure improvement;
- Inadequate teacher educators as well as inadequate capacity on pedagogical skills*:* Teacher educators deployed in TTCs lack adequate knowledge in teacher education, especially skills in coaching and mentoring the teacher trainees;
- Inadequate policy framework on identification and deployment of teacher educators**:** Presently, deployment of tutors/lecturers to TTCs uses staffing norms similar to those applied to secondary schools;

- Quality of teacher trainees*:* Currently, admission to primary TTCs requires one to have a mean grade of C (plain), while those entering universities or diploma TTCs are required to have a minimum of C+ (plus). In addition, trainees handle subjects they may not have performed well in at the KCSE level, thus raising quality issues. Table 11 shows that between 2014 and 2016, there was a declining trend on the pass rates for teachers graduating from both public and private TTCs..
- Lack of teacher internship programmes**:** Presently, there is no provision for teachers graduating from the teacher training institutions to undergo a pre-service induction programme. Instead, newly recruited teachers are taken straight to class and learn most of the pedagogical applications and teaching codes and standards while on the job.

Table 11: Graduates from Teacher Training Colleges

	Year	Colleges	Candidates	Pass	Pass Rate
PUBLIC	2014	21	10,641	9,623	90 %
	2015	21	10,679	8,762	82 %
	2016	24	11,388	7,776	68 %
PRIVATE	2014	83	6,868	5,585	81 %
	2015	84	8,230	5,517	67 %
	2016	79	8,102	5,084	63 %

Source: Ministry of Education; PTTC Department

2.5.2 Teacher Professional development

The rationale for Teacher Professional Development is to support serving teachers to leverage educational opportunities. It is meant to help them improve their skills, professional knowledge, and pedagogy. Professional development is an essential element of teacher career progression and contributes significantly to staff motivation. Key issues under continuous Teacher Professional Development include:

- Inadequate institutionalised school-based teacher development and classroom-based teacher support and research: Teacher professional development has taken various forms, ranging from self-sponsored upgrading of qualifications to those supported by the government through its specialised institutions such as KEMI and CEMASTEA.

- Some teachers having Limited content knowledge and pedagogy skills: Several assessments (EGMA, SAQMEC and NASMLA) have been done to measure Kenyan teachers' subject-matter knowledge, as well their ability to translate subject knowledge into teaching (pedagogy). In all these studies, some teachers have been found to have inadequate mastery of content in the subject they handled. The redesigned in-service teacher development programme should ensure that such teachers are well equipped in the content knowledge for the specialised subject areas.

2.5.3 Teacher Management

The government has mandated the Teachers Service Commission to manage the teaching service at the basic education level. This mandate entails registration, recruitment, maintenance and supporting teachers in the implementation of the curriculum.

Teacher Demand**:** Presently, TSC estimates an overall teacher shortage of 96,345. This includes 38,054 at the primary school level and 58,291 at the post primary school level. The projected shortages are expected to rise to 84,478 for secondary schools and 34,941 for primary schools by the year 2023, as shown in Table 12.

Table 12: **Net Projections on Teacher Shortages -2019-2023**

YEAR	NUMBER		
	POST PRIMARY	PRIMARY	TOTAL
2019	61,671	37,410	99,081
2020	66,718	36,777	103,495
2021	72,179	36,155	108,334
2022	78,086	35,543	113,629
2023	84,478	34,941	119,419

Source: TSC data: 2018, **Notes: 1. The base year is 2018 (February)**

The teacher shortage is as a result of the rapid growth in school enrolment, attributable to the implementation of the Free Primary Education (FPE) and Affordable Day Secondary School Education programmes, as well as the establishment of new schools. The increase in enrolment in secondary schools, occasioned by the objective of 100% transition from primary to secondary education, has already led to the increased demand for teachers at the secondary school level. In addition, expectations on the Competency Based Curriculum rolled out has compounded the teacher shortage problem.

As indicated in Table 11, an average of 18.600 teachers have graduated from the PTTCs over the last 3 years. Available data shows that the government has been able to absorb about 29,000 teachers over the last 5 years. To deal with teacher shortages, schools have been employing teachers locally, known as Board of Management (BOM) teachers. This is, however, an additional cost borne by parents as indicated in Table 13.

Table 13: Teachers Employed by Boards of Management

Status	Sector	BOM_M	BOM_F	TOT_BOM
Public	ECDE	12,673	56,150	68,823
	Primary	19,789	16,062	35,851
	Secondary	29,075	15,005	44,080

Source: Ministry of Education, EMIS

Table 13 shows that parents, through the Boards of Management, support employment of about 80,000 teachers in public primary and secondary schools. This is mainly as a result of the government's inability to hire all the teachers required to effectively implement the school curricula in public learning institutions. This reinforces the need for the government to device a sustainable model of hiring teachers, especially if the expectations of the 100% transition from primary to secondary school and the new CBC are to be effectively met. The shortfall in the supply of teachers at the secondary school level calls for innovative approaches, such as recruitment of teachers on contract basis, institutionalization of the internship programme for teachers and in certain cases, the sharing of teachers across schools for elective subjects.

2.5.4 Teacher Distribution and Utilisation

The main objective of teacher deployment is to ensure equity in teacher distribution across schools, based on reported shortages and replacement of exits through natural attrition. However, a confluence of factors limits the equal distribution of teachers in Kenya. These include insecurity in some counties, such as those in the northern part of Kenya and the Rift Valley, which causes an outflow of teachers; political and stakeholder interference in the distribution of teachers; preference of teachers for urban and high potential areas;

unwillingness of teachers to be separated from their families; and need for medical attention, among others. In general, counties in ASAL areas have fewer teachers relative to other counties of the same school size. This calls for a comprehensive review of the existing teacher staffing norms and development of a policy framework on deployment of teachers at all levels.

In addition, the rapid establishment of new schools, some of which are not viable, has constrained the distribution and utilisation of the teaching resource, thus affecting curriculum implementation. The country is also facing a shortage of teachers in specific subject combinations in the Humanities, Kiswahili, Physics and Computer Studies. Further to this, the movement of these teachers to the private sector has occasioned the shortage of teachers for Physics and Computer Studies.

2.5.5 Teacher School and Class Attendance

Teachers are occasionally absent from school for various reasons. Several school surveys in Kenya reveal cases of teacher absenteeism from school and class. According to SDI survey of 2012, 4 out of 10 are unlikely to report to class due to school and class absence.[8] In most cases, teacher absenteeism leaves children without adequate instructional time since no substitute teachers are provided. As one of the measures to address this issue, TSC has put in place performance management strategies through the Teacher Performance Appraisal and Development (TPAD) and Performance Contracting for heads of institutions. This strategy is expected to enhance accountability and professionalism for teachers employed in public schools.

2.6 Education Financing

The government spends 5 percent of its GDP on education. Table 14 shows trends in government spending in the Sector, at current prices. Government spending in education almost doubled over the period 2010/11 to 2015/16 with over 90 percent going to recurrent spending. It, however, dropped as a proportion of the GDP, from 5.3 percent to 5.1 percent over the period 2010/11 to 2015/16. This was due to a shift in government spending in favour of the energy and infrastructure sectors.

Table 14: Government Expenditure on Education, 2010/11-2015/16 (Current Prices)

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16*
Government expenditure on education (KES millions)	169,093	205,262	230,599	250,551	284,792	319,425
Recurrent Expenditure	159,540	193,811	219,868	235,677	263,537	297,851
Development Expenditure	9,553	11,452	10,731	14,874	21,255	21,574
Percent recurrent expenditure	94.4%	94.4%	95.3%	94.1%	92.5%	93.2%
Education expenditure as a share of total government expenditure	17.7%	20.2%	18.6%	16.3%	14.6%	14.4%
Education expenditure as share of GDP	5.3%	5.5%	5.4%	5.3%	5.3%	5.1%

*Source: The National Treasury, Ministry of Education, Kenya National Bureau of Statistics, author's calculations. *Provisional – this is the approved budget for 2015/16.*

The following are the key emerging issues related to trends in education spending:

[8] Martin, G. H. and Pimhidzai, O. (2013). Education and health services in Kenya: Data for results and accountability.

- Despite the increase in the size of education expenditure, real average (public/government) spending (per capita spending) on education per child in the population has remained the same since 2011.
- Spending by functional classification shows that the primary sub-sector remains the highest consumer of education budget, followed by the secondary sub-sector.
- Recurrent spending takes the lion's share of spending even within the sub-sectors. In almost all sub-sectors, over 80 percent of spending goes to recurrent expenditure - two thirds of education recurrent resources go to salaries.
- Teacher salaries account for more than 90 percent of all salaries in the sector.
- Public expenditure on primary and pre-primary as well as secondary education mostly benefits the bottom 40 percent and can therefore be classified as being pro-poor. However, more than half of the recurrent expenditure on tertiary education is captured by individuals in the top quintile of the expenditure distribution and only three percent is captured by the poorest 20 percent. Furthermore, as shown in a longitudinal survey by the African Population and Health Research Centre among poor urban households, more than 60 percent of children from urban informal settlements (slums), especially in large cities, are currently not benefiting from the public spending in primary education on non-examination related expenditure.
- Significant proportion of spending in education is off-budget, mainly from households and development partners.

2.7 Pertinent and Contemporary Issues and Values

There are a number of pertinent and contemporary issues that affect education access, retention, completion and ultimate advancement in the world of work. This section highlights a few that need policy and special attention:

***School Violence and Extremism*:** In the recent past, the country has experienced several forms of violence in schools. One form of such violence is setting of schools on fire. Student unrests and strikes have been perennial occurrences in Kenya, resulting in wanton destruction of school property and loss of life in some cases. In 2016 alone, close to 120 cases of school arson were reported. Bullying is another form of violence reported in Kenyan schools. 2017 Centres for Disease Control (CDC)[9] led collaborative surveillance survey ranks Kenya among countries with the highest level of bullying. At the national level, bullying in schools in Kenya stands at 57 per cent for students who are bullied on one or more days in a month. Perhaps most worrying is student radicalization and extremism. School children in Kenya are being increasingly targeted by elements bent on radicalising the country's youth. The country has been experiencing increasing cases of disappearances as well as arrests of school going children linked to extremist organisations.

A recent government assessment highlighted a number of factors fuelling school violence and extremism: heavy school work, peer pressure, lack of skills on the part of teachers and school administrators on early warning signs and detection, as well as ineffective guiding and counselling support services.

***Drug and Substance Abuse*:** Closely related is the issue of drug and substance abuse among school going children. A 2016 report by the National Authority for the Campaign Against

[9] Month, P., Day, U., Toolkit, A.I.Y.L.T., Do, W.S.Y., Action, S.T., Ambassadors, P., Laws, R. and Child, P.H.Y., Bullying statistics.

Alcohol and Drug Abuse (NACADA)[10] shows that the median age of children who admitted to using bhang was 15, mostly Form Two students and undergoing puberty. The report notes that students are likely to start taking alcohol, khat/miraa, tobacco and heroin at the age of 14 years. For cocaine, the age of onset is 14.5 years, while bhang is 15 years. Still, according to the report, more than seven in 10 (71.3 per cent) of the students agreed that they were likely to start taking alcohol and drug of abuse in school. An almost similar number, 69.1 per cent, reported that students played a role in the supply of alcohol and drugs of abuse in school. Despite the popular belief that most children could be succumbing to the practice due to peer pressure in school, the report also found out that the home environment was another major risk for initiation into drug use.

Challenges of the Girl Child: Teenage pregnancy, which affects the girl child, is another pertinent and contemporary issue affecting learning in Kenya. According to a 2016 survey by the United Nations Population Fund (UNFPA),[11] close to a quarter a million adolescent girls in Kenya aged between 10 and 19 years became pregnant between July 2016 and June 2017. The Kenya Demographic Health Survey (KDHS) 2014 found that one in every five girls between 15-19 years has begun childbearing while close to 13,000 teenage girls drop out of school every year due to pregnancy (KDHS 2014). The situation is alarming in some counties. KDHS 2014 report further indicated that 4 out of 10 girls in Narok County got pregnant at a tender age. Other counties that have been put on the spotlight over teenage pregnancies include Homa Bay (33%), Kitui (36%), West Pokot (29%) Tana River (28%), Nyamira (28%), Samburu (26%), Migori (24%), Kwale (24%) and Nairobi (21%).

Apart from teenage pregnancy, the Kenyan girl child is adversely affected by gender issues ranging from female genital mutilation (especially in regions like Kajiado, Samburu, and Narok), early marriages, traditional practices such as preference for the boy's than the girl's education, and gender based labour division, which affects the girl child school performance since girls fail to competitively do their school given homework. It is for this reason that girls still remain behind in terms of education outcomes.

HIV and AIDS: HIV and AIDS has had widespread effects on children's learning experiences in Kenya. As parents, guardians and members of communities increasingly become infected by HIV and AIDS and eventually succumb to the disease, children are increasingly lacking basic needs such as food, clothing, shelter, health and even education. Within schools, the knowledge of HIV and AIDs among learners is quite low. Learners still engage in unprotected sexual activities exposing them to the risk of HIV infection. Those who are infected by HIV and Aids face stigma and discrimination and lack adequate family support. Other challenges faced by infected and affected learners include; inadequate psycho-social support, inadequate capacity to deal with HIV and AIDS-related issues, and lack of coordination for response activities.

***Child Labour*:** According to surveys, child labour is still rife and rampant in Kenya today. This could be attributed to many factors not limited to poverty, ignorance, cultural practices and exploitation. Estimates show that there are 1.9 million child labourers in Kenya

[10] NACADA, 2016, *National Survey on Alcohol and Drug Abuse Among Secondary School Students in Kenya*, Nairobi: Kenya [found at http://nacada.go.ke/?page_id=387]
[11] UNFPA, 2016, *Kenya Annual Report*, Nairobi: Kenya [found at https://kenya.unfpa.org/sites/default/files/pub-pdf/UNFPA%20Kenya%20Annual%20Report%202016.pdf]

representing 17 percent of minors in the country with a majority being aged between 5-17 years. The agricultural sector is the leading employer of minors in Kenya followed by the domestic sector. Close to 82 percent of the domestic workers are girls from rural areas working in urban centres. Key regions with high child labour prevalence are the coast, fishing areas and areas where miraa is grown such as Embu and Meru. Nevertheless, Kenya has made some commendable moves towards eliminating child labour, primarily through the National Policy on the Elimination of Child Labour. And worth mentioning is the Children's Act, which domesticated most international and continental conventions to enhance child rights and protection.

Education in Emergencies: In addition, a large proportion of children face challenges in accessing quality education due to natural or man-made disasters, as well as insecurity. Issues such as floods, drought, fires, cattle rustling, inter-ethnic clashes, inter-clan clashes, terrorism and political instability, among others, do affect them. On average, drought affects an estimated 250,000 school age children and 8000 teachers annually, to varying severity levels.

3. STRATEGIC DIRECTION AND PROGRAMME DESIGN

3.1 NESSP Programme Design Causal Linkages

This chapter presents the programmes that the sector will pursue during the 2018-2022 period. The *Vision*, *Mission* and *Strategic Objectives* guiding the Kenya NESSP 2018-2022 are outlined as follows:

Vision*: 'Quality and inclusive education, training and research for sustainable development'*

Mission: '*To provide, promote and coordinate competence based equitable learner centred education, training and research for sustainable development*'

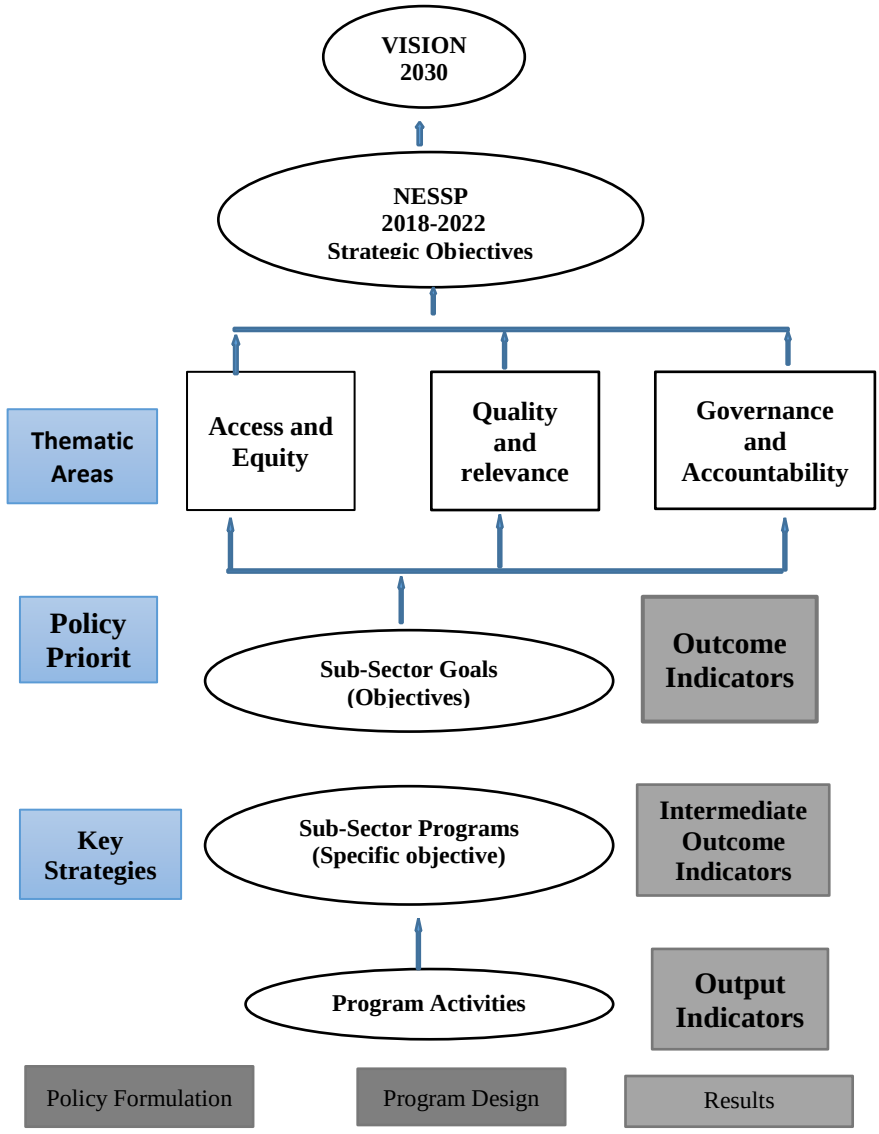

Figure 7 shows that the NESSP 2018-2022 programme design reflects a causal chain, with explicit linkages from programme activities (*output* indicators) to the NESSP 2018-2022 strategic objectives and ultimately the Vision 2030. NESSP 2018-2022 proposes to adopt a thematic level planning by sub-sectors. The sub-sectors include: Pre-Primary Education, Primary Education, Secondary Education, Adult Education, Technical Vocational Education and Training, University Education, Post-Training and Skills Development, and Science, Technology and Innovation.

Figure 7: The Causal Chain of NESSP 2018-2022

Source: Authors' conceptualization based on the ESP guidelines

Each sub-sector planning level is guided by the following four themes: (i) Access and participation; (ii) equity and inclusiveness; (iii) Quality and relevance; and (iv) Governance

and accountability. Each theme constitutes a strategic objective. The achievement of these strategic objectives will lead, partly, to the achievement of the aspirations of Kenya's blueprint, the Vision 2030 (as well as the MTP III which provides direction on planning and investments of the Vision 2030 during the period 2018-2022). As it is the case in chapters 1 and 2, the programmes and associated activities proposed in this chapter are based on issues and challenges identified in the Education Sector Analysis (ESA) and the Medium Term Plan III priorities.

For each sub-sector, the outline of the plan comprises three levels, and has several elements. At the top (policy priority level) is the *goal* or *general objective* that addresses a given challenge (see the next subsection) and within the results *framework,* is linked to a *target* as an expected *outcome*. Within each *goal* or *general objective,* there are a number of *programmes (or specific objectives).* Programmes address the underlying causes of the challenge, and within the results framework, can also be linked to targets as *expected intermediate outcomes*. In this NESSP, we provide a short description for each programme, which includes key issues (as identified in the ESA report, the Medium Term Plan III priorities, consultation with different education stakeholders, as well as ongoing reforms in the sector). Finally, within each programme, there is a *set of activities* outlined to address the underlying challenges identified. The activities, within the results framework, are like *output* indicators.

This sector plan is as a result of a highly participatory and consultative process led by the Ministry of Education. The ministry held internal meetings with senior staff in 2016 but the main consultations, organised by the Ministry, began in earnest in the first half of 2017. The Ministry established a leadership and technical structure to steer the development of the plan. At the top was the steering committee, consisting of the Cabinet Secretary and the Principal Secretaries from the different State Departments, to oversee and guide the process. Below the steering committee was the Technical Working Group (TWG), led by the Chief Economist with representatives from all the State Departments, the Teachers Service Commission, SAGAs, development partners (through the Education Development Partners Coordination Group (EDPCG), Civil Society Organisations, and research institutions. The TWG was a strategic planning team, responsible for preparing the education sector plan. The involvement of these actors was through consultations during the plan preparation process and through structured discussions on drafts of the plan document. The National Treasury provided inputs on macro-economic data and information on budget assumptions and sector projections.

To enhance effectiveness and efficiency in the process, there was need to build the capacity of the personnel engaged in the education sector strategic plan. In this regard, before beginning the process, an initial training for the TWG was held in mid-2017, facilitated by the International Institute for Education and Planning (IIEP). This training focused on preparatory process, how to conduct the sector analysis and how to prepare the plan. Other stakeholders have continued to provide the required inputs through the Ministry. The policy priorities and associated programmes in this plan have come out as a result of this interaction between the stakeholders and the staff in the Ministry.

3.2 Sub-Sector Programmes and Activities

Next, we present the NESSP programmes and their associated activities, by sub-sectors. For each programme, we provide the programme title, a short description of the programme and finally, an outline of the activities to be undertaken to achieve the programme objective.

3.2.1 Governance and Accountability

Strengthening governance and enhancing institutional integrity in Kenya's education sector is a vital step towards achieving our national educational goals and objectives. One of the key findings from the ESA analysis was that Kenya's education sector is complex, comprising of various stakeholders, institutions and many players. In such a complex system, it is common to find divergent goals that are out rightly harmful to learning. The key challenge for this sector plan is to ensure that all actors are aligned towards the goal of learning by ensuring that various parts of the education system are working in coherence with one another.

It is for this reason that this sector plan begins by proposing a *Governance and Accountability Sub-Sector* with a set of programmes to deal with foreseen governance and accountability challenges. Of course each of the sub-sectors will have programmes that address sub-sector level governance and accountability challenges. The programme in this Governance and Accountability Sub-Sector seeks to strengthen governance and accountability at the sector level. The government has put in place various reforms to strengthen governance and accountability in the public service. These include:

- The Basic Education Act 2013;
- TVET Act 2013;
- University Act 2012;
- The Public Officer Ethics Act 2003 (POEA), introducing Code of Conduct and Ethics and requiring Public Officers to file annual declarations of income, assets and liabilities;
- The Anti-Corruption and Economic Crimes Act 2003, which set up the Kenya Anti-Corruption Commission;
- Public Finance Management Act (2012);
- The Public Audit Act (2015) and the Public Procurement and Assets Disposal Act 2015 was established as an autonomous Public Procurement Oversight Authority responsible for the regulation of procurement in the public sector, including procurement of security related contracts;
- Leadership and Integrity Act 2012;
- Education Sector Governance and Accountability Action Plan 2007, which facilitates greater stakeholders' participation in ensuring transparency and accountability in public resource utilisation;
- The Privatization Act 2005, which provides for a Commission to ensure transparency in the privatization of state owned enterprises, thereby strengthening accountability. The new Privatization Act sets the stage for the scaling down of the public sector, which should enhance governance and reduce rent-seeking behaviour, as well as improve the efficiency of resource use and increase competitiveness;
- Code of Conduct for teachers and civil servants, which spells out the manner in which officers are expected to conduct themselves within and without the office so as to maintain the esteem of the institutions they work for and to promote Safe Education; and

- Service charters of the Education sector – these reflect the institutions' commitment to the provision of quality service to their clientele.

A number of initiatives have been implemented to strengthen governance and accountability in the education sector. For instance, the sector has enhanced accountability on the utilization of resources in schools by anchoring oversight, risk management and controls in the Education Act through the introduction of school based audit. The Sector has also decentralised financial and procurement management to institutional level in order to allow for more community participation, efficiency and adherence to institutional priorities. Relevant training manuals, circulars and handbooks have been developed and distributed to the learning institutions. Furthermore, the Ministry Departments have set up structures at the County and Sub-County level, with clearly defined governance and accountability roles. To support the structures, capacity building has been scaled up recognising that non-teaching staff also play a key role in the governance of education institutions. To leverage on these initiatives, the following programmes are proposed.

Policy Priority 1: Efficiency and effectiveness in the delivery of education services
Goal: Enhance Efficiency and effectiveness in the delivery of education services at all levels
Policy Target (s): Align all the sub sectors towards delivery of quality education promise to learners and students

Programme 1.1: Improve Institutional Linkages and Efficiency in the Sector
The education sector in Kenya is currently managed under too many institutions. At the top, there are four State Departments and TSC. Then there are close to 30 SAGAs. Besides, the sector is also organised in a number of directorates. Devolution and decentralization in the sector has also created more institutions at the subnational levels. Such multiplicity of institutions has the potential of leading to unnecessary overlaps, confusion in mandates and suboptimal deployment of limited resources. This programme will undertake the following activities to improve institutional linkages in the whole sector.

- Review of the structure of the education sector and its Agencies, from the headquarters to the learning Institutions;
- Undertake functional analysis of implementing Agencies, directorates and departments, identifying areas of duplication and make proposals for reforms; and
- Review the existing policy and legal framework with a view to identifying overlaps and duplication and thereafter make possible recommendations.

Programme 1.2: Human Resource Management in the Education Sector
The multiplicity of institutions in the Education Sector is likely to lead to suboptimal deployment of human resources. This calls for a review of the sector human resource in terms of recruitment, preparation, hiring, staffing and professional development of the sector's core workforce. Second, the sector is undergoing key reforms including the shift to the Competency Based Curriculum and Competence Based Assessment (formative assessments) at the basic education level and a shift to Competency Based Education and Training (CBET) at the TVET level. This underscores the need to build and align the capacity of the sector's workforce, not just teachers. Other areas for capacity development include: private public

partnership, Quality Management Systems (ISO 9001 Standard), education planning and management, as well as social and environmental safeguards in institutions, among others.

This programme will be operationalised through implementation of the following activities:

- Undertake a sector-wide human resource survey/audit;
- Develop a policy on qualifications and staffing norms for technical and non-teaching staff;
- Develop a framework for human resource professional development;
- Build the capacity of staff, at the central and county level, in core aspects of education planning and management;
- Provide basic training in CBC to officers at Ministry headquarters (including QASOs); County and Sub-County[12], and learning institutions (heads of institutions);
- Build the capacity of staff in Quality Management Systems (ISO 9001 Standard) and information security management systems;
- Establish and operationalise the Kenya School of Education and Training; and

Programme 1.3: Data Management in the Education Sector

The existing data management practices in the sector do not support evidence-based, timely, reliable and correct data. Institutions within the education sector operate in silos and use different data systems that do not talk to each other, occasioning mismatch of information and data sets. Currently, there are overlapping school level data maintained by TSC, KNEC and MOE. Each of these institutions maintain separate data sets with separate school codes for the same school, causing challenges in harmonization of the data sets. Recently, the sector launched the National Education Management Information System (NEMIS) to facilitate the collection of data for policy formulation and planning at all levels of education and training. The NEMIS platform is currently being operationalised to support digital registration of learners/students. So far, primary and secondary school learners have been registered on NEMIS. NEMIS has the potential to deal with inconsistencies of Kenya's large and complex education sector that serves millions of students in about 84,000 learning institutions including reducing possible financial impropriety as the per capita free primary education and free day secondary funds will be sent to schools based on registered learners.

Going forward, the system needs to be expanded to include learners from other sub-sectors, namely pre-primary, TVET, and university. A number of challenges are, however, foreseen. They include system maintenance, system security (against risks such as hacking), operational legal and institutional framework, and technical and managerial capacity constraints, among other challenges. This programme seeks to respond to these issues, among others, through the following activities:

- Finalise the legal and policy framework governing the management of NEMIS;
- Develop a criterion for including refugees and foreign learners in the NEMIS system;
- Carry out a system assessment at the HQ, County and institutional (schools and college) levels to establish infrastructural, technical and human capacity gaps affecting effective NEMIS implementation;

[12] These include CQASOs, SCQASOs, CDEs, SCDEs and CSOs

- Provide basic training in NEMIS system management to education officials at national and decentralized offices;
- Provide basic training in NEMIS system management to heads of learning institutions;
- Provide basic training in NEMIS system management to other stakeholders in the education sector;
- Provide advanced training to the NEMIS technical team on development, security and data analysis;
- Provide adequate infrastructure at the Ministry headquarters, counties and learning institutions to support NEMIS;
- Establish county NEMIS centres with the role of building the capacity for usage of NEMIS data to facilitate planning at the county level;
- Link the TVET Management Information System (TMIS) and University Education Management Information System (UEMIS) to NEMIS; and
- Collaborate with KNQA to develop an Integrated National Learner Records Database and integrate it to NEMIS.

Programme 1.4: Strengthening Devolved and Decentralised Education Structures

Devolution of some functions to the counties from the ministry headquarters, in particular roles and mandates related to pre-primary and TVET (village polytechnics), has been characterised by a number of challenges. In the context of devolution, issues regarding separation of roles, legislation, funding, and quality standards, between counties and the national government, have not been fully unbundled and clarified. In addition, the roles and responsibilities of the education offices at the county and sub-county offices, such as CQASOs, SCQASOs, CDEs, SCDEs and CSOs, are not well defined. The reporting lines are also not well clarified. In addition, there is need to strengthen the county based education personnel to enhance service delivery at the sub-county and school levels. This programme seeks to address these challenges through the following activities:

- Undertake a feasibility study on the status of decentralization and devolution in the sector;
- Review and streamline the overall structure and mandates of the county education personnel;
- Develop performance contracts for county education personnel aimed at improving service delivery at the sub-county and school levels;
- Establish a capacity building framework and costed operational plan for the county education teams;
- Build the capacity of county and sub-county education officers in Competence Based Curriculum;
- Hold one national education conference that brings together all counties to discuss the status of education in Kenya after every two years;
- Hold annual county level education dialogues, in each county, aimed at discussing the status of education and quality of learning in the respective counties;
- Organise and showcase county achievements and innovations in education that can facilitate cross-county peer learning; and
- Organise quarterly intergovernmental (national and county level) education meetings to strengthen national and county collaborations.

Policy Priority 2: Enhance policy formulation and implementation for effective education service delivery

Goal: To develop implementable policies for education and training

Policy Target (s): Develop and review policies and legislations by 2022

Programme 2.1: Enhance the Development and Implementation of Education Policies

A number of policies will have to be developed and/or reviewed to provide the legal basis for implementation of a number of programmes proposed here. Legal and policy frameworks will also need to be developed/reviewed to ensure a seamless provision of educational services among the national, devolved and decentralized entities. The sector also faces the challenge of disseminating its policies. As a result, the sector will develop a communication strategy to deal with this problem. This programme seeks to respond to these issues, among others, through the following activities:

- Develop the following policies and regulations:
    - A comprehensive teacher education and development policy;
    - Education Policy for the Inclusion of Refugees and Asylum Seekers;
    - Review and implement Governance and Accountability Action Plan (GAAP);
    - Scheme of Service for school bursars/accounts clerk;
    - Framework for placement and establishment of Junior Secondary Education;
    - A framework for pre-primary education funding;
    - A national quality assurance framework;
    - STEM policy in education and training;
    - Education Sector Policy on disaster management;
    - Mentorship and nurturing of national values policy;
    - Risk management policy for education and training;
    - A comprehensive education and training policy;
    - Post training skills development policy; and
    - Trainer Development Policy.

- Review the following policies, legislations and regulations:
    - Career guides for schools;
    - The National Adult and Continuing Education Policy of 2010;
    - The Policy for Alternative Provision of Basic Education and Training (APBET);
    - National ICT Strategy for Education and Training 2006;
    - Mentorship, guidance and counselling policy and guidelines;
    - Guidelines and materials for learners on life skills and values education;
    - Head teachers' and Principals' manual;
    - Capitation guidelines for primary and secondary education;
    - National School Health, Security and Safety Policies;
    - Basic Education Act 2013 and its regulations;
    - University Act 2012;
    - KNEC Act 2012 and examinations regulations;
    - TVET Act 2013;
    - TSC Act 2012 and its regulations;
    - KICD Act 2013; and
    - Internships, attachment and apprenticeship policy.

Programme 2. 2: Enhance Collaborations and Linkages in Education and Training

In relation to lifelong education, the government recognises the role of partnerships in enhancing access, equity, quality and relevance. Education is a public good and hence there is need to promote collaborations, linkages and networking with development partners and other interested parties to ease the current heavy household financial and technical burden in education. Public-Private Partnership (PPP) has been adopted widely, internationally, over the last two decades to enable governments to obtain greater value for their investment in education. The challenge faced by Government is that of establishing an environment conducive for facilitating partnerships between both levels of Government, household and local communities, industry and commerce, private sector providers of educational services, development partners, NGOs, and foundations. Strengthened partnerships are likely to improve efficiency of public spending to meet the demand for education at all levels. The overall objective of this programme is to enhance collaborations and linkages in delivery of education services. This programme will entail implementation of the following activities:

- Map partners in education and training annually;
- Develop a coordination framework to create linkages with county governments, private sector and development partners;
- Develop Partnership Principles Agreement for education and training;
- Build capacity of education staff and stakeholders on Partnership Principles; and
- Develop a joint resource mobilisation strategy.

Policy Priority 3: Establish a Framework for Implementation of the NESSP 2018-2022

Goal: To establish a framework for implementation of the NESSP 2018-2022

Policy Target (s): A fully functioning multi-agency secretariat to implement NESSP 2018-2022

Programme 3.1: Establish a Framework for the Implementation of NESSP 2018-2022

This NESSP 2018-2022 presents Kenya's education policies, priorities and strategies for national education reform, and will remain a powerful tool for coordinating and mobilising resources for the education sector in the medium term. Its success will, therefore, depend on a well-established effective implementation framework. Besides, there is need to establish a monitoring and evaluation system to focus on the implementation of NESSP 2018-2022. Past sector plans have been characterised by weak monitoring and evaluation systems. To address the challenges of a weak monitoring framework, this plan will adopt a harmonised sector wide approach. For an effective framework of implementation of NESSP 2018-2022, the following activities are proposed:

- Develop and implement a framework to guide the implementation of NESSP;
- Establish a multi-agency secretariat to spearhead the implementation of NESSP; and
- Develop a monitoring and evaluation framework for NESSP.

Next, programmes related to other sub-sectors, beginning with the Pre-Primary Sub-Sector, are outlined.

3.2.2 Pre-Primary Education

The Government recognises pre-primary education as a crucial foundation stage for primary education, character formation, and lifelong learning. In collaboration with other stakeholders, the government has provided considerable investment to enhance access and improve the quality of pre-primary education services across the country. Notwithstanding the investment, the sub-sector still faces many challenges in access, equity and quality of pre-primary education. These challenges include: inadequate and inappropriate school infrastructure; inadequate and inappropriate learning resources, teaching, as well as playing materials; inadequate teachers; poor remuneration levels; weak supervision and quality assurance structures; and inadequate nutrition and health services. In line with the constitutional provisions, delivery of pre-primary education is the responsibility of County Governments while the National Government remains in charge of policies and standards assurance. The following sub sections provide the range of policy priorities, programmes and activities that will be implemented to address the challenges. With these challenges, majority of learners are not acquiring the expected competencies and may transit to primary without the requisite school readiness competencies.

Policy Priority 1: Access and participation in inclusive and quality pre-primary education

Goal: Improve access and participation rate in competence based learning for children aged between 4 to 5 years.

Policy Target(s): Increase Pre-primary Gross Enrolment Rate (GER) from 76.6% to 83% by 2022; Ensure 100% transition from pre-primary to primary education across the country

Programme 1.1: Universal Pre-Primary Education

ESA analysis shows that over the last five years, the pre-primary sub-sector witnessed considerable increase in both the number of ECDE centres and enrolments. This increase is partly due to accelerated investment in new ECDE centres by County Governments following the devolution of pre-primary education functions. Despite this**,** over 25 percent of pre-school going children are not enrolled in schools yet. Given 34% of families live under the poverty line and with families taking the bulk of financing pre-primary, cost remains one of the barriers to accessing pre-primary education, especially for children from poor households. Since public education is free, enhancing access and equity at the pre-primary level requires mainstreaming pre-primary education into the primary school system. Furthermore, long distances to existing pre-primary schools in some parts of the country hinder access. In addition, most of the public pre-primary schools do not have adequate and age appropriate facilities and instructional materials that support stimulation and learning for children. This programme seeks to improve access and participation rate at pre-primary through the following activities.

- Develop a framework for pre-primary education funding;
- Establish a targeted fund for children from poor and vulnerable households;
- Undertake a mapping exercise of existing pre-primary schools;
- Construct additional pre-primary schools in areas where they are inadequate, especially in vulnerable and disadvantaged areas;

- Improve existing public pre-primary schools in line with universal design principles by 2022;
- Equip public pre-primary schools to ensure they meet standards;
- Develop a framework for integrating madrasa and duksi into formal education in targeted counties;
- Sensitise stakeholders on importance of pre-primary in areas with low enrolment across all counties.

Programme 1.2: Improve Health, Nutrition and Protection of Pre-primary Education Learners

Health and nutrition status is a significant determinant of a child's holistic development and learning ability. Pre-primary Education programmes provide opportunities for the provision of specific health and nutrition interventions such as growth monitoring, vaccinations, deworming, vitamin supplementation, referrals for treatment, as well as screening and better health seeking behaviour, among others. Furthermore, availability of clean water, promotion of hand washing and proper sanitation at the pre-primary schools positively impact on the health of a child, deterring waterborne diseases and infections. Pre-primary education also provides a good opportunity for instilling important life skills at the formative age. This programme, therefore, aims at mainstreaming health, nutrition and child protection interventions in pre-primary education through the following activities:

- Establish feeding programmes in pre-primary schools;
- Build capacity of teachers to facilitate de-worming and administration of vitamin supplements;
- Build water, sanitation and hygiene facilities in pre-primary schools;
- Promote low cost hygiene promotion activities to reduce illness related absenteeism;
- Collect child health related data and use in decision making;
- Establish programmes to enhance critical life skills and executive functioning skills;
- Strengthen collaboration with other sectors and ministries, including the Ministry of Health.

Policy Priority 2: Enhance quality and relevance of pre-primary education

Goal: Enhance quality and relevance of pre-primary education

Policy Target (s): Ensure 100% of pre-primary schools deliver Competence Based Curriculum by 2020

Programme 2.1: Implement the Competency Based Curriculum for Pre-Primary education

As noted in ESA, the nature of care and learning in pre-primary schools is not well developed to respond even to the needs of the children aged 3-5 who attend those schools. Teaching is focused on literacy and numeracy skills meant for early primary education – partly due to pressure from parents, who view ECD as early schooling. Unfortunately, parents' understanding of ECD is also largely focused on children's early acquisition of learning skills. Child-centred pedagogical methods, which would provide a better basis for learning, exist in only a few private centres in urban areas. This programme seeks to improve the

quality of teaching and care in pre-primary schools to respond to the needs of the 3-5 aged children through the following activities:

- Finalise the development of the Competence Based Curriculum for pre-primary education, and implementation framework;
- Train pre-primary school teachers, county ECD officers and other curriculum implementers on Competence Based Curriculum;
- Develop Competence Based Curriculum support materials for pre-primary education;
- Adapt the Competence Based Curriculum instructional materials for inclusivity;
- Develop and implement a capacity building programme for pre-primary and quality assurance officers; and
- Counties to recruit adequate and qualified pre-primary instructional support officers.

Programme 2.2: Improve assessment of learning in pre- primary education

Pre-primary assessment is intended to provide feedback to ensure that learners at that level are ready for primary school instructions. At pre-primary level, assessment results will inform planning experiences to enhance the development of skills and the acquisition of concepts by individual learners. The programme will be operationalised through the following activities:

- Develop a competency-based assessment tool for pre-primary education;
- Build the capacity of pre-primary school teachers on assessment of CBC; and
- Implement assessment and supervision programmes through integration of ICT.

Programme 2.3: Strengthen the Capacity of the ECDE Workforce

Adequate and qualified human resource is key in the implementation of quality curriculum as well as provision of child care services. Kenya continues to face a challenge of provision of skilled personnel to provide adequate care and stimulation to pre-primary learners. Though there has been tremendous improvement in teacher training levels over the years manifested in increased teacher training levels of 9.8 per cent from 83,814 (13,854 male and 69,960 female) in 2013 to 97,717 (15,366 male and 82,351 female) in 2016, lack of a scheme of service for pre-primary teachers and other personnel in the sub sector has resulted in poor remuneration, low staff morale and high attrition of trained teachers. In addition, there exists weak supervision and quality assurance structures to support provision of quality services to children and families. To address the above challenges, the following activities will be implemented:

- Finalise a scheme of service for pre-primary teachers and caregivers;
- Recruit additional pre-primary teachers and caregivers;
- Mainstream a pre-primary teacher training programme in teacher training colleges;
- Ensure there is a Code of Conduct for all pre-primary teachers; and
- Develop an in-Service professional development programme for pre-primary teachers.

Programme 2.4: Improve pre- primary education standards and quality assurance

The objective of this programme is to ensure quality pre-primary services that are relevant in equipping children with age appropriate competencies for optimal developmental outcomes. Currently, there is inadequate monitoring of standards and quality of pre-primary institutions.

This program is aimed at strengthening quality assurance at the pre- primary education level and will be operationalised through the following activities:

- Establish institutional based quality assurance in pre- primary schools;
- Build capacity of Quality Assurance and Standards Officers and county pre-primary staff; and
- Develop pre-primary education guidelines for quality standards.
- Review the National Pre-Primary Education Policy

Policy Priority 3:

Enhance governance and accountability in pre-primary education

Goal: Improve governance and accountability in management of pre-primary education services

Policy Target (s): Established multi-sectoral approach in governance, coordination, linkages and collaboration with pre-primary service providers by 2022

Programme 3.1: Develop multi-sectoral collaborations and linkages in the management of pre-primary education

There are various stakeholders participating in the provision of pre-primary education services including parents, communities, the national government as well as county governments, the private sector, and Faith Based Organisations (FBOs). Given the multidisciplinary players in the provision of pre-primary education services, there is need to provide a clear collaborative framework that identifies each stakeholder's roles. The programme will be operationalised through the following activities:

- Develop a multi-sectoral coordination framework for pre-primary education service providers that will among others create synergies between the national government, counties and service providers for inclusive and holistic provision of pre-primary education;
- Finalise the integrated pre-primary education policy and guidelines;
- Establish a harmonized governance structure for pre-primary and primary schools;
- Build capacity of pre-primary education centre managers on governance issues; and
- Develop a framework for parental engagement and participation.

3.2.3 Primary Education

Policy Priority 1: Access and Participation in Primary Education.

Goal: To improve access and participation in primary education.

Policy Target (s): To increase the Net Enrolment Rate (NER) from current 91.2% to 93.1% in primary education by the year 2022.

Programme 1.1:Universal Primary Education

Primary Net Enrolment Rate (NER) rose from less than 60% during the pre-2003 period to about 91.2% percent in 2017. Despite this, a good proportion of children are not enrolled or have dropped out of school due to factors such as forced repetition; costs, such as school uniform; poverty; cultural practices that are gender biased; and poor and unsafe learning environments, among others. The programme seeks to initiate and improve interventions to increase NER through the following activities:

- Develop a funding framework for financing capital and recurrent costs in public primary education;
- Undertake a National Infrastructure Survey for primary schools;
- Enhance primary school infrastructure with additional facilities based on the infrastructure survey; and
- Sensitise stakeholders and communities on the role and value of education in development.

Policy Priority 2: Equity and inclusivity in primary education
Goal: To enhance equity, inclusivity and safety in primary education across the country
Policy Target(s):

i. Increase the share of SNE enrolment in primary education from 1% to 5%;
ii. Increase primary enrolment rates for children from rural, poor, as well as conflict prone and vulnerable contexts; and
iii. Reduce gender disparities in access and completion of primary education.

Programme 2.1: Reduce disparities in access and retention to primary education.
ESA shows that children with special needs; those from rural areas; from urban informal settlements; from ASAL areas; from conflict-prone regions, including those in refugee camps; and those from poor households, are less likely to enrol and stay in primary schools. This is associated with factors such as direct costs (school fees and school feeding); indirect costs of schooling; long distances covered to schools; lack of child friendly and gender sensitive facilities in schools; lack of food and water at home; bad cultural practices; and insecurity, among others. Gender disparity exists, with low enrolment in some regions, especially marginalized regions. Girls do not have same opportunities in accessing education and training as their male counterparts due to cultural and religious practices in some counties, especially those in ASAL areas. This programme seeks to reduce disparities in access to primary education through the following activities:

- Develop a standard design for disability friendly infrastructure in primary schools;
- Rehabilitate and upgrade existing infrastructure facilities in all public primary schools for assistive/adaptive technology for PLWD, to enhance their integration;
- Undertake a survey to identify children with disabilities;
- Provide school meals to children from marginalized and vulnerable communities;
- Establish more low-cost boarding schools in all regions, including ASAL and marginalized communities;
- Provide Mobile Learning Kits to mobile schools in nomadic communities;
- Undertake a mapping exercise for "informal" learning centres in urban slums;
- Develop a framework to integrate Madrassas and Duksi classes into public primary schools.

Policy Priority 3: Quality and Relevance in Primary Education
Goal: To enhance quality and relevance in primary education
Policy Target (s): Improve learning outcomes in primary education

Programme 3.1: Curriculum Reforms in Primary Education
The current curriculum, offered under the 8-4-4- system, has been widely criticised for being heavily loaded in terms of content and being too exam oriented, putting undue pressure on

learners. The Competency Based Approach aims at nurturing every learner's potential by ensuring all learners acquire the core competencies. It places emphasis on formative rather than summative assessments. Reform of the curriculum will ensure that the skills taught in educational institutions match the requirements of the industry. This will be done through the following activities:

- Develop CBC and support materials for primary;
- Build the capacity of primary school teachers in CBC; and
- Adapt CBC and curriculum support materials for SNE.

Programme 3.2: Assessment Reforms in Primary Education

The current system at primary school level is based on summative evaluation, which does not adequately measure skills and competencies acquired by learners. The CBC has put more emphasis on formative assessment, where learners will be continuously assessed but sit for end of cycle examination at Grade 6 and Form 3. There is, therefore, need to establish a framework for Competency Based Assessment (CBA) to ensure a balance of formative and summative assessment coupled with building the capacity of teachers and education officers on CBA. The current mode of assessment will, however, be administered alongside these reforms within the plan period, with various reforms being implemented to safeguard examinations. This shall be accomplished through the following activities:

- Enhance the management of national examinations in primary education;
- Develop a Competency Based Assessment (CBA) Framework for basic education;
- Build the capacity of technical officers on conceptualization, design and implementation of CBA for Primary Education;
- Pilot the CBA at Grade 3 and Grade 6;[13]
- Build the capacity of teachers and Education Officers on CBA in primary education;
- Establish a web-based portal to facilitate access to formative assessment at school level;
- Establish and maintain a secure item bank system for formative and summative assessment; and
- Conduct annual Kenya Early Years Assessment (KEYA) at Grade 3 and Primary School Education Assessment (PSEA) at Grade 6.

Programme 3.3: Integrate ICT in teaching, learning and assessment in primary education

The government has continually invested in ICT integration in education to enhance access, quality and equity in education. There are various initiatives in ICT integration in education by both the government and other stakeholders. Key among these is the Digital Literacy Programme (DLP), which targets all public primary schools. In this programme, each school is provided with digital resources for effective curriculum delivery. It is currently facing a number of challenges. For instance, the use of tablets has been hampered by unreliable electricity supply, unreliable and/or lack of internet connection, lack of ICT skills among teachers, unwillingness of teachers to integrate ICT in teaching and learning, and sustainability of the programme. Going forward, there is need to deal with these challenges and scale up the DLP to include upper classes. This leverages on the current Digital Learning to enhance the use of ICT in teaching and learning in primary schools. To integrate ICT in

[13] Grade 6 pilot will be determined by availability of curriculum designs and the implementation plans

teaching, learning and assessment in primary education, the following activities will be undertaken:

- Undertake a digital literacy evaluation survey in all public primary schools;
- Construct computer laboratory in public primary schools;
- Equip all public primary schools with hardware and software infrastructure for ICT education;
- Build capacity of ICT champion teachers in integration of ICT in teaching, learning, assessment and management;
- Develop digital content for all subjects of the CBC for primary schools;
- Build capacity of head teachers for skills in ICT integration in teaching, learning and management; and
- Establish an ICT integration in education support system at the national, county, sub-county and institutional level.

Programme 3.4: Enhance early talent identification under competency based primary education

The objective of this programme is to enhance efficiency in learning of science subjects in primary education in the country. It is also to ensure and sustain high quality production and distribution of specialised science equipment, learning materials and teaching aids for all learners. The need for hands on activities cannot be gainsaid, with the roll out of the competency based curriculum (CBC) in the country and promotion of Science, Technology, Engineering and Mathematics (STEM) pathway in both old and new curricula. The activities to accomplish these include:

- Develop science kits for primary schools;
- Build capacity of primary school teachers in Mathematics, Science, English and Kiswahili subjects on innovative and learner centred approaches;
- Establish workshops and general laboratories in primary schools to encourage hands on learning;
- Enhance the TUSOME /EGMA Model to promote literacy and numeracy in primary education; and
- Promote early identification of talents along arts and sports, social sciences and STEM.

Policy Priority 4: Governance and Accountability.

Goal: Improve school level governance and accountability in primary schools

Policy Target(s):

i. Enhance capacity of school management in leadership

Programme 4.1: Improve School Level Governance and Accountability

Over the last five years, the ministry undertook a number of initiatives aimed at improving Public Financial Management in the Sector. Financial Management trainings have been conducted for the head teachers and FM manuals supplied to some schools. Regular school audits have been carried out in some schools. There is scope to increase coverage for both PFM training for heads of institution and school audits. However, in most schools, BOM committees, which are critical in providing oversight, are not constituted as per the Basic Education Act of 2013. Furthermore, there have been cases of Board of Management implementing ambitious development projects without adequate planning and financing, which leads to incomplete and stalled projects. Therefore, the programme aims at ensuring

that resources deployed in the sector are aligned to learning outcomes and are prudently managed. This programme seeks to improve the primary sub-sector school level governance and accountability through the following activities:

- Build capacity of head teachers and BOMs in public finance management;
- Review and disseminate Management and Procurement Handbooks to primary schools;
- Undertake Public Expenditure Tracking Survey (PETS) and Public Expenditure Reviews (PER);
- Develop and implement a scheme of service for non-teaching staff in public primary schools;
- Undertake a social mobilisation and advocacy for parental involvement in primary education; and
- Develop and implement an operational manual for minimal essential package for utilisation of the learner capitation grants.
- Undertake a study to assess the effectiveness of learner capitation grants and develop a finance model for primary education.
- Build school Managers' capacity on financial management, risk management and controls

Policy Priority 5: Social Competence and National Values Systems in Education and Training

Goal: To inculcate value-based education system in primary education

Policy Target(s): To enhance national cohesion and national values through literacy by 2022

Programme 5.1: Enhance National Volunteer Assistance Programme

Greatness United (G-United) is a National Volunteer Assistance Programme that recruits and trains volunteer graduates on basic literacy skills before posting them to primary schools in counties other than their home county, with the aim of promoting national cohesion, enhancing learning outcomes and providing personal professional growth to the youths as they interact with the community they are living in during the one-year engagement. The volunteers provide remedial support to identified learners lagging behind in literacy skills in Grade 2 and Grade 3. The programme seeks to expand this initiative from the current coverage of 20 counties to all the 47 counties. This will be in 50 schools for each county, selected on the basis of the latest KCPE results analysis of each county. This programme involves the following activities:

- Train TOT and review workshops of cohorts at the end of volunteerism;
- Train volunteers on basic literacy skills;
- Deploy VGAs to all counties for volunteer programme; and
- Carry out process monitoring to ensure implementation of VGA activities.

3.2.4 Secondary Education

Policy Priority 1: Increase Access and participation to Secondary Education

Goal: Improve participation in secondary education

Policy Target (s): Increase Secondary Gross Enrolment Rate (GER) from 70.3% to 83% by 2022; Ensure 100% transition from primary to secondary education.

Programme 1.1: Universal Secondary Education.

The Government of Kenya implements the Free Day Secondary Education (FDSE) initiative, where subsidies are provided to all secondary school students in such schools. This has partly contributed to increased enrolment from 1.9 million in 2012 to 2.8 million in 2017. Despite

these efforts, Gross Enrolment Rate (GER) and Net Enrolment Rate (NER) are low even though the GER gained by 16% while the NER gained by 14% between 2013 and 2018. The GER was estimated at 70.3% and NER was estimated at 53.2%, respectively, in 2018. Hence, about 53% of eligible children attend secondary school against the world's average of 65%[14] and close to 47% of the eligible children do not attend secondary schools. This is attributed to costs; long distances covered to schools; and inadequate facilities, which hinder access to secondary schooling, among other causes. To ensure that all eligible learners are enrolled and retained in public secondary schools, the top priority is meeting the full direct cost of day secondary education. Besides undertaking a differentiated unit cost for secondary education that accounts for among others, inflation, regional disparities and heterogeneities across schools, this requires schools to have adequate child friendly facilities. This programme seeks to increase the number of eligible boys and girls transiting into and completing free secondary education. The programme will be operationalised through the following activities:

- Undertake a national survey on secondary schools' infrastructure needs;
- Expand single streamed secondary schools in high potential areas to a minimum of three streams, on needs basis;
- Establish additional secondary schools in existing urban primary school sites with dense catchment;
- Construct additional classrooms, libraries, WASH facilities and science laboratories in existing schools;
- Construct tuition blocks in extra county boarding secondary schools to accommodate day scholars;
- Provide infrastructure and equipment to cater for different pathways under the restructured education system;
- Provide instructional materials and operational subsidy for all students in secondary schools;
- Review the differentiated unit cost for secondary education, including guidelines on school uniforms and meals;
- Sensitise stakeholders and communities on the benefits of secondary education; and
- Review and implement guidelines for form one selection, to ensure inclusivity.

Policy Priority 2: Equity and Inclusivity in Secondary Education

Goal: Reduce disparities in access to secondary education

Policy Target(s): Reduce disparities based on gender, disability, location (rural/urban) and region in access to secondary education by 2022

Programme 2.1: Reducing disparities in secondary education

Generally, access is low among children with special needs and those from rural areas; urban informal settlements; ASAL and less endowed areas; conflict-prone regions, including refugee camps, as well as those from poor households. Secondary education completion in North Eastern and Coast regions is about 3 times less than that in Central and Nairobi. In the North Eastern and Coast regions, more than 7 out of 10 do not go up to the end of secondary education. Factors contributing to low access among these children and thus increasing disparities are: poverty, direct costs (uniforms, transport among others), poor health, negative

[14] Data for "World" and "Africa" are from the UNESCO Institute of Statistics (UIS), http://data.uis.unesco.org/;

cultural practices, insecurity, long distances covered to schools, and inadequate gender and child friendly facilities that mainly disadvantage girls and children with special needs, among others. As it is the case for primary level, enrolments among girls is higher than boys (at the macro level and in some regions). However, girls remain disadvantaged in some regions such as ASAL areas. This programme seeks to enhance secondary retention by addressing the disparity issues through the following activities:

- Develop a framework to guide education interventions in vulnerable areas;
- Establish a fund to support learners from vulnerable backgrounds;
- Provide medical insurance cover to students in all public secondary schools;
- Sensitise communities on cultural attitudes hindering access to secondary education, particularly for girls;
- Undertake community sensitisation on prevention of child marriage and;
- Adapt existing infrastructure in secondary schools to facilitate inclusive education.

Policy Priority 3: Improve the quality and relevance of secondary education
Goal: Improve learning outcomes in secondary schools
Policy Target(s): Improve learning outcomes through competence based education

Programme 3.1: Reform Secondary Education Curriculum
Kenya is in the process of reforming the education curriculum to structure it within skills and competencies based framework. To increase quality and relevance to the labour market and national developmental needs, this curriculum will place emphasis on competencies achieved and put a greater focus on Science, Technology, Engineering and Mathematics. The CBC marks a shift from the current curriculum that places emphasis on grade or marks obtained rather than skills acquired. The CBC aims at nurturing every student's potential by ensuring that they acquire core competencies. At secondary education level, this curriculum will be in two stages, that of junior and senior secondary. Junior secondary will offer an opportunity for learners to identify areas of interest and growth for them to join one of the four streams of general education, talent, technical and vocational provided at senior secondary. The first cohort of students under the reformed curriculum is expected to be in secondary school in the year 2022 hence the need to develop the required curricula for this cohort of learners. The programme will be operationalised through the following activities:

- Develop Competency Based curriculum (CBC) and curriculum support materials for lower secondary education;
- Develop and adapt CBC and curriculum support materials for SNE;
- Develop a framework for rolling out the CBC and providing transition for the proposed structure; and
- Build the capacity of secondary school teachers on CBC.

Programme 3.2: Reform learning assessment practices in secondary education
The largely summative evaluation in secondary education does not adequately measure skills and competencies acquired by learners. A system of assessment that balances the formative and summative assessment will be developed and implemented, in which learners are to be assessed at Grade 9 and Grade 12. There is need to establish a framework for Competency Based Assessment (CBA) and build the capacity of teachers in CBA. Kenya will also need to participate in international assessments to gauge skills acquisition of Kenyan children, with

those from other countries. Development of the new modes of assessment will, however, be conducted alongside reforms in the current mode of assessment to ensure integrity of examinations. This plan proposes to reform learning assessment practices in Secondary Education through the following activities:

- Enhance the management of national examinations in secondary education;
- Improve the system for evaluating school-based projects in secondary education;
- Review the Competency Based Assessment (CBA) Framework for basic education;
- Build capacity of technical officers at KNEC on conceptualization, design and implementation of CBA for secondary education;
- Build capacity of teachers and education officers on CBA in secondary education;
- Establish a web-based portal to facilitate access to formative assessment at secondary school level;
- Establish and maintain a secure item bank system for summative assessment in secondary education;
- Develop and implement the framework for participation in the Programme for International Students Assessment for Development (PISA-D); and
- Develop and implement the framework for participation in the Trends in International Mathematics and Science Study (TIMSS).

Programme 3.3: Provision of Teaching and learning resources in secondary schools

Currently, public schools have varying resources for instruction and learning. Laboratory equipment especially in ASAL, including refugee camps, and poverty-stricken rural and urban slum areas are inadequate. Consequently, some schools only offer theory lessons, due to inadequate equipment and other teaching and learning resources. This programme seeks to improve the quality of teaching and learning by focusing on adequacy of equipment, materials and other resources. The activities to be implemented under this programme include:

- Review and disseminate science kits manuals to secondary schools;
- Provide laboratory equipment to secondary schools; and
- Provide textbooks and instructional materials to secondary schools.

Programme 3.4: ICT Integration in Secondary Schools

Information and Communication Technology is one of the main drivers of a knowledge-based economy. The government has invested in ICT integration in education to enhance access, quality and equity in education. There are various initiatives in ICT integration in education by both the government and other stakeholders. Key among these is the Computer for Schools Programme, which has equipped over 3,000 public secondary schools. In this programme, each school is provided with ICT learning resources for effective curriculum delivery. However, most secondary schools lack adequate ICT learning resources and guidelines for ICT Integration.

Whereas some schools have personal computers (PC), laptops, tablets, smart boards and projector(s), the use of ICT in teaching and learning remains poor across schools. Internet connectivity is an important component in ICT integration in teaching and learning since it facilitates access to content, communication and collaboration among educators and learners. However, connectivity remains a challenge across a majority of secondary schools. Another

thing is that effective ICT integration requires key stakeholders to have the requisite knowledge, skills and attitude. However, a majority of teachers have negative attitude and low skills level in ICT integration. There is need to build the capacity of all stakeholders for effective and sustainable ICT integration in teaching and learning. Also, to ensure evidence based decision making on ICT integration, a formal and standardised mechanism for monitoring, evaluating and reporting is necessary. This programme seeks to enhance the use of ICT in teaching and learning in secondary schools through the following activities:

- Provide ICT infrastructure in secondary schools (electricity, internet and ICT equipment);
- Build capacity of secondary school teachers and management on effective use of ICT in teaching, learning, assessment and management;
- Facilitate the development and dissemination of e-content for secondary education;
- Develop a monitoring and evaluation framework for assessing the impact of ICT integration in teaching and learning; and
- Establish an ICT integration in education support system for secondary schools at the national, county, sub-county and institutional level.

Programme 3.5: Enhance STEM, Sports and Talent in Secondary Education

The programme seeks to develop the capacity of secondary schools to enhance provision of STEM, sports and other talent oriented education, which are the key pathways to senior secondary. Students will experience more hands-on, active learning in order to acquire more practical skills that can form a good foundation for developing interest and skills for technical and vocational fields, as well as liberal arts, sports and other talents. The programme will emphasise on creativity and construction in doing and making things. This will enhance the quality of STEM, and talents education and make attractive to many students especially relevant technical, vocational, sports, liberal arts and other talents. This will be done through the following:

- Establish a model STEM, as well as a sports and talent secondary school in every county;
- Develop guidelines on identification, placement and development of gifted and talented students; and
- Build capacity of teachers to implement STEM, as well as sports and talents in secondary schools.

Policy Priority 4: Governance and Accountability in Secondary Education

Goal: Improve school level governance and accountability in secondary schools

Policy Target(s): Enhance capacity of school management in leadership

Programme 4.1: Improve School Level Management

An efficient and effective secondary education means that all actors are aligned towards the goal of students learning. However, some stakeholders have divergent goals that are out rightly harmful to student learning. For example, ineffective school leadership hampers the performance and responsiveness of secondary education. This is because secondary school managers must effectively manage their budgets despite their inadequacies in applying the principles of Public Finance Management (PFM). Hence, secondary schools continue to have accountability related challenges such as staff absence and inability of funds to reach the intended recipients. There is need for a mechanism that will help focus direction, cultivate collaborative cultures, deepen learning, and secure accountability in secondary education.

The programme seeks to strengthen governance and accountability in secondary schools through effective management of school resources to achieve higher outcomes. The following activities will be implemented towards improving school governance and accountability:

- Review guidelines and regulations on procurement and financial management for secondary schools;
- Build capacity of school heads and Boards of Management (BOMs) on Public Finance Management (PFM) and in emerging issues like environmental management;
- Undertake public expenditure tracking in secondary schools;
- Develop a policy on qualifications and staffing norms for non-teaching staff in secondary schools; and
- Develop a non-teaching staff establishment and structure in secondary schools (security, financial management, human resource management, clerks and technicians).
- Build school Managers' capacity on financial management, risk management and controls
- Conduct audits for all Primary Schools

3.2.5 Adult and Continuing Education

The Government recognises the important role played by Adult and Continuing Education in catering for the needs of out-of-school children, youth and adults by providing them with functional knowledge and work-oriented skills to empower them as individuals and communities for transformation and effective participation in national development. Adult and Continuing Education therefore forms an alternative pathway with tailored programmes that meet educational needs of out-of-school children, youth and adults who for whatever reasons missed out on formal education.

Despite the Government's commitment to the programme evidenced through various education policy documents, the programme is constrained by: low attendance; low awareness of literacy programmes; understaffing inadequate teaching/learning materials; lack of regular in-service trainings for instructors; poor reading culture coupled with idleness; lack of coordination among providers of ACE; lack of political goodwill; lack of personnel to handle non-formal education for out of school youth and adults; out dated curriculum which does not conform to the changing needs of the learners; lack of qualified personnel to manage ACE programmes; lack of access to ACE among persons with special needs and; lack of reliable data necessary for planning purposes and development of ACE. The following programmes will endeavour to address these challenges:

Policy Priority 1: Access and Participation in ACE
Goal: Increase access and retention in ACE programmes
Target(s): Increase enrolment in ACE programmes by 10 percent

Programme 1.1: Expand Learning Opportunities in ACE

The objective of this programme is to increase learning opportunities for adult learners at all levels in ACE. The learning levels entail basic literacy, continuing education and community empowerment. The programme will improve the learning environment and address the inadequacy of the learning centres. The programme will be operationalised through the following activities:

- Establish 300 additional learning centres;
- Rehabilitate 300 Community Learning Resource Centres (CLRCs);
- Equip 2,642 (50%) of the ACE institutions with facilities for supporting adult learners with disabilities;
- Upgrade the 5 MDTIs to adult education teachers training institutes;
- Establish 8 model ACE secondary boarding schools;
- Establish linkages between ACE programmes and TVET; and
- Develop a framework for capitation for ACE programmes.

Policy Priority 2: Quality and Relevance of ACE Programme
Goal: Improve quality and relevance of ACE programmes
Target(s): Provide quality assurance and standards of learning and relevance in ACE

Programme 2.1: Sustainable Functional Literacy
While adult literacy rates are high in Kenya, there is low functional literacy among adults who pursue basic literacy programmes. This is attributed to the nature of the curriculum that is implemented in the ACE programmes and lack of training for adult education instructors. The objectives of this programme are to rebrand ACE programmes, address the gaps in the existing curriculum and support instructors to deliver quality education services. The following activities will be implemented in operationalization of this programme:
- Review ACE curriculum and support materials to integrate community education empowerment and development programmes;
- Build capacity of ACE instructors through in-service training;
- Recruit and deploy additional adult education instructors;
- Develop a quality assurance framework for ACE programmes; and
- Review curriculum and training materials for ACE instructors (teacher education).

Programme 2.2: Accelerated Curricula for ACE Learners
Adult and Continuing Education applies a different approach from the regular formal curriculum. The needs of adult learners are unique and different from those of children. It is therefore important to recognise that adult learners require an accelerated and tailor made curricula specific to their learning needs. The curricula will provide equivalences and linkages in terms of complexity and values but not in content with the formal curriculum for accreditation purposes. This provides the ACE learners with the needed opportunity to link with the formal system and vice versa if need be. The following activities are considered important to achieve this goal:
- Development of ACE primary accelerated curriculum;
- Development of ACE primary accelerated curriculum support materials;
- Build capacity for the ACE primary instructors;
- Develop the qualification framework for ACE;
- Develop framework for rolling out the ACE accelerated curriculum;
- Development of ACE secondary accelerated curriculum;
- Development of ACE secondary accelerated curriculum support materials; and
- Build capacity for the ACE secondary instructors.

Programme 2.3: Integrate ICT in Teaching, Learning and Assessment in ACE

Adult and continuing education is considered important for national development. The prime objective of integrating ICT in ACE is to provide quality education that prepares learners and trainees to competitively thrive within a highly integrated, technologically-oriented and information-based economy. It is the government's aspiration that through the integration of ICT in education and training; the culture and practice of traditional memory-based learning will be transformed to education that stimulates thinking and creativity necessary to meet the challenges of the 21st Century across all levels. Currently, little information is available on utilization of ICTs in ACE. To Integrate ICT in teaching, learning and assessment in ACE, the following activities will be undertaken:

- Conduct a baseline survey on the current status of infrastructure across all levels of learning in ACE;
- Conduct needs assessment to identify the gaps in integration of ICT in ACE curricula;
- Continually train ACE curriculum instructors and trainers on ICT integration;
- Integrate ICT in ACE curriculum design and delivery;
- Facilitate the acquisition of ICT resources across all levels in ACE;
- Promote the use of e-learning as a mode of delivery of ACE programmes; and
- Develop a monitoring and evaluation framework for assessing the impact of ICT integration in teaching and learning in ACE.

Policy Priority 3: Governance and Accountability in ACE Institutions

Goal: Improve governance and accountability in ACE programmes

Target(s): Enhance capacity of ACE institutions management and BoMs

Programme 3.1: Strengthen ACE Management Structures

Although ACE institutions have some degree of established management and leadership structures, a lot still needs to be done to enhance the capacity of those entrusted with the advisory and oversight duty of the programme. The programme seeks to strengthen governance and accountability in ACE institutions in order to improve effectiveness and efficiency of the programme. The following activities will be implemented towards improving governance and accountability in the ACE institutions:

- Build capacity of managers of ACE institutions in public finance management, resource mobilisation, institutional leadership and performance management;
- Undertake a Kenya Adult Literacy Survey by 2022;
- Establish multi-sectoral County Adult Education Advisory Committees; and
- Revive and train the Special Board of Adult and Continuing Education (SBACE).

Programme 3.2: Advocacy and Publicity of ACE Programmes

Adult education in Kenya is associated with stigma as well as a general lack of information about what ACE entails. The programme seeks to engage and motivate a wide range of partners, stakeholders and the community to empower them and to raise awareness on the importance of participating in advancement of ACE. To support the advocacy, the programmes will carry out systematic collection, processing, maintenance and dissemination of data to support decision making, planning, monitoring and management in the ACE sub-sector. The following activities will be critical in achieving the goal of this programme:

- Review and harmonize ACE and Alternative Provision of Basic Education and Training (APBET) policies;
- Conduct community sensitization on adult and functional literacy, with particular attention to adolescent girls;
- Link community outreach efforts to prevent and reduce child marriage; and
- Develop a resource mobilisation strategy for ACE.

3.2.6 Inclusive Education for Learners and Trainees with Disabilities at Basic Education

Policy Priority 1: Access and Participation of Learners and Trainees with Special Needs and Disabilities at Basic Education

Goal: Enhance the provision of inclusive education and training for learners and trainees with disabilities

Target(s): Increase access and participation rate of learners and trainees with special needs and disabilities in primary and secondary by 2022

Programme 1.1: Progressive Transition to Inclusive Basic Education

The Education sector policy for learners and trainees with disabilities recognises the need for Kenya to move towards inclusive education, instead of segregated education. In this programme, measures will be put in place to transition towards progressive full realization of inclusive education expeditiously as we also recognise the vital role of other approaches such as special schools, special units and home-based education in providing education and training specifically for learners and trainees with severe disabilities. Inclusion will be the overarching principle in advocating for the right of every learner with a disability to be enrolled in a regular classroom on an equal basis with others.

To achieve the above, special and integrated schools will be progressively transformed to Inclusive Education Resource Centres (IERC) supporting inclusive education in regular schools while providing inclusive education themselves. Moreover, teacher education programmes will be reformed to reflect inclusive education approaches and strategies. Although the government has intensified investment to provide IE, most learning facilities are yet to fully adapt and meet the needs of learners with special needs and disabilities.

This programme will therefore support and strengthen infrastructure, curriculum and personnel among others in existing schools to accommodate learners with special needs and disabilities. The activities to be implemented under this programme include:

- Upgrade infrastructure, equip and staff regular schools, special schools, special units and integrated programmes (334 regular schools, 290 special primary schools, 470 special units, 47 integrated programmes, 35 special secondary schools, 78 integrated secondary schools) to offer inclusive education and serve as IERCs;
- Upgrade and equip a workshop at KISE for production of assistive devices, technologies and materials;
- Conduct needs assessment to establish specialised learning resources, assistive devices and technologies required to support inclusive education;
- Provide specialised learning resources, assistive devices and technology to learners with special needs and disability;

- Provide instructional materials to 334 inclusive regular schools;
- Establish, equip and staff a National Academy for gifted and talented children;
- Adapt and transcribe print materials for learners with special needs;
- Develop a differentiated unit cost for learners and trainees with special needs and disabilities to inform planning and financing of inclusive education; and
- Develop guidelines and curriculum for provision of home based education and support its implementation.

Programme 1.2: Functional Assessment and Early Intervention Services in Education and Training

According to a recent MOE – KISE survey report (2017), the challenges facing assessment of learners with special needs including understaffing, inadequate skills, poor infrastructure and equipment are a result of the poor capacity and ineffectiveness of EARCs. In NASMLA class 3 study, 29.9 percent of the teachers reported that Education Assessment and Resource Centres (EARCs) were more than 10 Kilometres from their schools while 14.1 percent of the teachers reported that such Centres did not exist in their zones. This programme will enhance capacities of EARCs to carry out their essential support services in order to promote early identification, assessment and appropriate intervention to access education and other essential services. This will be achieved through the following activities:

- Conduct needs assessment to determine the status and recommend optimal numbers and capacities for EARCs;
- Develop standard procedures and guidelines for functional assessment;
- Review the functional assessment tool used by EARCs;
- Build capacity of 2000 pre-primary teachers, 9400 primary teachers, 100 trainers and 380 assessment officers on screening and early interventions for learners with disabilities;
- Establish a national referral psycho education and placement centre at Kenya Institute of Special Education (KISE);
- Establish an educational rehabilitation and habilitation centre at the Kenya Institute for the Blind (KIB);
- Recruit and deploy personnel for EARCs;
- In-service 380 personnel on functional assessment skills;
- Upgrade infrastructure and equip 50 EARCs;
- Rehabilitation of 5000 learners with disabilities; and
- Upgrade, equip and staff 10 EARCs into centres of excellence to demonstrate best practices in educational assessment.

Policy Priority 2: Quality and Relevance in Education and Training for Inclusive education

Goal: Enhance learning for children with special needs and disabilities

Target(s): Adapt curriculum and learning materials for children with special needs and disabilities

Programme 2.1: Curriculum Adaptation for Inclusive Education

Inclusive education teacher training curriculum has been developed and implemented alongside specialised SNE curricula thus enabling teachers to implement inclusive education, adapted and specialised curricula. Despite this effort, there is need to adapt the curriculum to

meet the diverse needs of all learners and trainees with disabilities. Curriculum support materials to guide the implementation of a differentiated curriculum are either unavailable or inadequate. This is a major impediment to the implementation of a differentiated curriculum. Additionally, the regular teacher training curriculum does not adequately address the needs of learners and trainees with disabilities, which is a major gap in the implementation of inclusive education. Assessment of learners in education remains rigid and mainly focuses on learners and trainees without disabilities thus disadvantaging those who may require differentiated modes of assessment. Activities will include:

- Adapt Inclusive Education Curriculum for pre-primary, basic and vocational training levels of education;
- Digitize content materials for learners and trainees with special needs and disabilities;
- Conduct orientation of teachers and field officers on the implementation of the adapted curriculum for learners and trainees with disabilities;
- Develop a subject module on IE to be incorporated into pre-service teacher training;
- Build capacity of teachers and examiners on appropriate learning outcome assessments for learners with SN&D; and
- Develop curriculum support materials in accessible formats for the implementation of the adapted curriculum.

Programme 2.2: Friendly Learning Environment for Inclusive Education

The Sustainable Development Goal number 4(a) underscores the need to build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environment for all. Most institutions do not have fully barrier-free physical environment appropriate for learners and trainees with disabilities thereby limiting mobility, independence and compromises safety and quality of learning for the learners. Morbidity and common ill health conditions are prevalent among learners and trainees including those with disabilities, especially in rural areas and urban informal settlements. The high rates of morbidity are associated with multiple infections, vitamin deficiencies, metabolic disorders and chronic health impairments. This programme will support the provision of appropriate facilities and materials to support safety of the learners and promote quality learning in schools. This will be realised through the following activities:

- Review the school/institution safety standards policy to integrate IE;
- Enforce the safety standards manual for schools/institutions of learning for learners and trainees with disabilities;
- Train teachers and school administrators in protection of learners and trainees with disabilities from violence within the school/institution, community and home; and
- Construct facilities for safe and clean drinking water, and sanitation facilities.

Programme 2.3: Human Resource Development for Effective Inclusive Education

Inadequacy of teachers, trainers, caregivers, parents, educational managers and learning support assistants (LSAs) (such as teacher aides, sign language interpreters, sighted guides, refractionists, braille transcribers, readers, physiotherapists, occupational therapists, counsellors, orientation and mobility trainers and ICT experts) with requisite skills to support education and training for learners and trainees with disabilities is a major challenge.

Deployment of staff has not always matched the individual's skills and competences. Ineffective staff management, unmet staff development needs, unsystematic staff deployment among other challenges has led to low motivation, which has eventually affected service delivery. In addition, multiple actors have undertaken the capacity development activities in a fragmented manner that has undermined quality outcomes. This programme will enhance the capacity of staff to deliver better services to children and youth with special needs and disabilities through the following activities:

- Develop guidelines for recruitment, training and deployment of LSAs in inclusive schools;
- Develop curriculum for training learning support assistants;
- Recruit, train and deploy of LSAs in inclusive schools;
- Train 3,500 primary school teachers on SNE at diploma level;
- Train 9,000 teachers on adapted digital content and assistive technology;
- Train 171 teachers in model inclusive schools in Kenya Sign Language; and
- Train 500 special needs trainers and 140 special needs lecturers in TVET and universities respectively

Policy Priority 3: Governance and Accountability in Inclusive Education

Goal: Enhancing participation and stakeholder accountability in the management of Inclusive Education.

Target(s): Increase awareness and promote collaboration on inclusive and safe education

Programme 3.1: Advocacy, Partnership, Collaboration and Coordination

Marginalization is founded on misconceptions and mistaken beliefs, cultural practices and attitudes, which have led to prejudice, bias, stigmatization and even discrimination against individuals with disabilities. With considerable number of actors providing interventions in this area, an integrated approach is necessary to build synergies for efficient results. This programme will support the generation of critical information and knowledge on Special Needs and Disabilities to facilitate advocacy and awareness creation. This will also inform partnerships and coordination of interventions to SN&D. The following activities will be implemented to operationalise the programme:

- Develop operational structure at the national, county and sub-county levels for EARCs;
- Develop an Inclusive Education module in the National Education Management Information System;
- Develop and distribute IEC materials on inclusive education and training;
- Undertake advocacy, awareness campaigns on education and training for learners with SN&D;
- Develop a framework for partnerships in the provision of support services to learners with SN&D;
- Sensitise county education boards (BoMs) and QAS officers on inclusive education; and
- Sensitise parents of learners with disabilities, communities and other stakeholders on IE for learners with special needs and disabilities.
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Programme 3.2: Competency Assessment Reforms for Learners with Special Needs and Disabilities

Part of the process of inclusive education is inclusive assessment. To achieve this, considerations should be made in order to make assessment accommodation based on learner needs. The competence based curriculum proposes changes in academic assessment that are expected to address existing challenges like examination oriented teaching and negative competition instead of collaboration among learners. However, adaptation of academic assessment for learners with special needs and disabilities in Kenya remain a challenge. There is need to ensure that all learners are assessed using strategies that accommodate their abilities and challenges. Activities towards adaptation of assessment strategies for these learners include the following:

- Review the competence based assessment (CBA) framework for learners with special needs and disabilities;
- Build capacity of teachers and examiners on CBA for learners with special needs; and
- Adopt the web based portal to facilitate access to formative assessment to suit the needs of learners with special needs and disabilities.

3.2.7 Teacher Education, Professional Development and Management

The Government of Kenya is committed to creating an education and training environment that equips learners with desired values, attitudes, knowledge, skills and competencies, particularly in technology, innovation and entrepreneurship. Recent reforms in the education sector are aimed at realizing the aspirations of the Constitution of Kenya. Such reforms include a shift towards a competency based education system. The education sector plan therefore aims at rebranding pre-service teacher training; ensuring equitable and optimal utilization of the teacher resource and enhancing professional development of teachers. The introduction of performance contracting (PC) and teacher performance appraisal and development (TPAD) and the roll out of teacher professional development (TPD) policy framework are key reforms with implications on teacher training, development and management. The NESP proposes to deepen these reforms during the next plan period. In addition, more attention shall also be given to strengthening governance and accountability in teacher education, professional development and management at all levels.

Policy Priority 1: To Rebrand the Pre-service Teacher Training

Goal: Align teacher training to the requirements of the Competency Based Education.

Target(s): To produce teachers with requisite skills to implement the CBC. Align pre-service teacher education to Competency Based Education

Programme 1.1: Pre-Service Teacher Training Reforms

Teacher training programmes in Kenya face a number of design and pedagogical challenges. In addition, there are inadequate guidelines on identification and deployment of teacher educators in pre-service training institutions. The infrastructure in the pre-service training institutions is also inadequate or dilapidated. The shift towards competency based education presents an opportunity for reforms in the way teachers are prepared for curriculum delivery. This programme will reform the pre-service teacher training and align it to the CBC. It is therefore necessary to shift focus to aligning the pre-service teacher development programmes with the projected demand for teachers in areas of specialisation and the

country's long term manpower needs. This is expected to be achieved through the following activities:

- Undertake a study to evaluate the status and relevance of existing pre-service teacher training programmes;
- Review the curricula and assessment framework for pre-primary, primary and secondary school pre-service teacher training;
- Rehabilitate the existing colleges for pre-service training of the reformed curriculum;
- Develop guidelines of identification and deployment of teacher educators in teacher training institutions;
- Induct educators in all teacher training institutions on the reviewed curricula;
- Develop framework to institutionalise internship programmes for all persons entering the teaching service; and
- Review policy framework to establish minimum entry requirements for trainees at all levels.

Policy Priority 2: Effective Recruitment and Deployment of Teachers

Goal: To enhance universal basic education

Target (s):

i. Reduce the teachers hired by the BOMs in public primary and secondary schools from the current 80,000 teachers to 23,000
ii. Provide all the requisite teacher requirements to realise the 100% transition from primary to secondary schools
iii. Recruit additional teachers to progressively improve the teacher-pupil ratio to 1:40

Programme 2.1: Recruitment of teachers for public primary and secondary schools

The aim of this programme is to improve quality and reduce the burden borne by parents in provision of teachers in public educational institutions at all levels. Teacher shortage at the primary school level is expected to grow marginally for the next five years. However, this is expected to change due to implementation of the CBE curriculum, establishment of new school and implementation of the SNE staffing norms. Similarly, there is a steep increase in enrolment in secondary schools occasioned by the 100% transition from primary schools which has potential impact on quality of education. This programme will be operationalised through the following activities:

- Recruit additional 13,300 teachers annually to reduce teacher shortage in primary and secondary schools; and
- Recruit additional 12,700 teachers annually to address increased enrolment in public secondary schools and unequal distribution.

Policy Priority 3: Effective Distribution and Utilization of Teachers

Goal: Improve equity and inclusivity in the utilization of the teacher resource.

Target (s):

i. Reduce regional disparities in teacher distribution to attain parity in PTR of 1:50 across counties
ii. Establish differentiated staffing norms in marginalized regions and areas of extreme low enrolment

Programme 3.1: Equitable and Optimal Utilization of the Teaching Resource

The main objective of teacher deployment is to ensure equity in teacher distribution across schools based on reported shortages and replacement of exits through natural attrition. There are disparities in the number of teachers, across the counties, even within schools with similar enrolment. In general, counties in ASAL areas have fewer teachers relative to other counties of the same school size. This programme will be operationalised through the following activities:

- Review teacher staffing norms at the basic education; and
- Develop a policy framework on distribution of teachers at all levels.

Policy Priority 4: Teachers' Professional and Pedagogical Content Knowledge

Goal: To improve teachers' competencies and professional development

Target(s): Institutionalise a Teacher Professional Development Framework by 2020

The Sector, through TSC is expected to design a framework that explores global perspectives in teacher professional development with a view to establishing a coordinated and structured professional development for teachers in Kenya. Teachers acquire requisite skills, competences, attitudes and encouraging lifelong learning and expectations of the 21st Century learning outcomes, the NESP shall support the roll out of a policy framework for Teacher Professional Development. Priority shall also be given to establishment and equipping of resource centres for on the job teacher support at the zonal levels.

Programme 4.1: Enhance Teacher Professional Development at Cluster and School levels

In the past, Teacher Professional Development has taken various forms, ranging from self-sponsored upgrading of qualifications, to those supported by government such as Tusome, PRIEDE and Secondary Education Quality Improvement Project. In order to enhance the impact of such teacher development programmes on learning outcomes, there is a shift towards having smart-cascade and institutionalizing school-based teacher professional development. Training needs and professional development gaps for teachers shall be identified from the Teacher Performance Appraisal and Development (TPAD), through the individual teachers and their supervisors.

This plan will enhance operationalization of the Teacher Professional Development programme launched by TSC and mainstream School-based Teacher Support System (SbTSS) under the SEQIP Project and facilitate provision of TPD modules to all teachers. The plan will also establish and equip TPD resource centres in every zone and identify service providers at various levels. The programme will be actualised through the following activities:

- Establish and implement School and Cluster Level Professional Learning Communities (Teacher Research Groups/ Lesson Study Groups); School based teacher support
- Establish and equip a National Teacher Support and Professional Development Resource Centre;
- Establish and equip TPD Resource Centres in all zones; formers Teacher Advisory Centres
- Build capacity for TSC field officers on ICT integration in TPAD process;

- Train all teachers on TPD modules aligned to Kenya Teaching Professional Standards (KePTS);
- Train CSOs and QASOs for on-site coaching and guidance to teachers in their schools including those in refugee and host communities;
- Develop and align TPD modules with the Competency Based Education at various levels;
- Establish and update a database on service providers for TPD at all levels;
- Implement the school-based teacher support for improved TUSOME/EGM teaching methodologies, aligned to the early years CBC activities by TSC and KICD; and
- Introduce ICT enabled teaching and learning support materials for EGM.

Policy Priority 5: Governance and Accountability in Teacher Education, Professional Development and Management

Goal: To improve coordination, accountability and management of the teaching resource.

Target(s):

i. To develop and implement a governance and accountability framework in sourcing, development and management of the teaching resource by 2020; and
ii. To develop and implement a Performance Management Framework for teachers at the school level.

Programme 5.1: Coordination in Teacher Education and Professional Development

The aim of the programme is to improve coordination, accountability and development of the teaching resource. Teacher education and professional development have multiple stakeholders at national and devolved levels, including the Ministry of Education, Teachers Service Commission, Agencies under the Ministry of Education and County Governments. There is, therefore, the need to network and liaise with relevant stakeholders in the management of the teaching resource. In addition, The MoE in collaboration with TSC and other stakeholders need to develop a National Teacher Education and development Policy (NT&DP) for efficient and effective coordination of teacher education and professional development. This programme will be operationalised through developing national policy and guidelines for teacher education and development.

Programme 5.2: Teacher Management, Performance and Accountability

Teacher management, performance and accountability are critical for quality education through a teaching service with high morale and effectiveness. The Teacher Performance Appraisal and Development (TPAD) and other policy guidelines have been instituted to hold teachers accountable. Nevertheless, there is need for a clear guideline that links Teacher Professional Development to predictable pathways for training and career progression. During the plan, the TPAD KePTS and TPD assessment will be reviewed to address emerging issues and achieve predictability and integrity of data in teacher performance rating. In addition, skills, attitudes and competencies developed through various teacher professional development programmes will be aligned to the National Qualifications Framework and linked to professional progression pathways. These will be achieved through the following activities:

- Review and implement policy guidelines to entrench the TPAD management system in all public educational institutions;

- Ensure TPAD addresses Code of Conduct and other requirements for teacher implementation of Safe Education;
- Review and implement policy framework to align the TPD and TPAD subsystems in all learning institutions;
- Establish a web based portal to facilitate access and analysis of Teacher Performance Appraisal data at various levels;
- Build capacity for 50 staff on analysis and report writing on TPAD process; and
- Evaluate the impact of TPAD on learning outcomes.

3.2.8 Technical and Vocational Education and Training (TVET)

Technical and Vocational Education and Training is offered at two levels namely Technical and Vocational Colleges (TVCs) and Vocational Training Centres (VTCs). The TVCs constitute of Technical Training Institutions, Institutes of Technology, National Polytechnics and Technical Trainers Colleges whereas VTCs comprise the Youth Polytechnics.

Policy priority 1: Access and Participation in TVET

Goal: Promote acquisition of market - ready skills at TVET level

Target(s): Improve enrolment per 100,000 from 446 to 780 by 2022

Programme 1.1: Infrastructure Development and Equipment in TVET

The shift to CBET approach is likely to be slowed down by dilapidated physical infrastructure and obsolete equipment as well as inadequate facilities that characterise most TVET institutions across the country. The programme objective is to expand rehabilitate and equip TVET infrastructure in order to increase access, promote equity and improve quality and relevance of TVET training through the following activities:

- Conduct an assessment on capacity of physical facilities in TVCs and VTCs;
- Complete construction of at least one TVC in every constituency;
- Expand 220 TVCs from a one department to a minimum of five department institution;
- Rehabilitate existing TTIs and equip them with state of Art equipment;
- Provide modern training equipment to 298 departments in 298 TVCs;
- Provide modern training equipment to 47 model VTCs;
- Provide a wellness facility in all TVET institutions; and
- Establish a printing and publishing unit for TVET.

Programme 1.2: Rebranding and Repositioning TVET

The TVET sector is faced by challenges of negative perception and is often seen as last choice and not a preferred option in tertiary education and training. The negative perception of TVET is attributed to lack of awareness of what is offered in TVET institutions, unclear admission and progression procedures and weak career guidance on TVET in basic education. In addition, the cost of TVET has also been a significant hindrance to accessing training services. The programme seeks to support trainees coming into TVET while also rebranding and repositioning TVET to make it a premier education pathway to train workers for the labour market through the following activities:

- Develop and implement a Differentiated Unit Cost for TVET;
- Recruit adequate human resources for TVET Funding Board;
- Provide capitation grants to VTCs and TVCs trainees;

- Conduct public TVET fairs, technology contests and outreach programmes;
- Develop guidelines on TVET career guidance and counselling;
- Develop a framework for engaging TVET graduates in national projects;
- Provide start up kitty for needy TVET graduates under HELB loan;
- Develop and implement a framework on TVET exchange programmes; and
- Undertake TVET advocacy campaigns.

Policy Priority 2: Enhance Equity and Inclusivity in TVET
Goal: Improve parities in TVET training
Target(s): Improve GPI in TVET from 0.78 in 2016 to 1 by 2022; and increase enrolment for SNE trainees by 20%

Programme 2.1: Inclusive Training in TVET
There are disparities in enrolment at TVET level based on gender with more male than female students enrolled in TVET institutions, particularly in national polytechnics. Despite efforts put in place to ensure gender parity, the inequalities still persist due to a number of reasons: lack of basic pre-entry qualifications, low participation of female in STEM courses; costs of undertaking the courses and limited knowledge about the training benefits among others. Additionally, disparities exist for trainees with special needs. Kenya has only four special needs TVET institutions with the capacity in these institutions being low relative to the number of students with special needs and disability in the country. This programme aims to promote inclusive training in TVET by increasing the enrolment of trainees from disadvantaged regions, trainees with special needs and disability as well as increasing their participation in STEM subjects. To achieve this programme, the following activities will be implemented:

- Conduct a gender, regional and special needs survey targeting potential TVET trainees;
- Conduct a survey of TVET institutions to establish status of infrastructure friendly to Special Needs;
- Equip TVET institutions with adapted assistive devices;
- Build capacity of TVET Special Needs Education Stakeholders on emerging SN&D issues;
- Adapt TVET infrastructure to make it disability friendly and safe for trainees; and
- Provide sanitary towels to vulnerable trainees in Special Needs institutions.

Programme 2.2: Talent Development and Mentorship
Despite the obvious importance of training learners to their fullest potential, gifted learners remain underserved and unchallenged in many training settings. Gifted students spend much, if not all, of their time in the regular training, yet trainers have usually received little or no pre-service or in-service training in gifted training. The trainers who serve gifted learners must receive appropriate training in techniques to meet the needs of these learners, particularly in strategies and resources for differentiating the regular curriculum and instruction. In addition to mentoring talents, the sector will also promote co-curricular activities to facilitate development of various domains of mind and personality such as intellectual emotional, social, moral and aesthetic development. This programme will be operationalised by the following activities:

- Develop and implement a policy and guidelines for co-curricular activities in TVET;
- Develop a policy and guidelines for identification of gifted and talented trainees;
- Establish a National TVET Academy for gifted and talented; and
- Map mentor to mentee in respect to talented and gifted in TVET and develop a database.

Policy Priority 3: Improve Quality and Relevance of TVET Training in Kenya
Goal: Promote skills development for employability and self-sustainability
Target(s): Equip TVET trainees with relevant skills that are relevant to the world of work

Programme 3.1: Competency Based Education and Training (CBET) Curriculum Development
One of the challenges facing TVET in Kenya is the mismatch between the skills graduate acquire and demands from the industry. Most TVET institutions offer programmes that are not fully aligned to the CBET curriculum. Certification is often based on completion of courses and passing examinations rather than demonstration of competency. This programme seeks to ensure that TVET courses are competency based and aligned to the labour market demands thus reducing the mismatch between skills training and industry demands. This will be achieved through the following activities:

- Recruit adequate human resource for effective implementation of CBET;
- Establish a public and private sector forum to spearhead the review of CBET;
- Establish Sector Skills Advisory Councils (SSACs);
- Develop occupational standards through the SSACs;
- Develop Competency Based Education and Training curricula;
- Develop CBET framework and guidelines to guide trainers in its implementation;
- Develop the capacity of trainers both at pre-service and in-service on CBET;
- Develop a framework and guidelines for CBET assessment and certification;
- Improve the system of evaluating institutional based projects and practical in TVET; and
- Align National Vocational Certificate in Education and Training (NVCET) curriculum to CBET.

Programme 3.2: Trainer Management Services
The calibre of trainers is critical for delivery of CBET approach. This calls for interventions at Pre-service, In-service training as well as management of Trainers. Key focus will be on sourcing, deployment, development and retaining competent Trainers in TVET institutions under the purview of Ministry of Education. TVET trainers previously under TSC management will be managed by the Public Service Commission under the Ministry of Education whereas instructors at VTCs are managed by the County Public Service Boards. This programme aims at improving the management of TVET trainers and instructors through the following activities:

- Conduct needs assessment for TVET trainers and instructors;
- Undertake outreach to enhance participation of females as TVET trainers and instructors;
- Enhance capacity and equip TVET Trainer Management Unit;

- Enhance coordination of TVET at the County level;
- Recruit 7,260 trainers for the newly constructed TVCs;
- Recruit additional 2,961 trainers for TVCs;
- Recruit 4,935 VTC instructors;
- Build capacity of 7,260 trainers for career progression;
- Build capacity of 4,935 VTC instructors for career progression;
- Carry out a capacity assessment of KTTC's ability as a trainer for TVET trainers;
- Construct and equip five additional Technical Trainer Institutions (TTI);
- Review the pre-service training programme aligned to the CBET;
- Develop a framework for TVET trainer management; and
- Develop industrial attachment framework for trainers/instructors and trainees.

Programme 3.3: TVET Accreditation and Quality Assurance

The sub-sector has a multiplicity of institutions offering different courses. Some of the institutions are not registered and accredited by the TVET Authority, underscoring the need for a robust quality assurance standards framework. To ensure that trainees have access to quality training, all TVET institutions should comply with the set standards and regulations. The NESSP envisages an increase in both the number of TVET institutions and enrolments therein. Such expansion translates to an expansion in the scope for quality and standards assurance, calling for innovative approaches of assuring quality. One such approach is a shift to quality assurance from the current centralized institutional visits to decentralized internal quality assurance at the institution level, known as the Institutional based Quality Assurance (IbQA). This programme seeks to strengthen TVET Accreditation and Quality Assurance in the sub-sector through the following activities:

- Recruit adequate human resources for effective accreditation and quality assurance;
- Develop a framework for quality assurance and maintenance of standards in TVET system;
- Develop and implement guidelines for Institutional Based Quality Assurance (IBQA);
- Build capacity of key TVET stakeholders on IBQA for effective implementation;
- Develop a TVET Management Information System; and
- Undertake a mapping of all TVCs and VTCs.

Programme 3.4:TVET Research, Innovations, Technology Transfers, Entrepreneurship and Commercialisation

This programme seeks to support creativity and innovation, research and development in TVET. It also aims at equipping trainees with skills for self-sustainability, employability and job creation. This will be achieved through establishment of a TVET centre of excellence in each of the 47 counties in Kenya. The centres of excellence will be incubation centres for: entrepreneurship; technology and innovation development; commercialisation and publicity and awareness. The activities include:

- Support research and protection of Intellectual Property Rights (IPR) in TVET innovations;
- Develop and implement a standard and guidelines for identification and recognition of centres of excellence; and
- Establish 47 TVET centres of excellence in the 47 counties.
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Programme 3.5: ICT Integration in Curriculum Delivery and Assessment

Information and Communication Technology (ICT) is fast changing and comes with a wide range of possibilities. The government has various ICT initiatives in TVET institutions where it has provided some TVET institutions with computers, laptops, projectors, smart boards and internet connectivity. However, the provided infrastructure is inadequate. This Programme aims at enhancing usage of ICT for delivery of curriculum, assessment and management in TVET. ICT integration in TVET translates into increased efficiency and quality of training as well as increase in access to training. For effective integration in training, the capacity of TVET managers and trainers in integration of ICT needs to be enhanced. The following activities will be implemented under this programme:

- Develop and implement an ICT integration policy in TVET;
- Provide ICT equipment to 220 TVCs and 470 VTCs;
- Connect 229 TVET institutions to the internet and establish LANs therein;
- Develop digital content for science and engineering programmes in TVET as well as dissemination mechanisms;
- Building capacity of TVET managers and trainers for skills in ICT integration in training;
- Provide smart classroom package to 290 TVCs;
- Establish a national e-learning Centre for dissemination of the theoretical component in TVET programmes;
- Sensitise TVET trainers on the use of open educational resources; and
- Digitize curriculum, management and assessment processes in TVET.

Programme 3.6: Greening Technology in TVET

Greening TVET (GTVET) is a programme aimed at creating awareness on conservation and sustainability of the environment. This has been necessitated by concerns about climate change, environmental degradation and scarcity of resources. Environmental degradation and effects of global warming require that deliberate efforts be put in place to enhance the total vegetation cover. Greening involves protection of environment through exploitation of opportunities available in green economy by employing environment friendly aspects. Therefore, this requires TVET to develop skills and competencies that pave way to a green economy and society as indicated in the following activities:

- Implement greening and waste management technology curricula in TVET;
- Build capacity of managers and trainers on implementation of TVET greening technology;
- Provide equipment for implementation of TVET greening technology;
- Incorporate climate change and use of renewable energy technologies (solar, wind, biofuels) in TVET; and
- Conduct Research on greening technology to inform policy.

Policy priority 5: Enhance Governance and Accountability in TVET

Goal: Strengthen governance and accountability in management of TVET

Target(s): Enhance management and governance capacity across TVET managers and leadership

Programme 5.1: Improve TVET Industry Linkage

Currently, it is mandatory for all trainees to undergo industrial attachment lasting not less than three months before completing their course of choice. There have been deliberate efforts to set up production units in most of the TVET institutions in order to expose the trainees to real work experience. Despite this, TVET programmes in Kenya are characterised by poor industry linkages. There is potential to strengthen private sector involvement in areas such as curriculum development, financing and industrial attachment. The sector also lacks tracer studies and labour market information to provide data on skill demands. The objective of this programme is to enhance coordination of education and training among industries, government and academia through the following activities:

- Develop and operationalise Kenya National Skills Development Framework;
- Develop and implement system standards and guidelines for TVET –Industry linkages;
- Conduct tracer studies in TVET; and
- Establish a national skills inventory of TVET programmes.

Programme 5.2: Strengthen Institutional and Inter-Governmental Linkages in TVET

TVET institutions are spread across different ministries and there is no uniformity in the categorisation of the institutions across the ministries. The TVET institutions themselves have different governance structures. Fragmentation has also led to uncoordinated curriculum delivery and varying competence assessment mechanisms leaving learners unequally prepared. With devolution, management of vocational training centres was assigned to county governments while issues related to policy, quality assurance, capacity building and curriculum remain functions of the national government. Under this arrangement, prioritization of vocational training varies from county to county. In addition, some counties have come up with legislations without consideration of national legislation especially the TVET Act, 2013. This programme seeks to improve collaboration between the two levels of governance through the following activities:

- Develop a TVET inter-governmental relations framework;
- Review the structure of the TVET sub-sector and its agencies;
- Undertake a functional analysis of TVET and its implementing agencies; and
- Review the existing policy and legal instruments to identify and resolve overlaps.

Programme 5.3: Public Institutional Management in TVET

TVET system is currently going through reforms. The number of TVET institutions is on the rise, with new principals, Councils and BOGs being put in place in conformity with TVET Act, 2013. This programme aims at strengthening the managerial leadership of Principals of TVET institutions, Councils, Board of Management and other leaders at the institutional level in leadership and management. This will be achieved through the following activities:

- Build capacity of managers in TVET institutions on governance, financial management and accountability;
- Induct the Board of Governors and Council members in public TVET institutions;
- Conduct one Public Expenditure Tracking Survey (PETS)/Service Delivery Surveys in TVCs and VTCs; and

- Develop and implement a scheme of service for non-training staff in TVET institutions.

3.2.9 University Sub-Sector

Policy Priority 1: Access to University Education by All Eligible Students

Goal: Expand access and participation in higher education

Target(s): Increase gross enrolment in University education from 15 to 25%

Programme 1.1: Expand Infrastructure in All Public Universities

This Programme is aimed at expanding the capacity of public universities to accommodate the recent increase in the number of students enrolled in the universities to provide conducive learning environment. This Programme will seek to provide library, lecture halls, laboratory, tutorial rooms and ICT facilities with priority given to new universities. This will ensure that all universities meet the minimum infrastructural requirements provided in the universities standards and guidelines are met through the following activities:

- Conduct an assessment of the status of infrastructure in public universities;
- Rationalize expansion of university education;
- Upgrade infrastructure in all the new public universities; and
- Upgrade infrastructure in existing universities to achieve the required minimum standards.
- Develop an incentive framework for private sector investment in University Education

Programme 1.2: Improve Retention, Safety, Well-being and Productivity of University Students

The objective of this Programme is to enhance retention and completion rate in all courses in the Universities. It involves putting up measures to address factors that keep students out of university education or delay their completion. The provision of adequate and gender-sensitive accommodation, catering and recreation facilities for students will also be of priority to ensure 100% completion of courses. This will be achieved through the following activities:

- Construct multi-purpose student accommodation and welfare facilities in all public universities;
- Develop and implement a guidance and counselling programme for universities; and
- Provide HELB loans to all students in all universities

Programme 1.3: Increase Access to SET Course Programmes

The objective of this Programme is to increase enrolment in SET courses as one of the measures to ensure that students have access to course programmes that are relevant to industry demand. In addition, this will also ensure that universities have adequate capacity to admit the many students who apply to join SET Programmes. The programme targets to increase enrolment in SET related courses from 20% of total student enrolment to 60% through the following activities.

- Review the University placement criteria to ensure that 60% of eligible students are placed in SET Programmes;
- Develop criteria for placing students from alternative pathways to government sponsored Programmes in Universities; and

- Build the capacity of academic staff in public universities in SET Programmes.

Programme 1.4: Open, Distance and E-learning in University Education

ICT has the capability of bridging the geographical and space gaps that inhibit access to education. Open, Distance and E-learning (ODeL) has provided an opportunity for learners to access education through technology irrespective of their physical location. The objective of the programme is to strengthen and expand e-learning programmes in all universities. This will support ICT-based distance and open learning programmes offered by different universities with a target to have 30% of degree programmes available on e-learning mode. This will be facilitated through the following activities:

- Establish the Open University of Kenya;
- Review the standards and guidelines for ODEL;
- Develop digital content for university Programmes;
- Build capacity for university academic staff in ODEL; and
- Review funding policy to accommodate ODEL students including student loans and bursaries.

Policy Priority 2: Enhance Equity, Inclusion University Education

Goal: Equal opportunity to university education for all eligible students

Target(s): Increase gender parity in University Education to from 0.71 to 0.9

Programme 2.1: University Scholarship, Loans and Bursaries

This Programme involves provision of Government scholarships and bursaries to deserving and needy students who meet the admission criteria. It targets students from disadvantaged socio-economic backgrounds, students with special needs and female students in SET programmes. This will be achieved through the following activities:

- Review the Differentiated Unit Cost (DUC) criteria to cater for students admitted under affirmative action and females in SET courses;
- Provide HELB loans to all students in all universities;
- Increase capitation to Government sponsored students;
- Provide bursaries to students from disadvantaged socio-economic backgrounds;
- Provide scholarships to students undertaking in studies in programmes related to the government's key priority areas; and
- Provide scholarships to students with special needs placed in public universities.

Programme 2.2: Affirmative Action for Disadvantaged Groups

This programme aims at increasing the enrolment of students from disadvantaged groups in Universities through the following activities:

- Apply affirmative action in placement of students with disabilities and minority groups in University in Programmes where there is under representation;
- Develop a policy for SNE in public universities;
- Upgrade university facilities to accommodate students with special needs; and
- Build capacity of university staff in delivery of services to students with SN&D.

Policy Priority 3: Enhance the Quality and Relevance of Training and Research in University Education

Goal: Provide adequate and competent academic staff in Universities

Target(s): Increase the gross staff student ratio in public universities from the current 1:36 to 1:29

Programme 3.1: Human Resource Capacity Development for Public Universities

Adequate number of academic staff is a critical indicator of quality of teaching and learning in the universities. This Programme is aimed at ensuring that Universities have adequate and qualified academic staff to move towards the desired gross staff teaching ratio of 1:12. This programme seeks to attain the Gross SSR of at least 1:29 whilst taking account of the required SSR within the different programmes. In addition, opportunities for training will be provided to ensure academic more academic staff acquire PhDs and pedagogical skills. This will be realised through the following activities:

- Conduct a human resource audit in public universities
- Provide 4000 Masters and PhD scholarships annually targeting university academic staff;
- Recruit 1000 postgraduate students into the teaching assistants programme annually;
- Provide adequate office space and facilities for academic staff to accommodate the growing number in public Universities;
- Build capacity of academic staff in pedagogy and modern delivery modes for international competitiveness;
- Allocate 2% of recurrent allocation of government funding to public universities for research by academic staff;
- Develop national human resource management guidelines for university staff; and
- Develop exchange Programmes for academic staff.

Programme 3.2: Review of Curriculum and Programme Delivery in Universities

This Programme is designed to deliver curriculum that is aligned to national priority areas and industry demands. It involves review of programmes currently offered in universities and development of new programmes that address emerging issues. The implementation of this Programme will be hinged on strong collaboration with industry and evidence based research on skills demand. This will be realised through the following activities:

- Review all academic programmes;
- Conduct quality inspection audits;
- Develop digital content for all academic programmes offered on ODEL;
- Develop and accredit new Programmes aligned to national priorities;
- Establish industry liaison committees in each university to conduct regular review of Programmes offered in public universities;
- Establish niches within existing universities;
- Establish compulsory and funded attachment programme for all university students; and
- Conduct skills inventory survey and tracer studies.

Programme 3.3: Develop Infrastructure and Provide Training Equipment

The objective of the programme is to provide modern and adequate infrastructure and equipment that will support the provision of quality teaching and research. This will be

guided by the minimum threshold for infrastructure as provided in the Universities Standards and Regulations. The following activities will be implemented in the plan period:

- Identify and establish 5 centres of excellence in critical areas of the economy;
- Procure and supply equipment to Universities offering SET Programmes;
- Establish Science and Technology Parks;
- Establish the Kenya Advance Institute for Science and Technology; and
- Establish a university of applied science.

Programme 3.4: University Research and Community Service in Universities

The programme seeks to improve quality of research and extension services in universities by promoting more participation by staff and students in carrying out research studies, training of academic staff to develop award winning research grant proposals and recognising universities and individual researchers. The following activities will be implemented:

- Build the capacity of university academic staff to competitively mobilize resources for research;
- Provide competitive research grants in all public universities based on each institution's recurrent budget; and
- Develop an incentive scheme to recognise universities and individual researchers who excel in research, publications, innovations and patents, and community service.

Policy Priority 4: Strengthen Governance and Accountability in University Education

Goal: Improve governance, management and accountability in universities.

Target(s): i. Enhance management and governance across universities

The achievement of organisational and by extensive national goals are predicated on the establishment of strong governance structures that will participate in the development and ensure implementation of the stated strategies to achieve the desired objectives, while at all times safe-guarding the public interest.

Programme 4.1: Capacity Building of University Councils and Management

Universities must endeavour to be more efficient, flexible and effective in improving outcomes. For this to be achieved there is a need to reform their governance and management. This Programmes aims to build capacity of university management on through the following activities:

- Develop and implement a training programme on corporate governance targeting council members;
- Review the human resource management policies in public universities, including Codes of Conduct for personnel; and
- Establish a project implementation Unit at the state department for university education.

Programme 4.2: Governance and Accountability in Universities

Automation of processes in the university sector is aimed at enhancing efficiency and effectiveness of service delivery. In addition, it can enhance accountability and information management in public universities. The following activities will be implemented:

- Establish Integrated Financial Management systems in all universities;
- Establish Higher education information management system; and
- Establish integrated Payroll Personnel Database (IPPD) for all universities.

3.2.10 Science Technology and Innovation Sub-Sector

Science, Technology and Innovation is identified as a key foundation upon which the economic, social and political pillars of the Kenya Vision 2030 are anchored. The Vision further proposes intensified application of ST&I to raise productivity and efficiency levels across the three pillars. The Vision also recognises the critical role played by research and development (R&D) in accelerating economic development in the country.

This strategy aligns ST&I programmes to the national goals with a view to streamline the system to make it more effective and integrate it into the mainstream of national planning and development system. The main strategic pillars cover the institutional and regulatory framework to promote, coordinate, mobilise resources and manage ST&I; allocate resources, mobilise and motivate stakeholders to participate in the R&D sub-sector funding to at least 2% of GDP annually; develop human resource capital in ST&I to meet the demands of the economy; develop education, training and research to implement and develop ST&I infrastructure to support ST&I Programmes.

Policy Priority 1: Quality and Relevance of Science, Technology and Innovation
Goal: Build and develop human resource capital in for science technology and innovation
Target(s): To increase the number of research personnel by 5%

Programme 1.1: Develop ST&I Human Resource Capacities

In the midst of transforming into a knowledge-based middle income economy, building a knowledge-based workforce is imperative. To enhance quality and relevance in ST&I, investment is required in provision of qualified human resources, the level of technically qualified personnel in the S&T sector is low by international standards. The supply of human resource for the S&T sector in new and emerging technologies is inadequate. Further, there is an age-gap between the senior and junior scientists, engineers and technologists. The programme will also undertake a skills coding for ST&I and strengthen linkages between industry and institutions of higher learning in areas of curriculum review, industry labour requirements, including incentives for attracting and retention of Science Engineering and Technology (SET) skills in industry. To address this issue, the following activities will be implemented:

- Develop set of responsive indicators and conduct human resource requirement needs audit to address ST&I skill development;
- Train and support research personnel;
- Conduct National Skills Inventory and Audit for ST&I; and
- Recruit 300 technical staff to strengthen the state agencies supporting ST&I.

Programme 1.2: Strengthen Science, Technology, Engineering and Mathematics (STEM) in Education and Training

The fundamental issues regarding human resources lack of capabilities and intellectual abilities are basically grounded on local capacity to effectively leverage global stock of knowledge to support ST&I sub-sector. The generalization of the standard of education is unclear and requires further empirical data to build relevant skill sets and essential 'intellectual human capital' for the industry. Universities in Kenya have shifted focus away from Science, Technology, Engineering, and Mathematics (STEM)-based courses. The

performance in STEM related subjects is relatively poor. The ST&I sub-sector is faced by inadequate qualified staff to teach STEM related programmes coupled with high cost of delivering STEM related courses. This is compounded by low funding for R&D and weak linkage to industry. There is also shortage of laboratories and equipment which are critical ingredients for R&D. This has resulted in low research outputs from universities and research institutions. To address these issues, the following activities will be implemented:

- Provide modern infrastructure and equipment in education and research institutions;
- Establish centres of excellence that promote innovation and creativity in select learning institutions;
- Develop and implement ST&I mentorship programme in all levels of education and training;
- Build the capacity of academic staff in institutions of higher learning in SET Programme;
- Provide scholarships and bursaries for female learners and trainees pursuing SET programmes; and
- Conduct scientific fairs at all levels of education and training to encourage learners pursue ST&I.

Policy Priority 2: Access to Science, Technologies and Innovation

Goal: Enhance access to Science, technology and innovation towards a knowledge-based economy.

Target(s): Develop ST&I infrastructure to support programmes in priority areas

Programme 2.1: Develop Infrastructure and Provide State of Art Equipment to Support ST&I

The right to enjoy the benefits of scientific progress and its applications is enshrined in various international and regional instruments. Rapid scientific and technological developments result in drastic changes in the daily life of both individuals and the societies they live in. Access to the benefits of scientific progress not only allows improving one's socio-economic situation, but also gives the opportunity to take a meaningful part in the life of communities whether they are local, national or international. Restriction of access to scientific progress may lead to stagnation, regression and exclusion. At the same time, the norm requires that individuals should be protected from possible negative effects of scientific and technological progress. Scientific advancements in medicine and food production should be tested to avoid possible damage to individuals and the environment.

Currently, the country is faced with inadequate ST&I facilities, slow modernisation, poor country wide distribution networks and accessibility. According to the African Outlook Survey of 2014, funding for R&D in the S&T sector was approximately 0.98% against the Government target of at least 2% of GDP thus constraining S&T infrastructure development. There are limited public private partnerships (PPPs) to support ST&I infrastructure. Further, use of ICT is limited especially in rural areas due to inadequate network connectivity. To address the challenges of infrastructure for ST&I, the following activities will be implemented:

- Conduct a survey to establish the status of ST&I infrastructure in the identified priority areas;

- Develop and implement a framework for sharing R&D infrastructure amongst institutions;
- Develop the National Physical Science Research Laboratory;
- Develop of Science Parks;
- Facilitate Integrated Technology Transfer Centres (ITTC) at county level;
- Establish the Square kilometre array

Programme 2.2: Improve Intellectual Property Rights Regimes of Science Technology and Innovation

There is limited awareness and appreciation of Intellectual Property Rights among practitioners, stakeholders and policy makers and the existing Policy is not flexible to accommodate ever emerging issues in ST&I. The level of uptake and commercialisation of intellectually protected products and services is also low. Technological learning within the business system is not formally structured and appropriately managed to ensure technological capability building and appropriate technology transfer. The objective of this programme is to secure research innovations through intellectual property rights and maximizing their delivery, uptake, sustainability and impact towards a knowledge-based economy. The following activities will be implemented:

- Establish a reward scheme for authors of scientific publications and innovators;
- Sensitise stakeholders on the importance of Intellectual Property Rights;
- Develop and implement a Sector Intellectual Property Rights Policy; and
- Establish technology transfer offices.

Programme 2.3: Innovation, Technology Transfer and Commercialisation

This programme aims at consolidating the innovation capabilities and incorporate the ST&I actors to be able to acquire and exploit technologies available locally. This will create an environment for demand-driven technology development and transfer through rapid commercialisation of activities. The following strategies will be considered in pursuit of the achievement of this programme:

- Provide equipment support to existing incubators in universities and other STI Institutions;
- Identify innovation and create modality for commercialisation; and
- Acquire, adopt, adapt and diffuse technology.

Policy Priority 3: Equity and Inclusivity in ST&I

Goal: Enhance equity and inclusion in Science Technology &Innovation

Target: Increase the proportion of special interest groups and researchers to the national population

Science technology and innovation is acknowledged as critical in raising productivity and efficiency for the different economic players. ST&I has the potential to improve livelihoods for disadvantaged populations. Therefore, ST&I policies and strategies have to take cognisance of the need to provide universal access to participation and utilization of ST&Is. This would include not only investing in technologies that provide solutions to problems

facing disadvantaged groups but also ensuring their participation in ST&I activities. A critical area for inclusion is gender equality in ST&I. Three areas are identified as entry points for applying a gender lens, these are: Science for women, developing science and technology which support women's development and livelihood activities; Women in science, promoting gender equality in science, technology and engineering education, careers and leadership to encourage and support the role of women in innovation systems at national and grassroots levels.

Programme 3.1: Promoting Equitable and Inclusive Participation in Science Technology and Innovation

This programme aims at promoting participation of women and young scientists in research and taking up research as a career. Institutions are not well distributed regionally, making it hard to reach all special groups. Gender disparity in ST&I is one of the major challenges in the ST&I sub-sector capacity building. The trend starts from reduced access to education and training, low enrolment and retention of women into Science, Mathematics and Technology courses all through to low research opportunities, positions of responsibilities, recruitment and promotion in comparison to male. The few women involved in research lack experience and knowledge as innovators and entrepreneurial education. To harness and utilise research capacity and expand opportunities, the government will take steps to mobilise active participation of under-represented groups such as women, youth in SET workforce, persons with special needs, disadvantaged groups including those from marginalized areas. The following activities will be implemented:

- Develop a framework for identifying and recognising outstanding women and girl scientists;
- Special incentives scheme to attract researchers and innovators from marginalised areas;
- Carry out regular gender-disaggregated monitoring and evaluation in ST&I sub-sectors;
- Conduct gender assessment of policy actions, financial resource and gender-responsive budgeting;
- Map and engage outstanding women scientists to mentees; and
- Implement STEM mentorship programme for girls at all levels of education and training.

Policy priority Area 4: Governance and Accountability for Science Technology and Innovation

Goal: A coherent legal, institutional and regulatory framework to support the growth, development, utilization and coordination of ST&I

Target: Enhance governance and management of the ST&I sub-sector

Governance and accountability issues constitute major inputs into the effectiveness of the realization of all the programmes outlined in this section. The programme objective here is to provide for a coherent and focused legal, institutional and regulatory framework to support the growth, development and utilization and coordination of science, technology and innovation. Governance is also a means of determining the linkage between progress and results through the programmes' management to the policy-level. The main goal of this priority area is thus to create an enabling environment for effective integration and

management of ST&I into all sectors of the economy and allows for the restructuring of the innovation system to promote the advancement and application of ST&I.

Programme 4.1: Strengthen Governance and Accountability for ST&I

The Science, Technology and Innovation sub-sector has multiplicity of legislations with overlapping provisions. This has resulted in a weak coordination and regulation which negatively affects performance of the institutions within the sub-sector. Successful generation and application of science and technology require a robust and efficient data and information sharing, management and retrieval systems. The programme objective is thus to establish an integrated Knowledge Management Information System to inform the country on the ST&I profile. To address these issues, the following activities will be implemented:

- Review and harmonize the existing legal and regulatory framework;
- Establish a National Science, Technology and Innovation Observatory;
- Update and maintain the ST&I Observatory;
- Establish an integrated Knowledge Management Information System to inform the country on the ST&I profile;
- Conduct regular and scheduled R&D and Innovation surveys;
- Publish biennial ST&I indices reports;
- Develop a framework for resource mobilisation for ST&I; and
- Develop an incentive framework for private sector investment in R&D.

3.2.11 Post Training and Skills Development

Policy Priority 1: Improve quality and relevance of post training and skills Development

Goal: To establish a formal linkage among Government, Industry and Academia.

Target: To develop and institutionalise effective labour market placement systems that links training to industry.

Programme 1.1: Work Place Readiness Services

Youth unemployment and underemployment is a key challenge in Kenya. The high level of unemployment is compounded by rapidly changing labour markets, technological advancements and globalization. The rate of youth unemployment is 26% (Kenya National Bureau of Statistics, 2015). There is a weak linkage between the training process and the labour market requirements in Kenya. This leads to slow or low absorption of the graduates into the job market. Consequently, there is higher rate of youth unemployment. To strengthen linkage between training and industry, the sector will establish Sector-specific Skills Councils to ensure effective dissemination of industry's requirements and consumption of the same by the training agents. The establishment of Sector-specific Skills Councils requires a well-articulated policy that can promote sector standards in skills development. This will promote effective training for market, conform to international standards and leverage on best practices. This calls for development of sector skills operation manual, policies and institutional framework to link skills development to industry; and facilitate the establishment of Sector-specific Skills Councils. To address these issues the following activities will be implemented:

- Develop an Industry-Academia Linkage Policy;

- Establish a National Skills Advisory Council;
- Develop skills management and post training policy;
- Develop regulatory framework to oversee skills development;
- Establish Sector-specific skills councils;
- Develop framework to establish office of career services in learning institutions;
- Develop regulatory and guidelines for registration and approval of skills-professional bodies;
- Establish skills development fund; and
- Develop institutional framework to link industry, academia and graduates/trainees.

Programme 1.2: Work-Based Learning Services

Work based learning programmes are strategic pathways for creating skilled and employable youth, including disadvantaged youth. There is need to integrate work based learning programmes in actual work environments as an integral part of skills development efforts. The International Labour Organisation has emphasized on the importance of skill development especially through apprenticeship and Recognition of Prior Learning (RPL) at the workplace. This Programme will assist the youth to acquire appropriate skills to make them employable or engage in self-employment after training. The purpose of the national apprenticeship, internship, industrial attachment and up-skilling is to improve skills, reduce unemployment or under-employment, increase self-employment and productivity and improve on income generation. This programme aims at reducing the challenges that the youths go through in their aspirations to secure employment caused by lack of adequate skills and experience. To address these issues the following activities will be implemented:

- Review apprenticeship, internship and industrial attachment Policies and develop an integrated national policy;
- Mapping of existing and potential industries and other mentors in the informal sector;
- Conduct National youth apprenticeships, internships and industrial attachment placements; and
- Implement up-skilling programmes.

Programme 1.3: Post-Training Information Management

The creation of linkages and making skills to be an integral part of productivity will not be complete without automating the process. Currently, data on skills is generated by various government agencies in a fragmented way and in small pockets with weak inter-linkages. The programme is expected to provide evidence of skills and employment in the country. A skills inventory will be generated and automated for online accessibility. A National Tracer Study will be conducted to identify graduates and their professions and track them to their current occupation in the market. To address these issues, the following activities will be implemented:

- Develop skills inventory implementation framework;
- Conduct National workforce skills baseline survey;
- Develop National skills inventory;
- Undertake National Tracer studies; and
- Map industry national skills demand.

Policy Priority 2: Governance in the Post Training and Skills Development Function
Goal: To enhance governance in the post training and skills development function.
Target(s): To establish and operationalise a governance structure for the post training and Skills development function.

Programme 2.1: Enhance Governance and Accountability

The post training and skills development sub-sector is committed to creating linkages between training, skills and industry to enhance employability and productivity. Towards this endeavour, the sub-sector will coordinate, promote and regulate post training and skills development initiatives. This is with the aim of reducing youth unemployment or underemployment through accelerated industrial absorption and promoted self-employment. This will therefore guarantee a seamless transition from learning to earning. For the sub-sector to deliver on the mandate as stipulated in the Executive Order, it requires an approved institutional structure with a clearly defined technical mandate, scheme of service, recruitment and deployment of staff in a requisite working environment. The sub-sector is faced with challenges that include office space and equipment, not well defined institutional structure, inadequate capacity and limited mobility. To address these issues the following activities will be implemented:

- Develop institutional structure and implementation strategy for the sub-sector;
- Develop schemes of service for the jobs in the structure;
- Recruit, deploy and capacity build the staff;
- Develop a framework for resource mobilisation to facilitate operations and programmes in the sub-sector;
- Acquire and equip office space; and
- Procure motor vehicles.

Programme 2.2: Skills and Employment Database Management

Data on skills and human resource in the country is generated by various government agencies in a fragmented way and in small pockets for administrative use. The data systems have weak inter-linkages and do not build into each other. This has led to a disintegrated approach in skills development resulting into weak harmonization of available skills. PTSD will create a strong inter-linkage through establishment of an Integrated Skills and Employment Information System (ISEMIS). To strengthen the management of skills and employment data, the following activities will be implemented:

- Develop integrated skills and employment management information system; and
- Manage Integrated Skills and Employment Information System.

3.2.12 Quality Assurance and Standards

Quality Assurance and Standards issues cut across all sub sectors in the education and training sector. The Directorate of quality assurance and standards assures quality and standards through setting of standards, monitoring of compliance with the standards and enforcing compliance where there is none. It plays an important role in terms of aligning the sector institutions to quality learning.

Policy Priority 1: Align Education Quality Assurance and Standards to Competency Based Curriculum (CBC) and Competency Based Assessment (CBA)
Goal: Align education quality assurance and standards to CBC and CBA
Target (s): Education quality assurance and standards aligned to CBC and CBA by 2021

Programme 1.1: Review and align Quality Assurance and Standards to Competence Based Education
Kenya's shift to the Competence Based Curriculum (CBC) and Competence Based Assessment (CBA) has huge implications on the way quality and standards assurance will be set, monitored and enforced at the school level. In order to effectively carry out this mandate, there is need to review the existing standards with a view to aligning them to the competence based curriculum. Besides, there is need to build the capacity of quality standards officers in CBC and CBA for on-site school support to teachers. This programme aims at establishing a framework that aligns Quality Assurance and Standards services to support effective implementation of CBC and CBA. The programme will be operationalised through the following activities:

- Undertake a Needs Assessment in DQAS to guide alignment of quality assurance to CBC and CBA;
- Develop a Quality Assurance and Standards Framework for Basic Education;
- Build capacity of quality assurance and standards officers for on-site school support to teachers; and
- Build the capacity of QASOs on ICT integration.

Policy Priority 2: Assure Quality and Maintain Standards in Basic Education Learning Institutions
Goal: Enhance quality and maintenance of standards in institutions of basic education
Target: Increase coverage of institutions of learning in quality assurance and maintenance of standards from 30% to 70%

Programme 2.1: Mainstream Quality Assurance at School/Institutional Level
Enrolment and participation in Basic education in Kenya has increased since the implementation of the free primary initiative and free day secondary education. The upsurge in enrolments has come with an increase in the number of secondary and primary schools. For instance, from 2012 to 2017, over 10,000 primary and secondary schools were established. Such expansion in enrolments and numbers of education institutions directly translates to an expansion in the scope for quality and standards assurance. Despite this, coverage in terms of quality and standards assurance of schools is quite low. On average, the directorate only covers 30 percent of the schools. To increase coverage, this programme seeks to shift the approach to quality assurance from the current centralized school visits by quality assurance officers to decentralized internal quality assurance at the institution/school level, known as the Institutional based Quality Assurance (IbQA). IbQA will empower heads of institutions, BOM and Parents Associations to carry out internal quality and standards assurance. This will be achieved through the following activities:

- Develop and automate Institutional based Quality Assurance (IbQA) process;
- Disseminate the Institutional based Quality Assurance;
- Train stakeholders from national, county and school levels on IbQA; and

- Carry out quality and standards audits and assess compliance using the IbQA.

3.2.13 Kenya National Qualifications Framework (KNQF)

Policy Priority 1: Access to Education and Training Qualifications

Policy Goal: Enhance access to education and training qualifications by all

Target(s): Access to education and training qualifications enhanced

Programme 1.1: Articulation of KNQF

Kenya has a multiplicity of qualifications and awarding bodies, which make it difficult for employers to understand the competences possessed by the holder of a particular qualification. The KNQF develops a common regulatory system for the development, assessment and award of qualifications. KNQF also facilitates the articulation of quality-assured national qualifications. Articulation refers to the process whereby the credits achieved in a course offered by an institution are interchangeable with a different course, either offered by another institution or within the same institution. Through this process, participants ensure that they do not repeat a programme/module they have already completed and can move through the curriculum at a faster pace. This programme seeks to mainstream articulation in Kenya through the following activities:

- Develop a policy on credit accumulations and transfer of national qualifications;
- Develop and implement Prior Learning Assessment and Recognition (PLAR) policy;
- Establish and maintain Career Advice Service Centre; and
- Sensitise the public and key education stakeholders on KNQF.

Policy Priority 2: National Regulatory Assurance System for National Qualifications

Goal: To assure quality and credibility of national qualifications.

Target(s): To improve quality and credibility of national qualifications.

Programme 2.1: Quality assurance of national qualifications in education and training

KNQF is linked to the quality assurance processes as it sets the standard against which accreditation of qualifications can take place and also provides the standard measures against which assessment systems are designed and tested. Together, they help to achieve greater coherence and trust within the national qualification system. A KNQF without an accompanying quality assurance system is unlikely to be effective in building the quality of and trust in national qualifications. Zones of trust for qualifications are built upon common interests, accepted modus operandi for the award of qualifications, the participation of key stakeholders in the design of qualifications, and the clarity of the added value that qualifications deliver. The programme will be achieved through the following activities:

- Develop and implement accreditation processes by which a qualification or part-qualification gain national recognition;
- Develop and implement registration processes by which education and training providers are approved to deliver national qualifications or part-qualifications;
- Develop and implement processes of supervision of assessment systems that lead to the award of a national qualification;

- Develop and implement regulation of the issuance of certificates by awarding bodies or agencies; and
- Develop and implement guidelines for regulatory and curricula development institutions to set and implement appropriate curricular designs and curriculum delivery systems for meeting national qualification standards.

3.2.14 Cross Cutting and Contemporary Issues

Policy priority 1: Mainstreaming Cross Cutting and Contemporary Issues and Value Systems in Education and Training

Goal: To integrate contemporary issues and values in the education and training sector.

Target(s): To promote knowledge and appreciation of contemporary issues and values in the education and training sector.

Programme 1.1: Reduce Violence, Radicalization, Extremism, Drug and Substance Abuse

Kenya Vision 2030 envisions the building of a just and cohesive society that enjoys equitable social development in a clean and secure environment. Different forms of violence, extremism and drug abuse have been witnessed in Kenyan schools. School children in Kenya are increasingly being targeted by efforts to radicalize the country's youth which disrupt learning and pose threat to the country's security. In addition, school learners are faced with myriad challenges and issues owing to the legal, technological, social cultural and economic dynamics in society. Some of the challenges include: environmental and climatic change; social media influence; human sexuality, peer pressure, drug and substance abuse; conflict and crises; extreme violence and radicalization; terrorism and health issues. As a result, there is need to empower teachers in early disaster detection, surveillance and reporting mechanisms. The objective of this programme is to reduce school violence, radicalization, extremism, drug and substance abuse through the following activities:

- Develop framework on awareness creation and redress mechanisms on learner violence radicalisation, extremism, drug and substance abuse;
- Build capacity of learners, teachers and trainers, Institution administrators, education officers, BOMs and parents on on-site early detection and surveillance of learner behaviour, conflict prevention and management;
- Integrate themes related to peace education, integrity, global education, radicalization, drug and substance abuse, violence and extremisms in the curriculum;
- Develop a multi-sector framework to guide interventions related to school violence, radicalism, extremism and drug abuse prevention and implementation of peace and global citizenship initiatives;
- Undertake research on emerging forms of school violence, radicalism, extremism, drug abuse and associated redress mechanisms;
- Develop protection systems including counselling and supportive referrals that respond to the mental health and psychosocial needs of learners;
- Review pre-service and in-service teacher training programmes to incorporate peace and global citizenship education; and
- Develop a manual on child safety and security against radicalization and violent extremism for institutions of basic education and training.

Programme 1.2: Mainstream Gender Issues in Education and Training at All Levels

Teenage pregnancy amongst school going girls is on a worrying trend with statistics showing that one in every five girls between 15-19 years of age has begun childbearing. Apart from teenage pregnancy, the Kenyan girl child is adversely affected by gender issues ranging from female genital mutilation, early marriages, traditional practices that have preference for the boy's than the girl's education, gender based labour division which affect the girl child school performance since girls fail to competitively do their school given homework. The objective of this programme is to address the challenges facing the girl child through the following activities:

- Develop a strategy to prevent teenage pregnancy;
- Establish clubs to promote life skills programmes among girls especially in day schools;
- Undertake community awareness and sensitization on the importance of girl child education;
- Establish a multi-sectoral coordination Unit to respond to the challenges of the girl child;
- Provide bursaries to girls from most vulnerable communities;
- Provide sanitary towels for girls in targeted counties;
- Build the capacity of teachers in life skills, guiding and counselling to effectively respond to changes in social behaviour of leaners;
- Establish low cost boarding primary schools and rescue centres for girls; and
- Develop guidelines on gender based violence.

Programme 1.3: Promote Education in Emergencies

Some vulnerable children face challenges in accessing quality education due to natural or man-made disasters such as floods, drought, fires, insecurity, cattle rustling, inter-ethnic clashes, inter-clan clashes, terrorism and political instability, among others. For instance, on average, drought events affect an estimated 250,000 school age children and 8,000 teachers annually to varying severity levels. The objective of this programme is to enhance the emergency preparedness in the sector and provide interventions aimed at ensuring continuity of education during disasters and emergencies. This will be achieved through the following activities:

- Undertake a risk and disaster mapping of education institutions across the country;
- Develop guidelines to operationalise the disaster management policy;
- Build capacity of teachers, learners and school administrators in emergency preparedness and response;
- Develop a strategy on safety preparedness and response; and
- Develop a strategy to mobilise resources for post school disaster reconstruction.

Programme 1.4: Prevent HIV and AIDS Infections

The achievement of Kenya Vision 2030 and Sustainable Development Goals is threatened by the HIV and AIDS pandemic which has devastating and far reaching effects on education and training. Studies show that knowledge of HIV and AIDs among learners is quite low. Learners still engage in unprotected sexual activities exposing them to the risk of HIV infection. Those who are infected by HIV and AIDS face stigma and discrimination and lack adequate family support. Other challenges faced by infected and affected learners include; inadequate psycho-social support, inadequate capacity to deal with HIV and AIDS-related

issues, and lack of coordination for response activities. The objective of this programme is to prevent new HIV infections in learning institutions through the following activities:

- Disseminate the Revised Education Sector Policy on HIV and AIDS (2014) to education managers and stakeholders within the education sector;
- Develop a module in NEMIS to collect data related to HIV and AIDS;
- Sensitise learners, teachers and school communities on HIV and AIDS prevention, treatment, care and management;
- Develop a framework for Health and Wellness programme; and
- Build the capacity of education personnel against stigmatization and discrimination of learners living with HIV and AIDS.

Programme 1.5: Promote Education for Sustainable Development (ESD)

The National Goals of Education emphasize the development of individual capacity to enable Kenyan citizens to meet the social, economic and environmental needs of the country. Article 10(2d), of the Constitution of Kenya recognises sustainable development as one of the national values and principles of governance that bind Kenya as a nation. This programme aims at enhancing sustainable development through education and training to ensure that all learners acquire knowledge and skills on human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and cultures. Challenges of climatic change continue to exist such as droughts, floods, frost and heat waves. There is a need for increased awareness on environmental issues for sustainable development. The overall objective of this programme is to operationalise the ESD policy and equip learners with knowledge and skills needed to promote sustainable development. The following activities will be implemented:

- Develop ESD Action plan;
- Build capacity of education managers and stakeholders on integration of ESD and climate change in all learning institutions;
- Conduct awareness campaigns on ESD for learners and school communities; and
- Monitor and evaluate ESD policy implementation in learning institutions.

Programme 1.6: Enhancing Mentorship, Moulding and Nurturing of National Values.

Learners in institutions of education and training have varied personal mentorship needs. Increasingly, young people have to handle issues dealing with career choices, peer pressure, harmful traditional practices and negative media influence. In addition, the challenge of corruption in Kenya is enormous and is increasingly inhibiting the realization of the country's economic blueprints, its aspirations and the future of the citizenry. The objective of this programme is to empower learners to deal with day to day challenges and inculcate integrity and other values such as patriotism, hard work, respect, good stewardship, protection of public property, among others. These values are catalytic in the promotion of ethics and the building of a corruption-intolerant society. To achieve this, the following activities will be implemented:

- Develop positive discipline manual and teachers training handbook;
- Establish guidance and mentorship departments in all learning institutions;

- Build capacity of teachers in mentorship, life skills, guidance and counselling, and values;
- Build capacity of learners on peer to peer support programmes;
- Establish pastoral programmes and chaplaincy in all institutions of education and training;
- Establish integrity clubs in all institutions of learning; and
- Develop modules to guide integration of life skills, guidance and counselling in pre-service and in-service teacher training programmes.

4. COST AND FINANCING OF NESSP

This chapter covers the cost of implementing the programmes and corresponding activities identified in the plan. In addition to the costs, the chapter presents the financing of the programmes given the prospective resources that are likely to be available in the sector.

The economic outlook of the plan implementation period has been projected based on expected growth of the Gross Domestic product, the tax pressure, the resources committed to education from domestically generated revenue and the intra-sector sharing of resources. With the projected annual average growth of 6%, the country's GDP is expected to increase from KES 8.14 trillion in 2017 to KES 10.9 trillion, a 34% increase during the plan period. The tax pressure – domestic revenue generated as a share of the GDP – is projected to increase by 0.7% from 19.1% in 2017 to 19.5% in 2022. The effect of this is a projected collection of KES 2.13 trillion in 2022 compared to KES 1.55 trillion in 2017. Assuming the recurrent resources to education as a share of domestic resources remains conservative at 25%, the total recurrent resources likely to be available to education sector will grow from KES 382 billion in 2017/18 to KES 524 billion in 2022 representing a 37% increase over the period. As shown in the financial review section of the diagnostic, the share of recurrent resources spent on basic education averages 70%. Assuming the share remains the same over the plan implementation period, the recurrent resources that are likely to be available will grow from KES 267.2 billion to KES 366.2 billion.

Table 15: Macroeconomic Forecast

	2017	2018	2019	2020	2021	2022
GDP (million KES)	8,144,373	8,633,035	9,151,017	9,700,078	10,282,083	10,899,008
Domestically-generated revenues as % of GDP	19.1%	19.2%	19.3%	19.4%	19.4%	19.5%
Domestic revenues excluding grants (million KES)	1,553,613	1,654,807	1,762,552	1,877,269	1,999,407	2,129,443
Share of Domestic Revenue spent in recurrent Education	25%	25%	25%	25%	25%	25%
Total recurrent resources expected in Education Sector (millions KES)	382,261	407,159	433,669	461,895	491,947	523,942
Total recurrent resources expected in Basic Education (millions KES)	267,188	284,591	303,121	322,849	343,855	366,218

Source: Computation based on the MOE simulation model (2018)

1.1 Simulation Parameters and Targets

The country has covered tremendous grounds in the internationally agreed conventions on education notably closing in on universal primary education under the Millennium Development Goals. Kenya's commitment to making the globe a better place is further seen in the ratification of the Sustainable Development Goals – Goal 4 of which has been adequately considered in this plan. The plan envisages increased access to quality education at all levels of education.

Increasing the Pre-primary Gross Enrolment Rate from 76.6% to 88% total enrolment to increase by 22%, from 3.2 million learners in 2017 (the baseline) to about 4 million learners

in 2022, two thirds of whom are expected to be enrolled in public schools. The additional enrolment in public schools will require additional teachers to be employed based on prescribed staffing norms. In 2017, the PTR in public schools was established to be 31. The plan targets to achieve a PTR of 1:30 by 2020 and be marinated at this level through 2022. This will see the total staff compliment in Pre-primary grow from 68,800 to 87,500.

Table 16: Simulation Parameters and Results

	2017	2018	2019	2020	2021	2022
Pre-primary						
Gross Enrolment Rate	76.6%	78.9%	81.1%	83.4%	85.7%	88.0%
Pupil Teacher Ratio	31	31	31	30	30	30
Average Class Size	47	45	43	42	40	38
Total Enrolment	3,199,841	3,334,386	3,473,303	3,616,718	3,764,762	3,917,569
Public Enrolment	2,144,563	2,234,736	2,327,840	2,423,958	2,523,178	2,625,591
Number of teachers	68,823	72,255	75,834	79,567	83,460	87,520
Primary Education						
Retention Between Standard 7 and 8	80.6%	84.5%	88.4%	92.2%	96.1%	100.0%
Gross Enrolment Rate	106.7%	105.5%	104.3%	102.9%	102.0%	101.3%
Pupil Teacher Ratio	41	41	41	41	41	40
% of BOM Teachers	14%	13%	13%	12%	11%	10%
Average Class Size	35	36	37	38	39	40
Total Enrolment	10,544,485	10,656,753	10,774,684	10,910,527	11,065,111	11,222,185
Public Enrolment	8,595,111	8,683,547	8,776,180	8,883,358	9,005,264	9,128,824
Total number of Government Teachers	213,772	215,367	219,724	221,481	223,238	224,995
Secondary Education						
Transition from Primary to Secondary	81%	83%	84%	85%	87%	88%
Gross Enrolment Rate	68%	64%	64%	67%	74%	83%
% of BOM Teachers	34.0%	31.2%	28.4%	25.6%	22.8%	20.0%
Average Students Per Stream	45	45	44	42	41	40
Total Enrolment	2,830,838	2,718,788	2,779,170	2,997,012	3,375,816	3,826,755
Public Enrolment	2,512,743	2,416,647	2,473,756	2,671,365	3,013,184	3,420,415
Total number of Government Teachers	93,018	98,175	98,918	122,160	145,402	168,644
Enrolment in Adult Education						
Enrolment in Youth Polytechnic	80,856	172,944	171,243	166,134	160,351	153,556
Tertiary Education						
Number of students per 100,000 population in TVET	435	609	782	956	1,130	1,304
Enrolment in TVET	121,700	291,271	384,437	482,079	584,212	690,841
Number of students per 100,000 population in HE	1,211	1,269	1,298	1,327	1,356	1,385
Enrolment in University	564,507	607,449	637,763	668,887	700,808	733,513
Enrolment in Public University	479,312	509,811	528,991	548,241	567,526	586,810
Number of lecturers in public Universities	13,654	15,572	17,390	19,478	21,896	23,654

In primary, one of the challenges identified in the ESA is the retention of students in the last two grades. Close to 20% of learners are lost to the system. The plan projects to improve retention in these grades to 100% by addressing supply side issues in the sector and working with other Government agencies to address the demand side issues that contribute to the loss of learners at this prime stage. One of the supply side issues being addressed is reforming the curriculum to make it relevant to the Kenyan context and also make it interesting for the learner. Coupled with high Gross Intake Rate in Standard 1, the Gross Enrolment Rate in Primary is targeted to remain above the 100% mark as the overage and underage learners in primary slowly ease off. The enrolment Rates will see the enrolment potentially grow from 10.5 million in 2017 to 11.2 million in 2022.

The PTR in public primary has been established to be 1:41 – nationally the teachers available are not sufficient to offer quality education to learners in primary schools. The distribution of teachers remains one of the greatest challenges in the sector. In addition to addressing the distribution of teachers, the sector is committed to making better use of teachers by improving the current staffing towards the recommended norms of 1:40. In the plan

implementation period, this commitment is projected to realise an improvement from 1:41 in 2017 to 1:40 in 2022. Noting the potential increase in the enrolments in public schools and roll out of the competency based curriculum (CBC), the sector will require an addition of 9,000 teachers recruited in the plan period.

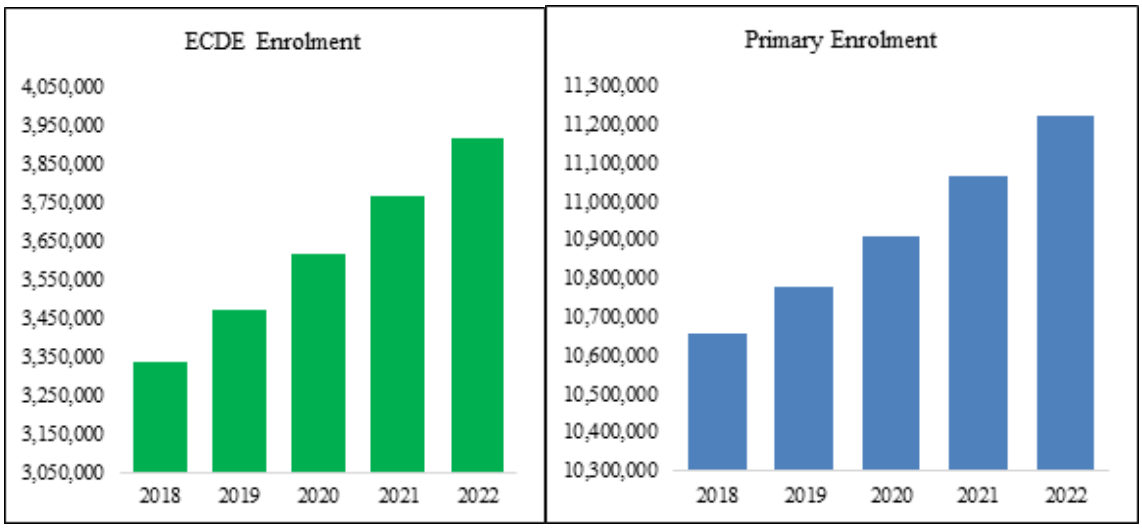


Figure 8: Evolution of Enrolments in Pre-primary and Primary
Source: Computation based on the MOE simulation model (2018).

In secondary, transition is projected to reach 100% with the gross enrolment rate increasing from 70.3% in 2018 to 100% in 2022. This will see the enrolment in secondary grow by almost 1 million from 2.8 million in 2017 to 3.8 million in 2022. The enrolment in public schools is likely to increase from 2.5 million in 2017 to 3.4 million in 2022 – a net increase of 900,000 students over the plan period. A third of the teachers in secondary are employed by the school BOM, transferring the cost of retaining such teachers to households. The sector is committed in this plan to address this by reducing the share of BOM teachers from 34% in 2017 to a maximum of 20% by 2022. To do this, the total number of teachers employed by the government will almost double from 93,018 in 2017 to 168,644 in 2022. This significant increase is intended to address the growing teacher shortage at the secondary school subsector while at the same time implementing the policy of 100% transition of learners from primary to secondary school.

In tertiary education, tripling TVET coverage from 435 students per 100,000 populations will increase the enrolment in TVET from 121,700 students in 2017 to 691,000 in 2022. At university level, the coverage is targeted to increase from 1,211 students per 100,000 populations resulting in the increase of enrolment from 564,700 in 2017 to 733,500 in 2022. Correspondingly, the enrolment in public universities is projected to increase from 479,300 in 2017 to 586,800 in 2022. The plan envisages considerable infrastructural improvements in TVCs and universities to accommodate the surge in enrolments.

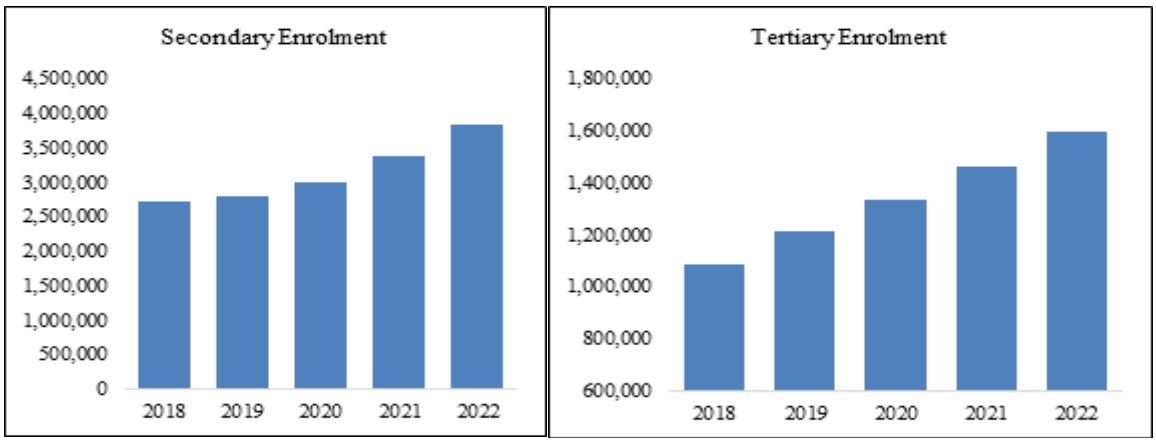


Figure 9: Evolution of Enrolment in Secondary and Tertiary Levels of Education
Source: Computation based on the MOE simulation model (year)

1.2 Cost of Implementing the Plan

The projected cost of the programmes and their associated activities as presented in the plan is KES 2.984 trillion over the 5-year period – KES 2.68 trillion in recurrent costs and KES 299.84 billion in capital. The projected cost is based on the ambitious increment in enrolment at all levels coupled with the activities identified to strengthen the system for quality service delivery. The summary of the cost of implementing the sector plan is shown in Table 17 that follows.

Table 17: Total Resource Requirements

Cost Type	2018	2019	2020	2021	2022	TOTAL
Total Recurrent Costs	443,739	481,071	526,807	582,809	649,383	**2,683,809**
Total Development Costs	12,428	70,944	73,031	74,688	68,747	**299,838**
Grand Total for NESSP	**456,167**	**552,015**	**599,838**	**657,497**	**718,130**	**2,983,647**

Table 18 presents a summary of the recurrent costs projected for implementation of the sector plan disaggregated by the various sub-sectors. The total recurrent requirements total KES 2.68 trillion over the 5-year period. Administrative costs constitute 2.3% of the total projected recurrent costs. Primary education will require the highest single spending, the share of recurrent costs amounting to 33.3%. This will be followed by secondary education at 23.8%. Higher education costs will constitute 23% of the recurrent costs with technical and vocational education constituting 8.4% of the recurrent costs. Pre-primary education requirements constitute 3.1% of the recurrent costs.

Table 18: Summary of Recurrent Costs

	2017	2018	2019	2020	2021	2022	TOTAL
Central administration	11,357	11,698	12,049	12,410	12,782	13,166	62,105
Pre-primary education	10,511	11,681	12,927	17,695	19,245	20,887	82,434
Primary education	157,529	163,810	170,477	177,823	185,801	196,358	894,269
Secondary Education	98,893	101,262	105,308	121,207	142,588	169,069	639,433
Teacher education	255	192	199	205	212	219	1,027
Technical/vocational	10,055	24,835	33,847	43,851	54,933	67,187	224,653
Literacy and non-formal education	1,153	1,539	1,539	1,539	1,539	1,539	7,693
Higher education	90,328	101,946	112,015	122,822	134,406	146,806	617,994
System Strengthening		26,776	32,711	29,257	31,304	34,153	154,200
Total Recurrent Costs (KES in million)	380,081	443,739	481,071	526,807	582,809	649,383	2,683,809

In order to support delivery of quality and relevant education, the plan envisages development of policies, frameworks and strategies as well as their implementation. These have been consolidated into a single item coded as system strengthening totalling to KES 154.2 billion over the next 5 years and will constitute 5.7% of the total recurrent cost. Table 19 presents details of the system strengthening requirements by delivery units.

Table 19: System Strengthening Costs by Delivery Unit

Delivery Unit	2018/19	2019/20	2020/21	2021/22	2022/23	Sub- Total
Adult and Continuing Education	3,069	3,164	100	35	5	6,373
Cross Cutting and Contemporary Issues	10	253	373	340	222	1,197
Governance and Accountability	16	69	86	81	16	268
Inclusive Education at Basic Education	285	368	344	309	57	1,363
Kenya National Qualifications Framework	0	35	95	30	0	160
Post Training and Skills Development	60	724	684	842	777	3,087
Pre-Primary Education	13	339	395	534	560	1,842
Primary Education	230	909	859	800	680	3,478
Quality Assurance and Standards in Basic Education	39	33	33	30	0	135
Science Technology and Innovation	168	621	738	615	555	2,696
Secondary Education	21,808	22,382	24,155	27,257	30,891	126,492
Teacher Education, Professional Development and Management	15	877	53	3	3	951
Technical and Vocational Education and Training	1,004	2,782	1,002	377	327	5,494
University Education	59	156	340	50	60	665
Grand Total	26,776	32,711	29,257	31,304	34,153	154,200

The total cost of development for all the priorities and programmes identified in the plan is estimated at KES 300 billion over the five-year period. More than 60% of the total cost of development will go towards technical and vocational education. Table 20 presents the summary of capital costs by delivery units.

Table 20: Summary of Capital Costs

Delivery Unit	2018/19	2019/20	2020/21	2021/22	2022/23	Sub-Total
Adult and continuing education	0	430	430	100	0	961
Cross cutting issues	0	100	150	150	70	470
Governance and accountability	0	1,000	1,000	1,000	1,000	4,000
Pre-primary education	0	40	40	40	40	160
Primary education	300	5,200	7,300	7,300	5,000	29,900
Science technology and innovation	450	650	650	650	650	3,050
Secondary education	2,963	5,246	5,662	6,110	4,903	44915
Special needs education at basic education	5	1,588	909	1,427	244	4,174
Teacher education, professional development and management	190	310	240	260	240	1,240
Technical and vocational education and training	20	46,180	46,200	47,201	46,400	110,860
University education	8,500	10,200	10,450	10,450	10,200	101,390
Grand Total	12,428	70,944	73,031	74,688	68,747	301,120

1.3 Resourcing the Sector Plan

The economic forecasting and the resource projection at the beginning of this chapter are used in this section to finance the costs established in the previous section. Table 21 presents resource requirements and financing gap for the education sector. The sector is likely to receive cumulative of KES 2.32 trillion in recurrent budget over the 5-year plan implementation period against the plan cost of KES 2.984 trillion. Without commitments

from development partners, the immediate resource gap is KES 665 billion (USD 6.65 billion).

Table 21: Resource Requirements and Financing Gap for the Education Sector

	2018	2019	2020	2021	2022	TOTAL
NESSP expenditure requirements (Million KES)	456,167	552,015	599,838	657,497	718,130	2,983,647
Total projected public resources for education sector (million KES)	407,159	433,669	461,895	491,947	523,942	2,318,612
Total projected donor financing (million KES)						0
Total expected resources (million KES)	407,159	433,669	461,895	491,947	523,942	2,318,612
Financing gap (Million KES)	49,008	118,345	137,943	165,551	194,189	665,035
Gap in million USD	490	1,183	1,379	1,656	1,942	6,650

Considering the fact that resource forecasting only includes recurrent resources, Table 22 compares the plan's recurrent costs and the recurrent resources. With a total cost of KES 2.68 trillion spread over the five-year period, the total resource gap in recurrent financing is likely to be KES 365.2 billion (USD 3.652 billion) – noting that this excludes potential commitment from development partners.

Table 22: Recurrent Resource Requirements and Financing Gap for Education Sector

	2018	2019	2020	2021	2022	TOTAL
NESSP expenditure requirements (Million KES)	443,739	481,071	526,807	582,809	649,383	2,683,809
Total projected public resources for education (million KES)	407,159	433,669	461,895	491,947	523,942	2,318,612
Total projected donor financing (million KES)						0
Total expected resources (million KES)	407,159	433,669	461,895	491,947	523,942	2,318,612
Financing gap (Million KES)	36,580	47,401	64,912	90,863	125,442	365,197
Financing Gap (Million USD)	366	474	649	909	1,254	3,652

In basic education, with the assumption that 70% of the resources are likely to be voted, the total resources likely to be available will be KES 1.62 trillion over the five-year period against requirements totalling KES 1.86 trillion over the same period. Under this circumstance, basic education is likely to experience a resource deficit of KES 239.6 billion (USD 2.4 billion). Table 23 shows the recurrent resource requirements and finance gap for basic education sub-sector.

Table 23: Recurrent resource Requirements and Financing Gap for Basic Education

	2018	2019	2020	2021	2022	TOTAL
NESSP expenditure requirements (M KES)	300,740	314,615	345,703	380,068	519,103	1,860,229
Total projected public resources for basic education (M KES)	284,591	303,121	322,849	343,855	366,218	1,620,633
Total projected donor financing (M KES)						0
Total expected resources (million KES)	284,591	303,121	322,849	343,855	366,218	1,620,633
Financing gap (Million KES)	16,149	11,495	22,853	36,214	152,885	239,596
Financing Gap (Million USD)	161	115	229	362	1,529	2,396

5. IMPLEMENTATION ARRANGEMENTS, MONITORING, EVALUATION AND RISKS

This chapter sets out how the NESSP 2018-2022 will be implemented. In addition, it presents the monitoring and reporting arrangements put in place, a monitoring framework and identifies the key likely risks with their mitigating measures.

5.1 Implementation Arrangements

The NESSP will be implemented through the existing structures of Ministry of Education. As identified in the sector diagnosis, the non-alignment of systems and institutions in the sector stands out as a threat to the implementation of this plan. The programmes outlined in the governance and accountability section are expected to deal with these challenges. For effective alignment and delivery, this plan has proposed the creation of the NESSP Co-ordination Unit, which will take the form of a multi-agency secretariat, to spearhead the implementation of this plan. The NESSP Co-ordination unit will be accountable to the Principal Secretaries of the four State Departments, who will report regularly to the Cabinet Secretary on progress according to the NESSP Results Framework and the Monitoring and Evaluation Framework. The NESSP Co-ordination Unit shall:

i Draw up a detailed overview plan to carry out the changes over an agreed time period based on the multi-year action Plan;
ii Monitor the establishment of new systems and processes against the set of agreed performance targets as the basis for measuring and reporting progress;
iii Develop a communication strategy and well prepared written materials to inform all people in the education sector and the wider community of the changes and their timing;
iv Ensure capacity and capability building, including training programmes for people taking on new roles within the structure; and
v Regularly report to the Cabinet Secretary through the Principal Secretaries on progress and risk mitigation strategies as required.

5.2 Institutional Framework and Responsibilities of Monitoring and Evaluation

In this plan, Monitoring and Evaluation is to produce information that is used to take corrective actions in the implementation of activities and programmes (formative evaluation) and to inform on the relevance, efficiency, impact and sustainability of the different activities/programmes to inform actual and future policies (summative evaluation). The process is organised at different levels from the field/school (day to day monitoring), to the county, national government and development partners/international community.

The Central Planning and Project Management Units (CPPMU) headed by the Chief Economists (from Basic Education, TVET, University and Post Training and Skills Development) will be part of the NESSP Co-ordination Unit specifically responsible for the overall coordination of the monitoring and evaluation of this plan. CPPMU also houses statisticians from the Kenya Bureau of Statistics (KNBS) with expertise in statistical analysis. Apart from the NESSP Co-ordination Unit (Central Planning and Project Management

Units), the Kenya NESSP 2010 – 2020 will be monitored by multi-level M&E system, from the school level to the Ministry headquarters as follows:

- Decentralised M&E: from ground level institutions (e.g. schools through their SMCs and BOMs) to sub-counties, and counties to feed into regional and national annual reviews. This allows for district level reviews and institutional reviews especially at tertiary level during the ESP period;
- Centralised M&E: with the PBME, NIB and other subverted agencies as the key players – all contributing to the National Annual Review;
- The existence of semi-autonomous body such as KNEC and TSC provide opportunities to collect reliable information from specialised staff and institutions but poses challenges in term of M&E coordination; and
- External M&E: from the wider Government and other stakeholders (private sector, FBOs, CBOs) as well as international development partners through a Joint Annual Review.

5.3 Key Principles

The M&E Framework proposed here is based on four key principles:

- *Feasibility:* The process, objectives and output of the M&E framework must be reliable, readable and simple. Proposed indicators should be SMART (Specific, Measurable, Achievable, Realistic Time bound) and the process out to build on existing capacities that would be enforced in certain areas;
- *Stability:* The process, list of indicators and sources of information must be set once, for all, following a participatory approach. They must remain stable in time to properly assess trends in education;
- *Transparency:* Information on the education progress must be shared among stakeholders, donors, NGOs, communities and with the public according to agreed procedures. Statistical information should be released in a timely manner and communicated broadly; and
- *Accountability:* The responsibilities in implementation and reporting of activities and programme must be clearly established. The expected level of information must be defined precisely through the use of standardized way of reporting.

5.4 Monitoring Indicators

The NESSP plan progress and performance will be evaluated against a comprehensive set of indicators. The annex contains the multiyear action plan which outlines the sequence of activities, expected output and Output Indicators (OVI) per activity, resourcing per activity as well as responsible entities. Besides the multiyear action plan, the annex also contains the Logical Framework which will help to evaluate the plan from the input level to the outcome (impact level). The indicators are nested in three levels: (i) Priority (or keys indicators)-outcomes; (ii) Programme-outcomes; and (iii) Activities -process and outputs/inputs.

For all indicators in the Plan, the source of monitoring data has been identified including indicators for which no data is reported. NEMIS will be a key source for monitoring data for each sub-sector during implementation. The NEMIS is currently in operation and has been supporting digital registration of all learners/students and its source of data is the school. In

this plan, a number of programmes and activities have been outlined to deal with foreseen challenges. During the implementation phase, NEMIS will be expanded to collect more data related to NESSP indicators and also include learners from other sub-sectors: pre-primary, TVET and University. Further development and decentralization of EMIS will require building the human and infrastructural capacity at the at Ministry headquarters, County, Sub-County, agencies and learning institutions on NEMIS system management. On the overall, NEMIS will be reviewed and strengthened to establish orderly, timely, localized electronic data collection and publication in all counties.

Apart from NEMIS, the Plan will rely on a number of other key sources of information for monitoring including but not limited to institutions such as the Kenya National Examination Council, the Teachers Service Commission, the Kenya National Institute for Statistics, KISE, TVETA, CUE, and Directorate of Quality Assurance and Standards (DQAS).

5.5 Reviews

An important component of this NESSP, monitoring evaluation system is a set of reviews that form one of its principal outcomes:

- Annual reviews at the national, county and institutional levels (school levels) for feedback and refinement of policies, programmes and indicators;
- Mid-term and quarterly reviews to provide an opportunity for work-plan adjustments and to ensure that outcomes remain consistent with changing national priorities; and
- End-of-cycle evaluations to consider constraints encountered and ways and means of addressing them to inform the design of new projects, programmes and initiatives.

5.6 Instruments

The core instruments/events for reporting will be:

- Quarterly reports on budget and activities/programme implementation;
- County level reports and bi-annual reviews;
- Bi-annual joint sector review (one with a small group focusing on budget and formative evaluation and one comprehensive with large audience to develop the annual report);
- Annual financial external audits; and
- Mid-term and end of term external evaluation.

5.7 Major Assumptions, Risks and Mitigation Strategies

This plan constitutes a major reform of the education sector and is subject to a number of risks that need mitigation strategies. The implementation of NESSP depends on:

- Adequate allocation of required resources to ensure the activities of the plan are implemented;
- Effectiveness of the institutional framework for implementation;
- Satisfactory and sustained economic performance;
- Capacity of the National and County governments in prioritizing the education sector priorities;
- Effectiveness of public private partnerships in the sector and effective coordination of the sector stakeholders;

- Modalities for improving efficiency and effectiveness in utilization of available resources;
- Full transparency and accountability of on-budget and off-budget outlays;
- Financial prudence and full adherence to the PFM practices;
- Effective monitoring and evaluation.
- Adequate capacity at national, county, sub-county and institutional level and well thought out capacity building plan.

Table 24 highlights possible risks to achieving the targets expressed in the plan and associated mitigating measures.

Table 24: **Possible Risks and Mitigation Strategies**

Critical Risks	**Risks Mitigation Strategies**	**Responsibility**
Lack of institutional linkage and harmony within the sector to deliver to the promises of the plan. The sector is characterised by different agencies and institutions, some with duplicating roles and not to deliver to the learner.	● Review the structure of the education sector and its Agencies from the headquarters to the learning Institutions, with the review of making proposals for enhancing linkages and a focus on the delivery to the learner. ● Undertake functional analysis of implementing Agencies, directorates and departments, identifying areas of duplication and make proposals for reforms. ● All the above will seek to clarify roles and responsibilities.	● MOE ● County governments ● Sector SAGAs ● Sector directorates among others
Public Financial Management Challenges: ● Inability for funds to reach the intended beneficiaries, that is, the learners; ● Inadequate oversight at the school level on the school level resource use; ● Inability to follow the procurement procedures; ● Poor project planning at the school level; ● Inadequate institutional (school level) Audit capacity; and ● Budgeting and failure to introduce MTEF budgeting processes with clear sets of rules and priorities at sub-national levels.	● Undertake a Public Expenditure Tracking surveys at all sub-sectors- primary, secondary and tertiary to track the flow of funds and address any financial loopholes. ● Address limited capacity to audit institutions at decentralized levels. ● Strengthen NEMIS while ensuring that going forward, all learner's per capita allocations are based on NEMIS registered learners. ● Enhance financial management capacity by establishment of education sector IFMIS. ● Provision of management and procurement handbooks to schools to empower BOMs and head teachers in PFM issues including tendering processes. ● Address corruption, misuse of funds and gross inefficiency.	● MOE, County governments, Sector SAGAs, Sector directorates among others.
Natural disaster including floods, droughts, fires, insecurity, inter-clan clashes among others.	● Develop and implement a policy on education in emergency. ● Undertake a risk and disaster mapping of education institutions across the country. ● Build the capacity of teachers, learners and school administrators in risk and disaster early warning, prevention and surveillance systems. ● Set up county level multisector early warning, prevention and surveillance systems. ● Set up county level multisector coordination systems to coordinate responses to disasters by government and non-governmental agencies. ● Set up endowment fund for post school disaster	● MO ● County governments ● Sector SAGAs ● Sector directorates among others.

	reconstruction.	
Insufficient financing resulting from poor economic performance, shift of resources from the education sector to other sectors (especially those targeted under the Big Four Agenda), insufficient external financing among others.	● Rigorously apply needs-based funding, EMIS and IFMIS. ● Strengthen collaboration with key external education development partners and reduce off-budget and increase on-budget donor financing. ● Ensure strong governance and accountability to minimize financial impropriety.	● Development partners ● NGOs ● Faith based organisations ● MOE ● County treasury ● National Treasury
Inadequate capacity at the national and county levels to implement the plan.	● Build the capacity of staff in core aspects of education planning and management. ● Build the capacity of education teams at the national and county levels to support service delivery in schools.	● MOE ● County governments
Delay or failure to formulate and/or implement necessary policy reforms	● Prioritize and implement proposed reforms. ● Provide budget line for sector wide communication strategy	● MOE ● County governments ● Sector SAGAS ● Sector directorates
High cost of education due to unauthorized charges leading to high cost burden on households.	● Strengthen the inspectorate and enforce the regulations; ● Communicate regulations/fees guidelines and apply sanctions uniformly.	● MOE ● Parents Teachers ● Associations ● County Education Boards

6. ANNEXES

Annex 1: Kenya Education Sector Analysis

1 Demographic and Macroeconomic Context

1.1 Demographic, Macroeconomic and Public Finance Context

Kenya is bordered by Tanzania to the south and southwest, Uganda to the west, South Sudan to the north-west, Ethiopia to the north, and Somalia to the north-east. It covers 581,309 km^2. Swahili is the national language of Kenya and the first official language, spoken by nearly the whole population. The country's long-term development goals are set out in *Vision 2030*, which aims to transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment (Government of Kenya, 2012).

Four in every ten Kenyans are aged 3-17 and are of pre-primary, primary and secondary school going age. As at 2018, Kenya's population was estimated at 47.8 million, reflecting a 14.4 percent growth rate between 2013 and 2018. Table 1 presents the evolution of total population and Gross Domestic Product. The official school age is classified as follows: 3-5 for ECDE, 6-13 for primary, and 14-17 for secondary. As the table shows, four in every ten Kenyans are of school going age. The school-age population grew by a 13 percent between 2013 and 2018. This has an implication on the provision of education and employment opportunities for young people.

Table 1: Total Population and School-age Population (million)

	2013	2014	2015	2016	2017	2018*
Total Population (Million)	41.8	43.0	44.2	45.4	46.6	47.8
Population (3-17) (Million)	17.3	17.7	17.9	18.1	18.5	19.5
3-17 as % of total population	41.3	41.2	40.6	40.0	40.0	41.0

Source: Economic Survey Reports, Various. Notes *Provisional

Kenya's economy has recorded a relatively steady growth over the period 2013-2018. **Table 2** shows trends in GDP. The economy increased by 88 percent, from a GDP (market prices) of close to KES. 4.8 trillion in 2013 to about KES. 9 trillion in 2018. Real GDP annual growth rate averaged 5.6 percent, increasing from 5.7 percent in 2016 to 6.3 percent in 2018. The average wealth of Kenyans increased steadily over the period under review. In real terms, the GDP per capita increased by 15 percent, from about KES. 87,000 in 2013 to around KES. 100,000 in 2018.

Table 2: Gross Domestic Product

	2013	2014	2015	2016	2017	2018*
GDP, Market Prices (KES Bn)	4,745.0	5,402.6	6,284.2	7,023.0	8,144.4	8,905.0
GDP Growth, Constant Prices	5.9	5.4	5.7	5.9	4.9	6.3
GDP per capita current (KES)	113,539	125,757.0	142,315.9	154,802.3	174,790.7	186,2967
GDP per capita constant (KES)	87,261	89,430	91,989	94,797	96,788	100,310

Source: Economic Survey Reports, Various. Notes *Provisional

1.0.1 Public Resources and Spending

Kenya's fiscal out-turn during the financial years 2012/13 to 2018/19 shows that expenditures were above revenues by about 8 percentage points. Table 3 shows Kenya's fiscal outturn over the years 2014 to 2018. Revenues including grants, as a share of GDP, have remained constant- marginally increasing from 21.1 percent in 2014 to 21.2 in 2018. Total national government expenditures, as a share of GDP, did not also significantly change- reducing marginally from about 36.2 percent to 34.1 percent. On average, the government has been running a budget deficit. On average, over the years 2014-2018, total national government expenditures, as percent of GDP, were above revenues by about 13 percentage points.

Table 3: Government Resources and Spending

	2014	2015	2016	2017	2018*
Recurrent Revenues and Grants (KES, Bn)	1141.6	1266.0	1429.8	1561.4	1886.0
Total National Government Spending (KES, Bn)	1953.5	2047.4	2283.0	2576.1	3033.6
Recurrent Revenue and Grants, % of GDP	21.1	20.1	20.4	19.2	21.2
Total National Government Spending, % of GDP	36.2	32.6	32.5	31.6	34.1

Source: Economic Surveys, * Provisional

1.1 Social and Humanitarian Context

1.1.1 Social Context

Kenya has shown improvements in a number of social indicators. Error! Reference source not found. Table 4 shows selected social indicators for Kenya based on the latest available data as per the World Bank's World Development Indicators. The country recorded marginal growth in the Human Development Index (HDI), from 0.53 in 2010 to 0.56 in 2015. The expected and mean years of schooling, however, have been stagnant over time, remaining at 11 and 6 years, respectively. On life expectancy, Kenyans are living relatively longer, as life expectancy at birth increased from 62.9 years in 2010 to 66.6 years in 2015. On the other hand, fertility rates (births per woman) reduced from about 4.4 in 2010 to about 3.9 in 2015. Another factor is that Kenya is still a rural based country, with close to three quarters of its population living in rural areas. Among those living in urban areas, slightly more than half, 56 percent, live in urban slums. In relation to HIV, prevalence among 15-49 year olds is estimated at 5.6 percent. On unemployment, Kenya recorded 39.1 percent unemployment rate according to a recent report by the United Nations; Human Development Index (HDI), 2017. This is higher than unemployment rates in Ethiopia, Tanzania, Uganda and Rwanda.

Table 4: Kenya Basic Social Indicators

	2013	2014	2015	2016	2017
Human Development Index (HDI)	0.55	0.55	0.56	0.585	0.59
Education					
Expected years of schooling	11.1	11.1	11.7	11.9	12.1
Health					
Life expectancy at birth, total (years)	65.6	66.2	66.6	66	67.3
Fertility rate, total (births per woman)	4.1	4	3.9	3.85	3.79
Mortality rate, infant (per 1,000 live births)	39.6	38.2	36.5	35.6	34.9
Population and Infrastructure					
Rural population % of total population)	75.2	74.8	74.4	73.95	73
Total mobile money transfer (KES Bn)**		2,372.0	2,816.0	3,356.0	3,638.0

Individuals using the Internet (% of population)	13.0	16.5	21.0	26.0	30.2
Secure Internet servers (per 1 million people)	4.7	7.6	8.9	10.8	12.3
Secure Internet servers	212.0	350.0	421.0	522.0	623.2
Mobile cellular subscriptions (per 100 people)	71.8	73.8	80.7	81.3	81.9
Mobile cellular subscriptions (Mn)**		33.6	37.7	39.0	42.8

Source: World Development Indicators (2017).

1.1.2 Humanitarian Context

1.1.2.1 *Refugee Education in Kenya*

Kenya is ranked as one of the countries with the highest number of refugees and asylum seekers (hereafter referred to as refugees). As of January 2019, Kenya was host to 475,412 refugees and asylum seekers. The majority of refugees in Kenya reside in two camps (Dadaab – 209,979 and Kakuma – 188,513) with an additional minority living in urban areas across the country (76,920). While the number of refugees hosted in Kenya has reduced by 86,365 since the onset of the Voluntary Repatriation Programme to Somalia in 2014, political instability in neighbouring countries such as Somalia, South Sudan and the Democratic Republic of Congo continues to pose the risk of refugee influx to Kenya.

Kenyan legal instruments provide a solid foundation for the inclusion of refugee learners in the national education system. The Kenyan Constitution and the Basic Education Act (2013) stipulate access to education as the right of every child in Kenya. In 2006, the Government of Kenya enacted the Refugee Act which became operational in May 2007. This Act also states that refugees have a right to education. Furthermore, in October 2017, Kenya recognised the need for greater responsibility-sharing in protecting and assisting refugees and supporting host states and communities by adopting the Global Compact for Refugees and the Comprehensive Refugee Response Framework (CRRF) and in December 2017, signing the Djibouti Declaration. Education, training and skills development for all refugees and host communities is an important component of the CRRF approach, which places emphasis on inclusion of displaced populations in national systems.

As of January 2019, there were 220,811 refugees of school age (4-17 years), of which 66% were enrolled in pre-school, primary and secondary school. These statistics do not take into account the number of over-age learners attending school. Table 5 shows refugee children enrolment by location and levels of education. At present, there are 40 pre-schools, 48 primary schools and 16 secondary schools operating in refugee camps. In addition, there are 18 Accelerated Education Centres (primary) that provide opportunities for a limited number of out-of-school and over-age refugee adolescents and youth. All these refugee children follow the Kenyan curriculum and sit for end of cycle examinations for primary, secondary, technical, vocational education and training, as well as tertiary and university education. Refugee children attending public schools outside the refugee camps, especially in urban areas, are fully mainstreamed and benefit from Government programmes such as capitation grants for Free Primary Education and Free Day Secondary Education, among other initiatives. To date,

education services in refugee camps have been largely managed by the international community under the coordination of UNHCR.

Table 5: Refugee Children Enrolment by Location and Level of Education

	Pre-primary	Primary	Secondary	Post-secondary
Kakuma	11,480	42,538	11,120	3,645
Kalobeyei	2,966	12,422	1,280	353
Dadaab	7,103	45,4287	10,607	1,106
Urban*		8,615	400	
Total	**21,549**	**109,003**	**23,407**	**5,104**

Source: UNHCR EMIS, January 2019, Notes: Data on enrolment at the levels of pre-primary and post-secondary education not available for the urban population.

Basic education services in refugee camps have been largely managed by non-governmental organisations under the coordination of UNHCR. The Lutheran World Federation (LWF) has taken the lead in the provision of formal pre-school and primary education, while Windle International Kenya focuses on secondary education. This support is complemented by other agencies providing capacity development, infrastructural support, education supplies and school feeding programmes. Non-formal programmes at the primary and secondary levels are supported in both camps by LWF, the Norwegian Refugee Council (NRC), RET International, and Save the Children International (SCI).

As in their host communities, equitable access to education remains a challenge across refugee schools. While at the pre-school level there is near gender parity, at the primary level the gap widens, with more boys enrolling in school than girls. In line with evidence globally, the situation is far worse at the secondary level, with an average gross enrolment rate of 4 percent for refugee girls in Kenya compared to 21 percent for refugee boys. Gender parity is consistently under 0.5, with the newly arrived population in Kalobeyei faring worst. A comparison of enrolment data over the last 5 years, however, does indicate an increase from 17 percent in 2012 to 24 percent in 2017. This may indicate improved retention at the primary level, with more learners transitioning to secondary school.

Refugee schools face infrastructure challenges. Significant growth in school enrolment in refugee schools without comparable investment in school infrastructure, equipment and supplies, and teacher deployment has resulted in overcrowding and diminishing quality in education standards. An average of 160 children share a classroom, while the average teacher to pupil ratio is 1:101. All teachers from pre-school to secondary are contracted by UNHCR through the relevant implementing organization. Close to 78 percent of teachers in Kakuma, Kalobeyei and Dadaab are refugees and considered unqualified. These teachers are paid an incentive wage according to Kenyan law. The remaining 22 percent are Kenyan nationals registered with the Teacher Service Commission but also contracted by the implementing agency. Textbook pupil ratio and desk pupil ratio stand at 1:7 and 1:6, respectively. Insufficient numbers of teachers, and especially female teachers; low levels of remuneration, supervision and support; and lack of opportunities for certified training have led to high turnover among the teaching cadre, generally affecting the quality of education provided.

Despite the challenges, refugee learners in Kenya have excelled in the national primary examinations over the past five years. The 2017 results show even further improvement, with a pass rate of 93 percent in KCPE. This was higher than the national average of 76 percent, and refugee learners were among some of the top candidates at the county and national levels. In Kakuma, out of a total of 4743 candidates who sat for the 2017 KCPE exams, 4164 candidates scored 200 marks and above, resulting in a pass rate of 87.81 percent. Kakuma KCPE candidates have consistently performed well in the KCPE, with pass rates of 90 percent in 2016, 96.3 percent in 2015 and 86.7 percent in 2014. In Dadaab, out of a total of 3,241 candidates who sat for 2017 KCPE exams, 3,168 candidates scored 200 marks and above, representing a pass rate of 98 percent compared to a pass rate of 71 percent in 2016 and 87 percent in 2015.

A number of higher education (post-secondary) programmes are provided by local and international universities. Some of the universities include: Masinde Muliro University of Science and Technology (Kenya), Jesuit World Wide Learning (JWL), HU University of Applied Sciences, Utrecht university (Netherlands), Columbia University, University of Geneva, Strathmore University. Partners/non-governmental organisations also offer a variety of onsite, blended and certified learning opportunities. They include Windle International Kenya, Jesuit Refugee Service (JRS), Danish Refugee Council (DRC) and Lutheran World Federation (LWF).

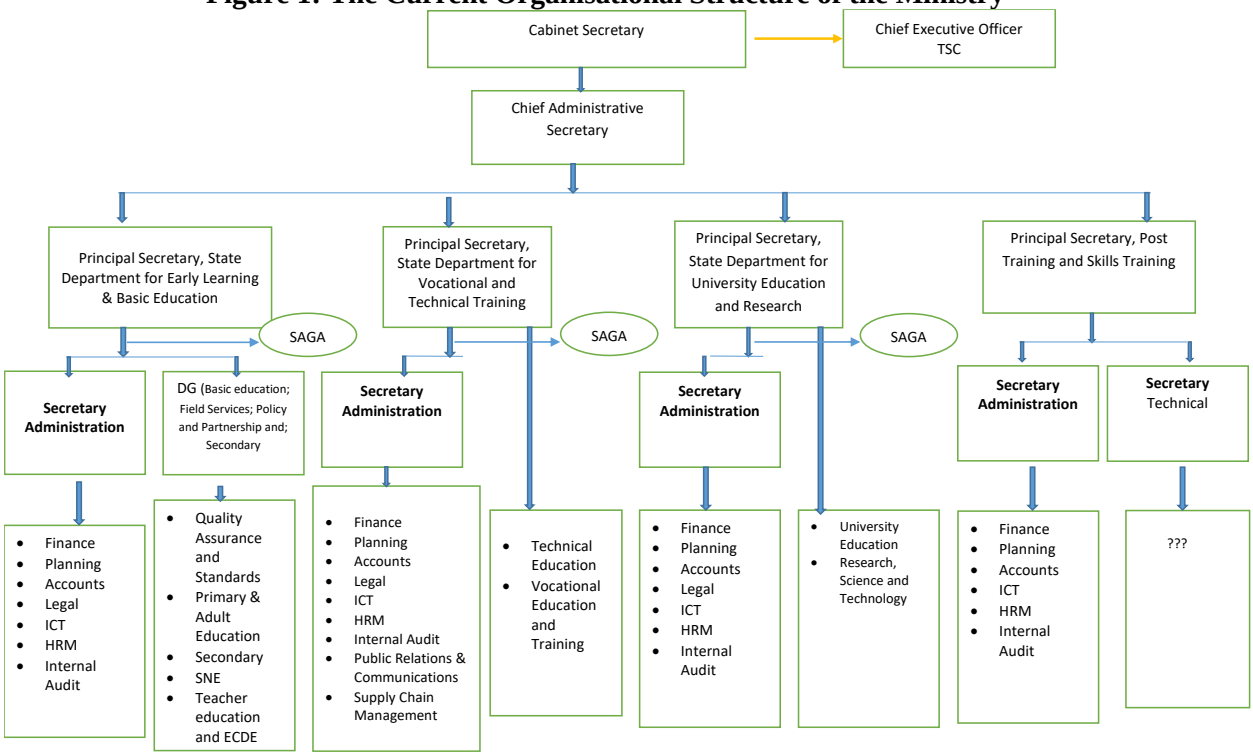
Access to higher education among refugees in the camps is low due to the camp's remote locality, high cost of available connectivity and limited digital and physical infrastructure. At the end of 2017, it was estimated that only 3 percent of refugees had access to higher education. In order to maximize the potential for these universities and partners to scale-up their reach, a university campus with the requisite physical and digital infrastructure was initiated in Turkana West in February 2018. The set-up of such a higher education space will develop refugee and host community talent pool, provide a platform for various training institutes to collaborate and donate/run courses, and develop a vibrant community of tertiary institutions that work collaboratively and in partnership to make the camp/settlement a global talent hub. The campus will facilitate academic collaboration between universities, and act as an educational broker for distance educational institutions who are interested in supporting refugee and host community education but lack the capacity to set-up infrastructure or maintain a presence. The campus will also allow students from Turkana West sub-county and beyond to receive holistic support.

2. Kenya's Education Sector Structure and Policy Framework

2.1 National Education Sector Administrative Structure

The Ministry of Education (MOE) is committed to the provision of quality education, training, science and technology to all Kenyans. Such training is aimed at contributing to the building of a just and cohesive society that enjoys inclusive and equitable social development. Figure 1 shows the current organisational structure of the Ministry of Education. At present, MOE is headed by the Cabinet Secretary (CS). Below the CS is the Chief Administrative Secretary (CAS). The Education Sector has four State Departments, each headed by a Principal Secretary (PS); and the Teachers Service Commission, which is an independent entity headed by Commission Secretary/ Chief Executive Officer.

Figure 1: The Current Organisational Structure of the Ministry



Source: Kenya NESSP Team

2.1.0 The State Departments in the Ministry of Education

- ***State Department for Early Learning and Basic Education (SDELBE):*** SDELBE covers Early Childhood Development and Education (ECDE), primary, secondary and teacher education. It is responsible for formulation and implementation of Basic Education policy; overseeing the provision of adult and continuing education; provision of policy direction for the implementation of ECDE; registration and administration of primary and secondary institutions, including special needs education institutions; setting standards and norms for management and quality assurance of basic education institutions; management of national examinations, assessment, and certification; development of curriculum for basic education; training of teachers and education managers; and representation of Kenya in the United Nations Educational, Scientific and Cultural Organization (UNESCO). Below the Principal

Secretary, SDELBE is the Secretary Administration and the Director General. The Director General heads directorates, shown in the figure, that discharges the core education mandate.

- ***The State Department for Vocational Education and Technical Training (SDVTT)***: SDVTT is responsible for promoting access, equity, relevant and quality technical and vocational education and training. The State Department does this through registration of TVET institutions; formulation, coordination, and review of policies and strategies in curriculum design, development, implementation, assessment and certification in TVET; provision of quality assurance services to TVET Institutions; setting of trainees' admission criteria to TVET institutions; promoting research, science, technology and innovation in TVET; and overseeing the management of National Polytechnics, Technical and Vocational Colleges, Vocational Training Centres and Technical Trainer Colleges. The department has three Semi-Autonomous Government Agencies (SAGAs). They are: Technical and Vocational Education and Training Authority (TVETA), Curriculum Development, Assessment and Certification Council (CDAC) and Kenya National Qualifications Authority (KNQA), which execute mandates in accordance with the relevant Acts establishing them.
- ***The State Department for University Education (SDUE):*** SDUE is mandated to formulate and review policies in university education; ensure prudent university education management; offer guidance in the management of continuing education in universities; initiate, promote and implement cultural, technical and scientific cooperation with other countries, in liaison with the Ministry of Foreign Affairs; administer scholarships offered by other countries; coordinate matters related to local and overseas universities education; as well as coordinate Student Exchange Programs for university students, and clearance of students proceeding overseas for university education.
- ***State Department for Post Training Skills Development (PTSD):*** PTSD is one of the four departments under Ministry of Education, established under Executive Order No 1 of June, 2018 (Revised). The Mandate of the State Department is to provide an institutional framework to devise and implement National, Sectoral and Workplace strategies to develop and improve the skills of the Kenyan workforce; as well as offer smooth transition from learning to earning. The State Department is committed to creating linkages between training, skills and industry to enhance employability and productivity. Towards this endeavor, the department will coordinate, promote and regulate post training and skills development initiatives. The department also seeks to reduce youth unemployment by building the youth's technical and entrepreneurial capacity to promote self-employment. This will therefore, guarantee a seamless transition from learning to earning.

2.1.1 The Teachers Service Commission (TSC)

TSC is an independent entity established under Article 237 of the Constitution of Kenya (2010) to regulate the teaching service in Kenya. The Constitution of Kenya (2010) mandates the Commission to register trained teachers; to recruit and employ registered teachers; to assign teachers employed for service in any public school or institution; to promote and transfer teachers; to exercise disciplinary control over teachers; and to terminate the employment of teachers. The Constitution further charges the TSC with the responsibility of reviewing the standards of education and training of persons entering the teaching service; reviewing the demand for and the supply of teachers; and advising the national government on matters relating to the teaching profession. The TSC Act (2012) further mandates the Commission to facilitate

career progression and professional development of teachers, as well as to monitor the performance of teachers.

2.1.2 Autonomous and Semi-Autonomous Government Agencies (SAGAs)

To effectively undertake its mandate, each State Department has some Autonomous and Semi-Autonomous Government Agencies (SAGAs). Box 1 shows SAGAs in the sector and their respective mandates.

Box 1: SAGAs in Kenya's Education Sector

SAGA	Mandate
Teachers Service Commission (TSC)	The commission is mandated to carry out the following functions; To register trained teachers; To recruit and employ registered teachers; To assign teachers for service in any public school or institution; To promote and transfer teachers; To exercise disciplinary control and terminate the employment of teachers; To review standards of education and training of persons entering the teaching service; To review demands for and supply of teachers and advise the national government on matters relating to the teaching profession.
Education Standards and Quality Assurance Council	Provide quality assurance services in education and training institutions.
Kenya Institute of Curriculum Development (KICD)	Conduct educational research and develop, review, vet and approve local and foreign curricula and curricular support materials for use in all levels of education and training in Kenya except university.
Kenya National Examinations Council (KNEC)	Administration of primary, secondary and tertiary examinations
Kenya Education Management Institute (KEMI)	Operate as an educational advisory centre and acts as a resource centre for the sector.
Kenya Institute of Special Education (KISE)	Train teachers and other stakeholders in special needs education.
Jomo Kenyatta Foundation (JKF)	Publish educational books for all levels of education and provides scholarships to needy learners at secondary school level.
Kenya Literature Bureau (KLB)	Publish learning and teaching materials for educational institutions at all levels.
Centre for Mathematics, Science and Technology in Africa (CEMASTEA)	Builds teachers' capacities to enable them cope with the pedagogy related challenges they face in the process of curriculum delivery in the area of mathematics, science and technology education.
Kenya National Commission for UNESCO	Coordinate UNESCO organized capacity building for Kenyans in the five UNESCO areas of competence.
National Council for Nomadic Education in Kenya (NACONEK)	Address the plight of marginalized children and youth in the country.
National Education Board	Advise the Cabinet Secretary, the department of education and related departments on policy matters.
Technical and Vocational Education and Training Authority (TVETA)	Promote access and equity to relevant and quality Technical and Vocational Education and Training by regulating, inspecting, registering and licensing institutions and programs.
TVET Funding Board (TVETFB)	Mobilize and manage financial resources for the purposes of TVET.
TVET Curriculum Development, Assessment and Certification Council (TVET CDACC)	Design, develop, assess and certify competency-based curriculum in TVET.
Kenya National Qualifications Authority (KNQA)	Establish and regulate the National Qualifications System, based on a National Qualifications Framework (NQF).
National Commission for Science, Technology and Innovation (NACOSTI)	Regulate and ensure quality assurance in science, technology and innovation sector and advice government in related matters.
Kenya National Innovation Agency (KENIA)	Nurture innovative ideas from individuals, training institutions, the private sector and similar institutions.
National Research Fund (NRF)	Mobilize and channel resources for research, science, technology and innovation.
Biosafety Appeals Board (BAB)	Make rules and regulations for appeal procedure, hear appeals from

	persons aggrieved by decisions made by the National Biosafety Authority (NBA), and communicate decisions to the parties involved and public.
Higher Education Loans Board (HELB):	Source for funds and finance Kenyan students enrolled in recognized institutions of higher learning. The Board also has the mandate of recovering all mature loans issued since 1974.
Commission for University Education (CUE)	Provide accreditation and ensure quality of university education in both public and private universities.
Universities Funding Board (UFB)	Mobilizes resources for financing university education.
Kenya Universities and Colleges Central Placement Service (KUCCPS)	Coordinate placement of Government sponsored students into universities and colleges.
Universities and Constituent Colleges	Provide university education
The Pan African University of Science, Technology and Innovation (PAUSTI)	Offer university programs through distance and e-learning mode.

Source: MOE (2017)

2.1.3 Education Sector Decentralized Units

For efficient management and delivery of education services, some responsibilities of education and training have been decentralized to county offices. Decentralization mainly involves transfer of some education management responsibilities to county and sub-county levels, while maintaining overall oversight at the MOE headquarters. Currently, the Regional Coordinators of Education manage education and training at the eight regional offices (previous provinces). Below Regional Coordinators, there are the County Directors of Education, with specific mandates as enshrined in the Basic Education Act (2013). In the same chain, sub-county offices have been established below the county directors' offices, with a view to enhancing efficiency and effectiveness in the delivery of services. The Teachers Service Commission has also decentralized some roles to counties, which are headed by TSC County Directors of Education, whose roles are teacher management in their respective counties. **Box 2** shows the roles and responsibilities of County Directors of Education.

Box 2: Roles and Responsibilities of County Directors of Education

- Oversee implementation of education policies;
- Co-ordination and supervision of all education officers and support staff at the county level;
- Management of basic education, adult continuing education, non-formal, special needs education, tertiary and other educational programmes;
- Initiating educational policies at county level;
- Liaise with Kenya National Examination Council on management of national examinations;
- Maintenance of quality assurance and standards in the county;
- Management and monitoring the implementation of educational programmes;
- Advising and facilitating the establishment and registration of learning institutions by the county government;
- Administration of education management information system and the related information and communication technology at the county level;
- Facilitate auditing of all basic education institutions in the county;
- Advise the County Education Board on selection and appointment of Boards of Management (BOMs), School Management Committees and Parents Associations;
- Co-ordinate capacity building and development for officers, school managers, Boards of Management and curriculum implementers;
- Admissions, transfers and discipline of students;
- Co-ordination of partners and education providers in the county, including links with Government Departments on all education matters;
- Supervision of handing and taking over in schools and educational institutions, in consultation with the Teachers Service Commission;
- Oversee the proper management and maintenance of school buildings, property
- and infrastructure development;

- Monitoring and evaluation of education programmes; and
- Management of co-curricular activities, sports education and talent development in basic education institutions in the county.

2.1.4 Education and Training in the Devolved System

Under the Constitution, education and training in Kenya is managed under a two-tier government, and that is the National and County Governments. The functions of National and County Governments are outlined in Schedule 4 of the Constitution. Education and Training functions of the National Government cover: education policy, standards, curriculum, examinations, granting of university charters, universities, tertiary educational institutions, institutions of research, primary schools, special education, secondary schools, special education institutions, and promotion of sports and sports education. The functions of the County Government, in relation to education, are: pre-primary education, village polytechnics, home craft centres, farmers' training centres, and child care facilities.

2.1.5 Education Sector Stakeholders

The education sector in Kenya has a wide range of stakeholders with varied interests in the learning process and outcomes. Kenya has a progressive relationship with external and national partners in the education sector. It enjoys a cordial relationship with development partners, including NGOs and civil society organizations (CSOs). Several programs that have been implemented in the sector, such as TUSOME, PRIEDE, and SEQIP, have benefited from technical and financial donor support. Development partners have also been playing a policy dialogue and monitoring role, as well as being actively involved in the education sector and sub-sector working groups. Besides development partners, CSOs have been playing different roles within the education space. Some have been leading citizen-led learning assessments and raising concerns about children's learning in Kenya. Others, such as faith-based organizations, are involved in the running of educational institutions in the country. The CSOs also participate in education policy formulation, implementation and monitoring. Box 3 lists stakeholders in Kenya's education sector and their potential roles.

Box 3: Stakeholders in Kenya's Education Sector

Stakeholder	Mandate
The National Treasury	Program funding and formulation of financial policies.
Other Government Ministries and Agencies	Formulation and implementation of Government policies.
Development Partners	Provide funds, technical support and capacity building.
The Public	Pay tax and consume services.
KNUT, KUPPET, KUDHEHIA, etc.	Collective bargaining for employee welfare.
Academic Institutions	Provision of expertise, professionalism, human capacity building.
Faith Based Organizations	Involved in the running of school facilities. They also provide spiritual and counselling services.
Media	Helps to transmit education information to the public.
Research Institutions (private and public)	Collaborative research, collaboration in program development, policy guidelines, synergies and capacity building.
Private sector and Civil Society	Partners with the Sector in Program development, implementation and community advocacy.
Households, parents and communities	Resource mobilization and management of the sector programs.
County Governments	Play a crucial role in augmenting the sector bursary fund and support development of infrastructure.
African Centre for Technology	A development research think tank on harnessing applications of science,

Studies (ACTS)	technology and innovation policies for sustainable development in Africa.
Kenya National Academy of Science (KNAS)	Advises the government on all matters related to science and technology under the auspices of the National Council for Science and Technology (NCST).
Kenya Institute for Public Policy Research and Analysis (KIPPRA)	An autonomous public institute providing quality public policy advice to the Government of Kenya and other stakeholders by conducting objective research and through capacity building in order to contribute to the achievement of national development Goals.
Head teachers and Principals Associations	KSSHA-Kenya Secondary Schools Heads Association promotes the rights and responsibilities of Principals. KEPSHA-Kenya Primary Schools Heads Association promotes the rights and responsibilities of Head teachers
TVET Principals Association e.g. Kenya Association of Technical Training Institutes (KATTI)	Provides linkage between TVET Institutions, MOEST and TSC

Source: MOE (2017)

2.2 Education Sector Policy Framework

The Constitution of Kenya (2010) provides the right to quality education and training to all. Articles 43(f) and 53(1) (b) of the Constitution provide for the right to education and the right to free and compulsory basic education, respectively. In actualizing the provisions to education, the Constitution, in its fourth schedule under Articles 185(2), 186(1) and 187(2), allocates functions between the National Government and County Governments. The National Government is mandated to develop education policies, curriculum, as well as maintain standards. It also deals with examinations and grants charters to universities. The County Government, on the other hand, is mandated to oversee Pre-Primary Education (PPE), village polytechnics, home craft centres, and child care facilities. In an effort to realize national aspirations as provided in the Constitution and Vision 2030, there has been policy provisions to offer direction in modernizing and re-branding the country's education and training system.

The Education Sector in Kenya is committed to the provision of quality education, training, science and technology to all Kenyans. Such training is aimed at contributing to the building of a just and cohesive society that enjoys inclusive and equitable social development. The Vision of the sector is: *to have a globally competitive education, training and research for Kenya's sustainable development* which is pursued with the Mission: *to provide, promote, coordinate the provision of quality education, training and research for the empowerment of individuals to become responsible and competent citizens who value education as a lifelong process.* The vision and mission are guided by the understanding that quality education and training contribute significantly to economic growth, better employment opportunities and expansion of income generating activities. In pursuit of the vision and mission, Kenya's specific National Goals of Education, as articulated in the existing policies, include:

- Foster nationalism, patriotism and promote national unity.
- Promote the socio-economic, technological and industrial skills for the country's development.
- Promote individual development and self-fulfilment.
- Promote sound moral and religious values.
- Promote social equality and responsibility.
- Promote respect for and development of Kenya's rich and varied cultures.
- Promote international consciousness and foster positive attitudes towards other nations.
- Promote positive attitudes towards good health and environmental protection.

2.3 Education Sector Commissions and Specific Policies

Several education reports/policies/commissions have had a significant impact on education and training in Kenya. Recent Government policy documents and programmes have focused on the importance of education. These include:

- Economic Recovery Strategy for Wealth and Employment Creation (ERSWC) 2003-2007;
- The Vision 2030;
- The Sessional Paper No. 10 of 2012 on Kenya Vision 2030;
- The Sessional Paper No. 1 of 2005 on education, training and research that led to reforms through a Sector Wide Approach to Planning (SWAP).
- Sessional Paper No. 14 of 2012 on Education and Training;
- The Sessional Paper No. 1 of 2005 on Education Training and Research;
- Policies on the HIV and AIDS, and Gender in Education (2007);
- The Non-Formal Education sub-sector policies;
- Nomadic Education sub-sector policies; and
- The Early Childhood Development Policy (2016).

Transformation of Higher Education and Training in Kenya report (2006) and the National Strategy for University Education (2007), provided a road map on university education in Kenya. The Sessional Paper No. 1 of 2005 on education, training and research led to reforms through a Sector Wide Approach to Planning (SWAP). In 2010, the ministry set up two taskforces to align the education sector to the Constitution of Kenya, 2010 and Vision 2030. Based on the reports, the education sector prepared legal frameworks as well as the national policy framework on reforming education and training sectors in Kenya.

2.4 Education Sector Legal Framework

2.4.1 Acts of Parliament

To actualize education policy provisions, specific Acts of Parliament and Regulations have been developed to facilitate the establishment of a more efficient and effective governance and management system for delivery of quality education. The sector is governed by the following Acts of Parliament: Basic Education Act (2013); Kenya Institute of Curriculum Development Act (2012); Kenya National Examination Council Act (2012); Teachers Service Commission Act (2012); Kenya National Commission for UNESCO Act (2013); TVET Act (2013); Science Technology and Innovation Act (2015); The Kenya Qualification Framework Act No. 22 of 2014; and the Universities Act (2012).

2.4.2 Commitments to International Conventions and National Legislations

Kenya is a signatory to several International Conventions and Agreements, showing her commitment to the development of education. These Conventions and Agreements underscore the need to eliminate all forms of discrimination and barriers, which then open doors for all citizens to be served with their right to education. Kenya is one of the few countries that were close to meeting the Universal Primary Education under the Millennium Development Goals and the Education for All targets. The Free Primary Education Policy (2003) and Free Day Secondary Education Policy (2008) are two significant policies that show Kenya's commitment to the right to education. In the current global orientation, Kenya has ratified Sustainable Development Goals and inherently showed its commitment to SDG4, which calls for inclusive and equitable quality education and promotion of lifelong learning opportunities for all. The goals set by the

international community will be domesticated through the 2018-2022 National Education Sector Plan (NESP). Some of these Conventions and Agreements that Kenya has ratified include:

- The Universal Declaration on Human Rights (1948);
- The Minimum Age Convention (1973);
- The Convention on the Elimination of All forms of Discrimination Against Women (CEDAW) of 1979;
- Convention on the Rights of the Child (CRC) of 1989 Jomtien World Conference (1990);
- International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families (1990);
- Beijing Declaration and Platform for Action (1995);
- Convention on the Elimination of the Worst Forms of Child Labour (1999);
- Dakar Framework of Action on Education for All (2000);
- Millennium Development Goals (MDGs) of 2000;
- Convention on the Rights of Persons with Disabilities (2006);
- Sustainable Development Goals (2015); and
- The Convention Relating to the Status of Refugees (1951).

2.5 The Education System in Kenya

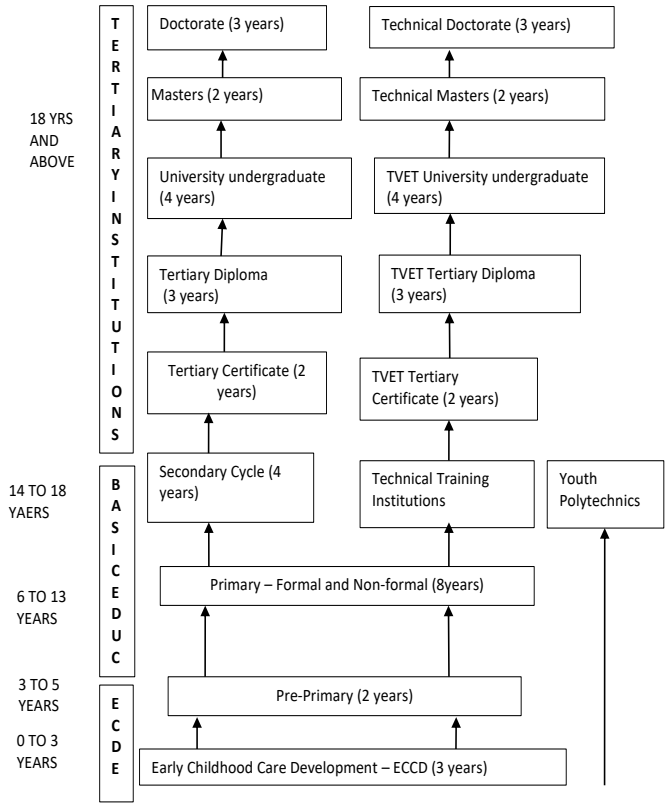


Figure 2: Structure of the Education System in Kenya
Source: MOE

Kenya follows an 8-4-4 system of education, which consists of 8 years of primary school, 4 years of secondary school and 4 years of higher education (Figure 2). The 8-4-4 system came into effect in 1986, replacing the 7-4-2-3 system, which had 7 years of primary, 4 years of ordinary level secondary, 2 years of advanced level secondary and 3 years of higher education. Currently, children also attend 1 or 2 years of pre-primary school before starting primary school. While the official reference age for pre-primary has been 3-5 years, the program draws participation from children between the ages of 3 and 7 years. Besides, there is significant TVET stream at both secondary and higher education levels. In addition, there is non-formal education, also known as adult education

Public primary education has been free and compulsory in Kenya since 2003, with the curriculum comprising of languages, mathematics, history, geography, science, crafts and religious studies. At pre-primary and lower primary (Standard 1-3), children are expected to be instructed using the language of the catchment area. This switches to English from Standard 4. At the end of their eighth year, pupils take examinations for award of the Kenya Certificate of

Primary Education (KCPE) that largely determines their progress to secondary education. Examinations are held in five subjects: Kiswahili, English, Mathematics, Science and Agriculture, and Social Studies. Children are supposed to enter secondary schools at age 14. Secondary education, which takes 4 years, is focused on both those pupils who plan to enter the labour market afterwards and those who plan to continue to higher education. At the end of year 12, secondary school students take examinations for award of the Kenya Certificate of Secondary Education (KCSE) that largely determines their progress to tertiary education.

Kenyans can join technical or vocational training programs after successfully completing primary or secondary education. TVET provides young people and the unemployed with the competencies to gain productive employment and provides those already in employment (including entrepreneurs) with an opportunity to upgrade their skills. Primary school graduates can enroll for artisan and trade programs at vocational training centres (formerly youth polytechnics) leading to a variety of diploma and certificate awards, among them a Craft Certificate. Secondary graduates, who score at least D and C- in KCSE can enroll in technical training institutes and institutes of technology leading to a variety of certificate and diploma awards, respectively.

The training programs offered by technical training institutes and institutes of technology vary in duration, and with the Competence Based Education and Training Curriculum which facilitates modularized training, the duration taken will vary from a trainee to another even within the same program. For instance, some trainees may choose to pursue all modules in a given program all at once and spend three years while another may decide to complete a module, join the labour market with the skills acquired and decide to return for training at their convenient time for their career development. Students who do not go through the technical training may join other short cycle tertiary education programs, including teacher training, which lasts two years for those intending to teach in ECDE and primary schools and three years for those intending to teach in secondary schools.

Kenyans who do not join technical or teacher training programs but meet the minimum conditions for university education, are eligible for admission. Students who score C+ (an average of 6.5 points out of a possible 12) and above in KCSE, are eligible for university entry. At the university, most students take a 4-year bachelor's degree program while some take 5 or 6-year undergraduate programs. After the undergraduate course, one can take 2 years of master's and 3 years for doctorate programs, respectively. **Error! Reference source not found.** illustrates the structure of education system in Kenya.

The Kenya Institute of Curriculum Development has developed a new curriculum known as Competence Based Curriculum (CBC) to replace the 8-4-4 system (Figure 3). The 8-4-4-system has been widely criticized for being heavily loaded in terms of content and being too exam oriented, putting undue pressure on learners. The structure of the new system is 2-6-3-3-3 and the CBC curriculum has already been piloted in 470 primary schools. The CBC mission is to nurture every learner's potential by ensuring that all learners acquire the core competencies. It places emphasis on Continuous Assessment Tests (CATs) over one-off examinations. Reform of the curriculum will ensure that the skills taught in education institutions match the requirements of the industry and will also emphasize national values, integration of science and innovation and adoption of ICT technologies.

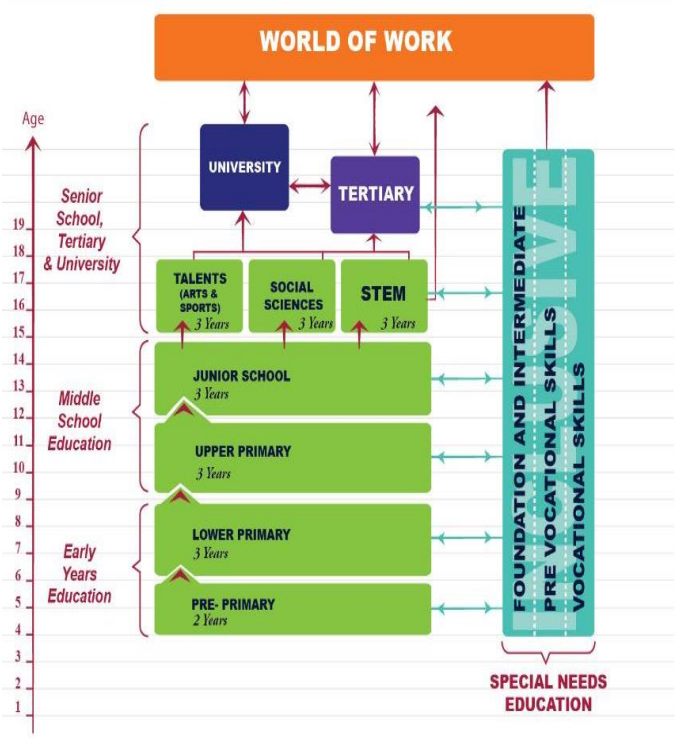


Figure 3: Structure of the Proposed Education System in Kenya
Source: KICD

Under the new Competence Based Curriculum system, basic Education will be organized into three levels: Early Years Education, Middle School and Senior School. Early Years Education includes Pre-primary and Lower Primary. Pre-primary education is for 2 years (Pre-primary 1 and Pre-primary 2 and will be for children aged between 4 and 5 years). The learners from Pre-primary 2 will join Lower Primary in Grade 1 at about 6 years of age and spend 3 years in this part of Early Years Education before joining middle school. Middle School Education will comprise three years of Upper Primary and three years of Lower Secondary education. In Upper Primary, learners will be exposed to a broad-based curriculum and will be given an opportunity for exploration and experimentation

Lower secondary will expose the learners to a broad-based curriculum to enable them to explore their own abilities, personality and potential, as a basis for choosing subjects according to career paths of interest at the senior school. Senior School comprises three years of education targeted at learners in the age bracket of 15 to 17 years and lays the foundation for further education and training at the tertiary level and the world of work. It will mark the end of Basic Education as defined in the Education Act, 2013. Tertiary and University education will last for a minimum of 3 years. Several concerns have been raised with regards to the Competence Based Curriculum: inadequate teacher preparedness, unclear cost implications, as well as unclear assessment framework.

3. Institutional Assessment of the Sector

3.1 Aligning Goals Towards Learning

As noted in the previous section, Kenya's education sector comprises various stakeholders, institutions and key players. At the school level, the central point of learning, the immediate players are learners themselves, teachers and the school management. Outside the school environment, the sector has numerous agencies and institutions that also affect learning. Beyond these stakeholders are other players such as the private sector, politicians, communities, and civil society organizations. There are also other ministries which are key in developing complementary systems where education can thrive. Bureaucrats can also not be forgotten, among others. The first part of this topic borrows heavily from the World Bank's World Development Report (2018): *Learning to Realize Education's Promise*, which was a discussion on system *alignment* and *coherence* for better learning outcomes.

The key challenge for Kenya is how to make sure that all these actors are aligned towards the goal of *ensuring that children are learning*. The need for systems to be aligned to the goal of learning was one of the main messages in the recent World Bank's World Development Report (2018): *Learning to Realize Education's Promise*. The danger is that in a complex system like the one Kenya's education system finds itself in, some members of the system may have divergent goals that are out rightly harmful to learning. For instance, some head teachers can use school inputs suppliers to inflate prices of school inputs. Another aspect is that teachers and other education professionals, even when motivated by a sense of mission, may engage in unethical behaviours such as absence from school and class, or may concentrate on fighting to maintain secure employment and to protect their incomes at the expense of student learning. Empirical information from the Service Delivery Indicators Survey carried out by the World Bank in 2013 found that 16.4% of the teachers in public primary schools were absent from school and for those who were in school, close to half were absent from class. As the World Development Report (2018) notes, none of this is to say that education actors do not care about learning. Table 6 shows possible stakeholder interests that are aligned to learning and those that are not.

Table 6: Multiple interests that govern the actions of education stakeholders

	Examples of ….	
Stakeholder	**Learning-aligned interests**	**Non-learning-aligned interests**
Teachers	Student learning, professional ethic	Private tuition, salary, job security
Head teachers	Student learning, teacher coaching	Rent seeking
Parents and students	Student learning, employment of Graduates	Family employment, family income, outdoing others
Bureaucrats	Well-functioning schools	Employment, salary, rent-seeking
Politicians	Well-functioning schools	Electoral gains, rent-seeking, patronage
Non-governmental schools (religious, Non-governmental, for-profit)	Innovative, responsive schooling	Profit, religious mission, funding
Suppliers of educational inputs (e.g., textbooks, information technology, buildings)	High-quality, relevant inputs	Profit, influence
Development Partners	Student learning	Domestic strategic interests, taxpayer

Source: World Bank (2018)

Apart from systems being aligned to the goal of learning, the World Development Report (2018) further underscores the need for parts of the education system to be coherent with one another. For example, Kenya is in the phase of implementing a new curriculum that emphasizes active learning and critical thinking. There is the Kenya Institute of Curriculum Development (KICD), which is spearheading curriculum reforms. KICD needs the support of the Teachers Service Commission (TSC) in training teachers to use more active learning methods. Another important body is the Kenya National Examination Council (KNEC), which will need to be involved in developing assessments. This case underscores the need for systems to be aligned to the goal of learning and the need for systems to be coherent with one another. Alignment in this context means that learning is made the central goal of various components of the system while coherence means that the components reinforce each other in achieving whatever goals the system has set for them. When systems achieve both, they are much more likely to promote student learning. Too much misalignment or incoherence leads to failure to achieve learning, though the system might achieve other goals (Figure 4).

Figure 4: Coherence and Alignment towards Learning
Source: World Bank (2018)

To be successful, the NESSP 2008-2022 needs to emphasize on both alignment and coherence of systems in the education sector. Too much misalignment or incoherence leads to failure to achieve learning, though the system might achieve other goals (Table 7). To what extent is Kenya's education system aligned and coherent? What are some of the challenges preventing alignment and coherence of the systems? This is a subject that is covered in the sub-sections that follow.

Table 7: System Alignment and Coherence

Are systems aligned?		Coherent to each other?	
		Yes	No
Aligned towards learning?	Yes	*High performance*: Systems well organized to promote learning *Examples*: High performers at each level (Shanghai [China], Finland, Vietnam)	*Incoherent strivers*: Systems incoherently oriented toward learning. *Examples*: Countries that borrow learning-oriented "best practice" elements but do not ensure that the various elements are coherent with each other.
	No	*Coherent no learners*: Systems well organized to promote a different goal *Examples*: Totalitarian or authoritarian systems focused on promoting loyalty to the state or nation building (Stalin-era USSR, Suharto-era Indonesia); systems that focus on school attainment rather than learning (many systems).	*Failed systems*: Systems that are not trying to achieve learning or anything else in a coherent way *Examples*: Systems in failed states

Source: World Bank (2018)

3.2 Governance and Accountability at the School Level

Primary schools are headed by head teachers while secondary schools and colleges are headed by principals. The Task Force on the Re-Alignment of the Education Sector to the Constitution of Kenya 2010 raised a number of concerns regarding deployment of head teachers that are likely to compromise the system's alignment to learning. First, there is no proper framework guiding the deployment of heads of secondary and primary institutions. More often, teachers are promoted from the classroom without prior knowledge in management, including financial management. Over the years, quality assessment and audit reports have shown that there are cases of impropriety in financial management and weak accountability mechanisms, which have undermined effectiveness of these learning institutions with regard to service delivery. Second, head teachers are deployed by TSC although they manage schools that are owned and

resourced by the Ministry of Education (MOE). In their school management roles, head teachers report to TSC, which is represented at the county levels by the County and Sub-County officers as well as to MOE that is also represented at the county levels by the County and Sub-County Education Officers. Unless well managed, such multiple reporting mechanisms can be a source of management challenge thus drifting their goals away from learning.

Schools face several public financial management challenges. In the Task Force on the Re-Alignment of the Education Sector to the Constitution of Kenya (2010), stakeholders noted that several primary and secondary schools operate without accounts clerks, while others have employed finance staff with questionable qualifications (MOE, 2012). It was further observed that the system for recruiting such staff, the processes and procedures, and the fact that evidence of patronage appears to run through them, renders those employed less independent than they should be, and indebted to persons appointing them. The school audit process is also characterized by a number of challenges. Books of accounts are audited by school auditors based at the district, provincial (currently County) and national levels, but audit reports have to be authorized by the head of schools' audit at Ministry headquarters. Authorized audit reports are sent to institutions to be discussed by respective governing bodies. In most cases, these reports get back to the institutions a little too late for any meaningful corrective measures to be taken by respective management teams. The recent cases of impropriety in financial managements in schools is partly due to such weak accountability governance structures.

Secondary schools and TTCs are managed by Boards of Management (BOMs) while primary schools are governed by School Management Committees (SMCs). Secondary schools have BOMs appointed by the Minister for Education, while most primary schools have the School Management Committees elected by parents. However, the centralized appointment for BOMs has been characterized by delays in constituting the boards, leading to management and governance lapses. Though there are guidelines on qualifications of members to these boards/committees, these have not been followed to the letter, partly due to lack of qualified persons in some regions. Besides, there are no mechanisms for capacity development of the BOM and SMC members once they are constituted. The Basic Education Act, 2013 does not provide effectively for SMCs, neither do they have any legal recognition, even though this is a very important body in governance of schools. This implies that teachers, learners and parents at the moment do not have adequate voice in the governance of their schools. In **Box 4**, school level gaps that are likely to weaken the alignment of school actors to *learning* are summarized and further weaken the coherence between different actors within schools and between schools and other education actors. These gaps are based on the Task Force on the Re-Alignment of the Education Sector to the Constitution of Kenya 2010.

Box 4: School Level Governance Challenges

- Absence of minimum professional standards and benchmarks for use when appointing institutional managers.
- The absence of a framework for capacity development for head teachers, School Management Committees and Boards of Governors.
- In schools, School Management Committees and Boards of Governors do not have enough power to make all requisite management decisions for proper running and governance of their schools.
- Mismanagement of resources at the school level and non-accountability on the part of those misappropriating resources.
- Lack of a proper framework on how to engage communities in the establishment, management and

governance of schools.

- Undue political interference in the management of learning institutions.
- Misappropriation of school funds due to weak accountability governance structures and weak monitoring and tracking systems.
- The Education Act does not provide effectively for PTAs, neither do they have any legal recognition, despite the fact that this is a very important body in governance of schools. This implies that teachers, learners and parents at the moment do not have adequate voice in the governance of their schools.

Source: MOE (2012)

The Task Force further identified a number of strategies for improving the management and governance challenges facing learning institutions (Box 5).

Box 5: Improving the Management of Leaning Institutions

- Develop a policy framework on institutional management with clear provisions for:
  - Open and competitive processes for identification and appointment of heads of learning institutions;
  - Job descriptions and a competitive scheme of service for heads of institutions (including head teachers);
  - Minimum qualifications for heads of institutions in terms of education attainment; skills, competences and values, with basic training in financial management, strategic leadership, quality assurance and mentorship;
  - Minimum set of professional standards for heads of institutions which should include, but not be limited to, standards for effective leadership, integrity, respect to national values and declaration of wealth as provided for in the Constitution;
  - Appraisal mechanisms based on performance and achievement of set objectives and targets;
  - Clear tenure period for the head teachers. If possible, head teachers should be appointed on a tenure of five (5) years with an option of renewal once, depending on one's performance;
  - Clear definition of roles, responsibilities and expectations of all stakeholders at institutional level, with reporting lines and accountability structures; and
  - Appointment to and removal from office of head teachers to be done through consultation between County Education Board (CEB), TSC and the sponsor.

- The Policy Framework should include provisions for setting up:
  - A clearly focused system of capacity building for institutional managers; to occur regularly and which will have some bearing on promotion and motivation.
  - A clearly defined accountability structure governing resource use and financial management.
  - A scheme of service providing for the employment of transferable, high integrity institutional accountants (bursars), accounts clerks and other support staff by MOE.
  - Appointment modalities for head teachers, to be managed by TSC in consultation with MOE and other stakeholders.
  - A system that incorporates effective participation of learners, parents and teachers in day-to-day running of the institutions. For learners, this can be achieved through establishment of such participatory forums like pupil/student councils in schools and colleges, to create room for learner participation in school management.

- All public education and training institutions should be managed by the MOE through CEB, to avoid conflict with other government agencies and departments such as local authorities;
- Institutional managers should be guided by policies that specify their roles in line with institutional policies, which must conform to national education policy and legislation;
- The TSC will continue to recruit, deploy, promote, and discipline teachers but the day-to-day management of institutional managers will be the responsibility of the CEB through BOM; and
- Management of private education institutions will be a responsibility of the individual entrepreneurs as per the guidelines provided by the Directorate of Partnerships and Private Educational Institutions.

3.3 Situational Analysis on Governance in the Education Sector

While MOE and TSC structures are quite visible at the county levels, they are not well coordinated and aligned. Ideally, the goal of both MOE and TCS local level structures should be to ensure effective service delivery and so, the two structures, given their mandates, should be properly aligned. In counties, TSC and MOE officers – although based in the same county – operate from different offices/buildings, which raises operational challenges in an already inadequately resourced sector. At the school level, the main concern for MOE is to ensure that the curriculum is effectively delivered and quality standards adhered to. Also, MOE's interest is to ensure that funds sent to schools are used for their intended purposes. However, there is a challenge with regards to management of school resources, as deployment and transfer of teachers does not involve adequate assessment of the ability of teachers to manage school resources (financial and physical).

The sector is governed by too many institutions with overlapping roles. For instance, both TSC and MOE run parallel roles of quality assurance. On the other hand, in-service training for teachers is undertaken by multiple institutions such as CEMASTEA, MOE, TSC, KICD and KEMI. Furthermore, the University Act and TVET Act established bodies such as TVETA, KENIA and NRF, whose functions are generally related.

3.4 Data and Information Management System

Data and information continue to be critical in the development of the education sector. As the country yearns for a knowledge-based economy, everyone has set their focus on the contribution of the education sector as it is responsible for development of human capital to support the achievement of the long-term development goals and even sustain the status once achieved. The policy and planning in the sector, therefore, has to be based on evidence so that the interventions put in place for the sector's development remain grounded on facts. The data produced by the sector also helps in tracking the achievements the sector has made against the commitments it has to the public. The Ministry thus takes the production of data and information seriously and has taken considerable strides in ensuring credible, reliable and accurate data is produced for the purpose of effective policy and planning.

The existing data management practices in the sector do not support evidence-based, timely, reliable and correct data. Institutions within education sector operate in silos and use different data systems that do not talk to each other, occasioning mismatch of information and data sets. Currently, there are overlapping school level data maintained by TSC, KNEC and MOE. Each of these institutions maintains separate data sets with separate school codes for the same school, causing challenges in harmonization of the data sets. Other challenges related to data management system in the sector include: inefficient ICT infrastructure to adequately support data transactions by all entities; high costs in maintaining inefficient data collection and monitoring processes, and reliance on aggregate data sets for planning and high-level decision making.

One recent development is the launch of the National Education Management Information System (NEMIS). The NEMIS platform has been developed and is in the operationalization phase to support digital registration of all learners. The initiative was conceptualized to manage

the inconsistencies of Kenya's large and complex education sector that serves millions of learners in about 84,000 learning institutions. A vast amount of information will be collected from NEMIS, which includes but is not limited to names of learners, teachers, institutions, as well as learners' ages, parents' information, and household details. This information will be used to keep track of learners' performance and determining core factors that undermine their progress.

3.5 Sector Human Resource

The education sector requires adequate and quality human resource necessary for the realization of the economic, social and political goals of the Vision 2030. The Human Resource function in the Ministry broadly entails planning, attracting, engaging and retaining the required staff levels in terms of quality and quantity, to facilitate achievement of the sector's mandate. The upsurge in learner enrolments at all levels of education, as will be discussed shortly, underscores the need for adequate human resource planning.

3.5.1 State Department of Early Leaning and Basic Education

As at 2017, the human resource capacity of the State Department of Early Leaning and Basic Education (SDELBE) was 5,575 personnel against the required establishment of 8,898 (Figure 5). Of the 5,575 personnel, about 3,245 personnel, representing 58 percent, are categorized as *education staff*. Education staff refers to the various persons in the various offices and government agencies mandated to undertake provision of education, for example, the Regional Coordinators of Education and County Directors of Education. The rest, 2,310 staff, representing 42 percent, can be categorized as *non-education staff*. Non-education officers are a category of staff that support the core function of the ministry. They include, among others, economists and planners posted to the Ministry from other ministries. The estimates show that the State Department of Early Leaning and Basic Education requires an additional 2,247 and 1,096 education and non-education staff, respectively, to reach the required optimal staff level. The analysis shows that three quarters of the staff are working at county levels.

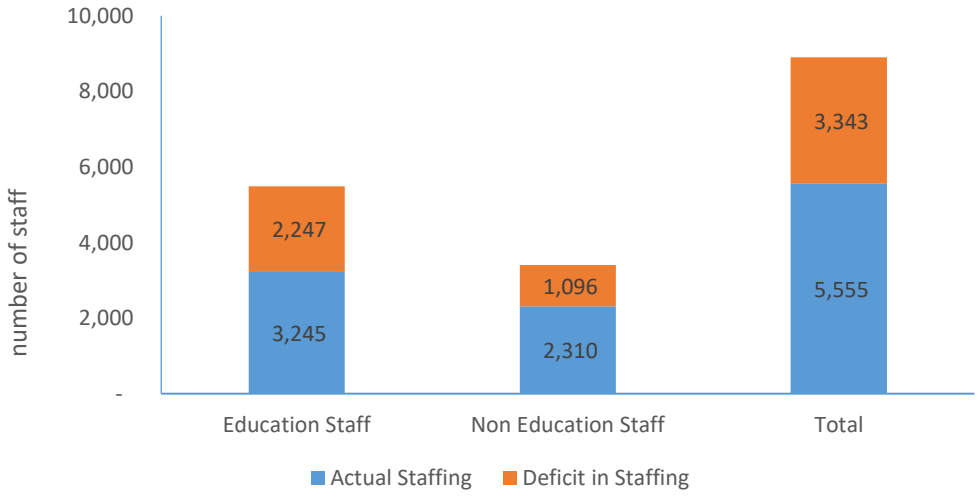


Figure 5: **Staffing in the SDELBE**
Source: MOE HR Department (2017)

More than two thirds of staff in the State Department of Early Leaning and Basic Education (SDELBE) are below the professional cadre. Entry to any professional cadre in the Ministry begins at Job Group K. Job Group J and below are regarded as support cadre. As shown in Figure 5, 67% of staff in the Ministry are below the professional threshold. Another observation is that a majority (73.78%) of staff have secondary education as their highest level of education (Figure 6), with only one fifth having bachelor's degree and above.

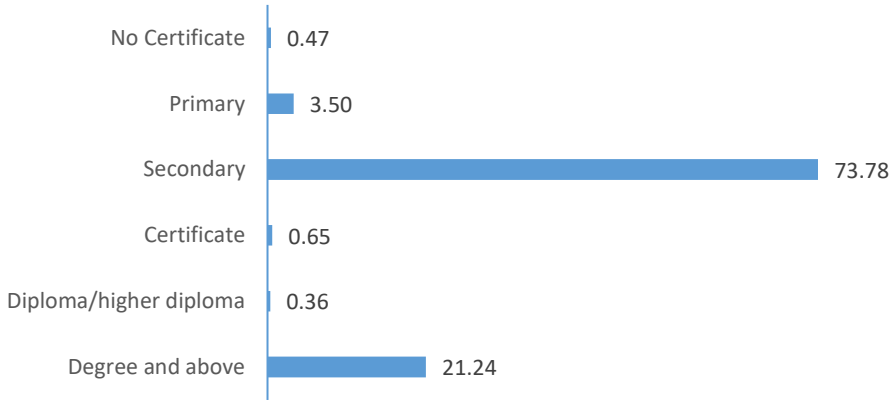


Figure 6: Staffing in the SDELBE by Job Group and Education Level
Source: MOE, HR Department (2017)

3.5.2 Human Resource in SDVTT

Figure 7 shows that the human resource capacity of the State Department of Vocational Education and Technical Training (SDVTT) is 179 personnel against the required establishment of 432. This means that the department is staffed up to 41 percent of the optimal staffing level. Of the 179 personnel, 93 are non-technical junior staff, representing 52 percent. These are followed by 75 top management senior staff, who represent 42 percent of the total staff in the department. Non-technical senior staff are the lowest proportion of staff in the department. We have not, however, accounted for the possible staff underutilization and/or overutilization. Estimates show that three quarters of the staff are working at county levels.

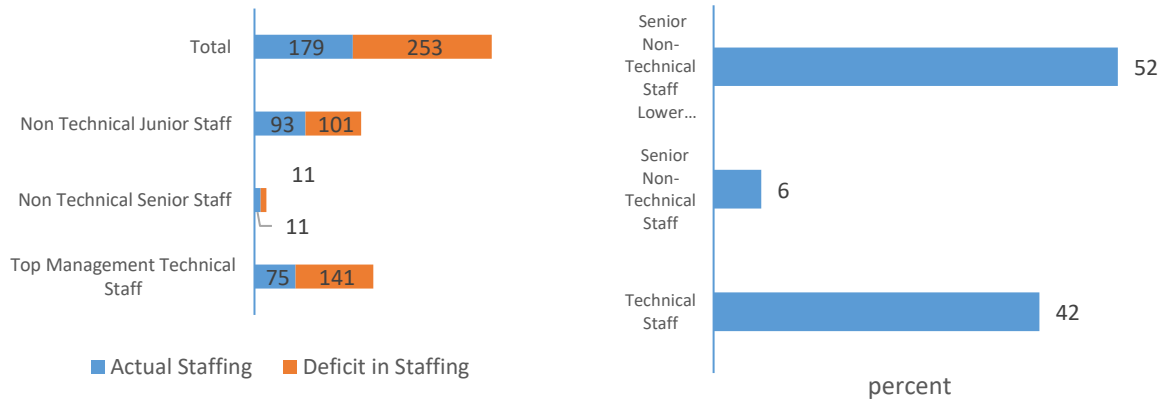


Figure 7: Staffing in the SDVTT Directorate

The Sector also comprises staff in the different SAGAs, as well as at the school level staff. On average, each secondary school has the following categories of core non-teaching staff employed by the BOM: accounts clerks, secretaries, matrons, lab assistants, storekeepers, cooks, watchmen, grounds men/women and cateresses. Besides these, some schools have non-core staff who include artisans, technicians, housekeepers, nurses, drivers, librarians, computer technicians and farm assistants. While the Ministry expects schools to employ these personnel based on the recommendations of the Task Force on Affordable Quality Secondary Education in Kenya of 2007, it is not clear if these guidelines are followed. In primary schools, non-teaching staff are employed by SMCs. These include watchmen, grounds men/women and cooks. On average, primary schools employ ten support staff. In Box 6, we summarize the sector human resource issues and challenges as identified by the Task Force on the Re-Alignment of the Education Sector to the Constitution of Kenya (2010).

Box 6: **Human Resource Issues in the Education Sector**

- HR management in the education sector has proved cumbersome and complex as a result of large numbers of staff involved at every level; the variety of staff and grade levels, as well as recruitment of temporary and auxiliary staff.
- There has also been a problem of stagnation, with some officers remaining in one job group for over 12 years.
- Deployment of staff has not always matched the individual's skills and competencies.
- Staff morale is low, especially as the management of staff is largely ineffective, and their staff development needs are not being met. Deployment of staff is also not systematic, whilst most critical activities are generally being undertaken by available personnel rather than by most skilled or experienced employees. This leads to a lack of job interest, low morale and low motivation, which eventually affects service delivery.
- There are cases of underutilization of the workforce, which contributes to high staff turnover.
- No clear policies/guidelines that exist on probationary service and subsequent confirmation.
- Lack of capacity to impart new key competencies that are needed in a rapidly changing and dynamic world, to enable staff fit and function well in the labour market.
- There are a limited range of capacity building opportunities made available to staff. Appraisal is viewed by many as a bureaucratic process which has little relevance to improving performance and accountability. Appraisal forms are filled as a matter of routine, and not used as a means for enhancing staff development objectives.
- Many INSET events take place without proper coordination or having been assessed for the quality and effectiveness thereof. Sessional Paper No. 1 of 2005 noted that there are gaps between competencies and the responsibilities of educational staff in majority of the posts. Therefore, the need for collaboration between the Public Service Commission (PSC), which recruits officers, and the Permanent Secretary who deploys and supervises officers in the field was emphasized. The situation has, however, not improved since then.
- Low commitment of specialized personnel seconded to MOE by other Ministries.
- In most cases, Provincial and District Education Officers (currently County Education Officers) act as conduits for transmitting information from the field to the Headquarters. Most matters that could be decided at local level are not addressed, with officers preferring to leave decisions to be made higher up the authority chain.
- Low capacity among officers as regards financial management, budgeting, monitoring and evaluation, data analysis and planning.

Source: MOE (2012)

Possible Suggestions for Dealing with HR Challenges

- The capacity and programs of KEMI be expanded to provide training in Education Management at all levels of the education sector.
- All persons serving as members of BOMs to receive training in general school management and financial management, in particular.

- A systematic, transparent system of promotion be established, with rights of appeal for persons who feel they have been discriminated against.
- Job descriptions and job specifications should be prepared in clear terms for all categories of staff.
- All employees of MOE should sign Performance Contracts, from which annual appraisals accrue.
- Probation should be used as a period of consolidation, based on practical experience. New staff should be adequately supported during this time and be provided with guidance and assistance by those nominated as their mentors.
- Clear links should be developed between staff appraisal and the individual's personal professional development. Staff development program should emphasize the job competencies.
- There is need to carry out a survey to establish the optimal staff requirements at all levels as per the responsibility.

3.6 Quality Standards

Currently, the Ministry of Education has a Directorate of Quality Assurance and Standards (DQAS) mandated to undertake issues of quality and standards through independent assessment/inspection. The Directorate's functions include establishing, maintaining, and improving quality and standards in all educational and training institutions whether public or private other than universities. Other functions include undertaking institutional reviews, organizing and conducting subject mastery and pedagogical skills upgrading for teachers and tutors. Furthermore, it is concerned with teacher proficiency, assessment of new institutions for registration, maintaining and disseminating lists of approved learning and teaching materials, as well as supervising and coordinating the implementation of curriculum in all educational and training institutions at all levels.

Given its mandate, this Directorate plays an important role in terms of aligning the sector institutions to learning. However, evidence shows that this directorate remains weak and ineffective and faces severe resource constraints. The quality assurance officers infrequently make visits to schools. For instance, in the Monitoring Learners Achievements in English and Mathematics at Form 2, carried out in 2015, over 70.0 percent of schools had not been assessed in curriculum implementation by the quality assurance officers. Table 8 shows the number of times quality assurance officers visited schools and assessed teachers based on the Monitoring Learners Achievements at Class 3 in Literacy and Numeracy as per NASMLA survey (2016), over the 2012-2015 period. Sadly, some schools and teachers had not been visited and assessed by the quality standard officers for the three consecutive years. In 2015 for instance, 50 percent of the schools were visited less than two times while 43 percent of teachers were assessed less than two times by quality assurance and standards officers for the three years. This is a cause for concern, given the role of assessment of schools in monitoring curriculum delivery, accountability and quality of school facilities and services.

Table 8: Number of Times Assessed by DQAS

		0	1	2	3	4 & above
2015	Teacher	13.8	29.6	22.6	20.1	13.8
	School	20.5	29.5	17.8	19.4	12.8
2014	Teacher	14.1	27.6	26.8	20.9	10.6
	School	17.5	29.4	22.4	17.5	13.1
2013	Teacher	12.3	28.1	27.3	20.8	11.5
	School	16.9	28.6	23.5	18.1	13.0

Source: NASMLA Survey (2016).

The Directorate faces a number of other challenges. Reports take long to be acted upon because of heavy bureaucratic structures. The Directorate also faces financial and infrastructural constraints. For instance, it is not provided with adequate transport to enable its officers to reach

as many institutions as they would wish to. Another thing is that Quality Assurance and Standards officers are often directly recruited from serving teachers, who may lack the necessary skills, knowledge and competence to deliver on standards and quality assurance. On top of the aforementioned, officers recruited into the Directorate most often get deployed to other departments of the education sector, such as being made Education Officers, further aggravating staff shortage. There is also no specific scheme of service for the officers to give them incentives to work. Standards and quality assurance services, therefore, are irregular and rarely reach the target institutions. Box 7 shows possible solutions for dealing with Quality Assurance challenges in the sector

Box 7: **Possible solutions for dealing with Quality Assurance challenges in the sector**

- Quality Assurance and Standards officers should be aptly trained to equip them with relevant skills and competencies.
- Proper recruitment mechanisms should be put in place to avoid enrolling less qualified officers in this very important education service.
- Quality Assurance and Standards services should be provided with adequate funding and the necessary infrastructure, such as vehicles, to facilitate research, among other functions.
- Quality Assurance and Standards officers should receive appropriate and regular training, retraining and in-servicing to ensure they possess relevant skills and competences.
- Managers of institutions should be integrated into the quality assurance and standards delivery services and receive regular training and in-servicing to enable them to effectively monitor standards and quality of curriculum delivery.
- Mechanisms should be established to ensure that standards and quality services in ECDE are coordinated at national level on policy, and effectively devolved to counties for implementation.
- More benchmarking opportunities be provided in developing countries to enhance the capacity of Quality Assurance and Standards officers.
- Quality Assurance and Standards service program should apply to all institutions, including those offering foreign curricula.

4. Education Financing

4.1 Public Expenditure on Education

Government spending on education almost doubled over the period 2010/11 to 2015/16, with over 90 percent going to recurrent spending. Table 9 shows a summary of government spending on education. Government allocation, without adjusting for inflation, increased from KES 169 billion in 2010/11 to KES 320 billion in 2015/16. However, the larger share of spending went to recurrent budget. On average, development expenditure averaged only 5.9 percent of total education spending, over this period, recording a high of 7.5 percent in 2014/15 and a low of 5.9 percent in 2012/13. Recurrent budget grew by 87 percent over the period, increasing from KES 159 billion in 2010/11 to KES 298 billion in 2015/16.

Table 9: Government Expenditure on Education (current prices)

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16*
Government expenditure on education (KES millions)	169,093	205,262	230,599	250,551	284,792	319,425
Recurrent Expenditure	159,540	193,811	219,868	235,677	263,537	297,851
Development Expenditure	9,553	11,452	10,731	14,874	21,255	21,574
Recurrent expenditure (Percent)	94.4%	94.4%	95.3%	94.1%	92.5%	93.2%
Education expenditure as a share of total government expenditure	17.7%	20.2%	18.6%	16.3%	14.6%	14.4%
Education expenditure as share of GDP	5.3%	5.5%	5.4%	5.3%	5.3%	5.1%

Source: The National Treasury, Ministry of Education, Kenya National Bureau of Statistics, Author's calculations. *Provisional – this was the approved budget for 2015/16.

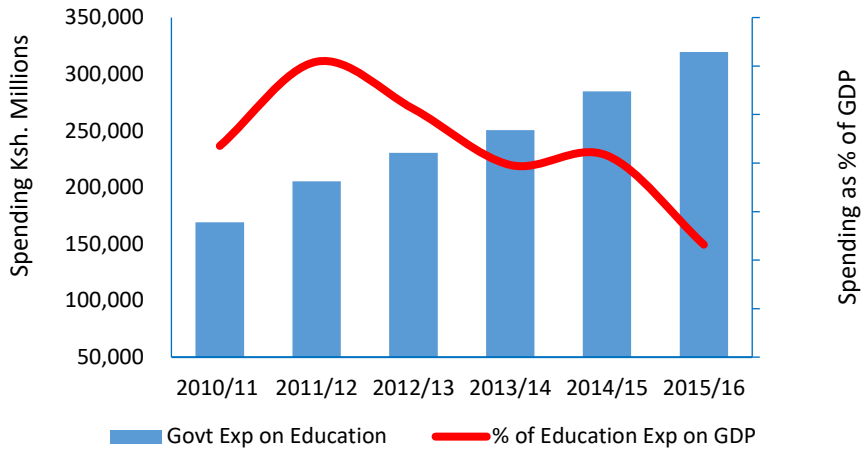


Figure 8: Government expenditure on education

While spending on education increased in current absolute terms, it dropped as a proportion of the GDP, from 5.3 percent to 5.1 percent over the period 2010/11 to 2015/16. Figure 8 presents the evolution of public spending on education. Over the review period, education spending, as a share of GDP, fluctuated moderately – increasing from 5.3 percent in 2010/11 to 5.5 percent in 2011/12 and then began a consistent descent to 5.1 percent in 2015/16. Kenya has been going through a period of infrastructural expansion and as such, the general drop in the proportion of GDP spent on education is consistent with the increased spending on roads and expansion of the energy sector as well as support to non-education functions in the County Governments. This is also reflected in the general drop in the share of education expenditure in total government spending, having dropped from a high of 20 percent in 2011/12 to as low as 14 percent in 2015/12.

One quarter of Kenya's domestic revenue is spent on recurrent education expenditure. In Table 10, we show trends in education recurrent spending as a share of total government recurrent spending, as that of domestic revenue and finally, as a share of GDP for the period 2010/11 to 2015/16. Over this period, nearly 24 percent of total government recurrent expenditure went to recurrent education expenditure. Similarly, education recurrent expenditure was equivalent to about 25 percent of Kenya's domestic revenue and about 4.9 percent of Kenya's GDP. The high recurrent spending on education is attributed to the increased recruitment of teachers; the improvement of terms of engagement for university lecturers; and the increased per student capitation in primary and secondary education subsidy programs.

Table 10: Government Recurrent Expenditure on Education, 2010/11-2015/16 (Percent)

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16*
Education recurrent expenditure:						
- *as* a share of total recurrent expenditure	22.4	25.7	23.4	23.1	24.6	24.3
- *as* a share of domestic revenue (excluding grants)	25.9	26.8	27.4	26.5	25.4	-
- *as* share of GDP	5.0	5.2	5.2	5.0	4.9	4.8

Source: The National Treasury, Ministry of Education, Kenya National Bureau of Statistics, Author's calculations. *Provisional – this was the approved budget for 2015/16.

4.2 Per Capita Spending in Education

Despite the increase in size of education expenditure, real average (public/government) spending (per capita spending) on education per child in the population has remained the

same since 2011. Figure 9 presents the evolution of government spending per child in current and constant prices. To calculate per child spending, we divide total recurrent expenditure on education with the total school age population (3-17). At market prices, spending per child increased by 13.4 percent, from about KES. 10,000 in 2010 to KES. 16,000 per child in 2015. In constant 2014 prices, per student spending has remained constant over the last four years.

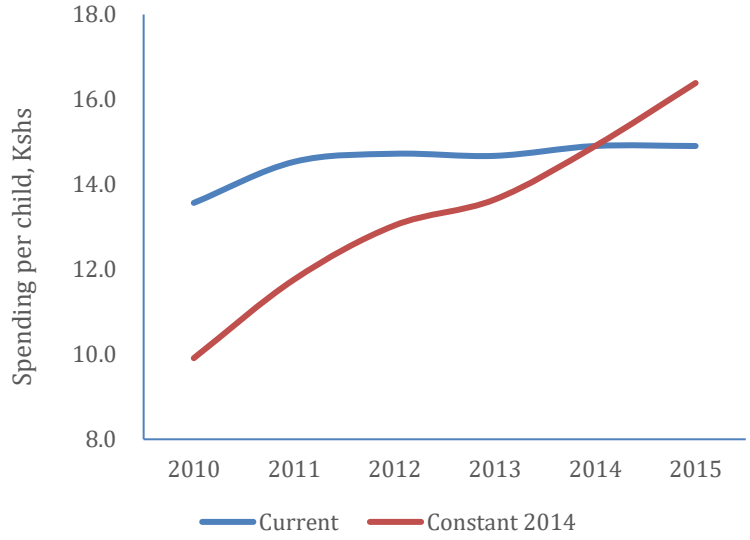


Figure 9: Per Capita Spending

4.3 Education Spending by Functional Classification

The primary sub-sector remains the highest consumer of education budget. Table 11 presents spending by education level as well as combined administrative costs (also shown in Figure 10 as percentages of the total). The primary sub-sector, which includes spending on teacher salaries, takes the highest share of sector spending. The second largest spender is secondary sub-sector, which accounts for about 30 percent of the total sector expenditure. With the operationalization of devolved governments, ECDE expenditure has increased considerably but still constitutes only 2 percent of the entire education expenditure. This implies that about three quarters of education expenditure in Kenya is directed to basic education (ECDE, primary and secondary education), driven mainly by education subsidy programs as well as salaries for teachers. Spending on the university sub-sector ranged from 13 percent to 17 percent while TVET accounts for about 5 percent of total education expenditure.

Table 11: Education Expenditure by Levels (current KES millions)

	2010/11	2011/12	2012/13	2013/14	2014/15
Administrative Services	15,943	17,118	13,825	15,573	17,137
ECDE	405	1,687	1,687	1,675	5,073
Primary	71,546	80,184	96,409	104,062	118,590
Secondary	52,780	63,595	73,119	79,230	87,108
TVET	6,836	8,090	9,686	13,133	14,603
University	21,583	34,589	35,873	36,877	42,281
Grand Total	169,093	205,263	230,599	250,550	284,792

Source: The National Treasury, Ministry of Education, Kenya National Bureau of Statistics

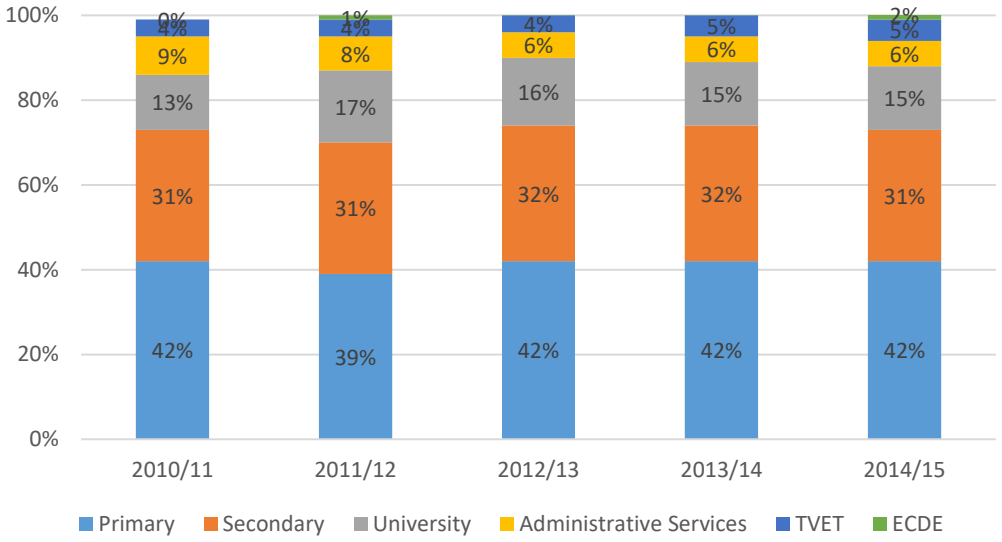


Figure 10: Education Expenditure by Levels (current percent)

Recurrent spending takes the lion's share of spending even within the sub-sectors. In almost all sub-sectors, over 80 percent of spending goes to recurrent expenditure. For instance, 97 percent of spending at primary level is recurrent spending (Table 12). In the FY 2010/11 and 2011/12, almost all spending with TVET was dedicated to recurrent expenditure. In 2014/15, there was a dramatic fall in the share of recurrent spending in ECDE mainly due to the capital spending in the form of new school infrastructure in the sub-sector at the county levels.

Table 12: Recurrent Expenditure by Level of Education

	2010/11	2011/12	2012/13	2013/14	2014/15
Spending (KES millions, current)					
Administrative Services	13,064	12,762	12,124	12,104	15,209
ECDE	380	1,678	1,678	1,675	2,180
Primary	69,145	78,686	94,911	102,571	115,049
Secondary	51,369	61,385	70,909	75,583	84,852
TVET	6,836	8,090	7,946	9,624	10,206
University	18,746	31,210	32,300	34,119	36,042
Total	**159,540**	**193,811**	**219,868**	**235,676**	**263,538**
Spending (percent of total)					
Administrative Services	82	75	88	78	89
ECDE	94	99	99	100	43
Primary	97	98	98	99	97
Secondary	97	97	97	95	97
TVET	100	100	82	73	70
University	87	90	90	93	85

Source: The National Treasury, Ministry of Education, Kenya National Bureau of Statistics. Percent of total is the share of recurrent spending as percent of total sub-sector spending.

4.4 Education Spending by Economic Classification

Two thirds of education recurrent resources go to salaries. Table 13 shows spending by economic classification. In other words, compensation to employees (salaries); grants transferrable to other education institutions or education programs implementation agencies; procurement of goods and services; and other recurrent votes. Salaries take up slightly over 60 percent of the total recurrent expenditure. Grants and transfers, which include the Free Primary

Education and Free Day Secondary Education funds, as well as tertiary student grants, ranged between one fifth and one quarter of the recurrent expenditure.

Table 13: Salary and Non-salary Expenditure, 2010/11-2014/15 (KES millions)

Economic Classification	2010/11	2011/12	2012/13	2013/14	2014/15
Compensation to employees	106,120	116,384	142,148	156,392	173,465
Grants and Other transfers	31,138	50,889	50,912	52,614	57,274
Use of goods and services	5,473	3,872	4,114	4,806	4,793
Other recurrent	16,809	22,666	22,694	21,864	28,006
Grand Total	159,540	193,811	219,868	235,677	263,537
as percent of total spending					
Compensation to employees	66.5	60.1	64.7	66.4	65.8
Grants and other transfers	19.5	26.3	23.2	22.3	21.7
Use of goods and services	3.4	2.0	1.9	2.0	1.8
Other recurrent	10.5	11.7	10.3	9.3	10.6
Total	100.0	100.0	100.0	100.0	100.0

Source: The National Treasury, Ministry of Education, Kenya National Bureau of Statistics

Teachers' salaries account for more than 90 percent of salaries in the sector (Table 14). Teachers' salaries grew annually at an average of 14 percent between 2010/11 and 2014/16. During the financial year 2014/15, primary teachers' salaries constituted about 60 percent of the total teachers' salaries, secondary accounted for 35 percent, while teachers in teacher training colleges and TVET institutions took about 5 percent.

Table 14: Spending on Teacher Salaries, 2010/11-2014/15 (current KES millions)

	2010/11	2011/12	2012/13	2013/14	2014/15
Primary Teachers	58,330	65,995	82,219	90,330	98,379
Secondary Teachers	33,522	37,927	47,251	51,912	56,538
Post-Secondary Teachers	4,786	5,415	6,746	7,412	8,072
Grand Total	96,638	109,337	136,217	149,654	162,989

Source: The National Treasury, Ministry of Education, Kenya National Bureau of Statistics

4.5 Recurrent Costs per Pupil/Student

During the period 2010 to 2014, government recurrent spending per learner increased at the ECDE and primary sub-sectors in real terms but reduced at secondary, TVET and university sub-sectors (Table 15). In real terms, ECDE cost per pupil increased to KES 1,000 in 2014 up from KES 300 in 2010. The unit cost at primary level increased by 15 percent from KES 12,000 in 2010, to KES 14,000 in 2014. At the secondary level, costs were cut by about 14 percent over the same period. The story was the same for TVET as well as at university level, with 2014 spending being only a fraction of spending in 2010 (65 percent and 54 percent respectively). The reduction in unit costs is due to increasing enrolments against diminishing resources. Expressing the unit cost per learner, relative to GDP per capita, it is noted that primary school spending per learner remained relatively constant in relation to per capita GDP, at 10.8 percent. However, at secondary, TVET and university levels, the cost per learner as a share of GDP dropped by 9 percent, 34 percent and 83 percent, respectively.

Table 15: Student Unit Costs in Public Institutions, 2010-2014

	2010	2011	2012	2013	2014
In constant KES 2014					
ECDE	298	1,132	990	904	1,054
Primary	11,976	12,019	13,017	13,195	13,763
Secondary	45,591	45,992	44,840	41,403	39,012
TVET	91,861	82,189	61,014	60,611	59,429
University	183,587	244,174	185,437	126,620	99,199
In current KES					
ECDE	218	916	877	840	1,054
Primary	8,749	9,729	11,525	12,272	13,763
Secondary	33,307	37,226	39,699	38,506	39,012
TVET	67,109	66,525	54,019	56,371	59,429
University	134,120	197,637	164,178	117,762	99,199
In percent of GDP per capita					
ECDE	0.3	1.0	0.8	0.7	0.8
Primary	10.6	10.3	11.0	10.8	11.0
Secondary	40.4	39.5	37.9	34.0	31.3
TVET	81.5	70.6	51.5	49.8	47.7
University	162.8	209.8	156.6	104.0	79.5

Source: MOE

Table 16 shows the ratio of unit cost in other levels of education relative to primary education. In 2014, secondary, TVET and University learners received 2.8, 4.3 and 7.2 times more resources respectively, from the government, relative to pupils enrolled in primary education. These were all substantial reductions from 2010, when spending per student in these levels was 3.8, 7.7 and 15.3 times, respectively, the primary spending per pupil. Overall, the government increasingly spent much more per learner at ECDE and primary level and much less per student in secondary, TVET and university levels over the period reviewed but still, secondary, TVET and university learners still receive more resources than the average primary learner.

Table 16: Unit Costs in Other Public Institutions Relative to Primary Unit Cost

	2010	**2011**	**2012**	**2013**	**2014**
ECDE	0.02	0.09	0.08	0.07	0.08
Primary	1.00	1.00	1.00	1.00	1.00
Secondary	3.81	3.83	3.44	3.14	2.83
TVET	7.67	6.84	4.69	4.59	4.32
University	15.33	20.31	14.25	9.60	7.21

Source: Author's Calculations

4.6 International comparison on education financing

Kenya spends significantly more than most of its peers in education and has the highest per GDP achievement (Table 17). The expenditures discussed above have been compared to similar spending from neighbouring countries with similar education systems (countries with primary education of 7 or 8 years). The countries selected for comparison include Ethiopia, Malawi, Mozambique, Tanzania and Uganda. Table 17 below shows a summary of the countries, their spending on education as a share of their GDP; primary completion rates; and an efficiency index for each country. The efficiency index measures the average share of the GDP that each country

spends to achieve its primary completion. On average, the selected countries spend 5 percent of their GDPs on education. Only Malawi and Mozambique spend higher than Kenya, at 6.9 percent and 6.7 percent, respectively. All the countries, except Tanzania and Uganda, spend above the average for Africa.

Table 17: International Comparison: Education Spending and Completion Rates

Country	Education as percent of GDP (LAY*)		Completion rates (percent) (LAY)		Efficiency index	
	Percent (a)	Relative to average (b)	G6 (c)	G9 (d)	c/a	d/a
Kenya	**5.3**	**1.1**	**99.6**	**63.1**	**20.3**	**12.8**
Ethiopia	4.5	0.9	50.7	33.0	10.3	6.7
Malawi	6.9	1.4	75.0	17.1	15.2	3.5
Mozambique	6.7	1.3	56.4	24.0	11.5	4.9
Uganda	3.3	0.7	79.7	33.3	16.2	6.8
Tanzania	3.5	0.7	83.7	45.9	17.0	9.3
Average selected countries	**5.0**	**1.0**	**74.2**	**36.1**	**15.1**	**7.3**
Average Africa	4.3	0.9	67.0	37.0	13.6	7.5

Source: UIS, IIEP-Pôle de Dakar, World Bank. *LAY: Last available year, circa 2013.

Of the selected countries, Kenya has the highest Grade 6 completion rate, 25 percentage points more than the average for the selected countries and 34 percentage points more than the average for the continent. At Grade 9 (for Kenya this is the completion of Form 1), Kenya still does better than her neighbours by similar margins. It is noted that for every percentage of GDP spent on education, Kenya achieves 20.3 points of Grade 6 and 12.8 points of Grade 9 completion. Comparatively, Malawi, which spends more of their GDP on education, achieves 15.2 points completion of Grade 6 and 3.5 points of Grade 9 completion for every percentage GDP spent on education. Mozambique, on the other hand, achieves 11.5 points for Grade 6 completion and 4.9 points for Grade 9 completion for every percentage GDP spent on education.

4.7 Who Benefits from Public Spending in Education?

Public expenditure on primary and pre-primary, as well as secondary education, mostly benefits the bottom 40 percent. More than 50 percent of public expenditure on primary education is captured by individuals in the bottom 40 percent of the expenditure distribution (panel (a1) of Figure 11). On average, benefits associated with public expenditure on primary education is around one fifth of total household expenditure among the poorest 20 percent and twelve percent among individuals in the second quintile. In contrast, they average only 1.6 percent among the richest 20 percent (panel (a2)).

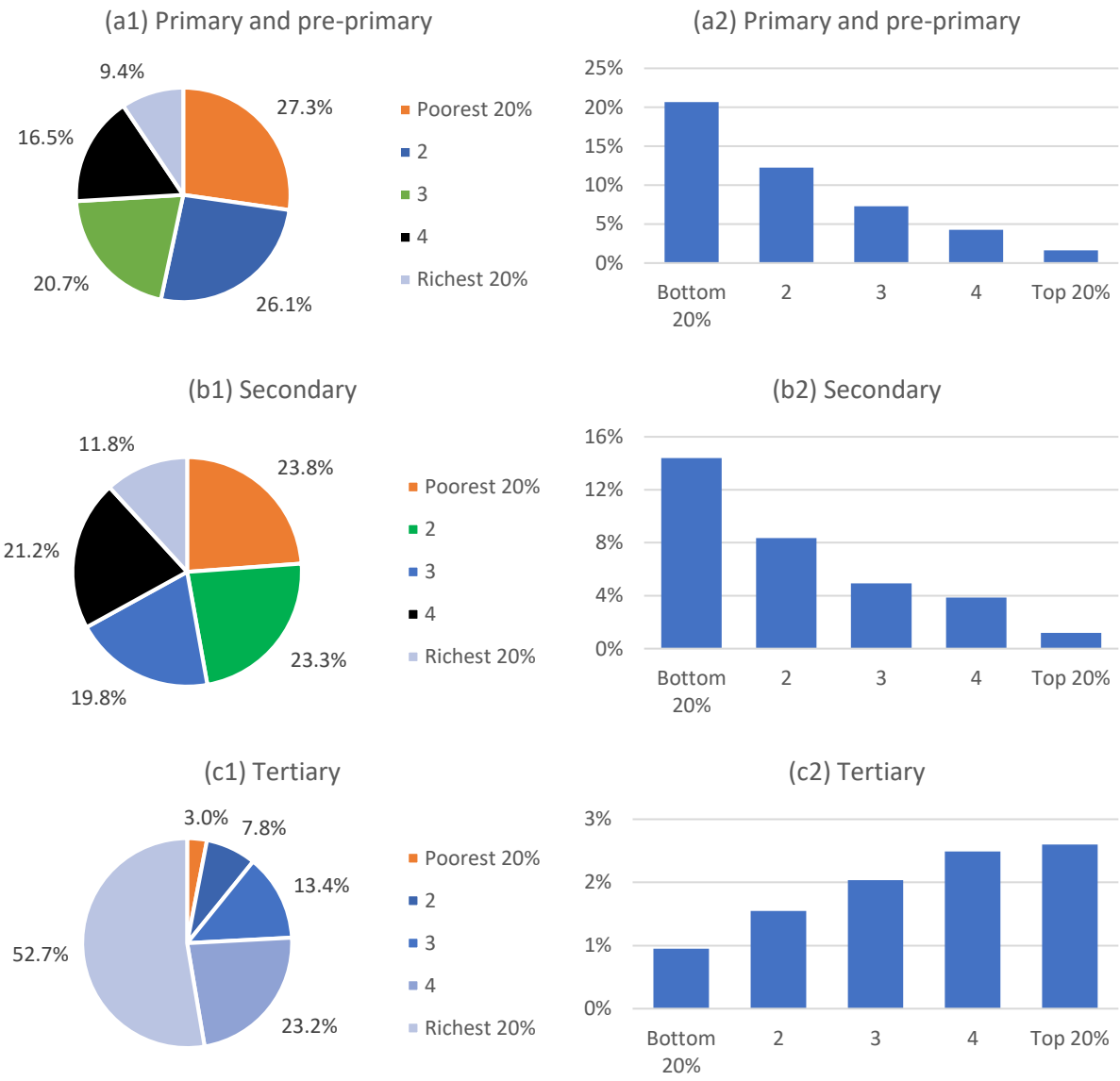


Figure 11: Benefit incidence analysis of public education expenditure
Source: Own calculations based on 2015/16 KIHBS and 2017 KES.

The results reflect higher expenditure levels among the better-off families but also a higher propensity to enroll children in public primary education among poor families (as mentioned above). The bottom 40 percent still capture a disproportionately large share of public expenditure on secondary education, although the shares are more equally distributed across quintiles (panel (b1)). Again, the poor have a lower propensity to enroll children in private institutions, and there are more children in poor families. In sum, public spending on pre-primary, primary, and secondary education is both progressive (in the sense that the share of total benefits is disproportionately large among the poor) and pro-poor (in the sense that the benefits constitute a larger share of household incomes among the poor).

Public spending on tertiary education is neither progressive nor pro-poor. More than half of the recurrent expenditure on tertiary education is captured by individuals in the top quintile of the expenditure distribution and only three percent is captured by the poorest 20 percent (panel (c1)).

Benefit incidence analysis requires strong assumptions. The 2015/16 KIHBS, data was combined with information on overall (recurrent) expenditure on public education by level from the 2017 Kenya Economic Survey. Allocating expenditures to households with the information at hand requires strong assumptions: first, benefit is equated with the costs of production – the actual benefits may well be lower or higher, depending on realized returns to education and the effectiveness of public production.

4.8 Off-budget Spending on Education

Off-budget spending in the education sector comes from households, development partners, private individuals and corporates, among other groups. Due to the financing arrangements existing between these sources and the institutions where education is delivered, accounting for such contributions is never forthright. This section details two of the sources: development partners, whose contributions have been reported; and households whose contributions have been constructed based on public schools' unit costs.

4.8.1 Support from Development Partners

An estimated USD 193 million was spent by development partners in Kenya's education sector in 2014 alone. This value is equivalent to about 8 percent of the amount directly invested by the government in education. Of the amount invested by development partners, more than 50 percent goes to NESP priority areas. These figures should be used with caution as there may be double-counting of activities across the priority areas.

4.8.2 Contribution from Households

Households make significant contribution to education financing. Families contribute to education financing directly or indirectly. Direct contributions could be through school fees, instructional material, salaries to teachers employed by BOM, and other school levies. Indirect contributions include transport levies and uniforms. Table 18 shows the estimated direct spending on education for public schools by category and education level. The total cost borne by households was estimated at KES. 132 billion in 2014, which is almost 67 percent of the amount spent by Government on primary and secondary (KES 206 billion). Boarding fees account for 75% of the household cost. These are underestimates, since some fees and indirect costs are not included.

Table 18: Direct household spending in public schools (2014 KES M)

	Primary	Secondary	Total
BOM Teachers	11,350	22,135	33,485
Boarding Fees		99,277	99,277
Total	11,350	121,412	132,762

Source: Author's Calculations based on EMIS data

It is possible that learners in private schools are paying more than their counterparts in public schools. This claim is not supported by accompanying data in this report, as the detailed

costs of private schooling cannot be arrived at yet. Therefore, this report will compare similar aspects in private schools and public schools, such as enrolment. Assuming the unit cost is the same for both public and private schools, we can work out the total monetary requirement for private schools.

Households also pay substantial fees in private schools. However, there is no accurate data on how much households spend for sending their children to private schools. In order to estimate this, one can proxy this using per pupil spending in public schools. This, together with enrolments in private institutions, can give an indicative total cost of what is paid by parents to private schools, assuming the average costs are the same. Of course, it is possible that private schools have higher unit costs than public schools, and also some may be lower where they are in the low-cost private school market. However, using the average rate from public schools gives an indication of the potential resources the Government would need to provide if there were no private schools or universities. Table 19 shows the estimated cost of the private sector under these assumptions.

Table 19: Estimated Cost of Education in Private Institutions (KES M)

	2010	2011	2012	2013	2014
Primary	12,687	14,331	17,545	18,402	21,900
Secondary	3,700	4,421	5,107	5,444	6,112
University	5,076	11,999	8,941	8,437	7,980

Source: Author's calculations based on unit costs in public schools

5. Basic Education

5.1 Early Childhood Development and Education/Pre-Primary Level

Evidence shows that early childhood development is associated with better schooling outcomes: Children who go through early childhood development are more likely to enter formal school early and score higher and are less likely to repeat classes and drop out of school (Reynolds and Arthur, 2001). Early childhood development is also associated with better outcomes such as higher wages (Gertler *et al*, 2014). There are also numerous associated societal benefits of early childhood development. For instance, gaps in knowledge and ability between disadvantaged children (including children with special needs and those from poor households) and their more advantaged peers open up long before kindergarten, and tend to persist throughout life. They are also difficult and costly to close. Investing in early childhood development can help reduce such social inequalities. Gertler *et al* (2014) found that extremely disadvantaged children in Jamaica, who took part in an early intervention (comparable to the home visiting programs in the United States) boosted their earnings in adulthood by 25 percent, putting their wages at par with those of their more advantaged peers. Numerous studies have shown that early intervention can reduce crime, delinquency and antisocial behaviour in students and in their later adult lives.

Recent evidence in Kenya shows that children who attend pre-school achieve more success at school. Using household survey data, a study by Bietenbeck, Ericsson and Wamalwa (2017) shows that children in Kenya with pre-school experience score approximately 0.10 standard deviations higher on standardized cognitive (literacy and numeracy) tests as compared to those with no preschool experience (**Table 20**). The study further shows that once in school, children

who attended pre-school progress through grades faster. For instance, at ages 13-16, those who attended pre-school tend to have completed about one and half more months of schooling than their peers with no preschool experience.

Table 20: Effects of Preschool Attendance

	(1)	(2)
	Effect of Pre-school on Cognitive Test Scores	Effect of Pre-school on Highest Grade Completed
Attended preschool		
7-9 years old	0.042	-0.135***
	(0.040)	(0.040)
10-12 years old	0.114***	0.035
	(0.040)	(0.046)
13-16 years old	0.124***	0.120***
	(0.044)	(0. 055)
Controls		
Socio-demo characteristics	Yes	Yes
Early life econ conditions	Yes	Yes
Mother fixed effects	Yes	Yes
Observations	218,134	218,728

Source: Bietenbeck, Ericsson and Wamalwa (2017) based on Uwezo waves of 2012-2014. *Notes* The table reports estimates from regressions of the cognitive test score (regression 1) and highest grade completed (regression 2) on an indicator for preschool attendance and control variables as indicated in the lower panel. In the regressions, the indicator for preschool attendance is interacted with three age-group dummies (7/8-9, 10-12, and 13-16 years), and the table reports the estimated effects of preschool attendance separately for each group. All specifications include dummies for age and cohort, their interactions, and Uwezo wave dummies. Socio-demographic characteristics include age and gender of the child, number of children in the household, household wealth index and rural dummy as well as dummies for birth order and their interactions with gender. Controls for early-life economic conditions are interacted with an indicator for rural location. Standard errors in parentheses are clustered at the district level. *p<0.10, *p<0.05, ***p<0.01.

5.1.1 The Policy Framework of ECDE Provision in Kenya

Kenya has a long history of preschool provision along with a supportive policy framework, right from independence. Early childhood services were an important factor of local development, to the extent of building preschool provision in the spirit of *harambee* (meaning self-help as a means to bottom-up nation building). From independence to the 1970s, during its first decade, this provision enabled local communities to determine and define their own needs and to create programmes to address their needs.[15]

The fourth schedule, Articles 185(2), 186(1) and 187(2) of the Constitution of Kenya (2010) allocates functions between the National Government and County Governments with regards to education. The National Government is mandated to develop educational policies, curriculum, maintain standards and examinations as well as training and capacity building of personnel. The County Government is mandated to oversee Pre-Primary Education (PPE) and Child Care Facilities. Article 189(2) provides for cooperation between the National Governments and County Governments in performing the functions and exercising powers in the provision of proximate and easily accessible services. In view of this, County governments are expected to act within the confines of the national ECDE Policy Framework, which provides important

15 SDG Philanthropy Platform (2017) Accelerating Early Childhood Development Impacts in Kenya

guidelines for coordinating ECDE programmes across sectors to ensure that holistic needs of young children are met to enable them fulfil their potential. The Basic Education Act (2013) Part V111 Section 55(1) provides for governance and management of the ECDE sub-sector.

The overall goal of the sub sector, as prescribed in the Vision 2030, is to ensure that by 2030, all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education. In pursuant to the Constitution of Kenya (2010) and the Basic Education Act (2013), an Integrated Early Childhood Development (IECD) Policy, which provides for multisectoral coordination approach to ECDE in Kenya, was developed in 2016. In 2017, the government developed the ECDE Standard Guidelines to operationalize the IECD Policy. The guidelines provide the required standards on establishment, registration, management and supervision of ECE institutions. MOE has been the lead agency in the drafting of the IECD Policy and its guidelines, and it will be critical to ensure their completion and launch. In addition, the Ministry of Education (MOE), in collaboration with other stakeholders, developed the Kenya School Readiness Assessment Tool (KSRAT) to track children's holistic development during their final year of pre-primary education to ensure smooth transition from pre-primary to primary school. Box 6 shows the objectives of pre-primary education in Kenya.

Box 8: **The objectives of pre-primary education in Kenya.**

- Provide education geared towards development of the child's mental and physical capabilities.
- Enable the child to enjoy living and learning through play.
- Develop the child's self-awareness, self-esteem and self-confidence.
- Enable the child to develop understanding and appreciation of his/her culture and environment.
- Foster the child's exploratory skills, creativity, self-expression and discovery.
- Identify the child with special needs and align him/her with existing services.
- Enable the child to build good habits and acquire acceptable values and behaviour for effective living as an individual and member of society.
- Foster the spiritual and moral growth of the child.
- Improve the status of the child's health, care and nutritional needs and link him/her with health promotion services.
- Enrich the child's experience to enable him/her cope better with primary school life.
- Develop the child's aesthetic and artistic skills.

5.1.2 Trends in ECDE Centres, Personnel and Enrolments

Available data shows that the period between 2013 and 2018 witnessed considerable increase in the number of ECDE centres, from 40,145 to 42,317 (Table 21). This increase was partly due to accelerated investment in new ECDE centres by County Governments following the devolution of pre-primary education functions. On average, the size of an ECDE centre increased from 68 in 2013 to 80 in 2018. The share of private ECDE centres remained around 40 percent, underscoring the contribution of the private sector in delivery of this level of education. Table 21 does not, however, account for the hundreds of private unregistered and unregulated ECDE centres operating outside the public sector, some of which are registered by other ministries.

Table 21: Number of Schools by Type

	2013	2014	2015	2016	2017	2018*
Public	24,702	24,768	24,862	25,175	25,381	25,589
Private	15,443	15,443	15,913	16,073	16,398	16,728
Total	**40,145**	**40,211**	**40,775**	**41,248**	**41,779**	**42,317**
Average School Size	71	75	78	78	79	80

Source: Kenya Economic Surveys, *provisional

The number of ECDE teachers has steadily increased over the years, rising by 18 percent, from 101,062 in 2013 to 123,155 in 2018. Trained ECDE teachers grew by 34.5 percent, from 83,814 in 2013 to 112,703 in 2018. Over three quarters of the teachers in the sub-sector are female. It is probable that the employment of more teachers by the County Governments may have motivated untrained ECD teachers to go for training, as manifested in the reduction of the number of untrained ECD teachers by 39.4 percent over the same period. Furthermore, the number of ECD teacher training colleges grew from 131 in 2013 to 280 in 2018, with private training colleges accounting for most of the ECD teacher training opportunities (Table 22).

Table 22: ECDE Teachers and ECDE Training Centres

Categories	2013	2014	2015	2016	2017	2018*
Number of ECDE Trained Teachers						
Males (Trained)	13,854	13,968	14,721	15,366	17,746	18,703
Females (Trained)	69,960	74,186	78,185	82,351	89,192	94,000
Sub-Total (Trained ECDE Teachers)	83,814	88,154	92,906	97,717	106,938	112,703
Number of ECDE Untrained Teachers						
Males (Untrained)	3,430	3,307	2,840	2,606	2,445	2,294
Females (Untrained)	13,818	13,323	11,441	10,496	8,893	8,158
Sub-Total (Untrained ECDE Teachers)	17,248	16,630	14,281	13,102	11,338	10,452
Total No. of Teachers	**101,062**	**104,784**	**107,187**	**110,819**	**118,276**	**123,155**
Number of ECDE Training Colleges**						
Public	22	25	25	26	41	41
Private	109	115	118	121	235	240
Total	131	140	143	147	276	280

Source: Kenya Economic Surveys, *provisional

In absolute numbers, enrolments in ECDE centres increased from 2.8 million in 2013 to 3.3 million in 2018, an increase of 18.3 percent (Table 23). Enrolment rates at ECD level do not indicate a significant attendance bias by gender at the national level. Nevertheless, the gender parity index between girls and boys at ECDE level marginally reduced from 1.03 in 2013 to 0.96 in 2018. On the other hand, there are huge disparities in access to pre-school education opportunities between girls and boys at the regional levels. Generally, as we show later, girls are less likely to go to pre-school in the arid areas, including Mandera, West Pokot, Garissa, Samburu, Turkana and Wajir.

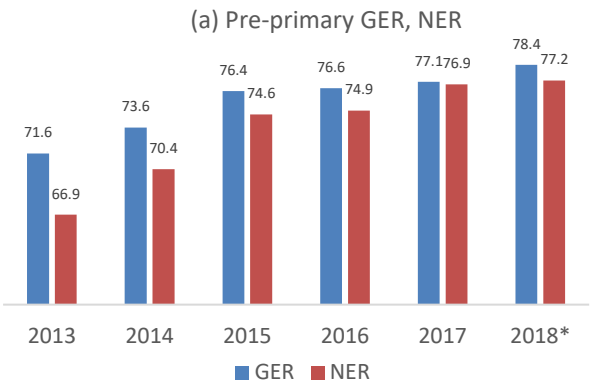
Table 23: ECDE Enrolment by Gender (thousands)

	2013	2014	2015	2016	2017	2018*
Males	1,411	1,476	1,607	1,634	1,682	1,730

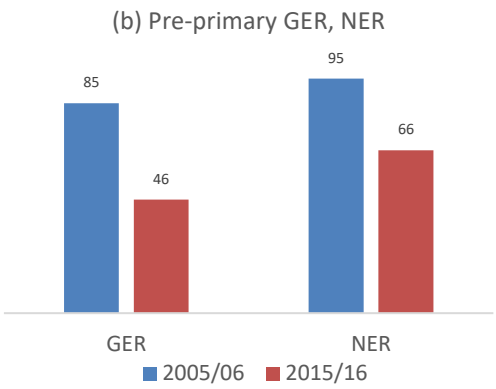
Females	1,454	1,543	1,561	1,566	1,612	1,660
Total	**2,865**	**3,020**	**3,168**	**3,200**	**3,294**	**3,391**
GPI	1.03	1.05	0.97	0.96	0.96	0.96

Source: Kenya Economic Surveys, *provisional

Although enrolments have increased in absolute numbers, access at pre-primary levels remains relatively low. In Figure 12 **Error! Reference source not found.**a, we show trends in Gross Enrolment Rate (GER) and Net Enrolment Rate (NER) at pre-primary, based on administrative data published in the Economic Surveys by the Kenya National Bureau of Statistics (KNBS). **Error! Reference source not found.**b shows pre-primary GER and NER based on the household survey data, the Kenya Integrated Household Surveys (KIHBS) of 2005/06 and 2015/16. Household estimates are not necessarily in line with estimates reported in the Economic Survey.[16] According to the estimates based on economic survey, GER increased from 71.6 percent in 2013 to 77.2 percent in 2018. Similarly, NER rose from 66.9 percent to 77 percent during this period. According to household estimates, GER and NER increased from 85 percent and 46 percent in 2005/06 to 95 percent and 66 percent in 2015/16, respectively. Irrespective of the type of data used, close to 25 percent of pre-school going children have not enrolled in schools given the NER that is less than 75 percent.



Source: Economic Surveys, *provisional



Source: KIHBS Household Survey, 2015/16

Figure 12: Pre-Primary Attendance in Kenya

There are marked regional disparities in access to pre-school opportunities. In Figure 13, we show the ECDE NER by county. NER range from about 98 percent in Homa Bay to 18 percent in Mandera. There are few counties where more than half of the pre-school going children are not in school. Surprisingly, counties in high potential areas such as Trans Nzoia, Murang'a and Nyandarua are characterized by a very low NER at pre-school. Perhaps this can be attributed to the fact that some counties have not prioritized ECDE as one of the key expenditure areas.

16 In most cases, household estimates are not necessarily in line with estimates reported in the Economic Survey. Generally, estimates based on administrative data are relatively higher. One of the reason is the context in which the administrative and household data are collected. Usually, enrolments (access) by grade is computed based on non-repeaters and the population of children expected to be in specific grades. Administrative data is mostly collected from schools and since the Ministry of Education implements a 'No Repetition' policy at primary and secondary levels, head teachers do not disclose high number of repeaters even though they are present in the system. In the households, the respondents often feel no obligation to comply to any legislation or policy on education. It is therefore more likely that estimates based on household surveys are more likely to provide precise picture.

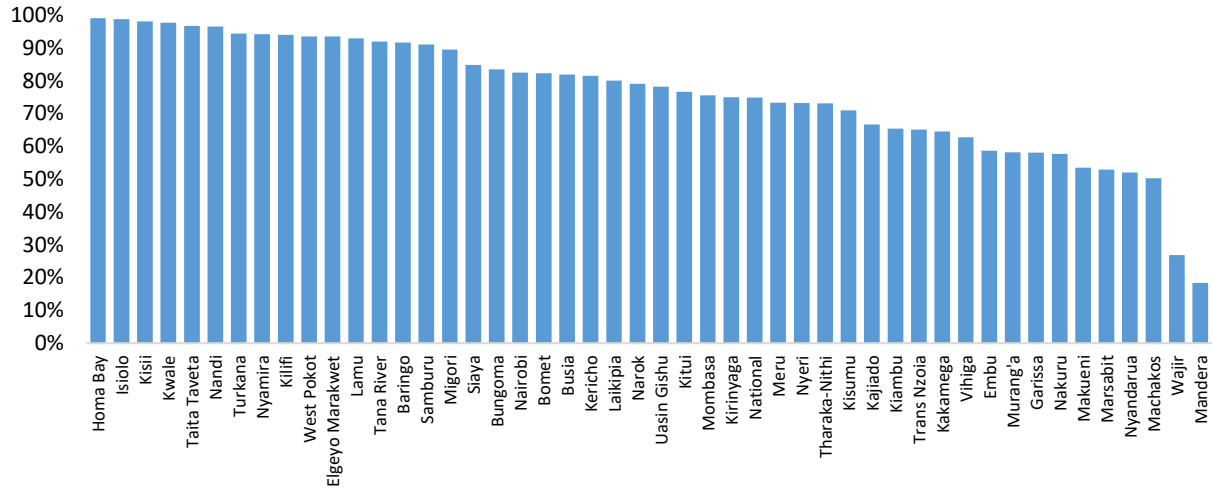


Figure 13**: ECD Net Enrolment Rates by county, 2016**
Source: Ministry of Education, Science and Technology (2016)

5.1.3 Issues Related to Provision of ECDE in Kenya

Best practices from successful counties show that the focus on ECD should be multi-sectoral, involving (at a minimum) connected interventions in the sectors related to health, nutrition, education and social protection (Figure 14). These policies focus on the expectant mother, the child, the caregiver or the family and can be applied in the home, at a school or child care centre, a hospital, or a community centre (Vegas & Santibañez, 2010).

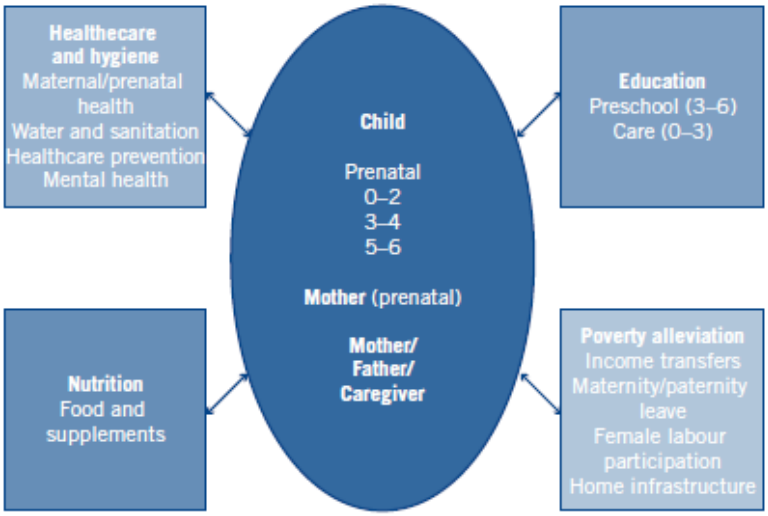


Figure 14: Multi-sectoral Policies that can affect ECD
Source: Vegas and Santibañez (2010).

Kenya has a number of child development programs across different ministries. Within the Ministry of Health (MoH), there are a number of child development programs, such as the Neonatal and Adolescent Health Unit with a program that addresses the medical and nutritional needs of children from 0 to 18. In addition, we have the Malezi Bora program, which provides

nutritional supplements to areas where malnutrition thresholds are low. The School Based Deworming and the Facility Level Deworming effort targets children from age 2 to 14. The Department of Gender has a Child Protection Policy, which is aligned to Convention on the Right of Children.

However, ECD interventions in Kenya are not established in all essential areas of focus for child development and are not multi-sectoral in nature. Child development programs in different ministries are not well connected, a situation that was worsened by devolution. Before devolution, there was an inter-sectoral committee responsible for the overall management and coordination of ECD programs at the national level. The committee, however, lacked strong inter-sectoral coordination, only drawing representatives from MOE, Teachers Service Commission (TSC), Ministry of Finance, Ministry of Health (MoH) and Kenyatta University. Currently, ECD services are managed by 47 independent devolved sub-national governments. This has further weakened efforts towards establishing strong inter-sectoral coordination to bring interventions from key sectors for a comprehensive delivery of ECD services. Each county seems to be implementing its own strategy regarding ECD.

ECD concerns the holistic development of children between 0 and 5 years old (figure 14). However, much of the focus in Kenya is on children of 3-5 years. Service delivery in most ECD/pre-school centres, known by various names (e.g., Nursery School, Kindergarten) and under various types of management (e.g., public, private, community-based, etc.) is mostly targeted at children over three years. There are very limited equivalent service structures for children under three (Mbugua, 2004). The care and education of young children under three in Kenya is largely in the hands of older siblings, grandparents, and house helps, if they are available. Mothers with young children visit health services for growth monitoring and immunization, which is the only care they provide for their young children. Information on stimulating the child's psycho-social development is limited at these health centres with weak linkages with other service delivery systems such as education and child protection. Kenya, however, has an opportunity to learn from global best practices on multi-sectoral approach to creating formidable ECD, and Cuba offers the best example on this front (Box 9).

Box 9: Cuba's "Educate Your Child" Program: Strategies and Lessons

Seventy per cent of Cuban children under the age of 6 years participate in the *Educa a Tu Hijo* (Educate Your Child) program, a noninstitutionalized, multi-sector, community-based program run by the Ministry of Education, which places the family at the centre of activities. Following pilots from 1983 to 1992, the program was scaled-up between 1992 and 1998. The objective of Cuba's *Educa a Tu Hijo* program is to achieve the maximum level of development possible for each child in the areas of emotional communication, intelligence, language, motor development, habit formation, health, and nutrition. The primary way to achieve that objective is to prepare families to become agents for stimulating the development of their children. The program is implemented by teams of promoters and facilitators. Promoters (primarily teachers, educators, and health professionals) serve as a liaison between the local coordinating group and the community. Their role is to educate the community, mobilize resources, train facilitators, and provide pedagogical guidance for plans established by the program's local coordinating groups. The program works with two age groups: 0–2 and 2–6 years. The 0–2 age group receives individualized care from facilitators, who visit homes once or twice a week. The in-home sessions consist of demonstrations of stimulation activities by the facilitators, which serve as examples for the parents. Group structure and other methodological aspects of the program may vary according to local needs. Children in the 2–6 age group participate alongside their parents or caretakers in group sessions, held once or twice a week in a community space (parks, cultural centres, sports centres). The sessions can be held with groups broken down by age (for example, groups of children aged 2–3, 3–4, 4–5, or 5–6 years). At

least one family member responsible for raising the child participates in the in-home and group sessions, which seek to involve families while training and guiding them and helping them to develop the knowledge and skills to promote the development of their children. (Source: Alfredo R. Tinajero, 2010).

The nature of care and learning in ECD/pre-school centres is not well developed to respond even to the needs of children aged 3-5 who attend those centres. Teaching is focused on literacy and numeracy skills meant for early primary education centres – partly due to pressure from parents, who view ECD as early schooling (World Bank, 2012). Unfortunately, parents' understanding of ECD is also largely focused on children's early acquisition of learning skills. Child-cantered pedagogical methods, which would provide a better basis for learning, exist in only a few private centres in urban areas (World Bank, 2012).

The cost of ECD services in Kenya remains one of the main barriers to accessing quality ECDE services. ECDE in Kenya is not free and costs of access have been left to parents. The sub-sector is poorly financed – especially by the government, and it is even not easy to quantify both public and private spending on this sub-sector. There is no national law and policy establishing a minimum level of funding for ECD and there are no mechanisms to coordinate budgeting across sectors responsible for child development. Currently, county governments employ teachers but parents are required, in turn, to pay fees for personal school supplies, uniform, meals, transport, and medical services. The devolution of ECDE to county government was not accompanied by resource allocation. Many parents end up not taking their children to ECD but rather wait until children are ready for Class One, which is free in public schools. Given the importance of ECD, this is a huge missed opportunity.

The ECDE sub-sector in Kenya suffers from a confluence of quality related challenges. First, ECDE services are provided by both public and private entities. As such, a multiplicity of curricula is offered, ranging from Montessori to KICD-based curriculum. Also, ECDE teacher training programs are run by various entities, raising the question whether such heterogeneities in training equip teachers equally for their work. In addition, there is no adequate infrastructure and conducive classroom environment for ECD centres/pre-primary schools. Many ECDE centres lack adequate teaching and learning resource and facilities suitable for ECDE in their learning environment. These include lack of properly ventilated classrooms, furniture suitable for children, kitchen, safe clean water, playground, toilets and play material (UNICEF, 2002). This implies that teachers do not have adequate teaching and learning resources to enable them to implement ECDE Curriculum effectively. In some parts of Kenya, teaching and learning is usually held outdoors under trees (Adams and Swadener 2000).

Devolution of ECDE services has come with a number of challenges. There is confusion between counties and the national government in terms of who is responsible for the governance and enforcement of standards. There is no clarity on the roles and mandates of the Teachers Service Commission (TSC), the Ministry of Education (MOE), and county officials in recruitment of ECDE teachers and quality assurance. Currently, each county employs teachers based on its own guidelines in terms of terms of service and standards. Most county governments do not have the modalities in place to monitor and maintain standards. A number of counties governments are currently preparing their own ECDE bills oblivious of the existing policy framework, in particular, the 2016 Integrated Early Childhood Development (IECD) Policy.

Despite ECDE being under county governments, children with Special Needs, including those in ECDEs, and their education still remains the responsibility of the National Government.

Going forward, the national government needs to do more, especially as regards to providing policy directions with regards to the provision of ECDE. Among others, policy direction is required in the areas of curriculum development (Competency based Curriculum); development and enforcement of standards (in particular, a clear description of the minimum package for an ECDE centre), training and capacity development of ECDE personnel as well as development of a harmonised scheme of work for ECDE in Kenya.

There is no comprehensive system to monitor children's development across sectors and financial information is particularly scarce. Child development outcomes are not adequately collected and tracked. However, through the health information monitoring systems, some data on children's physical outcomes are collected and monitored. Other than physical outcomes, children's cognitive, linguistic and socio-emotional development are not tracked and there are even no indicators that define them. Without some monitoring of children's outcomes in these interrelated domains, it is difficult to holistically assess children's development and the degree to which existing interventions are successful. The Ministry of Education (MOE), in collaboration with other stakeholders, developed the Kenya School Readiness Assessment Tool (KSRAT), which tracks children's holistic development during children's final year of pre-primary education. However, implementation of KSRAT still faces several challenges, including teacher awareness and over-reliance on assessment of academic achievement tests.

5.1.4 Summary of ECDE Issues

❖ ***ECDE is important, at the individual child level and at the national level***

- Evidence shows that children who receive early years of education achieve more success at school and later in life.
- Recent evidence in Kenya shows that children who attend pre-school achieve more success at school.

❖ ***Kenya has shown increases in the number of ECDE Centres as well as Leaner Enrolments***

- Available data shows that the period between 2012 and 2017 witnessed considerable increase in the number of ECDE centres, from 39,758 to 41,779.
- In absolute numbers, enrolments in ECDE centres increased from 2.7 million in 2012 to 3.3 million in 2017, an increase of 22 percent.
- Although enrolments have increased in absolute numbers, access at pre-primary levels remains relatively low, as close to 25 percent of pre-school going children have not enrolled in schools.
- There are marked regional disparities in access to pre-school opportunities.

❖ ***There are a number of challenges facing ECDE development in Kenya***

- Best practices from successful counties show that the focus on ECD should be multi-sectoral, involving (at a minimum) connected interventions in the sectors related to health, nutrition, education and social protection.
- Kenya has a number of child development programs across different ministries. However, ECDE interventions are not established in all essential areas of focus for child development and are not multi-sectoral in nature.

- While ECD concerns the holistic development of children between 0 and 5 years old, much of the focus in Kenya is on children of 3-5 years.
- The nature of care and learning in ECD/pre-school centres is not well developed to respond even to the needs of the 3-5 aged children who attend those centres.
- The high cost of ECD services in Kenya remains one of the main barriers to accessing quality ECDE services. The ECDE sub-sector in Kenya is not free and costs have been left to parents.
- The ECDE sub-sector in Kenya suffers from a confluence of quality assurance challenges. For instance, ECDE services in Kenya are provided by both public and private entities. Private pre-schools represent a diverse range of institutions (not-for-profit as well as for-profit entities etc.), majority of which are unregistered and unregulated, especially those located in informal urban settlements.
- There is lack of a comprehensive system to monitor children's development across sectors, and financial information is particularly scarce.

5.1.5 Policy Considerations for NESSP 2018-2022:

❖ ***Develop a multi-sectoral approach to ECD, both at the national and county levels, which may lead to the identification of services catering for young children***. *Policy Suggestions include:*

- There is need to move from focusing ECD around pre-school centres (taking care of children aged 3-5 years) to a continuum of inter-sectoral programs integrating interventions in health, nutrition, education, as well as social and child protection.
- The Ministry of Education (MOE), together with counties, should constitute a national Multi-Sector Coordination Unit that brings together all the related sectors, taking cognizance of article 53 of the Constitution. Likewise, each county should constitute a county level Multi-Sector Coordination Unit that brings together all the related sectors.
- Development of a scheme of service for teachers of ECDE.
- Provide leadership for Early Parenting and Early Childhood Development at local, regional and national government levels.
- Promote partnerships between government, non-government and civil society organizations.

❖ ***Target infants, young children and their families with high quality healthcare, nutrition, early learning and stimulation, as well as social protection programs.*** *Policy Suggestions include:*

- Target mothers and their babies with health and nutrition interventions during the first 1,000 days to reduce malnutrition and foster physiological development.
- Increase the frequency and quality of stimulation and opportunities for learning at home (starting from birth) to improve language and monitor development, as well as to cultivate early cognitive and socio-emotional skills. Families should be prepared to be agents of stimulating development of children.
- Promote day-care centres for very young children and pre-school programs for children 3–6 years old—along with caregiver programs that enhance the nurturing and protection of children— to improve cognitive and socio-emotional skills in the short run, as well as education and labour market outcomes later in life.
- Make use of existing ECD centres/pre-schools and other similar existing services to provide more comprehensive services by reinforcing their health and other care components.
- Establish and strengthen infrastructure and capacity for delivery of quality and integrated ECD services.

- Improve the pedagogy at ECD Centres by training teachers in core areas such as child-centred pedagogical methods and how to make ECD classroom environments more child-centred and child friendly as well as conducive for teaching.
- Develop/adopt a tool to measure quality of ECD environments and child development outcomes
- Support research and knowledge sharing platforms to promote best practices in ECD.
- Measure and publicly report on targets and achievements in relation to Early Childhood Development.

❖ ***Increase awareness and public education about the importance of Early Childhood Development, at all levels.*** *Policy suggestions include:*

- Advocacy is needed at all levels, especially at the community level. This is about providing information to parents and other caregivers, so that accessible services are demanded and used. Parental education could be a cost-effective strategy for the care and education of young children under three.
- Identify the service venues through which parenting education can be delivered. This may require development of partnership with various stakeholders, especially those at the community level. These delivery points may include ECD centres, literacy classes, DICECE's ECD training courses and clinics in communities where parents can have frequent and easy access.
- Inform and sensitize politicians and policy makers (both at devolved and national level) about holistic ECD services and why they are important.

❖ ***Lower the cost of ECD education through a range of policies, to improve finance for ECD education.*** *Policy suggestions include:*

- The government (at the national and county levels) should consider a range of policies to improve financing of pre-primary education, addressing both supply and demand constraints. These options include, for example:
    - Capitation grants to schools, specifically for pre-primary expenditures.
    - Conditional cash transfers or vouchers for households, contingent upon enrolling a child in pre-primary school or accessing other ECD services in hardship areas.
    - Include pre-primary into the free education initiative.

❖ ***Improve Supervision and Quality Assurance.*** *Policy Suggestions include:*

- Collaboratively establish a mechanism for developing the operational and performance standards, including implementation of the pre-primary education policy and standard guidelines.
- Clearly outline the indicators for measuring child outcomes: cognitive, language, socio-emotional development, as well as indicators for measuring outcomes in related sectors such as number of children immunized, etc.
- Improve tracking of ECD expenditures within and across sectors – at the local, sub-national and national level to allow for the assessment of the cost-effectiveness of interventions, and for improved policy planning and allocation of resources.
- Improve the capacity of the National Centre for Early Childhood Education (NACECE) and county ECD personnel to plan and implement quality ECDE services.
- Register and carry out accreditation of all centres offering ECDE services.
- Continuously collect, update and disseminate ECD data through quarterly/ annual ECD status reports.

❖ ***The national government needs to provide policy directions in the following areas:***

- Curriculum development (Competency based Curriculum).

- Development and enforcement of standards (in particular, a clear description of the minimum package for an ECDE centre).
- Training and capacity development of ECDE personnel;
- Development of a harmonised scheme of work for ECDE in Kenya.

5.2 Primary Education

5.2.1 Evolution of Primary Education Institutions

Kenya has about 38,000 registered primary schools, majority of which are publicly funded. Table 24 shows the number of primary schools by ownership. There were 37,910 registered primary schools in 2018. Of these, 36 percent were private schools. It is possible that this is an underestimated figure since it does not account for the hundreds of unregulated and unregistered private (informal) schools mainly located in urban informal settlements. The average size of primary school populations reduced from 352 in 2013 to 278 in 2018. This could be due to the high rate of establishment of new schools, funded under the Constituency Development Funds and through the local communities.

Table 24: Number of Primary Schools by Ownership

	2013	2014	2015	2016	2017	2018*
Public	21,205	21,718	22,414	22,939	23,584	24,241
Private	6,821	7,742	8,919	10,263	11,858	13,669
Total	**28,026**	**29,460**	**31,333**	**33,202**	**35,442**	**37,910**
Average school size	352	338	322	310	294	278

*Source: Economic Surveys, *Provisional*

5.2.2 Evolution of Enrolments

Total enrolment in primary schools rose by 6.5 percent from 9.8 million in 2013 to 10.5 million in 2018. Table 25 shows trends in enrolments for the period 2013 to 2018. Enrolments in Standard 1 in later years are quite less than those of earlier years. For instance, enrolments in Grade 1 in 2013 are less than enrolments in Grade 1 in 2018. This could be attributed to the increase in enrolments at the ECDE level, resulting in a reduction in the number of children entering primary schools (Grade 1) outside the official school going age. Second, the number of children enrolled in Standard 8 relative to Standard 1, increased from 64 percent to 74 percent, indicating improvement in the retention rate. Figure 15 shows the share of enrolment in public and private primary schools in 2016. Close to 16 percent of primary school children were enrolled in private schools. The share of private schools reduces with an increase in the level of education.

Table 25: **Enrolment in Basic Education Institutions (in thousand)**

Grade	2013	2014	2015	2016	2017	2018*
Standard 1	1,370	1,372	1,361	1,353	1,360	1,390
Standard 2	1,316	1,316	1,331	1,337	1,351	1,369

Standard 3	1,328	1,307	1,318	1,338	1,340	1,364
Standard 4	1,318	1,327	1,341	1,363	1,360	1,378
Standard 5	1,276	1,277	1,299	1,319	1,349	1,366
Standard 6	1,244	1,248	1,273	1,309	1,325	1,342
Standard 7	1,120	1,206	1,236	1,297	1,309	1,326
Standard 8	885	899	932	965	994	1,007
Total Primary	9857.6	9950.8	10090.9	10280.1	10387.7	10542.6

*Source: Economic Surveys, *Provisional*

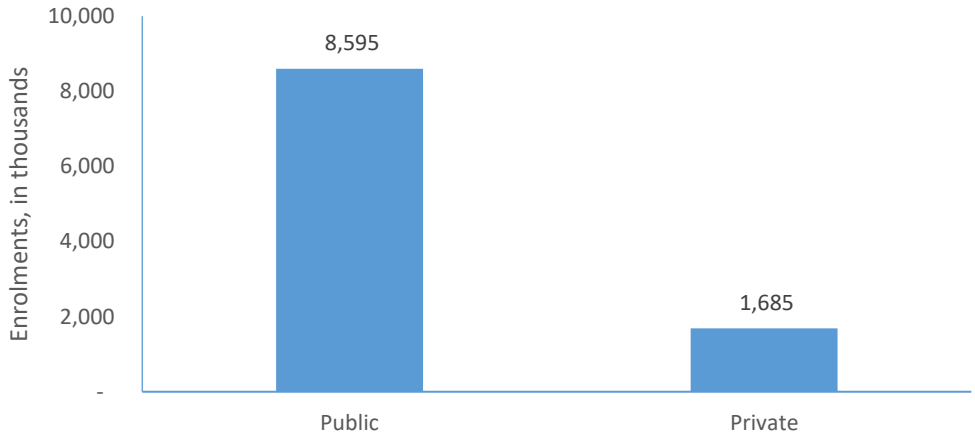
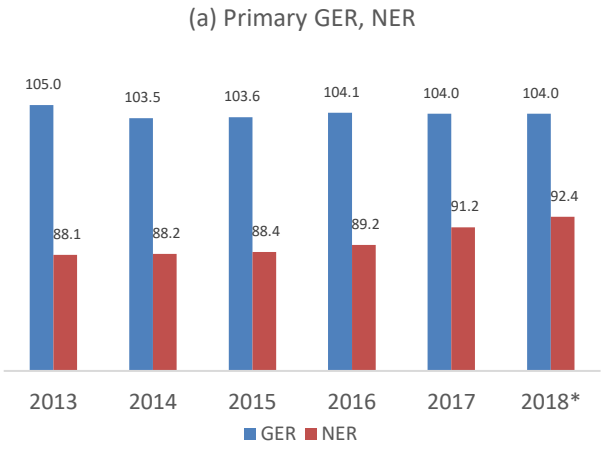
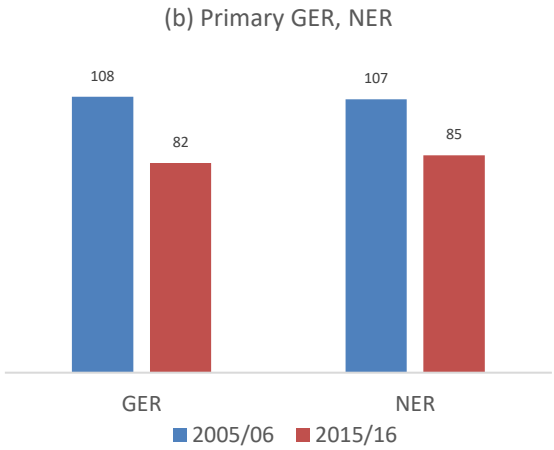


Figure 15: Enrolment in Public and Private Schools 2016
Source: Ministry of Education

5.2.3 Primary Enrolment Rates

Figure 16 shows trends in GER and NER at primary school level, based on the administrative survey published in the Economic Survey (Figure 16 **a) and the KIHBS of 2005/06 and 2015/16 (**Figure 16 **b).** Like the case of pre-primary, there is a slight discrepancy between household survey data and administrative data in terms of primary GER and NER. According to the Economic Survey data, there was a marginal increase in primary NER, from 88 percent in 2013 to 92.4 percent in 2018, meaning that close to 7.6 percent of primary school going children, those aged 6-13 years, were not enrolled in primary schools (Figure 16 a). Estimates based on KIHBS puts the primary NER at a slightly lower rate, at 85 percent in 2015/16, meaning that as much as 15 percent of primary school going age children are not enrolled (Figure 16 b).





Source: Economic Survey, * provisional *Source:* KIHBS Household Survey, 2015/16

Figure 16: Primary School Attendance Rates in Kenya

Enrolment rates in primary education vary substantially across counties. The national enrolments in Figure 16 masks regional disparities in access to basic education. Figure 17 shows enrolment rates, by county, at primary level, based on KIHBS 2015/16. Generally, counties in ASAL areas lag behind in basic education enrolment rates. Primary enrolment rates, both GER and NER, are quite high in counties in largely high potential areas such as Nyeri, Machakos, Embu and Kirinyaga. In counties like Garissa and Turkana, half of primary school going children are not enrolled, almost 15 years since the implementation of the free primary school initiative. Overall, primary NER varies from 42 percent in Garissa to close to 96.8 percent in Nyeri.

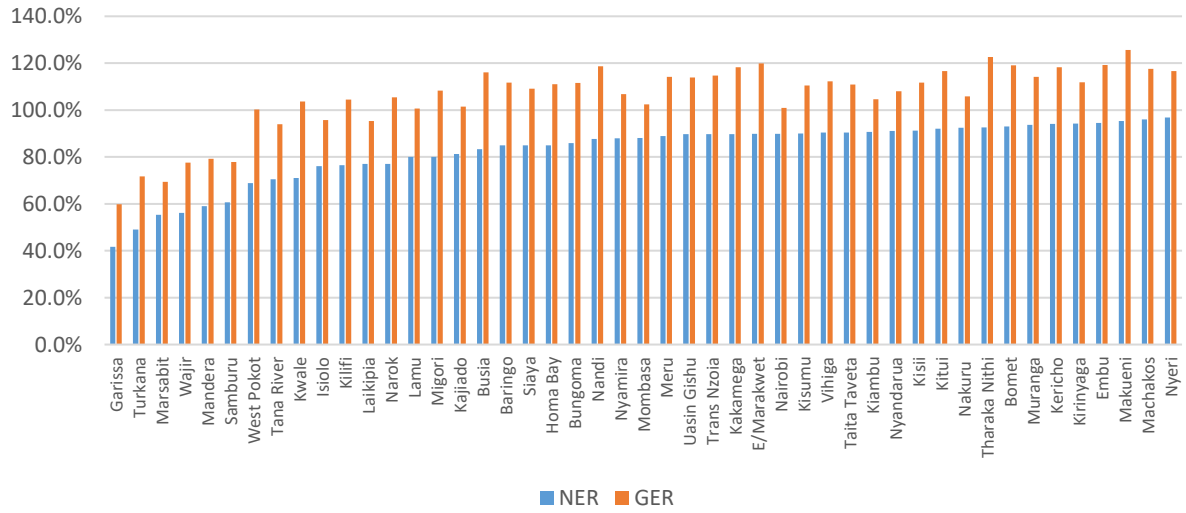


Figure 17: Primary Enrolment Rates by County
Source: Own calculations based on KIHBS 2015/16.

Enrolments among Kenyan children decline at age 11 even if this is not the official primary school completion age. In Figure 18, we show enrolment rates, by age (for primary and secondary school going children) based on the Uwezo household survey of 2012 and 2014. The figure confirms that Kenya has made significant progress in getting children into schools. For instance, enrolment rates peak at a relatively high level - almost 95 percent of children are enrolled in school at some point in their school age period. However, two concerns emerge. First,

as can be seen, not all 6-year olds are enrolled. For instance, close to 40 and 25 percent of 6-year-olds were not enrolled in school, in 2012 and 2014, respectively, despite this being the official age for starting school in Kenya. Either these children enroll in school late or they do not enroll at all. Second, enrolments start to decline at age 11 even when this is not the official primary school completion age, meaning that a significant number of children are dropping out of the system even without completing primary education.

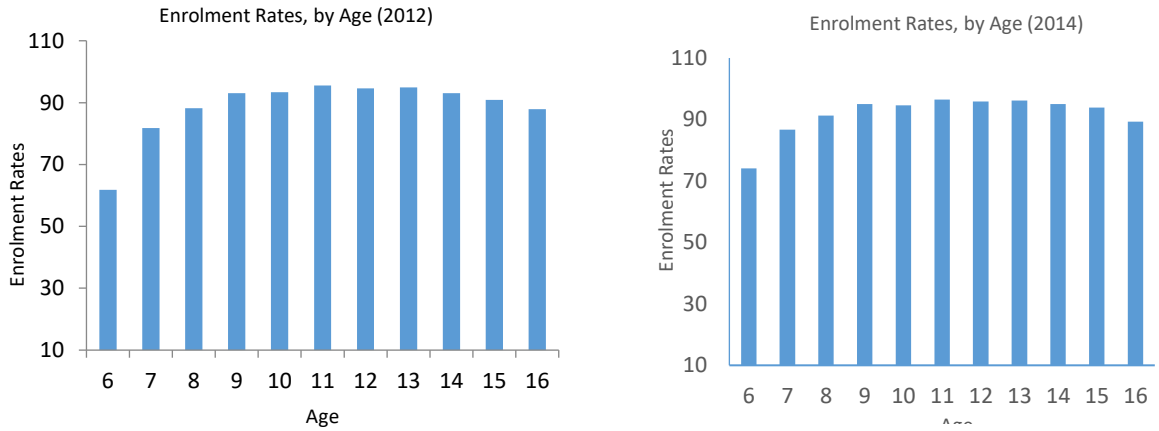


Figure 18: **Enrolment Rates, by Age in 2012 and 2014**
Source: Author's computation from Uwezo Surveys 2012 and 2014

One in every eight children who enter Standard 1 are able to complete Standard 8. Figure 19 shows trends in primary school retention and completion rates. Retention between Standard 1 and Standard 6 improved by 15 percent from 92 percent in 2012 to 107 percent in 2016. Similarly, retention between Standard 1 and Standard 8 improved from 77 percent to 84 percent during the same period. Primary Completion Rate (PCR) improved marginally by about 2 percentage points, from 82 percent in 2012 to 84 percent in 2016. Some of the initiatives that are associated with improvement in enrolments, retention and completion rates include: Free Primary Education (FPE); Low Cost Boarding Primary (LCBP) program for ASAL populations; School Feeding Program (SFP) for children living in ASALs and other areas with pockets of poverty, as well as urban informal settlements; provision of sanitary towels to vulnerable adolescent girls to motivate their participation in education; and general improvement of infrastructure, among other interventions.

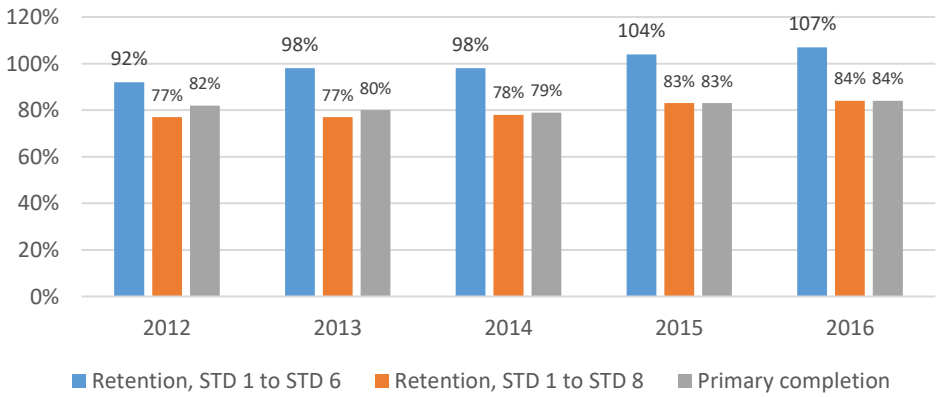


Figure 19: Primary Retention and Completion Rates
Source: Author's calculations based on Ministry of Education data

There are a number of challenges that hinder access to primary school education in Kenya. Studies clearly show that children cannot attend school mainly due to a number of factors: direct (such as fees for uniforms, and school feeding programs) and indirect costs of schools. Other are insecurity; terrorism; cattle rustling; intolerable cultural factors/lifestyles (especially in ASAL areas); early pregnancies (especially in Western and Nyanza regions of Kenya); long distances to schools; lack of functioning and gender sensitive facilities, especially sanitation (water and toilets) in schools; lack of food and water at home; and drop-outs due to failure to pass in end of term/end of cycle exams (the current curriculum puts more emphasis on passing of exams than learning). Those most affected are children from low economic status households, urban informal settlements and those in ASAL areas.

5.3 Secondary Education

5.3.1 Evolution of Secondary Education Institutions

Kenya has close to 11,400 secondary schools. Table 26 shows the number of secondary schools by ownership. Secondary schools increased from 7834 in 2013 to 11,399 in 2018. Over 80 percent of the secondary schools are publicly funded. The share of private school increased by only one percentage points over this period. It is possible that Table 26 does not include unregistered private schools, mainly located in urban informal settlements. Total enrolment in secondary schools rose by 40 percent from 2.1 million in 2012 to 2.9 million in 2018. Table 27 shows trends in secondary enrolments for the period 2013 to 2018.

Table 26: Number of Secondary Schools by Ownership

	2013	2014	2015	2016	2017	2018*
Public	6,807	7,686	8,297	8,592	9,111	9,643
Private	1,027	1,048	1,143	1,350	1,544	1,756
Total	**7,834**	**8,734**	**9,440**	**9,942**	**10,655**	**11,399**
Average school size	269	267	271	273	266	258

*Source: Economic Surveys, *Provisional*

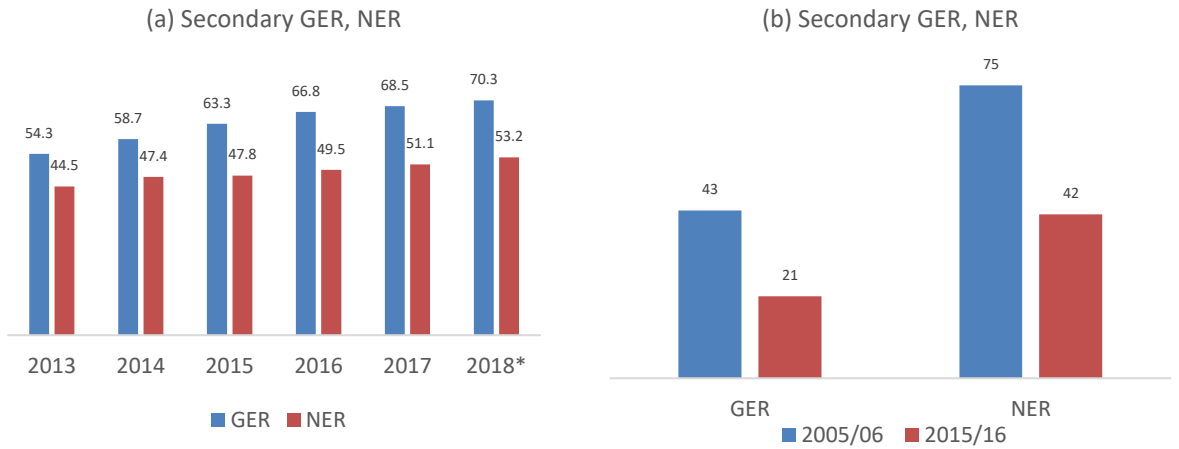
Table 27: Enrolment in secondary education (in thousand)

Grade	2013	2014	2015	2016	2017	2018*
Form 1	617.5	667.2	732.7	757.9	801.5	826.0
Form 2	542.0	628.6	691.4	730.4	758.7	801.2
Form 3	496.1	552.5	627.5	669.4	691.7	717.9
Form 4	448.7	461.6	507.4	562.9	578.9	597.6
Total	2,104.3	2,309.9	2,559	2,720.6	2,830.8	2,942.7

*Source: Economic Surveys, *Provisional*

5.3.2 Secondary Enrolment Rates

Although enrolments in secondary education have been rising, access to secondary education in Kenya is still low. As shown in Figure 20 a shows, in 2018, the secondary GER and NER was estimated at 70.3 and 53.2 percent according to the administrative data. This actually means that close to 50 percent of secondary school going age children are not enrolled in secondary schools.



Source: Economic Surveys, *Provisional

Source: KIHBS Household Survey, 2015/16

Figure 20: Secondary Gross and Net Enrolment Rates

Enrolment rates in secondary education vary substantially across counties. Figure 21 shows enrolment rates, by county, at secondary level, based on KIHBS 2015/16. Just like the case of primary, counties in ASAL areas lag behind in basic education enrolment rates. In overall, secondary NER varies from 13.7 percent in Turkana to 67.8 percent in Kiambu County.

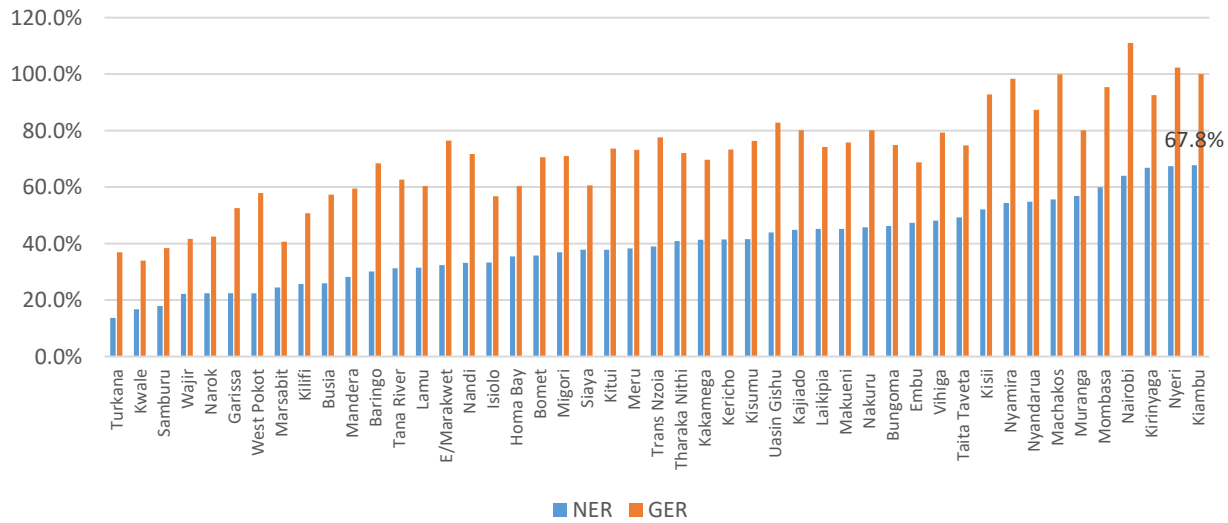


Figure 21: **Secondary Enrolment Rates by County**
Source: KIHBS Household Survey, 2015/16

5.4 Internal Efficiency

5.4.1 Survival, Retention and Promotion Rates

While Kenya has made considerable progress in education outcomes, there are important sources of internal inefficiencies within the system. Retention in primary education is generally high but towards the end, the system cannot keep learners in school. Figure 22a shows the percentage of a cohort of students enrolled in Grade 1, who eventually reach Form 4 for the years 2009, 2014-2016. Figure 22b shows GER by grade based on the KIHBS 2005/06 and 2015/16. Both figures show that the Kenyan system is characterized by a relatively high Gross Intake in Standard 1, with learners generally staying in school up to Standard 7 before a considerable proportion drops out between Standard 7 and 8 and between Standard 8 and Form 1. Although there has been improvement in subsequent years, more than 40 percent of children who start Standard 1 do not complete Form 4. The enrolment pyramid in Figure 23a further shows that significant loss of learners happens between Standard 7 and 8 and between Standard 8 and Form 1. The base of the pyramid, where the entrants into primary education sit, is wider than the end of secondary one, implying that the system is not proofed against internal or external forces that drive children out of school.

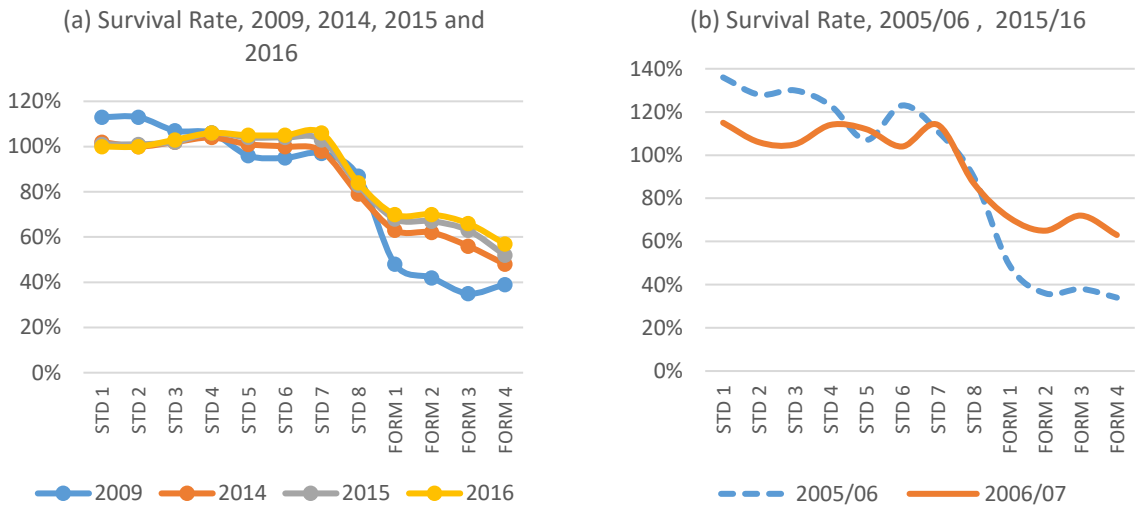


Figure 22: Trends in Survival Rate
Source: KNBS 2017; KIHBS 2016/17

Trends in promotion and repetition rates further confirm concerns about the system losing learners, particularly between Standard 7 and 8, between Standard 8 and Form 1, and between Form 3 and 4. While nearly 9 out of 10 learners proceed to the next class during Grades 1 to 6, close to 25 percent of Grade 7 learners do not proceed to Grade 8. These learners either repeat Grade 7 or drop out of school. Furthermore, close to 20 percent of Grade 8s do not transit to Form 1 and as seen from the enrolment pyramid (Figure 23a), this is where most of the drop out occurs. At secondary level, promotion rates reduce as one moves from Form 1 to Form 4. In particular, there is a drastic fall in the proportion of learners transiting from Form 3 to Form 4.

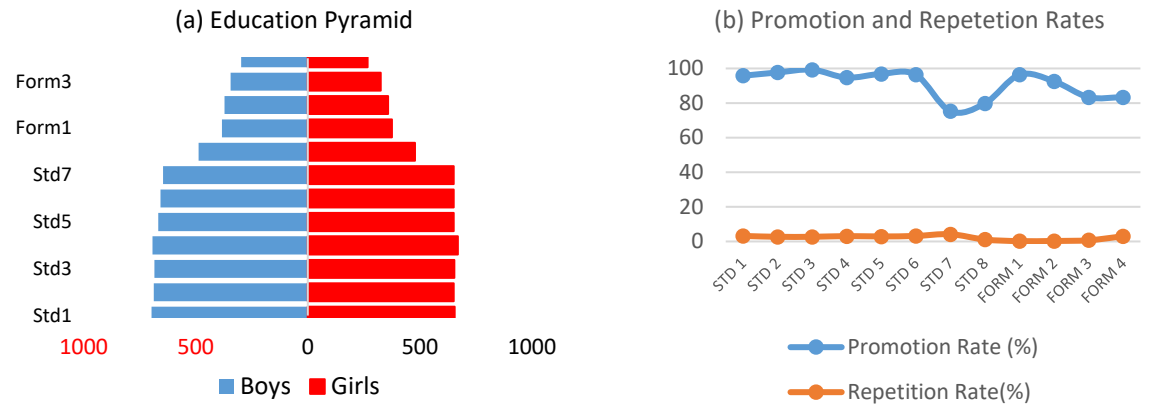


Figure 23: Kenya's Education Pyramid, Promotion and Repetition Rates
Source: KNBS 2017; KIHBS 2016/17

The decline in transition from Grades 7 to Grade 8 and from Form 3 to Form 4 (which also reflects the decline in promotion rates at these grades) indicates the role that the high-stakes end examinations play in restricting student progress. The phenomenon of end of cycle national examinations limiting student progression is common in many SSA countries, a subject that is well treated in Bashir *et al.* (2018). For the case of Kenya, some schools engage in the unethical behavior of holding back 'perceived weak students' at Grade 7 and promoting 'strong candidates' to Grade 8 to increase the school mean grades in the KCPE exams (end of primary cycle exams). This has been exacerbated by the strong media focus on these high-stake end of cycle national examinations. Bashir *et al.* (2018) show that countries that have eliminated such high-stake examinations have experienced an increase in transition through the system. Box 8 provides the experience of Botswana, based on a discussion extracted from Bashir *et al.* (2018). As discussed later on, one of the leading factors responsible for the poor transition from primary to secondary school is the cost of schooling. Generally, secondary education is still expensive for families.

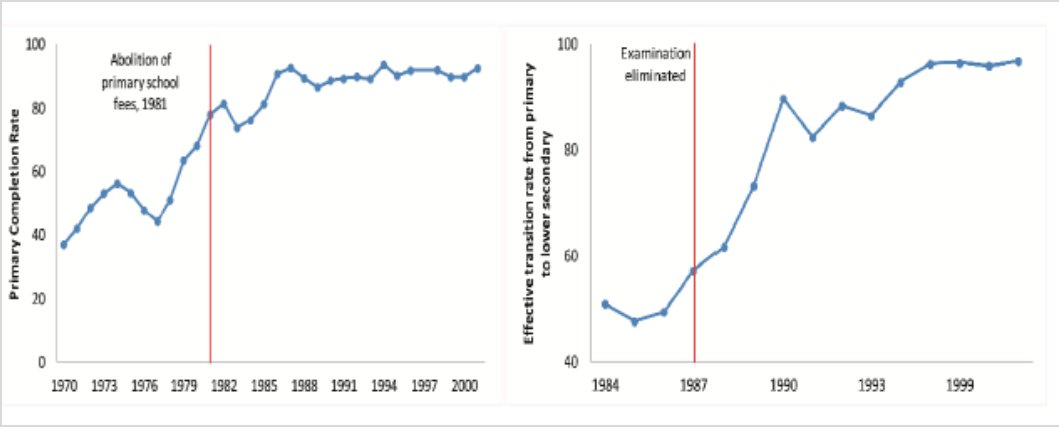
Box 10: Effects of Eliminating High Stakes Exams in Botswana's Transition in Basic Education

The National Policy on Education of 1977, Education for Social Harmony (or Education for *Kagisano*), marked the first of two major post-independence national reforms of the education sector in Botswana. The policy introduced basic education, which was fully implemented in 1987, when the education structure shifted from 7 years of primary schooling to 9 years of basic education (7 primary and 2 years of junior secondary). The policy had also introduced other key initiatives such as the abolition of school fees (primary school fees in 1981 and secondary school fees in 1989) and other prohibitive user fees, along with a rapid expansion of infrastructure to accommodate the increase in demand through the Primary Education Improvement Project (PEIP) and Junior Secondary Improvement Project (JSEIP). These programs had a significant impact on the education sector, leading notably to a significant increase in enrolment, and more importantly, an increase in the primary completion rate. By 1987, when basic education was fully implemented, the Primary Completion Rate was at 92.6 percent, up from 44.2 percent in 1977. This provided the right environment for the expansion from 7 grades of primary to basic education. In 1987, the Primary School Leaving Examination (PSLE) was changed from a high-stakes examination used for selection into junior secondary school to a certification examination to assess competency levels of students and mark completion of the primary cycle. This effectively removed the PSLE as a barrier to student progression and its impact was felt almost immediately as transition rates increased from 57 percent in 1987 to nearly 90

percent by 1990.

Effect of the abolition of primary school fees in Botswana

Effect of elimination of high-stakes examinations in Botswana



Source: Bashir et al. (2018)

5.4.2 Out-Of-School Children (OOSC).

Another measure of internal efficiency is the proportion of Out-Of-School Children (OOSC). Statistics differ on the exact number of children who are OOSC in Kenya. This is partly due to methodological and definitional difficulties. Estimates from the 2014 Kenya Demographic and Health Survey (KDHS) show that close to 1 million children, aged 6-17 years, are out of school, either because they have never attended or they dropped out of school. According to the Uwezo survey of 2014, out of a sample of about 140,000 learners aged 6-16, close to a quarter of them had either dropped out of school or never attended school. Most of those out of school have either no school education at all or have incomplete primary education.

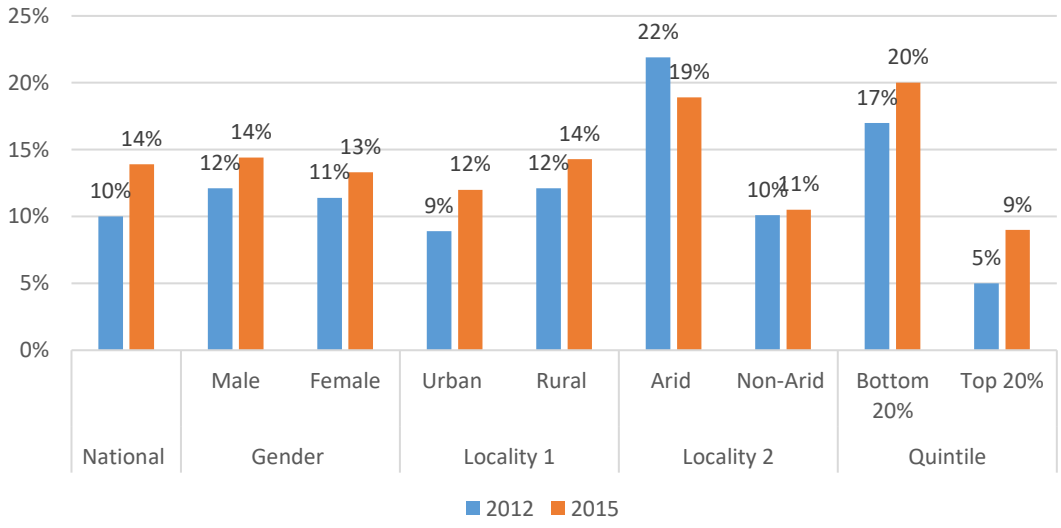


Figure 24: Out-of-School Rates by Gender, Location and Quintile (Percent)

Source: Author's calculations based on Uwezo household surveys of 2012 and 2015. OOSC are defined as children aged 6-16 years who are classified as having dropped out of school or never enrolled during the survey.

Being out of school is an issue affecting boys, children in rural areas and those from poor backgrounds. Figure 24 shows trends in OOSC by gender, location and quintile based on the Uwezo surveys of 2012 and 2014. Boys (relative to girls) and rural children (relative to urban children) are more likely to be out of school. Similarly, children in ASAL areas and those from the bottom 20 percent quintile of the population are more likely to drop out or not enrol. In general, financial constraints, constraints related to being born in ASAL areas as well as the gender and location of the child are key factors that explain dropping out of school or not enrolling.

The proportion of OOSC varies substantially by regions/counties. Figure 25 shows the proportion of out of school children by county based on the Uwezo surveys of 2012 and 2014. In Figure 26, we show the distribution of out of school children by county, in absolute numbers as at 2014, based on the KDHS data. Generally, both figures show that most of the OOSC come from counties in the ASAL areas. Figure 24 shows that majority of the counties witnessed a rise in the proportion of OOSC between 2012 and 2014. The counties that saw a reduction in the proportion of OOSC include Lamu, Kajiado and Narok. Wajir, Tana River, Baringo, West Pokot counties also witnessed a reduction even though they still have a high proportion of OOSC. Bungoma and Nairobi counties are also identified, in the KDHS data (Figure 26) as having a high number of OOSC.

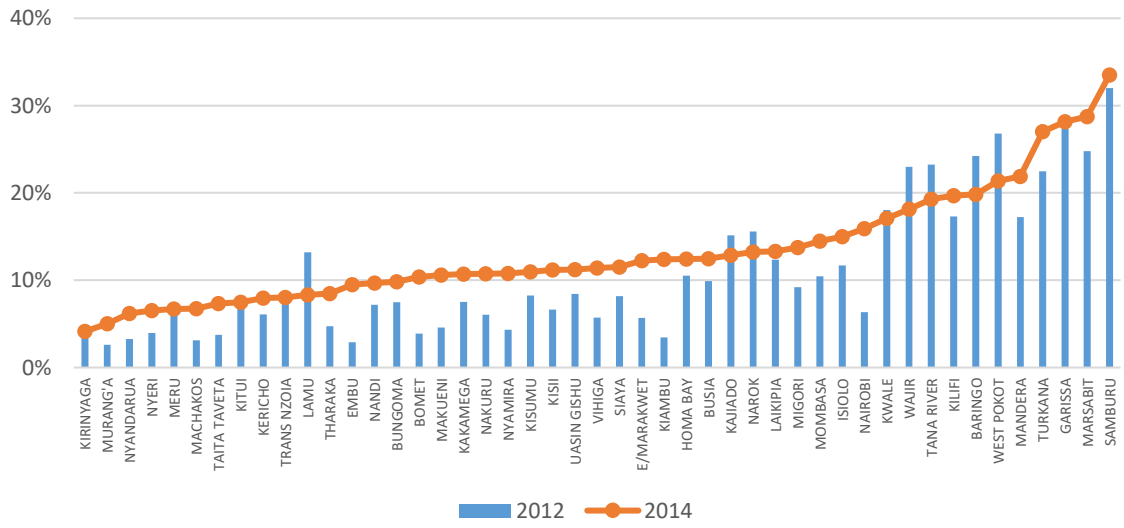


Figure 25: Proportion of Out of School by County, 2012 and 2014

Source: Author's calculations based on Uwezo household surveys of 2012 and 2015. OOSC are defined as children aged 6-16 years who are were classified as having dropped out of school and never enrolled during the survey.

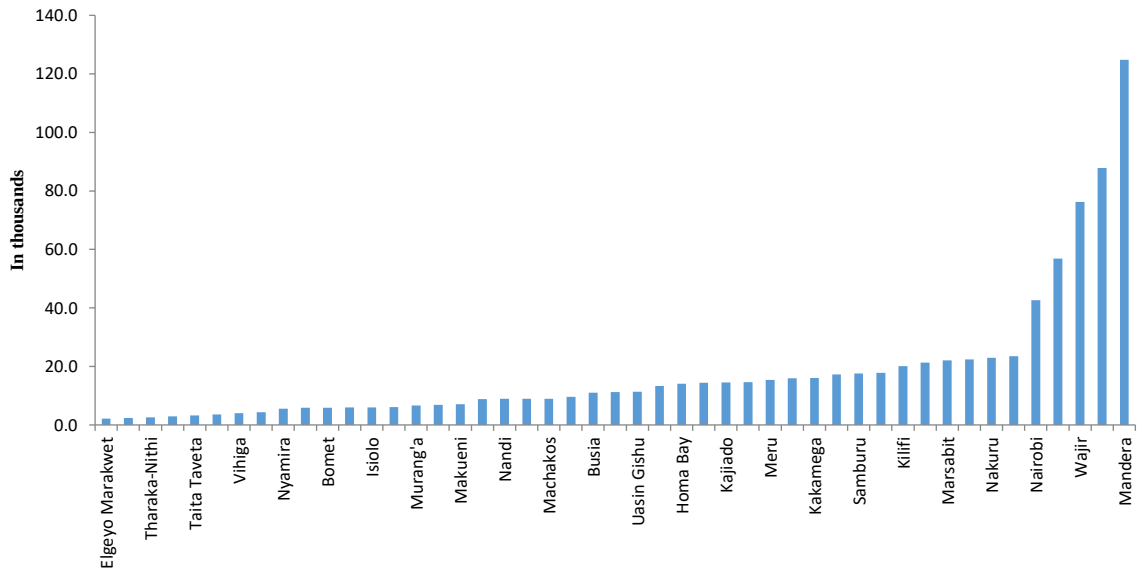


Figure 26: Out of School by County in Thousands, 2014
Source: Kenya Demographic and Health Survey (KDHS), 2014

High costs are the leading reason respondents cite for non-attendance among drop-outs. When asked why children who are school going that are age-eligible are currently not enrolled, respondents for children that have never attended a school tend to cite parental objection (34 percent), the need to work or help at home (21 percent), as well as children's age (18 percent).[17] Reasons differ for those that have attended school at some point but were not enrolled at the time of the interview. Almost two in five respondents cite high costs associated with school. Importantly, costs are the main reason cited among the poor, as well as among children residing in urban and rural areas. Taken together, evidence on the reported costs of education, experimental evidence from interventions that address financial constraints, and reported reasons for drop-out all point to high costs of secondary education as a constraint to higher rates of enrolment.

5.5 Disparities in Basic Education

Estimates based on the KIHBS 2015/16 shows that enrolment rates vary substantially by socio-economic backgrounds (Figure 27). There are large significant differences by poverty, quintile, and locality in terms of access throughout the different levels of basic education. Generally, children from households that are classified as non-poor, those from richest top 20 percent quintile of the population and those from urban areas have higher chances of being in school. For example, looking at Figure 26(c), less than half of the children in the bottom quintile (with a GER of 45 percent) are enrolled in secondary, relative to almost all children from the richest quintile.

17 Respondents were allowed to state up to two reasons for being out of school at the time of the interview.

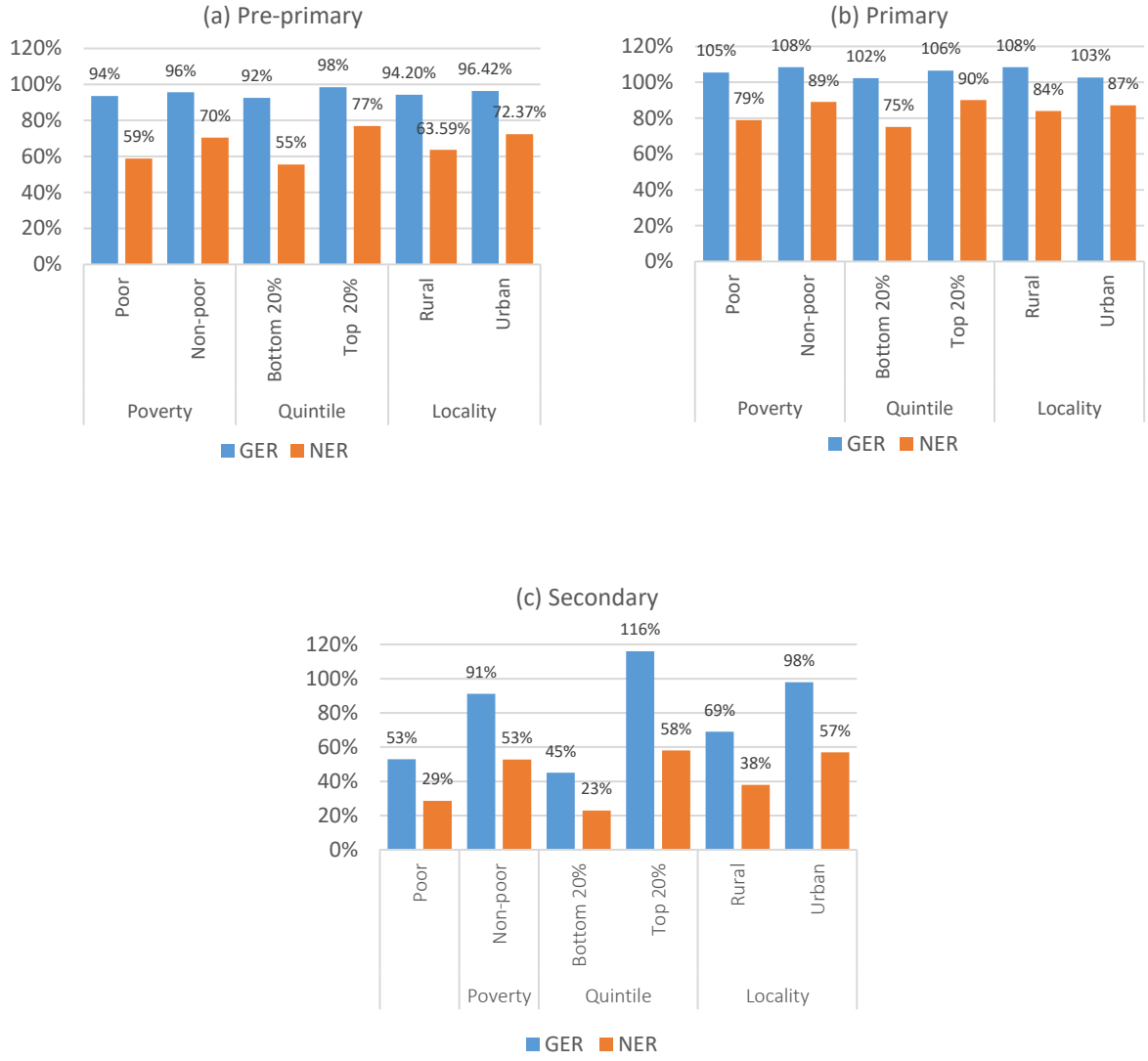


Figure 27: GER and NER by Level, Economic Welfare, and Locality, 2015/16
Source: KIHBS 2016/17

5.5.1 Gender Disparities in Access to Education

Access to primary education is almost universal between boys and girls at the lower grades. However, as one goes higher in the education ladder, boys begin lagging behind girls. As shown in Figure 28, at Standard One, access among boys is estimated at 97.7 percent while that of girls is 97.2 percent. The difference is not very significant. However, in Standard 6, access among girls is 4 percent higher than that of boys and even 4.6 percent higher at Standard 8 and widens at secondary schools where access among girls is higher at Form 1 and Form 4.

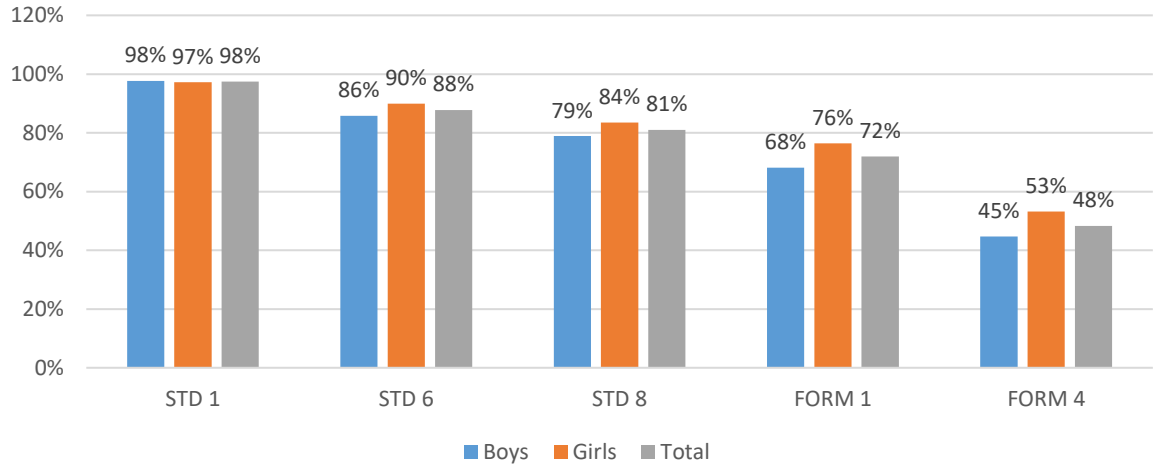


Figure 28: Access to Key Education Grades by Gender
Source: Author's calculation based on KDHS (2014)

5.5.2 Location Disparities in Access to Education

Children and youth from urban areas are more likely to be in school compared to their counterparts in rural areas, and the gap widens as one climbs the education ladder (Figure 29). In both rural and urban areas, 9 out of 10 children are likely to be enrolled in Standard One and there is no significant difference between being in rural or urban setting. Differences in enrolments between children in rural and urban areas are evident by the time children are in Standard 6. For instance, close to 9 out 10 children in urban areas are likely to be enrolled in Standard 6 compared to 7 out of 10 children in rural areas. By the time children are in Form 4, the gap between access in rural and urban locations is even wider – close to 7 out 10 children in urban areas are likely to be enrolled in Form 4 compared to only 4 out of 10 children in rural areas. In preparing a plan of action for improving the fortunes in the sector, education planners should be sensitized to provide different interventions to these groups as a one-size fits all intervention will not be appropriate for both sets.

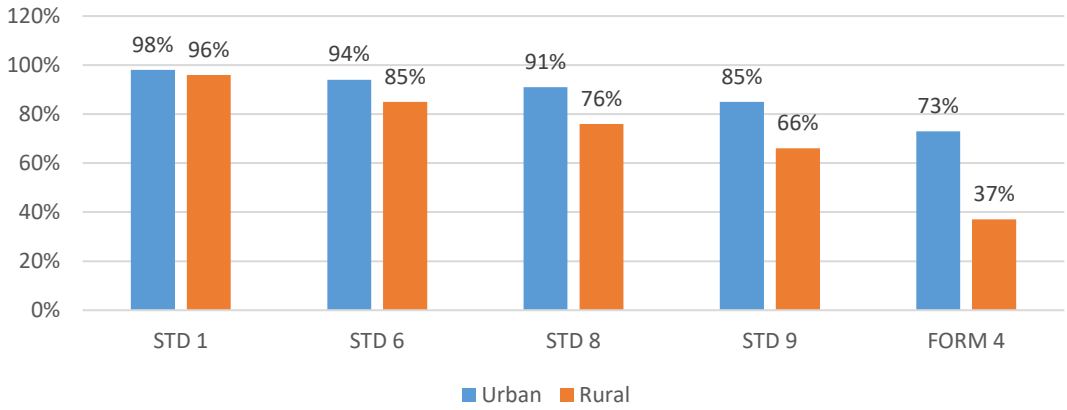


Figure 29: Access to Key Education Levels by Rural and Urban Locations
Source: Author's calculation based on 2014 KDHS

5.5.3 Disparities in Retention by Gender and by Location

Girls have higher chances of staying in primary, transiting to secondary school and staying through secondary, compared to boys. As shown in Figure 30, 88 percent of boys who enrolled in Grade 1 are expected to complete Grade 6 compared to 92.5 percent of girls; 80.7 percent of boys who enrolled in Grade 1 are expected to complete Grade 8 compared to 85.9 percent of girls. Close to 86 percent of boys are likely to transit to secondary education level compared to 91.5 percent of girls. At secondary level, the trend is similar, 65.6 percent of boys who enrolled in Form 1 are expected to transit to Form 4 compared to 69.6 percent of girls. Retention between rural and urban children shows that urban children have higher chances of staying in primary, transiting to secondary school and staying through secondary relative to their rural counterparts.

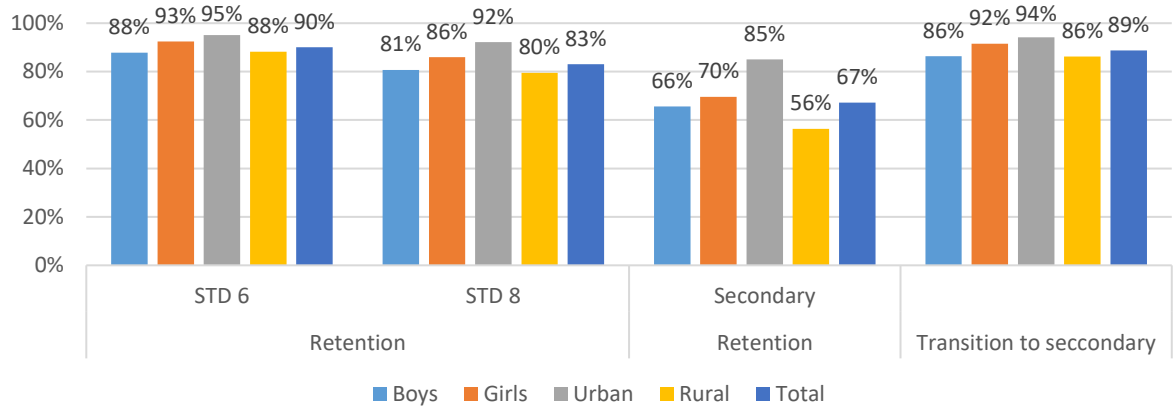


Figure 30: **Retention at Key Education Levels by Gender and By Location**
Source: Author's calculation based on 2014 KDHS

5.5.4 Disparities in Access and Retention: Interaction of Gender and Location

How do girls and boys fair, accounting for whether they are in rural or urban, in both access and retention? Having established that boys are generally less likely to be enrolled in school relative to girls, the results further show that in all grades, access to education by boys in the rural areas is lower than that of *fellow boys from urban areas* as well as *girls from rural and urban areas*. In other words, the most disadvantaged child is a boy located in a rural area. The next disadvantaged group is rural girls. At Grade 6, access among rural boys is estimated at 81.5 percent, followed by rural girls at 87.8 percent, urban boys at 92.2 percent and finally urban girls at 95 percent (Figure 31).

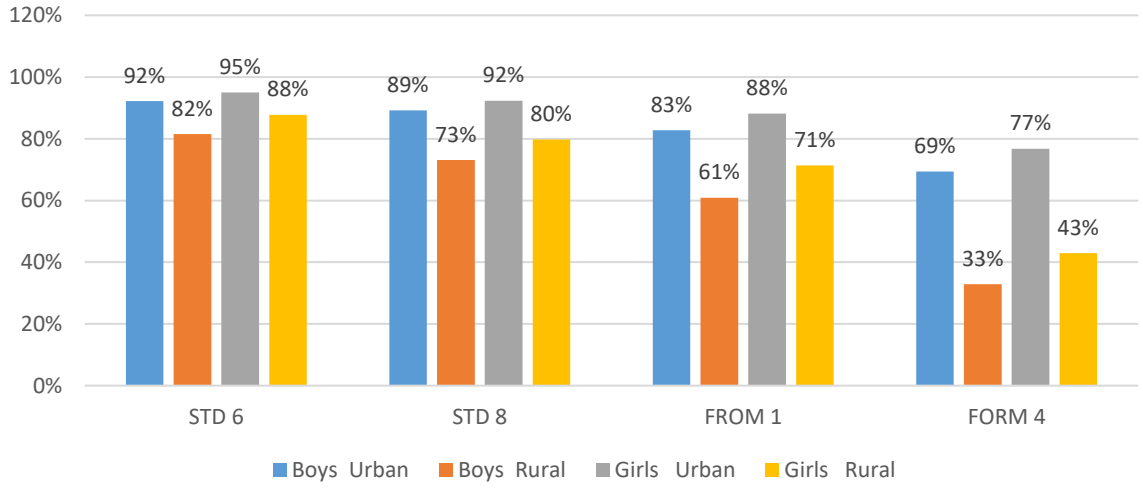


Figure 31: Access at Key Education Levels by Gender and Location
Source: Author's calculation based on 2014 KDHS

Rural boys have a lower chance of staying in primary, transiting to secondary school and staying through secondary relative to urban boys and girls from both rural and urban areas. As shown in Figure 32, 86 percent of rural boys who enrolled in Grade 1 are expected to complete Grade 6 compared to 94 percent of urban boys, 91.0 percent of rural girls and 96 percent of urban girls. 83 percent of rural boys are likely to transit to secondary education level compared to 93 percent of urban boys, 90 percent of rural girls and 95.6 percent of urban girls. At secondary, the trend is similar, 54.0 percent of rural boys who enrolled in Form 1 are expected to complete Form 4; compared to 84 percent of urban boys, 60 percent of rural girls and 87.0 percent of urban girls. In summary, in terms of retention and progression, the most disadvantaged group is rural boys and followed by rural girls.

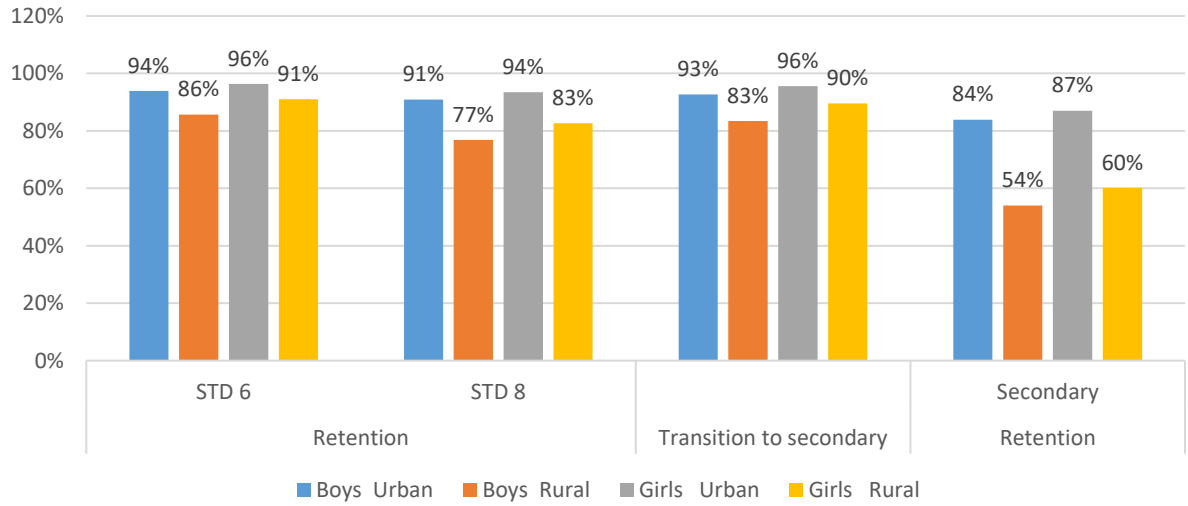


Figure 32: Retention at Key Education Levels by Gender and Location
Source: Author's calculation based on 2014 KDHS

While girls seem to be doing well relative to boys, this is not the case across all the counties/regions of Kenya. Strong evidence clearly indicates that although girls seem to be doing well nationwide, in some counties, mainly those based in ASAL areas, they are strongly

disadvantaged. Figure **33** shows enrolment by gender in selected counties based on NEMIS data of 2016.

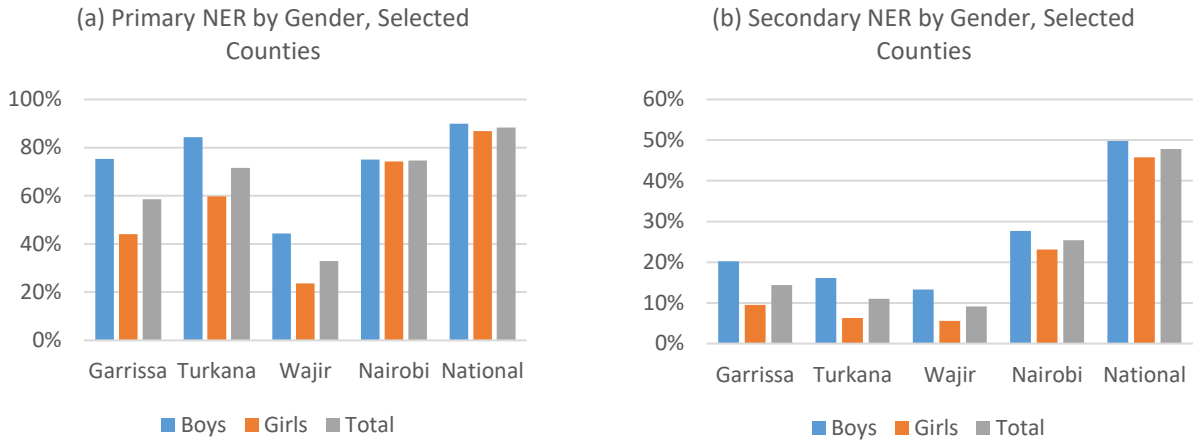


Figure 33: Enrolment by Gender in Selected Counties
Source: NEMIS (2016)

There are a number of factors that limit access to learning by girls, particularly in ASAL areas with child marriage and early childbearing (teenage pregnancy) being the leading causes. Table 28 shows the shares of child Marriage, and early childbearing by age group for a number of countries in East and African Sub-region based on the 2014 Demographic and Health Survey data. Although Kenya does better than the sub-regional average and a number of comparator countries, it is still confronted with massive challenges related to child marriage and early childbearing. At the East and Southern Sub-region levels, the prevalence of child marriage among women aged 18–22 is 7.6 points lower than for women aged 41–49. For Kenya, the reduction was slightly larger at 10.7 points. Child marriage across all the age-groups is lower in Kenya than the sub-regional averages. This is not however the case with childbearing where Kenya has a higher rate of childbearing across all age-groups except for 31-40 age bracket. Further calculations from the DHS (not shown) show that one in every five girls between 15-19 years has begun childbearing. Recent data have shown worrying levels of early childbearing. According to a survey by the United Nations Population Fund (UNFPA), close to a quarter a million adolescent girls in Kenya aged between 10 and 19 years became pregnant between July 2016 and June 2017.

Table 28: Child Marriage, and Early Childbearing by Age Group, Percent

	Child Marriage				**Early Childbearing**			
	18-22	**23-30**	**31-40**	**41-49**	**18-22**	**23-30**	**31-40**	**41-49**
East & Southern	**28.1**	**32.3**	**33.2**	**35.7**	**20.4**	**24.2**	**24.2**	**24.1**
Kenya	20.5	27.7	26.8	31.2	22.1	25.0	22.8	27.7
Mozambique	51.5	46.5	39.3	42.0	39.0	39.6	31.7	33.8
Rwanda	5.6	8.8	14.6	18.1	5.9	6.2	6.4	8.3
Tanzania	31.8	32.4	35.3	40.5	22.4	24.1	26.0	28.2

Uganda	32.5	36.6	45.5	46.5	26.0	31.8	37.3	35.6
Zambia	28.5	39.5	44.4	51.5	29.5	33.1	33.8	37.6

Source: World Bank (2017)[18] based on 2014 DHS data. *Note*: The regional average is not weighted by country populations.

Levels of early childbearing (teenage pregnancies) in Kenya are more worrying in some regions. According to the Kenya Demographic Health Survey (KDHS) 2014 report, 4 out of 10 girls in Narok County got pregnant at a tender age. Other counties that have been put on spotlight over teenage pregnancies include Homa Bay (33%), Kitui (36%), West Pokot (29%) Tana River (28%), Nyamira (28%), Samburu (26%), Migori (24%), Kwale (24%) and Nairobi (21%). A recent report by the children's affairs department found about 14,000 girls aged between 15 to 19 years got pregnant in 2018 in Kilifi County.

Evidence around the world shows that there are significant negative effects on girls themselves, their families, and the country resulting from child marriage and early childbearing. The main distribution mechanism is that both child marriage and early childbearing leads to limited access to education by girls. Girls who marry or drop out of school early, due to early marriage and/or early pregnancy, are more likely to have poor health, larger families, and earn less as adults. In addition, girls who marry or have children at an early age and drop out of school are disempowered in ways that deprive them of their basic rights. They are more likely to be victims of domestic violence due to lack of decision-making power within the household. Child marriage and early childbearing has a fertility effect with research showing that children of young mothers are at higher risk of dying before age 5, suffering stunting, and doing poorly in school.

The economic costs of girls' lack of access to education and high levels of child marriage and early childbearing are very also very high. Estimates by the World Bank, based on Tanzanian data shows that the loss in earnings for adult women working today due to their marrying as children in the past stands at US$ 637 million (PPP). Ending child marriage could within 15 years generate US$ 5 billion in annual benefits (in purchasing power parity, PPP), by reducing fertility rates and population growth. Ending child marriage could save the education budget up to US$ 311 million by 2030 and generate additional benefits associated with lower rates of under-5 mortality and stunting.

5.5.5 Disparities in Access and Retention by Wealth Index

There is low access to schooling among children from poor households and the gap in access widens as one climbs the education ladder. Access to primary education is almost universal and does not seem to depend on household wealth, as children from all wealth classes seem to access school at the same rate. However, as one goes higher in the education ladder, household wealth becomes a predictor of enrolment. In particular, children from poor households are left behind. As shown in Figure 34**Error! Reference source not found.**, at Standard 6, 70 percent of children from the poorest quintile are likely to be enrolled in school compared to 97 percent of the children from the richest households. At Standard 8, 90 percent of children from the richest

families are likely to be in school compared to about 6 in 10 children from the poorest families. At Grade 12 (Form 4), the gap between children from the poorest and richest household is really wide. Here, close to 9 out of 10 children from richest families are likely to be in school relative to only 1 in 10 children from poorest families.

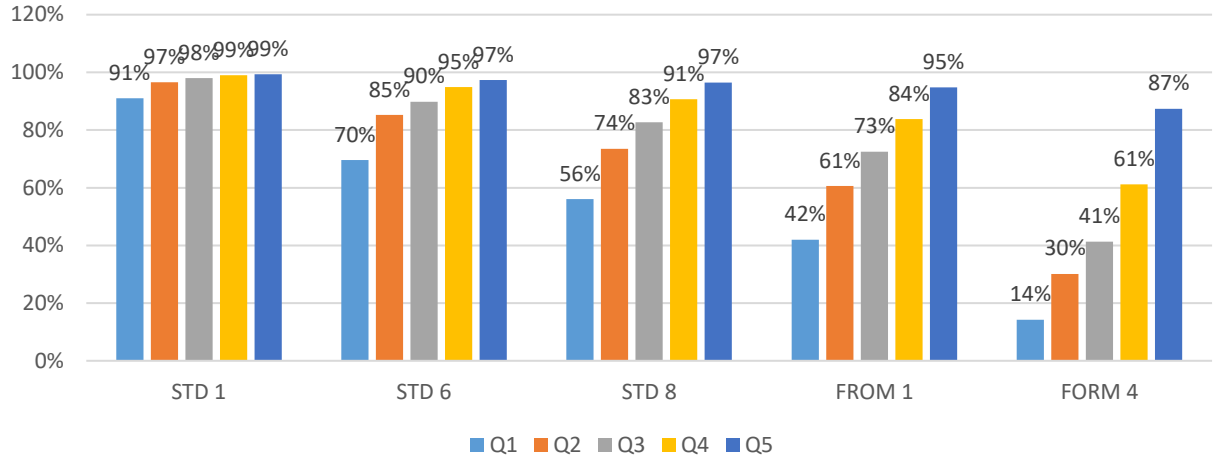


Figure 34: Access at Key Education Levels by Wealth Index
Source: Author's calculation based on 2014 KDHS

Being born in a rich home increases your chance of staying in school and transiting from one level to another. As shown in **Figure 35**, nearly 6 out of 10 children from the poorest quintile, who enrolled in Grade 1, are expected to complete Grade 6 compared to 9 out of 10 children from the richest quintile. Close to 7 out of 10 children from the poorest quintile are likely to transit to secondary education level compared to 9 out of 10 children from the richest quintile. At secondary, the trend is similar, as nearly 3 out of 10 children from the poorest quintile who enrolled in Form 1 are expected to complete Form 4 compared to 9 out of 10 children from the richest quintile.

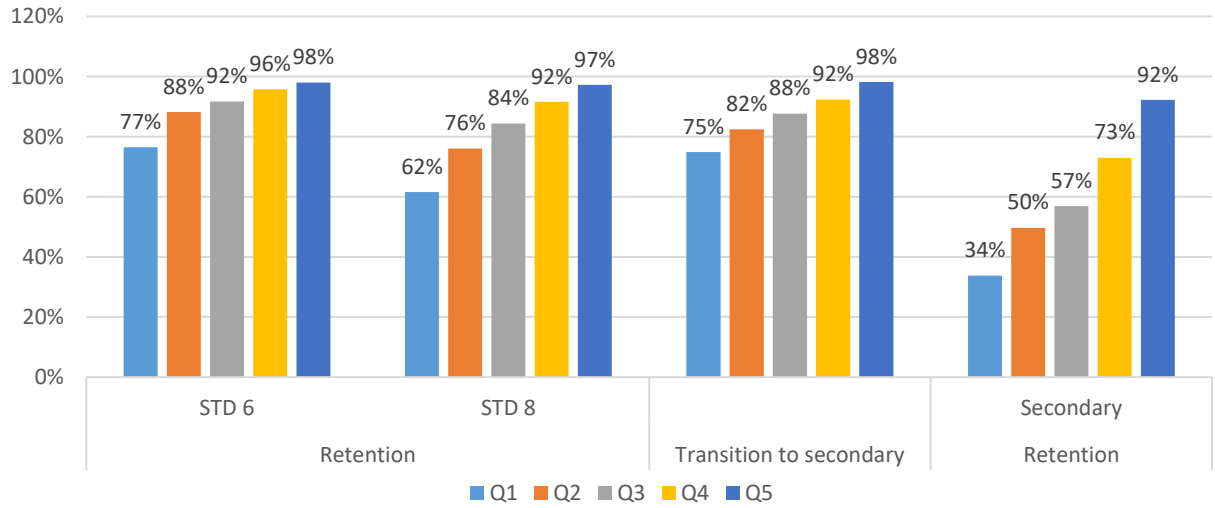


Figure 35: Retention at Key Education Levels by Wealth Index
Source: Author's calculation based on 2014 KDHS

Even though tuition fees have been abolished in primary schools, the existence of cost sharing between government and households cannot be ignored. Families are expected to still take care of some small costs (uniforms, transport, meals, etc.) which when cumulated, could be a heavy burden to families in the first socio-economic class. In secondary education, the government provides subsidies to cover tuition and operations in day secondary schools. Boarding schools receive similar funding but on top, parents meet the boarding costs. The results above have demonstrated the need to have further profiling of students and provide interventions along pro-poor funding methodologies rather than providing uniform unit costs even to children who may not need the support.

5.5.6 Disparities in Primary Completion

Primary completion increases with increasing socioeconomic class. Table 29 presents the effect of interaction between gender, location and wealth index on primary completion. Irrespective of location or gender, children from richest families have an almost equal chance of completing primary school. In fact, almost all children from richest households manage to complete primary school. Children in poorest families have within cluster disparities: 6 in 10 boys from urban locations complete primary education compared to 5 in 10 boys in rural areas. For girls, 7 in 10 girls from urban locations complete primary education compared to 6 in 10 girls in rural areas. Comparing the richest and the poorest children, all girls from urban richest families have a chance of completing primary education compared to only half of the boys from rural poorest families.

Table 29: Primary Completion Disparity

Gender	Location	Poorest (%)	Quint2 (%)	Quint3 (%)	Quint4 (%)	Richest (%)
Boys	Urban	59.7	75.9	84.5	91.3	96.3
	Rural	52.1	70.1	80.3	88.6	95.1
Girls	Urban	67.0	81.0	88.0	93.3	97.2
	Rural	59.9	76.0	84.6	91.3	96.3

Source: Author's calculation based on 2014 KDHS

5.5.7 Disparities in Access and Retention by Region

There are wide regional disparities in access to education (Figure 36). Access to education in Central and Nairobi regions is universal but the North Eastern and coastal parts of the country lag behind in higher classes. For instance, access to Standard 6 is universal in Central and Nairobi regions. In the Coast region, 25 percent of children expected to be in Standard 6 are not enrolled possibly due to repeating preceding grades or having dropped out of school.

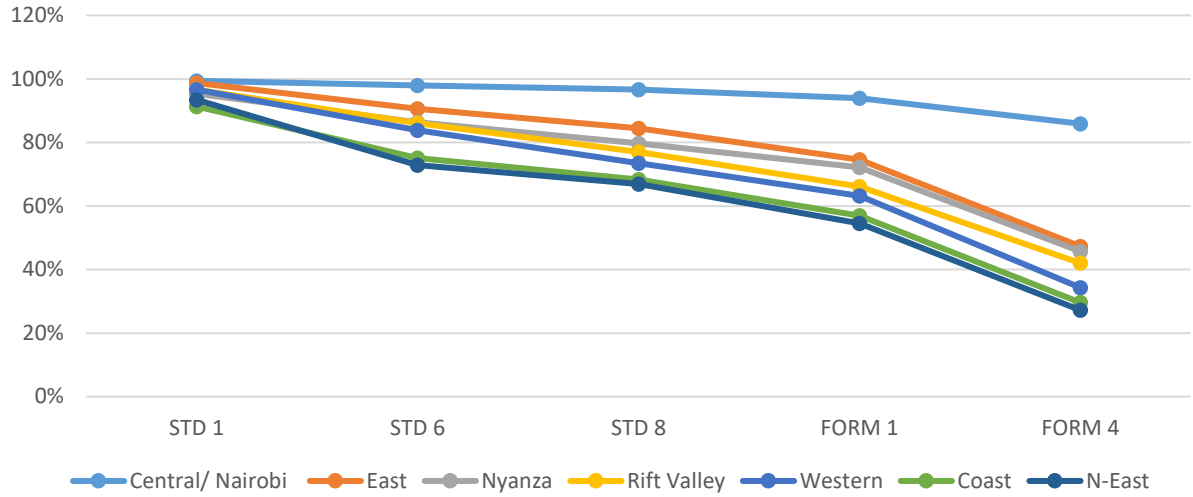


Figure 36: Access to Education at Key Levels by Region
Source: Author's calculation based on 2014 KDHS

Retention pattern through the education system varies across the regions (sub-nationals) and socio-economic backgrounds. Figure 37 shows that the education system in counties like Turkana and Mandera is doing quite poorly in keeping learners in school once they are enrolled. There is a dramatic fall in the number of learners as they progress in subsequent grades. In contrast, counties like Kirinyaga and Kiambu are doing quite well in keeping the learners through the system.

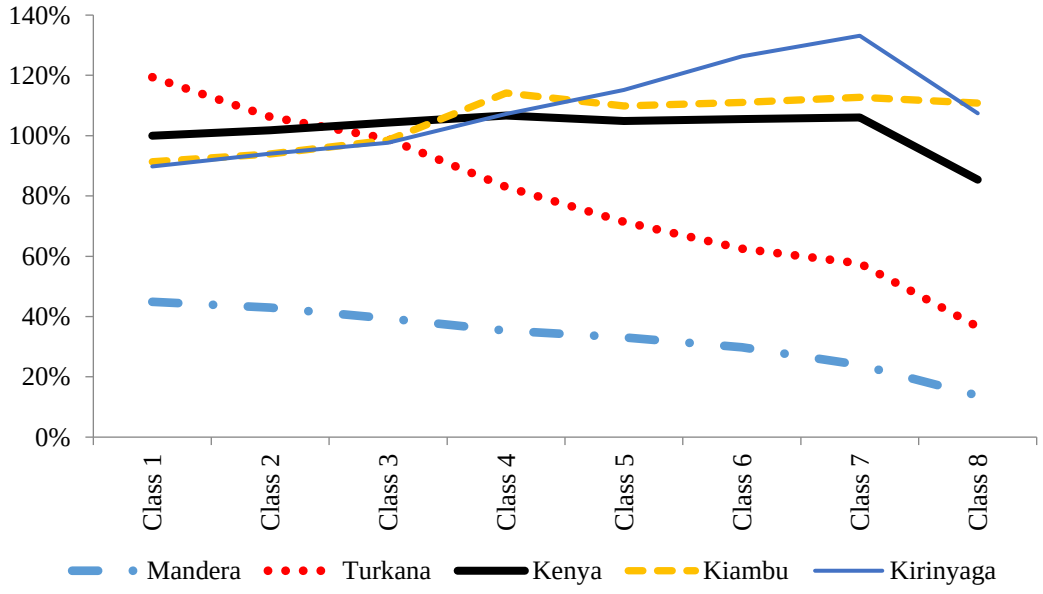


Figure 37: Disparities in Retention by Counties
Source: Author's calculation based on 2014 KDHS

Policy recommendations for the next NESSP 2018-2022

- Reduce the direct (such as uniform fees, etc.) and indirect costs of education through financial incentives such as conditional cash transfer programs targeted at poor households in urban informal settlements, rural areas, among others;
- Bring schools closer to children by ensuring that schools are within reasonable walking distance from children's homes (at least within 2 km of the child's home) and establish mobile schools for children in ASAL and nomadic communities. One of the strategies is to adopt lower-cost and more efficient alternatives such as establishing day instead of boarding schools;
- Ensure schools have sanitation facilities- water and toilets (separate for boys and girls);
- Expand secondary education through ICT based cost-effective models (using technology in classrooms) that can facilitate use of virtual labs (in place of traditional labs, which may prove to be expensive), and adapt open source teaching materials;
- Provide school feeding programs, especially in marginalized and hardship areas, while putting in place mechanisms to ensure the sustainability of such programs;
- Ensure that schools and communities where teachers and children come from are safe from acts such as terrorism, cattle rustling among other sources of insecurity;
- Eliminate high-stakes end of primary school examinations that serve to limit access to secondary and tertiary education levels, or at least ensure these examinations do not limit school progression;
- Sensitize the community on the importance of girl's education in ASAL areas; and
- Equip schools in rural and urban informal settlements and those in areas with pockets of poverty with requisite resources.

6. Adult and Continuing Education in Kenya

6.1 The Context of ACE in Kenya

The Kenya National Adult Literacy Survey (KNALS, 2007) revealed that at least one in every three Kenyans (persons 15 years and above) is illiterate. According to the KNALS survey, on average, 38.5 per cent of the Kenyan adult population, which comprises the adult population as well as out of school youth above the age of 15 years, is illiterate. About 29.9 percent of the youth aged 15 to 19 years and 49 percent of adults aged 45 to 49 years were illiterate. There are very wide regional disparities. For example, Nairobi had the highest level of literacy, 87.1 percent, compared to North Eastern Province, which had the lowest, at 8.0 per cent. Males had higher literacy and numeracy rates of 64.2 percent and 67.9 percent, respectively, compared to 58.9 percent and 61.4 percent for females. Recent statistics by the UNESCO Institute for Statistics (2016) show that adult illiteracy rates in Kenya for male and female aged 25 and above is 18.92 percent and 25.1 percent, respectively, which constitutes a total of 6,092,601 adult illiterates. Similarly, an overall illiteracy rate for youth aged 15 to 24 is 14.1 percent, which translates to an absolute figure of 8,810,140 youth and adults. This poses a major challenge, given the role literacy plays in national development and empowerment of individuals and communities.

The role of Adult and Continuing Education (ACE) programs is to provide literacy knowledge and skills to such illiterate adults and out-of-school youth, aged fifteen years and above. Adult education includes all forms of organized education and training that meet basic learning needs of adults. It includes literacy and numeracy instruction as well as general knowledge, skills, values and attitudes that adults require to survive, develop their capacity, live and work in dignity and be self-reliant.

Adult and Continuing Education Programs (ACE) play a very crucial role in the development aspect of any society. They are widely recognized as a powerful tool for eradicating adult illiteracy, reducing poverty and attaining the Sustainable Development Goals (SDGs). Adult and Continuing Education system is in a catch-up phase, dealing with many cohorts of youth that had little or no access to schooling. Overage enrolment is a widespread feature of this education system. Dealing with such diversity in the schools is a challenge that the formal system is not able to accommodate.

The success of provision of ACE has been boosted by its recognition in several other policy documents on education. For instance, the Constitution of Kenya Article 43 (1) stipulates that basic education is a basic human right (ROK, 2010). Article 55 (a): Every youth to access education and training. In line with the Constitution, the Basic Education Act (2013) was enacted to guide delivery of basic education, that is, ACE, pre-primary education, primary education, secondary education and special needs education. According to the Fifth Schedule of the Act, there shall be a special board of ACE, whose functions include to: advise the Cabinet Secretary (CS) responsible for education on any matter concerning ACE; advise on the co-ordination and regulation of all the providers of ACE, including the involved institutions, as well as identify and assess the need for new developments in ACE (ROK, 2013).

Adult and Continuing Education programs in Kenya are managed by a distinct directorate under the Ministry of Education. The Directorate is responsible for coordination and management of programs and activities in adult education. Specifically, the Directorate's functions are to: formulate and implement ACE Policies; promote multiple literacy through alternative provision of basic adult education programs; promote general adult education programs; provision of basic literacy to out of school children and youth; coordination of the implementation of Nomadic Education, Alternative Basic Education and Training in Kenya; and ACE Teacher Management, among other roles.

ACE in Kenya offers three main learning programs. These include Basic Adult Literacy Program (BALP), Post Literacy Program (PLP), Adult and Continuing Education Programs (ACEPs), and Community Education and Empowerment Programs. BALP and PLP aim at imparting basic literacy, numeracy and communication skills to the out-of-school youth and adults. It also serves to ensure that the newly acquired literacy skills are sustained to prevent learners from relapsing into illiteracy, by assisting the new literates to retain, improve and apply their basic knowledge, attitudes and skills. The Continuing and Special Education program offers out-of-school youth and adults a second chance to further their education and sit for national examinations or trade tests. The special ACE programs include the provision of literacy programs in prisons, refugee camps, to internally displaced persons, and to the older persons in society, among others. Lastly, Community Education and Empowerment programs target both the literate and illiterate youth and adults who have an interest in improving their knowledge, vocational and technical skills.

6.2 Access to Adult Education in Kenya

Generally, access to ACE programs in Kenya is low and experiences both gender and regional disparities. For example, the period between 2012 and 2017 witnessed a drop, by about 34 percent, in enrolments among learners in all ACE programs in Kenya (Figure 38). In 2013, there were 290 thousands learners enrolled in the various ACE programs. However, by 2018, total enrolment had dropped by 27 percent to 212 thousands learners. ACE enrolments are difficult to assess compared to enrolments in the formal system. Since ACE by its very nature has a flexible design, this could indicate that there are several entry points to the cycle. Furthermore, alternative learning spaces are probably more short-lived, which makes it harder for the MOE to maintain a current list of centres for their annual data collection. Another thing is that given the flexibility of the programs, some learners may be absent when enrolment census is being carried out. Also, there may be some double-counting of learners, where dropouts from one program become new entrants in another program or in a different centre. This therefore, makes it difficult to measure other aspects of access such as retention rates and completion, among others.

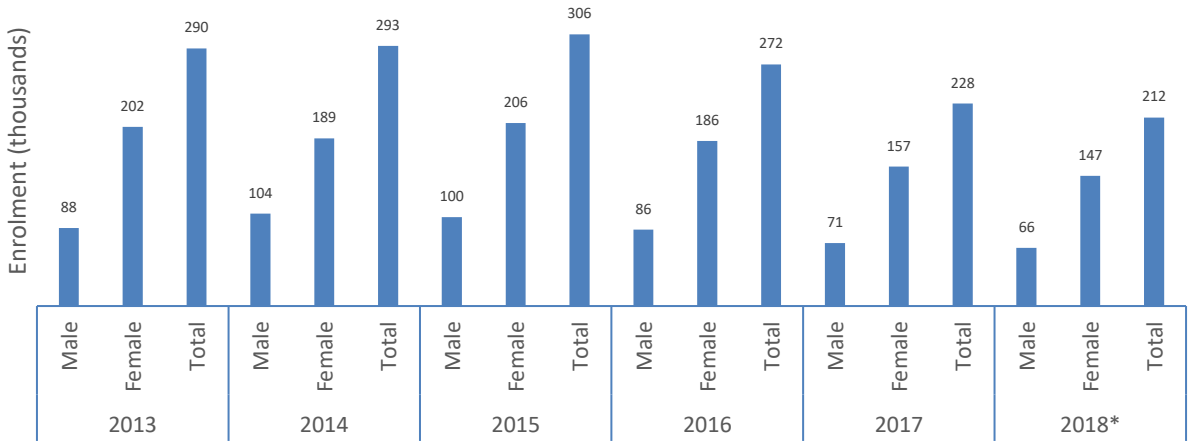


Figure 38: Adult and Continuing Education Enrolment Trends in Kenya
Source: Economic Surveys, *Provisional

Enrolments by gender shows that generally, there are more female than male learners enrolled in the various ACE programs across the country. For every male learner, there are two female learners. The decline in enrolment is reflected among both male and female learners. For instance, during the period 2013 and 2018, enrolments among male learners dropped by 2 percent while that of females dropped by 18 percent. In 2018, majority of the learners, in absolute numbers, were from Nairobi. Other counties with high enrolment numbers were Kilifi, Kajiado, Makueni, Kitui and Nakuru. The counties with the lowest enrolment numbers were Lamu, Isiolo Marsabit and Kirinyaga (Figure 39).

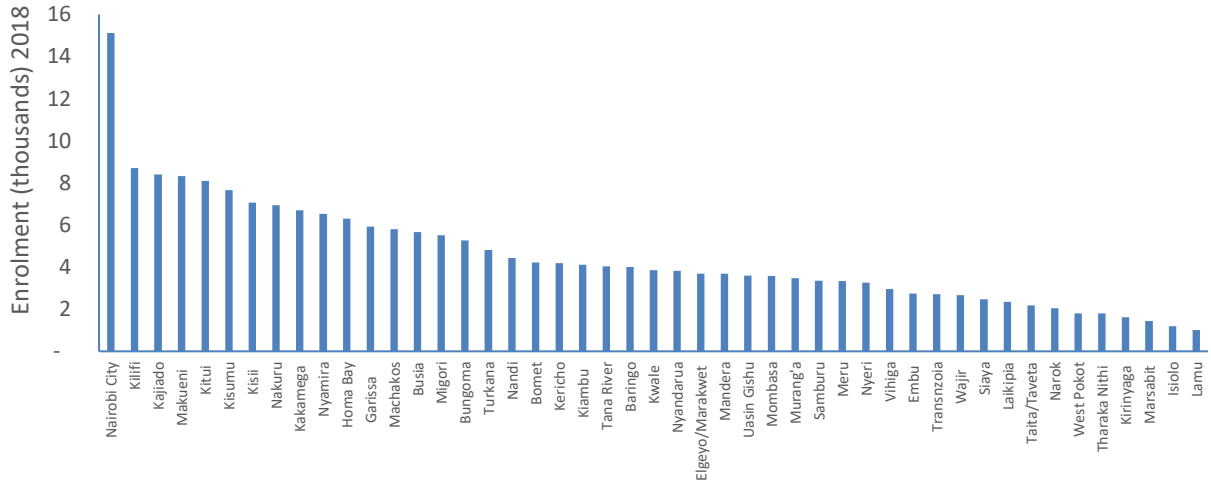


Figure 39: **Adult and Continuing Education Enrolments by County, 2017**
Source: Economic Survey (2019), *Provisional

Decline in enrolment can be attributed to several factors. Among the reasons given for dropout—as reported by a number of studies (ROK, 2007)—family responsibilities are by far the most common, outranking dropout resulting from work, health conditions, or lack of fees. Other main reasons for the drop outs and decline in enrolments include failure to hire sufficient and qualified teachers, which is compounded by a high turnover of staff and volunteer teachers in ACE facilities; social factors that discourage some adults from attending classes; and high

absenteeism rates. Accordingly, adult learners either come late or miss class altogether due to participation in such social functions as circumcision, marriage, funerals, market days, farming activities etc. Some learners drop out because of language barrier due to ethnicity or dialects and for being taught by what they considered to be very young teachers. Inadequate or lack of capitation grants for instructional materials is another major challenge facing ACE.

Basic Literacy Program (BLP) accounts for more than 90 percent of reported ACE enrolments. Figure 40 provides a breakdown of the proportions of learners enrolled in different ACE Programs. More than 90 percent of ACE learners are enrolled in BLP programs, which mainly impart them with basic literacy, numeracy and communication skills. The Continuing and Special Education Programs preparing learners for national examinations constituted 8 percent of the enrolments in ACE programs, with 5 percent being prepared to sit for KCPE while 3 percent prepared to sit for KCSE.

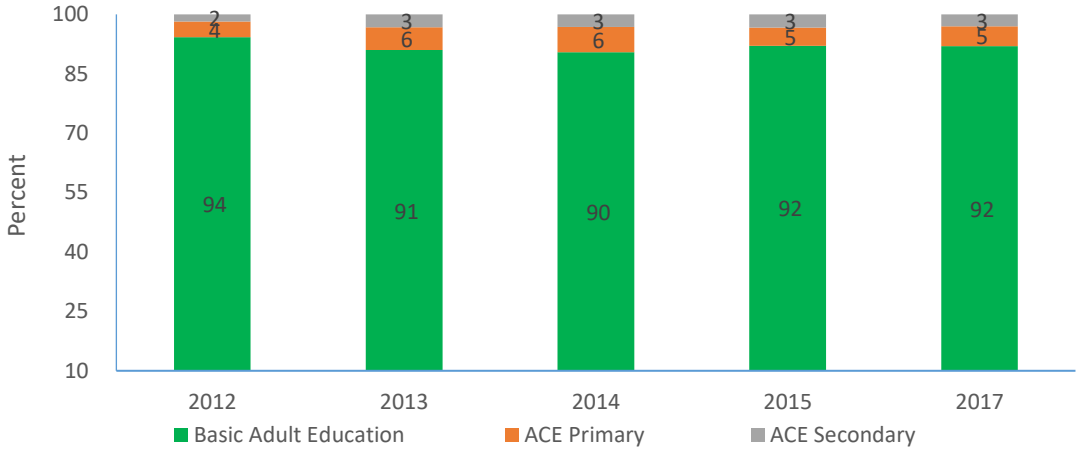


Figure 40: Proportion of Learners Enrolled for Different ACE Programs
Source: MOE- DACE

Nearly half of the learners enrolled for Basic Literacy Program (BLP) as well as primary adult and continuing education do not regularly attend classes. In Figure 41, we see the percentage of learners who regularly attend classes by program type for the year 2017. Half of the learners enrolled in the adult basic education programs do not attend classes regularly. At primary level, only 48 percent of learners attend classes regularly. Attendance at secondary level is relatively high, estimated at 76 percent. Although more females than males are enrolled, more males are more likely to attend on a regular basis than females. The irregularity in terms of attendance generally reflects the nature of ACE programs, which are generally flexible and adjustable to the learners' timings.

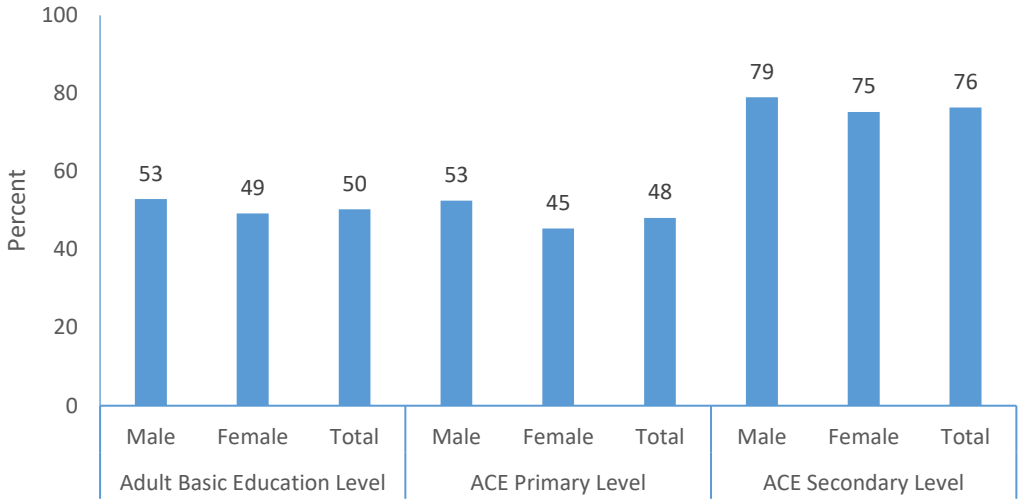


Figure 41: Attendance Rate by Program Type
Source: MOE - DACE

Learners in the Basic Literacy Program undergo an exit proficiency test in numeracy and literacy (Figure 42**).** The tests assess the learner's ability to read and write and do simple arithmetic. They prepare learners for the post literacy stage, which ensures that learners do not lose the skills learnt at basic literacy program level. The post literacy stage leads to the accelerated primary and secondary education levels. The tests are administered at county level, with each county having its own exam committee, which is responsible for developing test items for the proficiency test. In 2017, a total of 18,127 candidates sat for the proficiency test, an increase from 17,620 candidates in 2012.

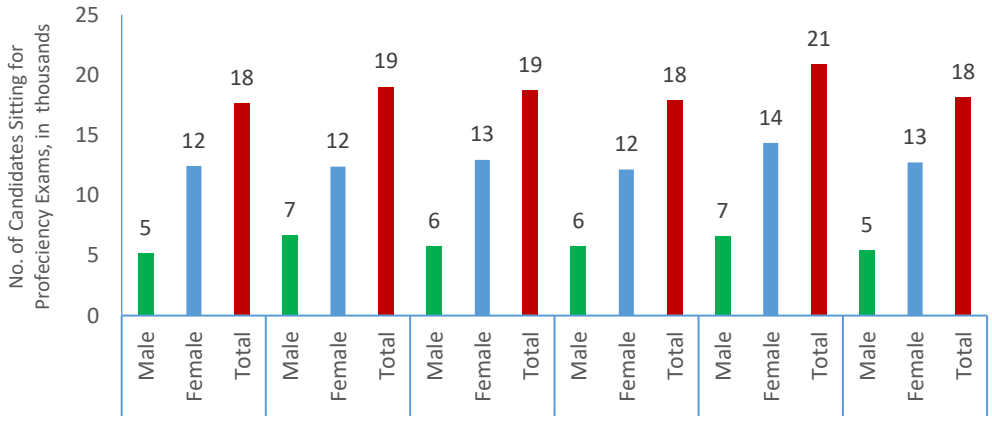


Figure 42: Trends in Candidates Sitting for the Proficiency Tests
Source: MOE- DACE (2017)

Learners are promoted to the primary education level after the post literacy stage. Figure 43 shows trends in KCPE candidates under the Adult and Continuing Education. This is an accelerated program which allows learners to sit for KCPE in a shorter time frame than what is typical of traditional primary education programs. Over the period 2012 to 2017, there was a 14 percent increase in the number of candidates sitting for the KCPE under the ACE primary school level. In 2017, a total of 5,120 candidates sat for KCPE; an increase from 4,389 in 2012. Majority of those sitting for the KCPE exams were male. Also, majority of the candidates were from

Nairobi, Kirinyaga, Kisumu, Meru and Kericho. Similarly, the number of candidates sitting for the KCSE increased from 1,363 in 2012 to 3,041 in 2015, reflecting a 55 percent increase. Majority of the candidates were from Nairobi, Kiambu, Machakos, Tharaka Nthi, Kitui and Bungoma.

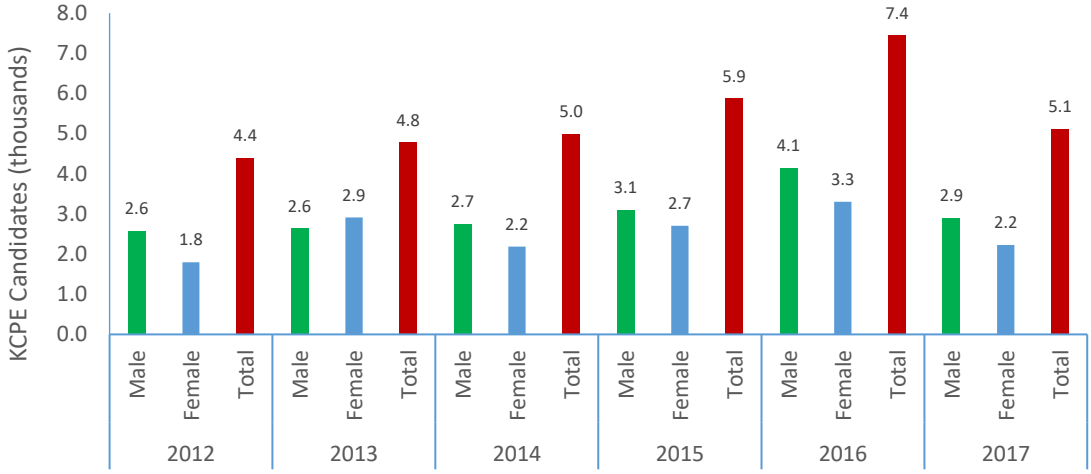


Figure 43: Trends in KCPE Candidates under the Adult and Continuing Education
Source: MOE-DACE (2017)

Policy Recommendations for the Next NESSP 2018-2022

❖ To improve management efficiency of ACE. This will be achieved by:
- Installing corporate governance in all ACE centres.
- Establishing ACE management information system.
- Institutionalizing results-based management in the ACE system.
- Enhancing performance management.

❖ To diversify financing of ACE. This will be achieved by:
- Developing and implementing an ACE financing strategy.
- Intensifying income generating activities.

7. Technical Vocational Education and Training

7.1 The Context of TVET in Kenya

In Kenya, Technical Vocational Education and Training (TVET) is meant to provide the country with trainees with best global and industry skills to pave way for Kenya's industrialization as outlined in the country's Vision 2030 strategy. TVET refers to a range of learning experiences, which are relevant to the world of work and may occur in a variety of learning contexts, including in learning institutions and workplaces. The focus of TVET in Kenya is to give rise to a workforce trained and certified to international standards, thus stimulating employment, creating investments, and generally contributing to improved productivity, competitiveness and prosperity of individuals, enterprises and the nation at large.

TVET in Kenya takes the form of Vocational Education and Training (VET) and Technical Education and Training (TET). The Vocational Education and Training (VET) component is responsible for the production of skilled operators to service construction, maintenance and operation of equipment and infrastructure. The Technical Education and Training (TET) component is responsible for producing graduates who perform supervisory and management functions as well as maintenance of systems, machines and equipment in industry.

7.2 TVET Provider Systems and Structures

Provision of TVET in Kenya is complex and multifaceted and comprises both formal and informal (Jua-Kali) TVET. Different types of delivery of TVET coexist with different types of integration and fragmentation. Some progress has been made over the past five years in fostering integration of previously fragmented TVET provider systems through the establishment and operationalization of TVET Authority (TVETA) and Kenya National Qualifications Authority (KNQA), with the regulatory mandate for a broader range of TVET. In addition, the TVET Curriculum Development Assessment and Certification Council (CDACC) was established with the mandate of designing, developing, assessing and certifying competency-based curriculum in TVET. Some of the main distinguishing features of the different TVET provider systems can be summarized as follows:

- ***Degree of Formalization and Recognition*:** TVET is often clustered into formal and informal training. This clustering may be based on the type of certificates or curricula. The formal training comprises long-term programs, delivered in accordance with recognized "national" curricula, leading to recognized certification. Formal TVET is usually regulated by ministries in charge of TVET or special TVET authorities, and delivered by public and accredited private TVET institutions. Often, formal TVET is considered part of the education and training sector, with qualifications equivalent and/or articulated with general education and training qualifications.

  Informal TVET usually includes all forms of unstructured skills development programs without fixed duration and curricula and not leading to recognized national certificates. Programs can be short-term or medium-term, usually offered at individual level. However, public institutions involved in formal TVET may offer also informal programs. Traditional apprenticeship or on-the-job training are typical informal training systems.

- ***Duration and Type of Delivery:*** TVET programs in Kenya may be of *longer*, *medium* or *shorter* duration. Formal training is usually long term or medium term, while informal training is often (but not always) delivered through medium and short-term programs. I*nstitution-based training* and *on-the-job training* are typical alternative delivery modes. Formal apprenticeship training represents a special cooperative delivery mode where normally institutional-based training units are combined with structured on-the-job training in companies. Other distinct delivery forms include distance learning, e-learning, or training with production, among others.

- ***TVET* Target Groups:** TVET system serves specific target groups and target segments of the labour market. The programs provide pre-employment training for school leavers or skills upgrading for the existing workforce. Skills upgrading has gained importance since it keeps the workforce abreast of technological developments (life-long learning). Formal training usually targets school leavers. It is provided at different levels, targeting different age groups: primary school leavers in case of VET programs or secondary school certificate holders in the case of TET programs. In both cases, the target labour market may include both employment in the formal and informal sectors of the economy.

  On-the-job training is usually meant to prepare trainees for employment in the company, or to upgrade skills of the existing workforce. For pre-employment training, companies usually apply certain minimum requirement rules in terms of educational attainment of graduates. Apprenticeships normally present a career option for youths/employees with low skills.

- **Regulatory and Quality Assurance Arrangements:** TVET in Kenya is regulated by various authorities, including TVETA, KNQA, National Industrial Training Authority (NITA) and other professional bodies. Typically, formal TVET programs are run under ministries or authorities in charge of TVET, and their examination boards oversee assessments and certification. Sometimes, a parallel trade testing system, typically under labour ministries, is charged with assessment and certification for employment-oriented training programs delivered through informal training programs.

  Sometimes, assessment and certification are conducted by foreign bodies. Foreign qualifications are also common in modern occupations or higher level qualifications. Other training sub-systems, such as apprenticeship systems, are entirely unregulated, despite catering for a considerable share of the entire national training supply.

- **Ownership and Management of Institutions/Providers:** Public formal TVET is normally run and managed by boards/councils, with Ministries or County Governments providing an oversight role. Private training players, as well as a segment of non-profit private training providers (NGOs, faith-based organizations etc.) complement public training provision.

Table 30: Synopsis of TVET Provider Systems and Structures in Kenya

TVET provider systems and structures	Delivery mode	TVET target groups	Regulation/certification /quality assurance	Ownership/ management of providers
Formal TVET				
Technical Education and Training	Long term and medium institutional based training, post primary and/ or post-secondary.	Student population. Target labour market includes both formal and informal sectors as well as public employment.	Regulated under various ministries, authorities or other public bodies in charge of TVET. The bodies are in charge of quality assurance, accreditation, curriculum, assessment and certification.	Provided in accredited public and private institutions.
Vocational Education and Training (VET) and apprenticeships	A mix of medium term and short-term training. Usually a combination of on the job training in formal enterprises and institution-based training in VET institutions.	Pupil/student population, school leavers, out-of-school youths. Formal school certificate not required.	Regulated under TVET authorities or ministries of education/labour leading to formal TVET certification.	Jointly provided by national and county governments in collaboration with the private sector.
Informal TVET				
Apprenticeships	On the job training in the informal sector (Jua-Kali) as well as unstructured forms of learning (self-training).	Out of school youths. Generally everybody but often workers in both formal and informal sectors.	Not regulated, but sometimes with access to trade testing and other Recognition of Prior Learning (RPL) opportunities.	Individual, usually non-standardized relationship between business owner and apprentice.

7.3 TVET Institutions by Category

It is difficult to know the exact number of institutions operating in this sector since some privately owned institutions are not accredited/registered. Table 31 **shows the different** categories of TVET institutions in Kenya. The number of TVET institutions, comprising of private and public Vocational Training Centres (VTCs), private and public Technical and Vocational Colleges, Kenya Technical Trainers College and National Polytechnics, rose from 754 in 2013 to 2,289 in 2018. The number of TVET institutions is set to sharply rise given the on-going construction and establishment of 217 new TTIs to ensure that there is at least one TTI in each Constituency. Estimates show that there are about 628 Private Technical and Vocational Colleges (TVCs) and 47 Private Vocational and Training Colleges (VTCs). However, these figures do not account for several private owned training centres spread across the country, most of which are not accredited.

Table 31: Public TVET Institutions 2014-2016

Category	2013	2014	2015	2016	2017	2018*
Vocational Training Centres (VTCs)**	701	701	816	816	1,186	1,502
Vocational Training Centres (VTCs)***				29	47	47
Public Technical and Vocational Colleges	49	51	55	62	91	101
Private Technical and Vocational Colleges				382	627	628
Kenya Technical Trainers College	1	1	1	1	1	1
National Polytechnics	3	3	3	10	10	10
Total	754	756	875	1,301	1,962	2,289

Source: Economic Surveys, * provisional, **formerly Public Youth Polytechnics, *** formerly private Youth Polytechnics.

Several infrastructural developments have taken place in the recent past, all aimed at increasing access. A total of eight new campuses were established under existing institutions.

Also, 11 new technical training institutes were established in underserved regions. In the 48 existing TVET institutions, 59 workshops were constructed. Further, eight TTIs were upgraded to National Polytechnics. In addition, a total of 32 contracts for the supply of equipment in the completed TTIs were signed during the 2016/17 FY. The government also signed an agreement with the People's Republic of China for the supply of equipment to 134 TTIs to the tune of KES 16 billion in the FY 2016/17.

Figure 44 shows the distribution of the fully operational public TVCs and NPs as per April 2016. Among the counties with a high number of institutions include Bungoma, Meru, Nairobi and Nyeri. There is a low concentration of TVET institutions in ASAL areas. For instance, out of the 61 institutions (comprising TVCs and NPs), only six (9.83 percent) are in the ASAL areas. At the same time, 33 (54.1 percent) of the institutions are in nine counties. It is also notable that out of the 61 institutions, only four (6.6 percent) cater for trainees with special needs.

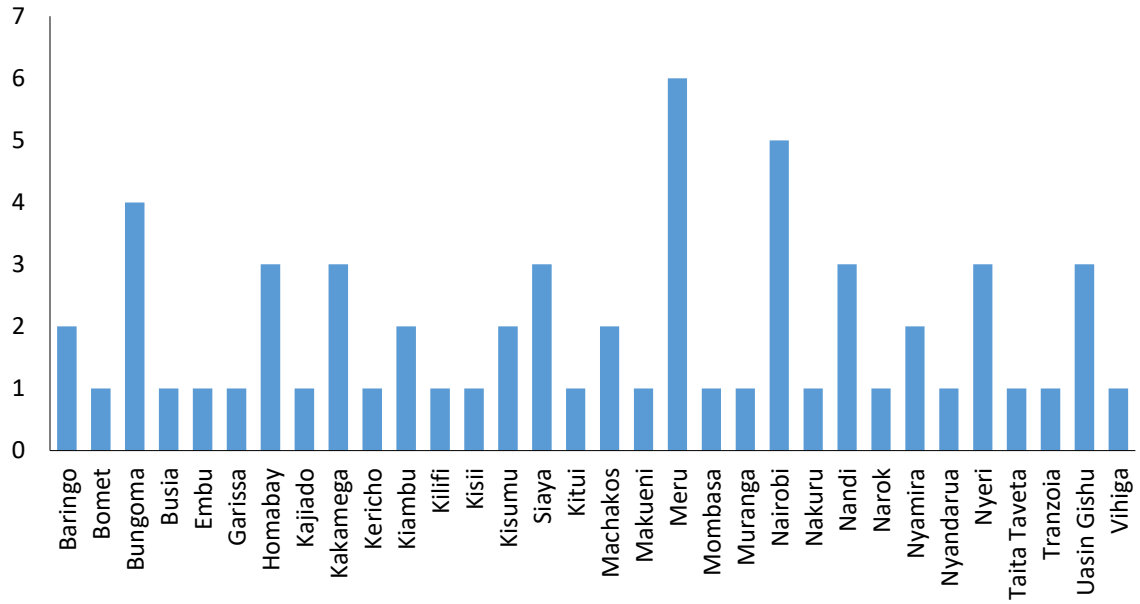


Figure 44: Distribution of public TVCs and NPs per county as at April 2016

Figure 45 depicts the distribution of public VTCs as at December 2017. The VTC/YPs impart skills to trainees up to artisan level, to enable them become productive in the economy. Out of the 962 VTCs, three counties, namely Kakamega, Bungoma and Murang'a, account for the largest share of VTCs at 21.4 percent with a total enrolment share of 21.38 percent. Two counties with the least share of VTCs (Isiolo and Samburu) contribute the least share of trainees (0.18 percent) and account for about 0.21 percent of the VTCs. Figure 46 shows the distribution of TVET Trainers in Public TVET Institutions in 2018 for 49 out of 65 public TVCs and NPs in the country for which data is available. As it can be seen from the figure, majority of the trainers in public TVCs and NPs are employed by TSC. Second, majority of the trainers are male, standing at 61.3 percent (1774).

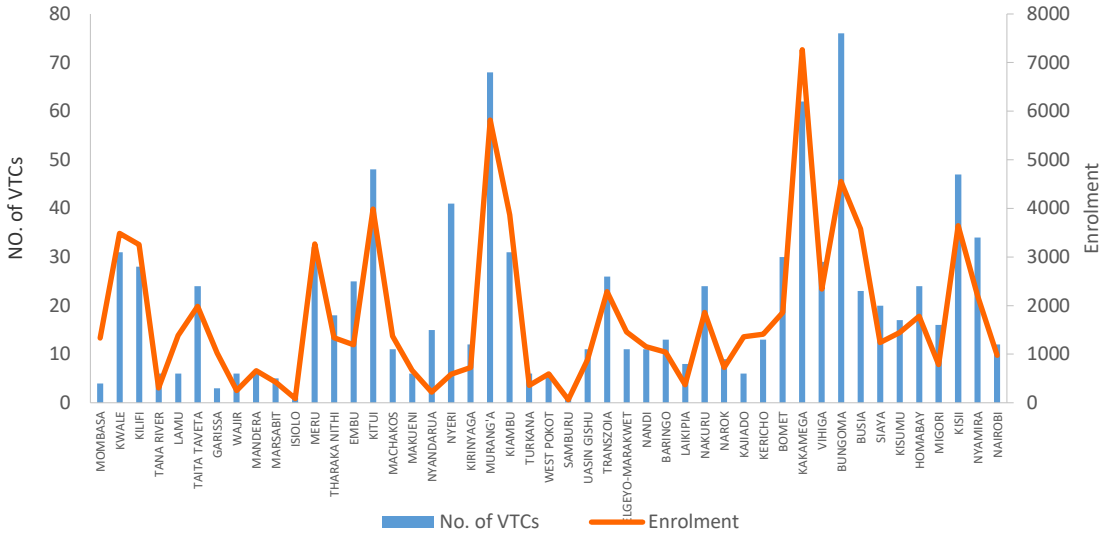


Figure 45: VTCs per county as at December, 2017

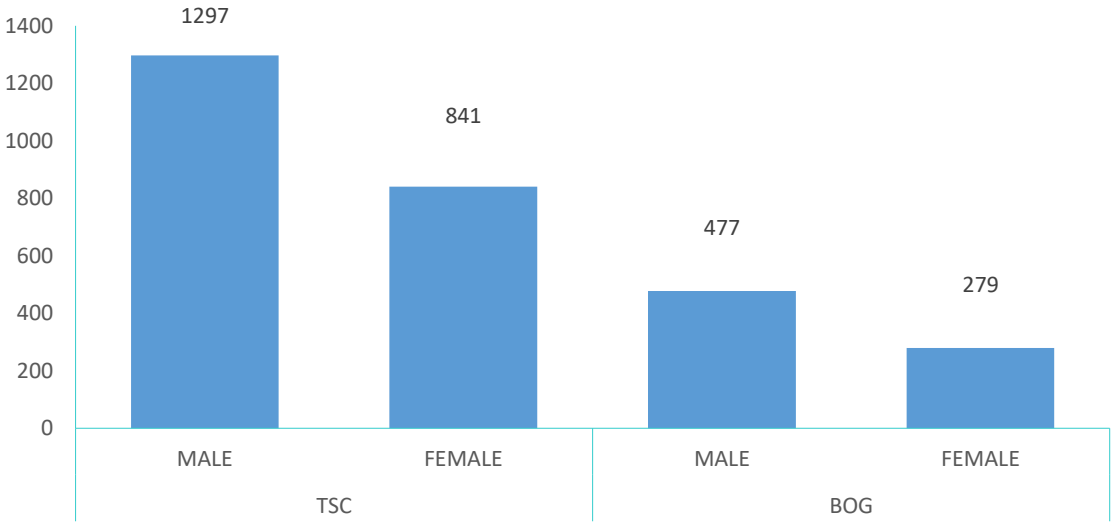


Figure 46: TVET Trainers in Public TVET Institutions as at 2018

7.4 Enrolment Trends

The sub sector lacks accurate data on enrolment because some institutions are not accredited. Table 32 shows enrolments in various TVET institutions that are registered and accredited in Kenya. Available data shows that there has been consistent increase in enrolment over the years, both for female and male trainees. This is attributed to the TVET rebranding and repositioning measures that have been undertaken, especially in construction of new institutions and improvement of infrastructure and equipment. Total enrolments in the sub sector rose from 148,009 in 2013 to 363,884 in 2018, representing a 40 percent increase over this period (Table 32).

Table 32: Table Enrolment in Technical Institutions by Gender, 2013 – 2016

	2013	2014	2015	2016	2017	2018*
National Polytechnics						
Male	13,166	14,660	12,463	22,754	29,290	47,171
Female	7,329	8,602	8,078	14,161	19,202	32,207
Total	**20,495**	**23,262**	**20,541**	**36,915**	**48,492**	**79,378**
GPI	0.56	0.59	0.65	0.62	0.66	0.68
Public Technical and Vocational Colleges						
Male	31,956	29,632	32,221	17,589	29,584	49,454
Female	23,989	21,232	23,087	9,569	17,982	34,948
Total	**55,945**	**50,864**	**55,308**	**27,158**	**47,566**	**84,402**
GPI	0.75	0.72	0.72	0.54	0.61	0.71
Private Technical &Vocational Colleges						
Male				27,280	35,951	41,623
Female				30,298	38,689	43,997
Total				**57,578**	**74,640**	**85,620**
GPI				1.11	1.08	1.06
Vocational Training Colleges						
Male	42,942	45,473	47,625	46,340	59,756	66,894
Female	28,627	28,222	29,840	34,565	44,685	47,590
Total	**71,569**	**73,695**	**77,465**	**80,905**	**104,441**	114,484
GPI	0.67	0.62	0.63	0.75	0.75	0.71
Grand Total						
Male	88,064	89,765	92,309	113,963	154,581	205,142
Female	59,945	58,056	61,005	88,593	120,558	158,742
Total	**148,009**	**147,821**	**153,314**	**202,556**	**275,139**	**363,884**
GPI	0.68	0.65	0.66	0.78	0.78	0.77

*Source: Economic Surveys, * Provisional*

There are more male than female trainees enrolled in TVET institutions irrespective of the type of institutions. In all the institutions, except the Private Technical and Vocational Colleges, the gender parity has been in favour of male students over the years across all TVET levels. Low female enrolment relative to male enrolment is seen particularly in the national polytechnics. Several factors explain the low participation of women in TVET programs. They include lack of basic pre-entry qualifications, low participation of female in STEM subjects, costs of undertaking the courses, and limited knowledge about the training benefits.

7.5 Costs and Financing

Public spending on the TVET sub-sector, as a proportion of total spending on education and training, has been increasing over the last five financial years, mainly due to capital investments that have been taking place in the sub-sector. TVET is a relatively more expensive sub-sector compared to general education and training due to lower trainee/trainer ratios and high costs of training material/equipment including workshops and laboratories. As at 2013/14, only 2 percent of the education and training budget was spent on TVET. The proportion has doubled to about 4 percent by 2018/19 (Table 33). A large proportion of this spending was devoted to capital investments. The TVET subsector has been receiving support from development partners in form of grants for infrastructure development. Data on development partner support to the TVET sub-sector, especially for private TVET institutions, is not readily

available. In Table 34, we attempt to show development partners support to the public TVET institutions

Table 33: Expenditure on TVET 2013/14- 2018/19

	2013/14	2014/15	2015/16	2016/17	2017/18*	2018/19**
Recurrent TVET	2,256	1,245	2,308	2,480	2,512	6,389
Capital TVET	2,069	1,867	4,248	4,746	8,455	9,338
Total TVET	**4,325**	**3,112**	**6,556**	**7,226**	**10,966**	**15,727**
Total Education expenditure	230,599	284,165	294,931	315,579	412,372	439,187
TVET, % of total Education	1.88	1.10	2.22	2.29	2.66	3.58

Source: The National Treasury, * * Estimates, * Provisional

Table 34: Development Partners Support to the Public TVET Institutions

Development partner	Focus area	Phase	Year of Inception	Amount in KES millions
Netherlands	Supply of smart classrooms to TVET institutions	I	2010	2,000
		II	2015	450
Peoples Republic of China	Supply of complete workshop equipment to 134 TVET institutions	I	2010	3,089.6
		II	2017	13,899.8
African Development Bank (AfDB)	Infrastructure, Equipment and Capacity building.	I	2009	2,775
		II	2015	6,300
Kenya Italy Debt Development (KIDDP)	Infrastructure, Equipment of YPs	I	2007	554

Source: The State Department for Vocational Education and Technical Training

Recent reforms in the sub sector have focused on diversification of funding to cope with the resource constraints (**Error! Reference source not found.**). The most common sources of funding are: public budgetary allocation; out of pocket spending by households; contributions from companies made through sponsoring staff training or direct support to training institutions; income generating activities by training Institutions; and development partners. The challenge remains in empowering institutions to engage in lawful income generating activities without losing focus on their core mandate.

Box 11: **Funding Sources for TVET**

- Public Budgetary Allocation: Limited to funding public TVET institutions.
- Private Household: Main direct contribution to training is through training and other (e.g., examination) fees. Other indirect costs such as cost of living, transport, etc. may be added to calculate private contributions.
- Companies: Apart from funding training through training levies and taxes, companies contribute through sponsoring staff training or direct support to training institutions.
- Income Generating Activities by Training Institutions: These include production units in TVET institutions
- Development Partners: Through contributions to the public budget, or direct support to training institutions or management structures. This is in form of technical assistance, infrastructure development and supply of state of the art equipment.

Each TVET provider system has different funding structures (Table 35**).** For instance, households pay tuition fees and boarding fees to both public and private TVET Institutions but in

the case of private commercial providers, these are cost-recovery fees. Some Public TVET Institutions (and in-house apprenticeship programs) raise funding through apprenticeship that is based on partnership with companies. The diversity of funding sources poses challenges with regards to quantifying the sub-sector funding and therefore, this is an area that needs further work.

Table 35: Sources of TVET Funding by Training Provider System

	Public TVET Institutions	**Private Providers**	**Training by Employers: In-House, Apprenticeship and External**
Public Budgetary Provision	Base funding of TVETs; funding of sector specific and training for specific target groups (handicapped, etc.).	-	-
Private Households	Tuition fees and boarding fees.	Tuition fees. In case of private commercial providers, these are cost-recovery fees.	Acceptance of no or lower wages in case of traditional apprenticeship training.
Income Generating Activities	Common in public TVET institutions (production units).	Common in NGO TVET institutions, occasionally as well in private commercial.	-
Companies	Indirectly co-financing through apprentices.	-	Direct financing of company training centres, and sponsorships of (in-house and external) staff training programs.
Development Partners	Some programs are funded by development partners.	Some foreign NGOs and churches involved in funding of training; some special programs are funded by development partners.	

Source: The State Department for Vocational Education and Technical Training

In addition, trainees are financed through loans and bursaries from the Higher Education Loans Board (HELB). Table 36 shows trends in bursary and loans allocation. The number of applicants is low compared to the enrolment in TVET institutions. The number of trainees awarded loans increased from 4,444 in 2012/13 to 19,597 in 2016/17.

Table 36: Bursary Applicants, Beneficiaries and Amount Awarded

	Number of Applicants Awarded Bursary			Total Bursary Awarded (KES Millions)
	Male	Female	Total	
2013/2014	2762	1234	3996	51
2014/2015	5051	2551	7602	64.3
2015/2016	9823	5507	15330	125
2016/2017	10517	5450	15967	117.9
Total	28153	14742	42895	358.2

Source: The State Department for Vocational Education and Technical Training

7.6 Quality and Relevance Challenges Facing TVET in Kenya.

Most TVET programs were developed long before the conceptualization of Kenya's Vision 2030 and have not been aligned to the competency-based curriculum. TVET skills development system follows a curriculum-based, time-bound approach rather than demand-driven approach. Most courses are designed, delivered and assessed on a centralized standard curriculum. For these courses, certification is based on completion of courses and passing examinations rather than demonstration of competency. The training is generally not geared towards self-employment as testing mainly evaluates the cognitive domain with minimal emphasis on the affective and psychomotor domains. Further, there is low adoption of ICT in TVET, which hampers efficient training and management. The shift to a competency-based curriculum will be hampered by dilapidated physical infrastructure and equipment that characterize most TVET institutions across the country.

Co-ordination mechanisms and linkages between TVET institutions continue to remain a major challenge. First, TVET institutions are spread across different ministries and there is no uniformity in the categorization of the institutions across the ministries. The TVET institutions themselves have different governance structures: Management Committees, BOM, Boards of Trustees, and Boards of Directors. With such fragmentation, the quality of training differs greatly from one institution to another. Fragmentation has also led to uncoordinated curriculum delivery and varying competence assessment mechanisms, leaving learners unequally prepared. Furthermore, county governments have varying policies in management and implementation of training programs and development of trainers.

Equally, there is poor and uncoordinated management of human resource and in particular, that of trainers. Technical trainers in the TVET institutions under the Ministry of Education (MOE) are provided by the Teachers Service Commission (TSC). Other ministries that offer TVET have different mechanisms for recruiting and remunerating trainers. There is little collaboration between the TSC and the State Department of Vocational and Technical Training on issues of management of teaching staff in the TVET institutions. The scheme of service of technical teachers managed by TSC does not attract and maintain competent professionals such as engineers, technologists, and medics to work as trainers in TVET institutions. Currently, TVET institutions under the Ministry of Education and County Governments face a shortage of trainers.

The professional/pedagogical formation of TVET managers, supervisors and trainers is marked with several challenges. Although some universities train teachers in technology education for the TVET sector, there are no specific education programs to supply the TVET sector with TVET administrators, supervisors and trainers. Consequently, TVET personnel qualify in disciplines other than education and then convert to teaching/ training, through deployment. There is a pedagogical skills training program at the Kenya Technical Trainers College from which trainers benefit under staff development program. The Kenya Technical Trainers College (KTTC) has the mandate to provide training to individuals who intend to become trainers and who are already qualified in technical fields/trade areas, with most of the graduates getting jobs in TVET institutions. However, in the recent past, KTTC has shifted from this to becoming a competitor with TVET institutions in the offering of formal TVET programs.

The current TVET pathways are rigid and hinder accumulation, recognition and transfer of individual learning. There is need for diversification of training and vertical articulation of

curricula across all levels to support flexible progression pathways. The flexible pathways should be designed to facilitate the accumulation, recognition and transfer of individual learning. This can be achieved through transparent, well-articulated and outcome-based qualifications systems. The systems should offer reliable measures for assessment, recognition and validation of qualifications nationally and at the international level; as well as exchange of information and development of trust and partnerships among all stakeholders.

TVET programs are also characterized by poor industry linkages. TVET institutions operate in an environment characterized by fast technological progress, emerging careers, changing job requirements and increased competition. These changes have necessitated an industry-institution collaboration in order to address this challenge (Plewa & Quester, 2008). Kenya has made a deliberate effort to ensure that the available flexible pathways provide trainees with skills that are relevant to the labour market. In addition, it is mandatory for all trainees to undergo industrial attachment lasting not less than three months before completing the course. Further, there is a deliberate effort to set up production units in most of the TVET institutions in order to expose the trainees to real work experience. Despite this, the industry-institution linkages in Kenya are not effective as they are characterized by inadequate involvement of the private sector in TVET curricula development and financing. Further, there is inadequate planning data due to weak mechanisms for conducting tracer studies and the absence of a labour market information system to provide data on skill demands.

TVET was regarded in most countries as being inferior to general academic education, as being second tier and a destination for students with lesser academic abilities and lower aspirations (see Puckett et al. (2012 and Wamalwa et al. (2009). This perception, they noted, creates a negative feedback loop that, in turn, limits investment in TVET institutions, thus sustaining existing skills gaps and unemployment. Atchoarena and Dellluc (2002) pointed to the prevalent attitude that TVET institutions are the destination for failures in the general education system, as one that needed change. The recalcitrant attitudinal problem of social esteem in the country (Palmer et al., 2007), which, despite its long existence, having initially gained ground on the basis of poor sell by the colonial government in the form of an adaptive education system, still persists and needs to be tackled if TVET is to fulfil its critical role in the development of the nation.

The low number of jobs available in the formal sector. This is the most serious challenge as it acts as a disincentive to future TVET trainees. Atchoarena and Delluc (2002)[19] observed that the steep and continuous increase in the volume of labour force from about 6 million in the 1970s to about 14 million in the 1990s, was accompanied by a gradual decline in the percentage of jobs in the agricultural sector of the country from 86 down to 80, over the same period. The corresponding and consistent rise in the percentage of jobs in the service sector and industries, of 9% to 13% and 5% to 7%, respectively, over the same period, however, made up a very small fraction of the total number of jobs in the country.

7.7 Policy Recommendations for the Next NESSP 2018-2022

19 Atchoarena, David & Delluc, André. (2002). Revisiting technical and vocational education in sub-Saharan Africa: An update on trends, innovations and challenges.

Expanding TVET enrolment and making it a more attractive and viable alternative educational and training pathway is critical to supporting the *Vision 2030* priorities for economic development. The following recommendations are suggested to inform the development of the next NESSP 2018/19–2022/23:

❖ **Improving the quality and relevance of training to enhance employability of trainees:**

- Streamline the management and assessment of industrial attachment process.
- Review and enforce minimum TVET trainers' qualifications including compulsory industrial attachment for TVET trainers at least every three years of service.
- Institutionalize quality assurance and accreditation system, as well as monitoring, evaluation, reporting, and inspection in TVET.
- Establish a national skills inventory in partnership with industry.
- Develop policies, plans and guidelines to rebrand and reposition TVET.
- License, register and accredit all TVET institutions according to established quality standards.
- Promote action research in TVET and link information gathered and analysed from labour market surveys and other studies.
- Ensure that all courses in TVET are competency-based, market-driven and address the needs of the workplace as well as promote employability, soft, generic and life skills. This should be done in partnership with industry and professional bodies.
- Institutionalize industry inputs into training through the establishment of Industry Advisory Groups (IAG), and Sector Skills Advisory Committees (SSACs).
- Effective guidance and counselling of potential trainees in the choice of training programs in relation to their aptitude, academic background, career ambitions, as well as current or future job openings.
- Develop and implement TVET management information system that will facilitate data collection, analysis and reporting, for informed decision making.
- Integrating ICT into TVET to contribute to quality improvement, technological innovation and increased outreach and access to learning opportunities.

❖ **Improving the policy environment and management of training provision:**

- Enhance management and leadership capacity both at national and institutional level.
- Develop and implement a framework for accreditation of TVET trainers, training providers, assessment of trainees and quality assurance.
- Establish the Kenya National Skills Development Council to enhance coordination of education and training among industries, government and academia.
- Develop a framework, in collaboration with county governments, to guide and strengthen collaboration between national and county governments in managements of VTCs.

❖ **Ensuring flexibility of training and life-long learning in TVET provision:**

- Develop and implement a framework on assessment for recognition of prior learning.
- Implement qualification frameworks to standardize, formalize and certify skills and qualifications across the entire spectrum of formal and informal education and training.
- Create awareness programs at national and local levels, sensitising parents and learners about the importance of TVET, as well as communicating to employers the value added by graduates of TVET programs.

- Revamp TVET and make it a career choice by encouraging high performing students at secondary schools to pursue TVET courses and also sensitizing students on the importance of TVET.
- Affirmative action to encourage female trainees pursue STEM courses.

❖ **Enhance TVET financing:**

- Allocate resources for expansion and equipping of the newly established TVCs from one department to five department institutions.
- Prepare and implement differentiated unit cost (DUC) for effective allocation of resources to TVET.
- Embrace Public Private Partnership (PPP) to ensure funding from the private sector.
- Establish incubation centres, in partnership with the industry, to ensure increased funding as well as tapping unique skills and invention/innovations from the trainees (nurturing their entrepreneurial ideas).

❖ **Access and equity in TVET:**

- Upgrade existing TVCs and equip them with modern equipment.
- Establish and operationalize TVCs in constituencies without TVCs.
- Establish and equip TVCs in wards without these TVCs.
- Establish Technical Trainer Colleges.
- Increase student loans, scholarships and bursaries for TVET students.
- Subsidize trainees' fees.
- Conduct advocacy and campaigns on TVET for learners at primary and secondary levels.
- Conduct baseline survey of TVET institutions.

8. Teacher Management in Basic Education

Teachers are the most important inputs affecting children learning. How Kenya recruits, develops, deploys, manages, and supports teachers will largely determine how children learn in schools. This section reviews these aspects. Currently, the Teachers Service Commission (TSC) manages a force of 306,060 teachers deployed in 31,661 public educational institutions in the country.

Generally, teacher training programs in Kenya attract relatively well-educated candidates from a pool of secondary school graduates. The minimum entry grade to pre-primary teacher education is D+[20] for certificate and C for diploma. For special needs education, it is C plain for certificate and diploma. Primary teacher training colleges is C plain in KCSE, while students entering teacher training at universities is C+ and above. Teachers in primary schools undergo a two-year certificate program in primary teacher training colleges while teachers in secondary undergo a three-year diploma in a diploma teacher training college or a 4-year Bachelor program in university.

8.1 Teacher Recruitment and Deployment

Under the current system, schools submit their teacher requirements to the TSC County Directors. The TSC County Directors then forward the requests for additional teachers, from schools, to TSC. The TSC then centrally advertises for the positions. Recruitment is based on a certain criterion and among the factors considered are: age, year of graduation, as well as qualifications. Over the period of 2011/2012 and 2014/2015, close to 29,000 and 17,000 teachers were employed at the primary and post primary school levels, respectively (Table 37).

Table 37: Summary of Primary and Secondary School Teachers

	Primary school level	Post Primary school level	Total
2010/2011	182,328	58,869	241,197
2011/2012	184,963	62,216	247,179
2012/2013	187,635	68,680	256,315
2013/2014	190,112	71,240	261,352
2014/2015	211,809	75,717	287,526

Source: TSC (2016)

TSC estimates that the overall teacher shortage at public primary and post primary institutions is expected to grow to over 116,000 over the period 2016-2019. Table 38 summarizes projected teacher shortages over the period 2016-2019. According to the TSC, the shortages are mainly driven by rapid growth in school enrolments, arising from implementation of the Free Primary Education (FPE) and Affordable Day Secondary Education programs, as well as increased establishment of new schools under Constituency Development Fund (CDF) and other community initiatives.

20 The grades are measured on an A-E performance scale

Table 38: Net Projections on Teacher Shortages in Kenya 2016-2019

	Primary	Post-Primary	Total
2016	54,545	40,807	95,352
2017	61,122	40,455	101,577
2018	68,492	40,107	108,599
2019	76,752	39,761	116,513

Source: TSC (2016)

The main objective of teacher deployment is to ensure equity in teacher distribution across schools in the midst of such projected shortages. In Figure 47, we plot the number of teachers in schools against the enrolments at primary and secondary levels, respectively. We include a linear regression line, which is the number of teachers expressed as a function of the number of pupils/students. The data points are distributed in a cloud rather than very close to the regression line. This suggests that the number of pupils/students in a school is not a good predictor of how many teachers are deployed in the school. The R-squared offers a measure of the share of variations in teacher allocation across schools, explained by variations in enrolments. It is small at primary level (0.52) relative to secondary level (0.70). Conversely, the degree of randomness (calculated as 1-R-squared, which is 0.48 and 0.30 for primary and secondary, respectively) shows that the weakest and most inconsistent distribution of teachers across schools, as a function of enrolments, is at primary level.

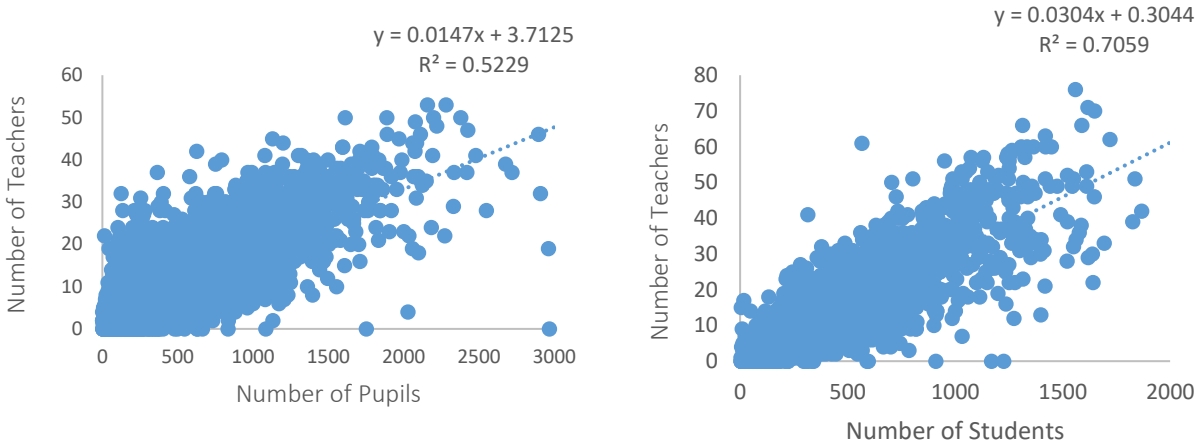


Figure 47: **Government Teacher Allocation in Primary Schools**
Source: MOE, NEMIS data

Teachers are also not equitably distributed across the regions (counties). Figure 48, we show a simulation of the number of teachers deployed to schools with 400 pupils, per county. Schools with same number of students have different number of teachers across the counties. In particular, there are huge disparities in the number of teachers, across the counties, even within schools with similar enrolment. In general, counties in ASAL areas have fewer teachers relative to other counties of the same school size.

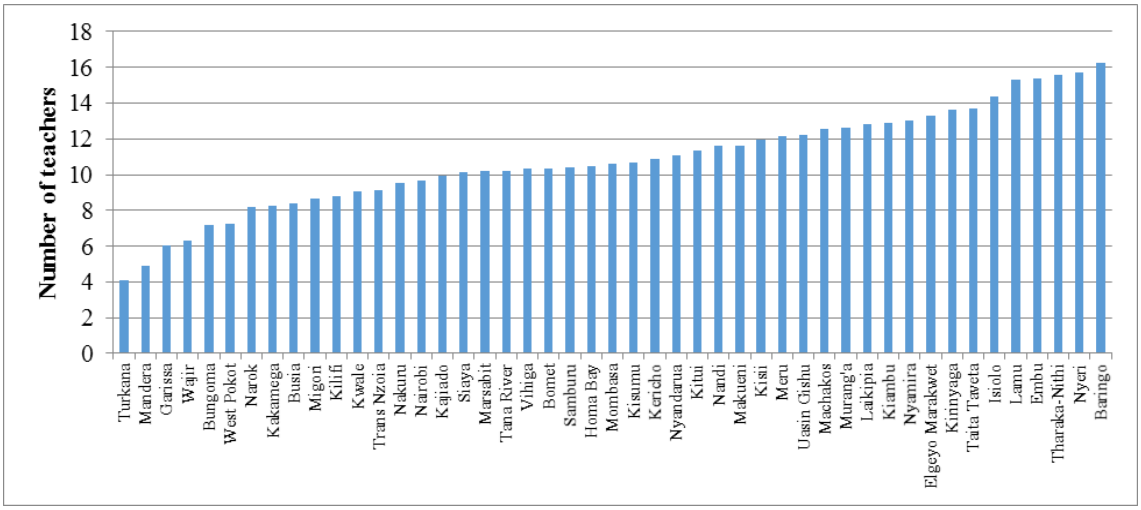


Figure 48: **Simulation of the Number of TSC Teachers for Schools with 400 pupils**

Currently, TSC uses relatively different staffing norms for primary and secondary schools. There are slightly different guidelines used for deployment of teachers at primary, and at post-primary school levels. The deployment guidelines for primary are 1 teacher per class of 45 learners plus 2.5 percent of total establishment within the county. The deployment of teachers in secondary and post-secondary is based on the Curriculum Based Establishment (C.B.E). In other words, at secondary level, teachers are deployed based on the subject offered and required number of lessons.

In order to improve teacher distribution, a review of the current staffing norms may be necessary. Since the implementation of the free primary and subsidized free day secondary school education policies, a number of schools have been established, funded through the CDF and through community initiatives, a situation that led to mushrooming of 'small schools'. For each school, TSC is obligated to send a teacher per class established, irrespective of enrolments. It is possible that some schools are getting teachers for a suboptimal level of enrolments. In addition, deployment of teachers based on Curriculum Based Establishment (CBE), as it is the case in secondary schools, has many challenges. For instance, in some schools, some subjects are grossly under-enrolled, especially the electives.

To deal with teacher shortages, schools have been employing teachers locally, known as Board of Management (BOM) teachers. TSC has only one requirement regarding BOM teachers- they need to have trained and registered by TSC. Most of the private contracted teachers have undergone teacher training, registered by TSC and are waiting for formal absorption by TSC. These teachers are paid less than their TSC employed counterparts. A study carried out by Tooley and Dixon (2005) reported that public school teachers in Nairobi earn an average monthly salary that is almost three times more than that of private school counterparts. Bold et al. (2012) reported that average salaries for civil service teachers in 2009 were roughly 261 US dollars relative to 56 US dollars. Table 39 provides a summary of BOM teachers at ECDE, primary and secondary levels as at 2016.

Table 39: Members of the Teaching Staff

Status	Sector	BOM_M	BOM_F	TOT_BOM
Public	ECDE	12,673	56,150	68,823
	Primary	19,789	16,062	35,851
	Secondary	29,075	15,005	44,080
Private	ECDE	8,288	33,708	41,996
	Primary	48,509	52,547	101,056
	Secondary	9,153	5,338	14,491

Source: Ministry of Education

A confluence of factors limits the equal distribution of teachers in Kenya. Insecurity in some counties, such as those in the northern part of Kenya (Garissa and Mandera) and the Rift Valley (West Pokot), has caused an outflow of teachers; political and stakeholder interference in the distribution of teachers; preferences of teachers for urban and high potential areas; unwillingness of teachers to be separated from their families; and medical attention, among others, are some of the factors.

The Competence Based Curriculum (CBC) is projected to put more pressure on teacher supply. The CBC will involve changes in the levels/structure of education, additional teaching areas, changes in the assessment of students, as well as instructional inputs required to support learning. In general, TSC foresees CBC requiring low PTR, relative to the current curriculum. It estimates that with the CBC, teacher pupil ratio will need to be adjusted gradually to 1:30 in both Primary and Post Primary Institutions. The increased demand for teachers to teach the new learning areas is estimated at 10 percent of the current teaching workforce (TSC, 2016). The Staffing norm will also have to be reviewed to make it responsive to the proposed Competence Based Curriculum (CBC).

8.2 Teacher Management

One of the key teacher management tasks for TSC and all the stakeholders in the education space is to ensure that teachers attend school and teach their classes. This task can be difficult given the remoteness of many schools across the country and the difficulties of transportation. Apart from challenges relating to teachers lacking adequate subject knowledge, pedagogical skills and teaching practice, their absence from school and class is another threat to student learning.

Various school surveys in Kenya reveal cases of teacher absenteeism from school and class. According to Uwezo report of 2016, on average, 12 per cent of teachers are absent from school during unannounced visits. In the KNEC's EGMA study, 36.0 percent of teachers were reported to be absent from school without permission. Figure 49 shows teacher absenteeism at two levels, in detail. That is absence from school and absence from class for seven countries based on the SDI surveys carried between 2010 and 2014.[21] Teacher absence from school, in Kenya, is estimated at 15 percent, equal to Tanzania, higher than Nigeria by one percent but less than in all the other countries listed. The rates of teacher absenteeism from class in all countries exceed the

21 SDI survey enumerators collect information on teachers' presence at school and in their classrooms through two unannounced visits to the sample schools.

corresponding rates of absenteeism from school. In Kenya, 4 out of 10 are unlikely to report to class, a situation that is better than Tanzania, Uganda and Mozambique but worse than the rest of the countries- Togo, Nigeria and Senegal. Although not shown, teachers are more likely to be absent in rural relative to urban schools in Kenya and a number of other countries such as Uganda, Mozambique and Togo. The inaccessibility of rural schools may be a factor driving this result.

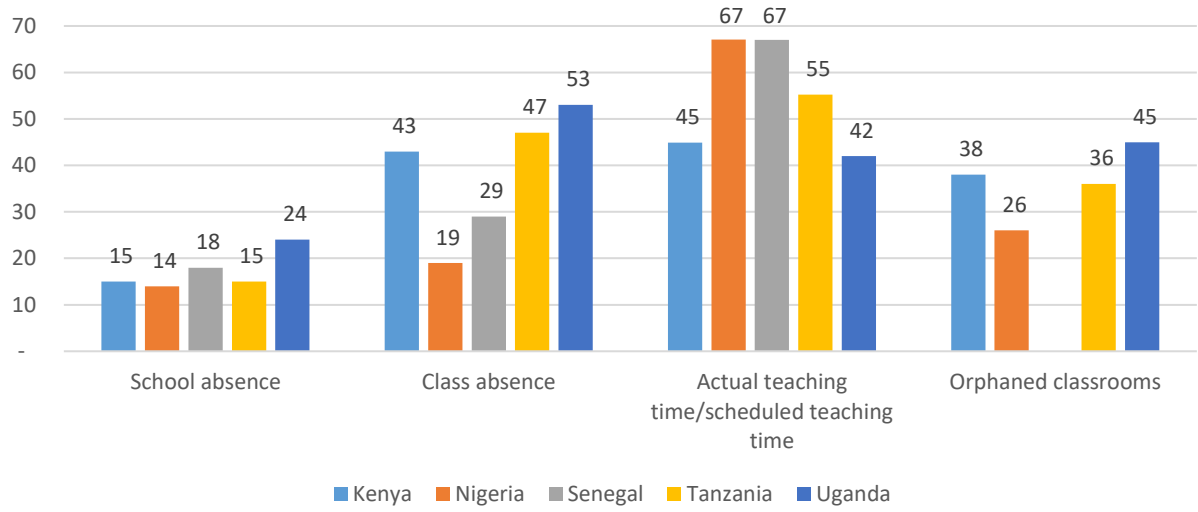


Figure 49: Teacher Absence in a Regional Perspective

Although teacher absenteeism from school in Kenya is largely for authorized leave, this still leaves children without adequate instructional time since no substitute teachers are provided. Figure 49 shows the proportion of classes where no instruction was going on for lack of a teacher in the SDI survey. Common reasons for teacher absence in Kenya emerge from the surveys assessing teacher absence. Teachers are often not in school or not teaching for authorized reasons such as sickness, participation in official functions (such as attending Tusome program training, sports/games, attending training courses) and the need to attend to personal or family affairs (attending to their children's education affairs, going for salaries, and death in the family). The absence of a teacher from class is nevertheless a missed learning opportunity for children given the evidence of lack of substitute teachers. The combined impact is a high prevalence of "orphaned" classes where students are gathered in class with no teacher to attend to them.

8.3 Teaching and Learning in the Classroom

Another attribute of teachers that is important for children learning is the teacher's professional competence. Professional competence is understood here to encompass the *teacher's subject knowledge* of content and of *pedagogy*, as well as practical *teaching skills*. Subject-matter knowledge refers to information, defined by the official curriculum for the subject, that teachers teach and which students are expected to learn in each subject area in order to progress in their education. Pedagogical knowledge measures teacher's ability to translate their subject knowledge into teaching. It refers to the ability to (a) structure and present academic content for direct instruction; (b) identify common conceptions, misconceptions and difficulties

encountered by students studying the subject; and (c) use appropriate methods to address students' specific learning challenges (Rowan et al. 2001).

Using the SDI survey for Kenya, collected from 306 schools, Wamalwa and Burns (2017) show that a teacher's subject knowledge, pedagogy, teaching skills as well teacher's effective instruction time (in hours)[22] are important for students' achievements. Their study shows that one standard deviation increase in teacher's Mathematics and Language knowledge increases Grade 4 student test score in Mathematics and Language by 0.126 and 0.075 of a standard deviation, respectively. Equally, the estimated effect of teacher pedagogical skill is positive on student Mathematics test scores. More importantly, higher teacher pupil contact has a positive effect on student score achievements. For instance, an *additional hour of effective instruction* increases the test score in Mathematics and Language by 0.059 and 0.051 of a standard deviation, respectively. The variable *percent of students off-task* is negatively related to student scores in Language, meaning that teachers who keep students engaged (on-task) are likely to produce students with higher Language test scores (Table 40). In **Error! Reference source not found.**, we discuss aspects of teachers that matter for students' achievements, based on recent literature.

Table 40: Teacher Human Capital, Teacher Effort Effects on Student Scores

	(1)	(2)
	Maths Score Regression	Language Score Regression
Teacher subject knowledge	0.126***(0.045)	0.075**(0.031)
Teacher pedagogical knowledge	0.112***(0.035)	0.007 (0.053)
Effective instruction time (in hours)	0.059*(0.030)	0.051**(0.023)
Percent of student off-task (average)	-0.002*(0.005)	-0.030***(0.008)
Controls		
Teacher Classroom Practices	Y	Y
Teacher Controls	Y	Y
School and Classroom Controls	Y	Y
Student Controls	Y	Y
Village Controls	Y	Y
Division fixed effects	Y	Y
Observations	1,077	1,077
R-squared	0.413	0.495

Source: Wamalwa and Burns (2017) based on the SDI survey for Kenya.
Notes: School controls include: *a set of dummies which indicate whether the school is public, rural and located near a tarmack.* Other school characteristics are *classroom size, number of pupils per teacher, an index of school infrastructure* (based on the following items, given equal weight: (a) presence of toilets that were judged as designated for boys and girls, accessible, private and clean, (b) availability of electricity and (c) sufficient light for reading from the back of the class) and *an index of classroom equipment* (based on the following items, given equal weight: (a) proportion of students with pens and exercise books, (b) number of students per text book (in maths), (c) whether the classroom had the following: piece of chalk, a black board, a corner library, children's work displayed on the walls of the classroom); (4) Student controls include: *student age, age squared, whether the student is female, student score in Maths, student non-verbal reasoning ability and whether the student ate breakfast;* (5) Standard errors are in parenthesis and are clustered at the class (school) level and (6) ***1 percent significance level, **5 percent significance level and *10 percent significance level.

22 Teacher's effective instruction time (in hours) is calculated accounting for teacher absence in class and time teachers spend on pedagogical related activities? For details please refer to: Wamalwa, F., Burns, J. (2017). *Teacher Human Capital, Teacher Efforts and Students Achievements in Kenya*. Cape Town: Economics Research South Africa (ERSA), ERSA Working Paper Number 723.

Box 12: **What aspects of Teachers Matter for Students' Achievement? Evidence from Recent Literature.**

Teachers matter for student achievement. This consensus from various studies that examine the effect of teachers on student achievement is however, inconclusive on what attributes make a teacher more successful at enhancing student performance [Aaronson et al. 2007]. Much of what exists in the literature are studies that link student outcomes to characteristics of teachers that can easily be measured (such as certification, education, experience, gender and age). Evidence from these studies, mostly based in the USA, generally point to a positive effect of teacher certification on student test scores [Clotfelter et al, 2007]. However, a consistent puzzle is the absence of any significant effect on student scores of variables that are mostly used to inform teacher hiring and teacher salary decisions such as experience [Rivkin et al 2005] and education [Clotfelter et al, 2007] and other characteristics such as age and gender [Dee,. 2005]. Recent studies point to the importance of teacher input and more so, the importance of teacher competence, that is, teacher subject knowledge (Metzler and Woessmann, 2012) and teacher effort in the delivery of education services. Studies measure teacher effort by teacher absence in school and class, time on task as well as teachers practice (for example Lavy 2011; Kane et al. 2011; Aslam and Kingdon, G.S., 2011; Zakharov et al. 2014). This literature contents is that schools inputs (infrastructure) are crucial for student learning but teachers, as key service providers in the production of education, need to be present, motivated and able to instruct. In other words, conditional on teachers being appropriately skilled and exerting the necessary effort, the provision of school resources and infrastructure has important effects on student achievements.

Majority of the teachers at primary and secondary levels hold the minimum qualification required for teaching at these levels. Figure 50 provides the distribution of teacher qualifications by school types for primary and secondary schools, respectively. Majority of the teachers in primary hold certificates (P1), a minimum requirement for teaching at primary and in fact, an increasing number are going for Bachelor's degrees and higher qualifications. Equally, almost 8 out of 10 secondary school teachers have a degree and above. Following the expansion of university education and given the flexibility accorded to them, an increasing number of teachers are attaining higher qualifications, far above their minimum qualification for teaching. Although it is important for teachers to build their human capital, it is also more likely that most of those acquiring more qualifications might quit the teaching profession or find jobs in higher levels of learning. This phenomenon is made more evident considering the fact that the establishment requiring the high qualifications is limited hence promotion is not guaranteed.

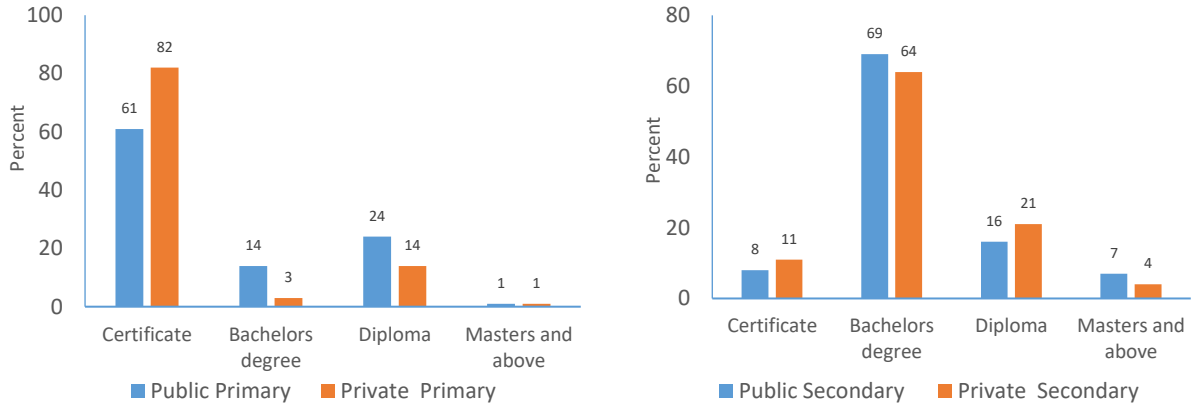


Figure 50: Primary Teachers Qualification
Source: MOE

Several assessments have been done to measure Kenyan teachers' subject-matter knowledge, and competence. The SDI survey assessed Grade 4 teachers in subject knowledge in Mathematics and Language. The Language test administered to teachers consisted of items

involving grammar, clauses and composition. The Mathematics test consisted of items related to addition, subtraction, multiplication, division, fractions, as well as interpreting graphs and data. In Figure 51, we present teacher scores on Language and Mathematics in selected domains. Several issues emerge. First, the SDI survey put Kenyan teachers ahead of their peers in all other countries in terms of subject-matter knowledge. For instance, in Language, 63 percent of the teachers in Kenya reached the minimum threshold of competence compared to 54 percent in Uganda and 50 percent in Togo, the two countries that came close to Kenya. In Mathematics, 77 percent of the teachers in Kenya reached the minimum threshold of competence compared to 65 percent in Tanzania and 58 percent in Uganda.

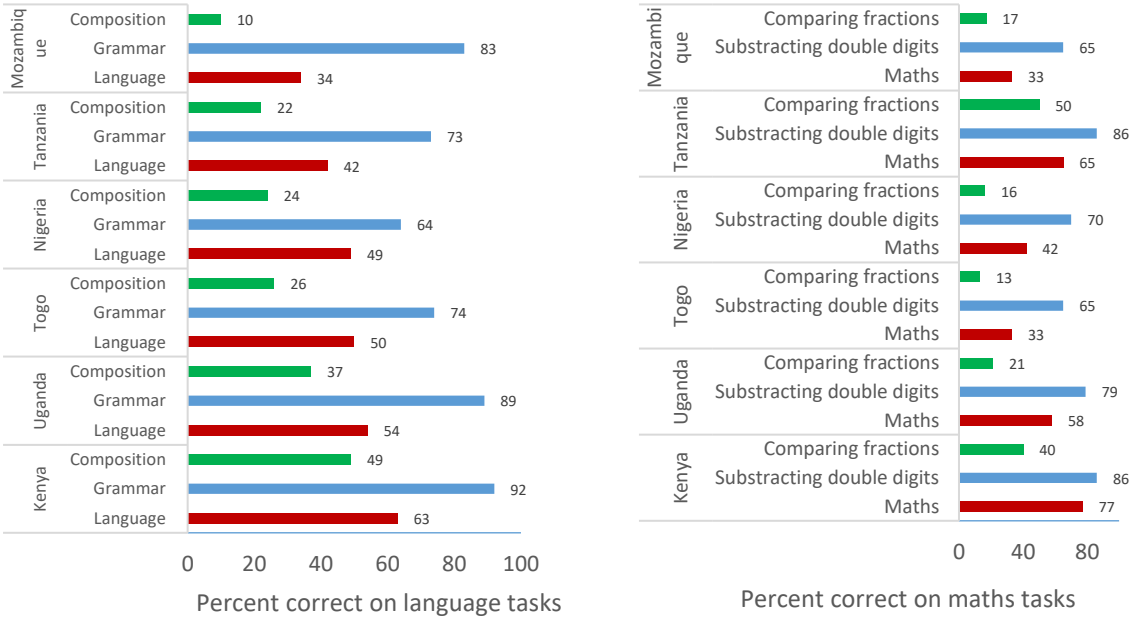


Figure 51: Teacher Scores in the SDI Surveys, 2012–2016
Source: SDI Survey (2012)

Although Kenyan teachers are ahead of their peers in other countries in terms of subject-matter knowledge, they struggle in tasks that require some level of knowledge beyond lower primary curriculum. For instance, while 92 percent of Kenyan teachers marked tasks involving simple grammar exercises correctly, almost half of them could not mark the composition sub-task, involving correcting spelling, and grammar as well as punctuation mistakes in a child's letter. In Mathematics, 86 percent of teachers can perform a double-digit subtraction, although 16 percent of them cannot. The share of teachers with correct answers drops to an average of 40 percent for tasks involving comparing fractions. Nevertheless, Kenyan teachers still do better in each of the Language and Mathematics sub-tasks.

Results from SDI also revealed that Kenyan teachers are ahead of others in terms of teacher pedagogy, defined as translating subject knowledge into teaching (Figure 52). Nevertheless, their pedagogical knowledge is exceptionally low- just slightly more than a third of the Kenyan teachers answered the pedagogical questions correctly. Furthermore, only 39 percent could adequately prepare the lesson plan; only 33 percent of teachers could assess children's

learning ability by contrasting between sample writing of two students and only 29 percent could turn raw scores into averages and comment on student performance (evaluate pupils' progress).

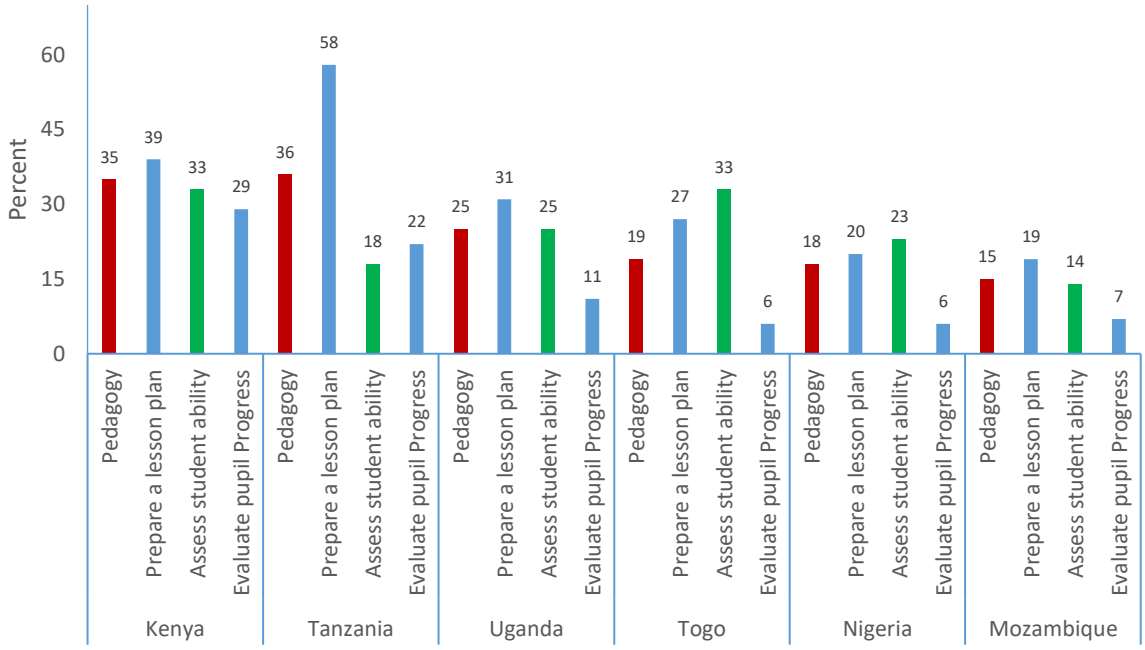


Figure 52: Correct Responses on Test of Pedagogical Knowledge
Source: SDI Survey (2012)

The lack of pedagogical skills in Kenyan teachers is also evident in observational studies of teacher-student interactions. Individual seat work and purely teacher-centered activities (e.g. instructions, demonstrations, lesson reviews) take up most of the time of a typical lesson in Kenya (Ngware, Oketch & Mutisya, 2014). Teacher-led recitations, including highly-ritualized choral responses by students, are often the dominant form of teacher-student interactions in Kenyan primary schools (Pontefract & Hardman, 2005). Teachers rarely asked open questions that would require students to explain their reasoning or expand on a thought and therefore, explicit feedback is rare.

In the SDI surveys, information on teachers' actions (teaching practices) were gathered. The results show that most teachers in Kenya are more likely to use the blackboard, introduce the lesson, and pose questions that require recall of memorized facts. They are, however, less likely to summarize the lesson, and set, collect or return marked homework, key teaching practices that are important for student achievement. Results from KNEC's EGMA (Grade 2 study) and NASMLA (Grade 3 study) further confirm weakness in teaching practices among Kenyan teachers. In the KNEC's EGMA Baseline study, a significant number of teachers (20 percent) indicated that they did not use lesson notes, pointing to lack of preparedness. In NASMLA Class 3 study, 34.3 percent of the teachers were not motivated to mark pupils work, while 44.6 percent and 48.1 percent were not motivated to prepare and use teaching/learning materials, and to assigning pupils work, respectively.

Two avenues for developing and sustaining teaching skills are pre-service and subsequent professional development (in-service). Pre-service teacher training in Kenya is undertaken by

multiple public and private institutions**.** Teacher training is undertaken by ECDE centres, primary teacher education colleges, diploma teacher training colleges, and universities. Public Primary Teacher Training Colleges graduate an average of 11,500 P1 teachers yearly, within a two-year program. The public Diploma Teacher Training Colleges train 1,340 per year, within a three-year Teacher Education program. The Early Childhood Development and Education teachers are trained mainly through an in-service program at certificate and diploma levels. Most training is conducted in educational institutions during school holidays. As at 2016, there were 24 public primary teacher training colleges and 79 private primary teachers training colleges (Table 41).

Table 41: Graduates from Teacher Training Colleges

	Year	Colleges	Candidates	Pass	Pass Rate
PUBLIC	2014	21	10,641	9,623	90.4 %
	2015	21	10,679	8,762	82.0 %
	2016	24	11,388	7,776	68.3 %
PRIVATE	2014	83	6,868	5,585	81.3 %
	2015	84	8,230	5,517	67.0 %
	2016	79	8,102	5,084	62.8%

Source: Ministry of Education; PTTC Department

ECDE and primary teacher pre-service programs in Kenya face a number of challenges. The programs focus more on academic material, such as Mathematics content, rather than pedagogical methods, reflecting the weak instructional preparation of teacher candidates (Akyeampong, Lussier, Pryor & Westbrook, 2013). The curriculum taught does not reflect the aspirations of the Constitution and Vision 2030 with a shift to competency-based curriculum. The programs are offered by multiple private and public entities, raising the question whether such heterogeneities in training equip teachers equally for their work. Teacher trainers lack adequate knowledge in teacher education as in most cases, deployment to teach in TTCs is taken as a form of punishment. In addition, practicums are generally poorly designed, are short, poorly scheduled (e.g., two months at the end of school year) and inadequately supervised, if at all, with little provision for critical reflection. Also, teacher training institutions lack physical facilities that meet the required standards.

TSC has developed a policy framework for the continuous development of teachers in the service. The objective of this project is to improve competencies of teachers at the basic education level. It also aims at enabling the teachers acquire requisite skills, competence, attitudes and encouraging lifelong learning in order to meet the 21st Century learning outcomes. The new curriculum proposes new learning areas that are currently non-existent in the basic education subsector. This implies that there will be a need to develop a policy on teacher utilization and deployment, to realign it to Competence Based Curriculum (CBC). In order to operationalize the framework for the continuous development of teachers, TSC plans to implement the following interventions:

- Conduct a baseline competence and skills assessment for teachers at both primary and post primary school levels.
- Identify teacher professional gaps through the TPAD process and place teachers for training in relevant modules, in line with the TPD framework that TSC has developed in consultation with stakeholders.

- Develop Teacher Professional Development modules.
- Provide Teacher Professional Development training for career progression and recertification.
- Enhance Performance Management and Accountability in Basic Education institutions.
- Build the capacity of Curriculum Support Officers, to equip them with the pre-requisite skills and competencies for effective curriculum implementation.
- Build capacity of Instructional Leaders and Boards of Management on collaborative approach to managing the institutions.
- Establish/identify a specialized institution for implementation of modules for continuous Teacher Professional Development. The institute will further be responsible for:
    - Monitoring the relevance of the modules and periodically reviewing the content in accordance with teacher professional development needs.
    - Short and long-term budget lines to manage the TPD programs in the teaching service.
    - The institute shall prepare budget lines for the management of the CTPD programs so as to enable the Commission advice the National Government accordingly.

Despite the above efforts, majority of teachers have not received any in-service support or training although those who have, reported that they found the training useful. In the MLA Form 2 study, a significant percentage of secondary school teachers (32.4 percent) had not attended in-service courses. However, a significant majority of teachers who had attended reported that the course was very useful. Similarly, SACMEQ IV study revealed that majority of the teachers found in-service training to be effective. In 2016, a performance evaluation system was introduced. Teachers are supposed to be evaluated by their superiors, with criteria including the preparation of lesson plans, the extent to which the syllabus is followed, as well as attendance and observance of effective time use (Kiplang'at 2016).

While there is no evidence to date on the effectiveness of this reform, empirical evidence from Kenya and Uganda suggests that monitoring by superiors within schools is often ineffective. An inputs-based incentive intervention in Kenyan preschools, in which teachers were eligible for attendance bonuses that were administered by the head teachers, had no effect on absenteeism or most measures of teacher pedagogy (Chen, et al. 2001). The authors attribute this result largely to the fact that the head teachers were administering the incentive scheme. Another study finds no effect of prizes given for good teaching on teacher absence, in an experiment in which the task of allocating prizes fell on school committees, some of which were controlled by headmasters (De Laat, Kremer & Vermeersch, 2008). Finally, one study for Uganda finds evidence that head teachers were less likely than other SMC members to hold teachers to account (Barr & Zeitlin, 2011).

Majority of teachers had not benefitted from ICT in-service training. Use of ICT in teaching activities is particularly quite low. Close to three quarters of the teachers interviewed in the NASMLA Class 3 study did not use ICT to enhance teaching and learning. This is evident from NASMLA Class 3, where 85.9 percent of head teachers had not benefited, to a large extent, from ICT in-service training. Similarly, in EGMA Class 2, a large proportion (44.8 percent of the teachers had not received training in computer use. It is also notable from MLA Form 2 study,

that about 49.9 percent of students were not taught computer usage by their teachers, implying that a notable number of schools may not have requisite ICT infrastructure.

In addition, TSC has been implementing the Teacher Performance Appraisal and Development to facilitate Teacher Professional Development and ensure compliance with the teaching standards as provided in TSC Act. The Commission developed a Teacher Professional Development (TPD) Policy Framework with clear guidelines on the structure, process and procedures of facilitating Teacher Professional Development and ensuring compliance with prescribed teaching standards, professionalism and integrity in the teaching service. The implementation of this policy will be instrumental in the realization of the Commission's Vision, Mission and Objectives. Further, the Commission developed TPD training modules structured into six (6) sequential levels that will enable teachers to undertake TPD programs at different times during the working period. The modules are meant to address the various TPD priorities, equipping teachers with requisite competencies, skills and attitudes to enable them to effectively respond to 21st Century learning/teaching needs. The aim of the project is to ensure that all teachers comply with set teaching standards. The policy aims to:

- Review teacher Performance appraisal and development tools to take care of emerging issues;
- Train teachers on the use of online system to enable them upload teacher performance appraisal and development information;
- Build capacity of field staff -County and Sub County directors; and curriculum support officers - on teacher performance appraisal and development; and
- Carry out monitoring to identify gaps in adherence to teaching standards and recommend ways to address them.

The Teacher Performance Appraisal and Development faces a number of challenges. Teachers are not able to use the online system due to lack of ICT skills as well as poor access to computers. There is also inability to have objective rating of the teaching standards. Furthermore, teachers generally feel that it is a time-consuming exercise. In addition, there is lack of a reward and sanction mechanism for those identified through the TPAD process. Nevertheless, the program has led to several achievements, including improved use of professional records by teachers; reduced absenteeism of teachers; helping to institutionalize lesson observation and identification of teachers' professional gaps. It also improved supervision and made the work of administrators easier and more organized.

Shanghai is one of the large cities with a very successful model of teacher management. It is one of the world's best-performing education systems. It achieved the highest Program for International Student Assessment (PISA) scores in the areas of Reading, Science and Mathematics on a global assessment of 15-year-olds' educational abilities. It has a high degree of coherence between policy and implementation (policy statements and reality). It implements its education policies consistently, and constantly innovates and reforms to meet new challenges. A number of countries, including those from Europe, are learning from Shanghai-exchange programs. The most notable aspect of Shanghai's education system is its process for development and management of teachers. In **Error! Reference source not found.**, we share some experiences from Shanghai on different aspects of Teacher Management.

Box 13: **Teacher Management: Lessons from Shanghai**

a. The Teacher is the Core

- There is a well-structured professional career ladder and performance evaluation system.
- Teachers are expected to be active researchers who constantly reflect on their pedagogy and implement innovations in relation to student outcomes.
- Principals are strong instructional leaders who can provide guidance on teaching and learning, and who understand how best to evaluate teachers.
- Teachers and principals alike, maintain a high level of professional accountability.

b. Teacher Recruitment and Grading

- They have a well specified minimum educational qualification for teacher entry.
- Candidates who qualify as teachers must successfully obtain a teacher certificate. The assessment is based on a written section and a subject-specific interview.
- Teacher Grading: Teachers are evaluated regularly for promotion to a higher rank, which is accompanied with a salary increase, based on their years of service and teaching performance.

***c. Tiered* Ranking System for Teachers**

- There is an elaborate system for ranking teachers:

Rank	*Requirements*
Third-grade teachers	One to three years of service
Second-grade teachers	Three to five years of service + third-grade teacher rank obtained + school-level internal evaluation.
First-grade teachers	At least five years of service + second-grade teachers rank obtained + school-level internal evaluation + district-level external evaluation.
Senior-grade teachers	At least five years of service + first grade teacher rank obtained + school-level internal evaluation + district-level external evaluation.
Outstanding teachers	Only granted to teachers with many years of service and outstanding teaching practice.

d. Teacher Professional Development (TPD):

- TPD in Shanghai focused on improving the classroom practices of teachers.
- TPD is an essential part of teacher responsibilities and it is anchored in the law.
- Much of TPD is school-based, collaborative and focuses on instructional improvement.
- New teachers undergo a TPD for 360 hours during the first 5 years.
- Each school is encouraged to set up its specific policies on teacher training.
- There was an important role of research on pedagogical practices in classrooms and peer lessons observations.

e. Teaching Community

- Teaching Research Groups (TRG) unite teachers of the same subject.
- Districts organize regular supervision of teaching at each school. The capacity of the teaching force is a core indicator in district-level school evaluations.

***f.* Teaching Research Groups (TRG)**

- Core to Teacher professional development.
- Coaching and guidance by senior teachers for junior teachers.
- Induction of new teachers (almost 99 percent of schools have induction programs).
- Research on new subject content and pedagogical practices.
- Teacher performance evaluation by teachers within the same group, based on the frequency, intensity and achievements in the group activities.

Source: Adapted from Education Bureau of Jiading District of Shangai (2014).
How Shangai does it – http://dx.doi.org/10.1596/978-1-4648-07909

- ***Ensure the teacher training programs, both pre-service and in-service, are aligned to the curriculum and in particular, to the proposed competence-based curriculum.*** The teacher training programs in Kenya face a number of design and pedagogical challenges, some of which have been discussed. As a result, they are limited in adequately developing teachers with strong teacher skills (in terms of subject-matter knowledge, pedagogical skills and practical teaching). With the changing dynamics of education in Kenya, there is need to ensure that teacher training reflects the aspirations of the Constitution, Vision 2030, and the demands of the competency-based approach. It should also equip teachers with teaching skills that are relevant to the classroom realities that they are likely to face. *Potential strategies include*:
  - Harmonize and review ECDE and primary teacher training programs (curriculum) to ensure they reflect the aspirations of the Constitution and Vision 2030, with a shift to competency-based curriculum, the curriculum that schools in Kenya will be following. Besides, make the training program flexible. For instance, let there be options for use of distance learning options;
  - Integrate and mainstream ICT in all aspects of teacher training programs;
  - Ensure teachers are trained with '*a classroom focus'*, that is, using the textbooks, materials, assessment tools and instructional methods that they are expected to use in class;
  - Provide accompanying manuals and scripted lessons of exemplary teaching practices to guide teachers in applying newly acquired skills and where possible, create digital platforms for sharing teaching experience;
  - Update the capacity of the current institutions by equipping them with adequate and appropriate physical and human resources necessary for them to deliver relevant programs to meet the required standards;
  - Establish criteria for benchmarking teacher training program content and relevance, and for monitoring and assessing impact on teacher competence and effectiveness in raising student learning, by, among others, developing accreditation requirements for providers, standards for trainer and trainee selection as well as standards for certifying satisfactory program completion; and
  - Ensure effective regulation of institutions offering teacher training programs, especially private sector institutions, by articulating to them quality assurance standards and ensuring conformity to the standards.

- ***Provide continuous (in-service) professional support to teachers in order to improve their knowledge and competence.*** With the challenges facing teacher training programs and the changing dynamics of education in Kenya, there is need for continuous support to teachers to improve their professional knowledge and competence and also to keep them abreast of developments in the sector. Such support will mainly come from peers, head teachers and instructional leaders at school level or from organized professional learning events such as Tusome programs or even virtual networks. Continuous professional support needs to be aimed at empowering teachers to align their teaching to the needs of individual learners. *Potential strategies include*:
  - Ensure continuous coaching and mentorship of trainee/beginner teachers and more so, to incumbent teachers who are in difficulties;

- Encourage school level peer learning and experience sharing among teachers;
- Provide structured in-service trainings based on the assessed needs of teachers- as a cost saving mechanism. Such trainings can be held at county or sub-county levels, bringing together teachers from different schools within such jurisdictions;
- Encourage teachers to develop their own personal continuous professional development plan on a regular basis (say three-year basis) as well as mechanisms to monitor/review performance and achievement of the plans;
- Ensure there are follow-up visits and reviews for teachers who undergo structured and unstructured professional development;
- Develop a comprehensive teacher education and professional development policy that guides pathways for training and career progression for serving teachers;
- Create and maintain a database for assessing teachers' in-service training needs as well as assessing cost implications;
- Integrate and mainstream ICT in continuous professional development programs.

❖ ***Strengthen the managerial and instructional leadership of school heads, school management committees and other leaders.*** Head teachers are the main link between schools, the community, and the government. They provide on-site supervision and guidance and ensure that teachers are present in class. They are supported in this role by the local school management committees as well as county and sub-county MOE and TSC officials. *Potential strategies*:

- Continuously train school heads, departmental heads and other instructional leaders (at the county and sub-county levels) to increase their capacity for sustained, on-site coaching and guidance to teachers in their schools;
- Train and provide both the schools' head teachers and the local school management committees with simple tools for tracking different school level indicators such as teacher presence, instructional materials, etc.; and
- Improve the quality of school leadership through strategies such as broad-based selection of the local school management committees, competitive hiring, rewards for high-performance, and regular rotation of school head teachers.

❖ ***Improve teachers' school and classroom attendance.*** With regard to teacher attendance at work, the school head teachers are the critical link, but their authority to sanction absent teachers may be limited, for example, by system-wide rules governing authorized leaves (e.g., scheduling of training, or teachers travelling to collect pay), or by weak community involvement in the life of the school. *Potential strategies*:

- Encourage and strengthen local/school level initiatives (by teachers, school management committees, local leaders) aimed at reducing teacher absenteeism; and
- Ensure provision of alternative/substitute teachers in classes where teachers are absent.

❖ ***Ensure that the deployment of teachers to schools is based on enrolment and address regional inequality in teacher distribution.*** A critical action for TSC is to deploy teachers according to school enrolments. This has not been effectively achieved, especially at the primary level. The recent public response to the massive transfer of head teachers across the country shows that many stakeholders—ministry staff, elected officials and community leaders—exert influence

over teacher allocation and assignments, underscoring the need for wider consultation in teacher deployment. *Potential strategies include*:

- Establish enrolment-based criteria for teacher allocation by ensuring that the deployment of teachers to schools is based on reliable school level enrolment data;
- Ensure effective engagement of stakeholders-politicians, parents, local communities - in teacher deployment across schools, based on agreed norms such as uncontested/reliable data, agreed criteria and appropriate incentives;
- Set minimum enrolment levels for new schools to qualify for TSC teachers, with a view to ensuring optimal utilization of teachers; and
- Periodically maintain and review incentives for teachers in hard to reach areas.

9. Quality of Education

The World Bank's World Development Report (WDR) of 2018 cautioned that in many countries, children are attending school but very little learning is taking place. According to this report, providing education is not enough. What is important, and what generates a real return on investment, is that children learn and acquire grade relevant skills (World Bank, 2018). The report further submits that schooling without learning is a waste of public resources. Recent research shows that countries with knowledge and skills instilled through education are key to a country's development (Hanushek and Woessmann, 2015). One way to gauge if children are learning in schools and if there are returns to investments in education is by assessing them. In this chapter, we discuss three levels of metrics for measuring children learning in Kenya. We begin with the government assessments that are usually carried out by the Kenya National Examinations Council (KNEC). We then discuss the second type of assessments carried out by non-state actors, mainly civil-society led assessments. Lastly, we provide a snapshot of children assessments based on regional assessments.

9.1 National Assessments of Student Learning

9.1.1 End of Primary and Secondary Cycle National Examinations

Currently, Kenya's education system requires learners to take national examinations at the end of primary and secondary cycle level. Learners sit for the Kenya Certificate of Primary Education (KCPE) examination and Kenya Certificate of Secondary Education (KCSE) examination, at the end of primary and secondary cycle, respectively. Transition to the next level, from primary to secondary, and secondary to tertiary, is dependent on the performance in these examinations.

Table 42: Trends in KCPE and KCSE Candidature

Level	Gender	2013	2014	2015	2016	2017	2018*
Primary	Boys	426,369	443,258	467,904	473,684	498,775	529,215
	Girls	413,390	437,228	459,885	478,706	494,943	531,495
	Total	**839,759**	**880,486**	**927,789**	**952,390**	**993,718**	**1,060,710**
Secondary	Boys	242,981	258,896	272,964	299,268	314,878	334,777
	Girls	202,539	223,237	239,666	271,893	295,623	319,010
	Total	**445,520**	**482,133**	**512,630**	**571,161**	**610,501**	**653,787**

Source: Kenya National Examinations Council (2018); * Provisional

The number of candidates sitting for KCPE and KCSE has been increasing. As Table 42 shows, the number of candidates sitting for the KCPE examinations grew from 839.8 thousand (426.4 thousand boys and 413.4 thousand girls) in 2013 to 1,060.7 thousand (529.2 thousand boys and 531.5 thousand girls) in 2018. Generally, more boys have been sitting for the KCPE exams. Nevertheless, the number of girls has been growing faster, with an annual growth rate of 4.9 percent compared to that of boys at 3.8 percent. Similarly, the number of candidates sitting for the KCSE examinations increased from 445.5 thousand (243.0 thousand boys and 202.5 thousand girls) in 2013 to 653.8 thousand (334.8 thousand boys and 319.0 thousand girls) in 2018. Like the case of KCPE, more boys than girls have been sitting for the KCSE examinations.

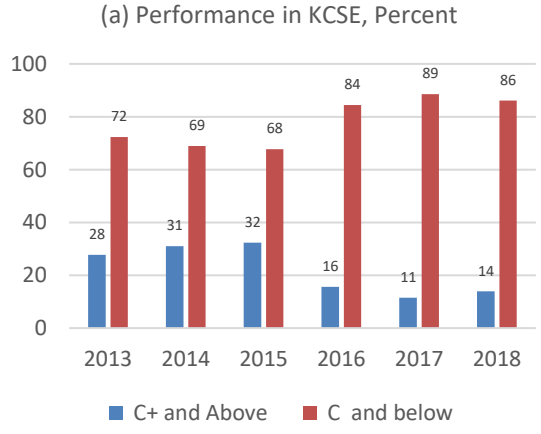
The KCPE national mean score remained slightly above 50 percent in the last 7 years characterized by poor performance in English composition. As shown in Table 43, the mean score per subject over the period has been over 50 percent except for English language, English composition and Kiswahili Insha. Performance in English composition has remained quite low, revealing weak functional and analytical comprehension skills among candidates. Analyses show that even after 8 years of schooling, some KCPE candidates hardly communicate comfortably in either English or Kiswahili and are completely unable to put thoughts together. Others can hardly write simple words correctly while others mix up tenses. Those most affected are candidates from rural public schools.

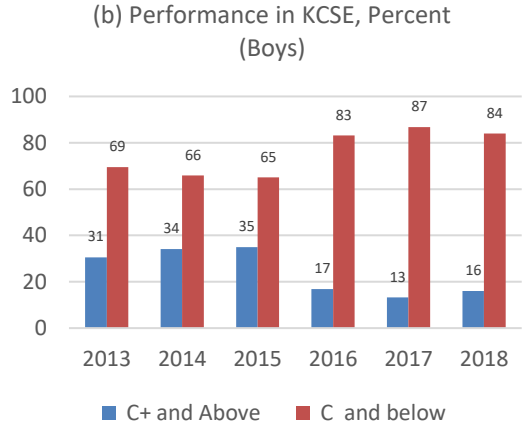
Table 43: KCPE Results by Subject

Subject	2013	2014	2015	2016	2017	2018*
English Language	53.06	47.64	49.98	50.52	47.63	54.69
English Composition	41.90	41.47	41.38	40.26	39.60	39.39
Kiswahili Lugha	45.78	45.04	44.68	49.20	48.38	51.60
Kiswahili Insha	52.43	58.00	54.38	48.27	47.88	46.88
Mathematics	52.86	52.04	56.16	45.39	51.14	43.13
Science	61.82	66.00	55.48	61.82	55.61	58.96
Social Studies	54.75	55.26	49.98	57.38	57.22	53.89
Religious Education	70.43	68.97	70.20	70.99	69.79	73.08
Mean Subject Score	**54.13**	**54.30**	**52.78**	**52.98**	**52.16**	**52.70**

Source: Kenya National Examinations Council (2018); * Provisional

Figure 53 shows the KCSE results for the period of 2013 to 2018. Two observations emerge. First, the number of candidates achieving a C+ and above, the minimum entry into a university course, has been decreasing, more so, during the last two academic years. In 2018, only 14 percent of the candidates managed to score C+ and above. Trends in performance by gender are similar. For instance, only 16 percent and 12 percent of boys and girls, respectively, managed to score C+ and above in 2018. Second, majority of the candidates score grades that cannot allow them to proceed to higher education or even secure gainful employment. Looking at Figure 53 d, during the academic years (2017 and 2018), more than half of the candidates obtained grades D and below, which almost disqualifies them from pursuing any professional course.





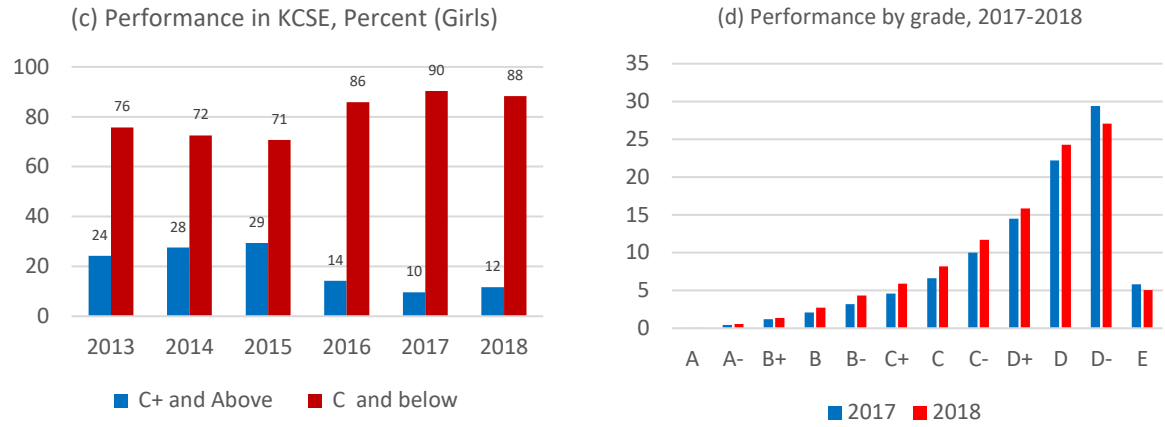


Figure 53: **Trends in KCSE Performance**
Source: Kenya National Examination Council

Besides KCPE and KCSE, KNEC has over the last four years conducted four major studies to monitor learner achievement in literacy and numeracy and assess the quality of education. These are Early Grade Mathematics Assessment (EGMA) at Class 2, National Assessment System for Monitoring Learner Achievement (NASMLA) at Class 3, Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) IV at Class 6 and Monitoring Learner Achievement (MLA) at Form 2. The EGMA Baseline study, unlike the others, assessed learner achievement only in numeracy and went a step further to establish the achievement levels of learners with special needs and disabilities. The NASMLA Class 3 and SACMEQ IV studies also assessed pupils' level of attainment of essential life skills and knowledge on HIV and AIDS, respectively.

EGMA and NASMLA, which assess early grade learners, are good monitoring metrics that can provide effective policy responses, compared to KCPE and KCSE, for several reasons. First, cognitive ability is most malleable at younger ages, hence the need to understand student learning at the lower levels (Cunha 2007). Second, in a typical developing country like Kenya, the sample of primary school children is likely to become more self-selective as one goes further up, due to drop-out rates. Unlike KCPE and KCSE, EGMA and NASMAL assessments provide information about children learning at lower grades and this minimizes such potential self-selection problems.

9.1.2 Early Grade Mathematics Assessment (EGMA) for Grade 2

EGMA assessed Class 2 learners, including learners with special needs and disabilities, in numeracy skills. It was a baseline study to establish competencies in early grade before interventions. It was conducted in 321 regular public and private primary schools and 25 Special Needs Education (SNE) schools, sampled across the country- from all the 47 counties. Out of 8,125 Class 2 learners who were targeted, 5,762 participated. Also, 325 head teachers, 325 senior teachers, 75 Curriculum Support Officers, 75 QASO officers and 20 PTTC lecturers were covered. The pupil Mathematics competency test was set using Class 1 and 2 Mathematics syllabi. Table 44 describes the levels of difficulty of each test item.

Table 44: Mathematics Tool by Level per EGMA Tests

Task	Class 1	Class 2
1.0 Addition	*Level 1:* Basic addition facts. *Level 2:* Addition of 3 single digit numbers without carrying. *Level 3:* Addition of numbers with sum not exceeding 99 horizontally and vertically.	*Level 4:* Addition of numbers up to sums not exceeding 999 with one carrying.
2.0 Subtraction Note: *2 items should be on word problems*	*Level 1:* Subtraction of 1-digit numbers from 2-digit numbers based on basic addition facts. *Level 2:* Subtraction of 1-digit numbers from 2-digit numbers without borrowing. *Level 3:* Subtraction of multiples of 10 not exceeding 90.	*Level 4:* Subtract up to 3-digit numbers *without borrowing.* *Level 5:* Work out problems involving addition and subtraction using *missing numbers.* *Level 6:* Work out *word questions* involving subtraction.
3.0 Number patterns	*Level 1:* Develop and use patterns in addition and subtraction.	*Level 2:* Recognize and identify number patterns involving addition and subtraction.
4.0 Multiplication		*Level 1:* Multiply numbers up to 5x5 through counting. *Level 2:* Multiply single digit numbers by 10 up to 9x10.
5.0 Division		Divide numbers not exceeding 25 by numbers not exceeding 5 without a remainder.

Source: KNEC, National Assessment Centre (2015).

A considerable percentage of pupils in Grade 2 did not reach the 50 percent benchmark in all the mathematical operations and number patterns assessed in the EGMA test. Several mathematical operations/tasks with varying levels of difficulty were tested. As shown in Figure 54, performance declines with difficulty in tasks. For instance, a relatively high proportion of students managed low level operations (addition and subtractions) relative to higher order operations like division, multiplication and number patterns. There are disparities in performance by county with majority of the low performing counties coming from ASAL areas. Figure 55 shows the percentage of learners scoring 50 percent and above in the EGMA Grade 2 tests in selected low and high performing counties. Low performing counties include Samburu, Bungoma, Wajir, Kitui, Turkana, Meru, Vihiga and West Pokot.

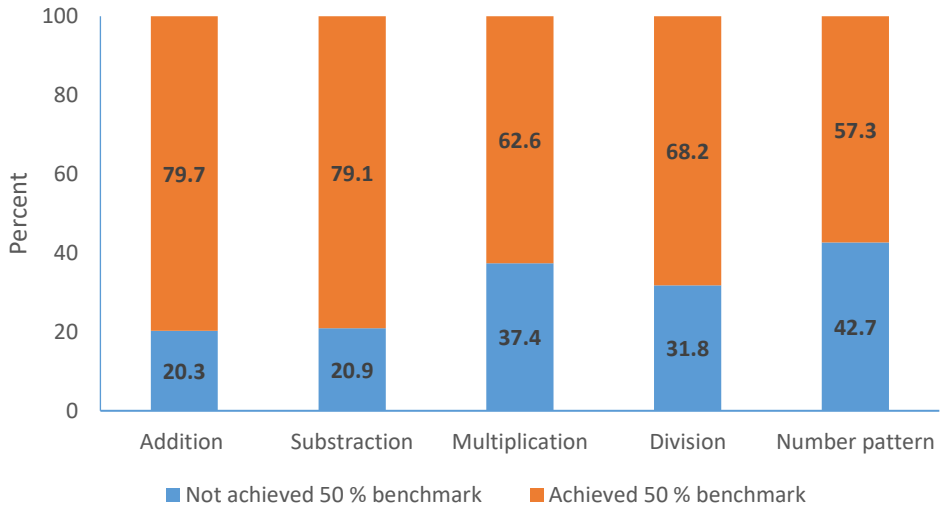


Figure 54**:** Percentage of Pupils' Performance per Mathematical Operations

Source: KNEC, National Assessment Centre (2015)

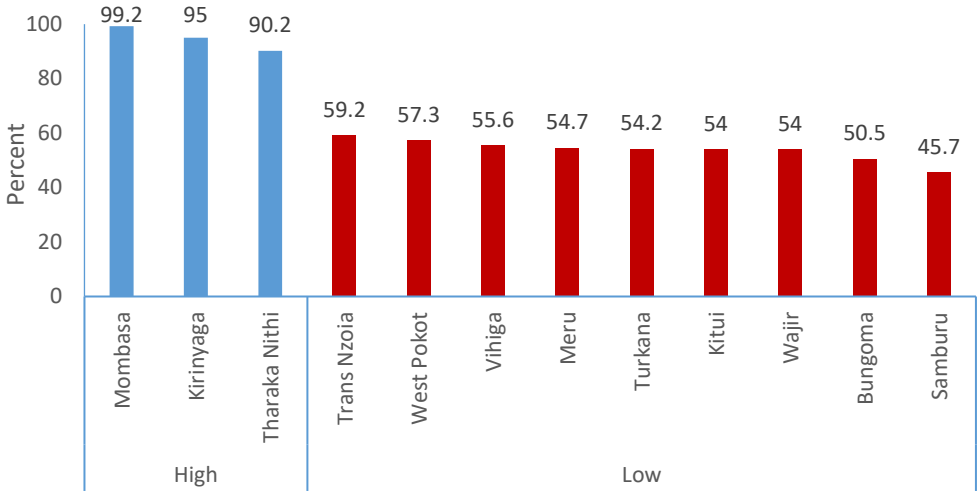


Figure 55: Performance in the EGMA Grade 2 Tests in Selected Counties
Source: KNEC, National Assessment Centre (2015).

9.1.3 NASMLA for Grade 3

NASMLA assessed Class 3 learners in numeracy (Mathematics) and literacy skills (English and Kiswahili). Apart from numeracy and literacy skills, it also assessed a learner's knowledge in life skills and HIV and AIDS. Besides, it gathered information on pupil, school and home characteristics. It was conducted in 247 regular public and private primary schools that were sampled across the country- from all the 47 counties. Out of 6,250 Class three learners who were targeted, 5,522 participated. A total of 466 teachers, who taught Class 3 in 2015, also participated. Table 45 describes the numeracy competency assessed in the NASMLA Grade 3.

Table 45: Description of Numeracy Competency

Level	Description of Competency
Level 1	Applies single step addition or subtraction operations (e.g. add numbers without carrying over, subtract without borrowing). Counts in whole numbers.
Level 2	Applies a two-step addition or subtraction operation involving carrying over and borrowing. Applies simple multiplication operations involving multiples of 10. Recognizes simple fractions. Divides whole numbers. Identifies lines and patterns.
Level 3	Translates information presented in a sentence into one arithmetic operation. Interprets place value of whole numbers up to thousands. Adds and subtracts simple fractions. Interprets simple common everyday units of measurement such as days, weeks, litres, metres and shillings.
Level 4	Translates information presented in sentences into simple arithmetic operations. Uses multiple arithmetic operations (in the correct order) on whole numbers.

Source: KNEC, National Assessment Centre (2015).

Results from the NASMLA for Grade 3 numeracy assessments show that majority of the pupils in the NASMLA assessments for Grade 3 are not achieving high order skills (Figure 56**).** Almost 18 percent of pupils in the NASMLA Class 3 sample cannot add up numbers without carrying over or subtract without borrowing (Level 1 Competency). These are generally termed as basic numerical operations, learnt in Grade 1. Almost three quarters (29 percent) cannot solve

a two-step addition or subtraction involving carrying over and borrowing; and cannot do simple multiplication involving multiples of 10 (Level 2 Competency). Close to 64 percent cannot add or subtract simple fractions and interpret simple common everyday units of measurement such as days, weeks and shillings (Level 3 Competency). Almost all learners, 95 percent, cannot translate information presented in sentences into simple arithmetic operation (Level 4 Competency).

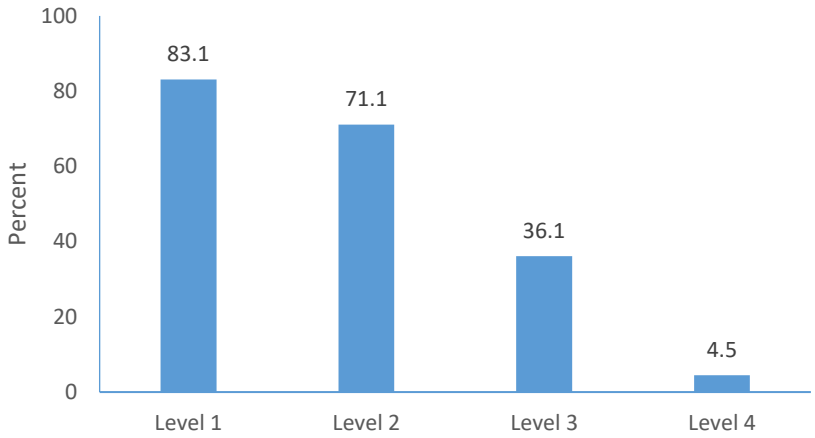


Figure 56: Pupils Attaining the Different Competency Levels in Numeracy
Source: KNEC, National Assessment Centre (2015).

Class 3 children also have poorly acquired literacy skills, especially higher order skills. Table 46 Table 45describes the literacy competency assessed in the NASMLA Grade 3. Figure 57 shows the percentage of pupils attaining different competency levels in literacy (English and Kiswahili). Over 85 percent of pupils in the NASMLA Class 3 sample cannot match words to pictures and arrange words in alphabetical order in both English and Kiswahili (Level 1 Competency). Nearly 40 percent cannot spell simple everyday words correctly, recognize missing letters in words and use familiar words to complete simple everyday sentences in both English and Kiswahili (Level 2 Competency). Close to 62 percent and 20 percent cannot undertake basic reading in English and Kiswahili respectively. That is, they cannot use correct punctuation in simple sentences and interpret the meaning by matching words and phrases (Level 3 Competency). Close to 71 percent and 54 percent cannot read for meaning in English and Kiswahili, respectively. That is, they cannot infer meaning from short passages (Level 4 Competency).

Table 46: Description of Literacy Competency

Level	Competency Description
Level 1	*Pre-reading:* Matches words and pictures involving concrete concepts and everyday objects. Arranges words in alphabetical order.
Level 2	*Emergent reading*: Spells correctly simple everyday words and recognizes missing letters in such words. Uses familiar words to complete simple everyday sentences.
Level 3	*Basic reading:* Uses correct punctuation in simple sentences. Interprets meaning by matching words and phrases. Identifies the main theme of a picture.

Level 4	*Reading for meaning:* Links and interprets information located in various parts of a short passage. Infers meaning from short passages. Understands and interprets meaning of a picture and writes short sentences to describe the theme.

Source: KNEC, National Assessment Centre (2015).

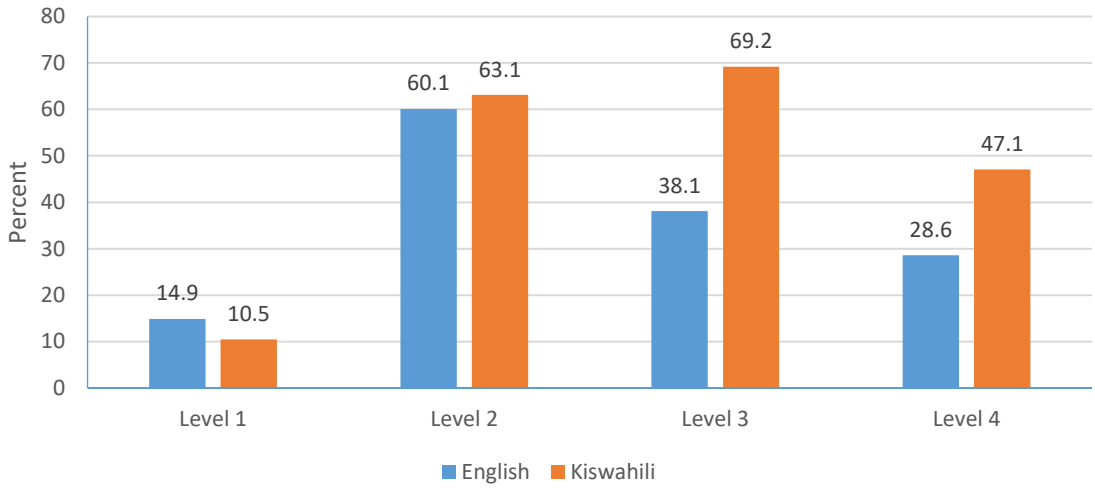


Figure 57**:** Pupils Attaining the Different Competency Levels
Source: KNEC, National Assessment Centre (2015).

NASMLA Grade 3 results further show that early grade reading skills are higher in Kiswahili than English. Besides being the national language, Kiswahili is the most widely spoken at home and in the children's daily life. Research shows that children are fairly worse of if the language of instruction at school differs from the language used at home. Students in countries where the language of the test and of instruction is a national language—for example, Kirundi in Burundi, Kiswahili in Tanzania, and regional languages in Ethiopia—outperform students in countries where the language of the test is an international language, such as French or English (Sajitha, Lockheed, Ninan and Tan, 2018).

While there is no gender difference in performance in numeracy competence levels, girls perform better than boys in literacy (English and Kiswahili) competence. Generally, performance reduces with a rise in the level of competence among both boys and girls (Figure 58). Urban schools perform better than rural schools while private schools perform better than public schools. Figure 59 shows level 4 competency in numeracy and literacy by school location and category.

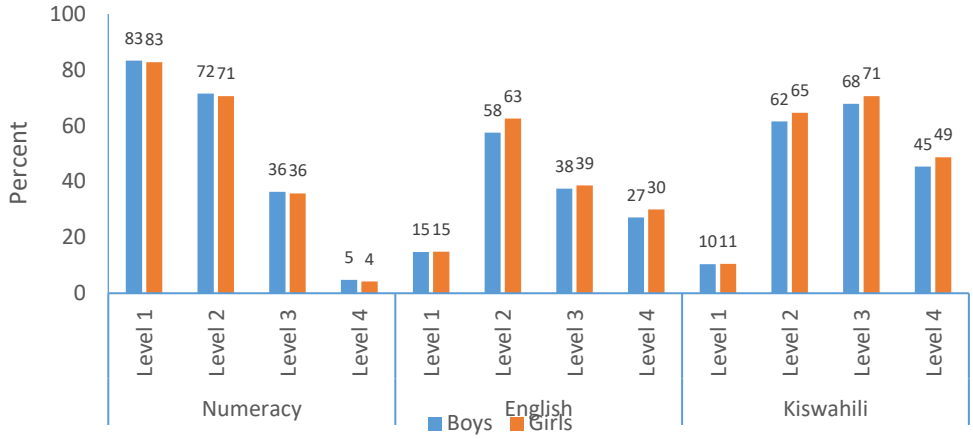


Figure 58**: Pupils' Competency Levels in Numeracy and Literacy by Gender**
Source: KNEC, National Assessment Centre

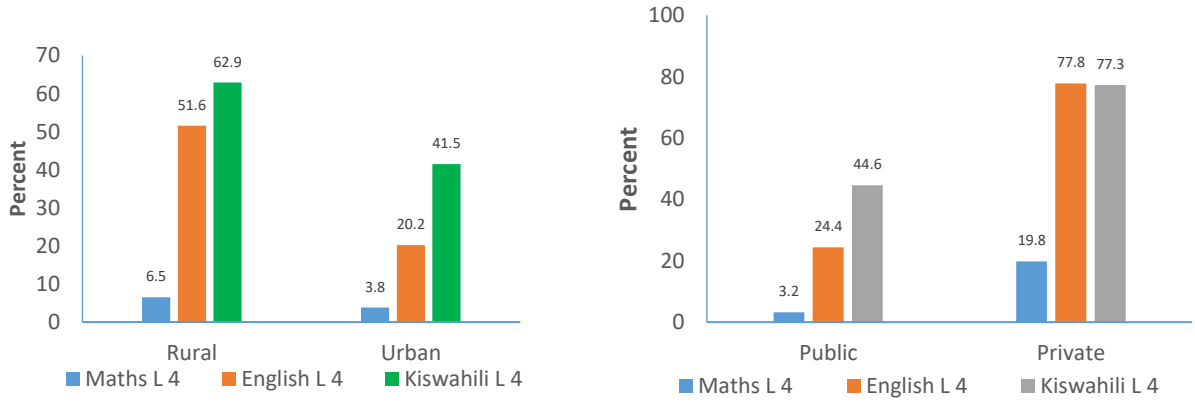


Figure 59**:** Level 4 Competence by School Location and Category
Source: KNEC, National Assessment Centre (2015)

Like in the case of the EGMA, for children from conflict and marginalized/ASAL counties, learning is compromised. With the mean scores based on a standardized mean of 500, the national mean score for Mathematics was 500.2 and those for English and Kiswahili were 499.5 and 500.2, respectively (Figure 60). There are notable disparities in the achievement levels attained by various counties, with some counties performing considerably below national mean scores. In Mathematics, the highest achievement levels were attained in Kirinyaga, Tharaka Nithi and Embu at mean scores of 608.69, 595.44 and 583.15, respectively, while the lowest achievement levels in Mathematics were reported in Mandera (400.14), Bungoma (430.63) and Marsabit (431.85). In English, the counties with the highest achievement levels were Nairobi (611.63), Taita Taveta (606.71) and Mombasa (595.60), while those with the lowest were Marsabit (411.22), West Pokot (430.57) and Turkana (432.36). Such wide gaps in early grade learning, across the counties, indicate that certain population groups are likely to be left behind, further presaging inequalities in economic and social outcomes in adult life that can also undermine overall social cohesion in Kenya.

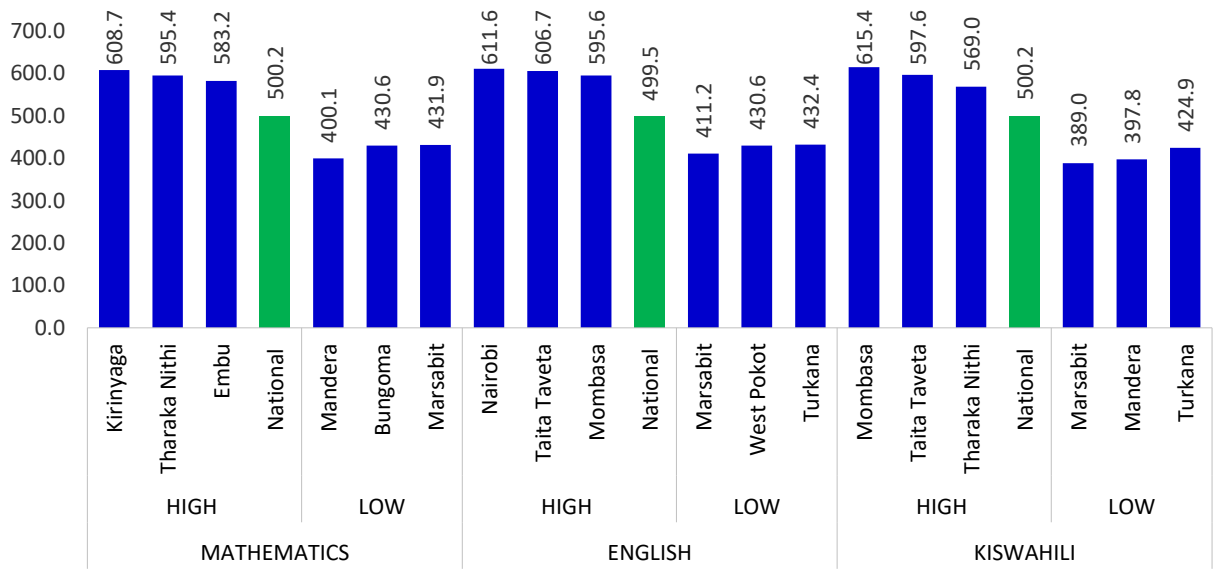


Figure 60: **Achievement Levels of Pupils in Numeracy and Literacy by County**
Source: KNEC, National Assessment Centre (2015).

9.1.4 Monitoring Learner Achievement in Form 2

Monitoring Learner Achievement (MLA) at Form 2 was conducted for the first time in 2015 to assess learning outcomes at the secondary school levels in Kenya. A total of 240 schools from the 47 counties were sampled. Out of this, only one was non-responsive. As a result, 239 schools, 239 principals and 475 teachers who taught English and Mathematics in Form 2 in 2014 participated. A total of 5,872 Form 2 students participated in the study. A minimum competency benchmark was set for achievement in the various content/skills areas for both English and Mathematics.

Majority of the Grade 10 (Form 2) students have not mastered specific literacy concepts, some of which are taught at primary level (Figure 61**).** Even after 10 years of schooling, 23.7 percent of students are still weak in listening and speaking skills, that is, they are not able to identify homophones/correct word pronunciation as well as identify silent sounds in words. Further, 44.1 percent are weak in reading comprehension- these students cannot identify specific factual information from a passage and make conclusions based on facts given in a passage. Also, close to half of the students are poor in writing, that is, they cannot write a formal letter in the correct format, language and content and make notes based on information given in a passage. In addition, over 30 percent cannot identify and illustrate aspects of literary style (rhyming words, personification, alliteration and simile) in a poem and outline the subject matter of a poem (literacy skills).

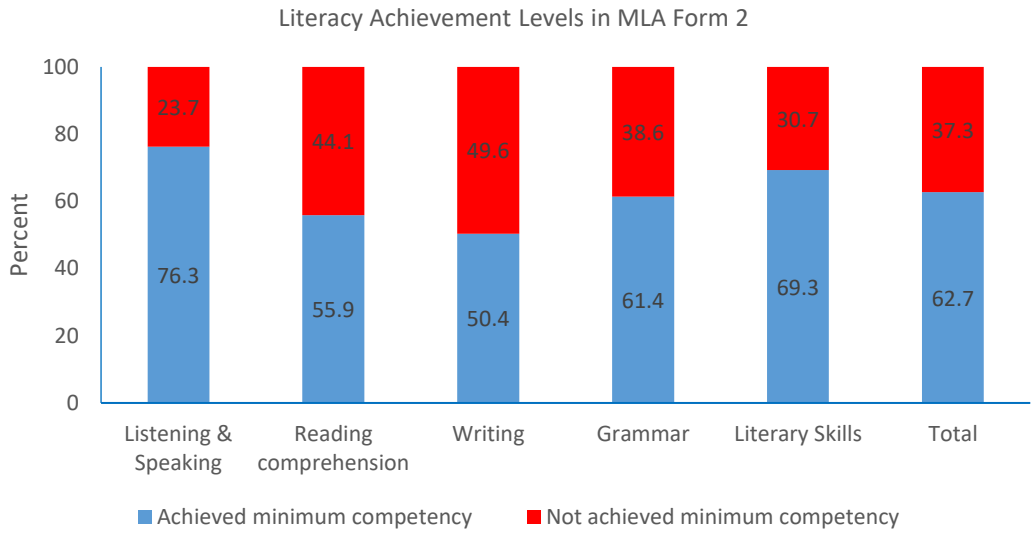


Figure 61**:** Students Attaining Minimum Competencies in Various Domains in English
Source: KNEC, National Assessment Centre (2015).

There are also significant numeracy gaps among Grade 10 (Form 2) students in core numeracy concepts (Figure 62**).** Over 70 percent of the students in form 2 cannot correctly read logarithms of numbers and make use of the logarithm laws of multiplication, division and finding roots. Close to 89 percent of the students are weak in algebra- they cannot correctly determine the coordinates of x and y intercepts, cannot use basic operations to simplify a given algebraic expression and cannot solve a linear inequality with one unknown. Similarly, only 20 percent can perform tasks such as determining angles on a straight line, using angle properties in a cyclic quadrilateral to find the size of an angle (geometry) as well as making correct use of a given scale factor to get the coordinates of the image of a given object and calculating and using linear scale factor and volume scale factor (transformation geometry). Over 30 percent are also weak in statistics and vectors. These learners have difficulties performing tasks such as identifying the mode of a data set and working out the mean of ungrouped data from a frequency distribution table (statistics) and adding vectors, as well as multiplying a vector by a scalar to find an unknown scalar (vectors).

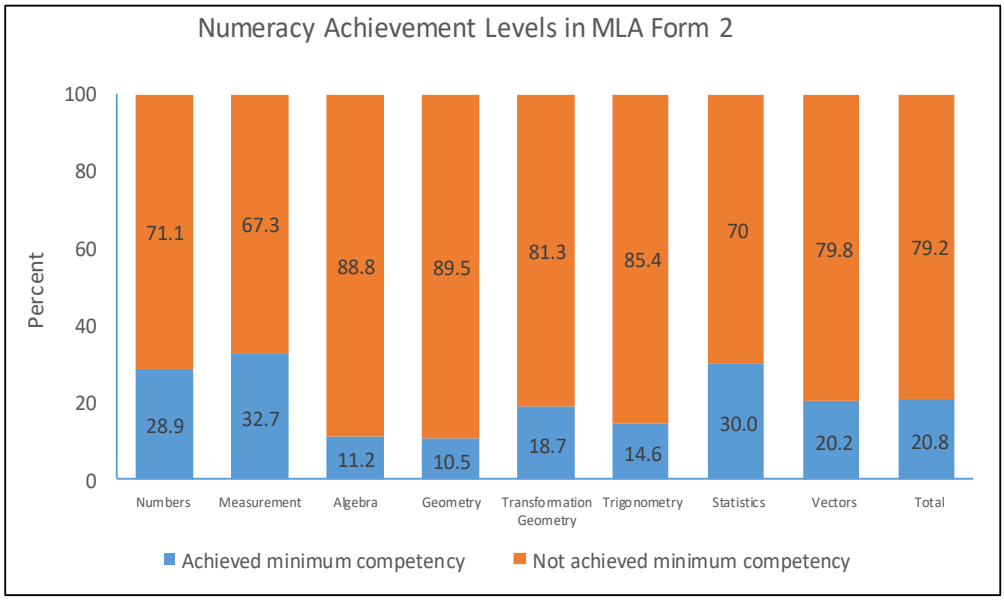


Figure 62**:** Students Attaining Minimum Competencies in Various Domains in English
Source: KNEC, National Assessment Centre (2015).

As expected, urban schools outperform their rural counterparts. However, public schools outperform their private counterparts, a break-away from what we observe at primary level (Table 47**).** In English, students from rural schools recorded a performance 53 points lower than the performance by students in urban schools. In mathematics, the difference was smaller than in the case of English but still relatively large, with students in rural schools managing 518.7 compared to 562.9 by students in urban schools. Students in public secondary schools recorded better results compared to their peers in private schools, a departure from the phenomenon in primary schools where private schools out-perform public schools. In terms of school category, mixed schools posted the lowest scores, 110 points lower than girls' schools in English and 100 points lower than boys' school in the case of Mathematics.

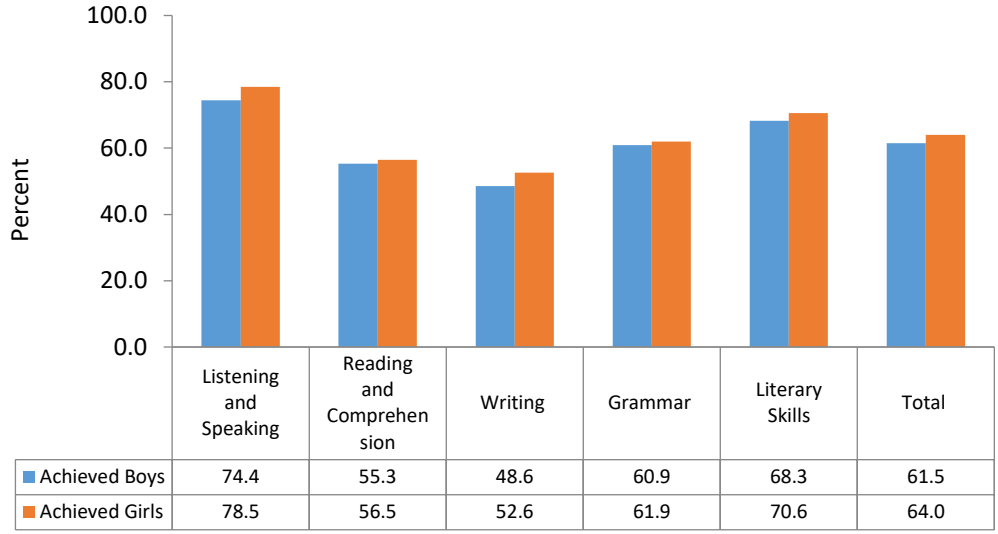
Table 47: Differentials in Performance in English and Mathematics

	Category	English		Mathematics	
		Mean	**SE**	**Mean**	**SE**
School Location	Urban	580.7	11.6	562.9	12.6
	Rural	517.8	6.85	518.7	6.01
School Type	Public	557.8	8.47	551.0	8.95
	Private	534.2	20.61	510.9	21.84
School Category	Boys	584	8.69	582.8	10.68
	Girls	591.7	11.72	556.3	10.44
	Mixed	481.0	5.54	489.5	5.41

Source: Monitoring Learners Achievements (2015)

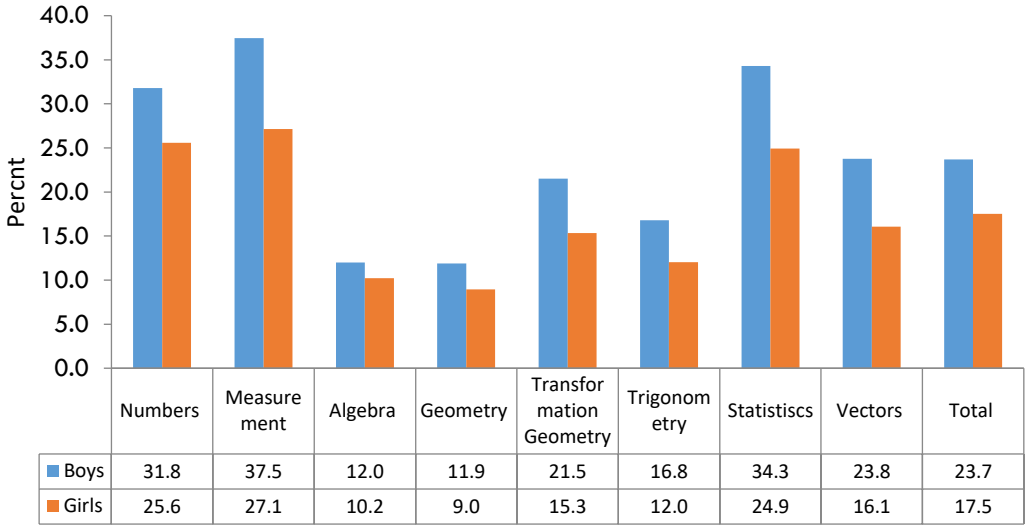
Percentages in language between boys and girls is comparable although girls performed slightly better than the boys in all the language content areas (Figure 63). Percentage of both boys and girls in Mathematics was generally low (Figure 66), below 50 percent. Unlike in

languages, the percentage of boys attaining the minimum competencies was higher than that of the girls in all the content areas. The highest disparities, by gender, in percentage of students attaining minimum competencies were in Measurement and Statistics (Figure 64).



	Listening and Speaking	Reading and Comprehension	Writing	Grammar	Literary Skills	Total
Achieved Boys	74.4	55.3	48.6	60.9	68.3	61.5
Achieved Girls	78.5	56.5	52.6	61.9	70.6	64.0

Figure 63: Students Attaining Minimum Competencies in English by Gender



	Numbers	Measurement	Algebra	Geometry	Transformation Geometry	Trigonometry	Statistiscs	Vectors	Total
Boys	31.8	37.5	12.0	11.9	21.5	16.8	34.3	23.8	23.7
Girls	25.6	27.1	10.2	9.0	15.3	12.0	24.9	16.1	17.5

Figure 64: Students Attaining Minimum Competencies in Mathematics by Gender

Learners from marginalized/ASAL and conflict-prone counties do worse than their counterparts from other counties. Counties in ASAL regions achieved relatively low scores in both English and Mathematics, averaging 345.1 and 353.7, respectively. In fact, in some counties like Wajir, nearly all the students were not able to attain the minimum competencies in Mathematics. In other counties, students did not show mastery of knowledge in specific competencies. For instance, Garissa and Tana River did not have any student attaining minimum competencies in numbers while Garissa, Isiolo, Lamu, Nyamira, Nyandarua, Samburu and Tana River did not have any student attaining minimum competencies in algebra. In Garissa and Kwale, only 2.7 percent and 7.6 percent of students, respectively, had attained minimum

competencies in Reading Comprehension. In Writing, Garissa, Wajir, Marsabit, Lamu and Kwale had only 2.1 percent, 2.8 percent, 7.6 percent, 7.9 percent, and 8.9 percent of the students attaining minimum competencies.

There are a number of factors which affect the performance in the EGMA, NASMLA, SACMEQ and MLA: Generally, pupils who do better are those who are young; are rarely absent from school; and attend schools that have a high frequency of provision of school meals, low pupil/student textbook ratio, as well as high parental involvement in what goes on inside the schools. At Class 2, girls performed better than boys in Mathematics**.** Class 3 and Form 2, girls performed better than boys in Literacy while boys performed better than girls in Numeracy.

However, Kenyan fourth-graders are more knowledgeable than their peers in other Sub-Saharan African countries. Recent results from standardized tests conducted in seven Sub-Saharan African countries indicated that the proportion of fourth-grade students in Kenya, in government primary schools, that could solve literacy and numeracy tasks, was in most cases higher than in other countries in the region (Figure 65).

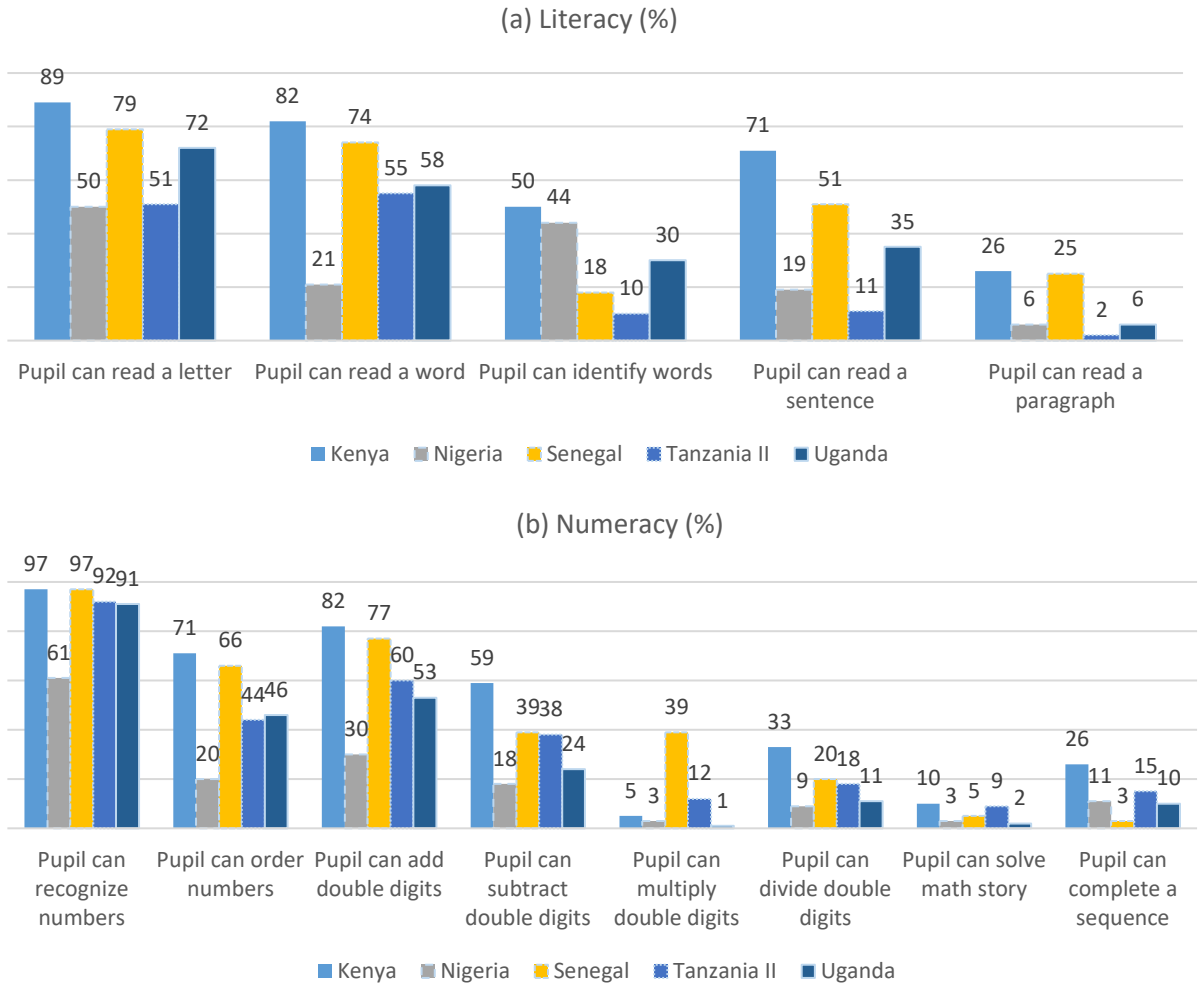


Figure 65: Students Knowledge of Fourth-grade Students Across SSA countries
Source: Based on Bold et al. (2017) and their analysis of SDI data.

9.2 Non-State Actor Led Assessments

Non-state actors also provide the status of children learning in Kenya. One of them is the citizen led Uwezo annual assessments, large-scale household surveys that have been assessing literacy and numeracy competencies of school age children (6-16 years) since 2009.[23] The other one is the Kenya Demographic and Health Survey (KDHS), a national household survey that collects information on education, health and other social outcomes.

Why are these alternative sources of learning data provided by non-state actors crucial for improving education quality? Like EGMA (Grade 2) and NASMAL (Grade 3), these assessments also provide information about children learning at lower grades and therefore do not suffer from self-selection challenges. Uwezo and KDHS are administered in people's homes, and as a result, they do not suffer from key weakness of school-based assessments. For instance, when marginal students drop out, their absence can improve the average scores on school assessments, thereby creating a perverse incentive for school leaders (World Bank, 2017).[24] Household-based assessments can also provide an alternative source of learning data to school-based assessments. Lastly, Uwezo provides an effective way of assessing whether children at each grade have mastered competencies in their earlier grades, necessary for further learning. In this section, we provide a synopsis of learning achievement based on Uwezo and KDHS is provided.

9.2.1 Uwezo Citizen Led Assessment

Results from Uwezo further reinforce the message that children in Kenya are not effectively mastering skills and competencies outlined in the curriculum, from the earlier grades. In Figure 66, we show the proportion of children at Grades 2, 3 and 4 in the Uwezo survey that met specific Grade 2 level numeracy competencies in the Uwezo survey of 2015 are shown. This gives a clear picture of the extent to which the children have mastered skills and competencies outlined in the curriculum, from earlier grades. The results show that children are acquiring basic skills more slowly and later than expected. Further, the level of skill acquisition reduces with the rise in the difficulty of the competencies. We can see that nearly 40 percent of Grade 3 learners cannot do a Grade 2 level subtraction problem; 58 percent cannot do a Grade 2 level multiplication; and 75 percent cannot do a Grade 2 level division. Surprisingly, close to 20 percent of Grade 4 learners cannot do a Grade 2 level subtraction problem while half of them cannot do a Grade 2 division level. In overall, only 69 percent and 83 percent of Grade 3 learners and Grade 4 learners, respectively, are able to pass the Uwezo Grade 2 level numeracy tests.

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23 Uwezo targets children aged 6-16 years who are regular residents of the household. The literacy (language) tests are designed to assess five principal competencies, namely: (1) letter recognition, (2) word recognition, (3) ability to read a paragraph, (4) ability to read a (short) story and (5) ability to comprehend information in the story. The numeracy tests, structured and administered in a similar way to the literacy tests, assessed the following competencies: (1) counting, (2) number recognition (two digits), (3) rank ordering of two numbers, (4) addition, (5) subtraction, (6) multiplication and (7) division. Details about the survey sampling and test administration can be found in Jones at el (2004).

24 In a typical developing country like Kenya, the sample of primary school children is likely to become more self-selective as one goes higher up due to drop-out rates. Focusing on grade 2 to 4 allows us to minimize such potential self-selection problems.

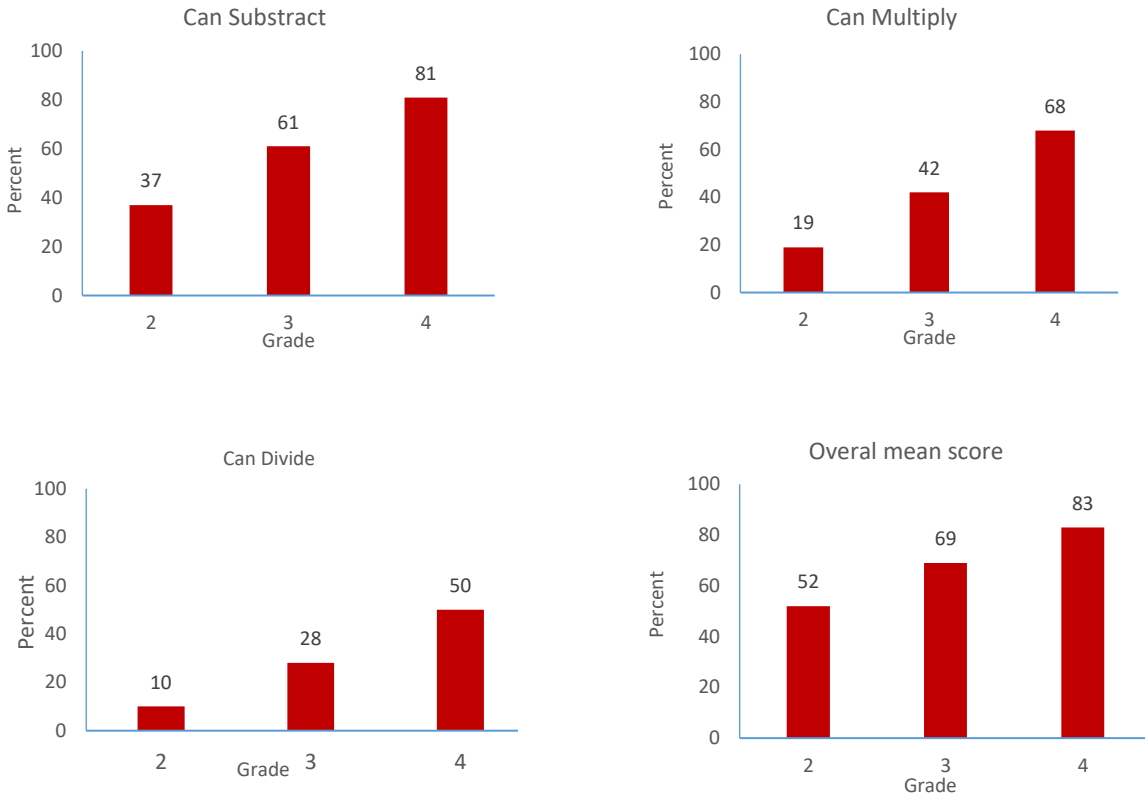

Figure 66**:** Numeracy Skill Competencies by Grade Attainments

Source: Own Calculations based on Uwezo (2015)

Similarly, Figure 67 shows that children have not mastered literacy skills and competencies outlined in the curriculum, from earlier grades. Nearly 53 percent and 26 percent of Grade 3 and Grade 4 learners, respectively, cannot read Grade 2 paragraph. Further, 76 percent and 51 percent of Grade 3 and Grade 4 learners, respectively, cannot read Grade 2 story. In addition, more than three quarters of Grade 3 and more than half of Grade 4 learners cannot infer information from a Grade 2 story. In overall, 57 percent and 45 percent of Grade 3 learners and Grade 4 learners are not able to pass the Uwezo Grade 2 level literacy tests.

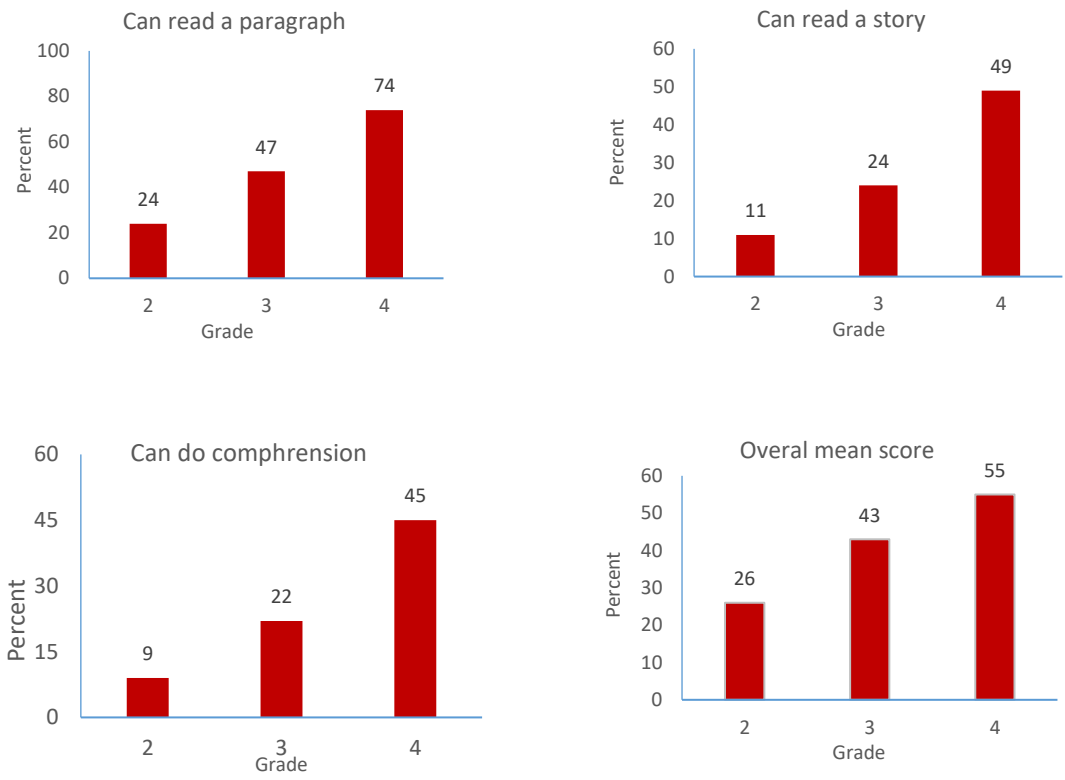

Figure 67**:** Literacy Skill Competencies by Grade Attainments
Source: Own Calculations based on Uwezo (2015)

In Figure 68 and Figure 69, we show performance of children in the Uwezo survey of 2015 based on socio-economic status. Disparities in student learning indicate that certain population groups, in particular, those from low economic status are being left behind. Similarly, parental education is also highly correlated with learning outcomes in children. Only one in three children of those whose mother have no formal education, are proficient with the Standard Two Mathematics curriculum by age ten. In contrast, three out of five ten-year-olds, whose mothers have some secondary education, are proficient at that age, while it is four out of five for those whose mothers have attained post-secondary education. Results for English and Kiswahili are similar both qualitatively and quantitatively.

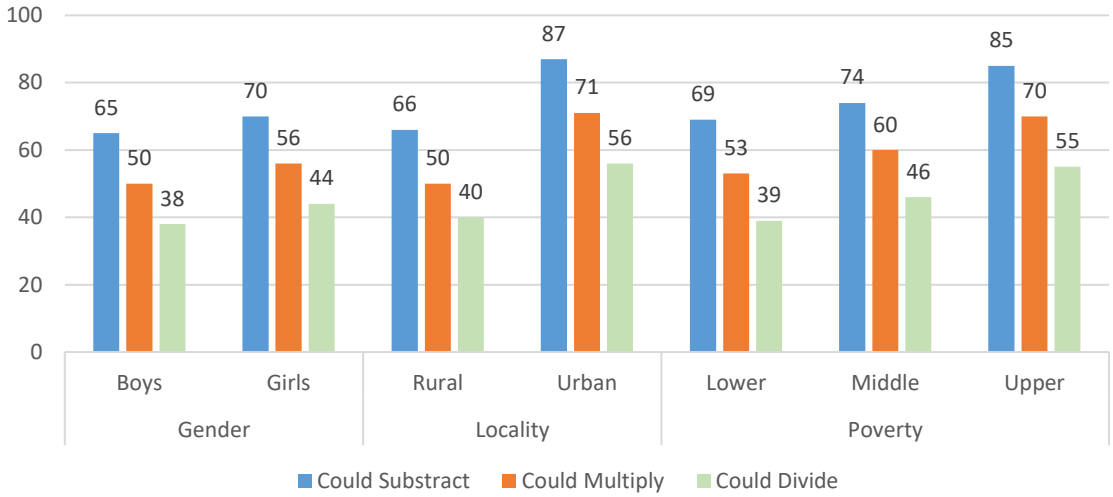

Figure 68: Performance in Numeracy Skills by Gender, Locality and Economic Welfare
Source: Own calculations based on Uwezo (2014).
Notes: (1) We divide households into three socio-economic status based on a household's wealth index; (2) We use the ordinary Principal Component Analysis (PCA) to construct the household wealth index. The index is based on household ownership of the following assets: durable assets (TV, radio, car, computer, mobile phone, bicycle, motorbike and cart) and livestock assets (cattle, donkey, camel, sheep/goat); and mother's and father's highest level of education

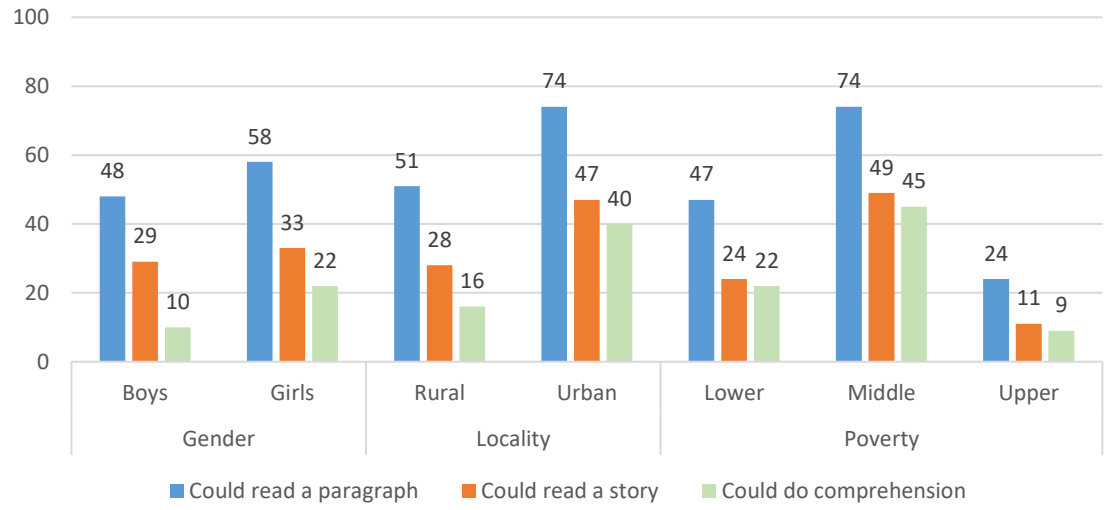

Figure 69**:** Performance in Literacy Skills by Gender, Locality and Economic Welfare
Source: Own calculations based on Uwezo (2014).
Notes: (1) We divide households into three socio-economic status based on a household's wealth index; (2) We use the ordinary Principal Component Analysis (PCA) to construct the household wealth index. The index is based on household ownership of the following assets: durable assets (TV, radio, car, computer, mobile phone, bicycle, motorbike and cart) and livestock assets (cattle, donkey, camel, sheep/goat).

Key Policy Priorities for the Next NESSP 2018-2022

- ***Raise literacy and numeracy levels in early grades (grade 1 to 3):*** The following are key policy responses to raise literacy and numeracy in early grades (Grade 1 to 3):
  - Limit class sizes in lower primary (Grade 1 to 3) to 50 or below for effective teacher-pupil interaction;
  - Reduce the proportion of over-age learners by ensuring that children enroll in Grade 1 at the recommended age (age 6) and by limiting hidden and official repeating in Grade 1 to 3. Among others, this could be achieved through actions such as community sensitization to enroll children in school on time as well as regular school level communication regarding age-grade norms;
  - Conduct reading instruction in the children's local language (mother tongue), for Grade 1 to 3, alongside teaching them official national language of instruction (English), which will become the language of instruction from Grade 4;
  - Offer continuous support to early grade teachers at the classroom level, majority of whom may not have received adequate or specific training for teaching early grade reading or numeracy. This support could be offered through school level mentorship and coaching from experienced teachers or through structured in-service trainings; and
  - Provide instructional materials- textbooks, teacher guides and other materials (including in local language) that teachers can use to promote regular reading and arithmetic practice.

- ***Make assessments a continuous and a multilevel process- happening at classroom, national and regional/international level- whose focus is on how children are learning.*** The following are key policy priorities:
  - Continuously provide support to teachers at the classroom level, to tailor teaching to the needs of the learners and effectively assess learning, especially higher order skills, offered at school through mentorship and coaching from experienced teachers or through structured in-service trainings;
  - Reform the national assessments, shifting them from high stake examinations and aligning them to the new curriculum, ensuring that the assessment is focused on learning and the learner;
  - Also, alongside SACMEQ, Kenya needs to register and participate in the TIMSS international assessment for international benchmarking, for a robust understanding of how Kenya compares with more relevant peers in terms of the human capital formation of its children; and
  - Act on the results coming from non-state actor assessments.

10. Special Needs Education (SNE)

10.1 Classification of Special Needs and Disability in Kenya

The concept of Special Needs and Disability has been defined variably over the years by several individuals and organizations. In its framework, the International Classification of Functioning, Disability and Health (ICF) and the World Health Organization (WHO) defines disability as an umbrella term for *impairments*- problems in body function or structure; activity *limitations* - difficulty encountered by an individual in executing a task or action; and *participation restrictions*- problem experienced by an individual's involvement in life situations[25]. In Kenya, according to the Persons with Disability Act of 2003, disability is *a physical, sensory, mental or other impairment including any visual, hearing, learning, or physical incapability, which impacts adversely on social, economic or environmental participation*. In this regard, *sensory* relates to hearing and vision impairments; *physical* relates to functions performed by hands and legs; while *mental/intellectual or cognitive* impairments relates to mental processes of knowing, awareness, attention, memory, perception, reasoning, and learning. In addition to occurring naturally, these impairments may be caused by injury, and/ or disease. Kenya's National Special Needs Education Policy Framework (2009) outlines twenty-two categories of disabilities and special needs.

Box 14: **Categories of Disabilities and Special Needs in Kenya.**

- Hearing impairments
- Visual impairments
- Physical impairments
- Cerebral palsy
- Epilepsy
- Intellectual disability
- Down syndrome
- Deaf-blind
- Orphaned
- Abused
- Nomadic/ pastoral communities
- Autism
- Emotional and behavioural disorders
- Learning disability
- Speech and language disorders
- Multiple handicaps
- Albinism
- Other health impairments
- Gifted and talented
- Living on the streets
- Heading households
- Internally displaced

Most school going learners (aged 21 years and below) with special needs and disabilities in Kenya suffer from multiple disabilities (other than deaf-blind). This is based on data from the Kenya National Special Needs Survey Report, a joint report by Ministry of Education, Science and Technology and VSO Jitolee. This report is based on a national household survey that covered 21 counties, with 44,726 respondents out of which 25,609 were school going, aged 21 years and below. Of the 25,609, 13.5 percent (3,454 respondents) were classified as having special needs and disability. As Table 48 shows, most of them suffer from multiple disabilities (other than deaf- blind). Other common disabilities among school going children (aged 21 years and below) with special needs and disabilities, is hearing impairment, visual impairment, physical impairment, learning disabilities and language disabilities. The least common were deaf-blind, dwarfism and albinism, all at less than 1 percent. The results overwhelmingly showed that

25 More details can be found at: http://www.who.int/classifications/icf/en/

children in rural areas had much higher disability rates (60 percent) than children in urban areas (40 percent).

Table 48: Disability among Children of 21 Years and Below

	Total		Rural		Urban	
	Number	Percent	Number	Percent	Number	Percent
Hearing Impairment	359	10.4	226	10.9	133	9.6
Visual Impairment	674	19.5	309	14.9	365	26.4
Physical Impairment	315	9.1	186	9.0	129	9.3
Cerebral Palsy	47	1.4	23	1.1	24	1.7
Epilepsy	132	3.8	80	3.9	52	3.8
Down Syndrome	58	1.7	38	1.8	20	1.4
Autism Spectrum Disorder	57	1.7	27	1.3	30	2.2
Intellectual & Cognitive Impairment	125	3.6	89	4.3	36	2.6
Emotional and Behavioural Disorders	128	3.7	85	4.1	43	3.1
Learning Disabilities	236	6.8	151	7.3	85	6.1
Speech Language Disorders	184	5.3	122	5.9	62	4.5
Multiple Disabilities other than deaf blind	18	30.9	8	0.4	10	0.7
Deaf blind	29	0.7	12	0.6	17	1.2
Dwarfism	23	0.5	6	0.3	17	1.2
Albinism	1069	0.8	707	34.2	362	26.1
Total	3454	100.0	2069	100.0	1385	100.0

Source: MOEST and VSO Jitolee (2016).

Special needs education programs in Kenya include interventions in all sub-sectors of education. Existing programs are mainstreamed at basic and post-basic education levels and include interventions in infrastructure and assessments, among others. The programs are categorized into: hearing impairment, intellectual disability, physical disability, visual impairment and multiple disabilities. Activities implemented within the programs include promotion of partnerships and linkages for inclusive education, SNE grants and capitation, co-curricular activities and talent art, building the capacity of personnel, as well as learner assessment and placement. Education for learners with disabilities and special needs education has been provided in various schools. These include: special schools, integrated schools, and in special units attached to regular schools and Special Needs Technical Training Institutions. More recently, provision has been extended to include such children in regular schools to enhance inclusive education.

10.2 Government Policies Related to Special Needs Education

Since independence, the Government of Kenya has been committed to the provision of universal education, including access to education by children with special needs and disabilities. The Ominde Commission (1964), Kenya's first independence education commission, recommended that children with mild handicaps should be integrated to learn with their peers in regular schools. The government ratified the universal declaration of human rights, including the Convention on the Rights of the Child (1989), and the United Nations Convention on the Rights of Persons with Disabilities (2006). According to the Constitution of Kenya (2010), access to free and compulsory basic quality education is a basic right for all children, including those with

special needs and disability. Kenya also ascribes to the Sustainable Development Goals (SDGs), which call for inclusive and equitable quality education and promotion of life-long learning opportunities by eliminating gender disparities and ensuring equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities (SDG, goal 4). Over time, several commissions have been formed and policies developed to address issues of Special Needs Education.

Box 15: Policies and Commissions to address issues of Special Needs Education

- *Committee on Care and Rehabilitation of the Disabled:* chaired by Ngala Mwendwa (1964), which resulted in the formulation of Sessional Paper No. 5 of 1968;
- *National Education Commission on Education Objectives and Policies* (Gachathi Report, 1976), which recommended, among other measures, that (a) there should be coordination of early intervention and assessment of children with special needs; (b) the public should be made aware of the causes of disabilities to promote prevention; (c) there should be increased research to determine the nature and extent of handicaps; and, (d) in order to provide SNE, ECDE programs to be established as part of special schools and a policy for integrating learners with special needs to be developed;
- *Presidential Working Committee on Education and Training for the next Decade and Beyond* (Kamunge Report, 1988) that emphasized the deployment of SNE inspectors at the district level;
- *Totally Integrated Quality Education and Training Taskforce* (Koech Report, 1999) that recognized the lack of a comprehensive SNE policy or legal framework on SNE and recommended the establishment of a national special education advisory board;
- *The Children's Act of 2001,* the Act of Parliament that makes provision for parental responsibility, fostering, adoption, custody, maintenance, guardianship, care and protection of children. It also makes provision for the administration of children's institutions, gives effect to the principles of the Convention on the Rights of the Child and the African Charter on the Rights and Welfare of the Child.
- *Disability Act* (2003), an Act of Parliament that provides for the rights and rehabilitation of persons with disabilities.
- *Task Force on Special Needs Education* (Kochung Report, 2003), which recommended that there should be training and in-service programs for teachers of children with special needs; Educational Assessment and Resource Centers (EARCs) strengthened through increased equipping and budgetary allocation; a special needs national survey carried to determine the population of special needs children in and out of school and have an inventory of assistive devices and equipment available in schools; and that special needs schools made barriers-free to enhance access;
- *SNE Policy framework* (2009) was developed to provide delivery arrangement of SNE services;
- *Constitution of Kenya* (2010), which put emphasis on access to free and compulsory basic quality education as a basic right for all children, including children with special needs and disability.
- *Kenya Vision 2030* recognizes that education and training of all Kenyans is fundamental to the success of the Vision.
- *Education Act (2013)* aims at ensuring that every special school or educational institution with learners with special needs is provided with appropriate trained teachers, non-teaching staff, infrastructure, learning materials, as well as equipment suitable for such learners (Republic of Kenya, 2013).
-
- *Education and Training Sector Policy for Learners and Trainees with Disabilities (2018)* aimed at strengthening mechanisms to ensure provision of quality education to children with special needs and disabilities;

In addition, various institutions have been established to address issues of Special Needs Education (**Error! Reference source not found.**).

Box 16: Institutions Involved in the Education of Children with Disabilities and Special Needs in Kenya.

(a) *Directorate* for *Special Needs, MOE:* Over time, SNE has grown from a mere section within MOE to a full-fledged directorate, with the mandate of providing policy advisory services on matters relating to education and training of learners with disabilities.

(b) *Quality Assurance Department, MOE:* The Quality Assurance Department of the MOE is responsible for maintaining standards according to the education policies in place. Currently, the Quality Assurance department is responsible for the correct implementation of the national curriculum and issues of student access to the curriculum as well as student retention. Because they oversee all students, this department is also responsible for children with disability accessing the curriculum, and their retention in school.

(c) *Education Assessment and Resource Centres (EARCs):* These Centres were set up in 1984 through the support of DANIDA to undertake identification, assessment and placement of children with special needs and disabilities.

(d) *Kenya Institute of Special Education (KISE):* KISE is the only institution in Kenya providing courses for teachers in Special Needs Education. KISE is still very much focused on the 'special school / special class' system, training teachers to work with students with disabilities in such institutions. At their own cost, teachers can complete a KISE course to become a special needs teacher (they will get paid a higher salary in this role) but it is very rare for a teacher to complete a KISE course and then want to remain in a mainstream class.

(e) *Teachers Service Commission:* The TSC is responsible for teachers in the public education system - in mainstream, integrated and special schools.

(f) *Kenya Institute for the Blind (KIB*): KIB was established in 2004 to support the government's effort of providing free primary and secondary education to learners with visual impairment and disseminates information to PWDs in accessible format.

(g) *Kenya Institute of Curriculum Development* for curriculum purposes.

In recent years, there has been a lot of advocacy by civil society organizations (CSOs) on recognition of rights of persons with disability in the society, and their inclusion. The NGOs/INGOs involved in inclusive education projects in Kenya include: Leonard Cheshire Disability, Sight Savers International, Girl Child Network, Peace Corps, Save the Children, Voluntary Services Overseas and Sense International. The interventions of these organizations in education for children with disability in Kenya are summarized in **Error! Reference source not found.** below:

Box 17: **Selected CSOs Involved in the Education of Children with Disabilities and Special Needs in Kenya.**

Organization	Intervention
Leonard Cheshire Disability	LCD is working in the area of IE. Project activities included: teacher training on I.E, physical accessibility, assessment and rehabilitation, child to child groups, and establishing parents support groups.
Sight Savers International	Works with the Ministry of Education and the Kenya Society for the Blind to break down the many barriers that stop children with visual impairment from attending school and gives them the opportunities they need.
Voluntary Services Overseas	Implementing Strengthening Citizens' Participation in Governance of Education project. Key activities include: training community institutions, PTAs and SMCs in accountability, governance and advocacy; training DPOs and local level partners; and lobbying the MOE to increase SNE resources, etc.
Sense International	SI works predominantly with deaf-blind persons around community-based rehabilitation, parent support groups, and vocational education activities. SI is planning to implement 'Community-Based Education' for deaf-blind children where education is taken into the home environment.
Girl Child Network	GCN main goal is to promote access to education for all children, especially children with disability. Some GCN projects include: Education project, School sanitation project, Stop violence in girls, Meru project, School Health and nutrition and Somali project. Their main donor is Save the Children, Finland.

10.3 Enrolment of Learners with Special Needs and Disabilities

10.3.1 Enrolment in Primary and Secondary Schools

There is no accurate data on the number of people living with disabilities and special needs in Kenya. According to the 2009 Kenya Census, 3.3 percent of Kenya's total population were people living with disabilities. This comprises approximately 1.3 million people (KNBS, 2009). However, the Kenya National Survey of Persons with Disabilities (2008) estimates that there were approximately 1.7 million people living with disabilities, constituting 4.6 percent of the total population as per the national census of 2009. Other estimates give the proportion of people with disabilities in Kenya as 10 percent of the total population (WHO, 2006; MOE, 2009). Based on the 2009 census, this percentage would translate to approximately 4 million people living with disability. As noted in the Kenya National Special Needs Education Survey Report (2016), most likely, the different definitions of disability - depending on what families define as disability - and the reliance on self-reported information in censuses might explain the large discrepancies in the figures. It is also plausible to expect self-reported information, gleaned from census data, to underestimate the number of persons with disability because of the stigma usually associated with this group of people. A consistent method of measuring and consequently arriving at reasonably accurate statistics of persons with disability is needed in developing countries like Kenya.

In the same vein, there is no accurate data in Kenya on children with disabilities and special needs in or out of school. The Kenya National Special Needs Education Survey Report (2016) indicated that in 1999, there were only 22,000 learners with special needs and disabilities enrolled in special schools, units and integrated programs. In 2003, when FPE was introduced, the number rose by 22 percent to 26,885 and subsequently increased by 67percent to reach 45,000 in 2008. Another report by UNESCO (2010) indicates that in 2003, there were 86,424 children with disabilities in school: 13,303 enrolled in special schools and 73,121 in special units and integrated programs while in 2008, the numbers were 37,202 in special schools and 171,079 in special units, giving a total of 208, 281. Table 49 shows the total number of learners with special needs in primary and secondary levels, based on the most recent data, as at 2017. In total, there were 234,153 learners with special needs and disability in schools, of which 222,727 were enrolled in primary and the rest, 11,426 were enrolled in secondary schools.

Table 49: Enrolment of Learners with Special Needs -2016

	Gender	Primary	Secondary	Total
Hearing Impairment	Boys	19,880	1,522	21,402
	Girls	18,300	1,243	19,543
Intellectual Disability	Boys	55,143	711	55,854
	Girls	43,143	718	43,861
Physical Disability	Boys	10,279	216	10,495
	Girls	7,948	176	8,124
Visual Impairment	Boys	17,901	1,918	19,819
	Girls	13,166	1,329	14,495
Multiple Disabilities	Boys	19,414	1,896	21,310
	Girls	17,553	1,697	19,250
Grand Total		222,727	11,426	234,153

Source: MoEST and VSO Jitolee (2016).

Children with intellectual impairment account for a majority of those with special needs and disability enrolled in primary schools (Figure 70). Of all leaners with special needs enrolled in primary schools, 44.1 percent (55,143 boys and 43, 143 girls) have intellectual impairments; 17.1 percent (19,880 boys and 18,300 girls) have hearing impairments; 16.6 percent (19,414 boys and 17,553 girls) have multiple disabilities; and 13.9 percent (17,901 boys and 13,166 girls) have visual impairments while the rest, 8.2 percent have physical impairments. In secondary schools (see Figure 71), majority of the learners have multiple disabilities (31.4 percent), followed by visual impairments (28.4 percent), hearing impairments (24.2 percent), intellectual impairments (12.5 percent), and then physical impairments (3.4 percent).

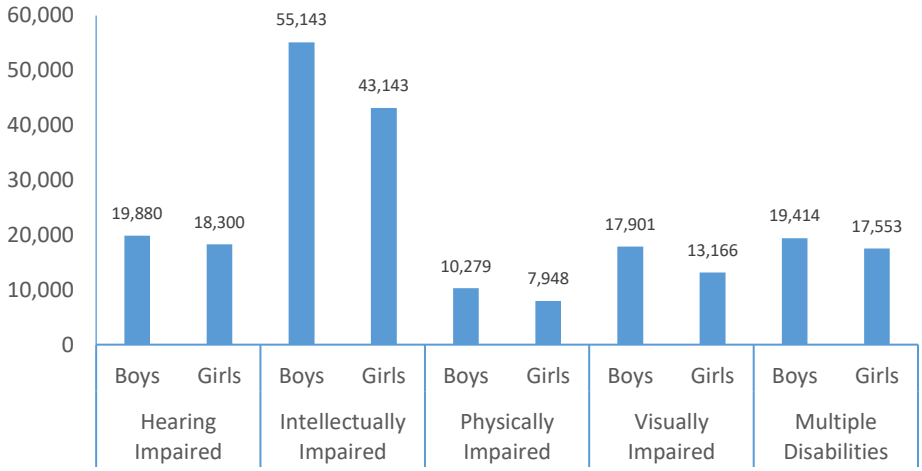

Figure 70: Enrolment of Learners with Special Needs in Primary Schools – 2016
Source: MOEST and VSO Jitolee (2016)

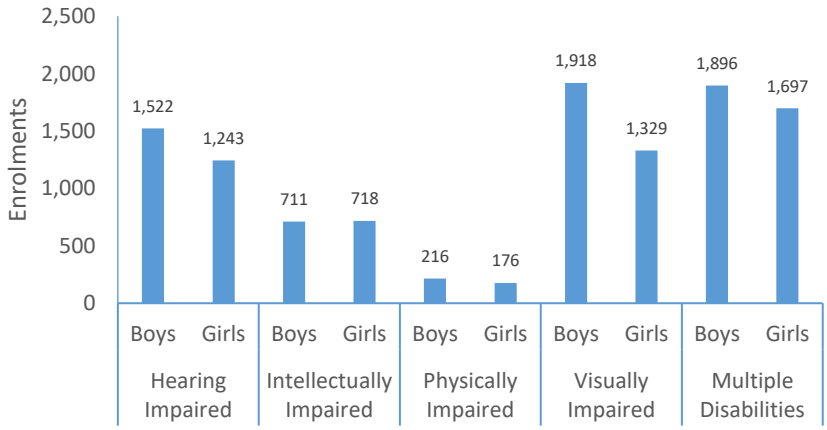

Figure 71: Enrolment of Learners with Special Needs in Secondary Schools - 2016
Source: MOEST and VSO Jitolee (2016)

10.3.2 Enrolment in TVET Institutions

Just like primary and secondary levels, there is no accurate data in Kenya on learners with disabilities and special needs in TVET institutions. Kenya has four special needs TVET institutions. They are Karen Technical Training Institute for the Deaf, Machakos Technical Institute for the Blind, St. Joseph's Technical Institute for the Deaf-Nyangoma, and Vocational Training Centre for the Blind and Deaf-Sikri. As can be seen in Table 50, the capacity of these institutions is low, relative to the number of students with special needs and disability in the country. As at 2017, all of them had an enrolment of less than 500 learners and most of them were male. Funding to these institutions increased from KES 45 million in 2015/16 to KES 52.8 million in 2016/17. There is no accurate data on enrolments of learners with disabilities and special needs in non-special needs dedicated TVET institutions in the country.

Table 50: Enrolment Data for SNE TVET Institutions

	2014		2015		2016		2017	
Institute	Male	Female	Male	Female	Male	Female	Male	Female
Karen Technical Training Institute for the Deaf	69	66	136	126	167	198	270	353
Machakos Technical Institute for the Blind	56	36	47	35	58	39	53	49
St. Joseph's Technical Institute for the Deaf, Nyangoma	82	22	97	24	143	47	217	93
Vocational Training Centre for the Blind and Deaf-Sikri	24	0	47	0	66	1	134	42
Total	**231**	**124**	**327**	**185**	**434**	**285**	**674**	**537**
GPI	0.54		0.57		0.66		0.80	

10.3.3 Enrolment in Universities

Currently, there are very few universities that have put in place adequate infrastructure to cater for students with special needs. The number of physically disadvantaged students in public and private universities is less than 1000 students yet 10 percent of the general Kenyan population are people with special needs. Proposals directed towards ensuring equity in access to university education include: Rehabilitation of infrastructure in public universities and university colleges to provide assisting devices like ramps and elevators; sanitary facilities; lecture halls; libraries; workshops and laboratories to provide safe learning environments for the physically challenged; development of a policy of top-up grant facilities through HELB to students with special needs to enable them meet the extra costs of their physical challenges; and provision of special grants to universities offering learning opportunities to physically challenged students to enable them develop/supply instructional materials for students with special needs.

Table 51: Enrolment of Students with Disability

Category	Public Universities	Private Universities	Grand Total

	Male	Female	Total	Male	Female	Total	
Sensory Impairment	2	1	3	0	0	0	3
Mental Impairment	4	2	6	0	1	1	7
Visual Impairment	131	79	210	5	9	14	224
Hearing Impairment	35	11	46	10	0	10	56
Learning Impairment	0	1	1	1	0	1	2
Physical Impairment	166	91	257	40	34	74	331
Others	10	7	17	1	4	5	22
Grand Total	348	192	540	57	48	105	645

10.4 Education Outcomes of Children with Disabilities

KNEC's EGMA study (2014) assessed the level of literacy and numeracy competence among learners with special needs and disability. The study was conducted in all the 47 counties of Kenya in 321 regular schools and 25 Special Needs Education (SNE) schools. Generally, the results showed a low performance in all the mathematical operations, more significantly subtraction, division and number patterns, where only 15.8 percent, 43.4 percent and 36.5 percent of the pupils with disabilities, respectively, attained the 50 percent benchmark. In terms of gender, it is notable that boys performed better than girls in all the mathematical operations. For example, while 61.3 percent of boys attained the 50 percent benchmark in addition questions, only 56.7 percent of girls did. In addition, 17.9 percent of the boys attained the 50 percent benchmark in subtraction compared to 13.4 percent of girls. These challenges range from the way examinations are set, administered and scored. Education programs such as the Digital Literacy Program where 50 special primary schools are set to benefit.

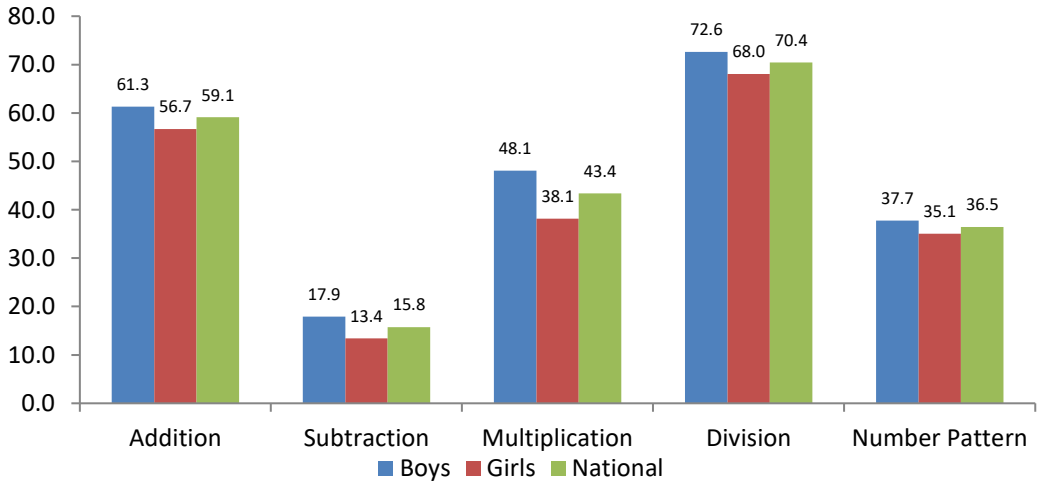

Figure 72: Percentage of SNE Pupils' Performance by Gender
Source: KNEC (2014)

10.5 Adequacy of Facilities

In the recent past, the government has intensified investments in infrastructure to support the learning of children with special needs and disability. There is some infrastructural development in the sector (actual data on the cost of infrastructure, equipment, assisting devices and technologies is not available). During the financial year 2014/15, the sector distributed Thermoforming machines (photocopier for materials with diagrams accessible to blind learners) and four (4) Embossers funded by the African Development Bank (ADB) at a cost of KES. 10 million each, to three special secondary schools and the Kenya Institute for the Blind (KIB). The machines are used for production of braille reading materials. In the 2016/17 financial year, the sector, in collaboration with Kenya Society for the Blind (KSB) trained 30 Teachers as Trainers on Adapted Mathematics for learners with Visual impairments. During the same financial year, an infrastructural grant of KES 300 million was disbursed to 30 special secondary schools during the 2016/17 financial year.

Despite the above infrastructural development, most of the learning facilities are not adapted to meet the needs of learners with special needs and disability. In the KNEC's EGMA study (2014), teachers were asked to indicate the challenges faced by their schools in catering for learners with special needs and disabilities. As shown in Figure 73, lack of instructional materials, as indicated by 88.7 percent of the teachers, was identified as one of the major challenges they face when catering for learners with special needs. This challenge ranked higher than others such as lack of trained teachers and inadequate support from government in terms of funding. The findings from KNEC's EGMA study (2014) were further confirmed by findings from a joint MOEST/VSO Jitolee National survey on children with disabilities and special needs in education (2016), which assessed how adequate, relevant and adaptable were the learning facilities to meet the needs of children with special needs and disability in *regular*, *special*, *special unit* and *integrated* schools. Several indicators were assessed: status of school level infrastructure, classroom learning environment, availability of social amenities and availability and adaptation of the playing grounds.

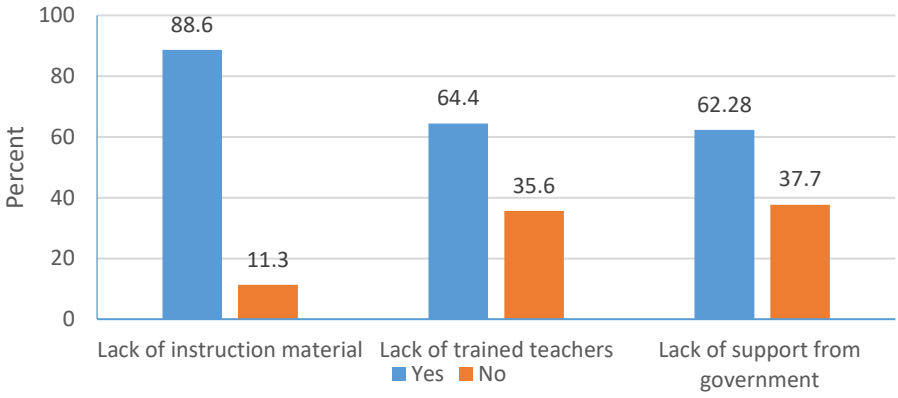

Figure 73: Challenges in Catering for Special Needs Learners
Source: KNEC (2016)

Generally, the results from the MOEST/VSO (2016) show that lack of proper physical structures in schools is one of the impediments to school attendance by learners with special needs and disability. For instance, though most schools had physical facilities, some of the facilities were inaccessible. For example, the children from all the counties revealed that some

classes did not have essential facilities like ramps, adapted corridors and doors. Most institutions also had congested classrooms, as well as lacking flush and adapted toilets. In Figure 74, we show the level of adaptation of the school compounds (one of the indicators assessed) in the schools surveyed. The results show that more than 60 percent of the regular, special units and integrated schools did not have ramps. The unavailability of ramps was mainly in regular and integrated schools. Ramps were, however, available in 59 percent of the special schools surveyed. Second, the results showed that most paths in the institutions were without pavements or were narrow. The proportion of schools with wide pavements was less than 32 percent. The survey also found that the terrain in most schools had been adapted to the needs of children with special needs and disability.

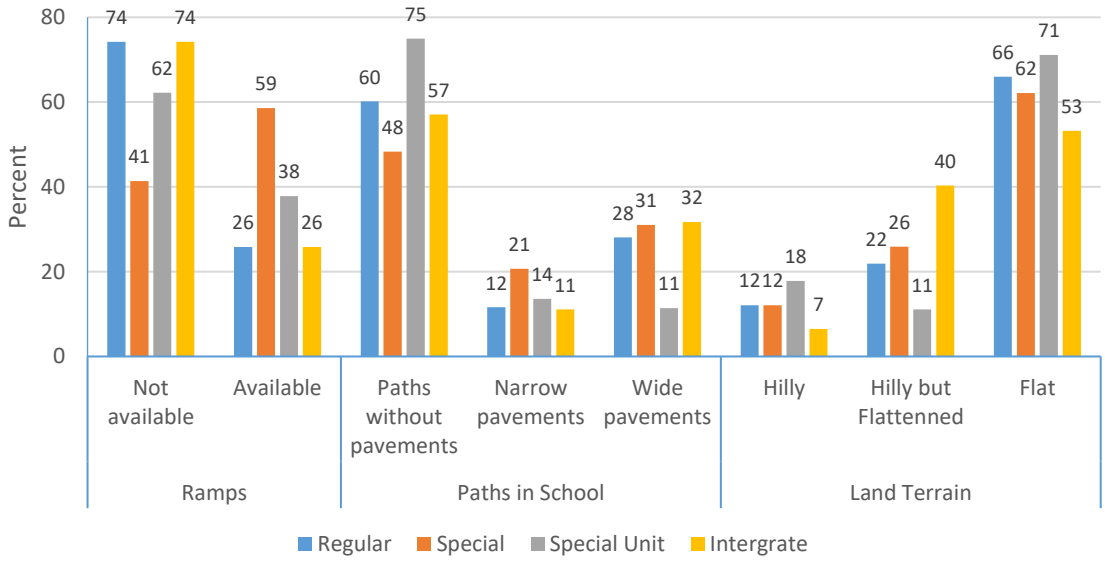

Figure 74: Level of Adaptation of the School Compounds
Source: MOEST and VSO Jitolee (2016)

The MOEST/VSO (2016) survey further established that classroom environments in some institutions were not favourable for learners with special needs and disability. For instance, a third of the classes assessed had furniture that was not considered as adaptable for learners with disability (Figure 75). However, the FGDs held with children with disabilities and those without disabilities indicated that most of the furniture available was not disability friendly. The children further stated that there were no adapted chairs and tables for CWDs. Classroom observation findings by the survey team also revealed that more than half of the classes had smooth and tidy floors especially in special schools.

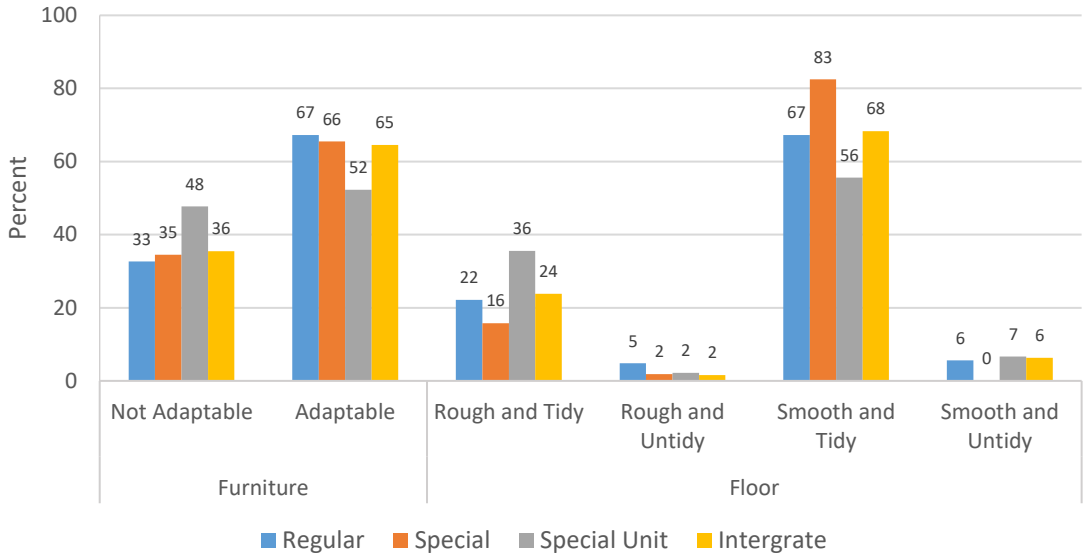

Figure 75: Classroom Learning Environment
Source: MOEST and VSO Jitolee (2016)

Results from MOEST/VSO (2016) survey showed that some institutions had prevocational and vocational equipment as well as assisting devices, but the challenge was poor maintenance. Some schools had adapted the curriculum and there was prevocational and vocational learning offered. However, most of the prevocational and vocational teaching and learning equipment in the surveyed institutions were non-functional. For instance, over 80 percent of the equipment like sewing machines, tables, chisels, planners, knitting machines and clamps in the assessed schools were non-functional. In addition, the survey found that overall, children with disabilities had functional assisting devices to support the teaching and learning process[26]. However, some of these assisting devices, especially hearing aids, reading stands, wheelchairs, mouth sticks, and corner seats were found to be non-functional.

ICT adoption and integration in teaching and learning among children with disabilities is low. The Kenya Institute of Special Education (KISE) that trains personnel for disabled persons has some important technologies to support special needs education but hardly are these technologies found in schools (Ministry of Education, 2012). These technologies are, however, too expensive. For instance, a single Dolphin pen, which is a pioneer of the use of USB thumb drives in Assistive Technology, costs approximately $150 and they are not available in all schools. A study by Buabeng-Andoh (2012), observed that despite investments in Information Communication Technology (ICT) infrastructure, equipment and professional development to improve education in many countries, ICT adoption and integration in teaching and learning have been limited. This scenario is most likely replicated in all other special learning needs in Kenya.

26 These included page turners, crutches, adapted cups and tables, head pointer, physiotherapy aids, spoons, braces, calipers, adapted shoes, Braille machines, slates and stylus, thermophom copier, adapted computers, magnifiers, white canes, telescopes audiometer, embosser and screen readers syringe for ear impression.

10.6 Staffing/Supervision

Kenya has diploma and degree programs in special needs education. Teachers who enroll in these programs are specifically trained to deal with learners with different categories of special needs and disabilities and are mostly deployed in special needs schools. The rest of the teachers undergo the normal teacher training with some modules about dealing with special needs, mainstreamed in the training programs. These teachers are usually deployed in regular schools, most of which have learners with special needs and disability.

Table 52 shows the total number of teachers with special needs training as well as their areas of specialization, based on the MOEST/VSO (2016) survey. A total of 1,135 teachers had special needs training in at least one of the fifteen categories of disabilities. The results based on this survey showed that the category with the highest percentage of trained teachers was inclusive education, with 24.9 percent, followed by hearing impairment 23.1 percent, and intellectual and cognitive handicaps at 16.7 percent. The rest of the categories had lower than 10 percent of trained teachers, with the lowest percentage being 0.9 percent for Down syndrome.

Table 52: Areas of Specialization for Special Needs Teachers

	Total	Percent	Male	Percent	Female	Percent
Hearing Impairment	262	23.1	95	20.0	167	25.30
Visual Impairment	97	8.5	45	9.5	52	7.88
Physical Impairment	107	9.4	51	10.7	56	8.48
Cerebral Palsy	15	1.3	10	2.1	5	0.76
Epilepsy	12	1.1	7	1.5	5	0.76
Intellectual & Cognitive Impairment	190	16.7	85	17.9	105	15.91
Down Syndrome	10	0.9	4	0.8	6	0.91
Autistic Spectrum Disorder	52	4.6	29	6.1	23	3.48
Emotional and Behavioural Disorders	24	2.1	10	2.1	14	2.12
Learning Disabilities	21	1.9	10	2.1	11	1.67
Speech Language Disorders	12	1.1	5	1.1	7	1.06
Multiple Disabilities other than deaf blind	14	1.2	7	1.5	7	1.06
Deaf blind	13	1.1	5	1.1	8	1.21
Gifted and Talented	23	2.0	17	3.6	6	0.91
Inclusive Education	283	24.9	95	20.0	188	28.48
Total	1135	100	475	100.0	660	100

Source: MOEST and VSO Jitolee (2016).

The results based on this survey further revealed that learning disability has the highest number of learners per specialized teacher. Column 1 of Table 53 shows the number of children with disabilities enrolled in regular schools, regular with special units, and special schools. In column 3, we show the number of special needs teachers for each category of disability while the last column shows the teacher pupil ratio for each disability. The disability with the highest ratio is learning disability (1:105) followed by speech and language disorders (1:48). The lowest ratios were for autistic spectrum disorder (1:5), intellectual and cognitive handicap (1:8) and deaf-blind (1:9) categories. The survey further shows that majority of the SNE teachers have specialized in hearing impairments, followed by intellectual cognitive impairment, physical impairment, visual impairment and autistic spectrum disorder.

Table 53: Special Needs Education Teacher-Pupil Ratio

	Number of Children	Number of Special Needs Teachers	Teacher: Pupil Ratio
Hearing Impairment	3314	262	1:13
Visual Impairment	1919	97	1:20
Physical Impairment	1525	107	1:14
Cerebral Palsy	161	15	1:11
Epilepsy	317	12	1:26
Intellectual & Cognitive Impairment	1557	190	1:8
Down Syndrome	149	10	1:15
Autistic Spectrum Disorder	248	52	1:5
Emotional and Behavioural Disorders	780	24	1:33
Learning Disabilities	2201	21	1:105
Speech Language Disorders	579	12	1:48
Multiple Disabilities	518	14	1:37
Deaf blind	121	13	1:9
Total	13389	829	1:16

Source: MOEST and VSO Jitolee (2016).

Nevertheless, majority of teachers in Kenya lack the prerequisite knowledge and skills to handle learners with special needs and disabilities. Evidence shows that training programs that educate teachers on how to accommodate and teach learners with disabilities generally run for a week or two, but teachers do not receive the needed INSET programs to help them to manage inclusivity in classes efficiently (Bruce & Venkatesh, 2014). In the EGMA Class 2 study, 71.3 percent of teachers had not received any training on handling learners with special needs and disabilities yet almost all schools had learners with special needs and disabilities. Similarly, in the NASMLA Class 3 study, almost every public school sampled had learners with special needs although less than 20 percent of the teachers had received any in-service course on how to handle pupils with special needs and disabilities.

10.7 Identification and Assessment of Children with Disabilities

Generally, assessment and placement of children with special needs and disability is a big challenge in Kenya. An appropriate assessment and placement should ensure that students with special needs are appropriately placed in programs that address their unique needs (Mukuria & Obiakor, 2006; McLoughlin & Lewis 2008). Assessment should be conducted when a student or students have trouble in meeting the academic demands of the general education program and are referred for consideration for special education services.

The Education Assessment and Resource Centres (EARCs) are supposed to play the role of identifying, assessing and placing children with special needs in education and disabilities. However, evidence shows that EARCs are no longer effective and face several challenges.

According to a recent MOE survey[27], some of these challenges include inadequate funding, understaffing, long distance to schools, among others (Figure 76). The study established that the increase in the number of districts that Kenya experience over time was not met with adequate financing and staffing of EARCs, leading to inability to assess and support placement of learners. In NASMLA Class 3 study, 14.1 percent of the teachers reported that EARCs did not exist in their zones while 29.9 percent reported that EARCs were more than 10 Kilometres from their schools (Figure 77). In addition, EARC officers lack appropriate technologies and capacity for assessment. A study by Williams (2014), interviewing EARC officers, noted that the assessment for children with auditory impairments was conducted with outdated technology that required exceptional attention to detail and time.

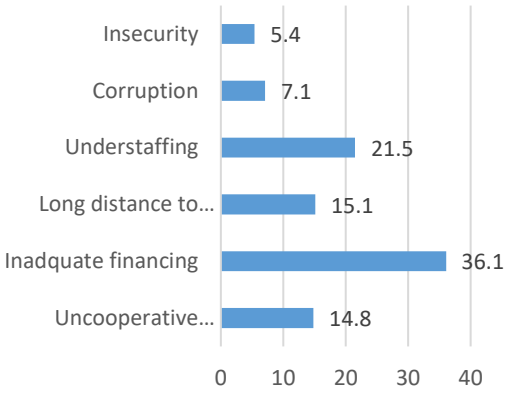

Figure 76: Challenges Faced by EARCs
Source: MOE (2018)

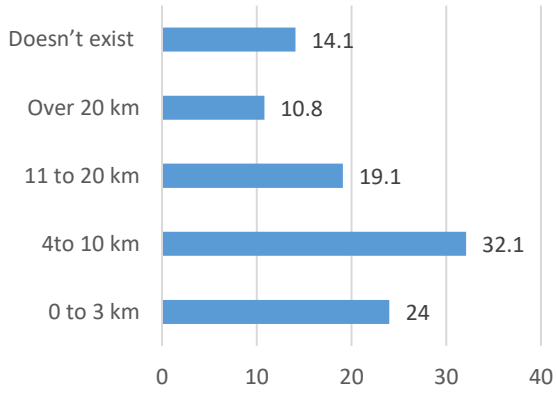

Figure 77: Distances between Schools and EARCs
Source: KNEC (2017)

Education Assessment and Resource Centres (EARCs) have, however, been successful in some respects, especially in assessing and placing of SNE children but not in other areas such as establishing more resource centres. In the same survey referred above, respondents were asked to rank the success of EARCs against several indices. Overall, assessment and placement of children was cited as the major success of EARCs (33.8 percent), followed by capacity building of staff, enhanced quality of SNE education, equitable resource distribution and improved community awareness at 15.6 percent, 12.3 percent, 11.8 percent and 11.5 percent, respectively. Improved linkages were lowest at 5.4 percent (Figure 78).

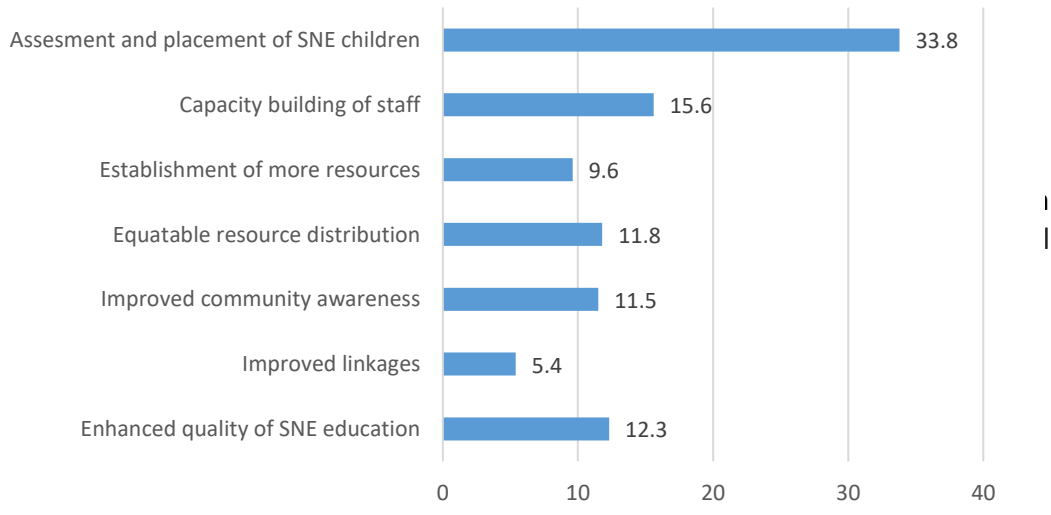

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Figure 78: Success of EARCs
Source: MOE (2018)

Apart from EARCs, the Quality Assurance Department of the Ministry of Education is responsible for maintaining standards, including implementation of the curriculum according to the education policies in place. Quality Assurance Officers (QAOs) at the ground level conduct assessment of schools to make sure they comply with policies and that children are accessing the curriculum. Because they oversee all students, this department is also responsible for accessing the learning of children with disability. Their knowledge about disability is however quite limited. For instance, in the EGMA Class 2 study, it was found that 80.8 percent of the Quality Assurance Officers had not received any training on how to deal with learners with special needs and disabilities. In the same vein, Quality Assurance Officers' support to teachers is also limited. For instance, in the MLA Form 2 study, close to 56.9 percent of the Quality Assurance Officers did not conduct workshops for teachers on how to handle pupils with special needs and disabilities in their sub-counties.

Curriculum Support Officers are another source of support for teachers dealing with children with special needs and disabilities. However, teachers have not been getting guidance on curriculum implementation and other services offered by Curriculum Support Officers. In the SACMEQ IV sample, 59.1 percent of pupils were taught by teachers (in English) who had no access to Curriculum Resource Centres. In North Eastern, 85.1 percent of the pupils were taught by teachers (in English and Mathematics) who had no access to Curriculum Resource Centres (CRCs). At the Coast, 66.5 percent of pupils were taught by teachers (in Mathematics) who reported to have no access to the CRCs. For instance, in NASMLA Class 3 study, the annual percent of teachers who reported not to have been assessed were as follows: 2015 (20.5 percent), 2014 (17.5 percent) and 2013 (16.9 percent). In the MLA Form 2 study, over 70.0 percent of teachers reported that they had not been assessed on curriculum implementation within a period of four years preceding the time of data collection.

The Curriculum Support Officers (CSOs) have offered several services to SNE teachers where they have visited. Figure 79 shows services offered by CSOs to SNE teachers of lower grade Mathematics based on the KNEC's EGMA study (2014). Majority of the CSOs (60.0

percent) indicated that they offered advice to schools on placement of learners with special needs and disabilities. On the other hand, 52.1 percent indicated that they identified learners with special needs, while 46.5 percent indicated that they offered support on educational counselling. However, only 32.9 percent of CSOs indicated that they offered training to the teachers. However, we observed a low percentage of CSOs who indicated that they offered support on assisting devices (9.9 percent) and provision of materials (19.7 percent). The latter assist in the teaching and learning process. Figure 80 indicates that the main challenges facing CSOs in supporting teachers handling learners with special needs and disabilities are inadequate facilities (91.3 percent), lack of skills in handling special needs learners (85.3 percent), and lack of SNE teaching resources at 84.1 percent.

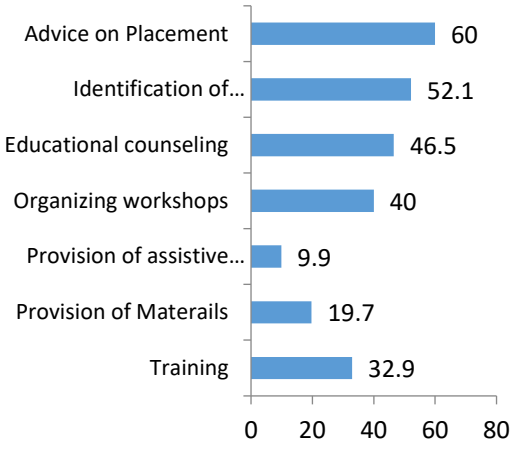


Figure 79: Services of CSOs to SNE Teachers of Lower Grade Mathematics
Source: MOE (2014).

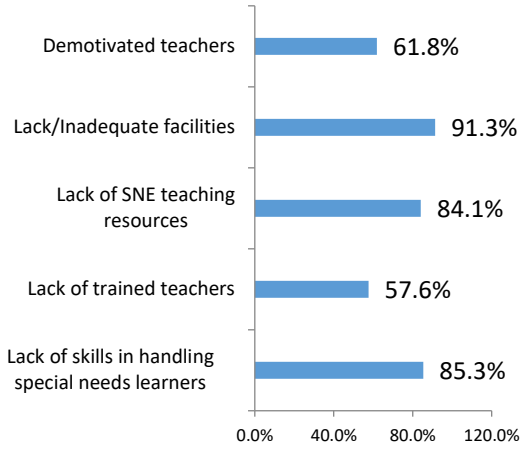


Figure 80: Challenges CSOs Face When Supporting Teachers
Source (2014).

10.8 Cost and Financing

Funding is critical for the provision of special education, considering the infrastructural changes that might be needed in schools to support SNE learners. While the Ministry of Education has a slightly higher rate per pupil capitation, it has been observed that this amount is not sufficient due to the prohibitive cost of equipment, especially for the learners with hearing and visual impairment. There have been mild efforts to address other needs such as dyslexia and autism but it has not been robust enough to support learners acquire the requisite education. Scholars have proposed improvement of the current special education model and policy revisions to make the model more cost effective rather than to have integrated and special schools. In the long term, research suggests that inclusive education is likely to be significantly more cost effective than the current method of special education delivery (Donohue & Borman, 2014).

10.9 Special Needs Education (SNE) Financing

With the introduction of FPE, and later FDSE, the Government began financing SNE with focus on learning materials and personnel costs. The amount increased in the Financial Year (FY) 2013/2014 from KES. 188 million benefiting an enrolment of 2549 learners, to KES 453 million

benefiting 26,900 learners with disabilities and special needs in 243 special institutions in 2016/17. In 2016/ 17, there was an additional top up of KES 249,702,100.00, which was disbursed to 2820 schools to cater for specialized needs of learners with special needs.

There are 32 special secondary schools and 80 integrated secondary schools which offer Special Needs Education and are allocated KES 200 million annually since 2014/15, to support their operations and for provision of assistive technology devices; specialized instructional materials, special diet, medical services, and SNE support services. The disbursed allocation benefited 3,379 students and trainees in 26 special secondary schools, 74 integrated secondary schools and two Diploma Teacher Training Colleges in the 2014/15 FY. In the 2015/16 FY, it benefitted 3,594 learners in 30 special secondary schools and 78 integrated secondary schools. In the 2016/17 FY, it was disbursed to 4,019 learners in 30 special secondary schools and 80 integrated secondary schools.

Table 54: Disbursement of Finances to SNE institutions

Item	Financial Years			
	2013/2014	2014/2015	2015/16	2016/2017
Amount in million (KES)	188	350	440	453
Schools	172	175	228	243
SNE learners benefiting	2,549	16,358	26,044	26,900

Table 55 shows funding in four special needs TVET institutions, which has remained constant for the last two years. The rate per learner capitation has not been sufficient due to the cost of equipment, especially for children with hearing and visual impairment. There have, however, been mild efforts to address other needs such as dyslexia and autism but it has not been robust enough to support learners acquire the requisite education hence need for improvement of the current special education model and policy revisions to make the model more cost effective than to have integrated and special schools.

Table 55: Grant for TVET SNE Institutions

Institute	2015/2016 FY Recurrent	2016/2017 FY Recurrent	2015/2016 FY Development	2016/2017 FY Development
Karen Technical Training Institute for the Deaf	39,612,764	39,612,764	13,175,000	13,175,000
Machakos Technical Institute for the Blind	39,612,764	39,612,764	13,175,000	13,175,000
St. Joseph's Technical Institute for the Deaf, Nyangoma	40,612,764	40,612,764	13,175,000	13,175,000
Vocational Training Centre for the Blind and Deaf-Sikri	40,612,764	40,612,764	13,175,000	13,175,000
Total Amount (KES)	160,451,056	160,451,056	52,700,000	52,700,000

11. University Education

11.1 Structure of University Education in Kenya

Universities in Kenya are established under the Universities Act No. 42 of 2012. Under this Act, universities in Kenya are categorized as either public or private. The Act also provides for the establishment of Technical Universities, Specialized Degree awarding universities and Open Universities. In addition, the Act provides for the establishment of at least one university in each of the 47 counties in Kenya as well as constituent colleges.

Several bodies play different roles in the university education sub-sector in Kenya. The Commission for University Education (CUE) plays the role of registration of universities, accreditation and quality assurance of the courses offered in different universities. The University Funding Board (UFB) manages university funding while the Higher Education Loans Board (HELB) deals with student financing. The Kenya Universities and Colleges Central Placement Service (KUCCPS) was established under the Universities Act, 2012 to manage placement of post-secondary graduates in higher education institutions.

11.2 Overview of Recent Trends and Status

Over the last six years, Kenya witnessed an increase in the number of universities (Table 56). Public universities increased from 8 in 2012 to 32 in 2016. Chartered private universities increased from 15 in 2012 to 18 in 2016. The award of full charters to public university constituent colleges led to the decrease in the number of constituent colleges from 23 in 2012 to 3 in 2016. Currently, 14 universities have letters of interim authority and are expected to receive full charters once they meet the full requirements for charter by the Commission for University Education. In addition, public universities operate campuses in different regions in the country. There were 33 public university campuses as at 2016. The number of institutions approved for collaboration with universities offering university programs increased marginally from 33 in 2012 to 35 in 2016.

Table 56: Growth in Number of Universities in Kenya (2012-2016)

Category of Institutions	2012	2013	2014	2015	2016
Public universities	8	22	22	23	32
Public university constituent colleges	23	9	9	10	3
Chartered private universities	15	17	17	17	18
Private university constituent colleges	4	5	5	5	5
Universities with Letter of Interim Authority	12	11	13	14	14
Total	62	64	66	69	72
Public university campuses	33	33	33	33	33
Newly Registered universities	2	2	1	1	0
Institutions approved for collaboration with universities in offering university programs	33	33	33	33	35

Source: Commission of University Education, KNBS (2017)

Along with growth in the number of universities, has come a huge growth in enrolments. Table 57 shows enrolments in universities for the period 2013/14 to 2016/17. Total university student enrolment increased by 64 percent from 361,379 in 2013/14 to 564,507 in 2016/17. The growth was partially driven by the increase in the number of public universities and public

financing of students in private universities by the Higher Educations Loans Board (HELB). Also, during the academic year 2016/17, all students who scored C+ and above were admitted to universities. Both public and private universities experienced an increase in enrolments during the period 2013/14-2016/17. Nevertheless, public universities took the largest share of enrolment, from 80 percent in 2013/14 to 85 percent in 2016/17. This could be attributed to the rapid expansion of opportunities in public universities and the fact that public subsidy makes it cheaper to join public universities. Enrolments in private universities has been augmented by the policy that allowed admission of Government-sponsored students to private universities.

Table 57: Trends in Enrolment in Universities 2013/14-2016/17

Category of University	2013/14	2014/15	2015/16	2016/17
Private Universities	71,646	80,448	77,929	85,195
Public Universities	289,733	363,334	320,238	479,312
Total	361,379	443,782	398,167	564,507

Both public and private universities attract more boys than girls (Table 58). Enrolment growth among girls is higher than that of boys. In public universities, girls' enrolment grew by 40 percent, from 115,746 to 192,472 during the period 2013/14 to 2016/17. Girls' enrolments in private universities grew by 24 percent, from 31,666 to 41,648 during the period 2013/14 to 2016/17. The number of male students increased by 10.9 percent and 8 percent in public and private universities respectively. The gender disparity, in favour of boys, is less pronounced in private than public Universities. In fact, private universities are about to close the gender gap in enrolments. Increases in enrolments for both genders is attributed to many factors including introduction of new courses that are appealing to students of both gender as well as accreditation of popular courses by the relevant professional bodies. In private universities, enrolments have been augmented by the policy that allowed admission of Government-sponsored students to private universities.

Table 58: Enrolment by Gender in Public and Private Universities (2013/14- 2016/17) - GPI

	2013/2014		2014/2015		2015/2016		2016/2017	
	Male	Female	Male	Female	Male	Female	Male	Female
Public	173,987	115,746	217,164	146,170	258,688	174,068	286,840	192,472
Private	39,980	31,666	42,454	37,994	39,125	38,804	43,547	41,648
Total	**213,967**	**147,412**	**259,618**	**184,164**	**297,813**	**212,872**	**330,387**	**234,120**
Grand Total	361,379		443,782		510,685		564,507	
GPI public	0.67		0.67		0.67		0.67	
GPI private	0.79		0.89		0.99		0.96	
Total GPI	**0.69**		**0.71**		**0.71**		**0.71**	

Source: Commission of University Education, KNBS (2017)

More than half of the students admitted to public universities go to the University of Nairobi (UON), Kenyatta University (KU), Moi University and Jomo Kenyatta University of Science and Technology (JKUAT). For instance, during the 2016/17 intake, 54 percent of university enrolments came from these universities (Table 59). Of these, University of Nairobi takes the largest share.

Table 59: Enrolment by Gender in Universities (2013/14- 2016/17)

	2013/14		2014/15		2015/16		2016/17	
Public Universities	M	F	M	F	M	F	M	F
Nairobi	38,693	25,376	42,328	27,618	60,103	38,612	62,541	39,733
Kenyatta	37,758	32,248	43,165	33,714	40,254	31,237	41,426	31,004
Moi	18,547	15,684	22,458	20,838	24,775	21,951	24,608	18,062
Egerton	7,044	4,896	8,661	5,267	7,087	5,433	7,178	5,623
Jomo Kenyatta (JKUAT)	19,729	10,847	20,860	11,469	21,623	12,752	24,747	15,198
Maseno	3,922	2,247	7,356	7,412	11,157	7,115	10,729	7,618
Masinde Muliro	5,606	3,445	7,480	4,213	8,619	5,612	11,344	7,542
Technical Uni. of Kenya	5,102	1,915	5,391	2,024	7,586	2,446	7,460	2,693
Technical Uni. of Mombasa	3,993	1,050	4,186	1,234	5,061	1,814	5,086	2,397
Dedan Kimathi	1,546	584	4,715	1,578	4,538	1,558	4,554	1,558
Chuka	7,318	2,663	9,716	3,931	6,469	4,074	8,689	5,844
Karatina	2,700	2,014	3,095	2,209	4,590	3,046	3,631	2,653
Kisii	913	531	4,780	3,495	7,567	5,979	13,913	8,995
Meru	2,001	903	2,825	1,174	3,067	1,272	4,362	2,156
Multimedia	697	331	754	346	2,568	1,373	3,527	1,780
South Eastern	1,988	1,037	3,676	2,138	4,274	2,624	4,591	3,153
Jaramogi 0ginga 0dinga	1,259	771	2,537	1,638	6,682	3,974	7,529	5,213
Laikipia	857	574	3,260	2,652	4,999	4,007	5,297	4019
University of Eldoret	8,059	4,507	9,447	6,215	13,963	9,875	9,675	7261
Kabianga	1,004	681	3,375	2,366	1,249	1,017	4,661	3,855
Pwani	2,666	1,591	2,981	1,603	3,781	2,494	3,989	2,692
Masai Mara	2,585	1,851	4,118	3,036	5,149	3,988	5,340	4,234
Kibabii					3,527	1,815	3,610	2,440
Embu University College							687	677
Machakos							1,085	873
Murang'a Uni. College							1,473	871
Rongo							3,029	2,220
Kirinyaga Uni. College							317	242
Co-operative Uni. College							1,259	1,594
Taita Taveta Uni. College.							503	272
SUB-TOTAL	173,987	115,746	217,164	146,170	258,688	174,068	286,840	192,472
Private Universities	39,980	31,666	42,454	37,994	39,125	38,804	43,547	41,648
Grand Total	**361,379**		**443,782**		**510,685**		**564,507**	

Source: Commission of University Education, KNBS (2017)

11.3 Trends in Student Placement by KUCCPS

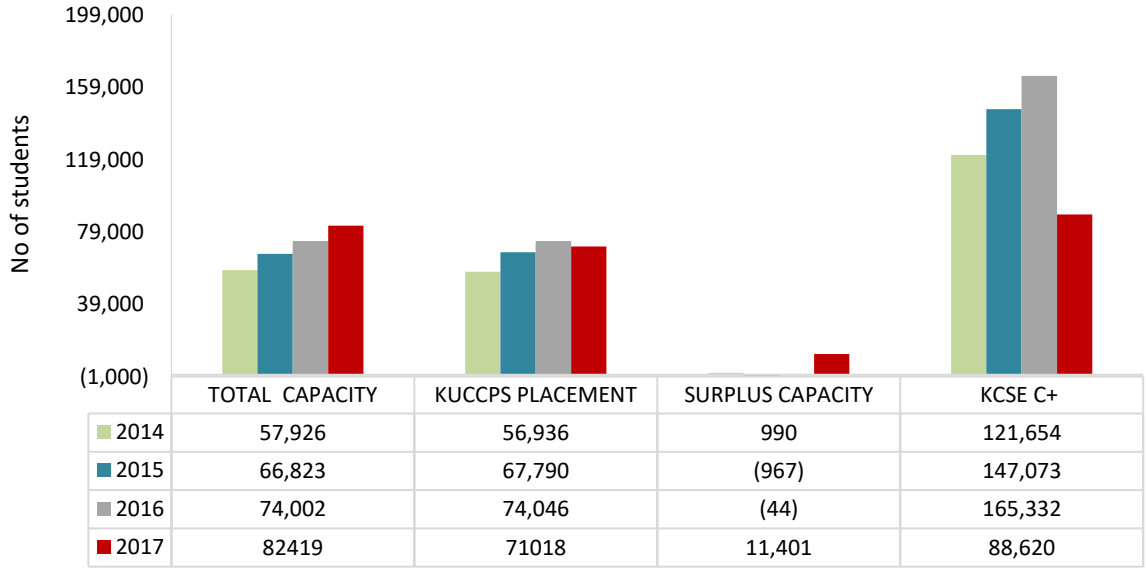
As noted, KUCCPS manages placement of post-secondary graduates in higher education institutions. KUCCPS has conducted four cycles of placement since 2013. The placement is for students who acquire a C+ and above and is based on capacities declared by each university. Since the placed students are eligible for government sponsorship, capitation funding to universities is based on the number of students placed by KUCCPS. Table 60 shows trends in student placement by KUCCPS over the four academic years. Placement in the first two academic years (2014/15 and 2015/16) was only for public universities. During these academic years, close to 46 percent of students were placed. KUCCPS began placing government-sponsored students to private universities in 2016/17. During this academic year, 29 private universities received government sponsored students. In total, 45 percent of the students who attained C+ and above were placed in 2016/17. In 2017/2018, a total of 88,620 students attained C+ and above and were all placed. Of these students, 17,000 students were placed in private universities.

Table 60: Admission Trends to Public Universities: 2014/15 -2015/16

Year	Number Qualified (C+ and above)	Number of students placed	Percent Placed
2014/2015	121,654	56,986	46.84%
2015/2016	147,073	67,790	46.09%
2016/2017	165,332	74,046	44.79%
2017/2018	88,620	88,620	100%

Source: Kenya Universities and Colleges Central Placement Service

Currently, Kenyan public universities are faced with idle capacity and rising overhead costs. As mentioned, KUCCPS places students based on university declared capacities. In Figure 81, we show trends in university declared capacity and KUCCPS placement. In 2014, there were 57,926 spaces available as declared by all public universities, out of which KUCCPS filled 56,936. This led to a surplus of 996 spaces in public universities. In 2015 and 2016, there was an increase in the number of students scoring C+ and above leading to more placements than the declared spaces, thus leading to a strain on the available spaces in the public universities. In 2017, a new trend emerged- there was a dramatic fall in the number of students scoring C+ and above, happening against a backdrop of rising declared capacity in public universities. This ultimately led to a surplus of 11,401 spaces in public universities. The surplus was further fuelled by placement of students in private universities. Depending on the number of students that will be placed in 2018, public universities are more likely to be faced with idle capacity against the backdrop of rising overhead costs.



	TOTAL CAPACITY	KUCCPS PLACEMENT	SURPLUS CAPACITY	KCSE C+
2014	57,926	56,936	990	121,654
2015	66,823	67,790	(967)	147,073
2016	74,002	74,046	(44)	165,332
2017	82419	71018	11,401	88,620

Figure 81: Trends in Student Placement in Public Universities
Source: Ministry of Education

KUCCPS places students based on the declared spaces in the different courses by the universities. Even for the declared spaces for the different courses by the universities, KUCCPS does not have the mechanism to verify if the universities' declared capacity is based on availability of facilities and teaching staff. Universities also admit fee paying students outside the KUCCPS admissions system, most probably to fill the surplus. However, there are no

mechanisms to ensure that they do not violate the minimum capacity thresholds as determined by the Commission for University Education. The downside with this placement method is that universities have the incentive to inflate spaces for courses (such as Humanities and Arts) that are not expensive to offer (relative to STEM based courses). In Table 61, we show a summary of the differentiated unit cost criteria for the different courses. The implementation of differentiated unit cost presents a tool to guide allocation of public funding towards training for areas of national priority, in a transparent manner. The results show that subject areas in science and engineering are costlier to offer compared to humanities and art-based courses. Science and Engineering courses require more expensive inputs and a lower student staff ratio. In Table 62, we show cumulative placement of students in the different categories between 2014 and 2017. As it can be seen, placement is skewed towards Humanities and Arts-based courses than Science-based courses. When placement is based on university declared spaces, students are likely to be placed in courses that are not their first priority.

Table 61: Differentiated Unit Cost Criteria

Subject Area	Bachelors	Masters	Doctorate
Dentistry - Pre-Clinical	417,684	516,701	616,912
Dentistry – Clinical	719,345	889,874	1,062,460
Medicine Pre-Clinical	404,632	500,554	597,634
Medicine – Clinical	659,400	815,718	973,922
Vet Medicine - Pre-Clinical, Pharmacy Pre-Clinical	359,673	444,937	531,230
Veterinary Medicine - Clinical, Pharmacy – Clinical	479,564	593,250	708,307
Architectural Studies - Architecture Part I	323,705	400,444	478,107
Architecture - Professional (Part II)	431,607	533,925	637,476
Engineering	359,673	444,937	531,230
Construction, Real Estate, Urban and Regional Planning, Landscape Architecture, Computing, Design	323,705	400,444	478,107
Agriculture, Food Science and Technology, Health Sciences and Technology, Animal Science, Technologies	323,705	400,444	478,107
Applied Sciences, Applied Arts, Education (Science and Tech)	287,738	355,950	424,984
Pure Sciences	239,782	296,625	354,153
Business, Law, Education (Arts)	213,139	263,667	314,803
Applied Social Studies	179,836	222,469	265,615
Humanities, Social Sciences	143,869	177,975	212,492

Source: Ministry of Education

Table 62: Cumulative Placement of Students for the Last Four Years

Course cluster	Number of students
Business, Law, Education (Arts), Economics	69,384
Basic Sciences, Applied Sciences and Education Sciences	59,177
Agriculture, Health, Food and Natural Resources Management	39,591
Humanities	35,694
Applied Social Sciences and Arts	24,634
Built Environment and Design	18,689
Engineering and Surveying	12,263
Health (Medicine, Dentistry, Pharmacy, Veterinary)	2,819
Architecture	750

Total	263,001

Source: Ministry of Education

11.4 Quality and Relevance Issues

11.4.1 Academic Programs in Public and Private Universities

Universities in Kenya offer different levels of programs ranging from diplomas to doctorate levels (Table 63). The bachelors program account for the highest component of what universities offer, taking 48 percent of the programs. On average, a bachelor's degree program takes a minimum of four years. After Bachelors, the Master's degree program constitutes the next highest component of university programs, accounting for 34 percent followed by Doctorate programs, at 15 percent and then Post-Graduate Diploma 3 percent. Public universities take the largest share of the programs. For instance, of the total 3,408 programs in both public and private universities in 2016, public universities took the bulk of the programs at 81 percent (2,753) while the private university had 19 percent (655).

Table 63: Academic Programs in Public and Private Universities (2016)

Category of University	Programs Per Level					
	No. of Universities	Bachelors	Postgrd. Diploma	Masters	Doctorate	Grand total
Public	30	1250	74	967	462	2753
Private	34	382	22	195	56	655
Total	64	1627	96	1162	518	3408

Source: Commission of University Education, KNBS (2017).

Universities in Kenya have shifted focus away from Science, Technology, Engineering, and Mathematics (STEM)-based courses that are touted as key drivers of growth in industries, engineering and innovation. Table 64 demonstrates that placement of students in the different categories is skewed towards Humanities and Arts courses than Science-based courses. In Table 63, we show the programs offered by universities as per 2016. Almost three quarters of the courses/programs offered by both public and private universities were Arts and Humanities followed by business related courses. Evidence suggests that graduates from technical fields generally find employment more easily compared to graduates from the social sciences (Raza et al., 2016). The large proportion of Kenyan enrolment concentrated in non-science-related fields and can contribute to a situation in which many graduates are unemployed or underemployed following completion of their studies. The experience of Tunisia demonstrates a good example wherein disproportionate enrolment in the social sciences and humanities programs contributed to high levels of youth unemployment and underemployment, with negative implications for social stability (Raza et al., 2016).

Table 64: Programs Per Cluster in Public and Private Universities (2016)

Cluster	Public Uni.	Private Uni.	Total	Percent
Humanities and Arts	326	149	475	13.90
Business and Administration	268	117	385	11.30
Agriculture, Forestry and Fisheries	354	9	363	10.70
Life Science and Physical Science	352	13	365	10.70
Health and Welfare	244	60	304	8.90
Education (Arts)	219	68	287	8.40
Social and Behavioural Science	120	57	177	5.20
Computing	109	54	163	4.80
Engineering	138	7	145	4.30
Mathematics and Statistics	127	13	140	4.10
Environment	126	8	134	3.90
Teacher Training	65	29	94	2.80
Journalism and Information	69	16	85	2.50
Services	59	12	71	2.10
Education (Science)	50	6	56	1.60
Security and Conflict Resolution	41	9	50	1.50
Veterinary	31	1	32	0.90
Other	13	19	32	0.90
Architecture	26	0	26	0.80
Law	6	7	13	0.40
Manufacturing	10	1	11	0.30
Total	2,753	655	3,408	100.0

Source: Commission of University Education (2016)

A study by Blom et al. (2016) identified a confluence of factors that contributed to low enrolment in STEM related programming in Kenya. First, costs associated with delivering STEM related programs are higher than those associated with delivering courses in the social sciences and humanities because of the need to invest in expensive equipment associated with delivering STEM based programs. Second, universities do not have sufficiently qualified faculty with the capacity to teach STEM related programs of sufficient quality to meet recognized standards. In Kenya, data from CUE shows that less than 20 percent of faculties in these disciplines hold a PhD (CUE, 2016). According to Raza et al (2016), only 29 percent of Sub-Saharan Africa (SSA) research output is concentrated in STEM related fields, compared to 70 percent in Malaysia and Vietnam. Another factor undermining the admission of students to STEM disciplines is related to the low demand on the part of aspirant tertiary students, for STEM programs, in part a consequence of the relatively low number of students transitioning from secondary education with the skills and qualifications required for enrolment in STEM programs.

11.4.2 Academic Staff in Public Universities

University faculty staff components and qualifications have not kept pace with expanded post-secondary enrolment, undermining the quality of education delivered. As shown in Table 65, only 35 percent of the University academic staff are qualified to teach according to recent guidelines set by the Commission for University Education (CUE). The Commission for University Education, in 2015 set the deadline for attainment of the qualifications for teaching in university before early 2018. According to the guidelines, all university faculty members are supposed to be PhD holders. In early 2018, these guidelines were appealed as it was apparent that

no university was ready to meet the threshold. As at 2016, there were around 16,318 academic staff with only a third holding PhD. Majority of them, 53 percent, had Masters as their highest education attainment. It is surprising that almost 10 percent of the university academic staff hold a Bachelor's degree and below.

Table 65: Academic Staff by qualification and University Category

University Category	PhD	Masters	Bachelors	Diploma	Total
Public Chartered Universities	4,215	5,661	1,004	530	11,410
Public University Constituent Colleges	133	292	100	78	603
Private Chartered Universities	923	1,936	168	43	3,070
Private University Constituent Colleges	113	91	6	2	212
Private Universities with LIA	220	713	87	3	1023
Total	5,604	8,693	1,365	656	16,318

Source: Commission of University Education (2016)

Most of the academic staff are teaching Arts and Social science-based courses. As at 2016, Arts and Humanities cluster had the highest number of academic staff at 4630 representing 32 percent of the total academic staff (Table 66). Health and Welfare cluster had 1955 teaching staff representing 12 percent, and Applied Sciences had 4,630 representing 29 percent. The clusters with the smallest number of academic staff was Pure and Natural Science, with 6 percent of academic staff. The small number of academic staff for Science courses implies that universities have a low capacity to offer training in Science and Engineering courses. These courses require very low staff student ratio and therefore call for additional academic staff so as to meet quality thresholds.

Table 66: Academic staff by Program Cluster

Course	Percent
Arts and Humanities	32
Applied sciences	29
Social sciences	21
Medical and Applied Sciences	12
Pure National Sciences	6
Other	1

Source: Commission of University Education (2016)

11.4.3 Full time Equivalents for Students and Staff

One of the proxies of quality of education offered at universities is the Staff Student Ratio (SSR). Table 67 shows the recommended full-time staff student ratio as provided in the university regulations. Medical and allied Sciences require the lowest number of students per lecturer while Social Sciences require the highest. The lecture workload per week is set at 40 hours. The guidelines assume that every lecturer works on a full-time basis.

Table 67: Recommended full time staff: student ratio

Cluster	Full time Staff: Student Ratio
Applied Sciences	1:10
Arts and Humanities	1:15

Medical and Allied Sciences	1:7
Pure an Natural Sciences	1:10
Social Sciences	1:18
Lecture Work load (Hours per week)	40

Source: Commission for University Education (2015)

On the overall, the Staff Student Ratio in Kenya is way below the recommended levels shown in Table 67. Table 68 shows the calculations for the total Staff Student Ratio for the academic year 2016/17. During this year, there were 492,209 students out of which 384,950 were Bachelor degree students. There were 9,775 full time lecturers and 5,724-part time lecturers. In order to obtain Staff Student Ration (SSR) at full time equivalent, we follow a common practice in the literature by equating three part-time academic staff to one academic staff. This calculation is important in determining the optimum staffing levels according to the criteria set in the University Guidelines and Regulations. Since there were 5,724-part time academic staff, this is equivalent of 1,908 full time academic staff. This results to a total of 11,683 (9,775 full time plus 1,908 full time equivalent staff) full time academic staff against a total of 384,950 bachelors students, resulting in an overall SSR of 1:33 (Table 69). This actual Staff Student ratio shown in Table 69 is higher than the recommended levels as shown in 66 suggesting that universities in Kenya are generally still understaffed. This overall Staff Student Ratio in fact masks huge Staff Student Ratio across the courses, as some courses in public universities have as close to 200 students per lecturer.

Table 68: Student/Staff FTEs 2016/17

Student enrolment	
Bachelors	384,950
Masters	43,379
PhD	12,718
Diploma	51,162
Total	492,209
Academic Staff	
Full time staff	9,775
Part time staff	5,724
1/3 of part time staff*	1,908
Total full-time staff equivalents	11,683
Full time SSR**	33
Full / Part time staff ratio	1.7

Source: Commission for University Education (2016). Notes: * We follow a common practice in the literature by equating three part-time academic staff as one academic staff, ** the SSR is based on Bachelors students only.

Table 69: Academic Staff to Student Ratio per Cluster in Public Universities

Clusters	No. of Staff	No. of Students	Ratio
Agriculture, Forestry and Fisheries	819	26,648	1: 33
Architecture	231	5,057	1: 22
Business and Administration	1883	93,331	1: 50
Computing	452	15,137	1: 34
Education (Arts)	1048	69,188	1: 66
Education (Science)	144	26,772	1: 186

Engineering	761	21,710	1: 29
Environment	433	9,587	1: 22
Health and Welfare	1338	23,599	1: 18
Humanities and Arts	962	40,179	1: 42
Journalism and Information	248	11,298	1: 46
Law	210	3,642	1: 17
Life and Physical Sciences	1484	34,385	1: 23
Manufacturing	50	2,290	1: 46
Mathematics and Statistics	431	14,396	1: 33
Security and Conflict Resolution	128	5,126	1: 40
Services	172	8,934	1: 52
Social and Behavioural Sciences	694	33,491	1: 48
Teacher Training	124	5,673	1: 46
Veterinary	193	1,122	1: 6

The shortfall in the number of lecturers has resulted in majority of them engaging in part-time teaching. According to a recent study carried out by the Kenya Institute of Public Policy, Research and Analysis (KIPPRA), up to 50 percent of staff at public universities do part-time jobs, mostly teaching in other universities and spending their days crisscrossing from one university hall to another, oblivious of the effect such moves have on the general quality of education. The emergence of part-time university lecturers in Kenya can be traced to the early 1990s. This is when private universities were authorized to operate. The government agreed that, to cushion these newcomers against financial problems, only 50 percent of their teaching staff needed to be full-time employees. Many of their temporary staff were drawn from public universities. Over time, public universities started to expand rapidly, thanks to the introduction of module II. Many public institutions opened branch campuses, often staffed by part-time academic staff. The challenge with part-time lectures is that they do not get involved in other university work like research, committee meetings and advising postgraduate students. They are also not loyal to one institution; they know little or nothing about an individual university's mission, policies, procedures and programs.

External quality assurance is now mandatory for all Kenyan higher education institutions and programs of study. However, CUE will require significant capacity enhancement if it is to effectively deliver on its expanded mandate. A key element of ensuring quality in any tertiary education system is the presence of a robust and effective quality assurance system. Previously, the Commission for Higher Education (CHE) only accredited institutions and programs at private universities. However, under the provisions of the new University Act (2012), CUE—which has replaced CHE—is now mandated to undertake quality assurance for the university sector as a whole. The fact that all institutions and programs will now be subject to scrutiny through external quality assurance, students are bound to benefit. However, CUE now faces the additional challenge of accrediting the public sub-sector, inclusive of 23 public constituent colleges, as well as new private universities that have received a Letter of Interim Authority (LIA). Moreover, CUE's expanded mandate includes responsibility for the

accreditation of all programs delivered at universities. The scale of this particular challenge is underlined by the fact that the University of Nairobi alone delivers 371 programs.

11.5 Internal Efficiency of Institutions and Streams

Table 70 and Table 71 show graduations in public and private universities from 2012 to 2015, respectively. Over the period, there was a progressive increase in graduation. In 2012, a total of 23,523 students consisting of 14,159 males and 9,364 female graduated. This increased to 49,020 students consisting of 28,224 males and 20,796 females in 2015. Over the four-year period, a total of 143,262 students graduated with 83,736 being male and 59,525 being female students

Table 70: Graduation Trends in Public Universities

Public Universities	2012		2013		2014		2015		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Bachelor	12,210	8,088	14,182	10,232	20,955	14,749	23,744	17,619	71,091	50,688
PGD	264	196	317	182	1,110	745	555	307	2,246	1,430
Masters	1,568	1,023	1,574	1,098	2,830	2,133	3,663	2,715	9,635	6,969
PhD	117	57	140	87	245	140	262	155	764	439
Total	14,159	9,364	16,213	11,599	25,140	17,767	28,224	20,796	83,736	59,526

Source: Commission for University Education (2016).

Table 71: Graduation Trends in Private Universities

Private Universities	2012		2013		2014		2015		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Bachelor	5,202	6,223	7,355	8,396	8,031	9,034	9,251	10,247	29,839	33,900
PGD	72	48	190	122	172	108	303	261	737	539
Masters	847	909	1,375	1,242	1,192	1,115	1,202	1,011	4,616	4,277
PhD	17	6	27	15	23	19	33	19	100	59
Total	6,138	7,186	8,947	9,775	9,418	10,276	10,789	11,538	35,292	38,775

Source: Commission for University Education (2016).

11.6 Equity in Access to Higher Education

Patterns of access to both public and private universities tend to reflect increasing regional, gender and socio-economic differentiation in the country. The existing inequalities in access to education at lower levels need critical attention as they tend to be reproduced or exacerbated as one goes up the education ladder. As students move from one tier to the other, those from disadvantaged backgrounds are more likely to drop out. According to the Welfare Monitoring Survey (1997), two-thirds of university students in 1997 came from the richest and second richest quartile with only 7.5 percent representation by the very poor. This situation has been exacerbated by the slow growth in the number of students sponsored by the Government, despite the significant increase in the enrolment capacity of universities mainly taken up by self-sponsored students.

For every level of program, there are more male than female students. Table 72 shows enrolment of students by gender by different program levels as at 2016. During that year, there were 59 percent male students enrolled for Bachelor's degree programmes relative to 41 percent female students. At Post Graduate Diploma, Masters and PhD, the same trend appears. In Table 73, we show graduation by gender for the different course clusters. It emerges that relative to male, female students are more aligned to humanities/arts courses and less aligned to STEM subjects.

Table 72: Enrolment of Students by Gender

Level	Description	Enrolment	Percent share
Bachelors	Male	278,512	59
	Female	197,238	41
	Total	**475,750**	
Postgraduate Diploma	Male	940	68
	Female	452	32
	Total	**1,392**	
Master's	Male	32,912	59
	Female	22,549	41
	Total	**55,461**	
PhD	Male	4,915	69
	Female	2,231	31
	Total	**7,146**	
Grand Total	Male	317,279	59
	Female	222,470	41
	Total	**539,749**	

Source: Commission for University Education (2016)

Table 73: Graduation by Gender

Clusters	Total			Percent Share	
	Male	Female	Total	Male	Female
Teacher Training	1,629	2,457	4,086	40	60
Journalism and Information	2,259	3,120	5,379	42	58
Services	808	1,001	1,809	45	55
Social and Behavioural Science	3,426	4,163	7,589	45	55
Education (Arts)	19,214	19,903	39,117	49	51
Law	2,500	2,554	5,054	49	51
Health and Welfare	6,618	6,374	12,992	51	49
Humanities and Arts	9,379	8,567	17,946	52	48
Other	1,671	1,572	3,243	52	48
Business and administration	35,923	31,496	67,419	53	47
Environment	2,018	1,319	3,337	60	40
Agriculture, Forestry and Fisheries	3,604	2,173	5,777	62	38
Life Science and Physical Science	4,993	3,100	8,093	62	38
Education (Science)	5,580	3,177	8,757	64	36
Mathematics and Statistics	2,425	1,361	3,786	64	36
Security and Conflict Resolution	1,463	684	2,147	68	32
Computing	7,985	3,439	11,424	70	30
Architecture	926	357	1,283	72	28
Veterinary	146	56	202	72	28
Manufacturing	221	58	279	79	21

Engineering	6,240	1,370	7,610	82	18
Total	119,028	98,301	217,329	55	45

Source: Commission for University Education (2016)

11.7 Affirmative Action for Persons from Marginalised Areas and by Gender

Under this affirmative action, students from marginalized counties are selected to join universities at five points below the general cut off points set in a particular intake. This intervention benefits students from the following counties classified by the Commission on Revenue Allocation as marginalized: Turkana, Garissa, Marsabit, Tana River, Mandera, Lamu, Wajir, Taita-Taveta, Isiolo, Kwale, Samburu, Kilifi, West Pokot and Narok. In 2013, some 3,666 accessed University Education on account of affirmative action for gender. This number shot up to 4,883 in 2017. This reflects a 24.9 percent increase. Under this intervention, female students are placed to universities at two points lower than male candidates. Female and male candidates are also selected into specific programs with a maximum of two points lower subject to attainment of 1/3 gender representation in programs that are either male or female dominated.

11.8 Cost and Financing

11.8.1 Financing of University Education

Financing of university education has grown rapidly over the last five years. Universities are getting funding through multiple sources. The first and main source is the Central Government which comes through the Medium-Term Expenditure Framework (MTEF) budget cycle process. Funding to universities is divided into recurrent and development and is determined through a Differentiated Unit Cost Model. University funding is also derived from income generating activities and grants and loans from development partners. In addition, universities are also funded by households through fee paying students. The largest share of income for public universities, however, is fees charged on students and financing from the Central Government (see Figure 82). Central Government funding to public universities increased marginally from KES. 33.5 billion in 2014 to about KES. 34.4 billion in 2016, while fees collected from students increased from KES. 30.8 billion to KES. 34.2 billion during the same period. The increase in fees charged on students is due to the introduction of parallel programs. For private universities, the largest share of income is fees charged on students, which increased from KES. 16 billion in 2014 to about KES. 17 billion in 2016 (**Figure 83**).

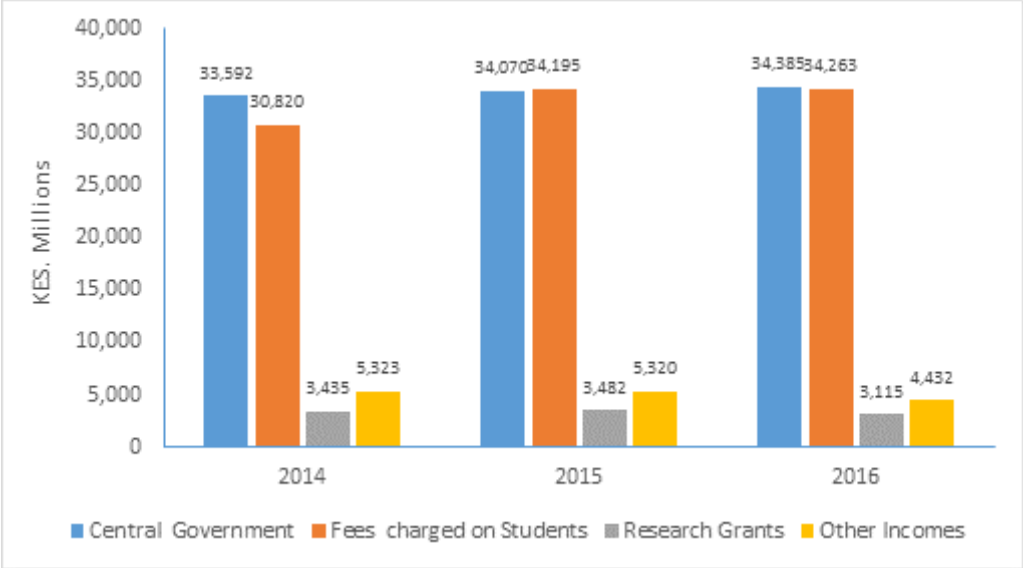


Figure 82: Income Source for Public Universities

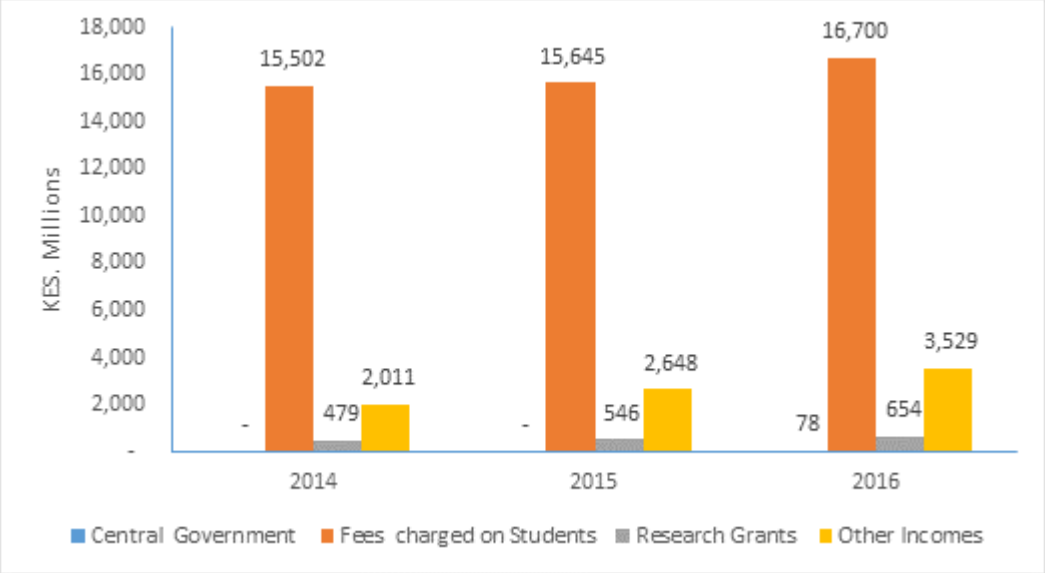


Figure 83: Income Source for Private Universities

Universities spend a large share of their income on recurrent expenditures. Table 74 shows trends in expenditure in public universities from 2013/14 to 2016/17. The data shows that expenditure rose from KES. 57.3 billion in 2013/14 to KES. 67.9 billion in 206/17. Recurrent spending, which is largely driven by salary expenditure, was 91 percent of total expenditure in 2013/14 and decreased to 83 percent in 2016/17. Over the same period, capital expenditure also increased twofold from KES 5 billion to KES. 11.5 billion in 2016/17, mainly driven by infrastructure expansion and establishment of new public universities.

Table 74: Trends in expenditure in Public Universities

Type of Grant	2013/2014	2014/2015	2015/2016	2016/2017
Recurrent expenditure	**52,233**	**52,856**	**55,840**	**56,392**
of which:				
Recurrent grants	35,556	36,174	39,157	40,392

AIA	16,677	16,683	16,683	16,000
Capital Grants	**5,009**	**8,412**	**7,136**	**11,479**
of which:				
NET capital	3,509	5,201	4,175	8,504
Loans/ Grants	1,500	3,210	2,961	2,975
Total expenditure	**57,241**	**61,268**	**62,976**	**67,871**
Recurrent grants (percent)	91	86	89	83
Capital Grants (percent)	9	14	11	17

Source: National Treasury

11.8.2 Average Cost of Financing in University

Average financing of university education per student has declined over time. As **Figure 84** shows, spending per student (unit cost expenditure) declined from KES 197,566 in 2013/14 to KES 141,600 in 2016/17. This can be attributed to the rapid increase in student numbers that has not been matched by corresponding increase in funding. Average government expenditure declined even more rapidly, from KES 122,721 to KES 84,720 in 2016/17. While the decline in unit costs signals an increase in spending efficiency, as more students are being trained at a lower cost, there is need to ensure that the quality of training is not compromised. Second, our per student spending may not be accurate because universities do not fully disclose their income and spending. The expenditure and spending figures captured in national budget books, which we report here, do not fully capture revenue generated by public universities. Going forward, we call for improvement in the financial management practices in universities, including harmonizing expenditure of revenue from both government and household and other sources.

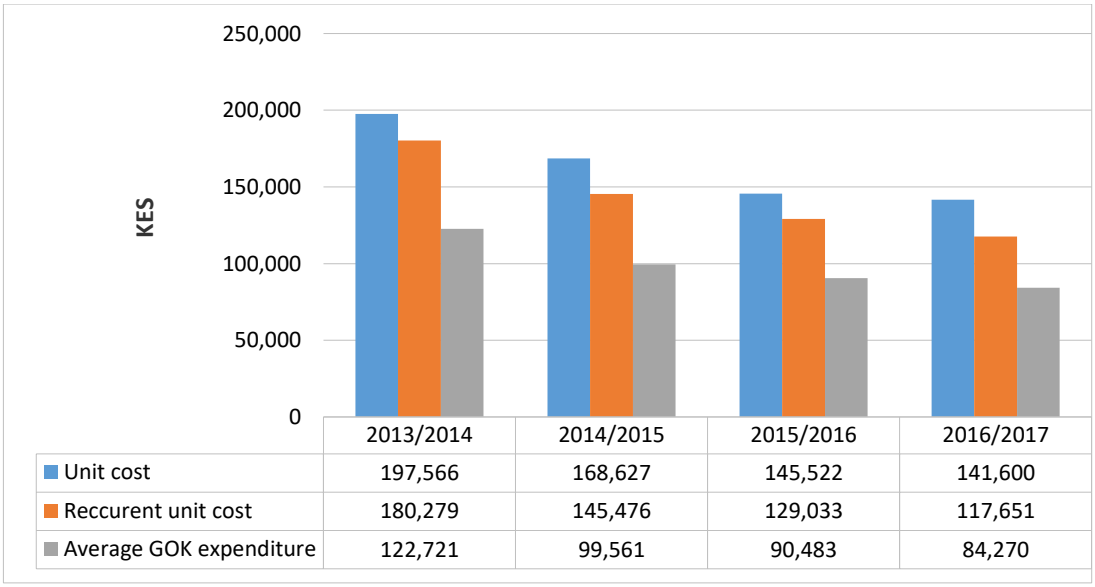


Figure 84: Trends in Average Financing in University Education 2013/14- 2015/16

11.8.3 Financing Students' Higher Education

11.8.3.1 *Student Loans Financing*

In 1995, the Higher Education Loans Board (HELB) was established through an Act of Parliament to manage financial assistance to students enrolled in Kenyan public and

private universities and TVET institutes. HELB awards two sets of loans- for fresh secondary graduates and for salaried students. Loans for fresh graduates are targeted to students admitted to public or private universities within the East African Community (EAC). Students are identified following their graduation from high school through the KUCCPS or as self-sponsored students. Loans dispensed range between a minimum of KES. 35,000 and a maximum of KES. 60,000, according to the student's need. Loans are subject to an interest rate of 4 percent per annum and students are required to commence repayment of their loans on completion of their studies. Undergraduate loan repayment commences within one year of the completion of studies. Alternative loans are available for Postgraduate (Masters & PhD) and undergraduate applicants who have salaried employment. Beneficiaries are able to repay their loans while studying, allowing the Board to generate income from application fees and interest charged in order to build and maintain a sustainable revolving fund.

Box 18: Why is Public Student Financing Important in Kenya?

If effectively targeted, the HELB's student financing model can promote equitable access to higher education while ensuring financials sustainability. In Denmark, Arendt (2008) shows that effective student loan systems in support of tertiary education have been shown to reduce dropout rates and increase graduation rates. There are several constraints related to large scale student financing through models like HELB without depending on public support. Some of these constraints are related to market failures relating to high social returns, information asymmetries, and uncertainties that undermine private student loan schemes. Private lenders shy away from awarding loans in support of education because, unlike the case of commercial loans, investment in education constitute large sunk costs which cannot be recovered and sold to recover costs associated with loan default. Examples around the world show challenges facing private student financing. In Chile, private banks are assigned responsibility for originating and servicing loans through a "market-based" mechanism for allocating ownership of loan portfolios. While these innovations have been generally positive, especially in their intent, they incorporate some perverse incentives which generate additional costs. The Chilean system permits banks to accrue a relatively risk-free, profitable portfolio of loans, while charging inflated premiums and leaving high costs segments of the loan portfolio for servicing by Government (Blom et al., 2016). Around the world, there are models of private student financing. In Bangladesh, the Grameen Bank offers a student loan program for the children of poor families who are already the beneficiaries of small loans for productive activities (Hopper, 1999). In Colombia, COLFUTURO was created as a foundation with capital contributions from both the public and private sectors in the early 1990s with the purpose of offering loans for students pursuing studies abroad in areas identified as being in the national interest (see https://www.colfuturo.org/english).

The shift to accelerated intake in 2014 led to an upsurge in enrolments, putting a strain on HELB resources. Ordinarily, students enter the university system following a lag of one year. However, in 2014, this was changed as students who sat for the KCSE exams in 2013 were admitted to university the following year under the accelerated intake program. This resulted in the surge of loan applicants**,** which severely strained HELB's resources. During the same year, the low pace of loan disbursement led to strikes and unrest across the country. Students protests were witnessed in several universities including University of Nairobi, Kenyatta University, Jomo Kenyatta University of Agriculture and Technology (JKUAT), Masinde Muliro University of Science and Technology, Technical University of Mombasa, Dedan Kimathi, Meru and Karatina. Table 74 shows trends in student loans applications over the period 2012/13 to 2016/17. The HELB support for student loans increased substantially over the last five years. The number of loan applicants increased from 124,554 to 203,037 in 2016/17. On average, 96 percent of the applicants were successful every year, implying that the HELB strove to award loans to most of the applicants. The value of the loans awarded also increased from KES 4.9 billion in 2012/13 to KES 8.158 billion in 2016/17.

Table 75: Student Loans Applications and Loan Awards

	Year	Number of loan applicants	Number of applicants awarded loans	Total Loans Awarded (KES Million)	% of successful applications	Average loans awarded in KES
Public Universities	2012/2013	124,554	113,403	4,895.40	91	43,168
	2013/2014	155,005	140,520	6,123.70	91	43,579
	2014/2015	172,426	164,869	6,608.70	96	40,085
	2015/2016	183,887	176,708	7,021.50	96	39,735
	2016/2017*	203,037	195,506	8,158.50	96	41,730
Private Universities	2012/2013	6,192	4,521	201.8	73	44,636
	2013/2014	6,694	5,130	218.5	77	42,593
	2014/2015	5,725	5,061	199.5	88	39,419
	2015/2016	5,542	4,991	192.3	90	38,529
	2016/2017*	6,751	6,047	252.3	90	41,723

Given the potential increase in the demand for loans, there is need for targeting assistance to the needy students. As Table 75 shows, close to 80,000 new applications applied for the HELB loan between the years 2012/2013 and 2016/2017. However, the average loan per student decreased from KES 43,579 to KES 41,730 (for public universities) and from KES 44,636 to KES 41,723 (for private universities) during this same period. This suggests that growth in number of applicants has outstripped the growth in funds allocated for student loans. As a consequence, there will be an added impetus to target assistance to the needy students. HELB uses Means Testing Instrument (MTI) in determining how much loan to award a student. MTI evaluates each applicant against a set of criteria designed to assess relative need and the government's priorities. The specific MTI instrument varies slightly by type of loan product, but all models score students across a range of indicators to establish relative need (Blom et al., 2016). These indicators include, inter alia, household income, gender, number of siblings, and a determination of who paid for the secondary education.

Although the MTI is demonstrably effective in identifying students in comparative need, it does not perform as well with regard to assigning loans to students according to need. The MTI scorecard divides household income in five categories wherein households with the lowest income quintile earn less than KES. 20,000 per annum, and the highest earn KES. 150,000 per annum (Figure 85). The amount to be loaned to students varies according to the income of the household. The loans distributed by HELB do not vary significantly by household income, and disbursement mechanisms need to be improved to further prioritize financial support to low income students. Estimates by Blom et al. (2016) show that students evaluated by HELB as being in the lowest income group, receive an average loan of US$504, compared to students in the highest income group who receive US$436. As a consequence, the means testing mechanism allocates a 20 percent differential in the amount disbursed to the "richest" and "poorest" beneficiaries, despite a 700 percent differential between the lowest and highest categories of household income measured by the instrument.

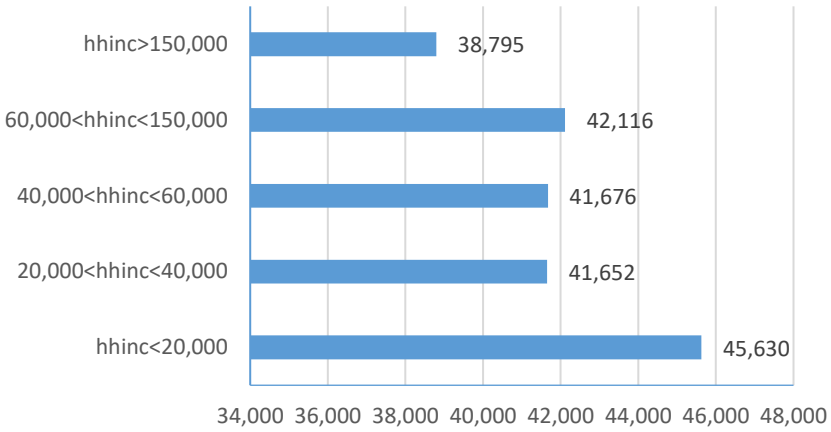


Figure 85: Average Loans, by Income Group
Source: Raza et al. (2016)

HELB does not have systems to fully assess the veracity of financial information provided by loan applicants. It is possible that loan applicants under-report income to boost their chances of acquiring loans. Blom et al. (2016) have compared the distribution of income of loan recipients with estimated household income from a 2013 representative household survey. Inconsistencies between the distribution of average household income and Kenyan household income were discovered, implying that stronger mechanisms are required to verify reported income. According to the household survey, 22.9 percent of Kenyans have an annual household income between KES. 12,000 and KES. 36,000 (**Figure 86**). Two points arising from the analysis are pertinent: The distribution of overall household income is skewed to the left, while the distribution of loan applicants peaks twice, with 27.9 percent falling in the lowest range of income (below KES. 12,000), 23 percent in the overall average range, and 12.26 percent in a much higher range (KES. 240,000 to KES. 600,000). The distribution of household income for loan applicants does not match an expected distribution, which one would expect to be skewed to the right (given that households that access post-secondary education are relatively well off compared to the population at large). The percentage of loan applicants reporting zero income is much higher than the equivalent group in the household survey.

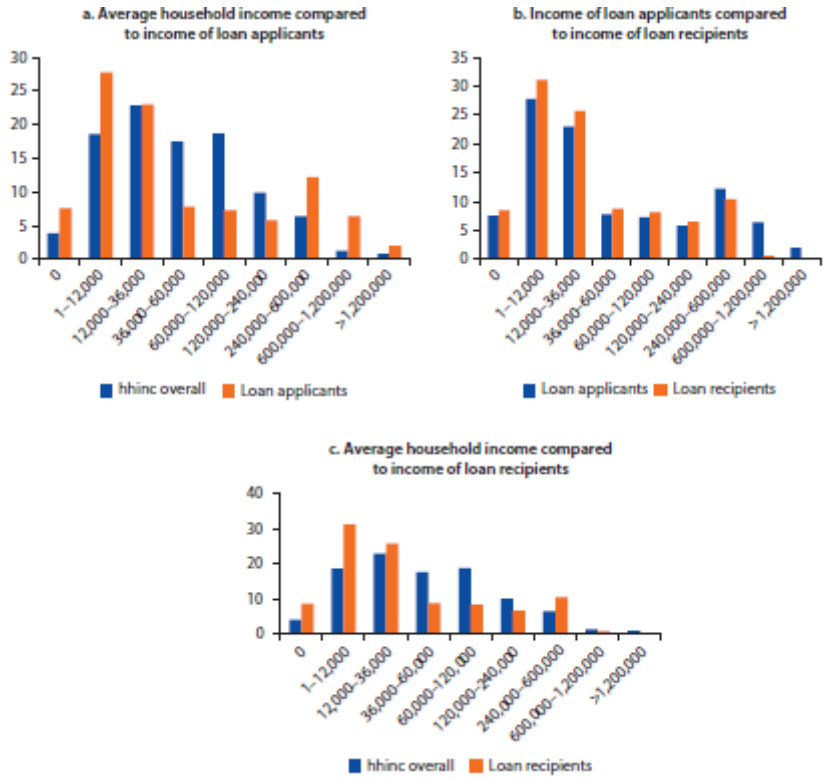


Figure 86: Household Incomes of Loan Recipients and Average Households in Kenya
Source: Blom et al. (2016)

11.8.3.2 *Sources of Funding for HELB*

HELB has mainly been funded from Government Capitation and Loan Recoveries. Funding from the National Treasury to HELB increased from KES 2.448 billion in 2012 to KES 6.414 billion in 2016. Over the same period, loan recoveries improved from KES 3.251 billion to KES 4.250 billion. However, loan recoveries increased at a slower rate and have lagged behind government capitation as a source of funds for HELB (see Table 76).

Table 76: Trends in Loan recoveries and capitation to HELB

Year	GoK Capitation (Kes Million)	Loan Recoveries	Total GOK Capitation and Loan Repayment
2012	2,448.20	3,251.80	5,700.00
2013	3,157.00	3,205.00	6,362.00
2014	4,706.00	3,257.10	7,963.10
2015	6,050.00	3,982.60	10,032.60
2016	6,414.80	4,250.00	10,664.80

11.8.3.3 *Student Loan Recovery Trend*

The financial viability of HELB is dependent, in part, on the degree of interest rate subsidy, default rates and administrative costs. The default rate, in turn, is a function of the income of the graduates, the effectiveness of collection mechanisms, and the type of repayment schedule applied (fixed payments versus graduated payments and length of the grace period). HELB loans are subject to an interest rate of 12 percent per annum. Since 1974, the Board has disbursed KES. 60.7 billion to 539,688 loanees out of which 319,906 loan accounts worth KES. 40 billion have matured for repayment, while 219,782 loanees, holding KES. 20 billion, are still in institutions of higher learning. A total of 111,667 loanees have cleared loan repayment valued at KES. 11.1Billion. Currently, 126,817 loan accounts holding a total of KES. 19.2 billion are in repayment while 81,422 records holding KES. 9.5 billion were in default in 2015/16. What this means is that the scale and financial sustainability of HELB can be improved through greater risk-sharing and improved loan recovery.

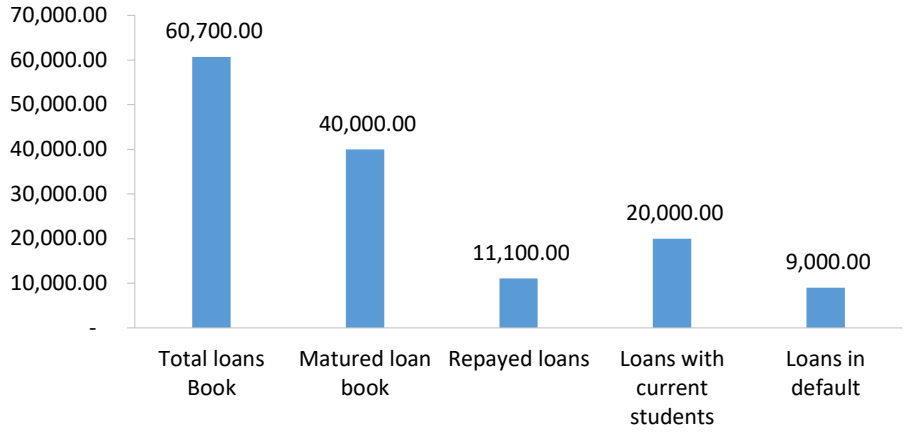


Figure 87: Student Loan Book Performance 2015/16

11.8.3.4 *Student Bursaries*

In addition to the student loans, HELB also administers bursaries to needy students in both public and private universities (Table 77**).** The number of bursary applications increased between 2012/13 and 2016/17 in both public and private universities. The average bursary awarded rose from KES 5,577 in 2012/13 to KES 6,344, in public universities. The average bursary awards in private universities declined from KES 12,762 to KES 8,345. The increased demand for bursary is a pointer to the fact that the cost of education is a significant barrier to education. In 2016/17 alone, 38,801 students applied for bursary, which accounted for about 7 percent of the total student enrolment in universities.

Table 77: Trends of Students' Bursary Applications and Awards

	Period	Number of Bursary applicants	Number of Applicants Awarded Bursary	Total Bursary Awarded (KES Million)	Average bursary KES
Public Universities	2012/2013	13,547	13,572	75.70	5,577.66
	2013/2014	10,710	11,261	70.20	6,233.90
	2014/2015	15,174	15,036	91.10	6,058.79
	2015/2016	19,655	15,162	91.20	6,015.04
	2016/2017*	22,834	17,938	113.80	6,344.07
	Sub Total	**81,920**	**72,969**	**442.00**	**6,057.37**
Private Universities	2013/2014	3,996	3,996	51.00	12,762.76
	2014/2015	7,602	7,602	64.30	8,458.30
	2015/2016	15,330	15,330	125.00	8,153.95
	2016/2017*	15,967	15,967	117.90	7,383.98
	Sub Total	**42,895**	**42,895**	**358.00**	**8,345.96**
	Grand Total	124,815	115,864	800.00	6,904.65

Key Policy Priorities for the Next NESSP 2018-2022

❖ **Establishment of New Universities**

- Establishment of new public universities should be on the basis of proper planning, availability of resources, and where there is need for knowledge in specialized areas.

- Guidelines and threshold criteria for establishing new universities should be developed, including the minimum student holding capacity required for a new university to commence operations.
- The DUC should be reviewed to include criteria for funding newly established universities, for both recurrent and development.
- Recently established universities should be required to specialize in specific areas of training that are aligned to national objectives.

❖ **Student Placement and Admission**

- Students are, to the greatest extent possible, placed by KUCCPS to courses that they wish to pursue, subject to the availability of teaching resources.
- CUE to determine capacities for student placement based on quality assessment and national priority areas, as determined by government and labour market surveys. KUCCPS cut-off points should be determined based on this assessment. The total admission for government sponsored and fee-paying students in a university should not exceed the CUE declared holding capacity.
- Develop criteria to determine placement of public sponsored students in private universities.

❖ **Promotion of Science Technology and Engineering**

- Progressively ensure that at least university students are placed in SET courses, with emphasis on areas identified as national priorities for the next five years.
- Invest in infrastructure and equipment to support training in SET.
- Develop capacity of teaching faculty in SET areas of training.
- Review programs and curriculum offered in SET.

❖ **Financing University Education**

- Review DUC to ensure that capital funding and funding for research outputs is considered.
- Provide capitation for students placed by KUCCPS for Diploma programs in technical universities.
- Implement IFMIS in all public universities.
- Harmonize reporting and expenditure in public universities.
- Allocate additional funds to HELB and enhance loan recovery and management of loan portfolio for HELB.

12. Pertinent and Contemporary Issues and Values

There are a number of pertinent and contemporary issues that affect education access, retention, completion and ultimate advancement in the world of work. This section highlights a few that need policy and special attention:

***School Violence and Extremism*:** In the recent past, the country has experienced several forms of violence in schools. One form of such violence is setting of schools on fire. Student unrests and strikes have been perennial occurrences in Kenya, resulting in wanton destruction of school property and loss of life. In 2016 alone, close to 120 cases of school arson were reported. Bullying is another form of violence reported in Kenyan schools. A 2017 Centres for Disease Control (CDC) led collaborative surveillance survey ranks Kenya among countries with the highest level of bullying. At the national level, bullying in schools in Kenya stands at 57 per cent for students who are bullied on one or more days in a month. Perhaps most worrying is student radicalization and extremism. School children in Kenya are being increasingly targeted by efforts to radicalize the country's youth. The country has been experiencing increasing cases of disappearances as well as arrests of school going children linked to extremist organizations. A recent government assessment highlighted a number of factors fueling school violence and extremism: heavy school overloads, peer pressure, lack of skills on the part of teachers and school administrators on early warning signs and detection, ineffective guiding and counselling support services.

***Drug and Substance Abuse*:** Closely related is the issue of drug and substance abuse among school going children. A 2016 report by National Authority for the Campaign Against Alcohol and Drug Abuse (Nacada) survey shows that the median age of the children who admitted to using bhang was 15, the time when most of them are in Form Two and undergoing puberty. The report notes that students are likely to initiate alcohol, khat/miraa, tobacco and heroin at the age of 14 years. For cocaine, the age of onset is 14.5 years, while bhang is 15 years. According to the report, more than seven in 10 (71.3 per cent) of the students agreed that they were likely to initiate alcohol and drug of abuse in school. An almost similar number, 69.1 per cent, reported that students had a role to play in the supply of alcohol and drugs of abuse in school. Despite the popular belief that most children could be succumbing to the practice due to peer pressure in school, the report also found that the home environment was another major risk for initiation into drug use.

Challenges of the Girl Child: Teenage pregnancy, which affects the girl child, is another pertinent and contemporary issue affecting learning in Kenya. According to a 2016 survey by the United Nations Population Fund (UNFPA), close to a quarter a million adolescent girls in Kenya aged between 10 and 19 years became pregnant between July 2016 and June 2017. The Kenya Demographic Health Survey (KDHS) 2014 found that one in every five girls between 15-19 years has begun childbearing while close to 13,000 teenage girls drop out of school every year due to pregnancy (KDHS 2014). The situation is alarming in some counties. KDHS 2014 report further indicated that 4 out of 10 girls in Narok County got pregnant at a tender age. Other counties that have been put on spotlight over teenage pregnancies include Homa Bay (33%), Kitui (36%),

West Pokot (29%) Tana River (28%), Nyamira (28%), Samburu (26%), Migori (24%), Kwale (24%) and Nairobi (21%).

HIV/AIDS: HIV/Aids has had wide spread effects on children's learning experiences in Kenya. As parents, guardians and members of communities increasingly become infected by HIV/AIDS and eventually succumb to the disease, children are increasingly lacking basic needs such as food, clothing, shelter, health and even education. Within schools, the knowledge of HIV and AIDs among learners is quite low. Learners still engage in unprotected sexual activities exposing them to the risk of HIV infection. Those who are infected by HIV and Aids face stigma and discrimination and lack adequate family support. Other challenges faced by infected and affected learners include; inadequate psycho-social support, inadequate capacity to deal with HIV and AIDS-related issues, and lack of coordination for response activities.

***Child Labour*:** According to surveys, child labour is still rife and rampant in Kenya today. This could be attributed to many factors not limited to poverty, ignorance, cultural practices and exploitation. Estimates show there are 1.9 million child labourers in Kenya representing 17 percent of minors in the country with majority aged between 5-17 years. Agricultural sector is the leading employer of minors in Kenya followed by the domestic sector. Close to 82 percent of the domestic workers are girls from rural areas working in urban centers. Key regions with high child labour prevalence are coast, fishing areas and areas where miraa are grown such as Embu and Meru. Kenya has made some commendable moves towards eliminating child labour, primarily through the National Policy on the Elimination of Child Labour, and most recently the Computer and Cybercrime Bill with its provisions on child sexual exploitation. And worth mentioning is the Children's Act which domesticated most international and continental conventions to enhance child rights and protection.

Education in Emergencies: In addition, a large proportion of children face challenges in accessing quality education due to natural or man-made disasters. These include: harmful traditional practices, floods, drought, fires, insecurity, cattle rustling, inter-ethnic clashes, inter-clan clashes, terrorism and political instability, among others. On average, drought events affect an estimated 250,000 school age children and 8000 teachers annually to varying severity levels. Within schools, young people have to handle other issues dealing with career choices, peer pressure among others.

MINISTRY OF EDUCATION

NATIONAL EDUCATION SECTOR STRATEGIC PLAN (2018-2022)
MULTI-YEAR PROGRAMS AND COSTS

SUMMARY ANNUAL COST PROJECTIONS

Development (in Million Kenya Shillings)

State Department/ Sub-Sector	2018/19	2019/20	2020/21	2021/22	2022/23	Total Cost
All State Departments		**19**	**34**	**4**	**8**	**65**
Sector Governance & Accountability		19	34	4	8	65
State Department of Early Learning & Basic Education	**3,875**	**62,825**	**71,092**	**75,711**	**41,270**	**254,774**
Pre-Primary Education		10,705	15,705	10,705	5,705	42,820
Primary Education	300	36,275	40,175	50,175	22,575	149,500
Secondary Education	3,405	10,794	10,852	10,851	10,799	46,702
Inclusive Education		3,800	2,510	2,460	1,121	9,891
Teacher Education, Development & Management	170	170	170	170	170	850
Adult & Continuing Education		1,080	1,680	1,350	900	5,011
State Department of Vocational and Technical Training	**2,445**	**31,481**	**38,560**	**48,980**	**51,646**	**173,112**
Vocational & Technical Training	2,445	31,481	38,560	48,980	51,646	173,112
State Department of University Education	**16,400**	**19,025**	**18,775**	**17,775**	**17,525**	**89,500**
University Education	15,600	18,225	18,475	17,475	17,225	87,000
Science, Technology & Innovation	800	800	300	300	300	2,500
Grand Total	**22,720**	**113,350**	**128,461**	**142,470**	**110,449**	**517,450**

Recurrent (in Million Kenya Shillings)

State Department/ Sub-Sector	2018/19	2019/20	2020/21	2021/22	2022/23	Total Cost
All State Departments	**13**	**42**	**46**	**73**	**22**	**196**
Cross-Cutting & Contemporary Issues	13	42	46	73	22	196
State Department of Early Learning & Basic Education	**102,909**	**131,432**	**138,166**	**146,153**	**146,486**	**665,147**
Pre-Primary Education	2,320	9,102	9,302	8,227	5,502	34,453
Primary Education	4,311	22,490	25,426	28,250	24,090	104,567
Secondary Education	77,418	79,600	83,180	89,419	96,723	426,341
Inclusive Education	205	1,544	1,553	1,566	1,495	6,364
Teacher Education, Development & Management	18,656	18,656	18,656	18,656	18,656	93,278
Adult & Continuing Education		41	49	36	20	145
State Department of Vocational and Technical Training	**7,048**	**5,138**	**7,656**	**5,332**	**4,654**	**29,828**
Vocational & Technical Training	7,048	5,138	7,656	5,332	4,654	29,828
State Department of University Education	**63,814**	**70,921**	**76,075**	**81,490**	**87,187**	**379,487**
University Education	63,686	70,614	75,750	81,162	86,860	378,071
Science, Technology & Innovation	129	307	325	327	327	1,416
State Department of Post Training & Skills Development	**92**	**587**	**1,381**	**2,189**	**3,215**	**7,464**
Post-Training & Skills Development	92	587	1,381	2,189	3,215	7,464
Grand Total	**173,877**	**208,120**	**223,324**	**235,237**	**241,564**	**1,082,122**

System Strengthening (in Million Kenya Shillings)

State Department/ Sub-Sector	2018/19	2019/20	2020/21	2021/22	2022/23	Total Cost
All State Departments	**95**	**1,758**	**1,919**	**1,839**	**1,424**	**7,036**
Sector Governance & Accountability	75	1,168	1,189	1,191	1,085	4,708
Kenya National Qualifications Framework	0	45	95	30	0	170
Cross-Cutting & Contemporary Issues	20	545	635	618	339	2,158
State Department of Early Learning & Basic Education	**48,294**	**101,677**	**129,453**	**80,771**	**83,495**	**443,690**
Pre-Primary Education	11	365	393	538	558	1,866
Primary Education	287	1,304	1,018	938	818	4,365
Secondary Education	22,319	23,388	25,315	28,595	31,498	131,115
Inclusive Education	21	177	241	125	116	680
Teacher Education, Development & Management	20,184	70,716	100,056	50,066	50,056	291,078
Adult & Continuing Education	4,968	5,252	1,955	37	7	12,218
Quality Assurance & Standards	504	475	475	472	442	2,368
State Department of Vocational and Technical Training	**1,740**	**3,816**	**1,642**	**943**	**853**	**8,994**
Vocational & Technical Training	1,740	3,816	1,642	943	853	8,994
State Department of University Education	**872**	**1,836**	**2,154**	**1,572**	**1,512**	**7,945**
University Education	187	566	730	295	261	2,038
Science, Technology & Innovation	685	1,270	1,424	1,277	1,251	5,907
State Department of Post Training & Skills Development	**158**	**1,447**	**1,360**	**1,606**	**1,146**	**5,717**
Post-Training & Skills Development	158	1,447	1,360	1,606	1,146	5,717
Grand Total	**51,159**	**110,534**	**136,528**	**86,731**	**88,429**	**473,381**

Total (in Million Kenya Shillings)

State Department/ Sub-Sector	2018/19	2019/20	2020/21	2021/22	2022/23	Total Cost
All State Departments	**108**	**1,819**	**1,999**	**1,916**	**1,454**	**7,297**
Sector Governance & Accountability	75	1,187	1,223	1,195	1,093	4,773
Kenya National Qualifications Framework		45	95	30		170
Cross-Cutting & Contemporary Issues	33	587	681	691	361	2,354
State Department of Early Learning & Basic Education	**155,079**	**295,934**	**338,712**	**302,635**	**271,251**	**1,363,611**
Pre-Primary Education	2,331	20,172	25,400	19,470	11,765	79,139
Primary Education	4,898	60,069	66,620	79,362	47,483	258,431
Secondary Education	103,142	113,782	119,348	128,865	139,020	604,158
Inclusive Education	226	5,521	4,304	4,151	2,733	16,936
Teacher Education, Development & Management	39,010	89,542	118,882	68,892	68,882	385,206
Adult & Continuing Education	4,968	6,372	3,683	1,423	927	17,374
Quality Assurance & Standards	504	475	475	472	442	2,368
State Department of Vocational and Technical Training	**11,233**	**40,436**	**47,858**	**55,255**	**57,153**	**211,934**
Vocational & Technical Training	11,233	40,436	47,858	55,255	57,153	211,934
State Department of University Education	**81,086**	**91,782**	**97,003**	**100,836**	**106,224**	**476,931**
University Education	79,473	89,404	94,955	98,932	104,345	467,109
Science, Technology & Innovation	1,614	2,378	2,049	1,904	1,878	9,823
State Department of Post Training & Skills Development	**250**	**2,034**	**2,741**	**3,795**	**4,361**	**13,181**
Post-Training & Skills Development	250	2,034	2,741	3,795	4,361	13,181
Grand Total	**247,756**	**432,004**	**488,313**	**464,438**	**440,442**	**2,072,953**

PROGRAM LEVEL ANNUAL COST PROJECTIONS

Development (in Million Kenya Shillings)

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
All State Departments		19	34	4	8	65
Sector Governance & Accountability		**19**	**34**	**4**	**8**	**65**
1 Efficiency and effectiveness in the delivery of education services		**19**	**34**	**4**	**8**	**65**
1.2 Human Resource Management in the Education Sector		15	15			30
1.3 Data Management in the Education Sector		4	19	4	8	35
State Department of Early Learning & Basic Education	3,875	62,825	71,092	75,711	41,270	254,774
Pre-Primary Education		**10,705**	**15,705**	**10,705**	**5,705**	**42,820**
1 Access & Participation		**10,705**	**15,705**	**10,705**	**5,705**	**42,820**
1.1 Universal Pre-Primary Education		5,705	10,705	5,705	705	22,820
1.2 Improve Health, Nutrition and Protection of Pre-primary Education learners		5,000	5,000	5,000	5,000	20,000
Primary Education	**300**	**36,275**	**40,175**	**50,175**	**22,575**	**149,500**
1 Access & Participation	**300**	**1,075**	**1,075**	**1,075**	**1,075**	**4,600**
1.1 Universal Primary Education	300	1,075	1,075	1,075	1,075	4,600
2 Equity & Inclusivity		**1,200**	**2,100**	**2,100**	**1,500**	**6,900**
2.1 Reduce disparities in access and retention to primary education		1,200	2,100	2,100	1,500	6,900
3 Quality & Relevance		**34,000**	**37,000**	**47,000**	**20,000**	**138,000**
3.3 Integrate ICT in teaching & learning in primary education		30,000	30,000	40,000	15,000	115,000
3.4 Enhance early talent identification under competency based primary education		4,000	7,000	7,000	5,000	23,000
Secondary Education	**3,405**	**10,794**	**10,852**	**10,851**	**10,799**	**46,702**
1 Access & Participation	**3,055**	**10,444**	**10,502**	**10,501**	**10,449**	**44,952**
1.1 Universal Secondary Education	3,055	10,444	10,502	10,501	10,449	44,952
2 Equity & Inclusivity	**350**	**350**	**350**	**350**	**350**	**1,750**
2.1 Reducing disparities in secondary education	350	350	350	350	350	1,750
Inclusive Education		**3,800**	**2,510**	**2,460**	**1,121**	**9,891**
1 Access & Participation		**3,300**	**2,510**	**2,460**	**1,121**	**9,391**
1.1 Progressive Transition to Inclusive Basic Education		2,370	1,590	1,480	151	5,591
1.2 Functional assessment and early intervention services in education and training		930	920	980	970	3,800
3 Quality & Relevance		**500**				**500**
2.2 Friendly Learning Environment for Inclusive Education		500				500

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Teacher Education, Development & Management	**170**	**170**	**170**	**170**	**170**	**850**
3 Quality & Relevance	**170**	**170**	**170**	**170**	**170**	**850**
1.1 Pre-Service Teacher Training Reforms	170	170	170	170	170	850
Adult & Continuing Education		**1,080**	**1,680**	**1,350**	**900**	**5,011**
1 Access & Participation		**1,080**	**1,680**	**1,350**	**900**	**5,011**
1.1 Expand Learning Opportunities in ACE		1,080	1,680	1,350	900	5,011
State Department of Vocational and Technical Training	**2,445**	**31,481**	**38,560**	**48,980**	**51,646**	**173,112**
Vocational & Technical Training	**2,445**	**31,481**	**38,560**	**48,980**	**51,646**	**173,112**
1 Access & Participation	**325**	**19,105**	**23,385**	**34,685**	**39,421**	**116,921**
1.1 Infrastructure development and equipment of TVET	325	19,105	23,385	34,685	39,421	116,921
2 Equity & Inclusivity		**5,250**	**7,750**	**7,750**	**5,175**	**25,925**
2.1 Inclusive training in TVET		5,000	7,500	7,500	4,925	24,925
2.2 Talent Development and Mentorship		250	250	250	250	1,000
3 Quality & Relevance	**2,120**	**7,126**	**7,425**	**6,545**	**7,050**	**30,266**
3.1 Competency Based Education and Training (CBET) Curriculum Development	10	10	10	10	10	50
3.2 Trainer Management Services		600	900			1,500
3.4 TVET Research, Innovations, Technology Transfers, Entrepreneurship and Commercialization	2,100	3,000	3,000	3,000	3,000	14,100
3.5 ICT Integration in Curriculum Delivery		3,515	3,515	3,515	4,026	14,571
3.6 Greening Technology in TVET	10	1		20	14	45
State Department of University Education	**16,400**	**19,025**	**18,775**	**17,775**	**17,525**	**89,500**
University Education	**15,600**	**18,225**	**18,475**	**17,475**	**17,225**	**87,000**
1 Access & Participation	**12,000**	**13,300**	**13,550**	**13,550**	**13,300**	**65,700**
1.1 Expand infrastructure in all public universities	12,000	12,600	12,600	12,600	12,600	62,400
1.2 Improve retention, wellbeing and productivity of university students		700	700	700	700	2,800
1.4 Open, Distance and E-learning in University Education			250	250		500
3 Quality & Relevance	**3,600**	**4,925**	**4,925**	**3,925**	**3,925**	**21,300**
3.1 Human Resource capacity development for Public Universities		325	325	325	325	1,300
3.3 Develop Infrastructure and provide training equipment	3,600	4,600	4,600	3,600	3,600	20,000
Science, Technology & Innovation	**800**	**800**	**300**	**300**	**300**	**2,500**
1 Access & Participation	**800**	**800**	**300**	**300**	**300**	**2,500**
2.1 Develop infrastructure and provide state of art equipment to support ST&I	800	800	300	300	300	2,500
Grand Total	**22,720**	**113,350**	**128,461**	**142,470**	**110,449**	**517,450**

Recurrent (in Million Kenya Shillings)

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
All State Departments	13	42	46	73	22	196
Cross-Cutting & Contemporary Issues	**13**	**42**	**46**	**73**	**22**	**196**
1 Cross-cutting & Contemporary Issues and Value systems	**13**	**42**	**46**	**73**	**22**	**196**
1.1 Reduce violence, radicalization, extremism, drug and substance abuse	**3**	**5**	**8**	**10**	**10**	**36**
1.2 Mainstream Gender Issues in Education and Training at All Levels		**2**	**3**	**3**	**2**	**10**
1.3 Promote Education in Emergencies	**10**	**10**	**10**	**10**	**10**	**50**
1.6 Enhancing Mentorship, moulding and Nurturing of National Values		**25**	**25**	**50**		**100**
2 State Department of Early Learning & Basic Education	102,909	131,432	138,166	146,153	146,486	665,147
Pre-Primary Education	**2,320**	**9,102**	**9,302**	**8,227**	**5,502**	**34,453**
1 Access & Participation	**1**	**2,283**	**2,283**	**2,283**	**2,283**	**9,133**
1.2 Improve Health, Nutrition and Protection of Pre-primary Education learners	**1**	**2,283**	**2,283**	**2,283**	**2,283**	**9,133**
3 Quality & Relevance	**2,294**	**6,744**	**6,944**	**5,894**	**3,194**	**25,070**
2.1 Implement the Competency Based Curriculum for Pre-Primary education	**1,000**	**3,000**	**1,400**	**500**	**500**	**6,400**
2.2 Improve assessment of learning in Pre- Primary education	**94**	**94**	**694**	**544**	**244**	**1,670**
2.3 Strengthen the capacity of pre-primary Workforce	**1,200**	**2,400**	**3,600**	**3,600**	**1,200**	**12,000**
2.4 Improve pre- primary education standards and quality assurance		**1,250**	**1,250**	**1,250**	**1,250**	**5,000**
4 Governance & Accountability	**25**	**75**	**75**	**50**	**25**	**250**
3.1 Develop a multi-sectoral collaborations and linkages in the management of pre-primary education	**25**	**75**	**75**	**50**	**25**	**250**
Primary Education	**4,311**	**22,490**	**25,426**	**28,250**	**24,090**	**104,567**
2 Equity & Inclusivity	**3,205**	**3,413**	**3,635**	**3,848**	**4,044**	**18,145**
2.1 Reduce disparities in access and retention to primary education	**3,205**	**3,413**	**3,635**	**3,848**	**4,044**	**18,145**
3 Quality & Relevance	**968**	**18,939**	**21,653**	**24,264**	**19,909**	**85,732**
3.1 Curriculum Reforms in Primary Education	**550**	**550**	**300**	**250**	**150**	**1,800**
3.2 Assessment Reforms in Primary Education	**59**	**5,430**	**5,434**	**5,434**	**5,434**	**21,791**
3.3 Integrate ICT in teaching & learning in primary education	**6**	**10,504**	**12,752**	**14,750**	**10,300**	**48,312**
3.4 Enhance early talent identification under competency based primary education		**2,013**	**2,071**	**2,079**	**1,837**	**8,000**
5.1 Enhance National Volunteer Assistance Program	**353**	**441**	**1,096**	**1,751**	**2,188**	**5,829**
4 Governance & Accountability	**138**	**138**	**138**	**138**	**138**	**690**
4.1 Improve School Level Governance and Accountability	**138**	**138**	**138**	**138**	**138**	**690**

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Secondary Education	**77,418**	**79,600**	**83,180**	**89,419**	**96,723**	**426,341**
1 Access & Participation	**35,041**	**35,869**	**38,735**	**43,691**	**49,596**	**202,933**
1.1 Universal Secondary Education	**35,041**	**35,869**	**38,735**	**43,691**	**49,596**	**202,933**
2 Equity & Inclusivity	**3,485**	**4,591**	**4,940**	**5,491**	**6,137**	**24,644**
2.1 Reducing disparities in secondary education	**3,485**	**4,591**	**4,940**	**5,491**	**6,137**	**24,644**
3 Quality & Relevance	**38,892**	**39,139**	**39,505**	**40,237**	**40,991**	**198,764**
3.1 Reform Secondary Education Curriculum	**20,000**	**20,000**	**20,000**	**20,000**	**20,000**	**100,000**
3.2 Reform Assessment Practices in Secondary Education				**100**	**100**	**200**
3.3 Provision of Teaching and learning resources in secondary schools	**4,861**	**4,966**	**5,332**	**5,964**	**6,718**	**27,841**
3.4 ICT Integration in Secondary Schools	**13,998**	**13,998**	**13,998**	**13,998**	**13,998**	**69,990**
3.5 Enhance STEM, Sports and Talent in secondary	**33**	**175**	**175**	**175**	**175**	**732**
Inclusive Education	**205**	**1,544**	**1,553**	**1,566**	**1,495**	**6,364**
1 Access & Participation		**857**	**867**	**879**	**908**	**3,511**
1.1 Progressive Transition to Inclusive Basic Education		**798**	**807**	**819**	**829**	**3,253**
1.2 Functional assessment and early intervention services in education and training		**60**	**60**	**60**	**80**	**259**
3 Quality & Relevance	**205**	**687**	**687**	**687**	**587**	**2,853**
2.1 Curriculum Adaptation for Inclusive Education	**100**	**205**	**205**	**205**	**105**	**819**
2.2 Friendly Learning Environment for Inclusive Education		**375**	**375**	**375**	**375**	**1,498**
2.3 Human Resource Development for Effective Inclusive Education	**105**	**108**	**108**	**108**	**108**	**536**
Teacher Education, Development & Management	**18,656**	**18,656**	**18,656**	**18,656**	**18,656**	**93,278**
3 Quality & Relevance	**18,656**	**18,656**	**18,656**	**18,656**	**18,656**	**93,278**
2.1 Recruitment of teachers for public primary and secondary schools	**17,294**	**17,294**	**17,294**	**17,294**	**17,294**	**86,468**
4.1 Enhance teacher professional development at cluster and school levels	**1,362**	**1,362**	**1,362**	**1,362**	**1,362**	**6,810**
Adult & Continuing Education		**41**	**49**	**36**	**20**	**145**
3 Quality & Relevance		**41**	**49**	**36**	**20**	**145**
2.1 Sustainable functional literacy		**8**	**16**	**16**		**40**
2.3 Integrate ICT in teaching, learning and assessment in adult and continuing education		**33**	**33**	**20**	**20**	**105**
State Department of Vocational and Technical Training	**7,048**	**5,138**	**7,656**	**5,332**	**4,654**	**29,828**
Vocational & Technical Training	**7,048**	**5,138**	**7,656**	**5,332**	**4,654**	**29,828**
1 Access & Participation	**600**	**915**	**1,275**	**1,575**	**1,935**	**6,300**
1.2 Rebranding and repositioning TVET	**600**	**915**	**1,275**	**1,575**	**1,935**	**6,300**
2 Equity & Inclusivity		**143**	**144**	**144**	**144**	**574**
2.1 Inclusive training in TVET		**143**	**144**	**144**	**144**	**574**

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
3 Quality & Relevance	6,448	4,081	6,237	3,613	2,575	22,953
3.2 Trainer Management Services	6,408	2,640	4,410	1,786	1,038	16,281
3.3 TVET Accreditation and Quality Assurance	40	40	40	40	40	200
3.5 ICT Integration in Curriculum Delivery		1,170	1,470	1,470	1,180	5,290
3.6 Greening Technology in TVET		231	317	317	317	1,182
State Department of University Education	63,814	70,921	76,075	81,490	87,187	379,487
University Education	63,686	70,614	75,750	81,162	86,860	378,071
1 Access & Participation		550	550	550	550	2,200
1.2 Improve retention, wellbeing and productivity of university students						
1.3 Increase access to SET Programs		100	100	100	100	400
1.4 Open, Distance and E-learning in University Education		450	450	450	450	1,800
2 Equity & Inclusivity	61,680	64,677	68,663	72,926	77,488	345,434
2.1 University Scholarships, Loans and Bursaries	61,680	64,127	68,113	72,376	76,938	343,234
2.2 Affirmative action for Disadvantaged groups		550	550	550	550	2,200
3 Quality & Relevance	2,006	5,387	6,537	7,686	8,821	30,437
3.1 Human Resource capacity development for Public Universities	2,000	3,318	4,468	5,617	6,767	22,170
3.2 Review of curriculum and Program delivery in Universities		2,050	2,050	2,050	2,035	8,185
3.3 Develop Infrastructure and provide training equipment	4	4	4	4	4	20
3.4 University Research and Community Service in Universities	2	15	15	15	15	62
Science, Technology & Innovation	129	307	325	327	327	1,416
1 Access & Participation	74	179	195	199	199	846
2.1 Develop infrastructure and provide state of art equipment to support ST&I		100	100	100	100	400
2.2 Improve Intellectual property Rights regimes of Science Technology & Innovation	9	9	9	9	9	45
2.3 Innovation, technology transfer and commercialization	65	70	86	90	90	401
2 Equity & Inclusivity	3	3	3	3	3	15
3.1 Promoting equitable and inclusive participation in Science Technology & Innovation	3	3	3	3	3	15
3 Quality & Relevance	52	125	127	125	125	555
1.1 Develop ST&I Human Resource Capacities	49	122	124	122	122	540
1.2 Strengthen Science, Technology, Engineering and Mathematics (STEM) in Education and Training	3	3	3	3	3	15
State Department of Post Training & Skills Development	92	587	1,381	2,189	3,215	7,464
Post-Training & Skills Development	92	587	1,381	2,189	3,215	7,464
3 Quality & Relevance	20	485	1,265	2,075	3,095	6,940
1.2 Work-Based Learning Services	20	485	1,265	2,075	3,095	6,940

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
4 Governance & Accountability	**72**	**102**	**116**	**114**	**120**	**524**
2.1 Enhance Governance and accountability	**72**	**102**	**116**	**114**	**120**	**524**
Grand Total	**173,877**	**208,120**	**223,324**	**235,237**	**241,564**	**1,082,122**

System Strengthening (in Million Kenya Shillings)

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
All State Departments	**95**	**1,758**	**1,919**	**1,839**	**1,424**	**7,036**
Sector Governance & Accountability	**75**	**1,168**	**1,189**	**1,191**	**1,085**	**4,708**
1 Efficiency and effectiveness in the delivery of education services	**75**	**1,113**	**1,144**	**1,131**	**1,085**	**4,548**
1.1 Improve Institutional Linkages in the Education sector		8	23	15		45
1.2 Human Resource Management in the Education Sector	3	1,011	1,031	1,033	1,005	4,083
1.3 Data Management in the Education Sector	24	39	35	35	37	170
1.4 Strengthening Devolved and Decentralized Education	48	56	56	48	43	250
2 Enhance policy formulation and implementation for effective education service delivery		**46**	**36**	**48**		**130**
2.1 Enhance the development and implementation of education policies		**24**	**24**	**32**		**80**
2.2 Enhance Partnerships, Collaborations and Linkages in Education and Training		**22**	**12**	**16**		**50**
3 Framework for Implementation of NESSP 2018-2022		**9**	**9**	**12**		**30**
3.1 Establish a Framework for Implementation of the NESSP 2018-2022		**9**	**9**	**12**		**30**
Kenya National Qualifications Framework		**45**	**95**	**30**		**170**
4 Governance & Accountability		**45**	**95**	**30**		**170**
1.1 Articulation of Kenya National Qualifications Framework (KNQF)		**35**	**50**	**15**		**100**
2.1 Quality assurance of national qualifications in education and training		**10**	**45**	**15**		**70**
Cross-Cutting & Contemporary Issues	**20**	**545**	**635**	**618**	**339**	**2,158**
1 Cross-cutting & Contemporary Issues and Value systems	**20**	**545**	**635**	**618**	**339**	**2,158**
1.1 Reduce violence, radicalization, extremism, drug and substance abuse		**105**	**31**	**22**	**1**	**159**
1.2 Mainstream Gender Issues in Education and Training at All Levels		**94**	**84**	**80**	**44**	**302**
1.3 Promote Education in Emergencies	**12**	**18**	**16**	**10**	**0**	**56**
1.4 Prevent HIV and AIDS Infections	**2**	**205**	**312**	**314**	**203**	**1,036**
1.5 Promote Education for Sustainable Development (ESD)	**6**	**101**	**157**	**157**	**76**	**497**
1.6 Enhancing Mentorship, moulding and Nurturing of National Values		**23**	**36**	**35**	**15**	**109**
State Department of Early Learning & Basic Education	**48,294**	**101,677**	**129,453**	**80,771**	**83,495**	**443,690**
Pre-Primary Education	**11**	**365**	**393**	**538**	**558**	**1,866**

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
1 Access & Participation	**3**	**314**	**371**	**513**	**555**	**1,756**
1.1 Universal Pre-Primary Education	**3**	**314**	**371**	**463**	**555**	**1,706**
1.2 Improve Health, Nutrition and Protection of Pre-primary Education learners				**50**		**50**
3 Quality & Relevance	**8**	**26**	**22**	**15**	**3**	**75**
2.1 Implement the Competency Based Curriculum for Pre-Primary education		**10**	**8**	**2**	**3**	**24**
2.2 Improve assessment of learning in Pre- Primary education				**8**		**8**
2.3 Strengthen the capacity of pre-primary Workforce	**8**	**8**	**6**	**5**		**27**
2.4 Improve pre- primary education standards and quality assurance		**8**	**8**			**16**
4 Governance & Accountability		**25**		**10**		**35**
3.1 Develop a multi-sectoral collaborations and linkages in the management of pre-primary education		**25**		**10**		**35**
Primary Education	**287**	**1,304**	**1,018**	**938**	**818**	**4,365**
1 Access & Participation		**94**	**50**			**144**
1.1 Universal Primary Education		**94**	**50**			**144**
2 Equity & Inclusivity		**100**	**10**			**110**
2.1 Reduce disparities in access and retention to primary education		**100**	**10**			**110**
3 Quality & Relevance	**285**	**385**	**219**	**208**	**102**	**1,199**
3.1 Curriculum Reforms in Primary Education	**110**	**110**	**110**			**330**
3.2 Assessment Reforms in Primary Education	**173**	**171**	**39**	**132**	**22**	**537**
3.3 Integrate ICT in teaching & learning in primary education		**100**	**60**	**60**	**60**	**280**
5.1 Enhance National Volunteer Assistance Program	**3**	**4**	**10**	**16**	**20**	**53**
4 Governance & Accountability	**2**	**725**	**739**	**730**	**716**	**2,912**
4.1 Improve School Level Governance and Accountability	**2**	**725**	**739**	**730**	**716**	**2,912**
Secondary Education	**22,319**	**23,388**	**25,315**	**28,595**	**31,498**	**131,115**
1 Access & Participation	**30**	**85**	**45**	**45**	**45**	**250**
1.1 Universal Secondary Education	**30**	**85**	**45**	**45**	**45**	**250**
2 Equity & Inclusivity		**46**	**36**	**36**	**36**	**154**
2.1 Reducing disparities in secondary education		**46**	**36**	**36**	**36**	**154**
3 Quality & Relevance	**539**	**614**	**778**	**1,018**	**220**	**3,168**
3.1 Reform Secondary Education Curriculum	**409**	**409**	**408**	**408**		**1,633**
3.2 Reform Assessment Practices in Secondary Education	**120**	**115**	**310**	**550**	**165**	**1,260**
3.3 Provision of Teaching and learning resources in secondary schools		**15**				**15**
3.4 ICT Integration in Secondary Schools	**10**	**65**	**60**	**60**	**55**	**250**
3.5 Enhance STEM, Sports and Talent in secondary		**10**				**10**

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
4 Governance & Accountability	21,750	22,643	24,457	27,496	31,197	127,543
4.1 Improve School Level Management	21,750	22,643	24,457	27,496	31,197	127,543
Inclusive Education	21	177	241	125	116	680
1 Access & Participation	21	38	138	28	26	251
1.1 Progressive Transition to Inclusive Basic Education		10	10			20
1.2 Functional assessment and early intervention services in education and training	21	28	128	28	26	231
3 Quality & Relevance		97	73	67	60	297
2.1 Curriculum Adaptation for Inclusive Education		18	18	5	5	46
2.2 Friendly Learning Environment for Inclusive Education		10	10	17	10	47
2.3 Human Resource Development for Effective Inclusive Education		69	45	45	45	204
4 Governance & Accountability		42	30	30	30	132
3.1 Advocacy, Partnership, Collaboration and Coordination		42	30	30	30	132
Teacher Education, Development & Management	20,184	70,716	100,056	50,066	50,056	291,078
3 Quality & Relevance	20,184	70,711	100,041	50,051	50,041	291,028
1.1 Pre-Service Teacher Training Reforms	20,170	20,570	50,000	50,000	50,000	190,740
3.1 Equitable and optimal utilisation of the teaching resource		50,015	50,000			100,015
4.1 Enhance teacher professional development at cluster and school levels	14	126	41	51	41	273
4 Governance & Accountability		5	15	15	15	50
5.1 Coordination in teacher education and professional development						
5.2 Teacher management, performance and accountability		5	15	15	15	50
Adult & Continuing Education	4,968	5,252	1,955	37	7	12,218
1 Access & Participation		20				20
1.1 Expand Learning Opportunities in ACE		20				20
3 Quality & Relevance	4,841	5,117	1,948	32	2	11,939
2.1 Sustainable functional literacy		254	234	30		517
2.2 Accelerated Curriculum for ACE (Primary & Secondary)	4,841	4,831	1,692			11,364
2.3 Integrate ICT in teaching, learning and assessment in adult and continuing education		32	22	2	2	58
4 Governance & Accountability	127	115	7	5	5	259
3.1 Strengthen ACE Management Structures	117	107				224
3.2 Advocacy and Publicity of ACE programs	10	8	7	5	5	35
Quality Assurance & Standards	504	475	475	472	442	2,368
4 Governance & Accountability	504	475	475	472	442	2,368
1.1 Review and align Quality Assurance and Standards to Competency Based Education	51	22	22	22	22	139

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
2.1 Mainstream quality assurance at School/ Institutional Level	453	453	453	450	420	2,229
State Department of Vocational and Technical Training	1,740	3,816	1,642	943	853	8,994
Vocational & Technical Training	**1,740**	**3,816**	**1,642**	**943**	**853**	**8,994**
1 Access & Participation	60	755	140	120	120	1,195
1.1 Infrastructure development and equipment of TVET		630				630
1.2 Rebranding and repositioning TVET	60	125	140	120	120	565
2 Equity & Inclusivity		335	515	15	5	870
2.1 Inclusive training in TVET		60				60
2.2 Talent Development and Mentorship		275	515	15	5	810
3 Quality & Relevance	1,464	2,284	641	422	352	5,162
3.1 Competency Based Education and Training (CBET) Curriculum Development	752	1,321	311	251	251	2,886
3.2 Trainer Management Services	190	389	195	105	55	934
3.3 TVET Accreditation and Quality Assurance	22	32	28	14	9	103
3.4 TVET Research, Innovations, Technology Transfers, Entrepreneurship and Commercialization	501	502	2	2	2	1,009
3.5 ICT Integration in Curriculum Delivery		35	105	45	35	220
3.6 Greening Technology in TVET		5		5		10
4 Governance & Accountability	216	443	347	387	377	1,768
4.1 Improve TVET Industry Linkage		136	135	135	30	436
4.2 Strengthen Institutional and Inter-Governmental Linkages in TVET	4	45			15	64
5.1 Public Financial Management in the TVET	212	262	212	252	332	1,268
State Department of University Education	872	1,836	2,154	1,572	1,512	7,945
University Education	**187**	**566**	**730**	**295**	**261**	**2,038**
1 Access & Participation	10	22	25	5	1	62
1.1 Expand infrastructure in all public universities		1	10	5	1	16
1.2 Improve retention, wellbeing and productivity of university students		6				6
1.3 Increase access to SET Programs	10	5				15
1.4 Open, Distance and E-learning in University Education		10	15			25
2 Equity & Inclusivity	7	14			10	31
2.1 University Scholarships, Loans and Bursaries		10			10	20
2.2 Affirmative action for Disadvantaged groups	7	4				11
3 Quality & Relevance	170	290	465	290	250	1,465
3.1 Human Resource capacity development for Public Universities			15			15
3.2 Review of curriculum and Program delivery in Universities	170	290	450	290	250	1,450

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
4 Governance & Accountability		240	240			480
4.1 Capacity building of University councils and Management		125	125			250
4.2 Governance and Accountability in Universities		115	115			230
Science, Technology & Innovation	685	1,270	1,424	1,277	1,251	5,907
1 Access & Participation	142	339	324	325	324	1,454
2.1 Develop infrastructure and provide state of art equipment to support ST&I	140	310	300	300	300	1,350
2.2 Improve Intellectual property Rights regimes of Science Technology & Innovation	2	9	4	5	4	24
2.3 Innovation, technology transfer and commercialization		20	20	20	20	80
2 Equity & Inclusivity	11	22	14	12	12	70
3.1 Promoting equitable and inclusive participation in Science Technology & Innovation	11	22	14	12	12	70
3 Quality & Relevance	470	835	890	875	910	3,980
1.1 Develop ST&I Human Resource Capacities		275	300	250	250	1,075
1.2 Strengthen Science, Technology, Engineering and Mathematics (STEM) in Education and Training	470	560	590	625	660	2,905
4 Governance & Accountability	62	75	195	65	5	402
4.1 Strengthen Governance and Accountability for ST&I	62	75	195	65	5	402
State Department of Post Training & Skills Development	158	1,447	1,360	1,606	1,146	5,717
Post-Training & Skills Development	158	1,447	1,360	1,606	1,146	5,717
3 Quality & Relevance	76	1,323	730	1,450	790	4,368
1.1 Work Place Readiness Services	50	248	232	384	224	1,137
1.2 Work-Based Learning Services	6	215	188	256	256	921
1.3 Post-Training Information Management	20	860	310	810	310	2,310
4 Governance & Accountability	82	124	631	156	356	1,349
2.1 Enhance Governance and accountability	82	114	80	55	55	386
2.2 Skills and Employment Database Management		10	551	101	301	963
Grand Total	51,159	110,534	136,528	86,731	88,429	473,381

Total (in Million Kenya Shillings)

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
All State Departments	108	1,819	1,999	1,916	1,454	7,297
Sector Governance & Accountability	75	1,187	1,223	1,195	1,093	4,773
1 Efficiency and effectiveness in the delivery of education services	75	1,132	1,178	1,135	1,093	4,613
1.1 Improve Institutional Linkages in the Education sector		8	23	15		45

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
1.2 Human Resource Management in the Education Sector	3	1,026	1,046	1,033	1,005	4,113
1.3 Data Management in the Education Sector	24	43	54	39	45	205
1.4 Strengthening Devolved and Decentralized Education	48	56	56	48	43	250
2 Enhance policy formulation and implementation for effective education service delivery		46	36	48		130
2.1 Enhance the development and implementation of education policies		24	24	32		80
2.2 Enhance Partnerships, Collaborations and Linkages in Education and Training		22	12	16		50
3 Framework for Implementation of NESSP 2018-2022		9	9	12		30
3.1 Establish a Framework for Implementation of the NESSP 2018-2022		9	9	12		30
Kenya National Qualifications Framework		45	95	30		170
4 Governance & Accountability		45	95	30		170
1.1 Articulation of Kenya National Qualifications Framework (KNQF)		35	50	15		100
2.1 Quality assurance of national qualifications in education and training		10	45	15		70
Cross-Cutting & Contemporary Issues	33	587	681	691	361	2,354
1 Cross-cutting & Contemporary Issues and Value systems	33	587	681	691	361	2,354
1.1 Reduce violence, radicalization, extremism, drug and substance abuse	3	110	39	32	11	195
1.2 Mainstream Gender Issues in Education and Training at All Levels		96	87	83	46	312
1.3 Promote Education in Emergencies	22	28	26	20	10	106
1.4 Prevent HIV and AIDS Infections	2	205	312	314	203	1,036
1.5 Promote Education for Sustainable Development (ESD)	6	101	157	157	76	497
1.6 Enhancing Mentorship, moulding and Nurturing of National Values		48	61	85	15	209
State Department of Early Learning & Basic Education	155,079	295,934	338,712	302,635	271,251	1,363,611
Pre-Primary Education	2,331	20,172	25,400	19,470	11,765	79,139
1 Access & Participation	4	13,302	18,359	13,501	8,543	53,709
1.1 Universal Pre-Primary Education	3	6,019	11,076	6,168	1,260	24,526
1.2 Improve Health, Nutrition and Protection of Pre-primary Education learners	1	7,283	7,283	7,333	7,283	29,183
3 Quality & Relevance	2,302	6,770	6,966	5,909	3,197	25,145
2.1 Implement the Competency Based Curriculum for Pre-Primary education	1,000	3,010	1,408	502	503	6,424
2.2 Improve assessment of learning in Pre- Primary education	94	94	694	552	244	1,678
2.3 Strengthen the capacity of pre-primary Workforce	1,208	2,408	3,606	3,605	1,200	12,027
2.4 Improve pre- primary education standards and quality assurance		1,258	1,258	1,250	1,250	5,016
4 Governance & Accountability	25	100	75	60	25	285
3.1 Develop a multi-sectoral collaborations and linkages in the management of pre-primary education	25	100	75	60	25	285
Primary Education	4,898	60,069	66,620	79,362	47,483	258,431

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
1 Access & Participation	300	1,169	1,125	1,075	1,075	4,744
1.1 Universal Primary Education	300	1,169	1,125	1,075	1,075	4,744
2 Equity & Inclusivity	3,205	4,713	5,745	5,948	5,544	25,155
2.1 Reduce disparities in access and retention to primary education	3,205	4,713	5,745	5,948	5,544	25,155
3 Quality & Relevance	1,253	53,324	58,872	71,472	40,010	224,931
3.1 Curriculum Reforms in Primary Education	660	660	410	250	150	2,130
3.2 Assessment Reforms in Primary Education	231	5,602	5,473	5,566	5,456	22,328
3.3 Integrate ICT in teaching & learning in primary education	6	40,604	42,812	54,810	25,360	163,592
3.4 Enhance early talent identification under competency based primary education		6,013	9,071	9,079	6,837	31,000
5.1 Enhance National Volunteer Assistance Program	356	445	1,106	1,767	2,208	5,881
4 Governance & Accountability	140	863	877	868	854	3,602
4.1 Improve School Level Governance and Accountability	140	863	877	868	854	3,602
Secondary Education	103,142	113,782	119,348	128,865	139,020	604,158
1 Access & Participation	38,127	46,399	49,282	54,237	60,090	248,135
1.1 Universal Secondary Education	38,127	46,399	49,282	54,237	60,090	248,135
2 Equity & Inclusivity	3,835	4,987	5,326	5,877	6,523	26,548
2.1 Reducing disparities in secondary education	3,835	4,987	5,326	5,877	6,523	26,548
3 Quality & Relevance	39,431	39,754	40,282	41,255	41,211	201,932
3.1 Reform Secondary Education Curriculum	20,409	20,409	20,408	20,408	20,000	101,633
3.2 Reform Assessment Practices in Secondary Education	120	115	310	650	265	1,460
3.3 Provision of Teaching and learning resources in secondary schools	4,861	4,981	5,332	5,964	6,718	27,856
3.4 ICT Integration in Secondary Schools	14,008	14,063	14,058	14,058	14,053	70,240
3.5 Enhance STEM, Sports and Talent in secondary	33	185	175	175	175	742
4 Governance & Accountability	21,750	22,643	24,457	27,496	31,197	127,543
4.1 Improve School Level Management	21,750	22,643	24,457	27,496	31,197	127,543
Inclusive Education	226	5,521	4,304	4,151	2,733	16,936
1 Access & Participation	21	4,195	3,515	3,367	2,056	13,154
1.1 Progressive Transition to Inclusive Basic Education		3,178	2,407	2,299	980	8,864
1.2 Functional assessment and early intervention services in education and training	21	1,018	1,108	1,068	1,076	4,290
3 Quality & Relevance	205	1,284	760	754	647	3,650
2.1 Curriculum Adaptation for Inclusive Education	100	223	223	210	110	864
2.2 Friendly Learning Environment for Inclusive Education		885	385	392	385	2,045
2.3 Human Resource Development for Effective Inclusive Education	105	177	153	153	153	740

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
4 Governance & Accountability		42	30	30	30	132
3.1 Advocacy, Partnership, Collaboration and Coordination		42	30	30	30	132
Teacher Education, Development & Management	**39,010**	**89,542**	**118,882**	**68,892**	**68,882**	**385,206**
3 Quality & Relevance	**39,010**	**89,537**	**118,867**	**68,877**	**68,867**	**385,156**
1.1 Pre-Service Teacher Training Reforms	**20,340**	**20,740**	**50,170**	**50,170**	**50,170**	**191,590**
2.1 Recruitment of teachers for public primary and secondary schools	**17,294**	**17,294**	**17,294**	**17,294**	**17,294**	**86,468**
3.1 Equitable and optimal utilisation of the teaching resource		**50,015**	**50,000**			**100,015**
4.1 Enhance teacher professional development at cluster and school levels	**1,376**	**1,488**	**1,403**	**1,413**	**1,403**	**7,083**
4 Governance & Accountability		**5**	**15**	**15**	**15**	**50**
5.1 Coordination in teacher education and professional development						
5.2 Teacher management, performance and accountability		**5**	**15**	**15**	**15**	**50**
Adult & Continuing Education	**4,968**	**6,372**	**3,683**	**1,423**	**927**	**17,374**
1 Access & Participation		**1,100**	**1,680**	**1,350**	**900**	**5,031**
1.1 Expand Learning Opportunities in ACE		**1,100**	**1,680**	**1,350**	**900**	**5,031**
3 Quality & Relevance	**4,841**	**5,157**	**1,996**	**68**	**22**	**12,084**
2.1 Sustainable functional literacy		**262**	**250**	**46**		**557**
2.2 Accelerated Curriculum for ACE (Primary & Secondary)	**4,841**	**4,831**	**1,692**			**11,364**
2.3 Integrate ICT in teaching, learning and assessment in adult and continuing education		**65**	**55**	**22**	**22**	**163**
4 Governance & Accountability	**127**	**115**	**7**	**5**	**5**	**259**
3.1 Strengthen ACE Management Structures	**117**	**107**				**224**
3.2 Advocacy and Publicity of ACE programs	**10**	**8**	**7**	**5**	**5**	**35**
Quality Assurance & Standards	**504**	**475**	**475**	**472**	**442**	**2,368**
4 Governance & Accountability	**504**	**475**	**475**	**472**	**442**	**2,368**
1.1 Review and align Quality Assurance and Standards to Competency Based Education	**51**	**22**	**22**	**22**	**22**	**139**
2.1 Mainstream quality assurance at School/ Institutional Level	**453**	**453**	**453**	**450**	**420**	**2,229**
State Department of Vocational and Technical Training	**11,233**	**40,436**	**47,858**	**55,255**	**57,153**	**211,934**
Vocational & Technical Training	**11,233**	**40,436**	**47,858**	**55,255**	**57,153**	**211,934**
1 Access & Participation	**985**	**20,775**	**24,800**	**36,380**	**41,476**	**124,416**
1.1 Infrastructure development and equipment of TVET	**325**	**19,735**	**23,385**	**34,685**	**39,421**	**117,551**
1.2 Rebranding and repositioning TVET	**660**	**1,040**	**1,415**	**1,695**	**2,055**	**6,865**
2 Equity & Inclusivity		**5,728**	**8,409**	**7,909**	**5,324**	**27,369**
2.1 Inclusive training in TVET		**5,203**	**7,644**	**7,644**	**5,069**	**25,559**
2.2 Talent Development and Mentorship		**525**	**765**	**265**	**255**	**1,810**

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
3 Quality & Relevance	**10,032**	**13,491**	**14,303**	**10,579**	**9,976**	**58,380**
3.1 Competency Based Education and Training (CBET) Curriculum Development	**762**	**1,331**	**321**	**261**	**261**	**2,936**
3.2 Trainer Management Services	**6,598**	**3,629**	**5,505**	**1,891**	**1,093**	**18,715**
3.3 TVET Accreditation and Quality Assurance	**62**	**72**	**68**	**54**	**49**	**303**
3.4 TVET Research, Innovations, Technology Transfers, Entrepreneurship and Commercialization	**2,601**	**3,502**	**3,002**	**3,002**	**3,002**	**15,109**
3.5 ICT Integration in Curriculum Delivery		**4,720**	**5,090**	**5,030**	**5,241**	**20,081**
3.6 Greening Technology in TVET	**10**	**237**	**317**	**342**	**331**	**1,237**
4 Governance & Accountability	**216**	**443**	**347**	**387**	**377**	**1,768**
4.1 Improve TVET Industry Linkage		**136**	**135**	**135**	**30**	**436**
4.2 Strengthen Institutional and Inter-Governmental Linkages in TVET	**4**	**45**			**15**	**64**
5.1 Public Financial Management in the TVET	**212**	**262**	**212**	**252**	**332**	**1,268**
State Department of University Education	**81,086**	**91,782**	**97,003**	**100,836**	**106,224**	**476,931**
University Education	**79,473**	**89,404**	**94,955**	**98,932**	**104,345**	**467,109**
1 Access & Participation	**12,010**	**13,872**	**14,125**	**14,105**	**13,851**	**67,962**
1.1 Expand infrastructure in all public universities	**12,000**	**12,601**	**12,610**	**12,605**	**12,601**	**62,416**
1.2 Improve retention, wellbeing and productivity of university students		**706**	**700**	**700**	**700**	**2,806**
1.3 Increase access to SET Programs	**10**	**105**	**100**	**100**	**100**	**415**
1.4 Open, Distance and E-learning in University Education		**460**	**715**	**700**	**450**	**2,325**
2 Equity & Inclusivity	**61,687**	**64,691**	**68,663**	**72,926**	**77,498**	**345,465**
2.1 University Scholarships, Loans and Bursaries	**61,680**	**64,137**	**68,113**	**72,376**	**76,948**	**343,254**
2.2 Affirmative action for Disadvantaged groups	**7**	**554**	**550**	**550**	**550**	**2,211**
3 Quality & Relevance	**5,776**	**10,602**	**11,927**	**11,901**	**12,996**	**53,202**
3.1 Human Resource capacity development for Public Universities	**2,000**	**3,643**	**4,808**	**5,942**	**7,092**	**23,485**
3.2 Review of curriculum and Program delivery in Universities	**170**	**2,340**	**2,500**	**2,340**	**2,285**	**9,635**
3.3 Develop Infrastructure and provide training equipment	**3,604**	**4,604**	**4,604**	**3,604**	**3,604**	**20,020**
3.4 University Research and Community Service in Universities	**2**	**15**	**15**	**15**	**15**	**62**
4 Governance & Accountability		**240**	**240**			**480**
4.1 Capacity building of University councils and Management		**125**	**125**			**250**
4.2 Governance and Accountability in Universities		**115**	**115**			**230**
Science, Technology & Innovation	**1,614**	**2,378**	**2,049**	**1,904**	**1,878**	**9,823**
1 Access & Participation	**1,016**	**1,318**	**819**	**824**	**823**	**4,800**
2.1 Develop infrastructure and provide state of art equipment to support ST&I	**940**	**1,210**	**700**	**700**	**700**	**4,250**
2.2 Improve Intellectual property Rights regimes of Science Technology & Innovation	**11**	**18**	**13**	**14**	**13**	**69**

State Department/ Sub-Sector/ Thematic Area/ Program	2018/19	2019/20	2020/21	2021/22	2022/23	Total
2.3 Innovation, technology transfer and commercialization	**65**	**90**	**106**	**110**	**110**	**481**
2 Equity & Inclusivity	**14**	**25**	**17**	**15**	**15**	**85**
3.1 Promoting equitable and inclusive participation in Science Technology & Innovation	**14**	**25**	**17**	**15**	**15**	**85**
3 Quality & Relevance	**522**	**960**	**1,017**	**1,000**	**1,035**	**4,535**
1.1 Develop ST&I Human Resource Capacities	**49**	**397**	**424**	**372**	**372**	**1,615**
1.2 Strengthen Science, Technology, Engineering and Mathematics (STEM) in Education and Training	**473**	**563**	**593**	**628**	**663**	**2,920**
4 Governance & Accountability	**62**	**75**	**195**	**65**	**5**	**402**
4.1 Strengthen Governance and Accountability for ST&I	**62**	**75**	**195**	**65**	**5**	**402**
State Department of Post Training & Skills Development	**250**	**2,034**	**2,741**	**3,795**	**4,361**	**13,181**
Post-Training & Skills Development	**250**	**2,034**	**2,741**	**3,795**	**4,361**	**13,181**
3 Quality & Relevance	**96**	**1,808**	**1,995**	**3,525**	**3,885**	**11,308**
1.1 Work Place Readiness Services	**50**	**248**	**232**	**384**	**224**	**1,137**
1.2 Work-Based Learning Services	**26**	**700**	**1,453**	**2,331**	**3,351**	**7,861**
1.3 Post-Training Information Management	**20**	**860**	**310**	**810**	**310**	**2,310**
4 Governance & Accountability	**154**	**226**	**747**	**270**	**476**	**1,873**
2.1 Enhance Governance and accountability	**154**	**216**	**196**	**169**	**175**	**910**
2.2 Skills and Employment Database Management		**10**	**551**	**101**	**301**	**963**
Grand Total	**247,756**	**432,004**	**488,313**	**464,438**	**440,442**	**2,072,953**