Ministry of Education
GHANA

Education Sector Analysis

2018

"Our reforms must be properly rooted in evidence,

so that we understand the evidence on what works to improve learning outcomes"

Dr Matthew Opoku Prempeh (MP)
Hon. Minister of Education

Education Week 2018

Acknowledgements

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ABFA	Annual Budget Funding Amount
ADEOP	Annual District Education Operational Plan
BECE	Basic Education Certification Examination
BED	Basic Education Division
CBE	Complementary Basic Education
CENDLOS	Centre for National Distance Learning and Open Schooling
COE	College of Education
COTVET	Council for TVET
CSO	Civil Society Organisation
CSSPS	Computerised School Selection and Placement System
DEO	District Education Office
DHS	Demographic and Health Survey
ECOWAS	Economic Community of West African States
DP	Development Partner
EA	Encyclopaedia Africana
EGMA	Early Grade Reading Assessment
EGRA	Early Grade Maths Assessment
EMIS	Education Management Information System
ESA	Education Sector Analysis
ESA-IE	Education Sector Analysis Guidelines for Inclusive Education (UNICEF)
ESMTDP	Education Sector Medium-Term Development Plan
ESP	Education Strategic Plan
ESPR	Education Sector Performance Report
GER	Gross enrolment rate
GES	Ghana Education Service

GETFund	Ghana Education Trust Fund
GHS	Ghanaian cedi
GLSS	Ghana Living Standards Survey
GoG	Government of Ghana
GPASS	Girls Participatory Approach to Student Success
GPE	Global Partnership for Education
GPEG	Ghana Partnership for Education Grant
GPI	Gender Parity Index
GSS	Ghana Statistical Service
IE	Inclusive education
IGF	Internally-generated funds
IIEP	International Institution for Education Planning
IMF	International Monetary Fund
INSET	In-service training
JHS	Junior High School
MMDA	Metropolitan Municipal District Assembly
MOE	Ministry of Education
MOF	Ministry of Finance
mSRC	Mobile School Report Card
NAB	National Accreditation Board
NABPTEX	National Board for Professional and Technician Examinations
NaCCA	National Council for Curriculum and Assessment
NCTE	National Council for Tertiary Education
NDPC	National Development Planning Committee
NEA	National Education Assessment
NER	Net enrolment rate

NFED	Non-Formal Education Division
NGO	Non-Governmental Organisation
NIB	National Inspectorate Board
NMTDPF	National Medium-Term Development Policy Framework
NTC	National Teaching Council
OOSC	Out-of-school children
PCR	Pupil–classroom ratio
PHC	Population and Housing Census
PTPDM	Pre-Tertiary Teacher Professional Development and Management
PTR	Pupil–teacher ratio
PWC	PricewaterhouseCoopers
PWD	Person with disability
SCR	Student-classroom ratio
SEN	Special educational need
SHS	Senior High School
SHTS	Senior High Technical School
SLTF	Student Loan Trust Fund
SPED	Special Education Division
SPIP	School Performance Improvement Plan
STEM	Science, Technology, Engineering, and Maths
STR	Student–teacher ratio
T-TEL	Transforming Teacher Education and Learning
TIMSS	Trends in International Mathematics and Science Study
TLM	Training and learning material
TTI	Technical Training Institute
TVET	Technical and Vocational Education and Training

TVI	Technical and Vocational Institute
UIS	UNESCO Institute of Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USAID	United States Agency for International Development
WAEC	West African Examination Council
WASSCE	West African Senior Secondary Certification Examination

Executive summary

The Education Sector Analysis (ESA) 2018 provides an objective assessment of the state of education in Ghana. It has been produced to inform the finalisation of the Education Sector Plan (ESP) 2018–2030 and to ensure a broad evidence base for future policymaking. The ESA is based on the United Nations Educational, Scientific and Cultural Organization (UNESCO)/International Institution for Educational Planning (IIEP) guidelines for sector analysis and highlights both the strengths and the weaknesses of the current education system to inform and direct necessary changes. The analysis is based on a wide range of data sources, including specifically commissioned reports, and draws on a lot of previous work and research pertinent to education in Ghana.

The Ministry of Education (MOE) is ultimately responsible for the education system in Ghana, and specifically for policy formation. There are a number of agencies reporting to the Ministry, of which the Ghana Education Service (GES) is the largest, with responsibility for delivering pre-tertiary public education. There are six education sub-sectors in Ghana and this analysis considers the issues of access, quality, and management within each of them. Basic Education is comprised of two years of kindergarten, six years of primary, and three years of junior high school (JHS), and is free and compulsory for children in Ghana. At the secondary level, students choose to either pursue academic programmes or technical vocational programmes, and either can lead to tertiary education. Special education is responsible for ensuring delivery of education to those with disabilities. Finally, non-formal education (NFE) focuses on improving the literacy levels of those left behind by the formal system.

A country of just under 30 million people, Ghana recently made the transition to lower middle-income status and has achieved many of the same education successes as other countries in this bracket, such as considerably expanding access to basic education and improving gender parity. Despite significant financial commitments to the sector, the quality of learning outcomes has not kept pace with the expansion in access, and, in the meantime, not all sub-sectors have enjoyed increases in funding.

Education finance

Ghana has devoted substantial resources to the education sector in recent years and has exceeded associated international benchmarks when including internally-generated funds (IGF), as well as outperforming all west African counterparts. Education expenditure has grown at a faster rate, in both nominal and real terms, than the total government expenditure. The vast majority of funding to the education sector comes from the government budget, with government contributing 87% in 2012 and 78% in 2015. The Ghana Education Trust Fund (GETFund) (an earmarked proportion of VAT revenue) and Annual Budget Funding Amount (ABFA) (earmarked from oil revenue) have contributed increasing amounts to overall education expenditure since 2012 – predominantly funding government expenditure on goods and services and capital. The proportion of education spending from IGF has increased in recent years, to 17% in 2015, but is likely to decrease as free senior high school (SHS) education is rolled out over the next two years.

A large part of the Government of Ghana (GoG) budget is spent on the wage bill, which accounted for nearly 100% of general government expenditure in 2015, crowding out goods and services and

capital expenditure. While there has been a steady reduction in the percentage of funding going towards goods and services and capital from the general GoG budget, there is increased government funding for goods and services and capital being made available from the GETFund and ABFA.

Primary education consistently accounted for the largest share of education expenditures until 2015, when it was overtaken by JHS, SHS, and tertiary. Growth in expenditure in the JHS sector is primarily due to a rapid increase in the number of teachers employed. This was before the introduction of the free SHS policy, which will also affect the IGF generated in education. IGF at the tertiary level remains a significant proportion (over 50%) of revenue in that sub-sector. Together with government funding, this means the ratio of per-student spending between the primary and tertiary levels increased from 1:8.5 in 2014 to 1:11.6 in 2015. Coupled with the fact that those from the highest income quintiles are more likely to access higher levels of education, this indicates an increasingly regressive distribution of education spending. Both NFE and special education have consistently attracted the least expenditure, often below 3% of the total education budget. The overwhelming majority of expenditure is recurrent across all sub-sectors. Per-student spending also varies significantly by region and strongly correlates with the regional distribution of poverty in Ghana.

Education management

Management can be thought of in reference to two broad categories that are closely linked: teacher management and systems management. In terms of teacher management, absenteeism, attrition, and time on task have been widely recognised as problems, with overall teacher absenteeism as high as 14% in 2014/15 and varying considerably by region. Furthermore, teacher attrition increased to 4% in 2016, from 2% in 2009. Deployment of teachers is also an area of concern, with large regional disparities in pupil–teacher ratios (PTRs) and weak correlation at district level between the number of students and teachers, especially at the kindergarten and SHS levels. Various policy actions are planned and ongoing in response to these issues, including the Pre-Tertiary Teacher Professional Development and Management (PTPDM) policy to ensure proper licensing and registration of teachers.

System accountability is the responsibility of three autonomous bodies: the National Inspectorate Board (NIB), the National Teaching Council (NTC), and the National Council for Curriculum and Assessment (NaCCA). However, these boards have not performed effectively, due to inadequate funding, staff shortfalls, and weak enforcement powers, and the education sector as a whole lacks a clear accountability framework. Work is ongoing to strengthen accountability systems as well as data collection and research capabilities at the basic, secondary, and tertiary levels. Initiatives to harmonise various data collection systems are also in progress. In addition, while the private sector accounts for over 20% of enrolment at the basic level, over one-third of technical and vocational institutions (TVIs), and nearly half of all tertiary institutions, there is minimal monitoring, collaboration, or regulation of/with the private sector. A significantly lower proportion of teachers in private schools are trained compared to the public sector and little research has been done on learning outcomes in private schools.

The internal efficiency of the education system itself is a concern. Considering progression from primary to SHS: for every 100 children who enter Primary 1, only 38 complete SHS. This is reflected in results from the cohort simulation model used to project future learner numbers, which show that

the proportion of repeaters in each grade of the pre-tertiary system is significantly higher than was previously thought. In SHS, for example, repetition rates are above 12% in every grade.

Basic education

Generally speaking, indicators of access at the basic education level have improved considerably, but there are still large inequities by income, region, and gender. Gross enrolment rates (GERs) exceed 100% for kindergarten and primary and are over 85% for JHS. Net enrolment rates (NER) are generally much lower, indicating a large proportion of children who are not of the appropriate age enrolled in school. One of the reasons for this is late enrolment in kindergarten or primary. However, the more prevailing reason is the number of children repeating grades. Repeater rates are estimated to be as high as 16% in some of the primary grades and 19% in the first grade of JHS, where it seems that under-prepared pupils are being held back.

Gender parity at the national level has been achieved at all sub-levels of basic education. However, inequities exist when looking at gender parity at a regional level, and, depending on the region, this disparity could be against girls or boys. The majority of the growth in the number of schools has come from the private sector, which constitutes about a third of the total basic schools in the country. While over 20% of basic school pupils are enrolled in private schools, these are unevenly distributed across the country, accounting for over 60% of enrolment in kindergarten in the Greater Accra region and less than 10% in the Upper West region. Over 450,000 children are out of school, mostly from the poorest households and within the three northern regions. One of the factors that may be contributing to the number of out-of-school children (OOSC) is the shortage of classrooms: national pupil–classroom ratios (PCR) for public basic schools are 55:1 for kindergarten 38:1 for primary and 35:1 for JHS, but there are substantial regional differences in the PCR. The classroom backlog (from calculating the backlog in those regions that are over the national average) is estimated to be 5,491 classrooms for kindergarten (24% of the existing classrooms), 4,236 classrooms for primary (5% of the existing classrooms), and 1,247 classrooms for JHS (4% of the existing classrooms).

Completion rates vary substantially by income and region, with those from the lowest income quintile being 0.37 times as likely to complete JHS compared to those from the highest income quintile. The proportion of children with disabilities in basic education makes up less than 0.5% of enrolment, despite accounting for 1.6% of the total population at this age.

Regarding quality, although the proportion of trained teachers has increased over time, at the kindergarten level it reached just 65% in 2016/17. Learning outcomes are an area of concern too, with wide variations in Basic Education Certificate Examination (BECE) results across regions and by gender. In particular, the three northern regions perform poorly, especially compared to Greater Accra, and these effects are exacerbated when looking at gender disparities by region, where results are skewed against girls in all four core subjects. Early Grade Reading Assessment (EGRA) results show that in both 2013 and 2015 only 2% of pupils in Primary 2 could read at grade level, with 50% of those tested unable to recognise a single word. The 2015 Early Grade Maths Assessment (EGMA) found that while 46–72% of pupils scored well on procedural knowledge sub-tasks, conceptual knowledge sub-tasks were much more challenging, with nearly 75% of pupils unable to answer a single question correctly in some cases. These assessments also show that urban areas significantly outperform rural areas in both reading and mathematics.

Education management at the basic level points to weak accountability mechanisms at the school, community, and district levels. School leadership and management, particularly in the administration of the capitation grant, is also weak. There are a few initiatives in place to strengthen data collection and research systems: the mobile School Report Card (mSRC) system, which collects timely school-level data, has been piloted in 20 districts and a Basic Education Research Group has been set up.

Secondary education

Access at the SHS level has made substantial progress, with the GER reaching 50% in 2016/17, up from 37% in 2011/12; however, this varies substantially by region.

The NER, at 26.5% in 2016/17, is much lower than the GER and the substantial difference is indicative of a large number of students in SHS who are not of the appropriate age. Over-age enrolment is primarily due to the relatively high repeater rates throughout the school system but the repeater rates in the latter two grades of SHS are particularly high (up to 15%). Many of the students repeating have not been able to complete the year due to seasonal work, family responsibilities, or lack of money to pay fees (prior to the free SHS programme). While they may not have completed the year and failed, technically they are still counted as repeaters for resource purposes.

The transition rate between JHS and SHS reached 68% in 2016/17, and is expected to continue improving with the introduction of the free SHS policy in 2017. Gender parity has nearly been achieved and reached 0.96 in 2016/17, but there are substantial inequities to access across wealth quintiles. Students from the poorest 20% of households, the most deprived districts, and/or from rural areas are about five to six times less likely to access SHS. A contributing factor to pupils' ability to access SHS is the shortages of schools and classrooms. In 2015/16 the national SCR for public SHS stood at 46:1, with substantial regional differences. Northern and Upper East regions had PCRs of over 50:1 and in total the shortage of classrooms in 2016 was 2,894, 16% of the total SHS classroom stock. Learners with disabilities are also underrepresented: they make up only 0.2% of enrolment in SHS, despite accounting for 1.7% of the overall population at this age.

Textbook–student ratios have declined substantially since 2011/12, reaching 0.5 in 2016/17 for maths, and textbook production is often delayed. There is also a need for investment in infrastructure to address increasing SCRs which reached 48 in 2016/17, despite the much lower student-teacher ratio of 20 in 2014/15. In terms of learning outcomes, results from the West African Senior Secondary Certificate Exam (WASSCE) have been poor for both core and elective science and mathematics subjects, particularly in 2015. These results diverge substantially across regions, with the three northern regions performing the most poorly. Gender disparities in performance against girls exist across all regions for maths, science, and social studies, and, in the three northern regions, for English as well. There are large disparities in performance between schools even within the same region: in some schools, nearly 100% of students qualify for tertiary education, while in others 0% do so.

School management and leadership is key both for the roll-out of the free SHS policy, and to address weak examination results. A research agenda at the secondary level is in place that will continue to produce pertinent research, especially related to learning outcomes. Disbursements for the free SHS policy were rolled out in a timely fashion for the first term of the 2017/18 academic year, which has allowed for adequate planning and implementation.

Technical vocational education and training (TVET)

Access to TVET institutions has steadily increased, both in terms of Senior High Technical Schools (SHTS) and TVIs. However, improving access within this sub-sector is constrained by poor public perceptions: TVET is usually thought of as an option for underperforming students and many who are placed in these institutions often do not end up attending. Only 2.1% of students selected these institutions through the placement system in 2013. This is further compounded by a low absorption capacity for existing TVIs, and the poor state of training facilities and equipment. The participation of women and persons with disabilities in this sub-sector is particularly low, especially in traditionally male-dominated areas such as engineering and construction: 26% female enrolment was registered for 2015/16 and in SHTS, this number was just 11% in 2016/17. Currently, technical and vocational education is limited in scope and does not cover the diverse needs of learners. The relevant institutions are also ill-equipped to provide an adequate education.

There is a mismatch between the skills supplied and the demand for skills in the labour market, and there is low industry investment and involvement in this sub-sector. In addition, only 52% of TVI teaching staff possess technical qualifications. Staffing norms and standards vary substantially throughout the country. Learning outcomes in this sub-sector are also poor, especially for students at the Technician level, with only 30% of students passing the Technician I examinations.

Data collection mechanisms for the TVET sub-sector are inadequate, especially as this sub-sector is administered across more than 15 ministries, with weak collaboration. In addition, detailed data on teacher training and facilities are lacking, leading to an ineffective diagnosis of this sub-sector. The TVET sub-sector also suffers from a lack of harmonisation and coherence, and its operations are hampered by its fragmented nature. This sub-sector also receives less than 3% of the overall education expenditure.

Inclusive and special education

According to the Population and Housing Census (PHC) 2010, the overall prevalence of children with disabilities aged 4–17-years-old in Ghana is 1.6%, or 130,000 children, with wide regional disparities. This figure may, however, be underestimated due to low detection rates. At the same time, enrolment of children with disabilities ranges from just 0.2% to 0.4% of total enrolment between kindergarten and SHS. Children with disabilities have lower attendance rates compared to children without disabilities at all levels of pre-tertiary education, and the lowest attendance rates are at the SHS and TVET levels. It is also clear that children with disabilities are not progressing through the education system, and a large proportion are over-age. The lack of facilities in basic and secondary schools disproportionately affects children with disabilities, with almost no regular basic schools having hand-rails, and only 8% equipped with ramps. There has been anecdotal evidence to suggest that there is stigma toward children with disabilities.

The proportion of trained teachers in special schools is higher than in regular schools and PTRs are lower in special schools compared to regular schools, ranging from 7:1 to 11:1. There are consistent gaps in learning outcomes in reading, writing and mathematics between pupils with and without disabilities; these differences are particularly stark for writing in Ghanaian languages and mathematics, but exist across all other areas as well. Data collection for inclusive and special

education is limited, leading to an inability to effectively diagnose this sector and a reliance on national-level surveys. This sub-sector is also severely underfunded: in 2015, only 0.6% of total recurrent education expenditure was spent on inclusive and special education, which is concerning given the needs of the learners concerned.

Non-Formal Education (NFE)

There is a strong need for adult literacy programmes in Ghana, even for those who have attended formal schooling. At the end of basic education, only 54% of men and 43% of women had acquired literacy skills that persisted through adulthood. The main intervention that the MOE employs to improve literacy rates, especially for those working in the informal economy is the National Functional Literacy Programme (NFLP). The latest batch of the NFLP in local languages enrolled over 14,000 learners; however, this falls severely short of addressing the needs of the more than 1.2 million illiterate adults in Ghana, who are mostly concentrated in the three northern regions and within the lowest income quintiles. While other initiatives have also been employed, such as delivering literacy programmes on the radio, this is severely underfunded and progress on this is limited. Attempts to develop a literacy phone application also suffer from a lack of funding. Funding gaps for the NFE sub-sector also affect quality measures in terms of training for facilitators, teaching and learning materials (TLMs), curriculum review, supervision, and even printing of materials.

NFE received the least of government education expenditures in 2015, which is almost entirely recurrent and demonstrates a low commitment to NFE programmes. Efforts of the Non-Formal Education Division (NFED) in providing literacy programmes are constrained by it not achieving agency status, thus not benefitting from the associated clarification and ability to implement its mandate that agency status would confer. In addition, adult literacy is a cross-cutting issue, which affects various ministries and sectors. However, at present there is no national policy on NFE and adult learning, which hinders effective implementation and oversight, and leaves this sub-sector fragmented.

Tertiary

Both the number of, and enrolment in, tertiary institutions have increased over time, as the GER has improved but remained low at 14.2% in 2014/15. Private tertiary institutions directly under the MOE make up almost half of the total number of total tertiary institutions, but only 19% of enrolment. Applications far exceed admissions, especially for public universities, and female admissions and applications are much lower compared to males. In 2014/15, 25% of females and 29% of males who applied were admitted to public universities; in 2014/15, 37% of public university applicants were female and the corresponding figure for polytechnics was 35%. There are also wide income and regional disparities in completion at the tertiary level: the parity index for completion rates at the tertiary level between those from the poorest and richest income quintiles was 0.06. Enrolment in open and distance learning courses has increased for some institutions, but declined for others. Current course offerings across universities are often not diversified and facilities to accommodate students with disabilities are often inadequate.

Regarding quality, student-teacher ratios are much higher than the norms recommended by the National Council for Tertiary Education (NCTE), and less than 40% of teachers have terminal

qualifications, a statistic that varies substantially across universities. The targeted ratio of enrolment in science subjects to enrolment in arts subjects is 60:40, but at the moment the ratio is 40:60 and this has remained stagnant for a number of years. The annual number of publications per lecturer per year is only 0.5 and only one Ghanaian university is ranked among the top 25 universities in Africa.

Given that most tertiary institutions are self-regulated, the NCTE and the National Accreditation Board (NAB) have limited capacity and legal authority, which constrains their efforts to serve as supervisory entities. Data for tertiary institutions are usually collected at the end of the academic year, making it difficult to effectively impact decision-making within the year. In terms of funding, the government typically provides between 50% and 55% of the total financial resources to the sub-sector, the vast majority of which goes on staff salaries. IGF is the second largest source of funding for the tertiary sub-sector and the Ghana Education Trust Fund (GETFund) typically provides 8–10% of the sub-sector's funding. However, in spite of these funding sources, there have been substantial gaps in funding: in the 2016 academic year, there was a funding gap of 45%. The Student Loan Trust Fund (SLTF) has been beneficial in increasing access for financially disadvantaged groups; however, it faces funding challenges in financing loans for all students. The establishment of new institutions, upgrading of other institutions to tertiary status, and absorption of private institutions into the public sector by government will put further stress on funding to the tertiary sub-sector.

Introduction

The ESA examines every aspect of Ghana's education system to assess the sector's performance in the provision of quality education for all. It is a comprehensive assessment of the education sector, drawing on a wide range of previous studies and research papers. The analysis is not a one-off event: it should be updated and revised as new evidence and research comes to light on education in Ghana. The aim of the analysis is to provide an objective overview of the state of education in Ghana and so highlight key challenges and inform the possible strategies for responding to these challenges. It is these key challenges which the ESP 2018–2030 seeks to address, in line with the National Medium-Term Development Plan Framework (NMTDP) and international commitments, such as the Sustainable Development Goals.

The ESA draws on a wide range of primary data analysis, as well as pre-existing research material. Three reports were commissioned specifically to inform this work, namely: an equity analysis, a system capacity analysis, and a cost and finance analysis. These were complemented by a thorough review of related material, from academic papers to project implementation reports. The MOE's education management information system (EMIS) and financial data have been heavily relied on to ensure the quality of this work, as well as broader survey data, principally from the Ghana Statistical Service (GSS).

In Chapter 1, the ESA firstly explores the demographic, socioeconomic, and macroeconomic contexts of the education sector in Ghana. It assesses the demographic pressures on the education system by considering the potential demand for education services due to population growth; the socioeconomic factors that affect this demand, such as the incidence of poverty; and the trends in the provision of education in the macroeconomic context. Chapter 2 moves to a situational analysis of education financing, considering expenditure by source of funds, classification, and sub-sector, as well as providing a unit cost analysis. Chapters 3–8 provide a more detailed look at the sub-sector areas of education: basic education, secondary education, TVET, inclusive and special education, NFE, and tertiary education. Each chapter considers the relevant area through access, quality, and equity lenses.

1 Context

1.1 Geographical context

Ghana is situated in west Africa and is bordered to the north by Burkina Faso, to the east by Togo, to the west by Cote d'Ivoire, and to the south by the Atlantic Ocean. It consists of 10 administrative regions, and 216 districts, with a total area of 238,553 square kilometres and a population of over 28 million according to 2016 estimates. Ghana's political and administrative capital is the coastal city of Accra (Maier *et al.*, 2017).

Ghana is mostly a low-lying country, with the highest elevation at 884 metres above sea level found on the eastern border. There are three main ecological zones: rivers and streams are found along the coastal plains, rainforests are found in western and central Ghana, and the north is characterised by savannah. The Volta Lake is the largest artificial lake in the world and was created in 1965 by the largest hydroelectric dam in the country, the Akosombo Dam (GSS *et al.*, 2015).

In terms of climate, Ghana is mostly temperate. In most of the country there are two rainy seasons: April to June and September to November; however, the north only has one rainy season, between May and September. Every year between December and March the *harmattan*, a dusty, parching wind from the Sahara, blows across the country (GSS *et al.*, 2015).

1.2 Socio-demographic characteristics

1.2.1 Administration

There are 10 administrative regions in Ghana: Ashanti, Brong Ahafo, Central, Eastern, Greater Accra, Northern, Upper East, Upper West, Volta, and Western. These regions are further divided into a total of 216 districts, with administrative structures set up at the local level.

1.2.2 Ethnic groups, language, and religion

The Ghanaian population is made up of various ethnic groups. According to the 2014 Ghana Demographic and Health Survey (DHS) (GSS *et al.*, 2015), the Akans constitute the largest group (48%), followed by the Mole-Dagbani (17%), Ewe (14%), Ga-Dangme (7%), and others. In terms of religion, the most widely practised religion is Christianity, with Christians making up just over 70% of the population, followed by Muslims, who make up 18%, followers of traditional religions, at 5%, and others. The make-up of the 70% of Christians is as follows: 28% of Ghanaians are Pentecostal, 18% Protestant, 13% Catholic, and 11% other (The World Factbook, 2017).

While English is the official language in Ghana, there are a range of other language groups. Figure 1 provides a language map of Ghana, showing that at least 69 different languages are spoken. The languages spoken most widely are Asante (16%), Ewe (14%), and Fante (12%) (The World Factbook, 2017).

Figure 1:   Language groups of Ghana
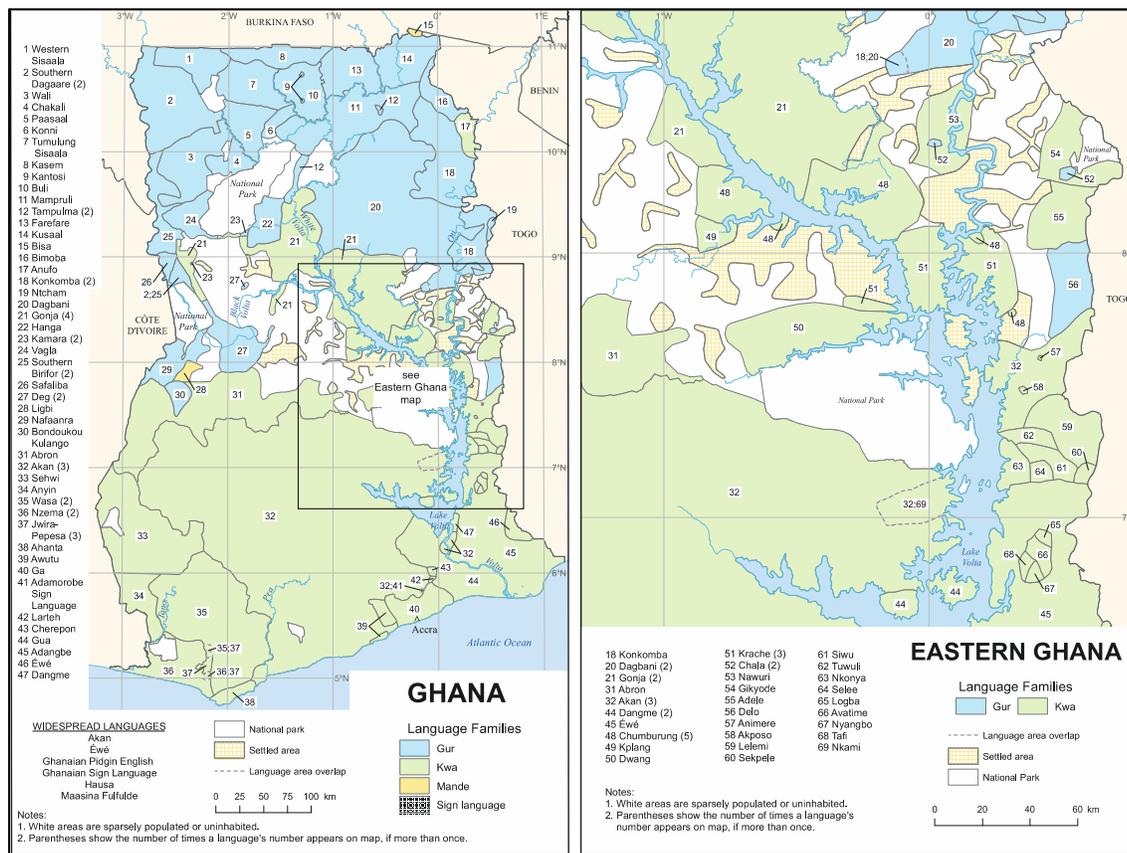
Source: Language Maps from Ethnologue (2017)

1.3   Population dynamics

Ghana's population is currently 29.6 million, and is increasing at the rate of approximately 2.2% per year. The growth rate is expected to start decreasing in 2020 and by 2030 it will have dropped to 1.9% (GSS, 2013). The Ashanti, Eastern, and Greater Accra regions hold 50% of the population, while Upper East is the least populated region, accounting for just 2% of the total population. According to Round 6 of the Ghana Living Standards Survey (GLSS), conducted in 2012, migration in Ghana is high, at 48.6%. 'More than a quarter of the migrant population (26.0%) moved from other urban areas to settle in rural areas, while a lower proportion (23.2%) migrated to other urban areas. About a fifth (21.2%) moved from a rural locality to another rural locality, while less than ten percent migrated from rural areas to other urban areas (8.8%).' (GSS, 2014).

Figure 2 shows Ghana's population pyramid. According to the 2015 Labour Force Survey, 40% of the population is under 14 years old, 55% are between 15 and 64 years old, and just 1.9% are over 65 years old. Ghana's age-dependency ratio is 81%. In terms of gender dynamics, 52.3% of Ghana's population is female; however, the dependency ratio is substantially lower for females (72.5%) compared to males (92.2%). There are also stark differences in the dependency ratio across urban

and rural areas: the urban dependency ratio is 67.4%, compared to the rural one at 98.1% (GSS, 2016).

Figure 2:   Ghana population pyramid
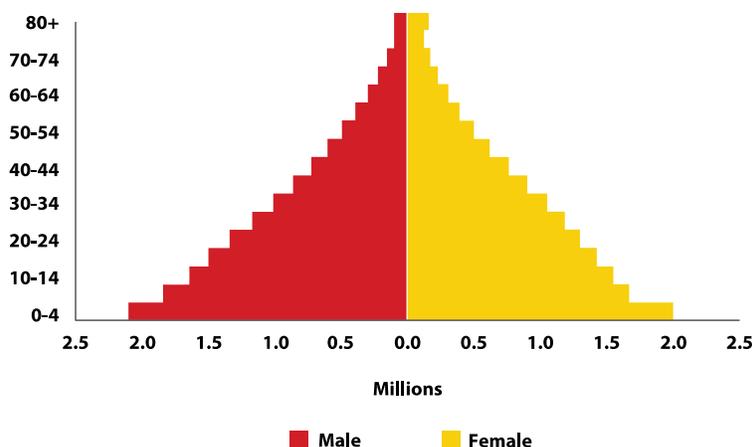
Source: Data from the GSS, authors' calculations

The number of school-age children 4–18 years old is projected to grow at just over 2% per year for the next four years, dropping to a 1.9% growth rate in 2025 and a 1.7% growth rate in 2030. The figure below shows the projected number of school-going children by appropriate school-level age category from 2017 to 2025 (GSS, 2017).

Figure 3:   Projected number of school-going children by appropriate school-level age category 2017–2025
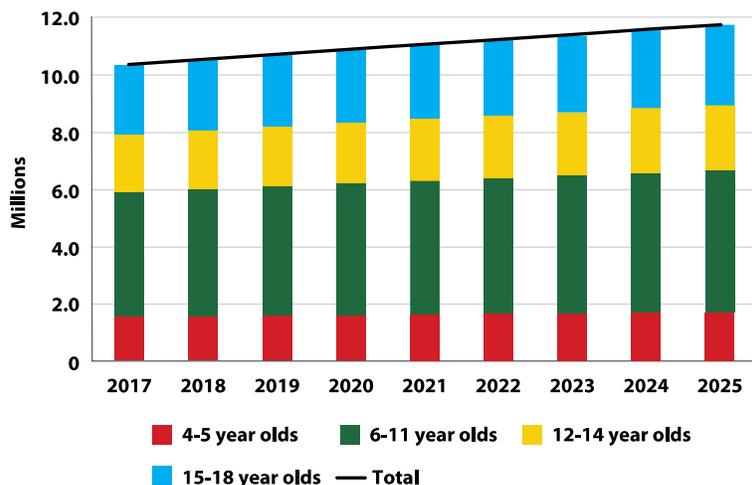
Source: GSS (2017), with smoothing by authors, as described in Annex A.

Note: The GSS (2017) population projection contained an anomaly in the number of 0-year-old children between 2010 and 2011. This was then reflected in the school-going population of four-year-olds in 2015, five-year-olds in 2016, and onwards through the school-age population. This was smoothed off to create a consistent rate of growth in the incoming school-aged population for the purposes of costing, as presented in Figure 3. All reporting of GERs, NERs etc. in this analysis are still based on the official GSS population projections, as explained in Annex A.

1.4   Poverty dynamics

The Ghana Poverty Mapping Report (GSS, 2015) shows stark differences in poverty across Ghana, with a high incidence of poverty observed in the northwest of Ghana and much lower incidence in the southwest. Similar trends are observed with regard to the number of poor people and to the depth of poverty. Figure 4 shows a strong correlation of regional patterns of poverty, the proportion of the population living in urban areas, and the proportion of educationally deprived districts. Meanwhile, inequality, as measured by the Gini coefficient, has remained at 0.41 between 2006 and 2010 (Cooke, Hague, and McKay, 2016).

Figure 4:   Regional patterns of inequality in Ghana

Poverty incidence by region, 2012/13 (at national poverty line, %)
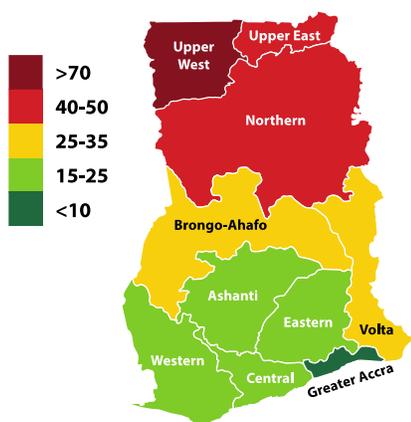
Percentage of the population living in urban areas in 2010
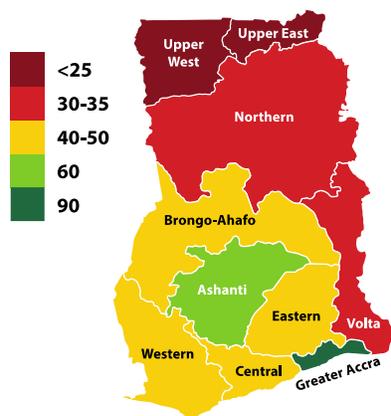
Proportion of educationally deprived districts, current classification (%)
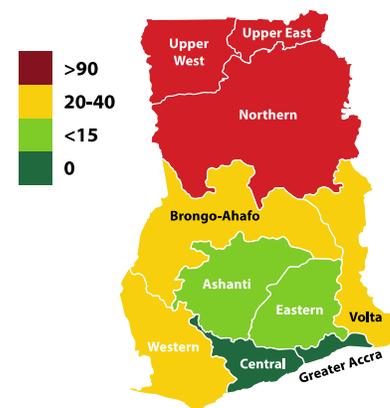
1.5   Literacy rates

The overall literacy rate is 76.6% in Ghana, but this varies widely across gender, region, and age. The female literacy rate is 71.4%, compared to the male literacy rate of 82% (The World Factbook, 2017). The 2015 Ghana Labour Force Survey found that literacy rates are lowest in the three northern regions and highest in Greater Accra (GSS, 2016).

1.6   Political context

The 1992 constitution stipulates that Ghana is a multiparty parliamentary democracy, with the President serving as head of state and head of government for a term of four years, under a two-term limit, and elected through universal suffrage. Cabinet is defined as consisting of the 'President, Vice-President and not less than ten and not more than nineteen Ministers of State.' (Republic of Ghana, 1992). Ministers of State are appointed by the President with prior approval of Parliament. In recent years, two main parties have dominated elections, which are usually closely contested: the New Patriotic Party and the National Democratic Congress.

General elections are held every four years, with the most recent one in December 2016. This was won by the New Patriotic Party. Their manifesto lists the following as the vision for Ghana (New Patriotic Party, 2016):

- a prosperous population with a high quality of life;
- a stable, peaceful, and firmly united nation;
- an efficient machinery of good governance, with strong institutions;
- a well-educated population that strives for excellence; and
- a competitive economy that is capable of producing sustainable growth, jobs, and shared benefits for all.

1.7   Economic context

Ghana's economic growth since the early 2000s has been widely hailed as a success story in west Africa, outperforming other economies in the region. Between 2008 and 2012, Ghana's GDP growth rate averaged 8.7%, peaking in 2011, when it reached 14.5%, the second highest in the world for that year (Figure 5). A large part of this was attributed to an improvement in the terms-of-trade with the commencement of oil production, coupled with high gold and cocoa prices. In addition, Ghana was able to attract increased foreign direct investment, both due to the easing of liquidity constraints and Ghana's reputation as a stable country with robust democratic institutions. In 2011, as a result of this rapid economic growth, coupled with the adoption of a more refined accounting methodology, Ghana's status was reclassified from a low-income to a lower middle-income country (World Bank, 2017a).

This growth had large, positive effects as regards reducing unemployment and poverty rates in Ghana. Between 2010 and 2012, the unemployment rate averaged 4% (Trading Economics, 2017b), while the poverty rate was at 24.2% in 2012, with extreme poverty at 8.4% in the same year (GSS, 2014). These positive figures can be largely attributed to oil production, which boosted

the industrial sector, from accounting for 19% of GDP in 2010 to accounting for 30% of GDP in 2015 (World Bank, 2017a).

Figure 5:   Long-run growth trends, Ghana and Sub-Saharan Africa, 1990–2014
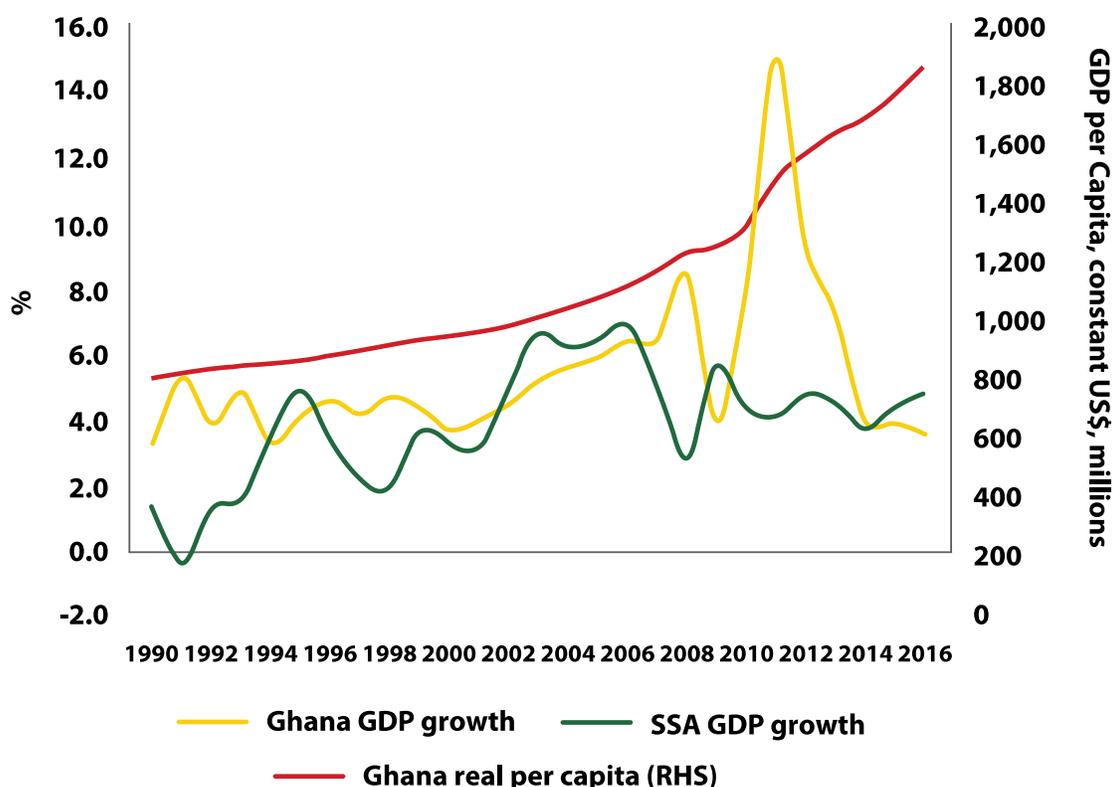
Source: World Bank Public Expenditure Review (World Bank, 2017a)

Since 2012, growth has slowed substantially, to an estimated 4% in 2016 (International Monetary Fund (IMF), 2017). This was attributed to 'a combination of energy rationing, low commodity prices, high inflation, and expenditure-side fiscal consolidation' (World Bank, 2017a). Between 2012 and 2014 the Ghanaian cedi (GHS) depreciated substantially, leading to a considerable increase in inflation, from 8.8% to 17%. This rate decreased to 12.2% in February 2017 and to 10.6% in February 2018 (GSS, 2018), but is still above the Central Bank's target of 10% (World Bank, 2017a). Ghana's GDP growth rate is projected to be quite rapid for 2018, at almost 9%, but projections slow to between 5.1 and 5.5% from 2019 to 2022 (IMF, 2017). The sectoral contribution to the GDP has not changed significantly between 2014 and 2016: in 2016 Ghana's services sector made up 54% of the GDP, while industry accounted for 26% and agriculture for 20% (PricewaterhouseCoopers (PWC), 2017).

1.8   Government budget, revenue, and expenditure

Between 2011 and 2016, government's total revenue as a percentage of GDP remained more or less constant at 16–19%. However, expenditure outpaced revenue and by 2016 expenditure reached 31% of GDP. This has resulted in an increase in the fiscal deficit and an increase in the repayment of loans as a percentage of government expenditure (Ministry of Finance (MOF), 2015).

In real terms GDP grew by 18% in 2012 but had dropped to 3% and 4% in 2015 and 2016, respectively. In 2012 growth in government expenditure was over 40% in real terms. While this has reduced significantly as the effects of changing to the single spine salary scale level off, growth, in real terms, of government expenditure still exceeds real growth in the GDP by about 6 percentage points, with growth in real terms in 2016 at 10.9%

Figure 6: **GDP and government expenditure in nominal and real terms, 2011–2016 (millions of GHS)**
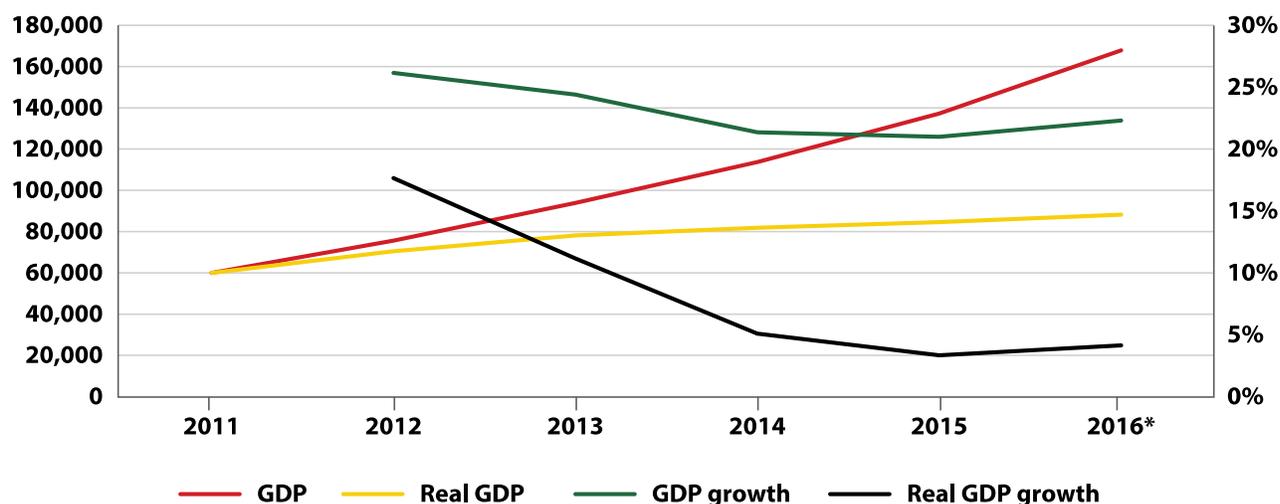
Sources: Government expenditure: MOF, 2011–2016; GDP – GSS 2017; deflator – IMF, 2018

Table 1: **GDP and government expenditure in nominal and real terms, 2011–2016 (millions of GHS)**

Year	2011	2012	2013	2014	2015	2016*
GDP	59 816	75 315	93 461	113 343	136 957	167 315
GDP growth	-	26%	24%	21%	21%	22%
Real GDP	59 816	70 322	78 125	82 030	84 573	87 932
Real GDP growth	-	18%	11%	5%	3%	4%
Total government expenditure	13 380*	20 590	27 463*	31 962	38 590	43 984
Growth in government expenditure	-	54%	33%	16%	21%	14%
Government expenditure as % GDP	22%	27%	29%	28%	28%	26%
Real government expenditure	13 380	19 225	22 957	23 132	23 830	23 115
Growth in real government expenditure	-	43.7%	19.4%	0.8%	3.0%	-3.0%

* Provisional

Sources: Government expenditure: MOF, 2011–2016; GDP – GSS 2017; deflator – IMF, 2018

Of the 2016 government expenditure, 7% of GDP went to salaries and wages, 1.3% to goods and services, 6.4% to interest payments, 3.8% to capital investments, and 6.3% to transfers to government departments. However, the expenditure on goods and services and capital investments does not include disbursements of earmarked funds, such as the GETFund, national health fund, and receipts from oil revenue and VAT (MOF, 2018).

The public sector wage bill saw a sharp spike in 2012 due to the single spine salary adjustment reform in 2010, which standardised the public sector pay scale, resulting in large increases in compensation. In 2012 the wage bill made up 78% of government spending but stabilised in 2012 back to its 2011 level of 34%. It has slowly been declining and in 2016 it was 31% of government spending and constituted 7% of GDP. In real terms, since the spike in 2012, expenditure on wages has been declining. The wage bill decreased by 4% in 2014, 1% in 2015, and 4% in 2016, indicating a large measure of determination by the GoG to stabilise spending on compensation.

1.9 Global and national context – education policies

In 2017, the UNESCO Institute of Statistics (UIS) factsheet (2017b) found that in sub-Saharan Africa almost 90% of children aged 6–14 are not meeting minimum proficiency levels in reading, and nearly 85% are not meeting these levels for maths. These are much higher than the world averages of 56% for maths and 58% for reading.

Furthermore, the 2018 World Development Report (World Bank, 2018) finds that there are three dimensions of the learning crisis: (i) learning outcomes are poor, with high inequalities by gender, geography, and income, and slow progress; (ii) schools are failing learners, with 'struggling education systems lack[ing] one or more of four key school-level ingredients for learning: prepared learners, effective teaching, learning-focused inputs, and the skilled management and governance that pulls them all together'; and (iii) systems often fail schools in terms of both technical and political challenges. Policy responses to rectify this are threefold: assessing learning, acting on evidence, and aligning actors.

Given this context, and in addition to Ghana's constitution, which guarantees the right to education, there are a range of national and international documents that underpin Ghana's education policies:

- **Sustainable Development Goals**: In 2015, the Millennium Development Goals period came to an end, and they were replaced by the Sustainable Development Goals. The 17 goals set out a global agenda to 'end poverty, protect the planet and ensure that all people enjoy peace and prosperity'. Goal 4 is the key framework for education and aims to 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' (United Nations Development Programme, 2017).
- **Africa Union Agenda 2063**: Agenda 2063 is a 50-year strategic framework that builds upon continental initiatives for growth and sustainable development to accelerate the socioeconomic transformation of Africa. In order to make the Africa Union Agenda 2063 more implementable, the African Union Commission developed an Africa-comprehensive 10-year Continental Education Strategy, which has 12 strategic objectives (African Union, 2015).
- **President's Coordinated Programme**: Prepared in line with election cycles, this reflects the new President's vision for the country, as already articulated in the current government's election manifesto and the State of the Nation Address 2018.

- **Vision 2057**: Developed by the National Development Planning Committee (NDPC), this document lays out Ghana's 40-year development plan from 2018 to 2057 that will be implemented through 10 medium-term development plans spanning four years each.
- **Medium-Term Development Plan**: Up until 2017, the Ghana Shared Growth and Development Agenda II 2014–2017 guided medium-term implementation. The new National Medium-Term Development Planning Framework (NMTDPF) 2018–2021 has been developed by the NDPC, with input from all ministries, departments, and agencies.

1.10   Overview of the education sector

The GoG, through the 1992 Constitution, recognises its responsibility to ensure that every Ghanaian child of school-going age has a right to education to the level and extent possible within the resources of the nation. Ghana's education system consists of three levels (Education Act, 2008):

- Basic education, or first-cycle education, consisting of two years of kindergarten, six years of primary, and three years of JHS;
- Second cycle education, consisting of three years of SHS; TVET; or business, agriculture, or apprenticeship work; and
- Tertiary education, consisting of Colleges of Education (COEs), polytechnics, universities, and other degree- and diploma-awarding institutions.

The Education Act also established three new national bodies – National Inspectorate Board (NIB), National Teaching Council (NTC), and National Council for Curriculum and Assessment (NaCCA), – to oversee the operations of the pre-tertiary sub-sector. Furthermore, the Education Act makes provision for NFE and lifelong educational programmes.

While overall education administration is overseen by the MOE, each sub-sector of education has a corresponding agency that is responsible for the administration of education for that sub-sector. Pre-tertiary education is managed by the GES, while tertiary education is managed by the NCTE. NFE is managed by NFED, inclusive and special education and is managed by the Special Education Division (SPED), and TVET is managed by the Council for Technical and Vocational Education and Training (COTVET). A range of other agencies support these efforts.

2 Education financing

2.1 Proportion of GDP and government expenditure toward education

UNESCO recommends that at least 6% of a country's GDP should be spent on education, while the Global Partnership for Education (GPE) recommends that at least 20% of the government's budget should be devoted to education. Ghana exceeds these international benchmarks in both cases: Table 2 shows that total education expenditure as a proportion of GDP has ranged between 6% and 8% between 2011 and 2015, while total education expenditure as a proportion of government expenditure ranged between 21% and 28%. The World Bank (2017a) also finds that Ghana spends a higher proportion of its total budget and GDP on education than any of the other 13 Economic Community of West African States (ECOWAS) countries.

Table 2 shows education expenditure as a percentage of GDP and total government expenditure – both including and excluding IGF. IGF are predominantly fees and levees paid by students directly to SHS and tertiary institutions. As such, they should be defined as private contributions to education expenditure; however, it is customary to include IGF in the overall education expenditure. The first section of the table shows education expenditure, including IGF, as a percentage of GDP and total government expenditure.

The second section of the table shows education expenditure, excluding IGF, as a percentage of GDP and total government expenditure. This reduces the expenditure on education as a percentage of GDP by 0.8 to 1 percentage points. As a percentage of total government expenditure, removing the IGF contributions reduces this by 3 to 4 percentage points. Seen through this lens, public expenditure on education narrowly misses the internationally recommended benchmarks.

Table 2: Education expenditure as a proportion of GDP and total government expenditure, 2011–2015

		2011	2012	2013	2014	2015
Education expenditure* including IGF	Education expenditure as a % of GDP	6.0%	7.6%	6.1%	6.2%	6.3%
	Education expenditure as a % of total government expenditure	27%	28%	21%	22%	23%
Education expenditure excluding IGF	Education expenditure as a % of GDP	5.4%	6.7%	5.3%	5.5%	5.3%
	Education expenditure as a % of total government expenditure	24%	25%	18%	19%	19%

Note: Education expenditure includes GETFund, ABFA, and donor funding

Source: MOE ESPR, 2016; government expenditure: MOF, 2011–2016; GDP – GSS 2017

Education expenditure has been growing at a faster rate, in both nominal and real terms, than the total government expenditure. Due to the single spine adjustment in 2012, the education sector grew in nominal terms by 60% – which was 6 percentage points higher than the growth rate of the total government budget. 2013 saw the levelling off of education expenditure in nominal terms which, due to the rising inflation rates, was an 11% fall in real terms. Subsequently, the growth in education expenditure has stabilised in nominal terms, at 23% in 2014 and 25% in 2015. In real terms this is a growth of 6% in each year. Total government expenditure grew in 2014 by 16% and in 2015 by 21% (in nominal terms), which was a growth in real terms of 0.8% and 3%, respectively.

Figure 7: **Total education expenditure and % growth in nominal and real terms, 2011–2015 (millions of GHS)**
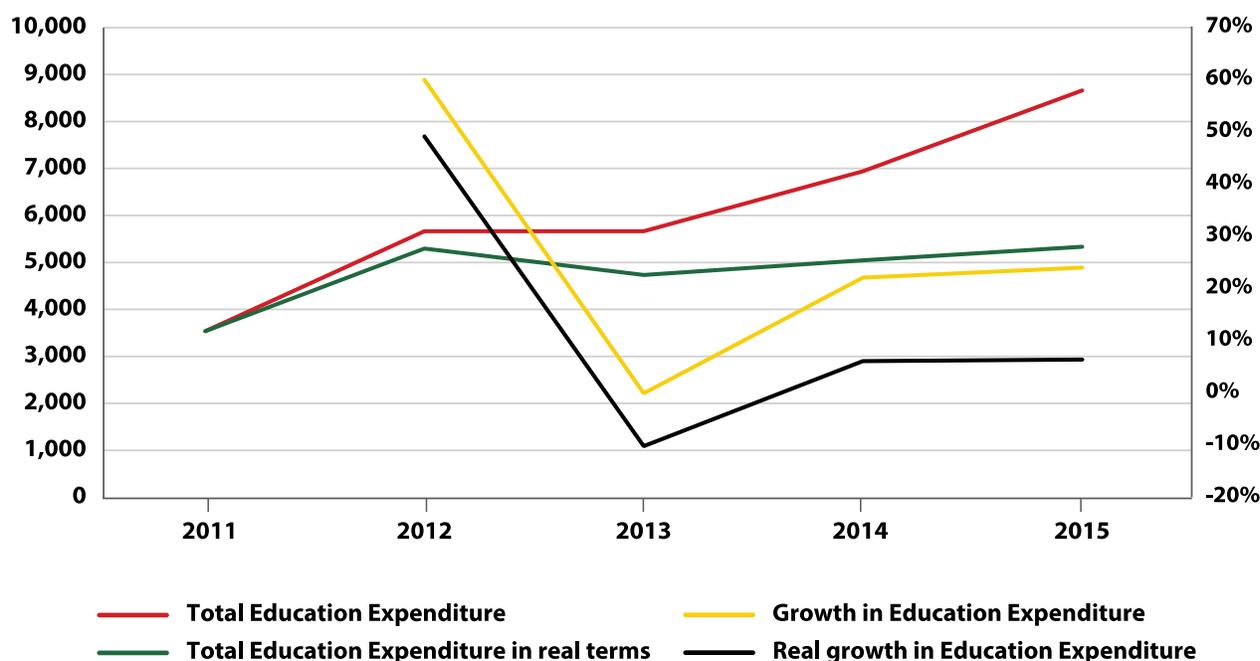
Note: Education expenditure includes GETFund, ABFA, donor funding, and IGF

Source: MOE ESPR, 2016; government expenditure: MOF, 2011–2016; GDP – GSS 2017

Table 3: **Total education expenditure and % growth in nominal and real terms, 2011–2015 (millions of GHS)**

	2011	2012	2013	2014	2015
Total education expenditure	3 566	5 704	5 697	6 982	8 697
Growth in education expenditure		60%	0%	23%	25%
Total education expenditure 2011 prices	3 566	5 326	4 762	5 053	5 370
Real growth in education expenditure		49%	-11%	6%	6%

Note: Education expenditure includes GETFund, ABFA, donor funding, and IGF

Source: MOE ESPR, 2016; government expenditure: MOF, 2011–2016; GDP – GSS 2017

2.2   Education expenditure by source of funds

Total education income and expenditure is made up of funds from the GoG budget; transfers from government via the GETFund, which is an earmarked proportion of the VAT; the ABFA, which is earmarked from oil revenue; funds from development partners to education; and the IGF. While the private sector and the District Assemblies' Common Fund also contribute financial resources to education provision, there is a need to better consolidate and report on these figures.

Figure 8 shows the percentage of education expenditure by source of funds between 2011 and 2015. In 2012 total funding of education expenditure from the GoG budget amounted to 87%, and in 2015 this was 78%. The GETFund and ABFA have contributed increasing amounts to overall education expenditure since 2012 – predominantly funding government expenditure on goods and services and capital.

IGF contributions were between 11% and 12% between 2012 and 2014, with an increase in 2015 to 17% of total education funding. This increase in IGF was almost entirely due to increased fee income from the tertiary education sector. There is likely to be a reduction in the IGF contributions as free SHS is rolled out over the next two years.

Figure 8:   Percentage of education expenditure by source of funds, 2011–2015

	GoG	Donor	IGF	GETFund	ABFA
2011	71.9	3.6	9.9	14.5	0
2012	80.4	2	11.1	6.3	0.2
2013	79.1	4.7	12.6	3.5	0.2
2014	75	4.6	11.5	8.8	0.2
2015	68	4.2	16.9	8.7	2.2
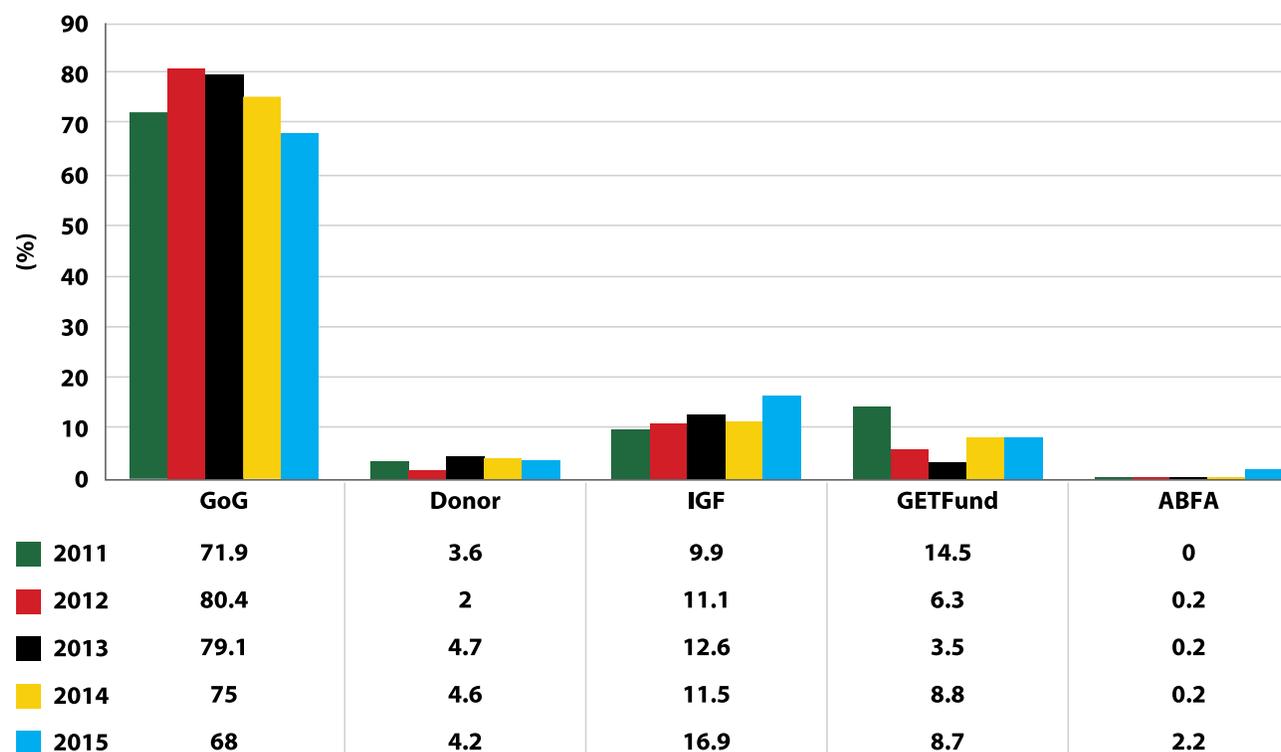
Source: Cole and Abdulai, 2017.

2.3   Education expenditure by economic classification

In 2015, 68% of total education expenditure went toward wages and salaries, while 21% of spending went toward goods and services, and 11% went toward capital (Figure 9). While there has been a steady reduction in the percentage of funding going towards goods and services and capital expenditure from the general GoG budget, this needs to be seen in the context of increased government funding for goods and services and capital being available from the GETFund and ABFA.

Figure 9:   Percentage of total education expenditure by economic classification, 2015
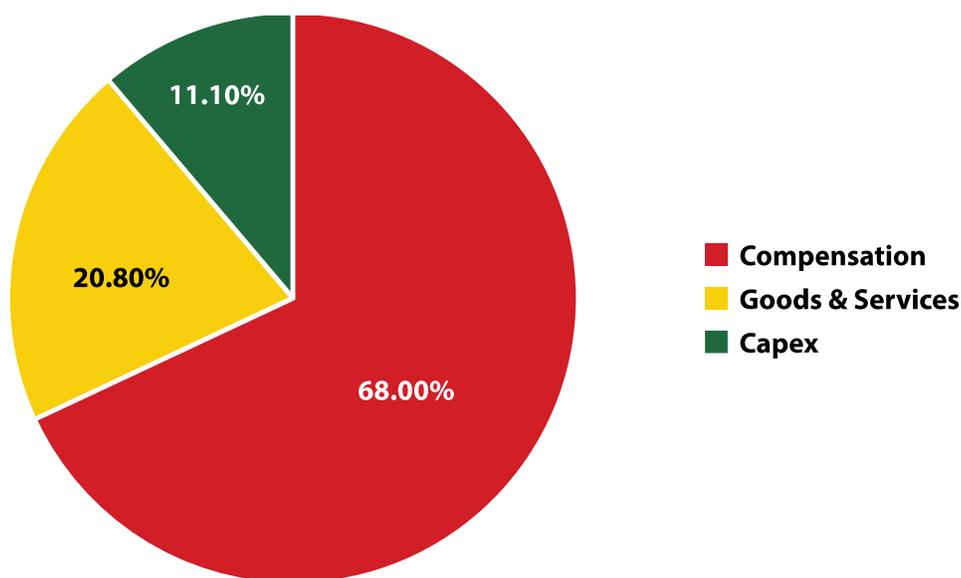
Note: This includes funding from general GoG budget, GETFund, ABFA, IGF, and donors.

Source: MOE, 2016

Figure 10 shows the spending by economic classification from all sources of government funding, IGF, and donor funding in 2015. Financing of salaries and wages is entirely from the government budget allocations to education. Government funding on goods and services comes from the GETFund and ABFA.

IGF funds 75% of all goods and services and 9% of capital. Donors currently fund 13% of goods and services and 12% of capital.

Figure 10: **Total education expenditure from all sources of government funding, IGF, and donor funding by economic classification, 2015**
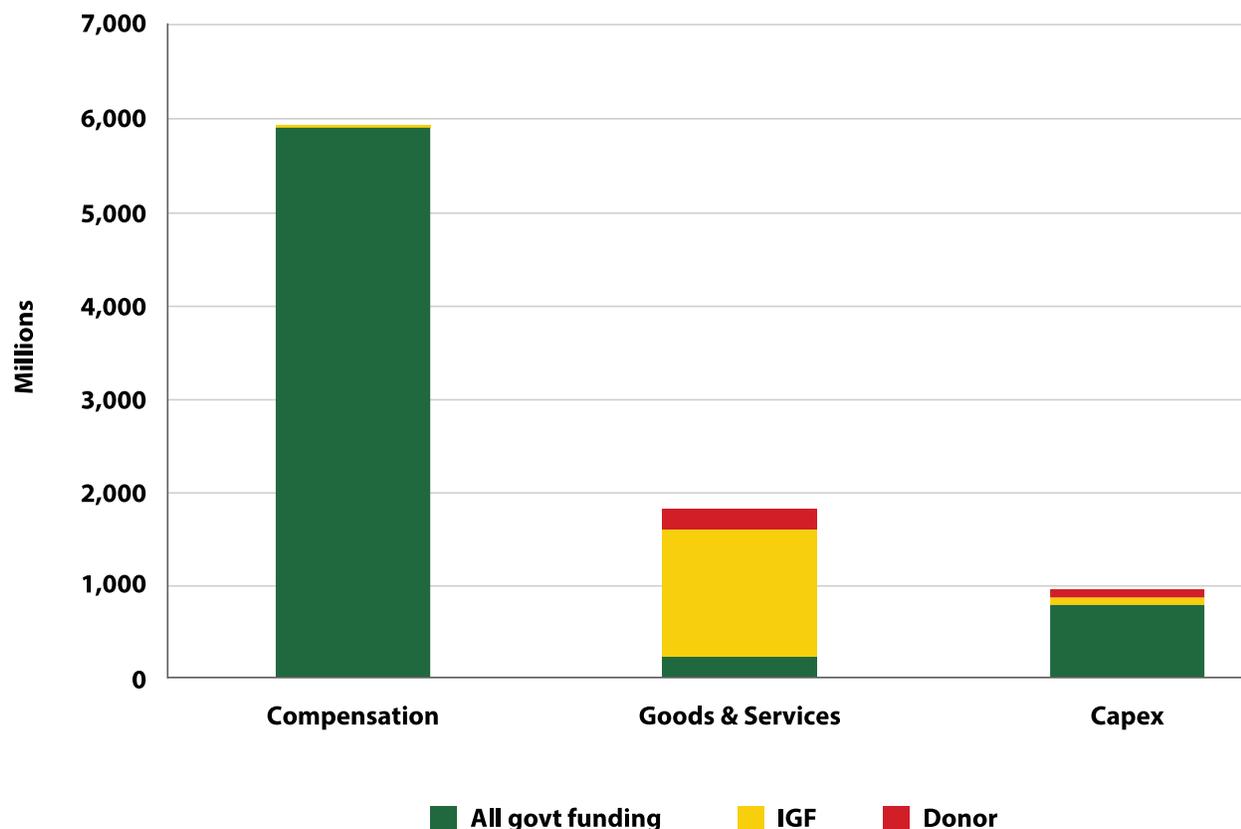
Source: MOE, 2016

2.4   Education expenditure by sub-sector

Total education expenditure by sub-sector is given in Figure 11. These expenditure figures include IGF in the SHS and tertiary sectors. Aside from NFE, increasing expenditure in the sector is seen across all levels of education, but particularly for the SHS and tertiary sub-sectors. Primary education consistently accounted for the largest share of education expenditures until 2015, when it was overtaken by JHS, SHS, and tertiary. Growth in expenditure in the JHS sub-sector is primarily due to a rapid increase in the number of teachers employed in the sub-sector – as is shown later in the analysis. Growth in expenditure in the SHS and tertiary education sub-sector has been significant; however, much of this growth is due to increases in IGF as a proportion of spending.

Figure 11: **Total education expenditure by sub-sector, 2011–2015**
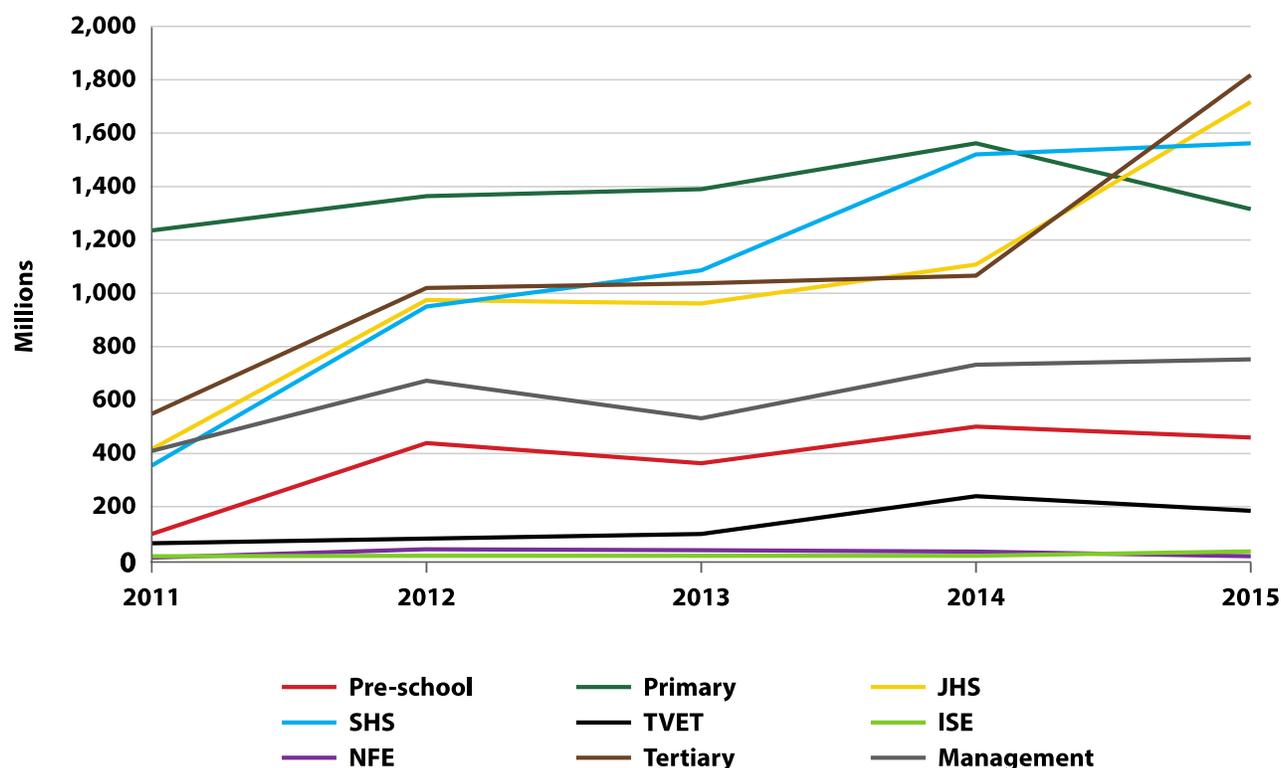
Source: Cole and Abdulai, 2017

Figure 12 shows the expenditure on education by sub-sector excluding IGF between 2013 and 2015. Expenditure on the primary education sub-sector was still the highest in 2015, and although expenditure on primary decreased between 2014 and 2015 this does not appear to be a trend. Indications from the still to be completed 2016 expenditure review are that spending on primary education reverted to 2014 levels.

As noted previously, the roll-out of free SHS from 2017 onwards will affect the proportion of non-IGF spending on the various sub-sectors, with government spending having to compensate for IGF currently collected by SHS.

Figure 12: Expenditure on education by sub-sector excluding IGF, 2013–2015
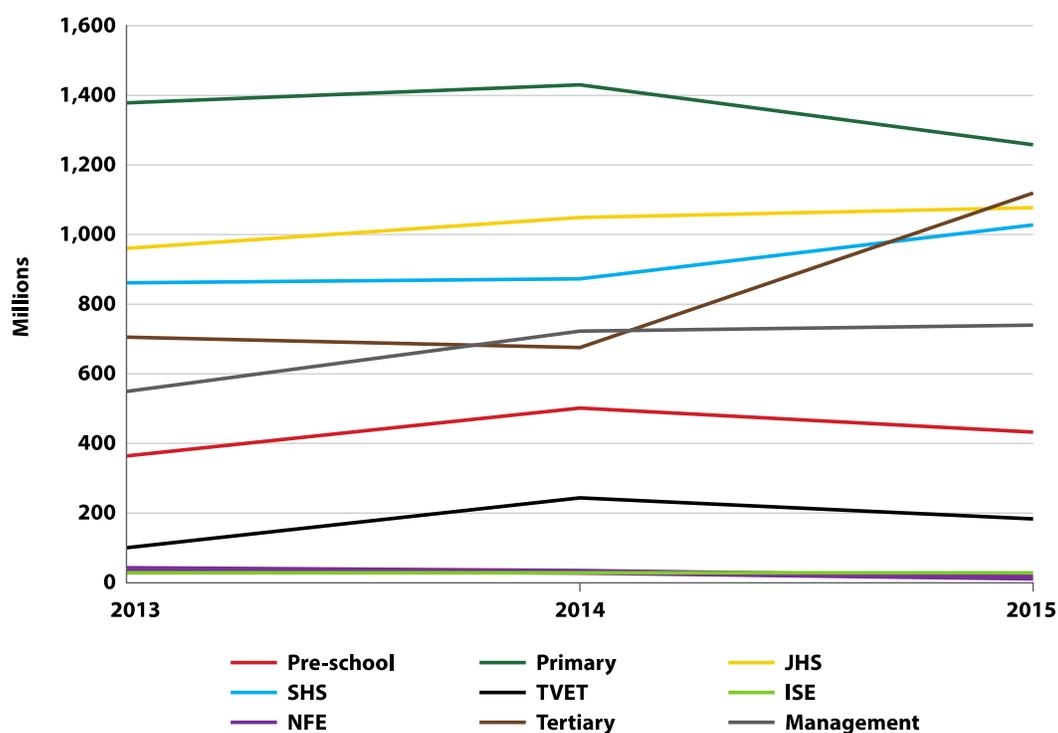
Source: Data from ESPR 2014–2016

The table below shows the proportion of education spending in 2015 by sub-sector, both including IGF and excluding IGF. Spending on the SHS and tertiary sub-sectors as a proportion of total education spending decreases by 6 percentage points, when IGF is excluded, while the proportion spent on primary and JHS both increase by almost 4 percentage points.

Table 4: Proportion of education spending by sub-sector, including and excluding IGF, 2015

Sector	Proportion of education spending, including IGF	Proportion of education spending, excluding IGF
Pre-school	6.0%	7.4%
Primary	17.3%	21.4%
JHS	14.8%	18.2%
SHS	23.4%	17.5%
TVET	2.5%	3.1%
Inclusive and special education	0.4%	0.5%
NFE	0.2%	0.2%
Tertiary	25.2%	19.0%
Management and agencies	10.2%	12.6%

Source: Data from ESPR 2014–2016

2.5   Unit costs by public sub-sector, excluding IGF

The figure below (Figure 13) shows an analysis of unit costs by public institutions – excluding IGF. The exclusion of IGF allows the analysis to reflect per capita government and donor funding only since IGF predominantly comprise fees and fundraising efforts of the institutions.

Unit cost calculations should be read as indicative only. It is extremely difficult to disaggregate spending by sub-sector, especially when institutions include one or two sub-sectors – such as schools that include pre-school and primary levels or primary and JHS levels.

In terms of per capita spending, the ratio between primary and JHS was 1:2 in 2014 and 1:3.5 in 2015. The ratio of spending between primary and SHS was 1:2.8 in 2014 and 1:3.5 in 2015. The ratio between primary and tertiary was 1:8.5 in 2014 and 1:11.6 in 2015.

These ratios – which exclude private schools and IGF – of primary school per capita expenditure to other sub-sectors are substantially lower than previously published (World Bank, 2017a, and Cole and Abdulai, 2017). Previous publications either included private school enrolment, which erroneously reduces the per capita spending to the primary sector in particular, or they included IGF, which erroneously increases the government per capita spending in the SHS and tertiary sub-sectors.

It does appear, though, that per capita spending by government and donor sources has levelled off or even declined slightly at the pre-school and primary level. The increases in per capita spending on SHS and tertiary institutions has increased in nominal terms by 10% and 20%, respectively.

Figure 13:   Unit cost in GHS by level of education, public schools only, and excluding IGF, 2014 and 2015

	Pre-school	Primary	JHS	SHS	TVET	Tertiary
2014	390	446	850	1,272		3,787
2015	342	390	1,349	1,399	5,240	4,530
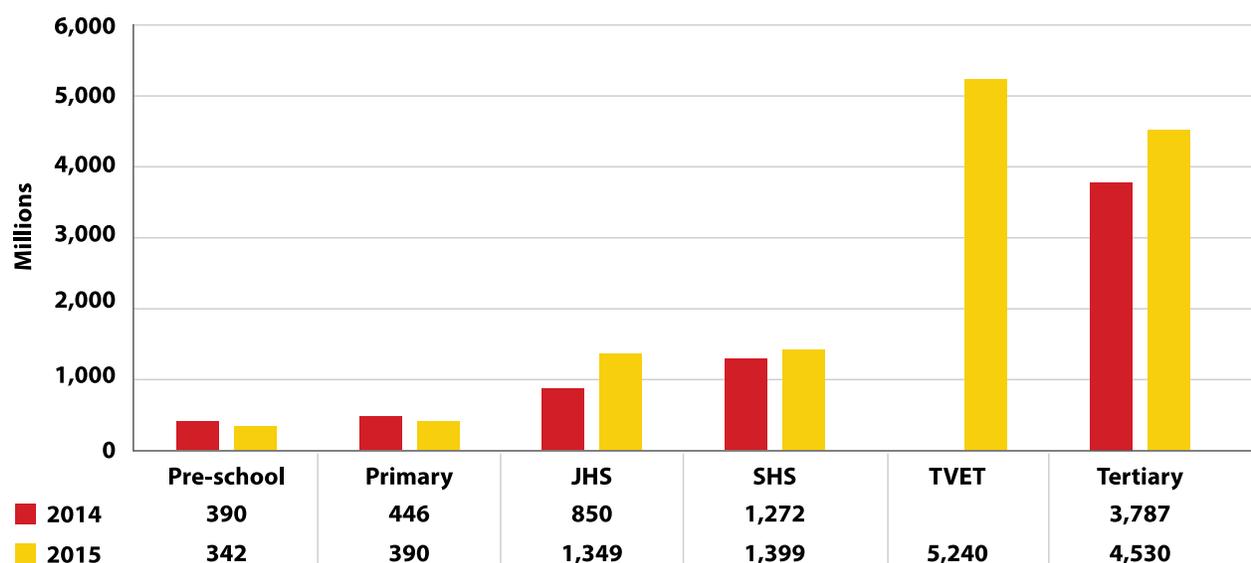
Note: Previous publications either included private school enrolment, which erroneously reduces the per capita spending to the primary sector, or included IGF, which erroneously increases the per capita spending in the SHS and tertiary sectors.

Source: MOE, 2017

Public expenditure on education favours wealthier households, especially considering that children from wealthier households are more likely to progress through SHS and tertiary. The Lorenz curve for public education expenditure in Ghana in 2014 (Figure 14) suggests that recurrent public education expenditure is strongly biased towards richer Ghanaians (Rose and Ilie, 2017). The richest 10% receive 6.2 times the amount the poorest 10% receive, or as much as the poorest 45%, which corroborates findings that per-student expenditure on primary education in 2015 was substantially higher in wealthier regions of Ghana compared to poorer regions (LeClercq *et al.*, 2017a).

Figure 14:   Lorenz curve of public expenditure, 2014
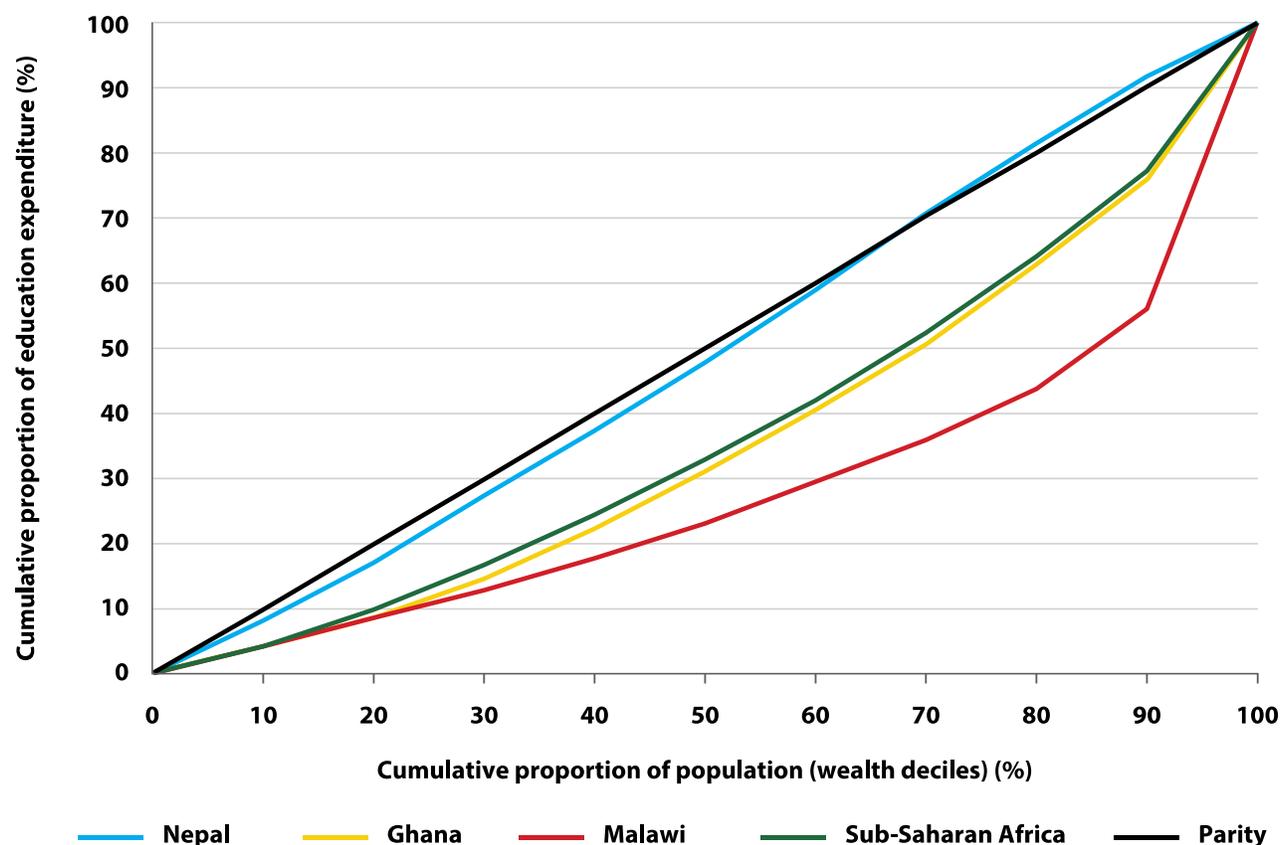
Note: It is likely that the data used for education expenditure in these calculations include IGF.

Source: Rose and Ilie, 2017

In addition, per-student spending varies widely by region, as evidenced by Figure 15, with the least amount spent on the Upper West, Greater Accra, Western, and Ashanti regions, and the most spent on Eastern and Central regions. This has strong correlations with regional distributions of poverty.

Figure 15:   Total per-student spending in GHS on public primary education 2015
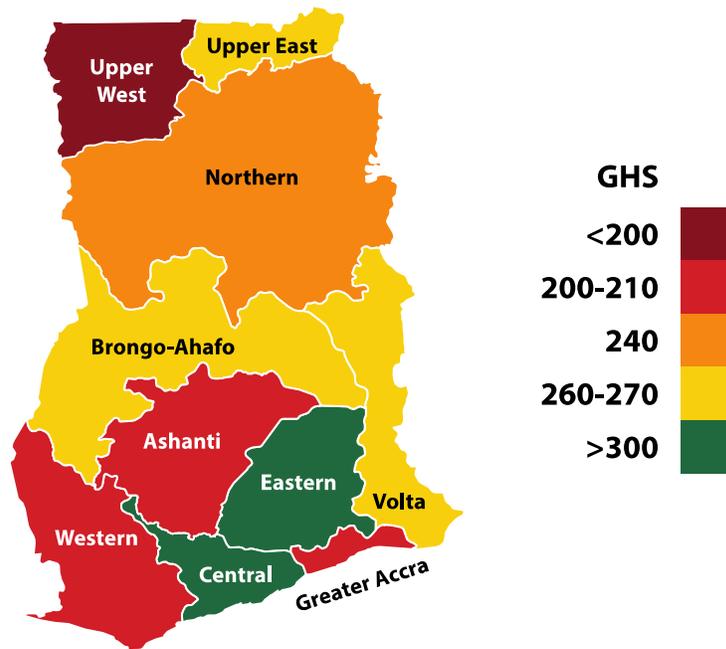
Source: LeClercq *et al.*, 2017a

The MOE arranges the sector into seven sub-sectors, which are reflected in the presentation of the sub-sector analyses that follow: a) education management; b) basic education (kindergarten, primary, JHS); c) SHS; d) TVET; e) NFE, f) Inclusive and special education; and g) tertiary education.

3   Education management

For the purposes of this analysis, education management is split into two broad areas of interest: teacher management and system management. The former includes all issues relating to teacher recruitment and training, deployment, career progression and promotion, performance, and attendance and attrition. The latter includes wider system issues, such as accountability, the role of the private sector, system efficiency, and coordination and harmonisation. The quality of teaching and teacher management is a critical component of the quality of service delivery and at the same time, teacher salaries consume a very significant proportion of the budget. While there has been no holistic study of teacher management, significant work and research in this area is planned for 2018. In the meantime, the assertions in sections 3.1 and 3.2 are generally agreed to be the key contributing factors to the problem of a relatively expensive teacher workforce in a system that is not producing the expected learning outcomes for children. Many of these challenges are being addressed through the government's reform agenda but this section provides a useful presentation of the issues at hand.

3.1   Teacher education and training

Currently, the curriculum and assessment methods for teacher education are outdated, highly exam-focused, and do not encourage the development of the skills needed to teach. Essential skills like classroom management and pupil differentiation, and teaching strategies which are gained through supported and extended practice in schools, are not adequately emphasised. The curriculum is overloaded with content, and insufficient space is given to developing vital skills, such as problem solving, critical thinking, collaboration, communication, and digital literacy. There is a demonstrated lack of recognition for the centrality of language and literacy to learning achievement in the formative grades of primary, and issues of equity and inclusivity to ensure teachers are prepared to teach all children regardless of gender, ability, aptitude, and background.

In addition, the pre-service teacher education curriculum is disconnected from the pre-tertiary curricula taught in schools, with the result that there is minimal focus on preparing teachers to teach the curriculum they will have to deliver once deployed. Teachers for the basic school level are currently not trained as specialists who are able to address the varying needs of learners at the different levels of pre-tertiary education.

Finally, Colleges of Education do not have sufficient choice or control over how they train teachers to meet national standards. Although, the Colleges of Education Act, 2012 (Act 847) mandated COEs to function as tertiary institutions, with freedom to affiliate with any teacher education university of their choice, this has not happened yet.

3.2   Teacher career progression and promotion

Until now, there have been no national minimum standards that all teachers must meet, rather, different teacher education institutions have their own standards. To address this, the Pre-Tertiary Teacher Professional Development (PTPDM) policy has been developed and, when it is fully implemented, will ensure that licensing, registration, and teacher progression is tied to competencies and standards. In the past, teacher progression was based on tenure; the

introduction of PTPDM should strengthen professionalism and objectivity in the promotion of teachers. Furthermore, there is currently no systematic follow-up of teachers in the field. There is a general lack of systematic support, coaching, advisory services, and continuous professional development. Under the NTC reforms, the professionalisation of teaching will be further strengthened through a greater emphasis on continuous professional development, and the need to demonstrate this in order to be promoted

3.3   Teacher attendance and attrition

The MOE has a policy of zero tolerance for teacher absenteeism, which is meant to improve teacher presence and time on task. Under the Ghana Partnership for Education Grant (GPEG), teacher attendance data were collected using School Report Cards (in basic schools in the 75 deprived districts) (Figure 16.[1]) Generally speaking, teacher attendance is lowest for kindergarten, then primary and JHS. Male teacher attendance is slightly higher at the primary level compared to female teacher attendance, but substantially higher at the JHS level. Overall teacher absenteeism in 2014/15 was high, at 14%, which was a decline from 2013/14, when it was 19%. In 2014/15, teacher absenteeism varied considerably by region, from 10% in Greater Accra to 22% in Volta (LeClercq *et al.*, 2017b).

Figure 16:   Teaching attendance for basic schools in 75 deprived districts, 2013–2016

	KG		Primary		JHS	
	Male	Female	Male	Female	Male	Female
2013/14 - 1st Term	82.5	83.7	84.3	83.3	85.3	82.4
2013/14 - 3rd Term	84.8	84.5	85.2	84.1	85.5	81.5
2014/15 - 1st Term	83.3	83	84.2	83.6	85.8	83
2014/15 - 3rd Term	84.7	84.1	85.7	85	86.9	82.8
2015/16 - 1st Term	84.9	84.6	86.4	84.9	87.8	84.6
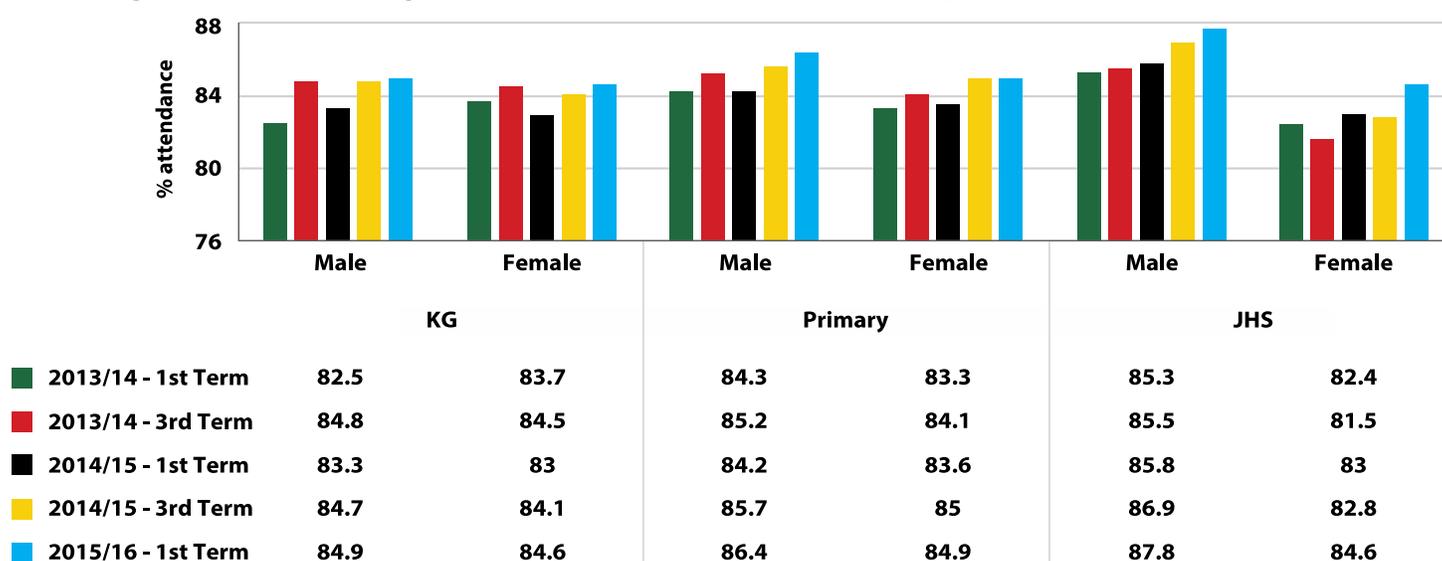
Source: Project Completion Report for GPEG(GES, 2016).

Teacher attrition has increased over time, as shown in Figure 17, from just under 2% in 2009 to 4% in 2016. A survey completed at the end of GPEG on the 75 deprived districts (GES, 2016) also found that this trend persists at the district level and that loss of knowledge is a key concern for institutional memory and sustainability. 'The average age of District Directors of Education was 57 and 23% of DDEs were 59 years old. 70% of DDEs had been working as DDE for between 0-4

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[1] It is important to consider that GPEG districts received a number of inputs and progress in these districts may not be representative of the rest of the country.

years, with a median of 2-3 years.' (GES, 2016). Compounding this issue, there are a lack of national standards and guidelines to guide the leadership of school heads.

Figure 17:   Teacher attrition over time, 2009–2016
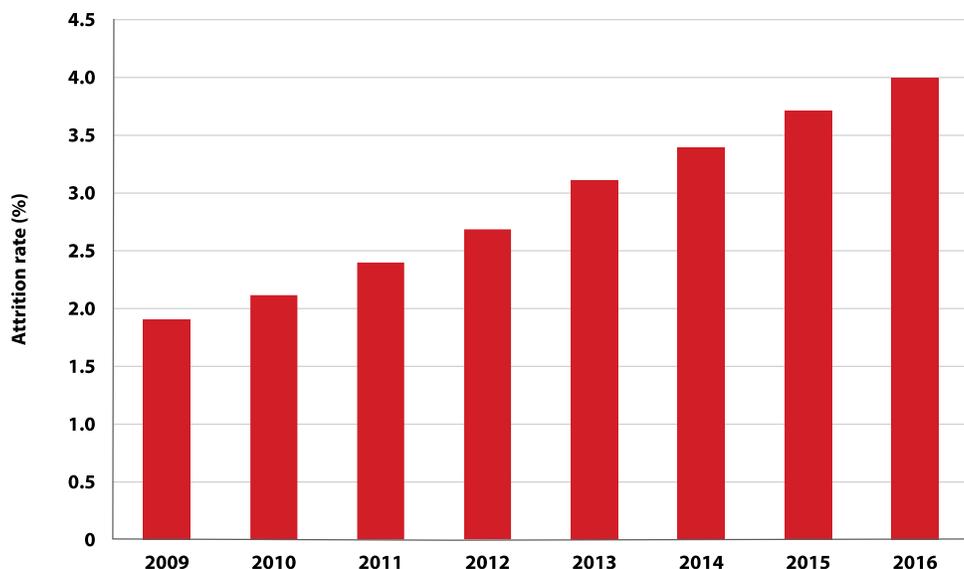
Source: LeClercq *et al.*, 2017b

3.4   Teacher deployment

Teacher deployment in Ghana currently operates on the basis of a highly centralised system. Requests are made by the school through the District Education Offices (DEOs), then Regional Education Offices, to GES headquarters; a teacher is then assigned to fill a vacant position. The process can be lengthy and highly bureaucratic and most often is based on filling vacant positions rather than allocating teachers based on the needs in the classroom of that school. Adding to the challenges is the relative unpopularity of rural postings, according to widespread anecdotal evidence, which contributes to the inequitable distribution of teachers across regions and the urban/rural divide. A thorough review of teacher deployment and GES human resources systems is planned for 2018.

PTRs vary considerably for public basic schools across the country as shown, in Figure 18 and Figure 19. Figure 20 and Figure 21 show teacher deployment at the district level for public and private kindergartens. It is clear that for public kindergartens there is a weak correlation between the number of students and teachers within a district, and for private kindergartens no correlation can be determined. This lack of correlation persists for the private sector at all levels of pre-tertiary education, and in the public sector, the correlation is weakest at the kindergarten and SHS level (LeClercq *et al.*, 2017b).

Figure 18: Regional PTR variation for primary, 2015/16
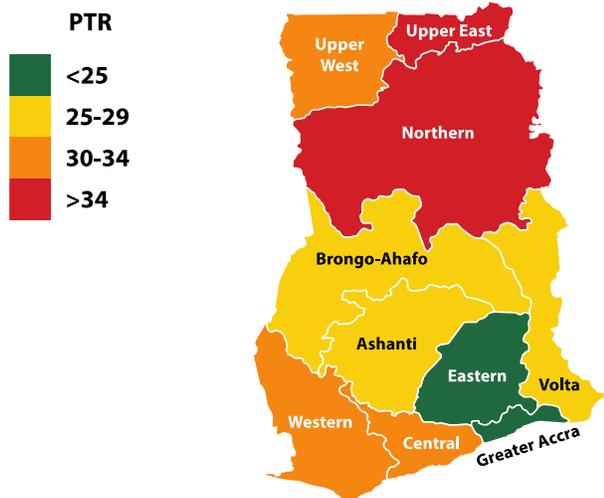
Figure 19: Regional PTR variation for JHS, 2015/16
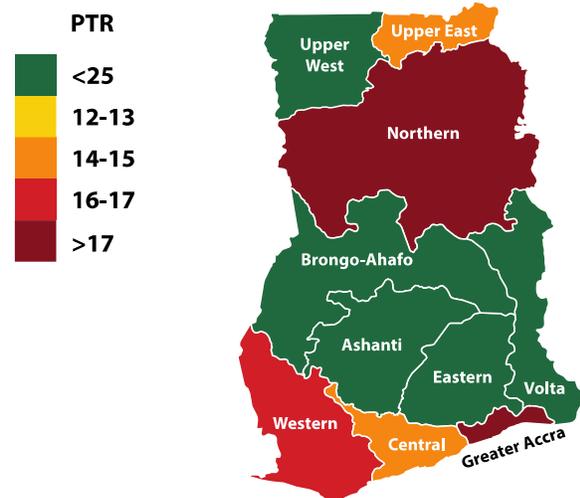
Source: LeClercq *et al.*, 2017b

Figure 20: Teacher deployment at the district level in public kindergartens
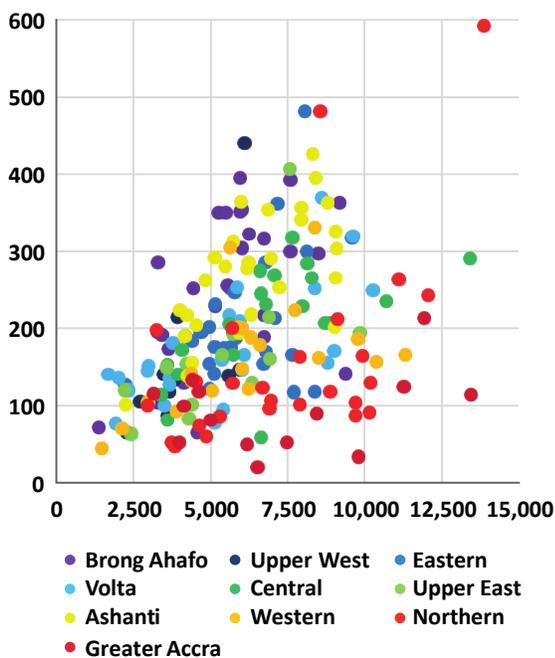
Figure 21: Teacher deployment at the district level in private kindergartens
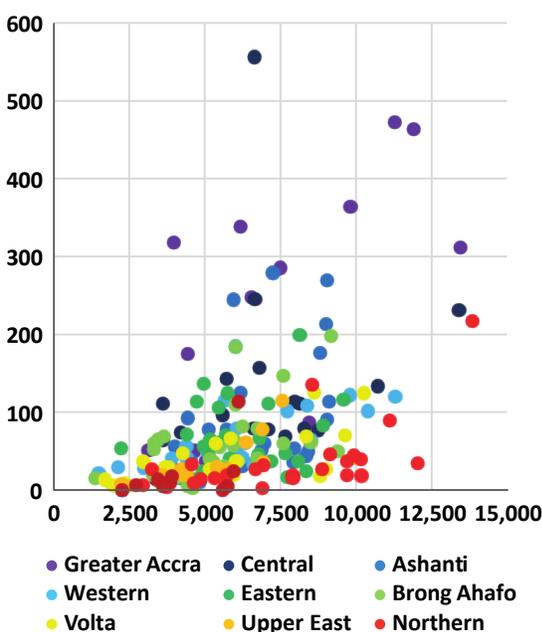
Source: LeClercq *et al.*, 2017b

3.5   System accountability

System accountability is the responsibility of three autonomous boards, which were set up by the Education Act 778: the NIB, the NTC, and NaCCA. However, these boards have not performed effectively due to inadequate funding, lack of staff, and lack of powers of enforcement (LeClercq *et*

al., 2017b). The education sector as a whole lacks a clear accountability framework and this issue becomes particularly pertinent when considering the chain of accountability for learning outcomes and to what extent one holds the teacher accountable.

A draft Education Bill for the partial decentralisation of education is currently being considered before Parliament. This will devolve the management of basic education to the districts, leaving second-cycle education (SHS and TVET) with its current, centralised management structure (in addition to the centralisation of salaries). In addition, the Bill also proposes strengthening the roles of the aforementioned autonomous boards.

3.6   Internal efficiency

The education sector is highly inefficient, as shown in Figure 22. Currently, for every 100 children who enter Primary 1, 75 enter JHS1, and only 59 remain in JHS3. The transition between JHS and SHS reduces enrolment numbers substantially, and of the original 100, only 41 enter SHS1, and 38 leave SHS3. Thus, only 38% of children who began Primary 1 end up completing SHS3.

Figure 22:   Progression rates for primary to SHS
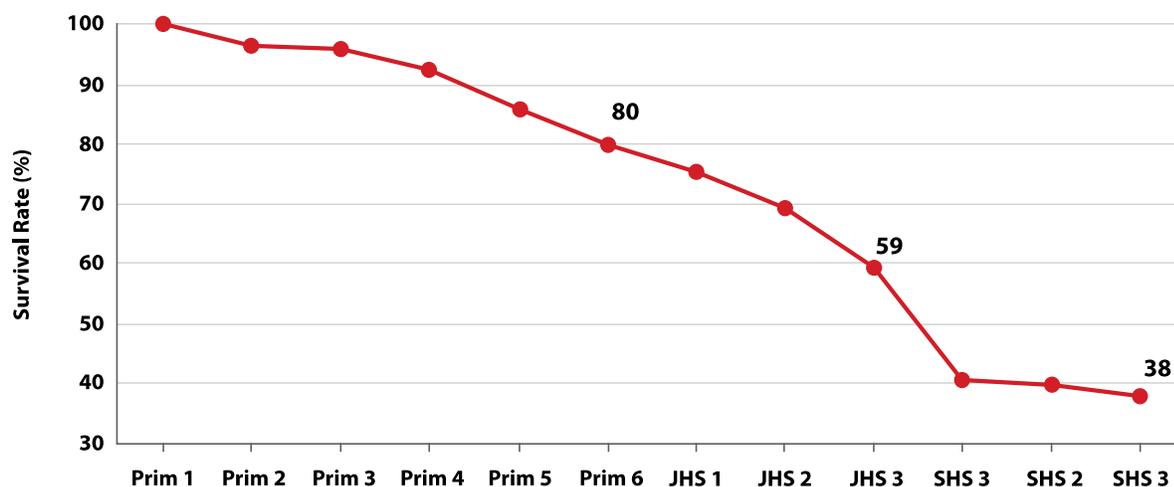
Source: LeClercq *et al.*, 2017a

Given the lack of reliability in the reporting of repeaters by schools[2], a cohort analysis was done using a cohort substitution model to simulate the internal dynamics of the system. In this method, three consecutive years of enrolment by grade data are analysed, in this case 2014–2016. The proportions of students who repeat, drop out, or are promoted in each grade of each year are simulated until the enrolment numbers in the substitution model exactly match the real enrolments. Such are the relationships between pupils promoted, repeating, or dropping out that the simulation is an accurate way of understanding the cohort dynamics, even when there is little reliable information available.

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[2] There are a number of reasons why schools under-report repeaters: the most obvious is in order to avoid scrutiny of their quality of teaching but generally it tends to be a definitional issue. Many children repeat due to having left school during the year for various reasons – seasonal work, lack of a sense of achievement, or moving away from the area. These children are most often not considered repeaters by school management but are repeaters by definition: they have had education resources allocated to them for two consecutive years in the same grade.

Table 5 shows the percentage of children repeating and dropping out of each grade; with further analysis and related to each level of education (basic and secondary) in the sections below. The repeater rate in KG1 of 37% is an indication that large numbers of under-age children are enrolled in kindergarten. Furthermore, the repeater rate in primary school increases through the grades. In P6, fewer children repeat the grade but a substantial number drop out without continuing to JHS. The repeater rate in the first grade of JHS is markedly higher than in any other grades. Under-prepared pupils are most likely being held back in JHS1. The drop-out rate between JHS and SHS is quite marked and would be one of the greatest factors affecting the cohort survival shown in Figure 22, where only 38% of a cohort are able to reach SHS3.

Table 5: **Percentage of repeaters and drop-outs at each grade of pre-tertiary education from the cohort simulation model**

Kindergarten			Primary			JHS			SHS		
	Repeater rate	Drop-out rate		Repeater rate	Drop-out rate		Repeater rate	Drop-out rate		Repeater rate	Drop-out rate
KG1	37%	1%	**P1**	12%	1%	**JHS1**	19%	3%	**SHS 1**	13%	3%
KG2	10%	1%	**P2**	13%	1%	**JHS2**	15%	7%	**SHS 2**	15%	4%
			P3	16%	1%	**JHS3**	5%	23%	**SHS 3**	15%	
			P4	16%	1%						
			P5	15%	3%						
			P6	10%	12%						

Data from the EMIS database/ Perry *et al.* (2018)

The repetition rate in all grades is not atypical of a country with Ghana's level of education growth. In a school system as developed as Ghana's, over-enrolment (as shown by a gross enrolment ratio of over 100) in the early grades is an indication of repetition. The relatively high repetition rates in SHS may also point to the unpreparedness of students entering from JHS, as well as the possible pressures of a high-stakes exit exam in the form of WASSCE. It is likely that the low quality of education adds to the problem of repetition in public schools. Poor performance in mathematics and science has brought down overall performance, and this trend has remained unchanged for several years. More details are given in various sub-sections, but the areas of science, technology, engineering, and maths (STEM) are highlighted as being particularly poorly performing.

3.7   Private education provision

A key area of concern is the coordination and regulation of private schools. Figure 23 shows the proportion of enrolment in the private sector by level. At the basic level, the private sector accounts for over 20% of enrolment and the degree of private sector provision varies substantially be region.

At the SHS level, private sector enrolment decreases to 6% of total enrolment. Private TVET institutions make up nearly one-third of all TVET institutions, but only account for 8% of enrolment, while the trend at the tertiary level is similar, with private institutions constituting approximately half of total tertiary institutions but accounting for only 19% of total enrolment.

Private schooling has been expanding rapidly: private schools made up about half of JHS and SHS created between 2011 and 2017, nearly three-quarters of kindergartens, and close to 90% of primary and tertiary institutions. EMIS data show that the proportion of trained teachers at the basic level is much lower for the private sector compared to the public sector, and in 2016/17 only 10.3% of private sector teachers in primary schools were trained; at the SHS level, 52% of private sector teachers were trained, compared to 90% in the public sector.

Data from the private sector have typically been difficult to obtain as these schools do not rely on public funding and therefore appropriate sanctions cannot be applied when data are not forthcoming. A host of non-governmental organisations (NGOs) and civil society organisations (CSOs) within the private sector exist but their operations are monitored at the district level and this is not standardised. There is little knowledge about the financial contribution of the private sector to education

Figure 23:   Proportion of enrolment in the private sector by level, 2011–2017
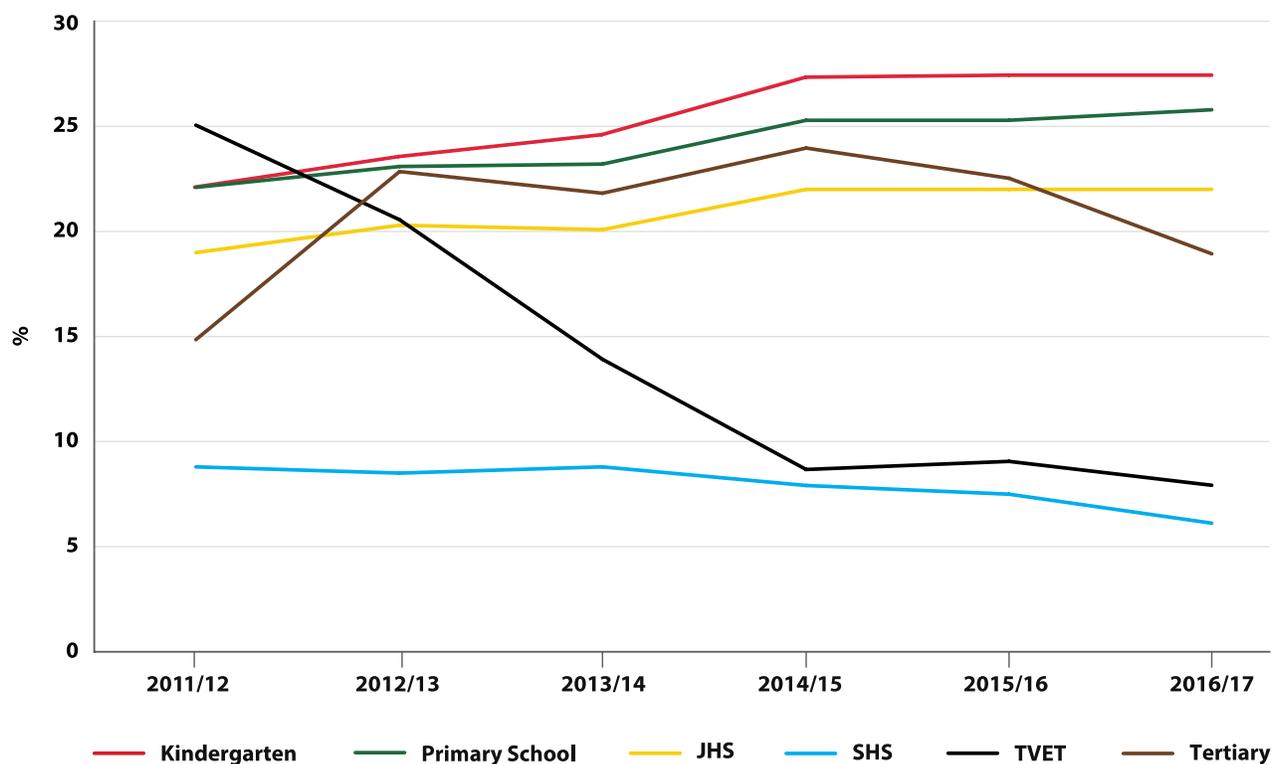
Source: LeClercq *et al.*, 2017a

3.8 Coordination and harmonisation

There is considerable overlap in mandates among the 20 MOE agencies (LeClercq *et al.*, 2017b). There is also inadequate harmonisation of the provision of TVET and NFE, as well as poor collaboration across ministries, especially in cross-cutting issues related to health, gender, NFE, lifelong learning, TVET, and inclusive and special education. The Centre for National Distance Learning and Open Schooling (CENDLOS) lacks a clear governance structure, which constraints its efforts in delivering open and distance learning.

A harmonised monitoring and evaluation operational framework and a strengthened EMIS is being developed, drawing on various data collection sources from across the MOE. These data sources include the mSRC, which provide real-time school data, as well as the school mapping portal developed for SHS with a similar purpose. Capacity building for MOE staff is also being conducted, as well as the promotion of evidence in decision-making through education evidence summits. These efforts are complemented by the basic and secondary education research agendas set by the MOE, which allow for research to strengthen the evidence base within the MOE to be contracted out and a research database to be built, as well as education projects in Ghana to be mapped. In addition, the Tertiary Education Research Fund has been established, to which members of faculty at tertiary institutions can apply for research grants.

4 Basic education

4.1 Access

Figure 24 shows that access has increased substantially since 2010/11 across all three levels of basic education, as evidenced by both GERs and NERs. GERs typically exceed NERs quite substantially, indicating that there are large numbers of pupils who are not in school at the appropriate age. This difference is smallest for primary. GERs and NERs at primary have tailed off since 2014/15, reaching a 111% GER and a 91% NER by 2016/17, and have remained stable at JHS since 2015/16. It is notable that at JHS both the GER and NER since 2010/11 have not shown appreciable improvement, which may mean either that not enough interventions have been put in place to ensure increasing enrolment or that the interventions so far have not worked. GER and NER at kindergarten declined between 2015/16 and 2016/17; the former decreased by 9 percentage points to 116%, while the latter declined by 5 percentage points reaching 75%. The private sector accounts for over 20% of enrolment across all three levels of basic education.

Figure 24:   GERs and NERs for basic education, 2011–2017

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
KG GER	98%	99%	114%	123%	129%	124%	116%
KG NER	60%	64%	75%	91%	83%	80%	75%
Primary GER	96%	97%	105%	107%	110%	111%	111%
Primary NER	78%	82%	84%	89%	91%	92%	91%
JHS GER	80%	81%	82%	82%	85%	88%	87%
JHS NER	46%	46%	48%	49%	49%	50%	50%
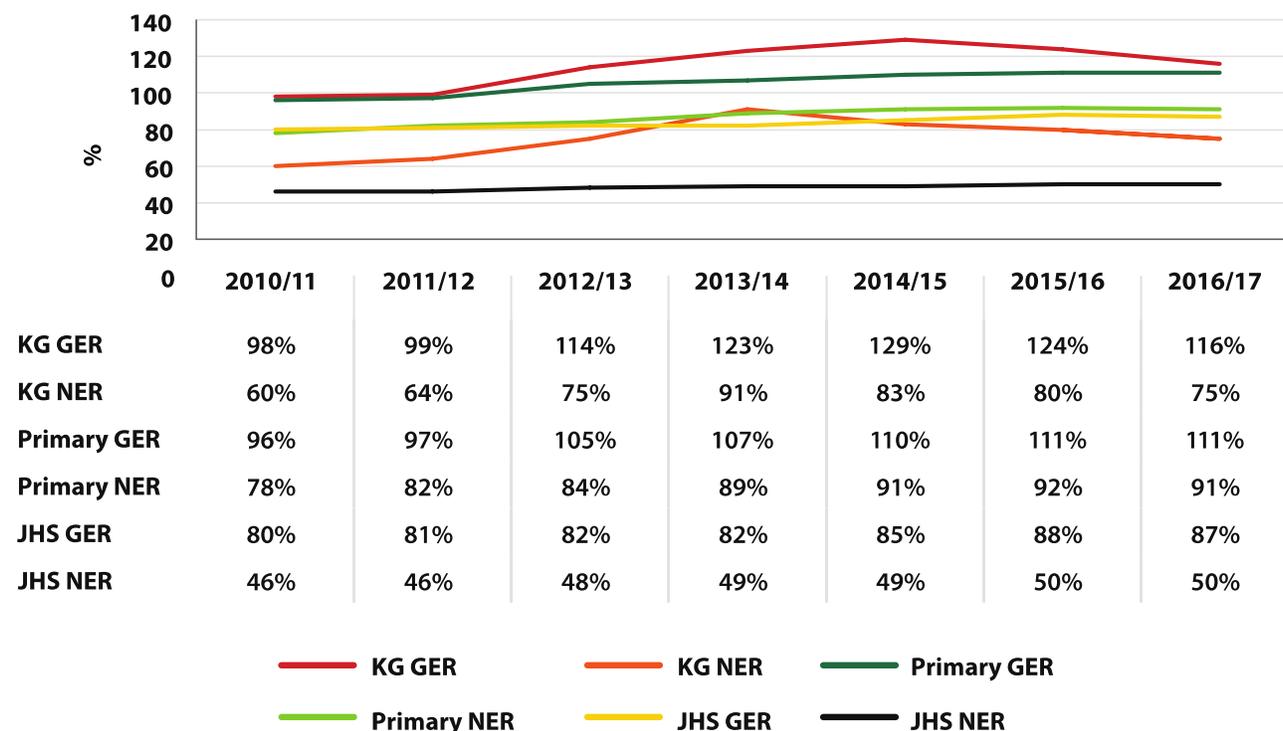
Source: Adapted from figures in the MOE ESPR, 2017

Figure 25 provides further insight into the divergence between GER and NER. While most Ghanaian children enter kindergarten, they often do so late, resulting in over-age kindergarten enrolment. At age six, when most pupils should be in P1, 42% of Ghanaians at this age are in pre-school. This initial over-age enrolment has subsequent effects on all other levels of education.

Figure 25: Age distribution of school enrolment
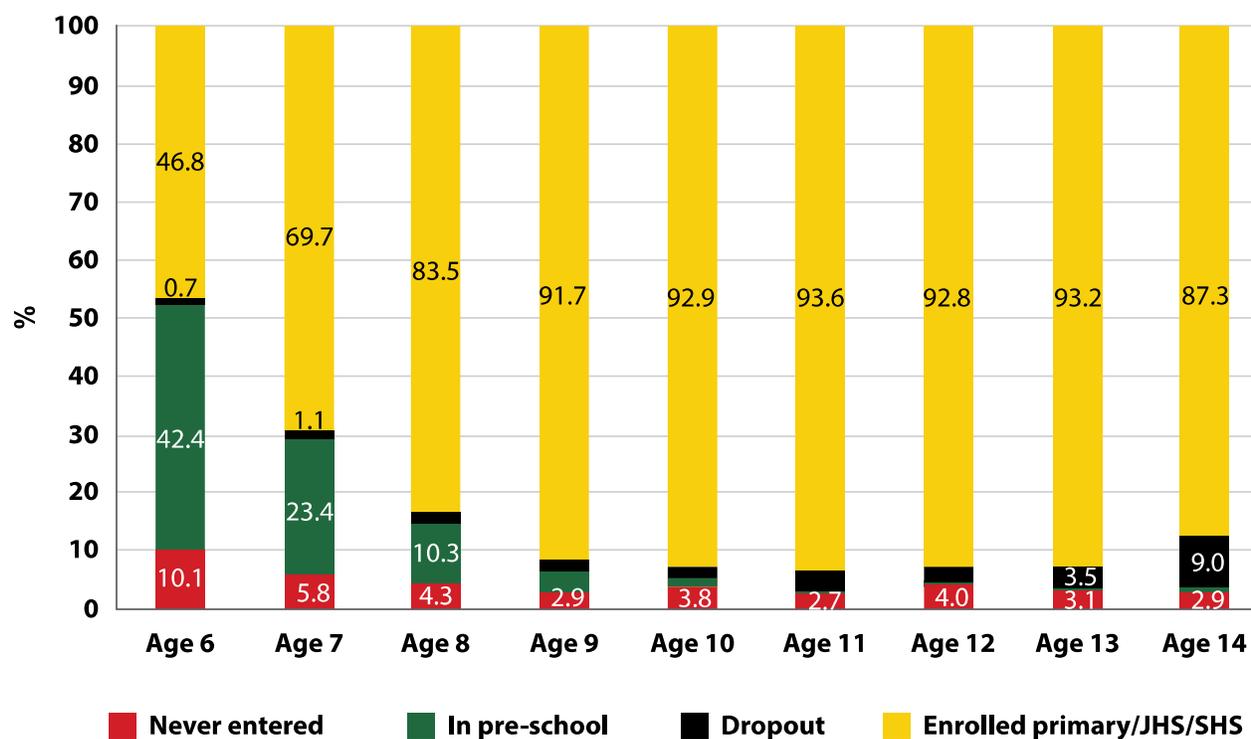
Source: LeClercq *et al.*, 2017a

While many children start school a year older than the official age, the main reason for the divergence in the GER and NER seems to be grade repetition. This also accounts for the increasing difference in the GER and NER as pupils move up through the system. Looking in detail at the GER *by grade in the public education sector only* is instructive, as the averaging of the GER in each sub-sector hides a number of important dynamics. The figure below shows that the first year of kindergarten has a GER of 151%. This is an indication that large numbers of under-age children are attending kindergarten, a situation common across many countries. P1–P5 have a GER of over 100%. It is erroneous to assume that this is driven by new over-age children entering education for the first time. While there are older children in these grades, and some even entering school for the first time, it is not possible at this point in the maturity of the Ghanaian education system that this over-enrolment is driven entirely by over-age children entering primary school for the first time. It is, in fact, driven by children repeating grades, as explained later.

Children begin to drop out of school from P6 onwards. The OOSC study (Marshall *et al.* 2016) corroborates this finding, showing that an estimated 9% of 14-year-olds drop out.

Figure 26:   GER by grade for 2016
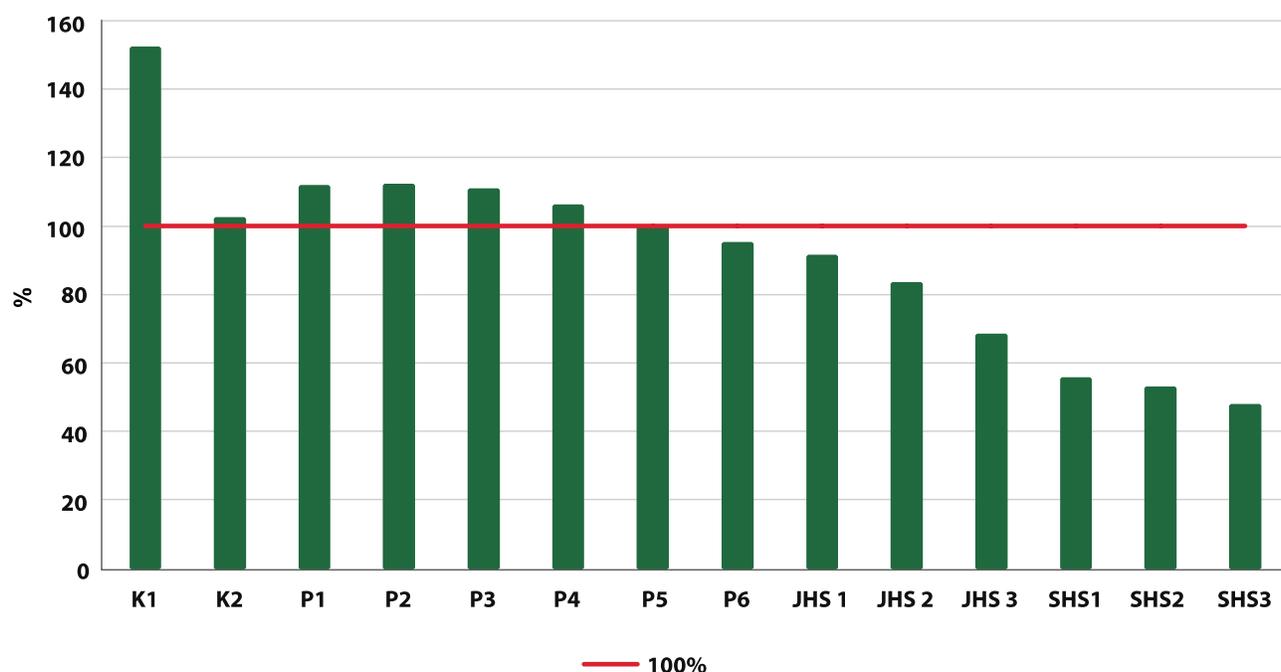
Source: Pupil numbers from EMIS 2016 database (accessed in 2018); population numbers from GSS smoothed projection (see Annex A) / Perry *et al.*, 2018

To estimate the number of pupils repeating, a pupil projection was done using a cohort substitution model to simulate the internal dynamics of pupils flowing through the system. Table 6 below summarises the percentage of children repeating and dropping out of each grade.

The repeater rate of 37% in KG1 is an indication that large numbers of under-age children are attending kindergarten and these pupils are being allocated resources that could be used for kindergarten children of the correct age. (Note: there are obviously children who are over-age due to starting school late; however, this phenomenon is not calculated in the repeater rate.) This is a fairly typical situation in many countries around the world. Children are often sent to school early because their parents think there may be some educational benefits. However, the most likely reason for under-age children attending schools is that they accompany their older siblings to school for childcare purposes. An additional incentive is often the presence of a school feeding scheme The repeater rate in primary school increases through the grades until P6, where fewer children repeat but a substantial number drop out without continuing to JHS. The repeater rate in the first grade of JHS is markedly higher than JHS2 or JHS3. Under-prepared children are most likely being held back in their first year of JHS. Higher than anticipated repeater rates in general imply wasted effort, resources, and opportunity costs for the national education effort. Furthermore, additional children in the classroom make it more difficult for quality improvement initiatives to be implemented. The drop-out rate between JHS and SHS is quite marked and is one of the biggest factors affecting the cohort survival.

Table 6: **Estimated repeater and drop-out rates by grade, 2017**

Kindergarten			Primary			JHS		
	Repeater rate	Drop-out rate		Repeater rate	Drop-out rate		Repeater rate	Drop-out rate
KG1	37%	1%	**P1**	12%	1%	**JHS1**	19%	3%
KG2	10%	1%	**P2**	13%	1%	**JHS2**	15%	7%
			P3	16%	1%	**JHS3**	5%	23%
			P4	16%	1%			
			P5	15%	3%			
			P6	10%	12%			

Source: Pupil numbers from EMIS 2016 database (accessed in 2018); population numbers from GSS smoothed projection (see Annex A) / Perry *et al.*, 2018

This assertion, evident in the cohort simulation model, is further corroborated by the OOSC study (Marshall *et al.*, 2016), which confirms the drop-out rates for the age groups attending primary and JHS.

Figure 27 presents the annual growth rates of enrolment of pupils in basic education for the period 2009/10 to 2014/15. At all three levels of education, growth rates in enrolment increased substantially between 2013/14 and 2014/15. At the KG level, the annual growth rate decreased in 2010/11 from the previous year and then remained stable until 2013/14 when it decreased again. At the primary level, growth rates increased in 2010/11 from the previous year, followed by steady falls in the subsequent years until 2013/14. At the JHS level, growth rates increased steadily from 2009/10 to 2012/13. In 2013/14 there was a small dip before a sharp rise in 2014/15 in line with the other levels of Basic Education. These increasing growth rates in enrolment, will lead to increased pressure on infrastructure in basic schools.

Figure 27: **Annual growth rates in enrolment for basic schools**
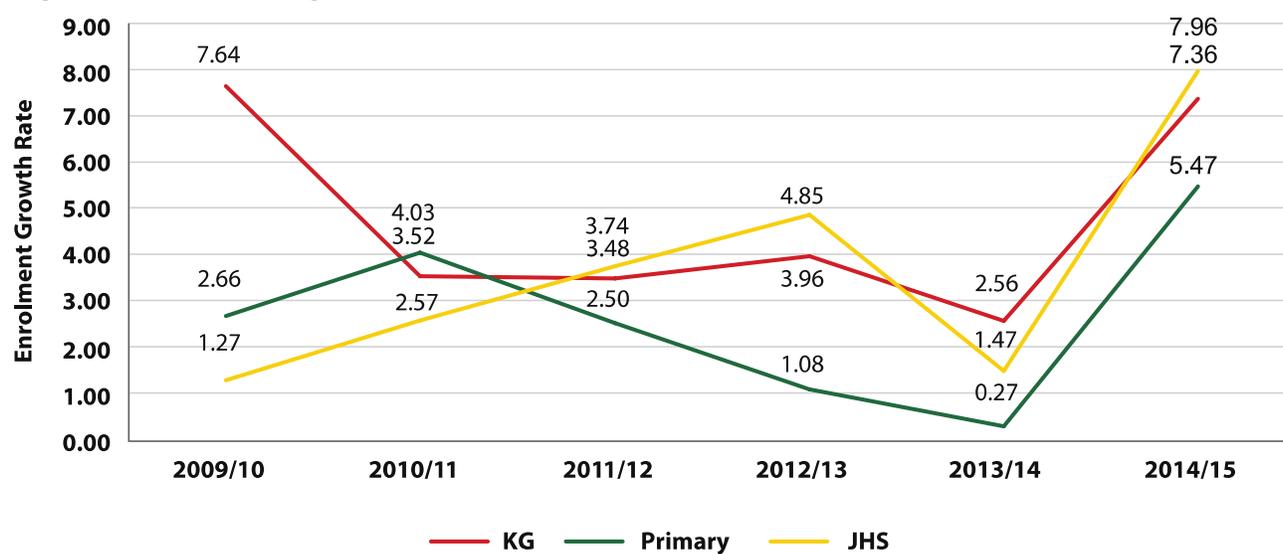
Source: Adapted from figures in MOE ESPRs 2015–2017

To meet the ensuing challenges, the government and the private sector have made provisions to accommodate this increasing growth rate. The numbers of public and private schools have steadily increased at all three levels, reaching 23,239 total kindergarten schools in 2016/17, 23,489 primary-level schools, and 15,804 schools at the JHS level. Private schools constitute about a third of basic school structures in the country.

However, despite the increase in the number of schools, provision has not matched the growth rate. In 2016 the PCR for public basic schools stood at 55:1 for kindergarten, 38:1 for primary, and 35:1 for JHS. As averages, the PCRs for primary and JHS appear to be within acceptable bounds but there are substantial regional differences in the PCR at a regional level. The table below shows the PCRs by region and level of education. Some regions have kindergarten PCRs of over 80 pupils per classroom, primary PCRs of over 50, and JHS PCRs of over 45. The table also shows the number of classrooms needed in each region if the absolute maximum ratios of 45 for kindergarten, 40 for primary, and 40 for JHS are used to calculate the classroom backlog.

Table 7: **PCRs and classroom backlog for kindergarten, primary, and JHS by region, 2016**

Region	PCR			Classroom backlog		
	Kindergarten	**Primary**	**JHS**	**Kindergarten**	**Primary**	**JHS**
Ashanti	49	36	35	351		
Brong Ahafo	52	35	33	519		
Central	46	37	33	70		
Eastern	43	31	28			
Greater Accra	46	52	48	26	1583	612
Northern	86	46	46	2256	1545	445
Upper East	81	50	45	785	1077	190
Upper West	81	40	35	638	31	
Volta	53	33	29	408		
Western	52	36	34	438		
Total	**55**	**38**	**35**	**5491**	**4236**	**1247**
% of total classrooms				**24%**	**5%**	**4%**

Source: EMIS 2016 database (accessed 2018) / Perry *et al*., 2018

A major development in the provision of school infrastructure in recent years has been the GoG's drive to repair dilapidated school buildings and eliminate schools under trees, to ensure a proper learning environment for all pupils in basic schools. Of the 2,578 schools under trees, 1,614 have been upgraded, while 481 were awaiting completion in 2015 and a further 483 were to be completed by the end of 2016.

Despite efforts to increase access, there are large numbers of OOSC. Pockets of OOSC have persisted since 2011, with the highest proportion of OOSC in the three northern regions, as evidenced by Figure 28. In 2014, 5,205,000 children were enrolled in primary, JHS, or SHS. There were about 453,000 OOSC and 723,000 over-age pre-schoolers.

Figure 28: Regional distribution of OOSC, 2014
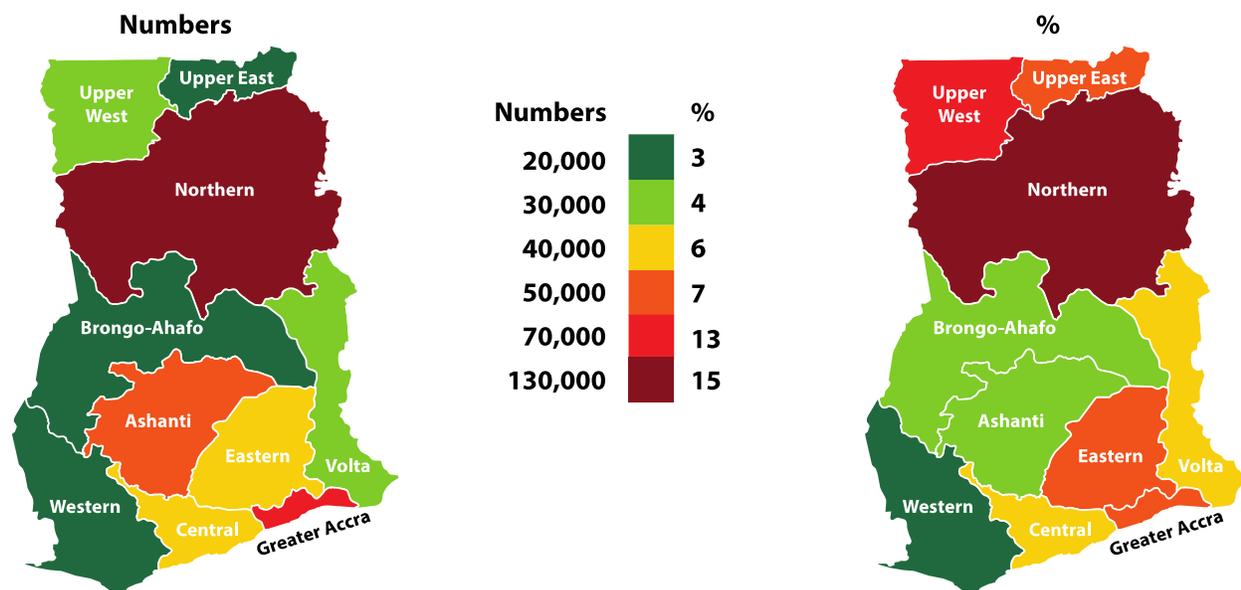
Source: LeClercq *et al.*, 2017a

Parents give various reasons for not enrolling their children in school, including inadequate school infrastructure, distance to school, unaffordable education, or children being too young (LeClercq *et al.*, 2017a). The Complementary Basic Education (CBE) programme targets these out OOSC and ensures that they make their way back into the formal education system. As at the end of the 2016/17 academic year, 114,153 pupils had successfully been transitioned back to the formal system through CBE (MOE ESPR, 2017). This may put pressure on existing school infrastructure for transitioning learners back into mainstream schools.

In terms of gender and geographical inequities, Ghana has reached and sustained gender parity[3] at all three sub-levels of basic education since 2011/12, but in the Northern and Western regions gender disparities against girls persist, while the Upper East and Upper West regions have the unique problem of having low male enrolment. The Girls Participatory Approach to Student Success (GPASS) programme provided scholarship packages to 60,000 needy JHS girls in the 75 deprived districts identified under GPEG and ended in 2017. Figure 29 shows that this intervention resulted in higher total attendance rates for GPASS girls compared to non-GPASS girls.

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[3] UNESCO considers gender parity to have been attained when the Gender Parity Index (GPI) is between 0.97 and 1.03.

Figure 29:   Attendance rates for GPASS vs. non-GPASS girls
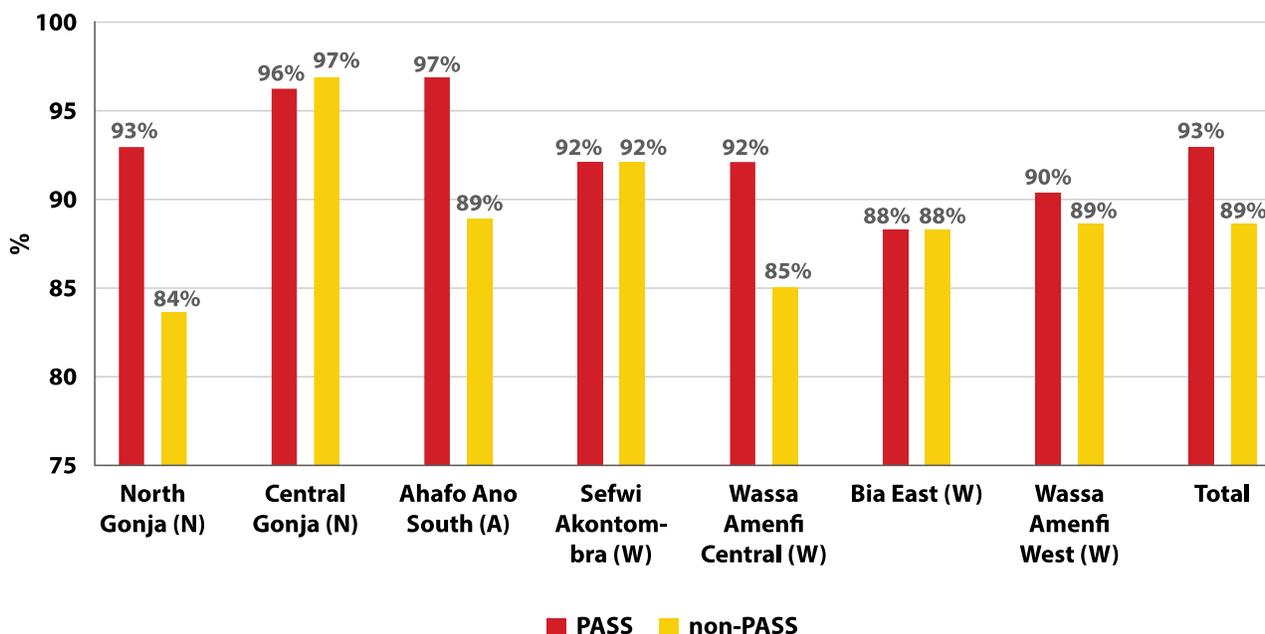
Source: GPEG Project Completion Report (GES, 2016)

Large regional inequities exist in access to education (Figure 30). These disparities are particularly evident in kindergarten GERs and NERs. The proportion of enrolment in private schools also varies substantially across regions: Greater Accra records the largest proportion of enrolment in private schools for all three sub-levels (over 60% at kindergarten, approximately 50% at primary, and approximately 40% at JHS), while the Upper West region has the lowest proportion of private enrolment.

Figure 30:   Regional distribution of GERs, NERs, and % enrolment in private schools across all levels of basic education, 2016/17
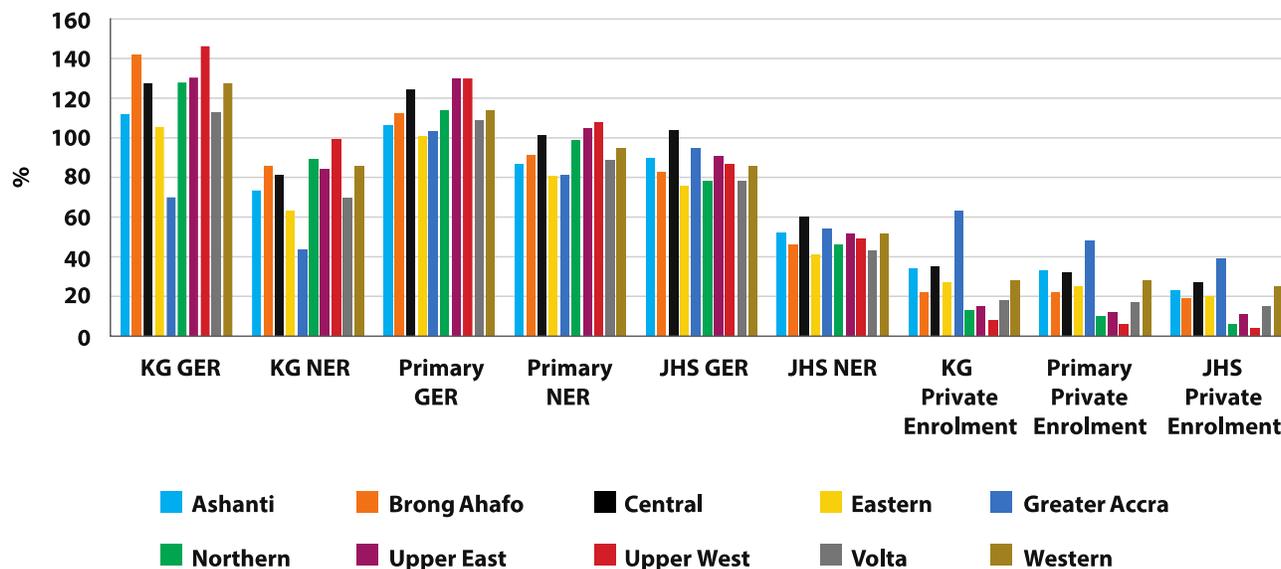
Source: Adapted from figures in the MOE ESPR, 2017

There are also substantial inequities in access to education across wealth quintiles: the Ghana DHS 2014 found that for every 100 pupils, 96 in the top quintile entered primary, compared to 90 in the bottom quintile (World Bank, 2017b). In addition, these data show that the father's occupation matters for the educational attainment of their children. Table 8 shows that approximately 80% of children of fathers who are surveyed as homemakers or engaged in production/related works or agriculture/husbandry only attain the level of primary or JHS, whereas for those whose fathers are professionals or engaged in sales/services, the corresponding figures are 60% and 75%, respectively.

Table 8: **Educational attainment of children by father's occupation**

Group Origin / Highest Educational Attainment	No Education	Primary	JHS	SHS	Post-SHS	Total
Professional / Administrative	0.64	32.19	31.93	16.12	19.12	100.00
Sales / Services	0.97	43.53	32.04	12.64	10.82	100.00
Agriculture / Animal Husbandry	0.90	53.05	33.98	6.99	5.09	100.00
Production / Related Works	2.04	47.52	31.17	10.88	8.39	100.00
Homemaker	0.00	53.85	38.46	0.00	7.69	100.00
Other	1.32	52.02	30.31	9.25	7.10	100.00

Source: LeClercq *et al.*, 2017a

Data from the Ghana DHS 2014 also show that completion rates vary substantially by quintile, rural/urban location, region, and language groups (Table 9). Completion rates for females are higher than those for males at the primary and JHS levels, and urban completion rates are substantially higher than rural completion rates. There are also large disparities in completion rates by income and region.

Table 9: **Parity indices in completion rates by level of education across gender, rural/urban, quintiles, and regions**

2014	Education level	Primary	JHS
Gender: girls/boys		1,05	1,02
Location: rural/urban		0,74	0,61
Income: poorest quintile/richest quintile		0,48	0,37
Region: lowest/highest		0,50	0,35

Note: Parity indices below 0.50 are in red; parity indices above 0.97 are in green.

Source: LeClercq *et al.*, 2017a

Infrastructure at the basic level is critical: in kindergarten, only 50% of basic schools have access to potable water, while 68% had toilets in 2016/17, as seen in Figure 31. 43% do not have access to electricity. In addition, for the schools that GPASS girls were attending, only 65% had separated toilets, 42% had electricity, and 34% have access to potable water (Figure 32).

In addition, children with disabilities make up 0.3% of enrolment at kindergarten, and 0.4% at primary and JHS, despite accounting for 1.7% of the population of pre-tertiary children (UNICEF, 2017). Part of this low enrolment of children with disabilities may be accounted for by a lack of adequate infrastructure: almost no regular basic schools have hand-rails and only 8% of them have ramps. There is a reported pervasive stigmatisation of children with disabilities, and personnel are often not well trained or not trained at all to detect and address disabilities. Additionally, there is a lack of adequate assessment services and appropriate service delivery for children with special educational needs (SEN) in most mainstream schools.

Figure 31: Proportion of kindergartens with toilets and potable water 2009–2017

	Oct-09	Nov-10	Dec-11	2012/13	2013/14	2014/15	2015/16	2016/17
■ Schools	22,006	23,770	23,402	24,629	25,844	27,178	29,032	31,170
— w/ toilets	14,050	13,827	15,532	17,564	18,157	17,354	19,645	21,275
— w/ potable water	14,736	19,124	14,735	15,081	15,368	13,226	14,195	15,700
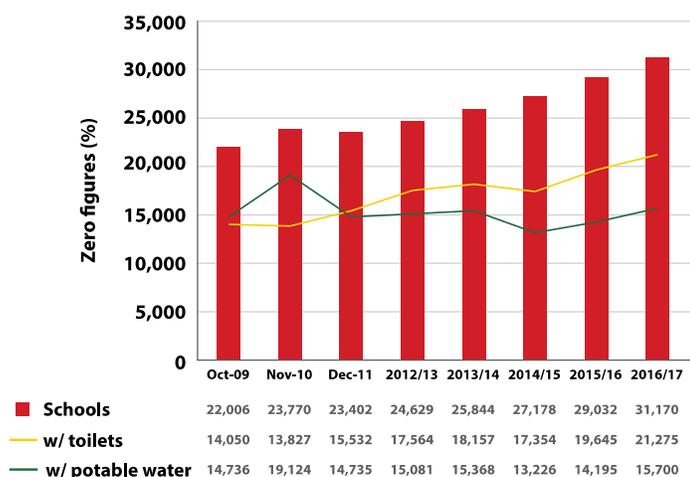
Figure 32: Infrastructure in schools GPASS students are attending

■ % schools with separate toilets   ■ % with electricity
■ % with portable water
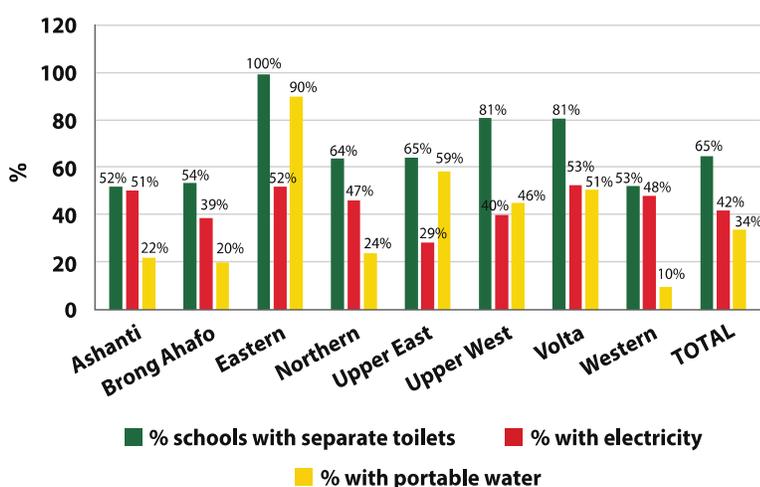
Source: LeClercq *et al.*, 2017b, and GPEG Project Completion Report (GES, 2016)

4.2 Quality

4.2.1 Textbooks

Textbook–pupil ratios are far below GES norms: at the kindergarten level there should be one workbook per child and there should be three per child at primary and JHS. In 2016/17, only 0.2 workbooks per child were provided at the kindergarten level, 1.4 at primary, and 1.5 at JHS. These ratios have stagnated for kindergarten since 2013/14, and declined for primary and JHS since 2013/14, when they stood at 2.2. In addition, there are reports of errors in textbooks developed and distributed across basic schools.

4.2.2 PTRs

GES PTR norms are 25:1 at the kindergarten and JHS levels, and 35:1 at the primary level. **Error! Reference source not found.** shows that PTRs have been steadily declining at all three levels of basic education since 2011/12. Kindergarten PTRs are on a trajectory to achieve the related

targets: in 2016/17, kindergarten PTRs reached 30:1, down from 38 in 2011/12. However, both primary and JHS PTRs are below GES norms as the PTR for primary reached 30:1 and JHS 14:1 in 2016/17.

4.2.3 Trained teachers

Figure 33 shows the proportion of trained teachers at each level of basic education. The proportion increases by level, and has increased through the years, especially between 2011/12 and 2015/16. In 2015/16 the proportion of trained teachers reached 66% for kindergarten, 78% for primary, and 90% for JHS. However, there was a small dip between 2015/16 and 2016/17.

Figure 33: PTRs and % trained teachers across all levels of basic education, 2012–2017
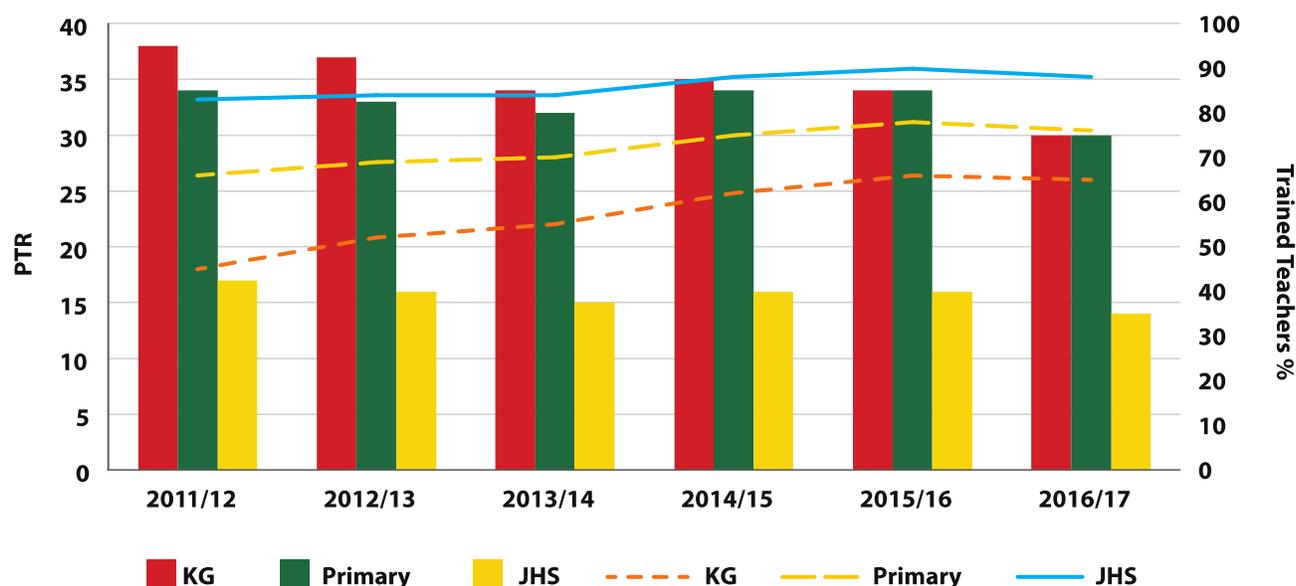
Source: Adapted from figures in the MOE ESPR, 2017

The proportion of trained teachers at kindergarten remains low. The Untrained Teacher Diploma in Early Childhood Education aims to address this by allowing pupil-teachers to take a four-year distance learning course to obtain a diploma.

A similar programme was implemented under the GPEG for basic education teachers more generally, and was found to be more cost-effective than traditional pre-service training, with pupil-teachers performing only slightly less effectively (GES, 2016).

The majority of kindergarten teachers are trained only in general primary instruction and no specialised training is given for early childhood education. Thus they are incorrectly classified as early childhood teachers. Current figures suggest that the rate at which teachers are being trained may not be sufficient to ensure that all kindergarten classrooms have qualified teachers.

4.2.4 Assessing learning outputs

Ghana's education sector has a number of measures to assess learning outcomes at the basic level:

- BECE: The terminal exam for basic education, which all pupils in JHS3 take every year to qualify for second-cycle education.

- EGRA and EGMA: An assessment administered to a representative sample of pupils in public basic schools at the end of second grade to assess reading and mathematics skills. Two EGRA and EGMA tests have been conducted in Ghana since 2010 – one in 2013 and one in 2015.

- National Education Assessment (NEA): An assessment administered to a representative sample of pupils in basic education for English and mathematics. NEA assessments began in 2005 and have been conducted every two years, except for the last round which was conducted in 2016. Assessments in 2005, 2007, 2009, 2011, and 2013 were administered to pupils in P3 and P6, whereas in 2016 this assessment was administered to pupils in P4 and P6.

BECE employs a stanine system, which assumes a bell-curve distribution of test scores. BECE results in any particular year can be compared by gender and district to examine equality of outcomes. Table 10 shows the gender disparities in BECE pass rates by subject and region. While girls underperform compared to boys for social studies, mathematics, and science, they outperform boys in English (MOE ESPR, 2017). Gender disparities against girls exist in all three northern regions in all four core subjects.

Table 10:   Gender disparities in BECE pass rates by subject and region, 2016/17

	Absolute gap				GPI			
	English	Maths	Science	Social studies	English	Maths	Science	Social studies
Ashanti	0.1	-2.9	-2.4	42.2	1.00	0.97	0.97	2.06
Brong Ahafo	-0.5	-2.3	-2.2	-2.5	0.99	0.97	0.97	0.97
Central	2.1	-4.0	-3.1	-2.3	1.03	0.95	0.96	0.97
Eastern	3.6	-3.5	-2.1	-0.8	1.05	0.95	0.97	0.99
Greater Accra	1.3	-2.4	-1.1	-0.6	1.01	0.97	0.99	0.99
Northern	-3.9	-6.1	-7.9	-7.3	0.94	0.91	0.88	0.89
Upper East	-2.6	-9.8	-12.7	-9.7	0.95	0.83	0.78	0.84
Upper West	-10.9	-17.7	-19.4	-17.9	0.80	0.71	0.70	0.71
Volta	1.8	-7.6	-4.3	-3.9	1.03	0.88	0.93	0.94
Western	0.2	-3.5	-3.0	-3.0	1.00	0.96	0.97	0.97

Note: Regions with GPI values below 0.97 are in red; regions with GPI values above 1.03 are in green.

Source: LeClercq *et al.*, 2017a

Figure shows the regional distribution of English BECE scores in 2016. It is clear that there are wide regional disparities: Greater Accra substantially outperforms all other regions, both in terms of the proportion of pupils achieving above-average grades (44.2%) and the proportion with below-average grades (9.5%). This pattern is reversed for the three northern regions, which have the lowest proportion of pupils achieving above-average grades (just 3.5% in the Upper East region) and the highest proportion with below-average grades (53.9% in the Upper East region). This trend has persisted over time and represents a significant challenge in terms of a regional inequity in academic achievement

Figure 34: Distribution of English BECE results by region, 2016
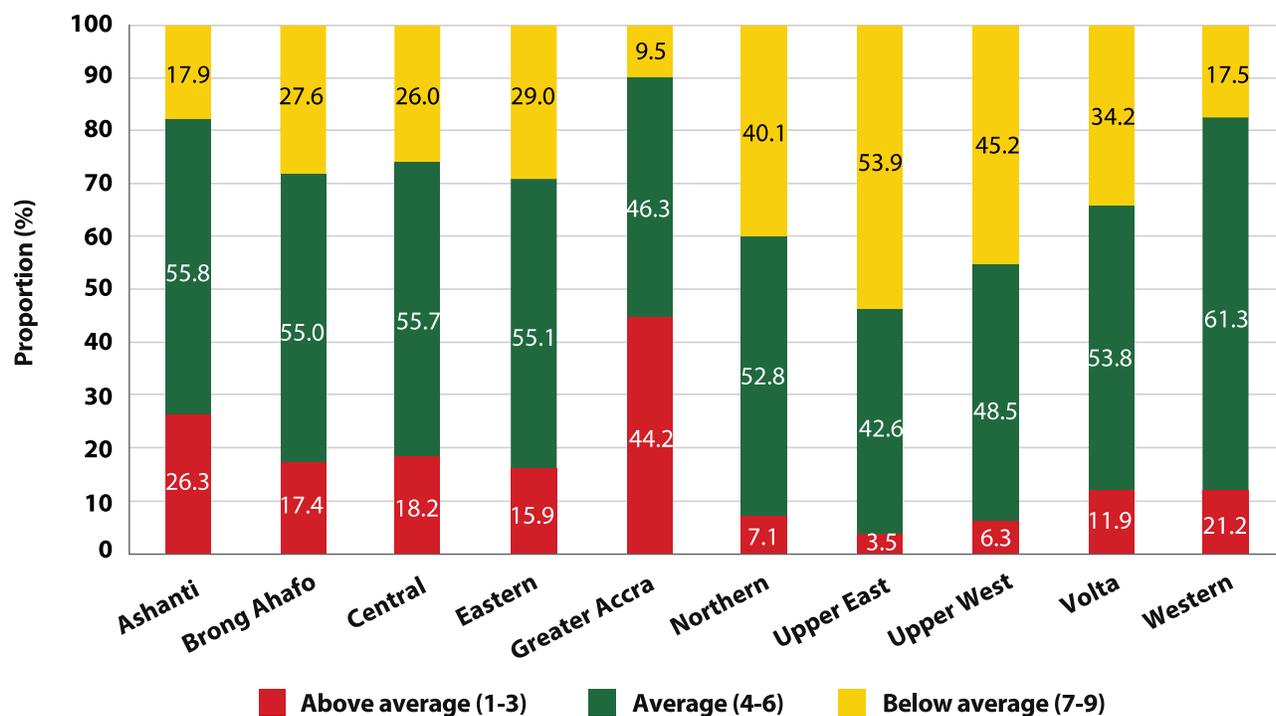
Source: MOE ESPR, 2017

There has been minimal change between 2013 and 2015 for EGRA and EGMA results. EGRA results clearly demonstrate that reading achievement in both Ghanaian language of instruction and English are generally weak, with approximately 50% of pupils unable to recognise a single word, and only 2% of P2 pupils able to read at an appropriate grade level in term of fluency and comprehension. As in the NEA, the EGRA and EGMA clearly show large regional variance in reading and mathematics achievement. Additionally, pupils in urban areas tend to outperform pupils from rural areas. The 2015 EGRA reading comprehension results (Figure 35) parallel trends in the BECE. There was no statistically significant difference between girls and boys in the 2015 EGRA.

Figure 35: **Percentage of pupils scoring zero by language and region for EGRA 2015 (of those who attempted the sub-task)**
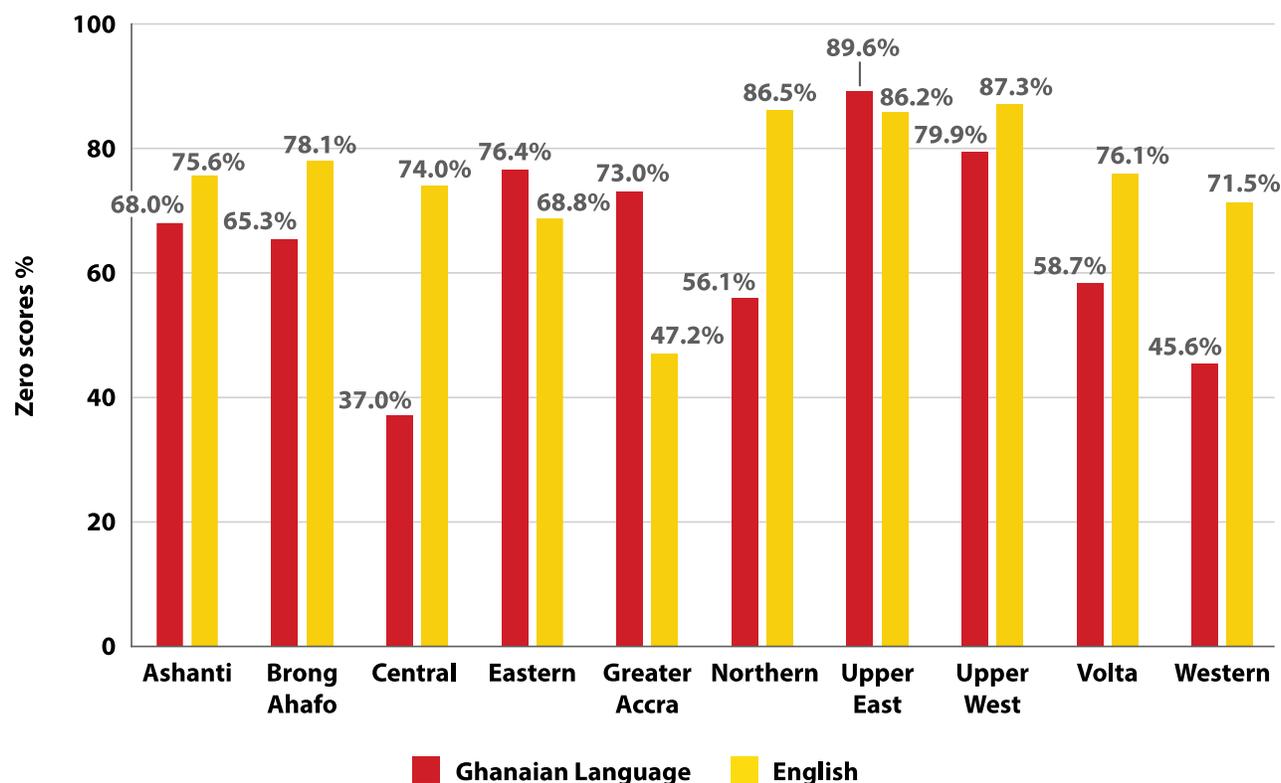
Source: EGRA/EGMA Report of Findings (USAID, 2016)

EGMA results in 2015 showed that while 46–72% of pupils scored correctly on procedural maths knowledge sub-tasks, such as number identification, addition and subtraction, pupils were much more challenged on conceptual maths knowledge sub-tasks, such as word problems. Nearly 75% of pupils were unable to answer a single maths question correctly (USAID, 2016). For both 2013 and 2015, there was little regional and gender variance in results, with male pupils performing slightly better than their female counterparts, and pupils in urban areas performing slightly better than those from rural areas.

When looking at the NEA results it is important to note that in 2016 P4 and P6 pupils were tested, compared to P3 and P6 pupils in previous years; hence comparison across years for P3 results may not be valid. Nevertheless, Figure 36 and Figure 37 compare the proportion of pupils obtaining below-minimum proficiency, minimum proficiency, and proficiency in 2011, 2013, and 2016. It is clear from these graphs that in 2016 about 30% of P4 pupils were below minimum proficiency for English, and nearly 50% were below minimum proficiency for maths, suggesting that there remains a substantial challenge to improve learning outcomes in the basic skill areas at P4. Meanwhile, P6 performance in maths greatly improved, with nearly 40% of pupils achieving proficiency in 2016, compared to just 11% in 2013; in addition, nearly 10% fewer pupils were receiving scores below minimum proficiency. However, the reverse trend is observed in English for P6: the proportion of pupils receiving below-minimum competency results between 2013 and 2016 remained approximately the same (30%), while the proportion proficient scores reduced by 14 percentage points.

Figure 36: Trends in P3* NEA results, 2011–2016
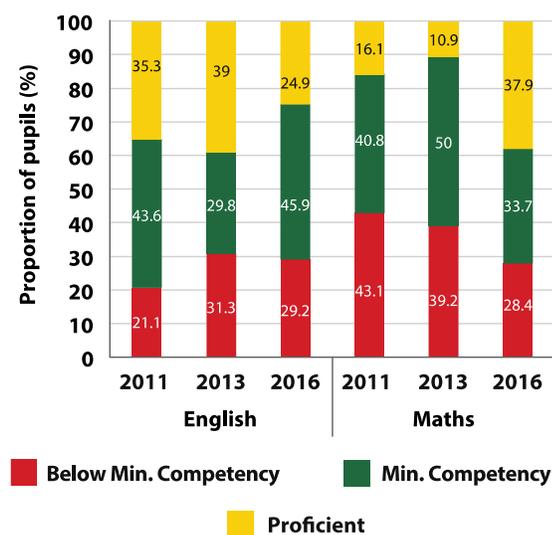
Figure 37: Trends in P6 NEA results, 2011–2016
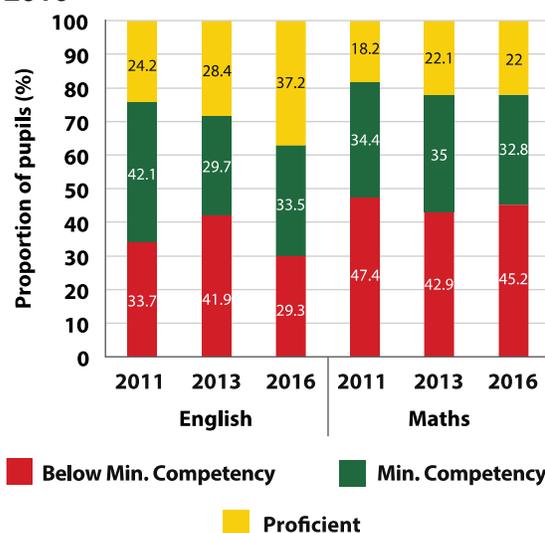
*Note: For 2016, P4 pupils were tested instead of P3 pupils, so comparison across years is not pertinent.
Source: Adapted from figures in MOE ESPR, 2017

Table 11 shows the variations in NEA results across gender, location, and public status. Average performance across genders is nearly the same for P4 mathematics and P6 English, but small and significant differences are observed for P4 English and P6 mathematics, with girls outperforming boys in the P4 English, and boys outperforming girls in P6 maths. Urban/rural differences are also prevalent, with schools in urban areas significantly outperforming schools in rural areas, and private schools significantly outperforming public schools. The performance of pupils residing in the three regions of northern Ghana (Northern, Upper East, and Upper West), where the majority of pupils sampled were residing in a deprived district, was poorest.

Table 11: Proportion of pupils achieving minimum competency by sex, location, type of school, 2016

Subject and grade	Sex		School location		School type	
	Male	**Female**	**Rural**	**Urban**	**Public**	**Private**
Maths						
P4	41.9%	41.5%	37.9%^	47.0%***	38.1%^	55.6%***
P6	44.9%***	42.8%^	40.8%^	47.8%***	41.6%^	53.2%***
English						
P4	49.8%^	52.0%***	45.2%^	59.0%***	46.1%^	69.6%***
P6	47.6%	48.1%	41.6%^	56.0%***	43.9%^	64.6%***

^ = reference; ***$p = 0.000$.

Source: MOE ESPR, 2017

Ghana's improvement in education performance for science and mathematics can be evaluated based on the results from the Trends in International Mathematics and Science Study (TIMSS), which ranks countries based on performance in these areas. Ghanaian JHS2 students participated in TIMSS in 2003, 2007, and 2011. Although Ghana was either the last or last but one country in terms of performance throughout this period, there has been progress across the years in absolute scores; however, the progress made was insufficient to affect the rankings. Equality of outcomes across wealth quintiles can also be examined from the TIMSS (Table 12). Those in the 95th wealth percentile performed significantly better than those in the 5th percentile, and this difference is more pronounced for science than mathematics. Part of the variance has been attributed to the weak preparation of teachers and learners, and minimal investment in STEM facilities and equipment.

Table 12: **Variation in performance in maths and science on TIMSS**

Year	Mathematics		Science	
	5th percentile	95th percentile	5th percentile	95th percentile
2007/8	162	467	124	483
2011/12	194	474	121	488

Source: Anamuah-Mensah (2016)

The MOE has begun to review the pre-tertiary curriculum to shift to a standards-based framework to more adequately prepare pupils for entering the workforce. In addition, more attention will be given to ensuring that the curriculum provides focus and depth on key subject areas, and that it emphasises STEM.

4.3 Basic education management and financing

Various education management initiatives are ongoing at the basic level, many of which have been covered in the education management section. Vertical accountability systems have been recognised as weak and uncoordinated. Anecdotal evidence suggests that parent–teacher associations (PTAs) and School Management Committees (SMCs) are largely inactive, thereby contributing to poor community oversight of school management and results. School Performance Improvement Plans (SPIPs) are often absent from schools, and School Performance Appraisal Meetings (SPAMs) are not held. Circuit supervisors often lack adequate training in school performance support and monitoring, and District Education Oversight Committees (DEOCs) are often non-operational. The new GES School Management Division aims to strengthen accountability structures, and strengthening the authority of the NIB will enhance the monitoring and enforcement of school standards.

The mSRC has been piloted and found to be effective in providing timely information on school data. Plans to use this to replace the traditional paper-and-pen method of data collection through the School Report Card are being considered. The current EMIS is unable to rectify disparities between actual numbers of teachers on payroll and actual numbers needed in each district.

In addition, head teachers are currently appointed without formal training and certification in school management and leadership, especially in being able to manage the capitation grant. There are no standards implemented to ensure that teachers have the appropriate knowledge and pedagogical

skills to be effective in the classroom. In 2014/15, the proportion of teachers who had prepared lesson notes was low, ranging from 38% in the Eastern region to 68% in the Ashanti region. The PTPDM policy aims to address this by ensuring that teachers meet standards in order to progress in their career.

Ghana lacks a strong teacher deployment policy. Some basic schools and subjects are undersubscribed and yet require certain numbers of teachers to meet basic school standards, while other schools experience severe overcrowding. In addition, teacher deployment does not adequately address the local language policy. Figure 38 shows that a large proportion of teachers have limited language ability or do not speak the language of instruction of their school, and yet are deployed to teach grades and subjects in the local language of instruction.

Figure 38: **Teachers' reported speaking ability in school language of instruction**
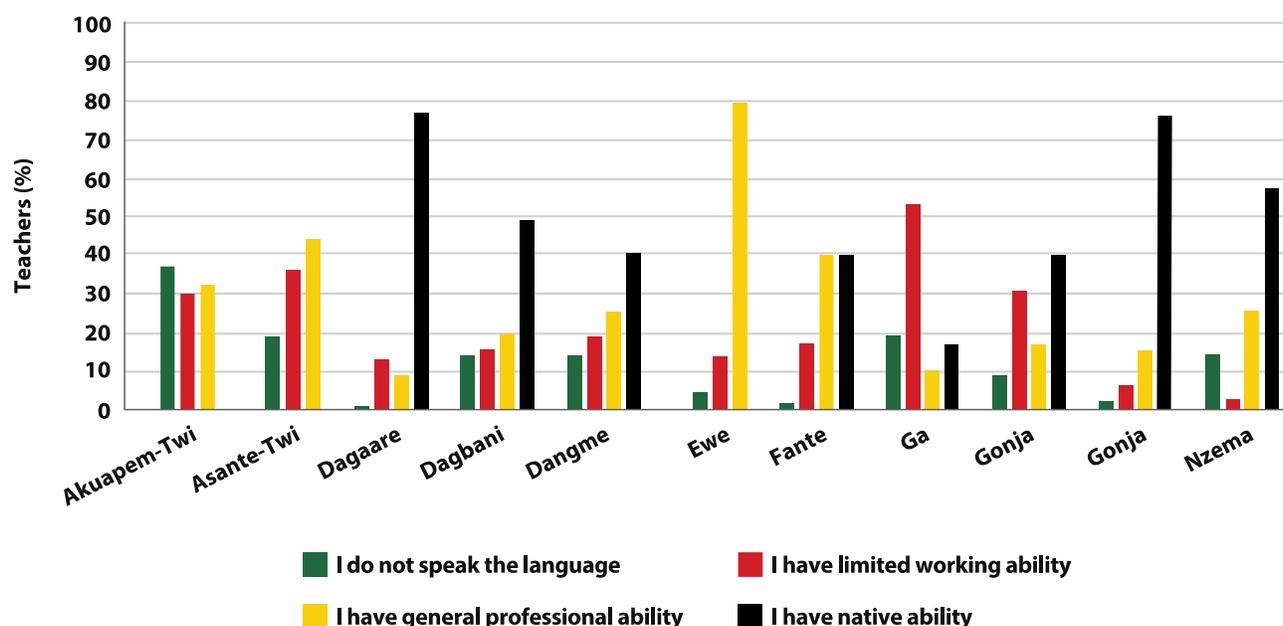
Source: EGRA/EGMA Report of Findings (USAID, 2016)

There are also a range of private sector organisations operating within the basic education sub-sector, often without standards and guidelines for their operation. Standards for school registration are inconsistent, and periodic re-registration by some schools is seen as an arbitrary fee collection exercise. Only the GES Director General can close underperforming schools. The Ghana National Association of Private Schools (GNAPS) is the largest private school association in Ghana, with over 5,000 member schools, and is seen as the representative body for private schools. However, a lack of guidance and policy results in poor monitoring of education programmes introduced by private schools. Collecting data on private schools is difficult and such data are incomplete.

Regarding funding, GPEG introduced the base grant to schools, in addition to providing the standard capitation grant. This was shown to be effective in enabling smaller schools to be able to obtain a fixed amount of financial resources, regardless of size. However, the 2014 Citizens' Assessment Report (NDPC, 2015) found that the greatest threat to the relevance of the capitation grant was delays in disbursement, with the grant often arriving more than a year late and thereby preventing the timely implementation of activities identified in the SPIP. They also found that

approximately half of all basic schools did not receive all three tranches of the capitation grant within the academic year, and that a higher proportion of urban schools received funding than rural schools, which could further exacerbate equity issues. In addition, the capitation grant amount has been widely recognised as being too low, covering only approximately 40% of school expenditure, and in some cases forcing schools to seek other sources of funding that may not be allowed by GES but which are necessary for basic school operations. 75% of basic schools charge levies, which often far exceed the value of the capitation grant. However, in 2017/18, the capitation grant amount was doubled. The extent to which this is alleviating some of the aforementioned challenges cannot be determined until further studies are conducted.

5   Secondary education

5.1   Access

Ghana has made substantial progress in increasing access to secondary education. Figure 39 shows that GERs and NERs for SHS improved substantially between 2011/12 and 2015/16, but the rate of increase slowed down in 2016/17. GERs started at 37.1% at the beginning of this period, and increased to 50.1% by the end, while the corresponding figures for NERs show an increase from 23.6% to 26.5%. This large difference in the GERs and NERs indicates that a large number of students who are not of the appropriate age are enrolled in SHS. In addition, there has been progress in the proportion of students transitioning from JHS3 to SHS1, reaching 68% in 2016/17. It is expected that the introduction of free SHS may significantly improve the transition rate in future years.

Figure 39:   GER, NER, and JHS3 to SHS1 transition rate for SHS, 2012–2017

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
GER (%)	37.1	36.8	43.9	45.6	49.6	50.1
NER (%)	23.6	23.6	21.8	22.5	25.2	26.5
Transition rate JHS3 to SHS1	51	61	68	68	67	68

——— GER (%)   ——— NER (%)   ——— Transition rate JHS3 to SHS1
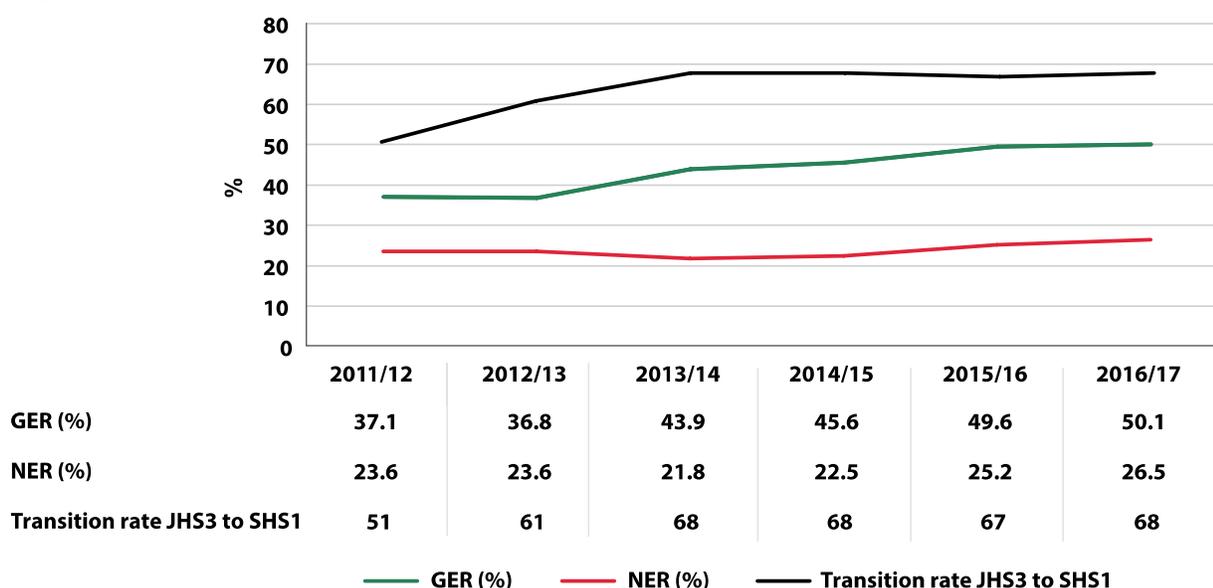
Note: Transition from JHS3 to SHS1 uses figures of JHS3 students in the previous year.

Source: Adapted from figures in the MOE ESPR, 2017

One of the major issues affecting both the transition rate from JHS to SHS and progress through SHS is the number of students who are repeating and dropping out. Children begin to drop out of school from P6 onwards, as already highlighted. However, the biggest number of children leaving school takes place between JHS 3 and SHS 1, although the enrolment data pre-date the introduction of the free SHS policy.

Due to the under-reporting of repeaters by schools, estimates of repeaters were calculated using a cohort substitution model to simulate the internal dynamics of pupils flowing through the system. Table 13 below summarises the percentage of children repeating and dropping out of each grade in SHS. The repeater rate is similar to that of other countries that are at the same stage of education development as Ghana. Many of the students repeating have not been able to complete the year due to seasonal work, family responsibilities, or lack of money for fees (prior to the free SHS

programme). While they may not have completed the year and failed, technically they are still counted as repeaters for resource purposes. With free SHS, some of this wastage may be mitigated in future years. The relatively high repetition rates in SHS may also point to the unpreparedness of students entering from JHS, as well as the possible pressures of a high-stakes exit exam, in the form of WASSCE.

Table 13:   Estimated repeater and drop-out rates by grade in SHS, 2017

	Repeater rate	Drop-out rate
SHS1	13%	3%
SHS2	15%	4%
SHS3	15%	

Source: Pupil numbers from EMIS 2016 database (accessed in 2018); population numbers from GSS smoothed projection (see Annex A)/Perry *et al.*, 2018

The increase in SHS enrolment has been complemented by an increase in the total number of SHS, which stood at 927 in 2016/17. However, in 2015/16 the national SCR for public SHS stood at 46:1, with substantial regional differences. The table below shows the PCR by region. All but one region have a SCR of over 40:1. The table also shows the number of classrooms needed in each region if the maximum ratio of 40:1 is used to calculate the classroom backlog.

Table 14:   SCRs and classroom backlog in SHS by region, 2016

Region	CPR	Classroom backlog
Ashanti	49	877
Brong Ahafo	43	109
Central	43	155
Eastern	49	585
Greater Accra	47	272
Northern	55	478
Upper East	51	217
Upper West	45	77
Volta	36	
Western	44	123
Total	**46**	**2894**
% of total classrooms)		16

Source: EMIS 2016 database (accessed 2018) / Perry *et al.*, 2018

Various efforts have been put in place to continue expanding SHS infrastructure to accommodate growing enrolment, which is expected to spike with the introduction of the free SHS policy. GoG has completed 44 out of 124 planned new SHS. When the remaining 80 SHS are completed, 15% more schools will be added to the total number of public SHS. While approximately one-third of all SHS are private schools, private enrolment only makes up 6.1% of total enrolment.

Table 15 shows SHS enrolment across programmes from 2011 to 2014. In general, visual arts, agricultural science, and technical subjects have attracted few students. Indeed, enrolment in agriculture shows a downward trend. Science enrolment hovers around 11.7%. Enrolment in visual arts increased only slightly to 6.4%. Enrolment in technical subjects stabilised at 3.3% but fell slightly to 3.1% in 2014. Enrolment in home economics, a vocational programme, increased over the period. The largest enrolment was in the arts, which increased its percentage to 44.1% in 2014, about four times that of science. Arts and business programmes have a total enrolment of 59.6%, while science and applied science programmes constitute about 40%. This does not meet the GoG's enrolment policy of 60% enrolment in science and 40% enrolment arts and humanities, thereby making it difficult for the policy implementation at the tertiary level.

Table 15:   Enrolment in SHS programmes

Programme	2011/12	2012/13	2013/14	2014/15
Agriculture	6.8	6.1	5.6	5.3
Business	22.0	20.7	17.7	15.5
Science	11.6	11.7	11.6	11.9
Arts	39.1	40.5	43.0	44.1
Technical	3.3	3.3	3.3	3.1
Vocational- Home Econ	11.1	11.9	12.8	13.8
Visual Arts	6.0	5.9	6.0	6.4

Source: EMIS (2015) data

In terms of equity in access, gender parity has nearly been reached at the SHS level in 2016/17, at 0.96. In the same year, female enrolment reached 48.7%. This can be partially explained by the fact that the JHS3 to SHS1 transition rate for females has been higher than that for males since 2012/13, and this difference has been growing. In 2015/16, the transition rate for males was 65%, while for females this figure reached 69%. The free SHS policy is expected to further increase the transition rate.

When looking at the distribution of GERs, NERs, and private enrolment across regions, there are large disparities, which are clear in Figure 40. In 2016/17, private enrolment was substantially lower in the Upper West region (2.3%), compared to Brong Ahafo (12%). GERs and NERs vary substantially across regions: the highest value recorded was for the Eastern region (73.2% GER and 43.2% NER), while the lowest was for Greater Accra for GER (31%) and the Western region for NER (17.4%). However, these statistics should be considered within the context of the high numbers of boarding schools in Ghana, which often means that students attend secondary education outside their region.

Figure 40: Regional variations in private enrolment, GER, NER, and JHS3 to SHS1 transition rates, 2016/17
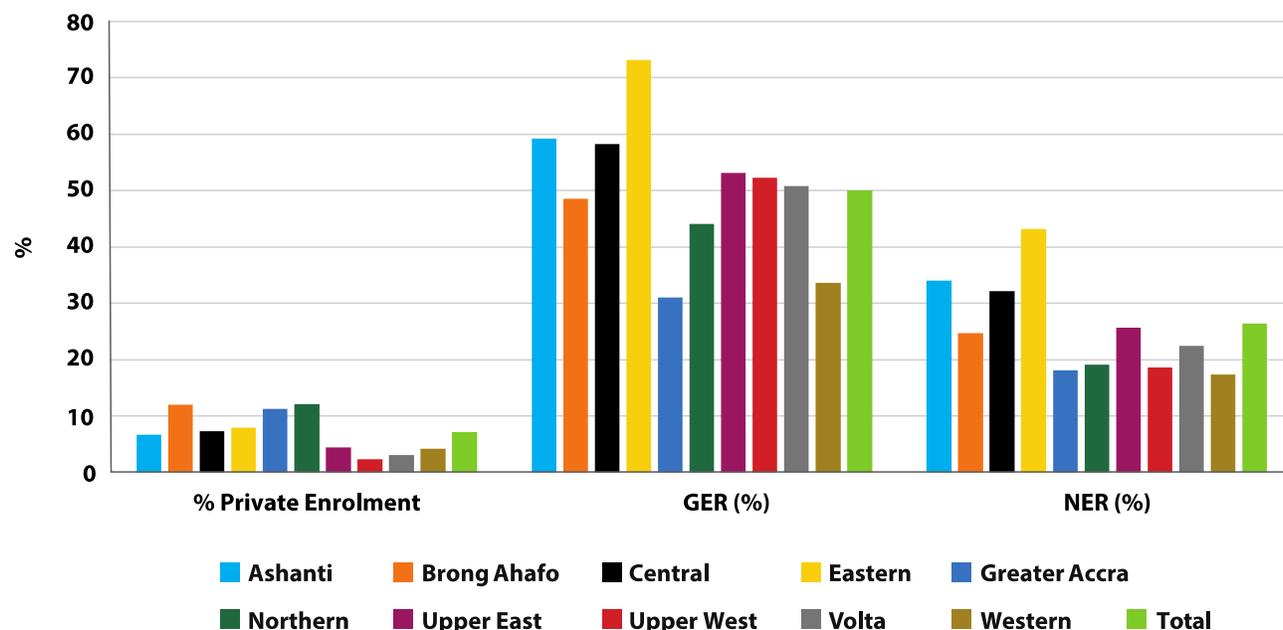
Source: Adapted from figures in the MOE ESPR, 2017

There are substantial inequities in access to SHS across income quintiles. The Ghana DHS 2014 found that, among the 15–18-year-old cohort across all quintiles, for every 100 children who entered kindergarten, 16 transitioned to SHS. In comparison, for the poorest quintile only four of every 100 transitioned to SHS. Overall transition rates are low and inequities persist. About one-third of those taking the BECE do not enter SHS. Those coming from the bottom quintile, the most deprived districts, and/or from rural areas are about five to six times less likely to access SHS (World Bank, 2017b).The parity index for the poorest to richest income quintile is 0.21 (LeClercq *et al.*, 2017a). In addition, learners with disabilities are also underrepresented in SHS: while they make up 1.7% of the total pre-tertiary population, their enrolment accounts for 0.2%.

The free SHS policy is expected to alleviate some of these concerns if it can be targeted to encourage access to SHS for those in the bottom quintile of the income distribution. Cost has been identified as a key barrier to attendance at the SHS level. It has been found that approximately 25% of students that are placed into SHS using the Computerised School Selection and Placement System (CSSPS) do not enrol in SHS; however, when comparing this to the northern scholarships that cover school fees for students who have northern ancestry, only 11% who are placed do not enrol (Prempeh, 2017). Furthermore, a study by Innovations for Poverty Action found that providing scholarships for SHS increased secondary school completion by 30%, while also leading to significant gains in relation to cognitive scores. The impact of the scholarships is particularly pronounced for girls in terms of learning outcomes, tertiary enrolment, fertility and marriage, and labour market outcomes (Duflo, Dupas and Kremer, 2017).

5.2　Quality

Textbook–student ratios have declined substantially since 2011/12, and are much lower for science than they are for English or mathematics. Textbook–student ratios in 2011/12 were 0.74 for English, 0.75 for mathematics, and 0.68 for science. In 2015/16, these values reached 0.51, 0.50, and 0.44, respectively. An additional issue is the delay in textbook production, and distribution for all levels when a new curriculum is approved. Anecdotal evidence also suggests that ICT and Internet facilities in SHS are inadequate to ensure that students can access a larger array of resources.

Figure 41:　　Textbook–student ratios at SHS, 2011/12 to 2016/17
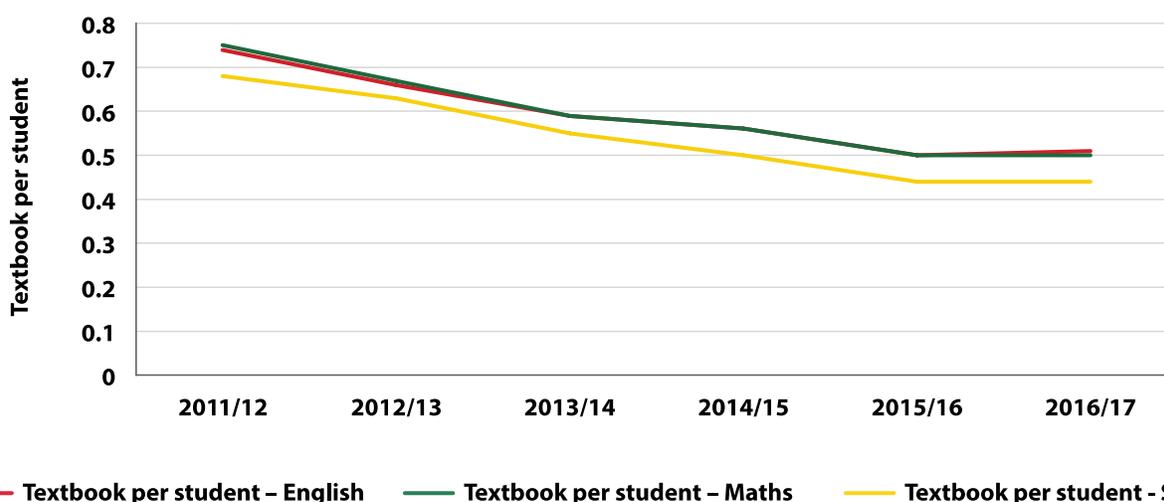
The GES norm for the student–teacher ratio (STR) is 25:1. Since 2011/12, Ghana has slipped further from this standard: the STR in 2011/12 was 24:1 and this fell to 20:1 in 2014/15. There has been a slight improvement in STRs to fit with GES norms since this point, reaching 21:1 in 2015/16, which was sustained in 2016/17. The proportion of trained teachers has steadily increased, from 87% in 2011/12 to 90% in 2016/17.

Other indicators of TLMs are student–classroom ratios, student–seating ratios, and student–desk ratios. The student–classroom ratio has declined since 2011/12, when it was 51:1, to 43:1 in 2014/15. However, since 2014/15, the student–classroom ratio has increased, reaching 48:1 in 2016/17. The student–seating ratios in SHS reached 1 in 2014/15 but increased to 1.1 in 2016/17, while the SHS student–desk ratio was too low at 0.86 in 2016/17, a reduction from 1 in 2015/16.

In terms of equity in inputs, textbook–student ratios vary substantially across regions, as shown in Figure 42. They are generally highest for the Central and Western regions and much lower for the three northern regions. For instance, there were 0.75 English textbooks per student in the Western region in 2016/17, compared to just 0.23 for Upper West.

Figure 42:   Textbook–student ratios at SHS by region, 2016/17
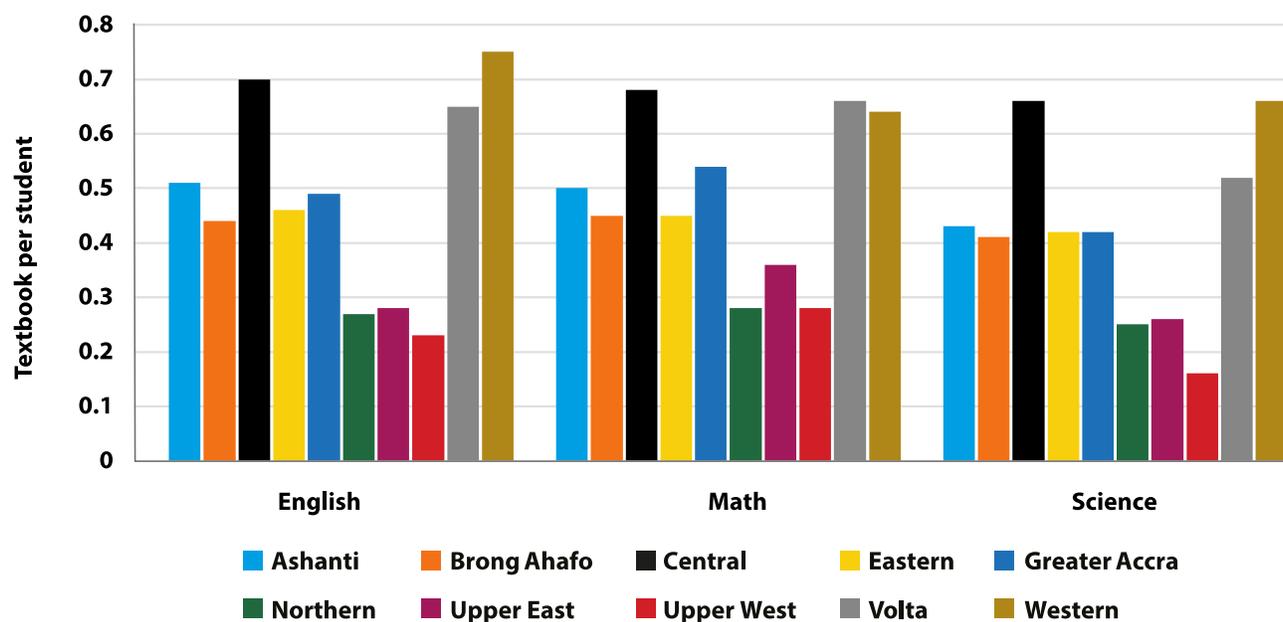
Source: Adapted from figures in MOE ESPR, 2017

The West African Senior Secondary Certificate Examination (WASSCE) is the terminal exam that SHS3 students take in Anglophone ECOWAS countries. When looking at WASSCE performance for Ghana across core subjects in Figure 43, it is clear that performance varies greatly both across subjects and years. Social studies and English record the best performance, while integrated science and mathematics perform more poorly. Performance across subjects steadily increased from 2006 to 2012, with 2012 being the year with the best WASSCE results. Since 2012, performance has declined, reaching very low levels in 2015. The latest WASSCE results from the 2016 examination show an improvement compared to 2015. The weak performance in mathematics and science is of great concern as it could negatively affect human capital development in science and technology.

Figure 43:   Attainment of A1 to C6 in WASSCE examinations across the four core subjects, 2006–2016

	2006	2007	2008	2009	2011	2012	2013	2014	2015	2016
English	34	28	49	43	70	68	66	64	50	53
Mathematics	32	25	26	29	44	50	37	48	24	34
Int. Science	25	24	26	35	42	57	50	46	24	49
Social Studies	68	76	61	77	82	87	82	71	52	55
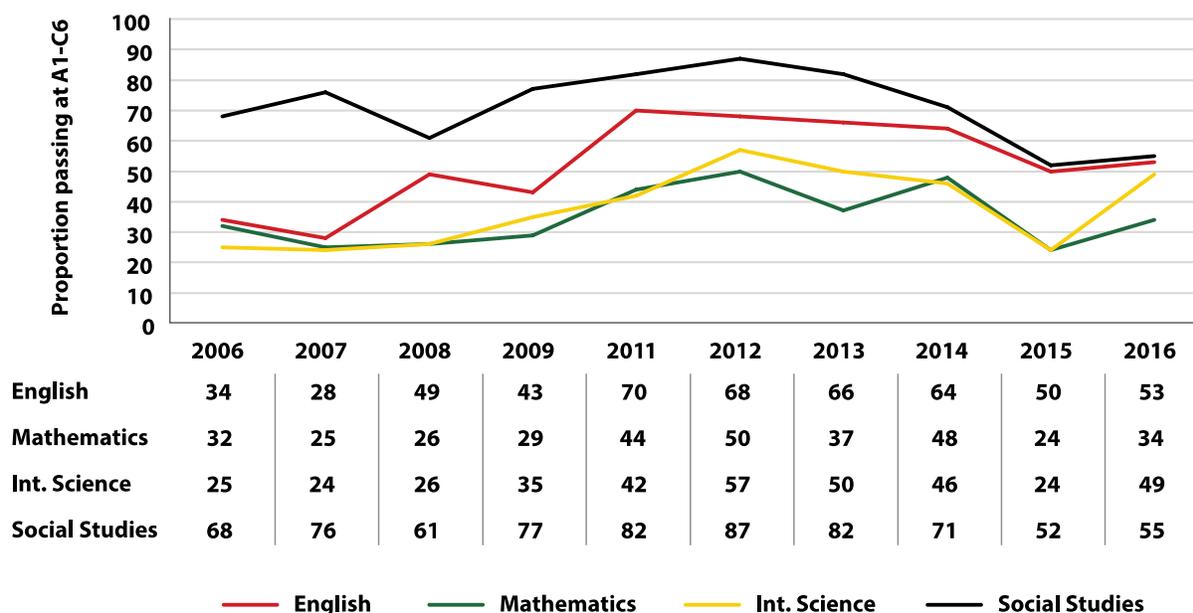
Note: WASSCE was not held in 2010 due to a change in the number of years of SHS from three years to four years which meant that no exams were taken in 2014.

Source: MOE ESPR, 2017

This trend is further examined in Table 16, which shows trends in elective science and maths subjects at SHS. Mathematics results rose to a high of 75.1% in 2012 but decreased to 20.3% in 2014; they then rose minimally in 2015. Performance in biology has decreased over the years, except for an increase in 2013. Chemistry performance saw an increase in 2012 but since then performance has declined to below 50%. Physics performance declined from 2011 to 2014 and then improved by 10.5 percentage points in 2015. Mathematics experienced the worst performance, 24.3%, in 2016.

Table 16:   Elective science and maths performance in WASSCE, 2011/12 to 2015/16

Subject	Grades A1–C6				
	2011/12	**2012/13**	**2013/14**	**2014/15**	**2015/16**
Mathematics	66.7	75.1	46.8	20.3	24.3
Biology	73.6	59.0	62.0	59.6	49.4
Chemistry	51.6	58.9	52.9	50.0	49.5
Physics	71.3	70.6	59.2	52.7	63.2

Source: MOE ESPR, 2017

The low performance in science and mathematics is being taken seriously by the government. Science equipment is being provided to SHS, laboratories are being built, and there is a focus on the development of model SHS. Teacher training in core subjects is also a key focus for the MOE.

When looking at WASSCE performance by gender and region (Table 17), it is clear that there are regular and wide gender disparities against girls in maths, science, and social studies in all regions, and in English in the three northern regions. Significantly fewer females (20%) qualify for tertiary compared to males (26%).

Table 17:   Gender disparities in WASSCE pass rates by subject and region, 2016

	Absolute gap				GPI			
	English	Maths	Science	Social studies	English	Maths	Science	Social studies
Ashanti	-0.7	-9.0	-6.3	-6.0	0.99	0.80	0.90	0.91
Brong Ahafo	-1.2	-2.3	-2.6	-5.9	0.98	0.95	0.96	0.89
Central	0.5	-9.3	-6.7	-5.1	1.01	0.77	0.87	0.91
Eastern	3.8	-5.0	-2.1	-0.6	1.06	0.87	0.96	0.99
Greater Accra	-1.0	-13.5	-11.4	-5.0	0.99	0.65	0.80	0.92
Northern	-5.5	-9.7	-14.0	-13.4	0.76	0.40	0.50	0.61
Upper East	-4.3	-11.1	-16.1	-13.4	0.87	0.47	0.60	0.73
Upper West	-10.3	-18.6	-23.0	-21.3	0.73	0.37	0.54	0.68
Volta	4.6	-12.5	-9.2	-3.9	1.10	0.57	0.79	0.93
Western	-1.5	-14.5	-8.0	-7.9	0.97	0.70	0.86	0.87

Note: Regions with GPI values below 0.97 are in red; regions with GPI values above 1.03 are in green.

Source: LeClercq *et al.*, 2017

There are wide variations in the 2016 WASSCE results for the achievement of grades of A1 to C6 across and within regions (Figure 44). The three northern regions perform substantially worse in all four core subjects compared to other regions, particularly Greater Accra and Brong Ahafo.

Figure 44:   Proportion of students achieving A1–C6 in core subjects by region, 2016
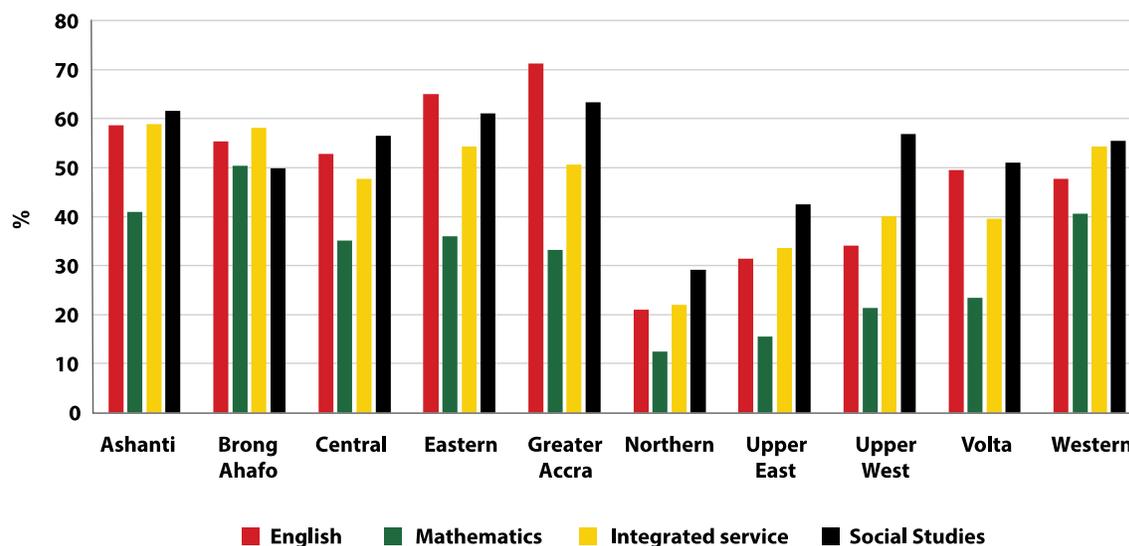
Source: MOE ESPR, 2017

There are wide disparities in SHS WASSCE performance: some SHS regularly succeed in having nearly 100% of students achieving grades of A1 to C6 in core subjects, while others have 0%. These discrepancies often exist even within the same region. There are a handful of highly selective SHS in Ghana that have excellent WASSCE results on a yearly basis. Nearly 99% of those who attend private JHS are placed in these elite public SHS, which only exacerbates economic inequities. The inequity is further reinforced as these same students from elite SHS continue to tertiary education. According to the Secondary Education Improvement Project (SEIP) Additional Financing document (World Bank, 2017b), 'The WASSCE results also show that a small number of SHSs supply over 90 percent of those who are admitted to higher education while the rest of the SHSs produce between 60 percent and 90 percent of the fail rates at the examination.' The free SHS policy has made some progress in trying to address some aspects of this inequity by ensuring that 30% of seats in SHS are reserved for those from public schools.

The free SHS policy will increase demand for secondary education, putting pressure on existing resources (teachers, classrooms, TLMs, etc.). Quality and learning outcomes could be negatively affected if appropriate interventions are not put in place.

To improve WASSCE results, there are plans to review the curriculum to ensure excellence in instruction and pedagogy, and to ensure that the curriculum is properly focused and can be accomplished within the existing timeframe. It has been reported that there is currently inadequate time in the three years of SHS to cover the syllabus. Often, students enrol late in SHS1 and, given that WASSCE examinations are held in April in every year, this becomes a performance issue. It is hoped that implementation of the free SHS policy will address such challenges of delayed enrolment.

5.3   Secondary education management and financing

Poor performance in WASSCE and international rankings have contributed to the public perception that high proportions of students are completing secondary school without attaining functional literacy. In addition, anecdotal evidence suggests that school leadership and management need to be improved, especially in light of the provision of free SHS. The government is providing training for SHS school leadership, but more substantial and system-wide reforms to improve the administration, management, and leadership of SHS are also required.

The enactment of the free public SHS policy adds further pressure to data collection efforts to ensure that the policy is implemented and monitored correctly, and that pertinent indicators are collected to address management challenges and improve academic achievement in a timely and equitable manner. In terms of disbursements for free SHS, lessons should be learnt from the late disbursement of capitation grants to basic schools, which severely impeded progress.

6   TVET

The GSS introduced a Labour Force Survey in 2015, a rich source of information for providing data on the qualifications of the labour force. According to the survey, 20.2% of Ghanaians are employed in wage employment, the majority of whom are self-employed in the informal economic sectors, comprising small businesses, service, and agriculture. These categories of employers are made up of contributing family members, casual workers, home-based workers, and street vendors. Employment patterns across industrial sectors show a predominance of agriculture (44.6%), followed by wholesale/retail trade (19.5%). For urban areas, the dominant employer is wholesale/retail trade (30.9%), whereas in rural areas it is agriculture (71.1%). Whilst the unemployment figures reported in the Labour Force Report are considerably lower than those of other sub-Saharan countries, the under-employment figures are significantly higher. According to the labour force data from the Ghana Living Standard Survey round 6 (GLSS-6), 25.2% of employees in the total Ghanaian workforce have never attended school; 24% have less than JHS education; and 32.2% have completed JHS or middle school. Only 17.6% have secondary school, TVET, or higher education qualifications. This demonstrates that although the economy requires technical and vocational skills, few current workers have them.

6.1   Access

Table 18 shows the total number of, and enrolment in, TVET institutions. While the total number of TVET public institutions has increased rapidly since 2012/13, there was a short dip in 2015/16, accounted for entirely by a decline in 'other', non-GES TVET institutions. However, 2016/17 recorded an increase again, restoring the total public TVET institutions to the same level as 2014/15, at 120. The number of private TVET institutions, on the other hand, has declined from 2012/13 to 2015/16, with a small increase in 2016/17. While public GES TVET institutions have barely increased, the number of SHS institutions has risen rapidly, so that since 2013 public SHS have outnumbered GES technical institutions by 12:1.

Meanwhile, total enrolment in TVET institutions has increased unsteadily since 2013/14, from just over 40,000 to just under 60,000. This indicates (i) significant drop-out of students enrolled, and/or a drop in demand for TVET education, and/or (ii) a reduction in, and or irregular reporting of, data by the various agencies and institutions.

Table 18:   Number of, and enrolment in, TVIs

		2012/13	2013/14	2014/15	2015/16	2016/17
Public institutions	*GES*	*45*	*45*	*45*	*45*	47
	Other	*62*	*73*	*75*	*64*	73
	Total	107	118	120	109	120
Private institutions		74	68	65	55	58
Total institutions		**181**	**186**	**185**	**164**	**178**
Public enrolment	*GES*	*36,830*	*27,166*	*32,230*	*38,459*	45,215
	Other	*12,015*	*8,183*	*6,596*	*9,897*	9,217
	Total	48,845	35,349	38,826	48,356	54,432
Private enrolment		12,651	5,716	3,687	4,815	4,678
Total enrolment		**61,496**	**41,065**	**42,513**	**53,171**	**59,110**

Source: MOE ESPR, 2017

The number of SHTS has also increased, from 167 in 2011/12 to 196 in 2016/17. Enrolment in these schools has gone through cycles, with an increase from 2011/12 to 2012/13, but then a decrease between 2012/13 and 2013/14. Since then, enrolment has increased, reaching just over 26,000 in 2016/17. Overall, technical enrolment is a challenge, with only 13.6% of students enrolled in technical subjects at these schools.

In general, evidence suggests that there is a poor public perception of TVET, which is only seen as a good option for academically weaker students, resulting in low social demand for TVET. The social demand for TVET is constrained by the low absorption capacity of TVET institutions and poor quality. Due to the inadequate academic and physical infrastructure of many of the existing schools, only a small percentage (of about 5–7%) of JHS (BECE) graduates can be admitted into public and private TVET schools (Darvas and Palmer, 2012). In 2013, the total SHS enrolment was 842,587, compared with a total student population of only 61,496 in all the public TVET institutions in the country. In addition, the majority of JHS graduates prefer SHS education to TVET. The CSSPS data for 2013 and 2014 show that only a comparatively small number of BECE candidates select TVET institutions. The percentage of BECE candidates that selected TVET schools in 2013 was only 2.1%. In 2014, out of 424,769 BECE candidates only 15,696 (representing 3.7%) opted for TVET. Furthermore, the CSSPS statistics show that many more candidates were placed in TVET institutions than the number of those who selected this option. The number of these 'unwilling' candidates was 2,456 in 2013 and 1,967 in 2014. Taking willing and unwilling candidates together, it is seen that only 3–4.7% of JHS graduates are placed in TVET institutions under the GES (Afeti, 2015). It is estimated that only about a third of candidates placed in technical institutes through the CSSPS actually enrol. This is not surprising, since a sizeable proportion of those placed in the technical institutes did not select this education track in the first place, providing further evidence of a low social demand for TVET education in the country. TVET is currently limited to the traditional full-time student and no framework exists to recognise and receive credit for prior learning. This also constrains access for diverse demographics.

When looking at equity of access, the participation of women and PWDs in TVET in Ghana is low, especially in traditionally male-dominated areas, such as engineering and construction. Table 19 shows that the overall proportion of female enrolment in TVET was 26% in 2015/16. This proportion

is an increase from 2014/15, but prior to this year the proportion of female enrolment had been steadily declining since 2012/13, when it was 31%. The proportion of females enrolled in TVET institutions is substantially lower for public TVET institutions (18% in 2015/16).

Table 19:   Percentage female enrolment in TVIs (all figures %)

		2011/12	2012/13	2013/14	2014/15	2015/16
Public TVIs	*GES*		*16.5*	*18.3*	*17.1*	*17.9*
	Other		*52.0*	*43.6*	*42.8*	*50.0*
	Total	19.7	25.2	24.2	21.5	23.2
Private TVIs		61.4	55.4	59.6	60.0	50.6
Total TVIs		**30.2**	**31.4**	**29.1**	**24.8**	**25.7**

Source: MOE ESPR, 2017

The enrolment of boys in technical programmes in SHTS also far outpaces that of girls. In 2016/17, girls only accounted for 11% of total technical enrolment. Regarding female enrolment in polytechnics, this has been increasing from 2010/11 until 2013/14, from 30% to 35%. However, much of the increase is in the applied arts and business-related programmes and not in engineering and science-related programmes. Some trades or programmes are female-dominated, like catering and hospitality, fashion and dressmaking, cosmetology, and secretarial programmes. On the other hand, males dominate the trades and electrical and electronic engineering, mechanical engineering, and building and civil engineering programmes.

It is reported that one of the biggest drawbacks to the quality provision of TVET has been the poor state of training facilities and equipment. Only a handful of formal providers are considered to be well equipped, and all of these have received significant donor support. Funding earmarked for capital expenditure (e.g. GETFund) is not equitably distributed. There is no comprehensive data collection and management of facilities and equipment in the informal sector. However, it is clear that the quality and quantity of equipment and facilities available for production depends on the calibre of customers served and the scale of production. Trainers/master craftspersons who serve low-cost customers use basic and obsolete equipment, while those who serve up-market customers use modern and sophisticated equipment.

6.2   Quality

It is clear that there is a mismatch between the supply and demand of skills in the labour market. A job-tracking survey conducted by GSS in 2007 reported that, in addition to paper qualifications, employers asked for capabilities and qualities such as excellent oral and written communication skills, initiative, innovativeness, good human relations and interpersonal skills, the ability to work without supervision, the ability to organise, smartness and neatness, and the ability to meet deadlines. Almost all establishments declaring vacancies in the job-tracking survey asked for computer literacy skills, but these are not well integrated into traditional TVET provision. In addition, Ghana is caught in a low-skill equilibrium, in which employers have low expectations and settle for low-skilled workers. There is currently a shortage of highly- and semi-specialised skilled labour, and an excess supply of low-skilled labour. This confirms the findings of the GSS job-tracking survey in 2007, in which serious skill shortages were found in the Technician positions.

In general, there has been low industry investment and involvement in TVET. Although the weak industrial environment of the country, with only a few vibrant manufacturing companies, is often cited as a challenge for the establishment of training partnerships between TVET educational institutions and industry for the provision of internships and practical industrial attachment for both staff and students, many firms are in reality often reluctant to provide internships principally because of the absence of incentives for them to do so.

Three types of qualifications are relevant for TVET instructors – technical qualifications, teaching qualifications, and industry experience. EMIS data (see Table 20) show that in public TVET in 2016/17, 71% of teaching staff possessed teaching qualifications but only 52% possessed technical qualifications. These proportions have changed considerably since 2012/13 and are higher for GES TVET institutions than for other public TVET institutions. The private sector has even lower figures for both sets of qualifications, with 40% of teachers holding teaching qualifications (which has declined since 2014/15, when it was just under 50%), and just 25% with technical qualifications. No data are available on teachers' practical work experience as part of the qualification for teaching potential skilled workers. STRs have increased in GES TVET institutions, reaching 19 in 2016/17. These ratios are lower for other public TVET institutions (9.1 in 2016/17) and for private TVET institutions (7.7). An STR of 15:1 is considered best practice for skills training institutions. The current low ratios suggest that there may be an over-supply of teaching staff, or under-utilisation of staff, as compared to declining enrolment. However, without disaggregation by TVET level and area it is not possible to determine where inefficiencies may lie.

Table 20:   Teacher indicators for TVIs

		2012/13	2013/14	2014/15	2015/16	2016/17
GES	STR	17.4	12.1	14.4	16.0	19.0
	% trained teachers	80.9	82.9	82.0	81.9	81.7
	% teachers with technical qualification	94.8	50.2	59.8	60.9	63.7
Other public	STR	18.6	9.9	6.5	10.7	9.1
	% trained teachers	47.7	37.5	47.2	40.0	42.2
	% teachers with technical qualification	81.1	31.8	40.6	24.0	23.7
Total public	STR	17.7	11.5	11.9	14.5	16.1
	% trained teachers	73.2	70.7	71.1	70.3	70.9
	% teachers with technical qualification	91.6	45.2	53.8	50.6	51.7
Private	STR	19.3	8.6	5.9	7.8	7.7
	% trained teachers	39.0	46.5	48.6	48.3	39.7
	% teachers with technical qualification	91.0	37.5	39.3	29.0	25.2

Source: MOE ESPR, 2017

In terms of teacher training for TVET, there are four TVET teacher training programmes leading to qualifications, all of which are associated with public universities. They had an enrolment of over 7,000 in 2011/12, but there is no information on their graduation or employment rates; and since the number of TVET learners is not known, it is not possible to say whether the supply of TVET

teachers is adequate. Data on non-teaching staff in TVET are incomplete, but Darvas and Palmer (2014) reported an increase of non-teaching staff in Technical Training Institutes (TTIs) of 32.9% between 2007/8 and 2011/12, which they explain was due to government regulations that result in inefficient allocation of resources: in addition to having their own cooks, matrons, drivers, cleaners, and accountants, many TTIs have their own in-house carpenters, plumbers, and electricians. Despite this, the ratio of teaching staff to non-teaching staff is 1.8:1. In the Youth Leadership and Skill Training Institutes, there is a close match between teaching staff and non-teaching staff numbers. In Community Development Vocational/Technical Institutes 60% of staff are teaching staff. Staffing norms and standards vary widely throughout the public TVET system.

When looking at TVET learning outcomes, examination pass rates can be used as a yardstick and, based on this measure, the quality of TVET education in the country is poor. Figure 45 shows the pass rates for students that sat for the Certificate II, Advanced Craft, Technician, and DBS Certificate Examinations in 2013, 2014, and 2015. The performance of students at the Technician level has been consistently poor over these three years. This is of concern to TVET system managers and the economy, since qualified and competent technical human resources is a key requirement for enhancing productivity and promoting economic growth.

Figure 45:   Examination pass rates in TVET, 2013–2015

	Certificate II	Advanced Craft	Technician I	Technician II	Technician III	DBS
	49.10%	64.30%	43.70%	31.30%	55.50%	49.20%
	63.40%	68.90%	31.90%	25.40%	37.20%	65.20%
	63.00%	58.30%	30.40%	38.40%	37.90%	24.60%

■ 2015   ■ 2013   ■ 2014
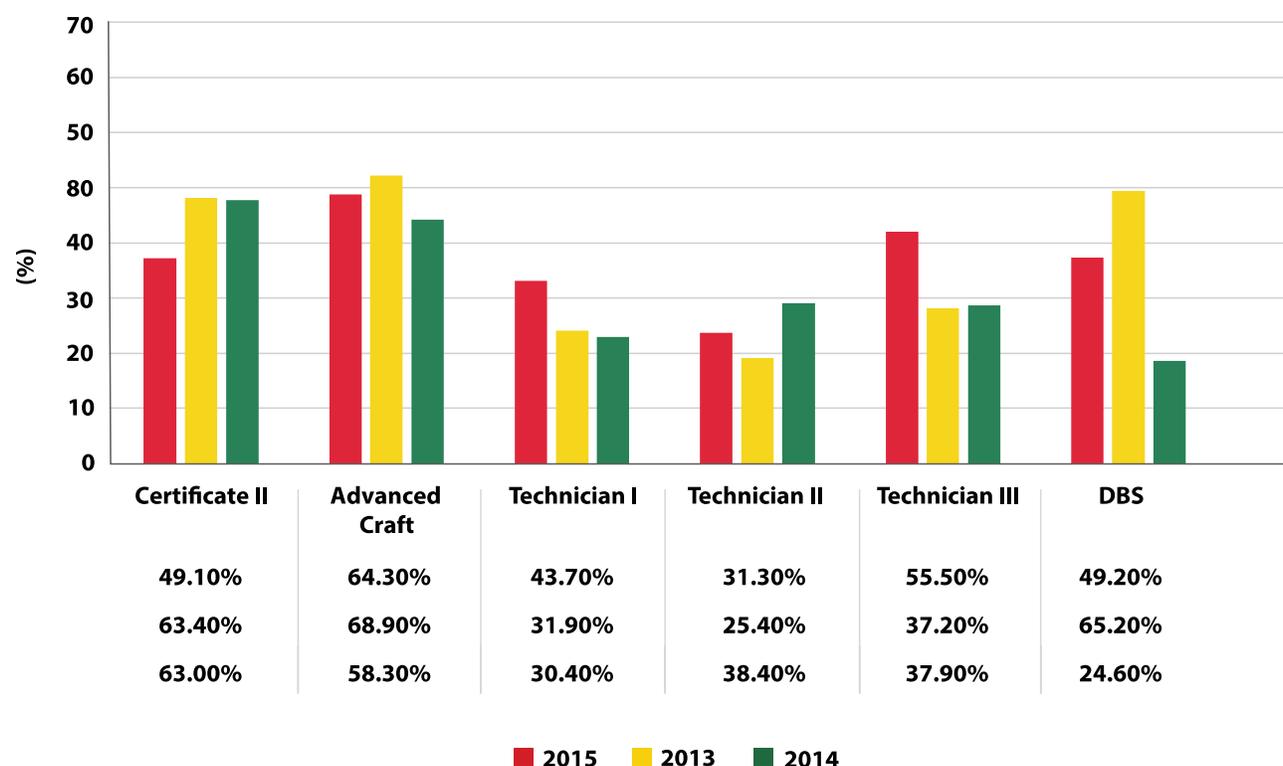
Source: Afeti, 2015

6.3   Education management and financing

There is a need for stronger data collection for TVET. Many of the TVET data collection needs have been outlined in prior sections. The introduction of the EMIS in the MOE has greatly improved data collection in the Ministry. However, there is very limited data on institutions under the Ministry of

Employment and Labour Relations, as well as other ministries. Furthermore, the data do not include retention and progression or achievement of TVET qualifications, nor do they differentiate between types and levels of TVET to an extent which enables useful conclusions to be made on the supply of TVET graduates. There is a lack of data on industry demands and the outcomes of training offered by the various ministries. A draft proposal for a Labour Market Information System was prepared by the then Ministry of Manpower, Youth and Employment in the late 2000s, describing in detail proposed data sources, collection, and collation, but it has never been implemented.

Administration of TVET is severely hampered by its fragmented nature. Its provision is spread out across various ministries, each with different guidelines, standards, assessment criteria, and so forth, thereby leading to a lack of harmonisation, accountability, and regulation. More than 15 different ministries provide TVET services, with a total of 272 courses/programmes and nearly 600,000 learners.

One constraint on the management of staff in the TTIs is that principals of institutions do not have the authority to hire or fire and deal directly with staff misconduct. The rate of absenteeism of teaching staff is reportedly very high.

Regarding TVET financing, although a large proportion of public funding is allocated to the education sector as a whole, TVET receives (on average) less than 3% of it. The approximate 3% tallies with the proportion of the learner cohort of 27,166 enrolled in formal TVET in 2013/14. The breakdown of the MOE's budget shows that the main source of TVET funding is IGF raised from fees and production services. The 3% stated above includes IGF. Out of this, government contributes only 0.9% to TVET.

7 Inclusive and special education

In presenting a situational analysis of access to education for PWDs, it is pertinent to first understand prevalence. According to the Population and Housing Census (PHC) 2010, the overall prevalence rate of children between four and 17 years of age who are disabled is 1.6%, which equates to 130,000 children. Figure 46 shows the prevalence rate for these ages by age group and gender; however, these figures could be the result of low rates of early detection.

Figure 46:   Prevalence rate of children with disabilities by age group / gender
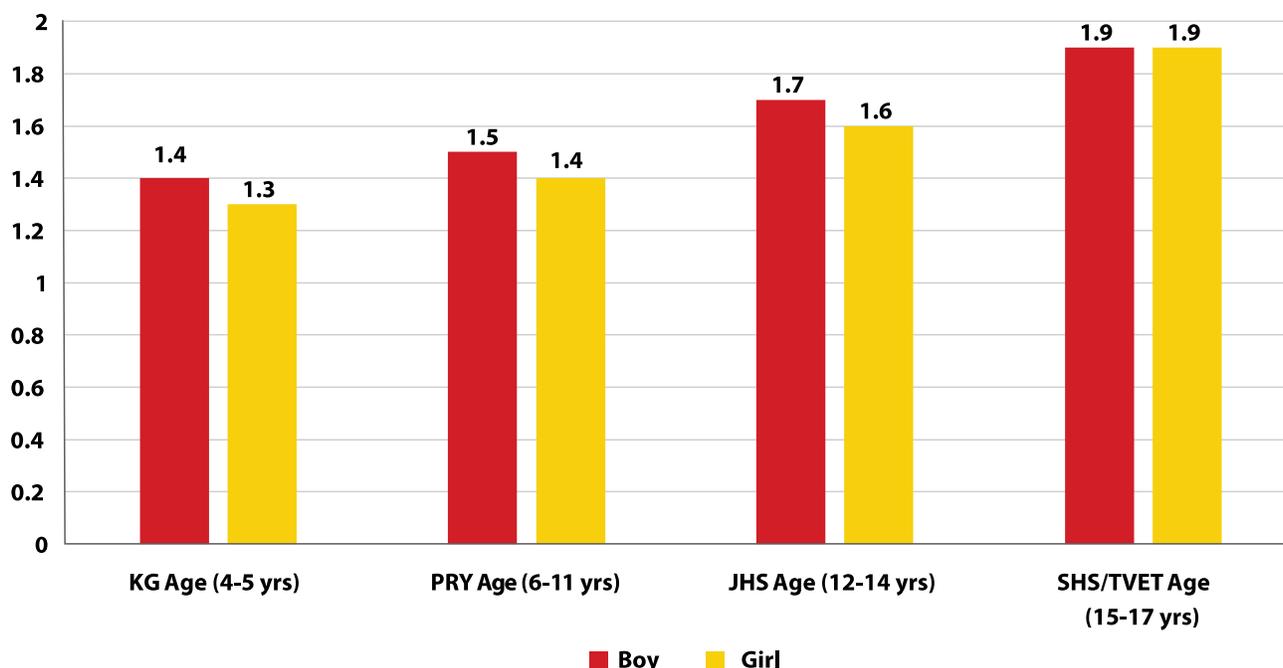
Source: Interim analysis presentation of Education Sector Analysis Guidelines for Inclusive Education ESA-IE (UNICEF, 2017)

Figure 47 shows the geographical distribution of children with disabilities. The lowest rates are recorded for the Upper East and Upper West regions, while much higher rates are recorded in the Ashanti region. However, this may not reflect the scale of disabilities across regions, and may instead be associated with low rates of early detection. Anecdotal evidence suggests that teachers and community members do not find it easy to detect children with disabilities.

Figure 47:   Prevalence of disability by region and gender
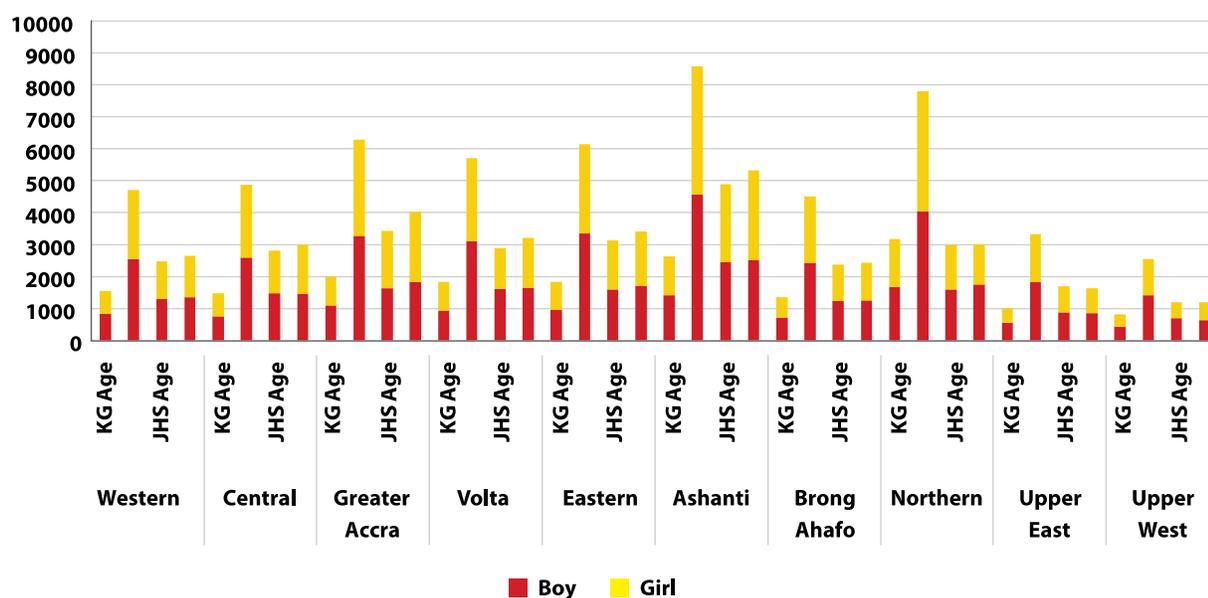
Source: Interim analysis presentation of ESA-IE (UNICEF, 2017)

In terms of type of disability, visual disabilities are highest, making up 30% of children with disabilities, followed by emotional disabilities, which make up 20%. Hearing, speech, physical, intellectual, and other disabilities each make up 10% of the type of disabilities found. 40% of children with disabilities have more than one disability.

It is likely that the PHC 2010 underestimates the real prevalence rate due to reporting bias; the ESA-IE guidelines for children with disabilities in Ghana interim analysis presentation (UNICEF, 2017) suggests that perhaps a more accurate number would be 2–3% of the population, which is between 160,000 to 240,000 children. Inclusive Education thus concerns itself with providing adequate education to both children with disabilities who are already in school, and those who are out of school, to improve access.

7.1   Access

The Inclusive Education Management Tool found that 1.7% (91,000 children) of kindergarten/primary students in 20 districts have disabilities, as identified by medical doctors. However, in 2016/17, EMIS found that about 29,000 pupils with disabilities were registered in basic and secondary schools, among which 21% were enrolled in special schools. According to these data, the enrolment of children in special schools ranges from 0.2% of total enrolment at the SHS level, to 0.4% of total enrolment at the primary, JHS, and TVET levels. However, the EMIS figures reported are about three times less than the 97,000 pupils reported through the PHC 2010 data.

Regarding the type of disability for enrolees in both regular and special schools (Figure 48), 71% of pupils in special schools are deaf, while 26% of the disabled in regular schools have visual disabilities, 17% are physically challenged, 29% are intellectually disabled, and 19% have hearing disorders.

Figure 48:   Type of disability as recorded by EMIS, 2016/17
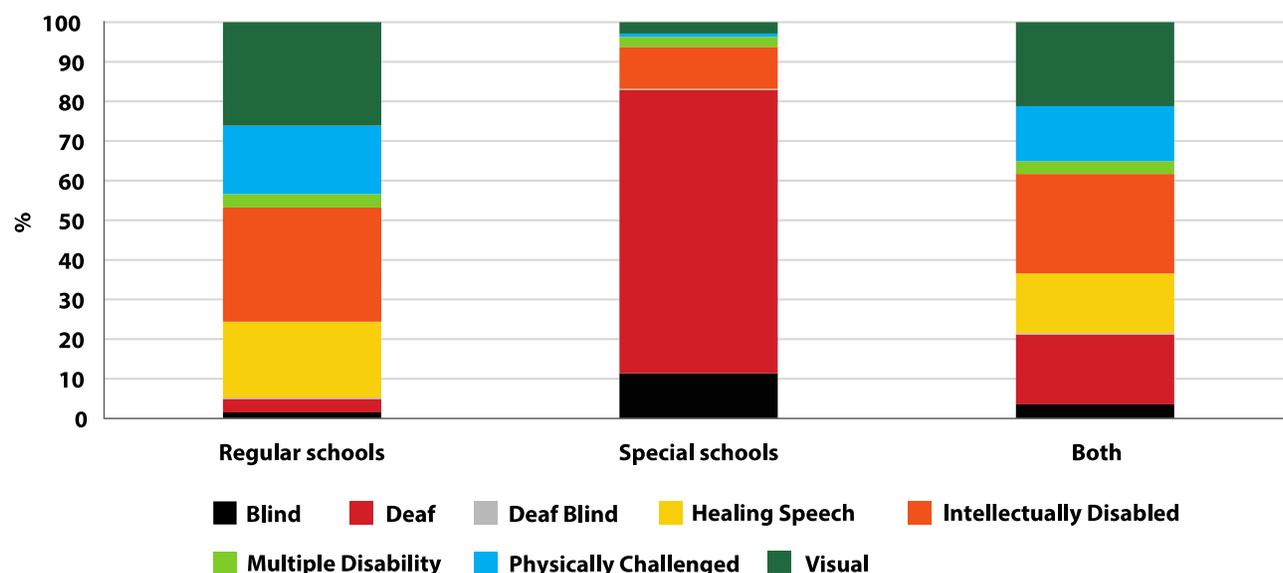
Source: Interim analysis presentation of ESA-IE (UNICEF, 2017)

Children with disabilities have lower attendance rates compared to children without disabilities from kindergarten through to SHS/TVET institutions (

Figure 49). On average, across these levels, the attendance rate for children with disabilities is 10 percentage points lower than that for children without disabilities, and this difference is particularly stark at the primary level.

Figure 49:   Attendance rates for children with and without disabilities, KG to SHS/TVET
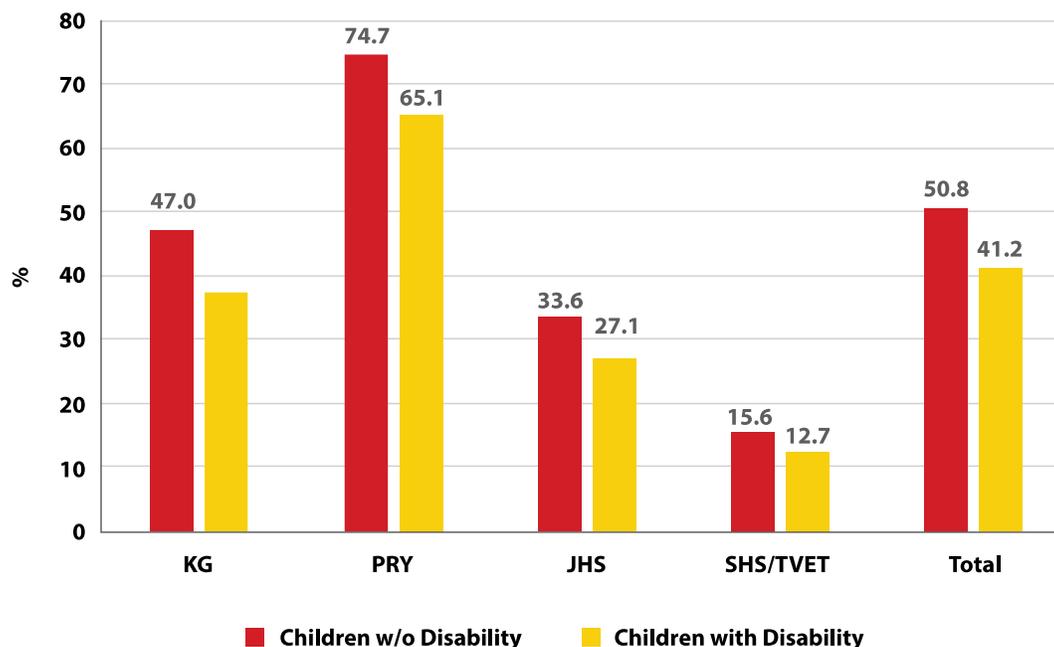
Source: Interim analysis presentation of ESA-IE (UNICEF, 2017)

Attendance rates also differ by type of disability. Those with emotional and sight only disabilities have much higher attendance rates, while those with speech, physical, and intellectual disabilities have lower attendance rates, as evidenced by Figure 50.

Figure 50:   Attendance rate by type of disability, kindergarten to SHS/TVET

Children with disabilities are also not progressing through the education system. Among the OOSC population, disability rates range from 8% (for 13-year-olds) to 31% (for 17-year-olds). A large proportion of students with disabilities are over-age, with a large number of 8–12-year-olds attending primary school.

Figure 51:   Attendance by age and grade level for children with disabilities
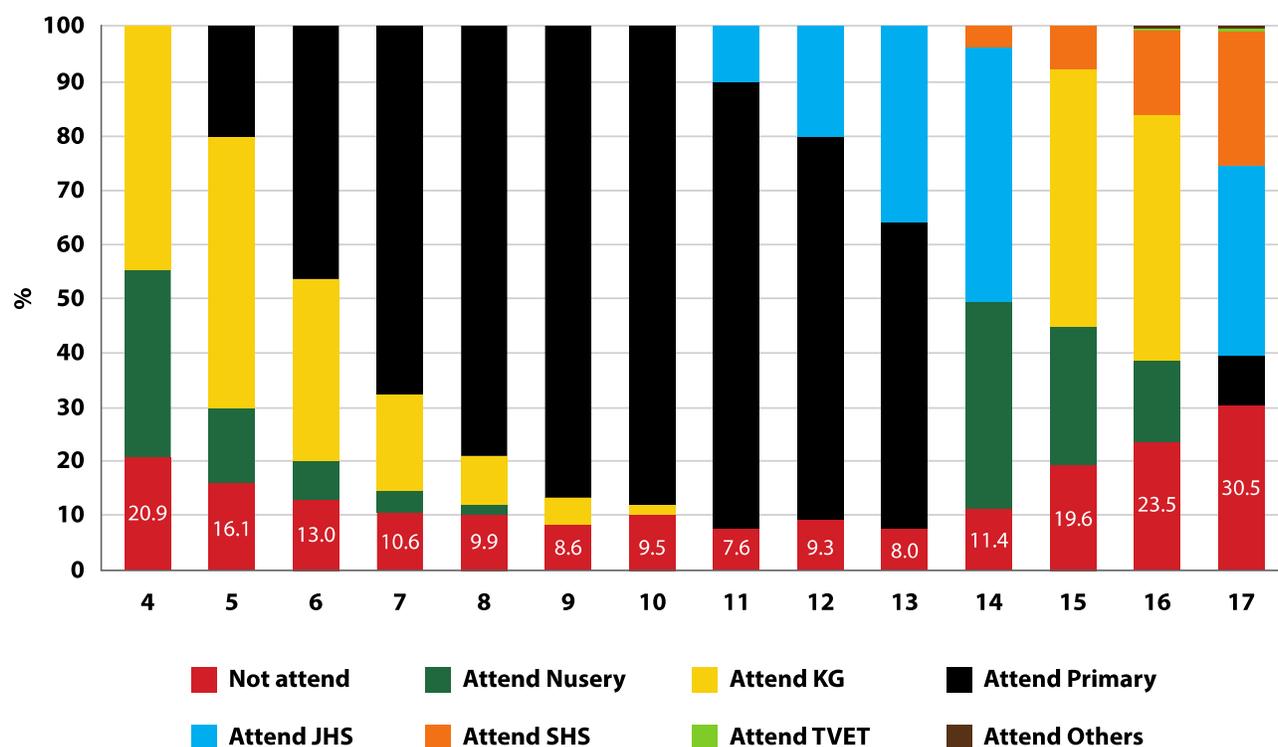

Source: Interim analysis presentation of ESA-IE (UNICEF, 2017)

Inadequate facilities in basic and secondary schools disproportionately affect children with disabilities. Almost no regular basic schools have hand-rails, and only 8% are equipped with ramps. Most regular SHS are also not equipped with ramps and hand-rails, and, although special schools do better, only 32% have ramps and 23% have hand-rails. In terms of other general facilities – water and hand-washing, urinals, electricity and toilets – special schools are better equipped than regular schools: only 44% of regular basic schools have functional water facilities, and 43% have no electricity, while 46% of SHS have no hand-washing facility.

It has been reported that there exists a large degree of stigma/discrimination for children with disabilities. This not only has impacts on their accessing education, but, given that community members may not have the adequate tools and knowledge to support/advocate for children with disabilities, this also has a consequent impact on the quality of education provided.

7.2   Quality

In terms of quality inputs, Figure 52 shows that a higher proportion of teachers are trained in special schools across all pre-tertiary levels of education, compared to regular schools. This difference is particularly stark for pre-school and primary. Across all levels, more than 80% of special school teachers are trained, and in SHS almost all special school teachers are trained. While data do not exist on the proportion of teachers in mainstream schools who are trained to deal with the specific needs of SEN learners, anecdotal evidence suggests that teachers may not be adequately trained.

Figure 52:   Percentage of trained teachers in special vs. regular schools
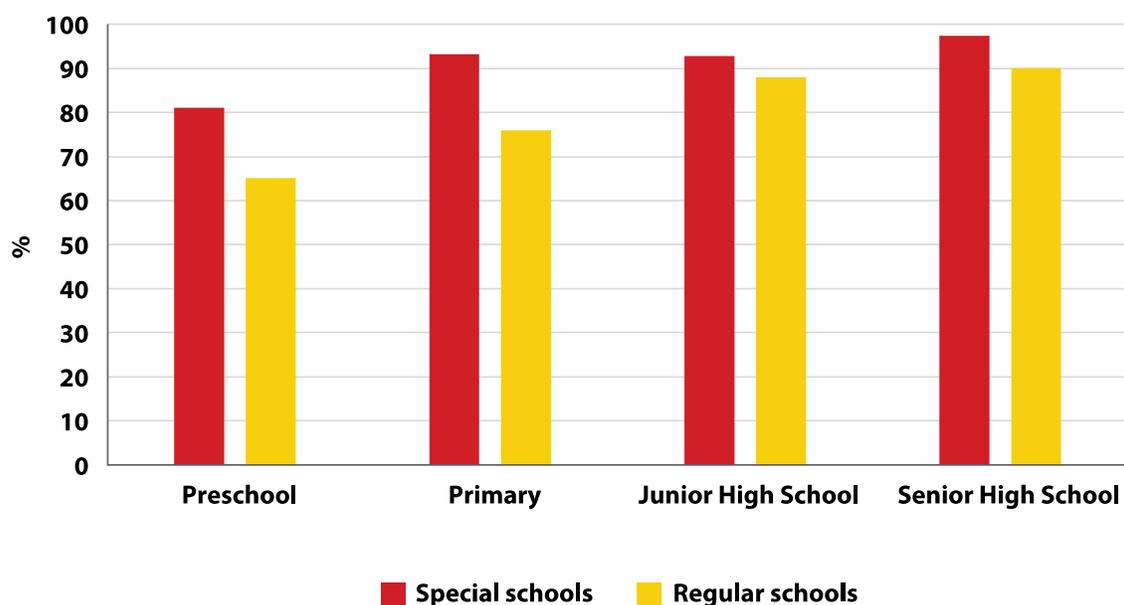
Source: Interim analysis presentation of ESA-IE (UNICEF, 2017)

PTRs are substantially lower in special schools compared to regular schools for all levels of education. PTRs in special schools range from 7:1 (JHS) to 11:1 (primary).

Figure 53:   PTR in special vs. regular schools
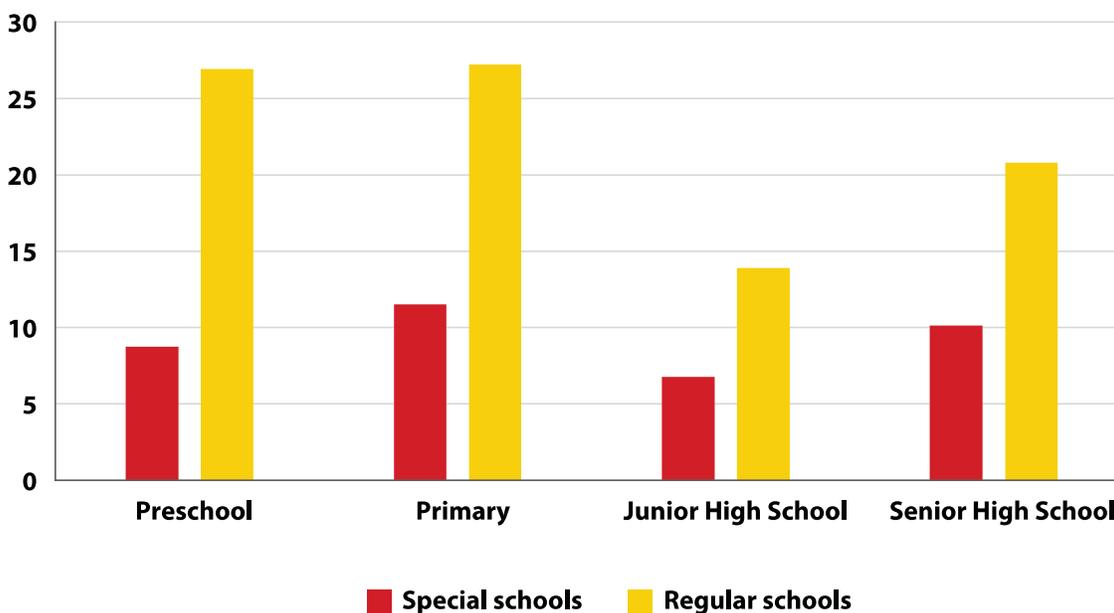
Source: Interim analysis presentation of ESA-IE (UNICEF, 2017)

There are consistent gaps in learning outcomes in reading, writing, and maths between pupils with disabilities and those without disabilities, as Figure 54 shows. These differences are particularly stark for writing in Ghanaian languages and mathematics but exist across all other areas as well.

Figure 54:   Reading, writing, and maths scores for children with and without disabilities
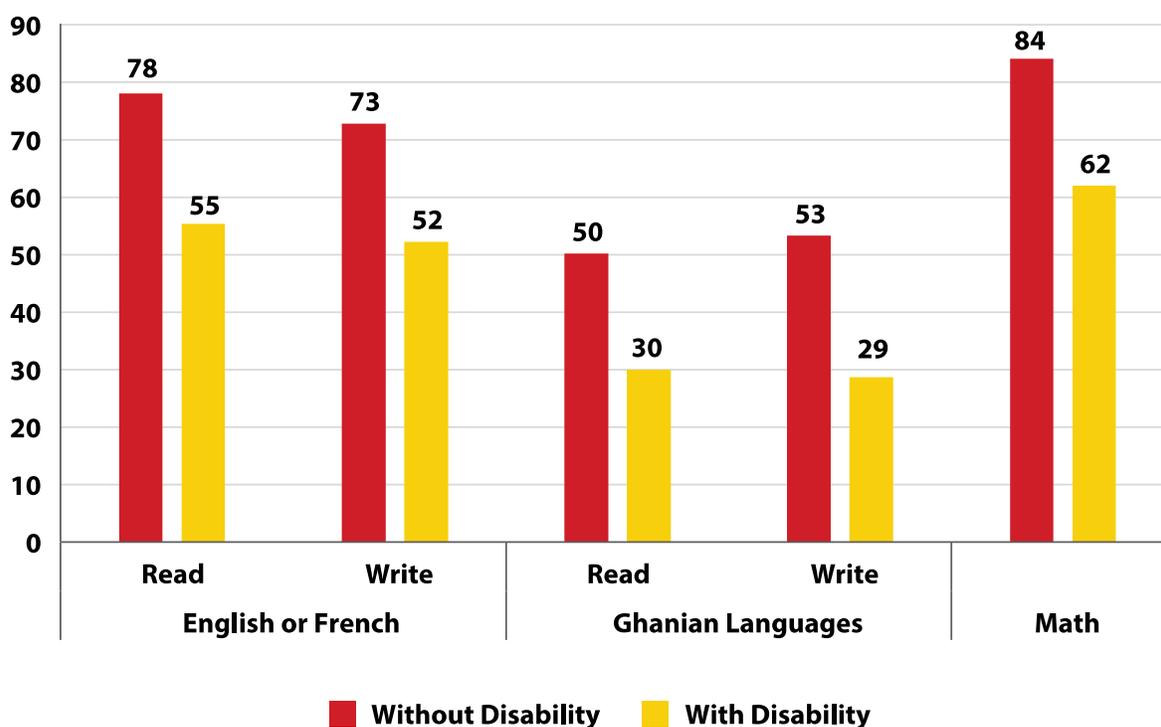
Source: Interim analysis presentation of ESA-IE (UNICEF, 2017)

7.3   Inclusive and special education management and financing

Although EMIS collects data on the enrolment of children with disabilities by educational level and type of disability, the facilities in schools, and the teachers, there are a number of gaps in data collection. The numbers of pupils with disabilities are likely to underestimated in the EMIS system: only 16% of schools declare having at least one pupil with a disability. One reason for this could be late detection related to the lack of training of teachers to identify disabilities. In addition, enrolment statistics by educational grade are not collected, making it difficult to follow the progression of pupils with disabilities, and there are no data on the training of teachers on IE. Limited data also exist on facilities in schools for children with disabilities – data are only collected on ramps and hand-rails.

In addition, inclusive and special education is severely underfunded compared to other sub-sectors, despite the increasing government allocation toward the education sector. In 2015, only GHS 47.2 million was spent on IE, of the GHS 7.7 billion total recurrent education sector expenditure – that is, 0.6%. Of this, GHS 32.4 million was allocated to children with disabilities in special schools, while GHS 14.8 million was reserved for children with disabilities in regular schools. In addition, Social Intervention Programmes do not currently cover special schools.

8   Non-Formal Education

The NFED is the primary body responsible for the provision of NFE, especially functional literacy and community education programmes, with the goal of reducing illiteracy among the adult population. Table 21 gives the literacy rate in Ghana by age and gender in 2010 according to the UNESCO UIS (UIS, 2017a). It is clear that Ghana has made vast advancements in improving the literacy rate: the total literacy rate for those 65 years and older in 2010 was 35%, while that for 15–24-year-olds was 86%. Females are catching up in terms of literacy compared to males: in 2010 only 23% of females 65 years and older were literate, which is less than half of males; meanwhile, for 15–24-year-olds, 88% of males were literate and 83% of females were literate.

Table 21:   Literacy rate by age and gender, 2010

	Total	Male	Female
15–24 years	85.7%	88.3%	83.2%
15 years and older	71.5%	78.4%	65.3%
65 years and older	34.9%	50.3%	23.4%

Source: UIS, 2017a

Figure 55 gives the proportion of adult literacy by highest grade completed for young people aged between 15 and 44 years old. It is clear that even at the end of basic education, only 54% of males and 43% of females have acquired literacy skills that persist through adulthood and, even after 12 years of schooling, this number only increases to 75%.

Figure 55:   Percentage of adult literacy by highest grade completed, young people and adults aged 15–44
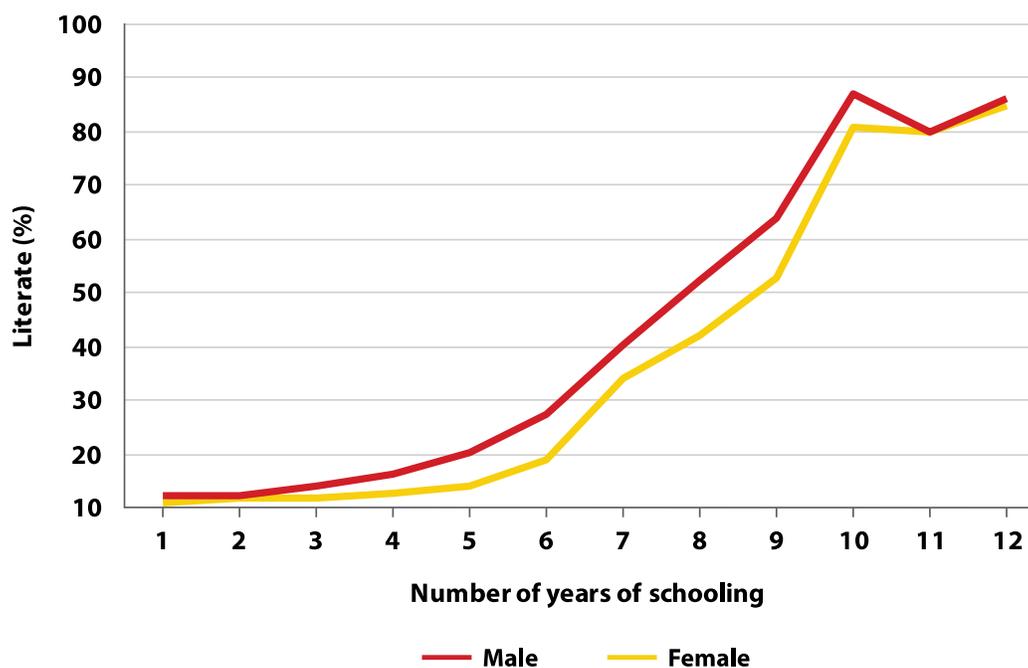
Source: LeClercq *et al.,* 2017b

## 8.1   Access

Batch 19 of the NFLP was composed of 584 local language classes engaging in functional literacy activities, with 14,029 learners, of which 60% were female. In addition, 911 English literacy classes are also running, which have enrolled 17,647 learners, out of which 71% are female. This supports targeting of women in functional literacy as the literacy rate among this population is substantially lower.

In addition, NFED has partnered with 19 communities and private radio stations for the delivery of radio programmes on functional literacy targeted at learners and communities. However, reports from the field show that the progress by partner stations has drastically slowed and only a third of the stations are engaged in production and broadcasting of radio programmes. This is almost entirely due to the lack of funds to be able to pay these radio stations. In addition, NFED has already developed a framework for an application to teach literacy, but lack of funds prevents this going any further.

These programmes barely make a dent in the total number of illiterate adults in Ghana, which stood at over 1.2 million people as at 2010. Current literacy classes and materials are not targeted toward the needs of learners in diverse professions, different levels of literacy, PWDs, and people with gender-specific needs. The provision of literacy classes is limited to face-to-face options, and, in general, a lack of awareness of NFE programmes and a low public perception of these programmes exists.

Figure 56 shows that levels of literacy are lowest among females, rural populations, those from lower-income quintiles, those from the three northern regions, and among certain language groups.

Figure 56:   Youth literacy rate ages 15–24 in 2014, percent
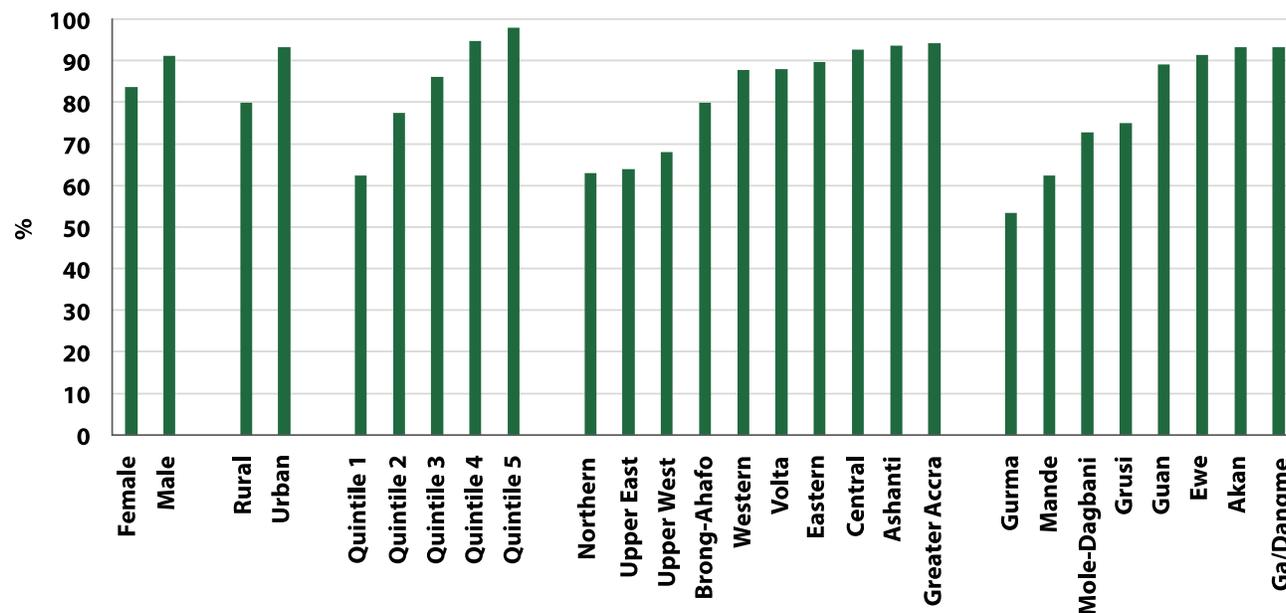
Source: LeClercq *et al.*, 2017a

8.2   Quality

To administer the NFLP, NFED requires funds to frequently train facilitators. Currently, approximately 1,200 National Service Persons are recruited to serve as facilitators. However, there has been little training for them on becoming effective facilitators.

The development of TLMs for classes is critical for the successful delivery of the NFLP in target areas, which is NFED's responsibility. Although this has slowed due to financial constraints, progress has been made in developing and printing some new materials for learners and facilitators. However, funding constraints means that these cannot be appropriately supplied.

Although an impact assessment has not been conducted on the NFLP in recent times, supervision and exercises carried out at the district, regional, and headquarters levels provide evidence that the programme has impacted positively on learners and communities.

8.3   NFE management and financing

NFE received the lowest amount of total government expenditures in 2015, with only GHS 14.5 million of the total education budget devoted to this sub-sector, less than 1% of the total education expenditure. Almost all of this expenditure goes toward recurrent expenditure, but even this is not enough to cover basic repairs on buildings. This low commitment to, and lack of political will for, NFE programmes results in inadequate attention being given to this sub-sector and does not allow for existing programmes to be adequately implemented, monitored, and evaluated, and leaves almost no scope for creating new programmes.

One of the biggest drawbacks to the provision of literacy programmes is the limited mandate of NFED, owing to the fact that it has not yet been converted into an agency, with a clear role, vision, and mandate to implement a wider range of programmes.

Adult literacy is a cross-cutting issue, which affects various ministries and sectors. However, at present there is a lack of coordination, which mitigates effective implementation and oversight, and leaves this sub-sector fragmented.

There has been limited capacity for monitoring and evaluation of NFE, but a national monitoring exercise was undertaken in 2016 to ascertain progress of the NFLP, especially to understand logistics and staffing. In addition, the Research Unit of NFED completed a concept paper regarding a proposed National Literacy Competency Survey. While these sources will help bolster monitoring and evaluation efforts of the NFE sub-sector, data are still limited on the sub-sector and there is a need to upgrade data sources in EMIS to reflect appropriate data needs.

9 Tertiary education

9.1 Access

In the 2015/16 academic year, a total of 141 tertiary institutions directly under the MOE were recorded. This number has grown from 128 institutions in 2012/13. The make-up of these institutions is shown in Figure 57: nearly half of the tertiary institutions are private, and 27% are public COEs.

Figure 57:   Types of tertiary institutions, 2015/16
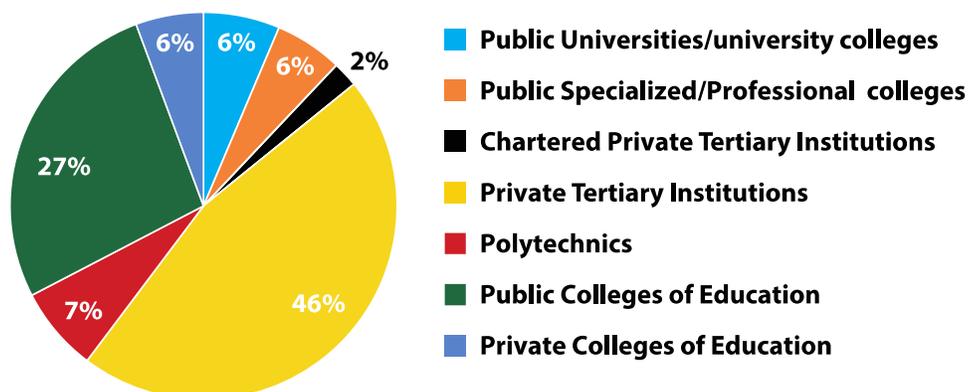
Source: Adapted from figures in the MOE ESPR, 2017

Total enrolment across all public and private tertiary institutions in 2015/16 was almost 358,000, which is an 11.6% increase from the 2014/15 academic year. Although private tertiary institutions account for nearly 50% of total tertiary institutions, enrolment in these institutions only accounted for 19% of total enrolment in 2015/16, with only 19% of the private institutions having enrolments of 1,000 or more students. In addition, while the GER for the tertiary sector has been growing since 2010/11, when it was 8.8%, in 2014/15 it was still only 14.2%.

When looking at the breakdown of applications and admissions by gender for public universities and polytechnics (Figure 58) it is clear that applications far exceed admissions, especially for public universities, providing evidence of a lack of public spaces to accommodate those graduating from SHS in public universities. In 2014/15, 25% of females and 29% of males who applied were admitted to public universities; the corresponding figures for polytechnics (and technical universities) were 59% and 65%, respectively.

Figure 58: **Applications and admissions for public universities and polytechnics, 2011–2015**
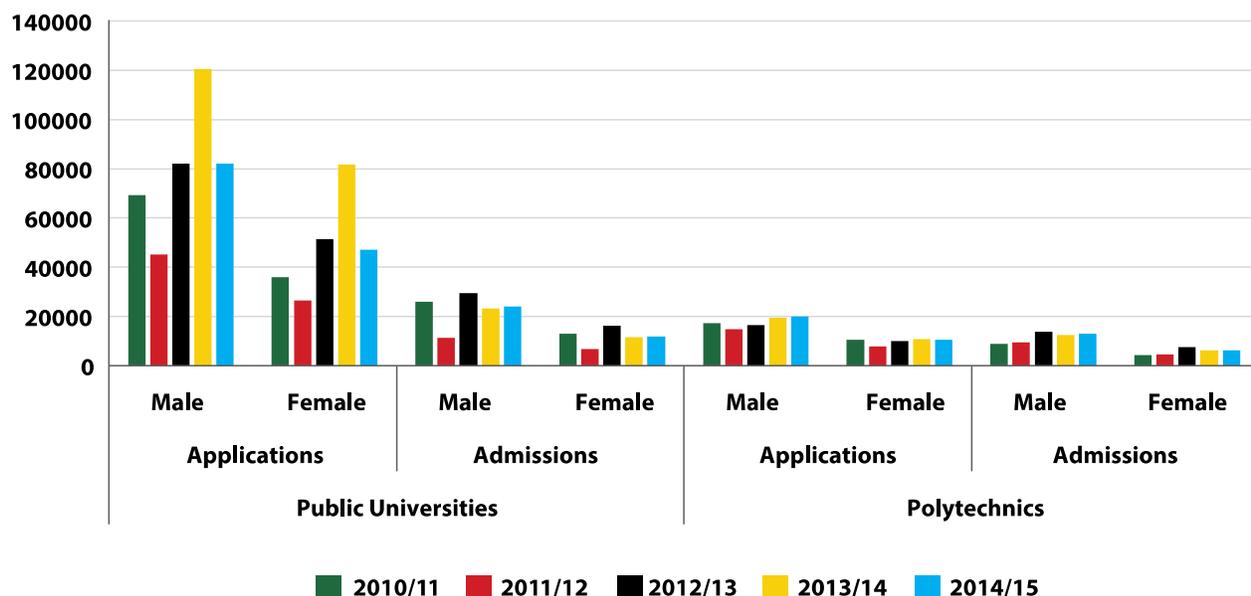

Source: NCTE, 2015

For both public universities and polytechnics, female admissions and applications are much lower, and the rates of admission for females are lower too: in 2014/15, 37% of public university applicants were female, and 33% females were admitted; for polytechnics the corresponding figures were 35% and 33%, respectively. Public COEs have slightly higher rates of admissions for females, at 44% in 2014/15. In 2015/16, the overall enrolment of women in public universities was 41%; only Public Nurses Training Colleges have more than 50% women enrolled. Across all types of tertiary institutions, the proportion of females enrolled has more or less remained stagnant in recent years. The GPI for completion rates at the tertiary level reached 0.74 in 2014 (LeClercq *et al.*, 2017a).

In addition, the parity index for completion rates at the tertiary level between those from the poorest and richest income quintiles was just 0.06, indicating much lower access for those from low-income backgrounds. Regional inequities are stark, with individuals in the lowest completion rate region only 0.35 times as likely to complete tertiary education as those in the highest completion rate region (LeClercq *et al.*, 2017a).

In terms of levels of enrolment, in 2015/16, less than 0.5% of enrolment was at the PhD level, and only 5% was at the master's degree level (MOE ESPR, 2017). The vast majority of enrolment was for diploma or degree courses.

Enrolment in open and distance learning courses was highest for the University of Cape Coast in 2014/15. However, concerted effort has been made on the part of that university to increase enrolment through this avenue since 2010/11; meanwhile, a decline in enrolment for students in open and distance learning was observed for University of Education Winneba over the same time period.

Figure 59: **Student enrolment for distance learning in selected public universities, 2008–2015**

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
U.G	2,562	4,816	7,210	8,331	9,176	6,954	6,633
KNUST	1,041	2,186	3,165	4,787	6,453	10,981	7,939
UCC	17,096	13,586	19,007	29,914	28,348	35,462	37,413
UEW	11,295	17,001	23,607	20,264	15,563	13,256	14,416
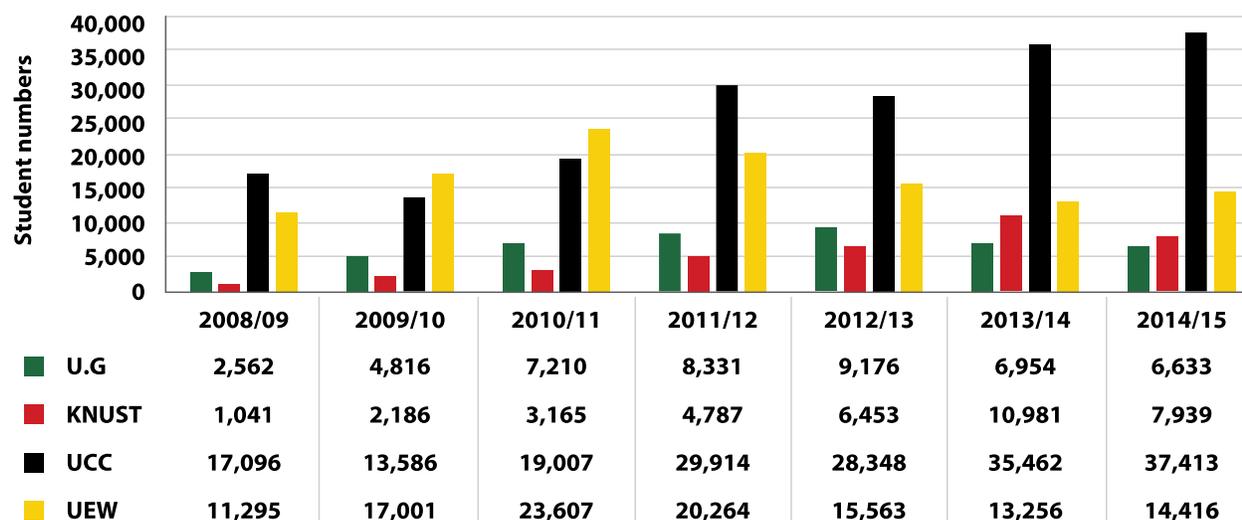
Source: NCTE, 2015

At the moment, no data exist on admission figures for students with disabilities. However, some institutions, especially the older public universities, have policies and strategies on students with disability and others from disadvantaged backgrounds: for example, the provision/availability of wheelchair access to buildings, braille facilities, and assistive ICT laboratories. More data on this kind of information are essential to be able to track, monitor, and effectively improve access for students with disabilities. Similarly, financial aid and general affirmative action programmes regarding the admission of students from low socioeconomic background and less endowed SHS have been instituted by some institutions. These policies are internal to each tertiary institution and hence are not currently standardised.

Currently, universities have inadequate diversification of course offerings and universities are not differentiated in terms of specialities, limiting the enrolment of students from diverse backgrounds and career interests, and often reducing the number of applications in some universities that offer similar programmes. Only one of Ghana's universities is ranked among the top 25 universities in Africa.

9.2   Quality

The average STR in universities in 2014/15 was 43, while in polytechnics it was 29. These are much higher than the average STR norms recommended by the NCTE, which are 19.3 and 20.2 respectively. In addition, less than 40% of teachers overall have terminal qualifications, and this statistic varies greatly by university. Norms are also not being met for the proportion of staff at different levels, as evidenced by Table 22.

Table 22:   Academic staff pyramid in universities and polytechnics

	2011/2012		2012/13	2013/14	2014/15
Universities	Norm (%)	Actual (%)	Actual (%)	Actual (%)	Actual (%)
Professor/assoc. professor	25	13	14	13	13
Senior lecturer	35	21	22	24	30
Lecturer	40	66	64	63	57
Polytechnics	Norm (%)	Actual (%)	Actual (%)	Actual (%)	Actual (%)
Chief lect./ Prin. lect.	25	0.1	0.3	0.22	0.4
Senior lecturer	30	3.9	6.7	9.04	13.1
Lecturer	45	96	93	90.74	86.5

Source: NCTE, 2015

In 2015/16, across all tertiary institutions, 31% of students were enrolled in science subjects, while 69% were enrolled in the arts. When looking at just public universities and polytechnics/technical universities, these trends are quite similar, with approximately 40% enrolled in science and 60% in arts. These figures have remained more or less stagnant across a number of years, and are far from the target of having a 60:40 ratio of science to arts enrolment. Most laboratories and lecture halls are ill-equipped, having less than 50% of the required materials, and institutions have less than 50% of their ICT requirements.

Figure 60:   Enrolment trends in science and technical programmes, 2015/16
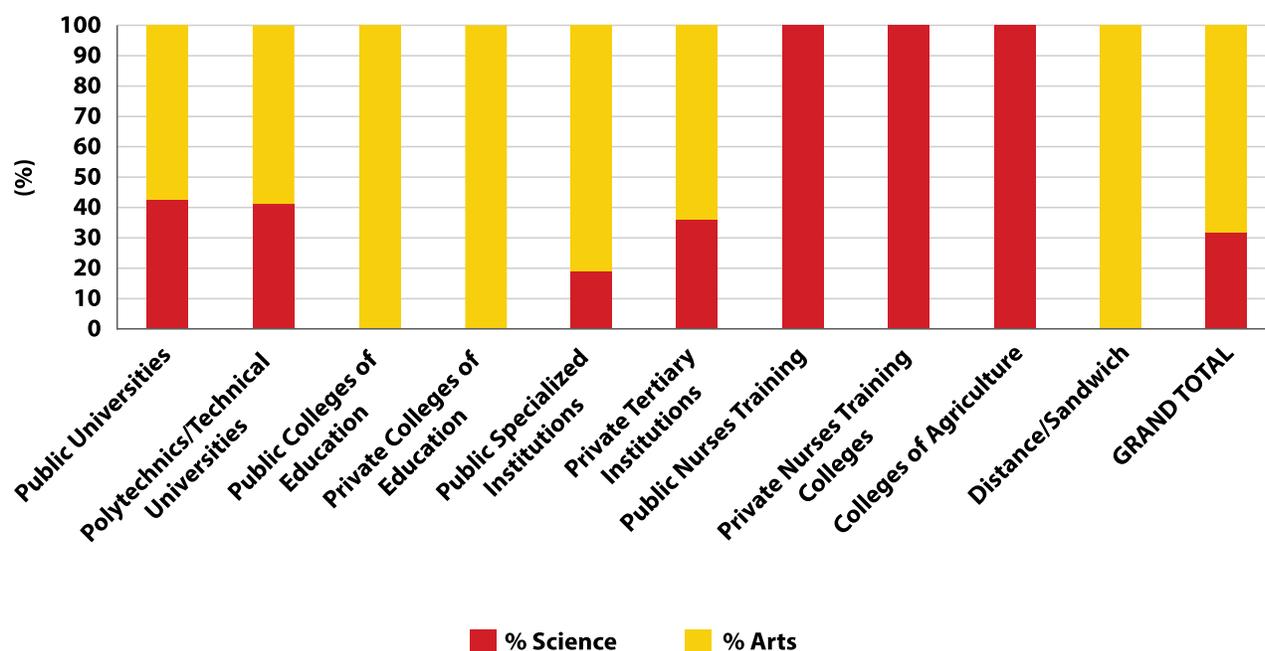
Source: MOE ESPR, 2017

One determinant of quality at the tertiary level is the output of quality research. While a National Research Fund is being established to complement the research allowances for all researchers,

there are less than 0.5 publications per lecturer per year. In addition, few institutions offer research grants.

9.3   Tertiary education management and financing

Administration of tertiary education falls under the joint coordination of the NCTE and the NAB. The NCTE was established in 1993 by Act 454, and serves as a clearing-house for tertiary institutions, acting as a buffer between them and governments. It also advises government on the financial needs of public institutions while monitoring compliance with negotiated national norms developed for efficient utilisation of resources. The NAB was established in 2007 by Act 744 and is responsible for ensuring the regulation of the system for the application of the highest standards and to drive tertiary institutions toward meeting national goals. It is particularly responsible for the accreditation of tertiary public and private institutions with regard to the content and standards of programmes offered.

However, given that most tertiary institutions are self-regulated, these institutions have limited capacity and legal authority. Although the acts lay out the roles of the NAB and NCTE, the governance structure makes their roles ambiguous and impacts their capacity to perform effectively and efficiently.

In addition, the Transforming Teacher Education and Learning (T-TEL) programme is intended to improve governance, management, and pedagogical direction in all 40 public COEs. T-TEL designed a college-based tutor professional development programme to provide free TLMs, which are also available online. Pre-service teacher training was often content heavy, with low entry requirements and not enough practice in pedagogy. Additionally, the same training was administered to all teachers from kindergarten to JHS, with a lack of content knowledge that was specific to level. Pre-service training was three years, after which teachers received a diploma; however, the new structure changes the teacher training to four years of more specialised content appropriate to the grade level they are teaching, after which teachers will receive a degree. As such, there are plans to embed the COEs which are currently responsible for providing teacher training within universities. Reforms are also being considered to change the assessment to account for the new teacher curriculum, as well as upgrading of the skills of in-service teachers.

While the tertiary sub-sector collects data to report on a range of different indicators, it is constrained by lack of timely data to affect decisions: data for tertiary institutions are usually collected at the end of the academic year, making it difficult to effectively impact decision-making within the year. T-TEL is also supporting a COE Management Information System, which will be hosted and managed by the NCTE.

In terms of funding, GoG typically funds between 50% and 55% of the total financial resources to the sub-sector. Compensation accounts for 96% of the GoG releases, leaving little for expenditure on goods and services and capital. IGF is the second largest source of funding for the tertiary sub-sector, helping to make up some of the funding gap, and comes from a variety of charges, including tuition and user fees. This source of funding has been rising consistently, from 30% in 2010 to nearly 40% in 2015. The GETFund provides 8–10% of the sub-sector's funding annually, both for infrastructure and faculty development and research; but due to inadequate amounts and untimely release of this source of funding, there have been many incomplete projects. In spite of these

funding sources, there have been substantial gaps in funding, impacting all aspects of the sub-sector. In the 2016 academic year, there was a funding gap of 45%. The SLTF has been beneficial in increasing access for financially disadvantaged groups; however, it faces funding challenges in financing loans for all students: according to SLTF data, in 2015 beneficiaries received loans well below their actual requirements (ranging from 18% in the case of medical students and 51% for polytechnic students). The establishment of new institutions, upgrading of other institutions to tertiary status, and absorption of private institutions into the public sector by government will put further stress on funding to the tertiary sub-sector.

10 ESA conclusions

This ESA provides an overall assessment of the state of the education system in Ghana, highlighting the strengths and weaknesses in order to inform future policymaking, and specifically the strategies and policies to be found in the ESP 2018–2030. It is therefore organised by the same sub-sectors to be found in the ESP, namely: basic education, secondary education, TVET, Inclusive and special education, NFE, tertiary education, and education management.

Ghana has devoted substantial resources to the education sector in recent years and has exceeded associated international benchmarks when including IGF, as well as outperforming all west African counterparts. While the GoG budget continues to fund all compensation, sources of funding for goods and services, and capital, have changed over time. These changes are likely to continue as the full effects of policy changes are seen, such as the introduction of free SHS, which will decrease the amount of IGF in the sector. Careful consideration needs to be given to the impact of education financing on equity. In recent times, more resources have gone to the secondary and tertiary sub-sectors, which are more likely to be accessed by wealthier students, thus compounding existing wealth inequities in the system whereby wealthier students benefit disproportionately compared to poorer students. Improving the efficiency of public expenditure to achieve value for money in service delivery will be crucial to ensuring that funds are available for quality improvements in future. Furthermore, it is clear that, historically, TVET, NFE, and inlcusive and special education have been given lower priority as their funding levels have been significantly below other sub-sectors – but crucially they also appear to be below what is necessary to provide quality education in these areas.

Many of the issues identified in the management of the education system already have associated interventions but it is nevertheless important to stress the seriousness of the challenges related to strengthening the chain of accountability from MOE leadership down to the school level. Ensuring that the teacher education curriculum is properly aligned with the basic education curriculum, as well as implementing an efficient policy of teacher licensing, deployment, and promotion, is critical to ensure that geographical inequities in the spread of resources are addressed. At the same time improved accountability mechanisms are necessary across the system in order to properly hold those responsible to account for the quality of education delivered at every level. Part of this work relies heavily on the successful integration of various data collection systems to ensure proper supervisory capabilities for the system. The internal efficiency of the system, in terms of the pupil flow, is also key and the cohort simulation shows that there are significantly higher numbers of pupils repeating grades and dropping out of the system than can be revealed by the EMIS system. This also has serious cost implications in terms of the resourcing of the system.

At the basic education level there has been significant improvement in access to education and the challenge going forward is to ensure that no child is left out of the system, including those currently out-of-school and those who drop out of the system due to whatever barriers to education they suffer. The relatively high proportion of pupils enrolled in private schools is a feature not found at other levels of education and has important lessons for what the public system may be lacking. Unfortunately, the starkest challenge to the basic education sub-sector is the lack of quality currently provided in the public system, as literacy and numeracy test results reveal. The three northern regions are particularly challenged in terms of learning achievement at BECE level, and in EGRA and EGMA assessments urban areas consistently outperform rural areas.

Secondary education is a dynamic space in Ghanaian education, with many changes ongoing, not least the roll-out of the free SHS policy, with the aim of dramatically increasing access to SHS by removing cost as a potential barrier. Access to secondary was already improving before the policy change, as was gender parity, but learners with disabilities are seriously underrepresented at this level of education given the numbers in the overall population. Quality of education is again a significant challenge at the secondary level, as revealed by WASSCE examination results and the relatively high level of repetition in SHS grades. There are large disparities between schools even within the same region, with some achieving close to 100% of their students qualifying for tertiary while others regularly have 0% qualifying.

For TVET, access has been increasing, albeit within the constraint of low public perceptions of the sub-sector, which is seen as being only there for the academically less able students. Anecdotally, this also affects students' motivation to attend and is further compounded by a low absorption capacity for existing TVIs, and by the poor state of training facilities and equipment. The participation of women and PWDs in this sub-sector is particularly low, especially in traditionally male-dominated areas, such as engineering and construction. There is a mismatch between the skills supplied and the demand for skills in the labour market, and low industry investment and involvement in this sub-sector. In addition, only 52% of TVI staff possess technical qualifications. Significant changes are planned in this sub-sector, with a full realignment of all TVET institutions under the MOE, and with this there must be a serious effort to improve and harmonise data collection systems.

Despite potentially low detection rates, the 2010 PHC found 1.6% of children aged 4–17 had some form of disability but the proportion enrolled between kindergarten and SHS is between 0.2 and 0.4%, indicating significant barriers to entry for these children. It is also clear that children with disabilities are not progressing through the education system and a large proportion of those enrolled are over-age. The lack of facilities in basic and secondary schools disproportionately affects children with disabilities, with almost no regular basic schools having hand-rails, and only 8% equipped with ramps. Data collection for inclusive and special education is limited, leading to an inability to effectively diagnose this sector and a reliance on national-level surveys. This sub-sector is also severely underfunded: in 2015, only 0.6% of total recurrent education expenditure was spent on inclusive and special education, which is concerning given the extra needs of the learners involved.

The need for NFE is great in Ghana, even for those who have attended formal schooling. The NFLP is underfunded and does not have the implementation capacity to reach those who need it, as the latest batch reached only 17,000 learners of the estimated 1.2 million illiterate adults in Ghana. Funding gaps for this sub-sector also affect quality measures in terms of training for facilitators, TLMs, curriculum review, supervision, and even printing of materials. At present there is no national policy on NFE and adult learning, which mitigates effective implementation and oversight, and leaves this sub-sector fragmented.

Finally, the tertiary sub-sector is another sub-sector that has seen access increase in recent years, as well as an increase in the number of tertiary institutions. Private tertiary institutions make up almost half the total number but only just under one-fifth of total enrolment. Applications for tertiary far exceed admissions, especially for public universities, and female admissions and applications are much lower compared to males. There are also wide income and regional disparities in completion at the tertiary level: for example, the parity index for completion rates between those

from the poorest and richest income quintiles is 0.06. Regarding quality, STRs are much higher than the norms recommended by the NCTE, and although the targeted ratio of enrolment in science subjects to enrolment in arts subjects is 60:40, the current ratio is actually 40:60. Given that most tertiary institutions are self-regulated, the NCTE and the NAB have limited capacity and legal authority, which constrains their efforts to serve as supervisory entities. Data collection is fragmented and not timely, making it difficult to base decisions on recent data.

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# Annex A Population projections and education sector costing

To model costs for the education sector it is necessary to have an accurate projection of the youth population by different ages to predict the flow into the education each year, and how many children are out of school.

The unusual nature of the official GSS population projections creates artificially large increases to the youth population in certain years, which has impacts on the cost of running the education system and the expected GER, NER etc., as explained below. Despite the challenges with the official projection, the MOE will continue to use of the official GSS population numbers as the historical base of the ESA and notes that the population used as a base may be larger than originally estimated. In consultation with GSS technical staff, the MOE planning division has created a smoother population projection (as explained in this note) and this will be used for the finance and cost projections from 2018 onwards.

A.1 GSS population projection

Considering the official GSS population projection 2010–2030 by single year of age shows that there is a peculiar step-wise pattern to the projection to reach a larger total youth population by 2035. The 2010 census found higher than expected numbers of people and GSS feeds these into the projection one year at a time, starting with more 0-year-olds in 2011. By 2015 this inflated group reaches four-years-old and it seems that the potential kindergarten population suddenly increases by 14% from 2014 to 2015. This is shown by the red line in Figure 61 below.

Figure 61: **Number of four-year-olds, six-year-olds, 12-year-olds, and 15-year-olds, GSS projection 2010–2030**
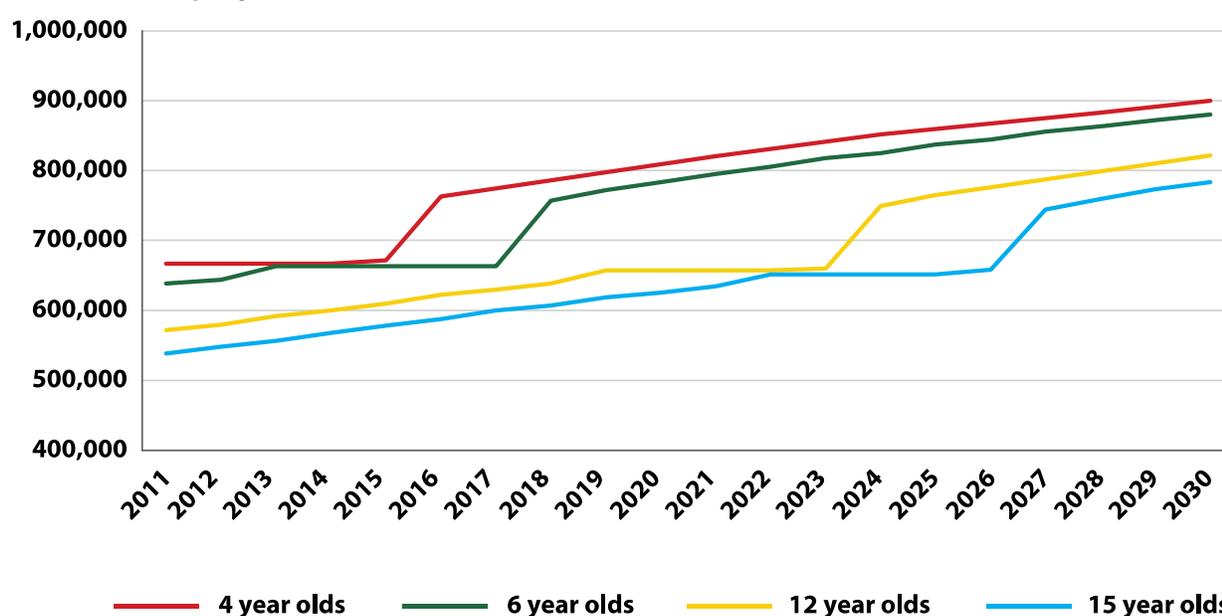
Despite appearances, there are not 14% more of each age group in consecutive years and this is a reflection of the construction of the population projection and not of reality. This is illustrated in the table below, where each time a row changes from white to green there is an artificial 14% jump in population from one year to the next. Meanwhile the average growth from year to year before the 14% increase is less than 1% and approximately 2% thereafter. The green shaded area shows where the new higher GSS population exists.

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Age 4	670503	763240	776203	788621	800530	811953	822863	833301	843248
Age 5	666274	667352	759756	772758	785220	797177	808656	819624	830127
Age 6	663432	664079	665215	757392	770422	782916	794910	806427	817439
Age 7	661549	662020	662711	663890	755934	768991	781513	793539	805090
Age 8	660189	660550	661057	661784	662995	754956	768037	780586	792640
Age 9	641713	658877	659272	659810	660567	661808	753642	766738	779303
Age 10	631703	640418	657584	658012	658584	659374	660648	752361	765473
Age 11	620937	630462	639193	656357	656817	657419	658241	659545	751142

The implications for costing the education sector are serious because it means that for each age group, before the jump-up in population, there are in reality more children of school-going age in the country than the model predicts. Hence, an education system planned on this basis would under-serve the population.

A.2   Revised population projection

To smooth the projection of the population in the model and make it closer to reality a new population projection was done. This used a log regression for each single age year to smooth the increases in the years before the GSS jump-up, after which the GSS projection was followed. This allows the projection to match that of GSS as soon as possible for each age group but in the years prior to the switch the new population projection is higher than that of GSS, as illustrated for six-year-olds and 11-year-olds in Figure 62 below.

Figure 62: **Comparison of GSS and new population projection profiles for six-year-olds and 12-year-olds 2010–2030**
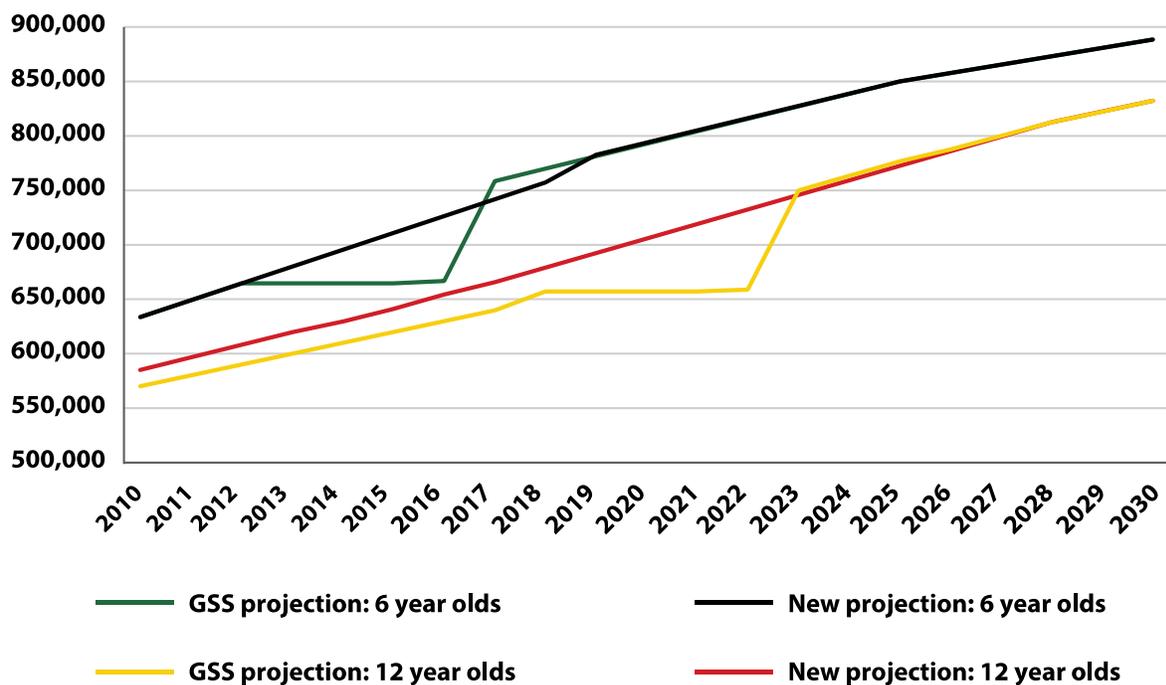
There are a number of implications of this new and initially higher population projection: the more realistic larger population figures lead to lower GERs and NERs than those produced using the GSS population estimates. These are illustrated in the table below, where, for example, in 2016/17 the primary GER using the new population projection (103%) is 8 percentage points lower than that estimated using the official GSS population.

	2012/13		2013/14		2014/15		2015/16		2016/17	
	GSS proj'n	New proj'n	GSS proj'n	New proj'n	GSS proj'n	New proj'n	GSS proj'n	New proj'n	GSS proj'n	New proj'n
KG GER	114%	114%	123%	114%	129%	119%	124%	117%	114%	116%
KG NER	75%	75%	91%	84%	83%	77%	80%	75%	73%	75%
Prim GER	105%	104%	107%	103%	110%	106%	111%	104%	111%	103%
Prim NER	84%	84%	89%	85%	91%	87%	92%	86%	91%	84%
JHS GER	82%	80%	82%	80%	85%	84%	88%	84%	87%	82%
JHS NER	48%	46%	49%	48%	49%	48%	50%	48%	50%	47%
SHS GER	37	38%	44	44%	46	46%	50	48%	50	48%
SHS NER	24	24%	22	22%	23	23%	25	24%	27	26%

There is currently a higher out-of-school population than initially estimated, which means that activities or programmes to tackle OOSC will require more effort and have a higher cost then initially anticipated. In addition, this project reveals a higher proportion of children as over-age for their phase of schooling.

Using the revised population projections would no longer under-budget the education sector for particular age groups in specific school levels. For example, based on the GSS population projections the total number of primary school-age children would be undercounted until 2022 and an education costing based on these figures would therefore under-budget the real need.

The improvements in attainment of JHS and the roll-out of free SHS will also be based on more accurate numbers as the sudden increase in the population projection affects these age groups most profoundly between 2022 and 2026. Prior to this, the planning may have been based on an undercount of the respective population sizes.