



QUALITY CBC EDUCATION IN KENYA BY 2030: PROJECTING ENROLMENT IN PRIMARY AND SECONDARY SCHOOLS IN SIAYA COUNTY

Norich Muindi Munyasiaⁱ,
James O. Sika

Department of Educational
Management and Foundations,
Maseno University,
Kenya

Abstract:

There has been a near complete transition from primary to secondary level of education in Kenya especially given the Free Primary Education and subsidized secondary education. The Free Primary Education, Free Day Secondary Education and the 100% transition policies have led to very high enrolment of students at primary and secondary school levels against the background of scarcity of educational resources that are key in provision of quality education. This paper aims at projecting enrolment in primary and secondary schools in Siaya County by 2030 on the basis of the new Competency Based Curriculum (CBC) under the 2.6.3.3 system of education. The author adopts trend analysis and descriptive survey designs to conduct the study using all school age population (6-17 years) who were 272,226 in 2009 and 339,251 in 2019. Saturated sampling technique was used to obtain the sample size. Purposive sampling was used to select County Quality Assurance and Standards Officer, MOE sub-county directors and an officer from KNBS. Data Analysis Proformas and Key Informant Interview (KII) Guides were used in data collection. Enrolment Ratio Methods were used to project enrolment for primary, junior secondary and senior secondary schools in Siaya County by 2030. Findings of the study indicate that primary school enrolment will increase by 9.81% between 2024 and 2030. Junior secondary school enrolment will increase by 33.44% between 2021 and 2030 while senior secondary school enrolment will increase by 29.63% between 2026 and 2030. These findings inform Teachers Service Commission (TSC), the Ministry of Education, Kenya Institute of Curriculum Development (KICD) and other stakeholders on the possible upsurge in school enrolments as they implement the 2.6.3.3 system of education and thus to ensure quality, appropriate measures have to be taken in acquiring resources for the same.

ⁱ Correspondence: email norichmunyasia@gmail.com

Keywords: school enrolment, competence-based education, transition, quality, enrolment ratio

1. Introduction

The history of competence-based curriculum can be traced back to the early 1970s when competence-based education emerged for the first time in the United States of America. This is now taking shape in Kenya with the inception of the 2.6.3.3 system of education where the governments focus is on competence-based teaching and learning that calls for understanding of individual needs of concepts, skills and competences. The reduction of number of years in primary schools from 8 to 6 and increase number of years in secondary school years from 4 years to 6 years is expected to increase the completion rate in both primary and secondary levels of education (KICD, 2017).

Projection of the future size of school age population enrolled at any level of education constitutes the starting point of educational planning. This is so because it provides the basis of estimating future number of schools, classrooms, teachers and other facilities. The objective of projection would be to develop a basic frame of reference for the future. Demographic factors and development of education are interrelated in many ways. There are important causal links in both directions. Population dynamics have a direct bearing on the development of education while educational development affects population growth and distribution (Ahmed, 2000).

The vision of the Sustainable Development Goals (SDGs) is to transform lives through education. Goal 4 of the SDG reads: "*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*". This goal has 7 targets and a number of proposed indicators. One of the targets is that by 2030, countries to ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes (Statistics South Africa, 2017).

The Government of Kenya has demonstrated its commitment to achieving Sustainable Development Goal 4 by incorporating it in the Vision 2030 blue print as well as domesticating it in the Constitution under the Bill of Rights which states that "*Every child has the right to free and Compulsory basic Education*" {Chapter 4, Section 53 (1) (b); Constitution of Kenya, 2010}. Fortunately, the synergy between the proposed global goals, the key education elements of the Kenya vision 2030 and the constitution is extremely good. The three agendas recognize education as the main driver for development, and the means of implementation of Kenya's vision 2030 will work towards the implementation of the SDGs. In order to provide basic compulsory education to its citizens, the country must have data on projections of school age population. Projected school age population is then used to estimate students' enrolment at any given level of education.

2. Literature Review: Enrolment Projection Models

According to Agboola and Adeyemi (2013), student enrolment at any level of education is very crucial to the achievement of the nation's overall goals through education. There is need to know the actual number of students that are enrolled in the educational system because other school characteristics such as human capital, facilities and funds depend on it. Population of a country at any given time is also important because enrollment of school age is a function of a nation's demographic characteristics. Enrolment changes every year because of population dynamics. Increase or decrease in population could have direct impact on enrolment.

Enrolment can be projected using either mathematical or analytical methods. Mathematical methods require aggregate enrolment data of at least five to ten years, and only total enrolment can be projected by employing both the linear and non-linear equation methods. These methods involve an extrapolation of the past into the future and the assumption is that the past trend in enrolment would continue into the future. While in analytical methods, apart from actual enrolment, estimation, assumptions and targets on items like promotion, drop-out, repetition and apparent entry rates are required. The demographic pressures on education can also be captured by the analytical techniques as the computation of the apparent entry rate is based on the population of school entrance age, that is, 6 years. There exist many different types of flow models, ranging rather primitive ones to very sophisticated model systems. According to Mehta (1994), there are basically three methods of enrolment projections namely; rate of growth, enrolment ratio and grade-transition method. Enrolment can also be projected by using the method of least squares.

The simplest technique of enrolment projections is the rate of growth method. It only requires enrolment data at two points of time; enrolment in the current year and enrolment in the base year. This method assumes a constant rate of increase over the projection period. By this method, one can project aggregate (total) enrolment at different levels of education. One of the important drawbacks of rate of growth method is that the population factor is completely missing, though enrolment is considered to be a function of population.

The Grade Transition Model is particularly well suited for projecting the future implications of continuing present trends in intake, promotion, repetition, drop-out and graduation rates. It should be noted that in order to be able to calculate transition rates for each age-group in each grade, one needs data on repeaters as well as enrolment by age and grade. However, most of the countries collecting data on enrolment by age and grade do not collect information on the age of the repeaters easily available (UNESCO, 1980). One disadvantage of grade transition model is that this method requires detailed data on repeaters, drop outs and survivors which is not always available at sub national level (Mehta, 1994). Moreover, in 2013, repetition of classes in Kenya was outlawed by the Ministry of Education through circular no MOE/HRS/3/7/4 (World Bank, 2014). This means that transition in primary schools from one class to the other was to be calculated

at 100%. The repetition parameter therefore cannot be used in projection of school enrolment. Grade transition model could therefore not be used to project enrolment in this study.

Enrolment ratio method is another method which captures demographic pressures like the grade transition model. It is based on enrolment ratio, which is calculated on the basis of past data, and is extrapolated into the future by applying a suitable mathematical technique or a specific logic. It is assumed that 6-13 and 6-11 (in case of primary enrolment) and 14-17, 12-14 and 15-17 (for secondary enrolment) years age groups projected population is available along with the enrolment figures. One disadvantage of this method is that it does not take into account the internal dynamics of enrolment from year to year and from one grade to another. However, since enrolment for the last five years for pupils in primary and secondary schools in sub-counties in Siaya County was available, this study used enrolment ratio method to project enrolment.

3. Methodology

The study used descriptive research design and trend analysis of past time series of important indicators like population size and structure, demographic trends, enrolment and government policies on education (Ahmed, 2000). To estimate future school enrolment, at least four general types of basic information are needed. The first relates to the population of school age, the second to pupil enrolment, the third to various rates and ratios derived from the first two types of data, and the fourth to questions of administrative policy affecting education in general and school enrolment in particular (Mehta,1994). School age population (6-17 years) in Siaya County for the period 2021 to 2030 was therefore projected first before the projection of enrolment.

The study was conducted in Siaya County which comprises of six sub-counties namely Siaya, Bondo, Gem, Rarieda, Ugenya and Ugunja which formed the study area. The target population included all 6-17 years old population which was 339, 251 according to 2019 census. This population was 234, 382 in primary schools and 104, 869 in secondary schools. The school age population from 2016 to 2020 projected using the compounded growth rate method of population projection and the enrolment of students in primary and secondary schools from 2016 to 2020 gave past trends of school age population and enrolment in Siaya County for the last five years. Purposive sampling was used to select County Quality Assurance and Standards Officer Siaya, MOE sub-county directors of education and an officer from Kenya National Bureau of Statistics.

Data collection was carried out by use of Data Analysis Proformas and Key Informant Interview (KII) guides with reference to past projection studies and the relevant data collection forms generated by MOE –EMIS section in Kenya to develop the Data Analysis Proformas. Data Analysis Proforma for the Kenya National Bureau of Statistics (DAPKNBS) sought information on population estimates for school age population (6-17 years) in Siaya County from 2016 to 2020. This information was used by the researcher to project school age population for primary (6-11 years), junior secondary

(12-14 years) and senior secondary (15-17 years) in the six sub-counties in Siaya County for the period 2021 to 2030 using the compounded growth rate method. There were two Data Analysis Proformas for the Ministry of Education. Data Analysis Proforma for Ministry of Education Primary Enrolment (DAPMOEPE) sought information on total enrolment from 2016 to 2020 per sub-county in primary schools. Data Analysis Proforma for Ministry of Education Secondary Enrolment (DAPMOESE) sought information on total enrolment from 2016 to 2020 per sub-county in secondary schools. These two proformas were also used to seek information on total enrolment from 2016 to 2020 at the county level. Collection of the same data set at the sub-county level and the county level was meant to enable triangulation. Information from the Ministry of Education helped in computation of enrolment ratios by method of least squares. These ratios were then used to project enrolment in primary and secondary schools in sub-counties in Siaya County from the year 2021 to 2030.

To project enrolment in primary and secondary schools in the sub-counties, enrolment ratios from 2016 to 2020 were calculated using the following formulae:

$$ER = \frac{E^t}{Pp^t} * 100$$

Where:

ER is enrolment ratio;

E^t is enrolment for a particular year; and

Pp^t is projected population for a particular year.

Enrolment ratios during 2021-2030 were then projected by method of least squares summarized by the general formula $Y = a + b \cdot X$. Here, we take 'X' as year, 'a' constant and 'b' slope which gave the best-fitting line. Enrolment from 2021-2030 was obtained by multiplying enrolment ratio of a particular year with the projected population for that year. The population projections were done bearing in mind the 8.4.4 system of education that is being phased out and the 2.6.3.3 system of education that is being implemented.

4. Results and Discussion

One of the assumptions of this study is that primary and secondary school age under 8.4.4 system of education is 6-13 and 14-17 years respectively while primary, junior and senior secondary school age under the 2.6.3.3 system of education is 6-11, 12-14 and 15-17 years respectively. Pupils' enrolment for classes 1-8 (6-13 years old) for the period 2016-2020 was computed to establish the enrolment trend in primary schools for the last five years. This enrolment trend was used in projection of pupils' enrolment in primary schools under the 8.4.4 system of education from 2021-2023. Pupils' enrolment for classes 1-6 (6-11 years old) for the period 2016-2020 was also computed to establish the enrolment trend in primary schools for the last five years. This enrolment trend was used to project pupils' enrolment under the 2.6.3.3 system of education from 2024-2030. Enrolment for classes 7, 8 and form one (12, 13 and 14 years) for the period 2016-2020 was also

computed. This enrolment trend was used to project students' enrolment in junior secondary schools from 2023-2030. Enrolment for form two to form four (15, 16 and 17 years) for the period 2016-2020 was computed to enable projection of enrolment in senior secondary schools for the period 2026 to 2030. Enrolment for form one to form four (14-17 years) for the period 2016-2020 was computed to enable projection of enrolment in secondary schools under 8.4.4 system of education for the period 2021 to 2027. Secondly, enrolment ratios from 2016 to 2020 were calculated by dividing the computed enrolment with the population projections for 6-13 and 14-17 for 8.4.4 system of education and 6-11, 12-14 and 15-17 for 2.6.3.3 system of education from 2016 to 2020. Thirdly, enrolment ratios during 2021-2030 were projected using the technique of estimating the regression line by the technique of least squares with the formula; $Y = a + b \cdot x$ where 'x' is the year, 'a' is the constant and 'b' is the slope which gives the best fitting line. Lastly, enrolment from 2021-2030 was obtained by multiplying the projected percentage of enrolment ratios with the projected population. Projection of school age population and enrolment was done separately for every sub-county. Findings of the enrolment projections are discussed below.

4.1 Projection of Primary School Enrolment in Siaya sub-county

The enrolment in Siaya sub-county is projected to increase by 0.86% from 59,483 in 2021 to 59,995 in 2022. In 2023, there will be no class seven in primary schools in Kenya. As a result, the enrolment in Siaya sub-county is projected to decrease by 12.18% from 59,483 in 2021 to 52,240 in 2023. In 2024, only the 6-11 school age population will be in primary schools as the 2.6.3.3 system of education will have been fully implemented in primary schools in Kenya. The primary school enrolment in Siaya sub-county is projected to increase by 2.53% from 47,769 in 2024 to 48,977 in 2030 due to increased 6-11 school age population from 43,064 in 2024 to 49,208 in 2030. Boys' enrolment is projected to increase by 3.14% from 23,653 in 2024 to 24,396 in 2030 while girls' enrolment will increase by 1.93% from 24,116 in 2024 to 24,581 in 2030. Table 1 shows the projected primary school enrolment in Siaya sub-county.

Table 1: Projected enrolment in primary schools in Siaya sub-county by 2030

Year	Projected Enrolment			Projected school age population			Overage & underage/ Out of school population		Enrolment Trend
	M	F	T	M	F	T	M	F	%
2021	29656	29827	59483	27462	27874	55336	2194	1953	
2022	29981	30013	59995	28093	28595	56688	1888	1418	0.86
2023	26099	26140	52240	24749	25400	50149	1350	740	-12.18
2024	23653	24116	47769	21190	21874	43064	2463	2242	
2025	23791	24216	48007	21642	22390	44032	2149	1826	
2026	23923	24309	48232	22103	22919	45022	1820	1390	
2027	24049	24392	48441	22573	23460	46033	1476	932	
2028	24172	24467	48639	23056	24015	47071	1116	452	
2029	24289	24529	48818	23548	24581	48129	741	-52	
2030	24396	24581	48977	24047	25161	49208	349	-580	2.53
Enrolment trend (%)	3.14	1.93	2.53						

(-) School age population more than enrolment

The primary school age population for boys in Siaya sub-county will be 24,047. However, there will be 24,396 boys enrolled in primary schools within the sub-county. This means that 349 boys enrolled in primary schools in Siaya sub-county in 2030 will either be underage or overage. On the contrary, the school age population for girls (25,161) will be more than the enrolled girls (24,581). This implies that 580 girls of primary school age population in Siaya sub-county will be out of school by 2030. One of the assumptions of this study is that all pupils in primary schools in Siaya County from the year 2024 to 2030 will be aged 6-11 years. This therefore calls for measures to be put in place to ensure that all girls of primary school age in Siaya sub-county are enrolled in primary schools. Enrolment in Siaya sub-county is therefore projected to increase steadily up to the year 2022. From 2023 up to 2024, there will be a decline in total enrolment in primary schools in the sub-county. However, the enrolment will steadily increase between 2024 and 2030. There will be slightly more girls enrolled in primary schools in Siaya sub-county than boys.

4.2 Projected Enrolment in Primary Schools

4.2.1 Projection of primary school enrolment in Bondo sub-county

Bondo Sub-county forms another one of the regions in the County and its enrolment projections are as shown in Table 2. The findings in the table show that from 2021 to 2022, the enrolment will slightly decrease by 0.06% from 44,992 in 2021 to 44,962 in 2022. As the 12 years old population transits to junior secondary schools in 2023, the primary school enrolment in Bondo sub-county is projected to decrease by 14.11% from 44,992 in 2021 to 38,645 in 2023. However, between 2024 and 2030, the primary school enrolment in Bondo sub-county will increase by 1.82% from 35,807 in 2024 to 36,458 in 2030. Enrolment of boys is projected to increase by 2.22% from 18,172 in 2024 to 18,575 in 2030 and enrolment for girls will increase by 1.4% from 17,635 in 2024 to 17,882 in 2030. This will be occasioned by an increase in 6-11 primary school age population from 37,451 in 2024 to 43,701 in 2030. However, 3,403 boys and 3,841 girls will be out of school in the sub-county. Qualitative data from the key informant interview guide for County Quality Assurance and Standards Office Siaya on factors affecting pupils' enrolment in primary and secondary schools states that despite the 100% transition policy, Free Primary Education policy and Free Day Secondary Education policy, some children of school going age were out of school in the county due to poverty caused by the high HIV prevalence rate in the county. Most children dropped out of school to fend for themselves. Children in schools around the shores of Lake Victoria also dropped out of school to engage in fishing. Girls around the shores also dropped out of school due to early pregnancies as a result of prostitution activities along the shores of Lake Victoria. Measures should therefore be put in place to ensure that all children aged between 6-11 years are enrolled in primary schools in Bondo sub-county.

Enrolment for males and females in Bondo sub-county will therefore reduce between 2021 and 2023 due to the transition phase from 8.4.4 system of education to

2.6.3.3 system of education. Between 2024 and 2030 however, the enrolment is expected to have an upward trend with more boys being enrolled in primary schools in Bondo sub-county than girls by the year 2030. The results are demonstrated in Table 2.

Table 2: Projected enrolment in primary schools in Bondo sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	22668	22325	44992	23680	24054	47734	-1012	-1729	
2022	22692	22273	44965	24342	24794	49136	-1650	-2521	-0.06
2023	19662	18982	38645	21674	21856	43530	-2012	-2874	-14.11
2024	18172	17635	35807	18795	18656	37451	-623	-1021	
2025	18260	17696	35957	19291	19133	38424	-1031	-1437	
2026	18338	17750	36088	19797	19623	39420	-1459	-1873	
2027	18412	17797	36209	20322	20127	40449	-1910	-2330	
2028	18473	17832	36305	20856	20642	41498	-2383	-2810	
2029	18528	17860	36388	21408	21173	42581	-2880	-3313	
2030	18575	17882	36458	21978	21723	43701	-3403	-3841	1.82
Enrolment trend (%)	2.22	1.40	1.82						

4.2.2 Projection of enrolment in primary schools in Gem sub-county

The results as relates to projections for Gem sub-county are presented in Table 3. There is an indication that primary enrolment for Gem sub-county is projected to increase by 2.05% from 48,776 in 2021 to 49,775 in 2022. This enrolment will however decrease by 10.24% between 2021 and 2023 due to transition of Grade 6 pupils to junior secondary schools. Under the 2.6.3.3 system of education, the primary school enrolment for Gem sub-county is projected to increase by 15.59% from 40,037 in 2024 to 46,280 in 2030. The enrolment for boys and girls is projected to increase by 14.42% and 16.8% respectively between 2024 and 2030. Table 3 outlines these projections.

Table 3: Projected enrolment in primary schools in Gem sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	24772	24004	48776	22353	21879	44232	2419	2125	
2022	25395	24380	49775	22731	22221	44952	2664	2159	2.05
2023	22466	21317	43783	19949	19429	39378	2517	1888	-10.24
2024	20272	19765	40037	16892	16420	33312	3380	3345	
2025	20730	20290	41020	17140	16621	33761	3590	3669	
2026	21204	20826	42030	17397	16826	34223	3807	4000	
2027	21681	21372	43053	17653	17033	34686	4028	4339	
2028	22176	21934	44110	17919	17247	35166	4257	4687	
2029	22678	22507	45185	18187	17464	35651	4491	5043	
2030	23194	23086	46280	18462	17680	36142	4732	5406	15.59
Enrolment trend (%)	14.42	16.80	15.59						

More boys and girls will be enrolled in primary schools in Gem sub-county than their corresponding projected school age population. This implies that more children in the sub-county are accessing education and therefore more educational infrastructure need to be put in place to meet the social demand of education. Generally, the enrolment for males and female is projected to increase by almost the same margin between 2021 and 2030. However, the enrolment for boys will consistently remain slightly higher than that

of girls throughout the projection period. This is an indication that Gem sub-county is on its way to achieving gender parity in education.

4.2.3 Projection of primary school's enrolment in Rarieda sub-county

In order to establish more realistic educational needs for Siaya County as a whole, the need to project enrolment in Rarieda sub-county, one of the other six sub-counties is presented in Table 4. Based on the projections, it is evident that enrolment in primary schools in Rarieda sub-county will increase by 2.69 % between the year 2021 and 2022. However, with the full implementation of 2.6.3.3 system of education, the primary school enrolment is expected to decrease by 9.56 % from 41,546 in 2021 to 37, 576 in 2023. Nonetheless, enrolment for boys and girls will likely increase by 16.56% and 17.05% respectively between 2024 and 2030. There will be 39,977 pupils enrolled in primary schools in Rarieda sub-county against the projected school age population of 30,470. This implies that 9,508 children enrolled in Rarieda sub-county will be either underage or overage as shown in Table 4.

Table 4: Projected enrolment in primary schools in Rarieda sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	20748	20797	41546	18722	18823	37545	2026	1974	
2022	21269	21396	42665	19010	19166	38176	2259	2230	2.69
2023	18659	18916	37576	16521	16773	33294	2138	2143	-9.56
2024	17306	16920	34227	13925	14244	28169	3381	2676	
2025	17757	17375	35133	14094	14441	28535	3663	2934	
2026	18219	17840	36059	14267	14641	28908	3952	3199	
2027	18694	18318	37011	14445	14847	29292	4249	3471	
2028	19175	18802	37978	14624	15053	29677	4551	3749	
2029	19670	19298	38968	14808	15263	30071	4862	4035	
2030	20172	19806	39977	14993	15477	30470	5179	4329	16.80
Enrolment trend (%)	16.56	17.05	16.80						

There is therefore increase in access to primary education in Rarieda sub-county with the trend showing expected increase in enrolment for both boys and girls between 2024 and 2030. However, the increase in enrolment for boys is slightly higher than that for girls. The slight difference in enrolment for boys and girls indicate that the sub-county is moving towards achieving gender parity in primary education and therefore provision of educational facilities for both genders have to be balanced.

4.2.4 Projected enrolment in primary schools in Ugenya sub-county

The enrolment for primary schools in Ugenya sub-county was also projected as shown in Table 5 depicting an increase by 2.83% from 37,011 in 2021 to 38,060 in 2022. During the transition phase from 8.4.4 to 2.6.3.3 system of education, the primary school enrolment in the sub-county is projected to decrease by 9.46% from 37,011 in 2021 to 33,511 in 2023. This enrolment is further projected to increase by 4.1% from 27,271 in 2024 to 28,388 in 2030 due to increment of the primary school age population within this period. Comparison between the projected school age population and the projected enrolment

indicates that 877 boys and 763 girls in Ugenya sub-county will be out of school by 2030. Measures therefore need to be put in place to ensure that all boys and girls of school going age are equally enrolled in primary schools in the sub-county by 2030. See Table 5 for the enrolment projections in Ugenya sub-county.

Table 5: Projected enrolment in primary schools in Ugenya sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	18590	18420	37011	17237	16918	34155	1353	1502	
2022	19117	18943	38060	17644	17317	34961	1473	1626	2.83
2023	16771	16739	33511	15408	15232	30640	1363	1507	-9.46
2024	13710	13561	27271	13267	13142	26409	443	419	
2025	13797	13669	27467	13552	13427	26979	245	242	
2026	13885	13778	27664	13846	13720	27566	39	58	
2027	13967	13883	27849	14142	14017	28159	-175	-134	
2028	14045	13987	28032	14445	14322	28767	-400	-335	
2029	14123	14089	28213	14757	14634	29391	-634	-545	
2030	14199	14190	28388	15076	14953	30029	-877	-763	4.10
Enrolment trend (%)	3.57	4.64	4.10						

Girls' enrolment will almost be equal to boys' enrolment by 2030 with a declining trend up to the year 2024 before it starts to increase steadily up to the end of the projection period.

4.2.5 Projected enrolment in primary schools in Ugunja sub-county

The enrolment for primary schools in Ugunja sub-county was as shown in Table 6.

Table 6: Projected enrolment in primary schools in Ugunja sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	13913	14143	28056	12686	13245	25931	1227	898	
2022	14492	14730	29222	12925	13568	26493	1567	1162	4.16
2023	12898	13245	26143	11257	12003	23260	1641	1242	-6.82
2024	12208	11611	23818	9546	10319	19865	2662	1292	
2025	12714	12014	24728	9702	10554	20256	3012	1460	
2026	13230	12423	25653	9858	10789	20647	3372	1634	
2027	13766	12291	26057	10021	10554	20575	3745	1737	
2028	14318	12994	27311	10188	11033	21221	4130	1961	
2029	14880	13435	28315	10355	11282	21637	4525	2153	
2030	15461	13890	29352	10528	11798	22326	4933	2092	23.23
Enrolment trend (%)	26.65	19.63	23.23						

Enrolment for Ugunja sub-county is projected to increase by 4.16% from 28,056 in 2021 to 29,222 in 2022. Due to the changes in the education system, this enrolment will decrease by 6.82% between 2021 and 2023. However, the enrolment under the 2.6.3.3 system of education is projected to increase by 23.23% from 23,818 in 2024 to 29,352 in 2030. The girls' enrolment will increase by 19.63% while boys' enrolment will increase by 26.65% between the year 2024 and 2030. By the year 2030, more boys will be enrolled in primary schools in Ugunja sub-county than girls. By 2030, there will be 7,025 pupils in primary schools in Ugunja sub-county who will be categorized as either overage or underage. The

trend shows an increase between 2021 and 2022 followed by a decrease in the year 2023. From the year 2024, the enrolment for boys and girls will maintain an increasing trend up to the year 2030. However, more boys will be enrolled in primary schools than girls in Ugunja sub-county by the year 2030.

The primary schools' enrolment projections in the six sub-counties were summed up to give the projected enrolment in primary schools in the whole county. Table 7 and Figure 1 give a summary of projected enrolment and trend respectively in primary schools in Siaya County.

Table 7: Projected enrolment in primary schools in Siaya County by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	130,347	129,516	259,864	122,140	122,793	244,933	8,207	6,723	
2022	132,947	131,734	264,682	124,745	125,661	250,406	8,202	6,073	1.85
2023	116,556	115,340	231,897	109,558	110,693	220,251	6,998	4,647	-10.76
2024	105,321	103,608	208,929	93,615	94,655	188,270	11,706	8,953	
2025	107,050	105,261	212,311	95,421	96,566	191,987	11,629	8,695	
2026	108,800	106,927	215,726	97,268	98,518	195,786	11,532	8,409	
2027	110,568	108,052	218,621	99,156	100,038	199,194	11,412	8,014	
2028	112,360	110,016	222,375	101,088	102,312	203,400	11,272	7,704	
2029	114,168	111,718	225,886	103,063	104,397	207,460	11,105	7,321	
2030	115,997	113,435	229,432	105,084	106,792	211,876	10,913	6,643	9.81
Enrolment trend (%)	10.14	9.48	9.81						

There is an expected increase by 1.85 % from 259, 864 in 2021 to 264,682 in 2022 and a decrease by 10.76% from 259,864 in 2021 to 231,897 in 2023 as classes seven and eight are done away with under the 2.6.3.3 system of education. The primary school enrolment in Siaya County under the new system of education will increase by 9.81% from 208,929 in 2024 to 229,432 in 2030 if the current enrolment trend in enrolment persists. Boys' enrolment will increase by 10.14% from 105,321 in 2024 to 115,995 in 2030 while girls' enrolment will increase by 9.48% from 103,608 in 2024 to 113,435 in 2030. At least 229,432 pupils will be enrolled in primary schools in Siaya County by 2030. This implies that 17,556 of the children who will be enrolled will be a combination of overage and underage children. Due to averaging of enrolment at the county level, there will be no children of primary school going age who will be out of school by 2030. However, Bondo sub-county will have 3,403 boys and 3,841 girls out of school by 2030, Ugunja sub-county will have 877 boys and 763 girls out of school by 2030 and Siaya sub-county will have 580 girls out of school by 2030. This means that a total of 9,464 children aged between 6-11 years in Siaya County will be out of school by 2030. Findings of a survey by National Council for Population and Development (2017) on 2015 Kenya National Adolescents and youth survey Siaya County, estimated that 9,384 of primary school were out of school in the county by 2015. Measures therefore need to be put in place to ensure that this population is enrolled in schools by 2030. Figure 1 shows the trend of enrolment in primary schools in Siaya County.

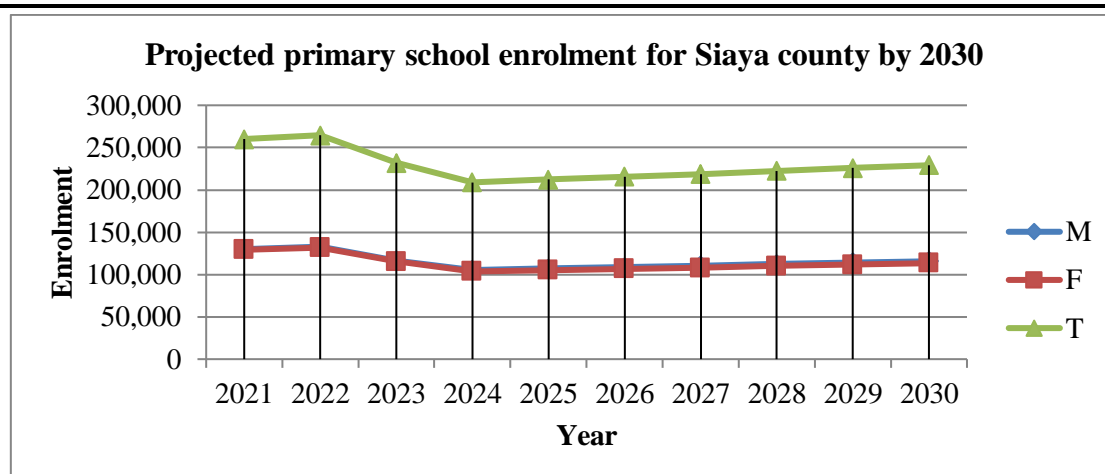


Figure 1: Enrolment trend in primary schools in Siaya County by 2030

Enrolment for males and females will have an increasing trend between 2021 and 2022. Following the phasing out of the 12-13 year olds from primary schools by 2024, the enrolment trend is projected to decline upto the year 2024. Due to increased school age population between 2024 to 2030, the enrolment trend will start to increase gradually from the year 2024 up to the end of the projection period. Enrolment for boys and girls in Siaya County will almost be the same. However, there will be slightly more boys than girls enrolled in primary schools in Siaya County by 2030.

4.3 Projected Enrolment in Junior Secondary Schools

The 2.6.3.3 system of education will be rolled out in secondary schools from the year 2023. Since 8.4.4 system of education will still be running, projection of enrolment as established in this paper combined the enrolment of students who will be under the 8.4.4 and 2.6.3.3 systems of education in every sub-county.

4.3.1 Projected enrolment in junior secondary schools in Siaya sub-county

The results for the projected junior secondary school enrolment in Siaya sub-county are shown in Table 8.

Table 8: Projected enrolment in junior secondary schools in Siaya sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	9207	12051	21258	12020	11985	24005	-2813	66	
2022	9798	13107	22905	12272	12252	24524	-2474	855	7.75
2023	14895	17662	32557	16518	16464	32982	-1623	1198	42.14
2024	19364	23236	42600	21002	21032	42034	-1638	2204	
2025	20254	24537	44791	21495	21584	43079	-1241	2953	110.70
2026	17733	21966	39699	18423	18793	37216	-690	3173	
2027	15390	19279	34669	15659	16054	31713	-269	3225	-22.60
2028	12894	16393	29287	12855	13296	26151	39	3097	
2029	13500	17346	30846	13192	13713	26905	308	3633	
2030	14127	18342	32469	13537	14142	27679	590	4200	10.86
Enrolment trend (%)	53.44	52.20	52.73						

Based on the study findings, enrolment in secondary schools in Siaya sub-county will increase by 7.75% from 21, 258 in 2021 to 22,905 in 2022. In the year 2023, secondary schools will admit the first class under the 2.6.3.3 system of education. Junior secondary schools in the year 2023 will therefore have five classes; first years in junior secondary schools and form 1 to form four under the 8.4.4 system of education. Enrolment is therefore projected to increase by 42.14% from 22,909 in 2022 to 32,557 in 2023. In the year 2024 and 2025, junior secondary schools will have six classes of students enrolled in both junior secondary and those under the 8.4.4 system of education. Enrolment is therefore projected to increase by 110.7% from 21,258 in 2021 to 44,791 in 2025. This means that by 2025, enrolment in junior secondary schools in Siaya sub-county will be doubled. This calls for massive investment in educational resources in junior secondary schools between the year 2021 and 2025 to ensure that quality of education being offered is not hampered by the on-going educational reforms in the country.

However, enrolment is projected to decrease by 12.67% from 39,699 in 2026 to 34,669 in 2027 as the last cohort of 8.4.4 students completes the secondary education. Since all 8.4.4 students will have cleared from junior secondary schools by end of 2027, the enrolment is projected to increase by 10.86% from 29,287 in 2028 to 32,469 in 2030. Enrolment of students in junior secondary schools in Siaya sub-county will therefore increase by 52.73% from 21,258 in 2021 to 32,469 in 2030. By 2030, 4790 of the students enrolled in junior secondary schools in Siaya sub-county will be either overage or underage. Since junior secondary will be domiciled in sub-county secondary schools, it implies that educational facilities in these categories of schools need to be expanded to accommodate the increasing enrolment.

Generally, projected enrolment for junior secondary schools in Siaya sub-county for the period 2021 to 2030 will steadily increase from the year 2021 to the year 2022. There will be a sharp increase in enrolment between 2023 and 2025 due to double intake as junior secondary schools will be admitting form ones under the 8.4.4 system of education and Grade 7 under 2.6.3.3 system of education. This enrolment is however projected to decrease by the year 2027 as the 8.4.4 school age population exits junior secondary schools. Between 2028 and 2030, junior secondary school enrolment will again have an upward trend as the 12-14 school age population is projected to increase within this period. Enrolment for girls is projected to increase more than that of boys. The increment will have an implication on provision of teachers, physical facilities and other key educational resources in the sub-county.

4.3.2 Projected enrolment in secondary schools in Bondo sub-county

The results of projected enrolment in junior secondary schools are shown in Table 9. In Bondo sub-county, the Form one to Form four (8.4.4) enrolment is projected to increase by 8.22% from 20,082 in 2021 to 21,734 in 2022 with admission of students from grade 6 in the year 2023 leading to an increment of 23.65% from 21,734 in 2022 to 26,874 in 2023. Due to double in-takes anticipated in secondary schools between 2023 and 2025, the enrolment at this stage will increase by 77.15% from 20,082 in 2021 to 35,575 in 2025.

However, there will be a decrease of 24.62% in secondary schools' enrolment between 2026 and 2027 as the 8.4.4 classes will be exiting. From 2028 to 2030, the enrolment in Bondo sub-county is projected to normalize as all the 8.4.4 students would have exited junior secondary schools. The enrolment is projected to increase by 7.58% from 22,556 in 2028 to 24,266 in 2030. Total enrolment for junior secondary schools in Bondo sub-county is projected to increase by 20.83% from 20,082 in 2021 to 24,266 in 2030. Total enrolment for boys and girls in Bondo sub-county will increase by 26.81% and 14.05% respectively between 2021 and 2030.

Table 9: Projected enrolment in junior secondary schools in Bondo sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	10674	9408	20082	10248	10393	20641	426	-985	
2022	11463	10270	21734	10531	10709	21240	932	-439	8.22
2023	14349	12525	26874	14173	14736	28909	176	-2211	23.65
2024	18490	15977	34467	18052	19061	37113	438	-3084	
2025	19257	16318	35575	18586	19746	38332	671	-3428	77.15
2026	17047	14088	31135	16267	17294	33561	780	-3206	
2027	14750	12068	26817	13918	15031	28949	832	-2963	-24.62
2028	12377	10179	22556	11550	12867	24417	827	-2688	
2029	12943	10452	23396	11947	13412	25359	996	-2960	
2030	13536	10730	24266	12359	13980	26339	1177	-3250	7.58
Enrolment trend (%)	26.81	14.05	20.83						

More boys will therefore be enrolled in junior secondary schools in Bondo sub-county as compared to girls. By 2030, there will be 3,250 girls out of school thus measures should therefore be put in place to ensure that all girls aged between 12-14 years will be enrolled in junior secondary schools by 2030. In depicting the trend, there will be an increase in enrolment between 2021 and 2025 followed by a decrease between 2026 and 2028. After the exit of the 8.4.4 system of education cohort from secondary schools in 2027, the enrolment in junior secondary schools in Bondo sub-county is projected to have an upward trend up to the end of the projection period (2030).

4.3.3 Projected enrolment in secondary schools in Gem sub-county by 2030

Table 10 shows the projected enrolment in junior secondary schools in Gem sub-county. Based on the projections, the table depicts that junior secondary school enrolment in Gem sub-county will increase by 9.41% from 22,681 in 2021 to 24,815 in 2022. Due to anticipated double intakes in 2024 and 2025, the junior secondary school enrolment is projected to increase by 64.38% from 22,681 in 2021 to 37,283 in 2025. However, as students aged between 15 and 17 clear from junior secondary schools in Gem sub-county, the enrolment in junior secondary schools is projected to decrease by 25.37% between 2026 and 2027. After completely phasing out the 8.4.4 students in 2027, the enrolment in junior secondary schools in Gem sub-county is projected to increase by 8.52% from 23,448 in 2028 to 25,445 in 2030. The total increase in enrolment for junior secondary schools in Gem sub-county is projected to increase by 12.19% from 22,681 in 2021 to 25,445 in 2030.

This study found out that 1,518 students who will be enrolled in junior secondary schools in Gem sub-county in 2030 will either be overage or underage.

The trend shows that the enrolment in junior secondary schools in Gem sub-county is projected to increase significantly between 2023 and 2025 due to double intake in junior secondary schools between 2023 and 2025. This enrolment is projected to decrease between 2025 and 2028 as the ages 15-17 exit junior secondary schools. There will be an increment in enrolment between 2028 and 2030 due to increment in junior secondary school age population. Financial resources should be availed in good time to ensure that the required educational resources are put in place before the year 2023. See Table 10 for the summary of projections.

Table 10: Projected enrolment in junior secondary schools in Gem sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	11987	10694	22681	10188	9824	20012	1799	870	
2022	12991	11823	24815	10375	10023	20398	2616	1800	9.41
2023	14667	13109	27776	13734	13367	27101	933	-258	11.93
2024	18956	16886	35842	17379	16937	34316	1577	-51	
2025	19743	17540	37283	17730	17309	35039	2013	231	64.38
2026	17240	15209	32449	15171	14771	29942	2069	438	
2027	14786	13039	27825	12755	12466	25221	2031	573	-25.37
2028	12564	10885	23448	10629	10246	20875	1935	639	
2029	13115	11315	24430	10885	10490	21375	2230	825	
2030	13687	11758	25445	11149	10738	21887	2538	1020	8.52
Enrolment trend	14.19	9.95	12.19						

4.3.4 Projected enrolment in junior secondary schools in Rarieda sub-county

Enrolment for junior secondary schools in Rarieda sub-county was projected to determine the education resource requirement for the sub-county by the year 2030.

Table 11: Projected enrolment in junior secondary schools in Rarieda sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	10309	8860	19169	8702	8366	17068	1607	494	
2022	11063	9706	20769	8876	8525	17401	2187	1181	8.35
2023	12297	12266	24563	11841	11424	23265	456	842	18.27
2024	15777	15851	31627	14918	14475	29393	859	1376	
2025	16409	16531	32941	15242	14808	30050	1167	1723	71.85
2026	14162	14542	28704	12926	12782	25708	1236	1760	
2027	12242	12482	24724	10983	10769	21752	1259	1713	-24.94
2028	10210	10693	20903	9006	9059	18065	1204	1634	
2029	10632	11195	21827	9223	9316	18539	1409	1879	
2030	11068	11718	22787	9446	9581	19027	1622	2137	9.01
Enrolment trend (%)	7.37	32.26	18.88						

The results for the projection are presented in Table 11 which shows that under the 8.4.4 system of education, enrolment in junior secondary schools in Rarieda sub-county is projected to increase by 8.35% from 19,169 in 2021 to 20,769 in 2022. In the year 2023 as the first class joins grade 7 under the 2.6.3.3 system of education, the enrolment is projected to increase by 18.27% from 20,769 in 2022 to 24,563 in 2023. Due to double

intakes between 2023 and 2025, the enrolment will increase by 71.85 % from 19,169 in 2021 to 32,941 in 2025. This is a major increment which may affect provision of quality education if adequate educational resources are not provided to schools in good time.

However, between 2026 and 2027, the enrolment is projected to decrease by 24.94% as the 8.4.4 system of education cohort leaves secondary schools in 2027 and increasing by 9.01% from 20,903 in 2028 to 22,787 in 2030. Enrolment in junior secondary schools in the sub-county is therefore projected to increase by 18.88% from 19,169 in 2021 to 22,787 in 2030. Enrolment for boys and girls is expected to increase by 7.37% and 32.26% respectively between 2021 and 2030. This implies that facilities meant for girls in junior secondary schools in Rarieda sub-county will need more expansion as compared to facilities for boys. A total of 3,759 students enrolled in junior secondary in Rarieda sub-county by 2030 will either be overage or underage.

The trend of enrolment in junior secondary schools in Rarieda sub-county will be upward from 2021 to 2025. This enrolment will however decrease gradually between 2025 and 2028 as the 15-17 year olds are phased out of the junior secondary schools followed by an increase between 2028 and 2030 due to increment in junior secondary school age population. Enrolment for girls will be higher than enrolment for boys by the year 2030.

4.3.5 Projected enrolment in junior secondary schools in Ugenya sub-county

The results for this projection are presented in Table 12.

Table 12: Projected enrolment in secondary schools in Ugenya sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	7302	7535	14837	8255	7790	16045	-953	-255	
2022	7957	8420	16377	8481	7997	16478	-524	423	10.38
2023	13333	12049	25382	11356	10707	22063	1977	1342	54.98
2024	17474	15729	33203	14159	13438	27597	3315	2291	
2025	18829	16788	35617	14549	13810	28359	4280	2978	140.06
2026	16955	15018	31973	12520	11912	24432	4435	3106	
2027	14853	13084	27937	10502	10019	20521	4351	3065	-21.56
2028	12489	11246	23735	8471	8324	16795	4018	2922	
2029	13377	11975	25352	8718	8577	17295	4659	3398	
2030	14301	12739	27040	8969	8839	17808	5332	3900	13.93
Enrolment trend (%)	95.85	69.07	82.25						

The projections for junior secondary school enrolment in Ugenya sub-county show an increase by 10.38% from 14,837 in 2021 to 16,377 in 2022 and expected to still increase by 140.06% from 14,837 in 2021 to 35,617 in 2025 due to double intakes between 2023 and 2025. There will be an increase by 82.25% from 14,837 in 2021 to 27,040 in 2030. Enrolment for boys and girls will increase by 95.85% and 69.07% respectively between 2021 and 2030. Ugenya sub-county will have the highest increment in junior secondary school enrolment between 2021 and 2030 as compared to the other sub-counties in Siaya County. These findings concur with findings of a study by Fwaya (2014) on challenges of implementing free day secondary education strategy among public secondary schools in Ugenya sub-county which indicate that since the execution of free day secondary education,

secondary school enrolment in the sub-county rose by 44.8% between 2008 and 2012. With this increment, the sub-county was experiencing shortages in teaching staff and physical facilities. There should be concerted effort in expansion of educational resources to ensure provision of quality education in the sub-county by the year 2023. A total of 9,232 students who will be enrolled in junior secondary schools in Ugenya sub-county in 2030 will either be underage or overage. The junior secondary projections in the sub-county indicate that enrolment for males will remain higher than enrolment for females for the entire projection period. With the on-going educational reforms in the country, more educational resources should be provided to junior secondary schools as enrolment in at this level is projected to increase rapidly between 2023 and 2025.

4.3.6 Projected enrolment in secondary schools in Ugunja sub-county

The results are as presented in Table 13.

Table 13: Projected enrolment in junior secondary schools in Ugunja sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2021	6609	7719	14328	6127	5898	12025	482	1821	
2022	7170	8418	15589	6266	6042	12308	904	2376	8.80
2023	8893	9117	18009	8321	8088	16409	572	1029	15.53
2024	11532	11881	23413	10429	10262	20691	1103	1619	
2025	12204	12515	24719	10680	10531	21211	1524	1984	72.52
2026	10729	11019	21747	9094	9039	18133	1635	1980	
2027	9465	9541	19006	7779	7635	15414	1686	1906	-23.11
2028	7971	8114	16086	6358	6338	12696	1613	1776	
2029	8430	8553	16983	6531	6525	13056	1899	2028	
2030	8904	9012	17916	6706	6718	13424	2198	2294	11.38
Enrolment trend (%)	34.73	16.74	25.04						

As indicated in Table 13, junior secondary school enrolment in Ugunja sub-county will increase by 8.8% from 14,328 in 2021 to 15,589 in 2022. This will be followed by a high in enrolment of 15.53% from 15,589 in 2022 to 18,009 in 2023. Due to double intake at this level between the year 2023 and 2025, junior secondary school enrolment is projected to increase by 72.52% from 14,328 in 2021 to 24,719 in 2025. This enrolment will however decrease by 23.11% between 2025 and 2028 due to the exiting of 15-17 year old population from junior secondary schools. Between 2028 and 2030, this enrolment is projected to increase again by 11.38% due to increased junior secondary school age population. Total enrolment will increase by 25.04% from 14,328 in 2021 to 17,916. Total enrolment for boys and girls will also increase by 34.73% and 16.74% respectively between 2021 and 2030. Enrolment for girls will be higher than enrolment for boys by 2030 with 4,492 students who will either be overage or underage enrolled in junior secondary schools in the sub-county by 2030. Education resources in junior secondary schools in Ugunja sub-county will need to be expanded to accommodate the increasing enrolment. The enrolment trend indicates an upward trend until the year 2025 when the enrolment will gradually decrease between 2025 and 2028 as the 15-17 school age population will be exiting from junior secondary schools. However, the enrolment will have an upward trend again

between 2028 and 2030 due to increased 12-14 school age population with girls being higher than enrolment for boys by 2030.

Summing up the projections for junior secondary schools' enrolment in the six sub-counties, Table 14 and Figure 2 give a summary of projected enrolment and trend by 2030.

Table 14: Projected enrolment in junior secondary schools in Siaya County by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend
	M	F	T	M	F	T	M	F	%
2021	56087	56268	112355	55540	54256	109796	547	2012	
2022	60444	61745	122188	56801	55548	112349	3643	6197	8.75
2023	78434	76727	155162	75943	74786	150729	2491	1941	26.99
2024	101593	99560	201153	95939	95205	191144	5654	4355	
2025	106698	104229	210927	98282	97788	196070	8416	6441	87.73
2026	93865	91843	185708	84401	84591	168992	9464	7252	
2027	81485	79493	160978	71596	71974	143570	9889	7519	-13.32
2028	68506	67509	136015	58869	60130	118999	9637	7379	
2029	71997	70837	142833	60496	62033	122529	11501	8804	
2030	75624	74300	149924	62166	63998	126164	13458	10302	10.23
Enrolment trend (%)	34.83	32.05	33.44						

The junior secondary school age population in all the six sub-counties is projected to increase by 8.75% from 112,355 in 2021 to 122,188 in 2022. Due to double intake in junior secondary schools in the county between 2023 and 2025, the enrolment is projected to increase by 87.73% from 112,355 in 2021 to 210,927 in 2025. As the 15-17 years school age population exits junior secondary schools, enrolment in these schools is projected to decrease by 13.32% from 185,708 in 2026 to 160,978 in 2027. However, due to increase in 12-14 school age population between 2028 and 2030, the junior secondary school age population is projected to increase by 10.23% from 136,015 in 2028 to 149,923 in 2030. The total enrolment in junior secondary schools in Siaya County is projected to increase by 33.44% from 112,355 in 2021 to 149,928 in 2030. The total enrolment for boys and girls in the county is also projected to increase by 34.83% and 32.05% respectively by 2030. More boys than girls will be enrolled by 2030. There will be 23,760 students in junior secondary schools by 2030 that do not fall within the 12-14 years age bracket. They will be either underage or overage. However, there will also be 3,250 girls in Bondo sub-county within the 12-14 years age bracket who will be out of school in 2030.

Qualitative data from Key Informant Interview guide for CQASO on factors affecting enrolment of pupils in primary and secondary schools in Siaya County reveals that due to poverty levels and high HIV prevalence rate, children enroll in school late. Some pupils who are being sponsored by Non-governmental Organizations and well-wishers get the help after they have stayed out of school for long and have to enroll in school when they are already overage. Measures should therefore be put in place to ensure that children join grade one at 6 years as required and that there is 100% transition of pupils from one grade to the other. Figure 2 shows the enrolment trend in junior secondary schools in Siaya County by 2030.

Junior secondary school enrolment in the county will have an increasing trend from 2023 to 2025 with a decline in enrolment between 2025 and 2028 as the 15-17 year olds exit junior secondary schools. The enrolment will further increase between 2028 and 2030 due to increased 12-14 school age population. As the schools implement 2.6.3.3 system of education, adequate finances need to be allocated for development of physical infrastructure in secondary schools and employment of more teachers so as to enhance smooth transition from 8.4.4 system of education to 2.6.3.3 system of education. Failure to provide the required educational resources early enough may lead to haphazard implementation of the 2.6.3.3 system of education in junior secondary schools.

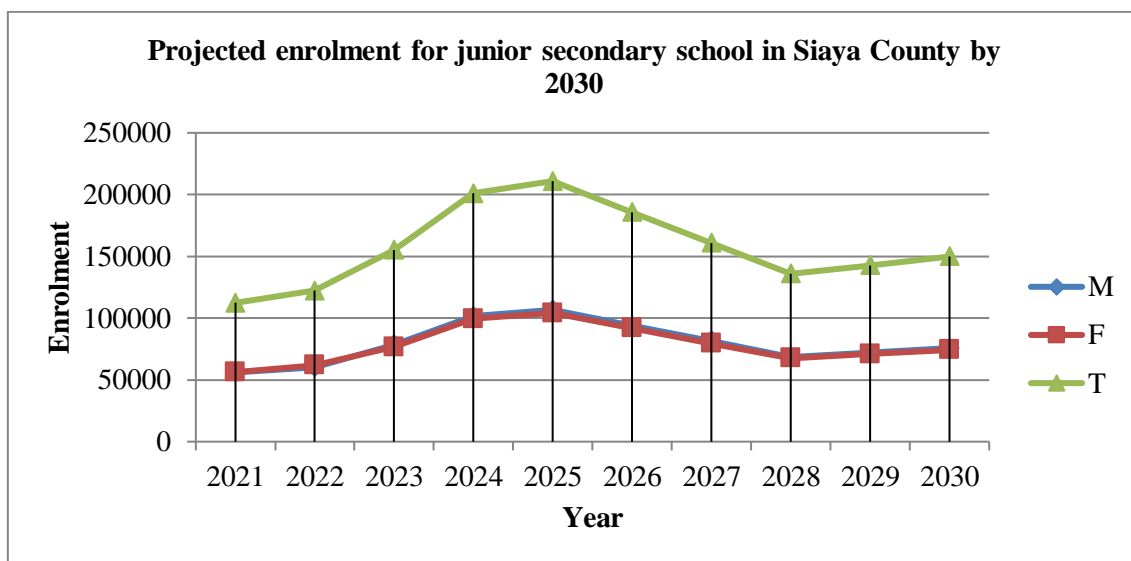


Figure 2: Projected enrolment in secondary schools in Siaya County by 2030

According to the findings of Siaya County adolescents and youth survey (2015), it was estimated that 32,000 secondary school age children were out of school in 2015. This means that by 2030, most of the secondary school age population in Siaya County will have been enrolled in either junior or senior secondary schools in the county. This calls for expansion of educational facilities in both junior and senior secondary schools in anticipation of the increased enrolment. Enrolment for males in junior secondary schools in Siaya County is also projected to increase more than enrolment for females by 2030.

4.4 Projected Enrolment in Senior Secondary Schools

Under the 2.6.3.3 system of education, secondary education in Kenya has been divided into two levels: Junior secondary schools (12-14 years) handle in the previous section and senior secondary schools (15-17 years). Senior secondary schools will be admitting their first grade 10 in the year 2026. However, the 8.4.4 cohort will still be in secondary schools in Kenya.

4.4.1 Projected enrolment for senior secondary schools in Siaya sub-county

Table 15 shows the projected enrolment for senior secondary schools in Siaya sub-county by 2030.

Table 15: Projected enrolment for senior secondary schools in Siaya sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2026	8048	11872	19920	9791	9651	19442	-1743	2221	
2027	8406	12642	21048	9988	9840	19828	-1582	2802	
2028	8776	13438	22214	10189	10033	20222	-1413	3405	
2029	9157	14260	23418	10394	10230	20624	-1237	4030	
2030	9549	15107	24656	10602	10429	21031	-1053	4678	23.78
Enrolment trend (%)	18.66	27.25	23.78						

Table 15 indicates that enrolment for senior secondary schools in Siaya sub-county will increase by 23.78% from 19,920 in 2026 to 24,656 in 2030. Despite the grade 10 students' admissions in 2026, form three and four students under the 8.4.4 system of education will still be accommodated. As grade 10 transits to grade 11 in 2027, senior schools will then admit the second grade 10 and at the same time exit the form four students under the 8.4.4 system of education. This means that in 2027, senior secondary schools will have grade 10, grade 11 and form four students. In 2028, the form four students under 8.4.4 system of education would have exited secondary schools and hence senior secondary schools will have grades 10, 11 and grade 12 under the 2.6.3.3 system of education. This pattern implies that even during the transition phase in senior secondary schools, they will be having three classes from 2026 onwards. Enrolment for boys and girls in senior secondary schools in Siaya sub-county is also projected to increase by 18.66% and 27.25% respectively between 2026 and 2030. There will be more girls than boys enrolled in senior secondary schools in Siaya sub-county by 2030. There will be 1053 boys between aged between 15 and 17 who will be out of school by 2030. This could be the overage population captured under the junior secondary school enrolment. There will be however 4,678 girls who will be enrolled as either underage or overage students in senior secondary schools in Siaya sub-county. Consequently, the trend will be upward trend between 2026 and 2030 with enrolment for girls being higher than that of boys. The anticipated increase in enrolment in senior secondary schools needs to be planned for by providing the required educational resources in good time to ensure that the quality of education is not compromised as the 8.4.4 system of education is being phased out and as the 2.6.3.3 system of education is implemented.

4.4.2 Projected enrolment in senior secondary schools in Bondo sub-county by 2030

Enrolment for senior secondary schools in Bondo sub-county was projected as shown in Table 16.

Table 16: Projected enrolment for senior secondary schools in Bondo sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2026	10852	10596	21448	8347	8618	16965	2505	1978	
2027	11561	11453	23014	8543	8852	17395	3018	2601	
2028	12295	12351	24646	8743	9093	17836	3552	3258	
2029	13058	13287	26346	8948	9340	18288	4110	3947	
2030	13854	14266	28120	9160	9594	18754	4694	4672	31.10
Enrolment trend (%)	27.66	34.63	31.10						

Table 16 indicates that enrolment in senior secondary schools in Bondo sub-county is projected to increase by 31.10% from 21,448 in 2026 to 28,120 in 2030 with that for boys and girls increasing by 27.66% and 34.63% respectively within the same period. A total of 4,694 boys and 4,672 girls will either be overage or underage. The existing educational resources in senior secondary schools in Bondo sub-county will need to be expanded in anticipation of the increased enrolment. Generally, the trend shows a gradual increase between 2026 and 2030. Enrolment for girls in senior secondary schools in Bondo sub-county will be higher than enrolment for boys by 2030. Increase in enrolment of girls affects provision of physical facilities such as toilets as they are gender specific.

4.4.3 Projected enrolment for senior secondary schools in Gem sub-county by 2030

Enrolment for senior secondary schools in Gem sub-county projections are as shown in Table 17.

Table 17: Projected enrolment for senior secondary schools in Gem sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2026	12269	13512	25781	7954	7909	15863	4315	5603	
2027	13074	14691	27765	8075	8064	16139	4999	6627	
2028	13904	15905	29808	8199	8219	16418	5705	7686	
2029	14756	17162	31918	8325	8378	16703	6431	8784	
2030	15627	18464	34091	8451	8541	16992	7176	9923	32.23
Enrolment trend (%)	27.37	36.65	32.23						

Table 17 shows that senior secondary school enrolment in Gem sub-county will increase by 32.23% from 25,781 in 2026 to 34,091 in 2030. Increment in girls' enrolment (36.65%) in senior secondary schools in Gem sub-county will be higher than increment in enrolment for boys (27.37%) by 2030. In 2030, there will be 7,176 boys and 9,923 girls in senior secondary schools in the sub-county who will be enrolled as overage or underage students. The trend of enrolment in senior secondary schools in Gem sub-county therefore shows a gradual increase between 2026 and 2030. Enrolment for girls is expected to remain higher than enrolment for boys throughout the projection period.

4.4.4 Projected enrolment for senior secondary schools in Ugenya sub-county by 2030

This is shown in Table 18.

Table 18: Projected enrolment for senior secondary schools in Ugenya sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2026	7499	9202	16701	6951	6352	13303	548	2850	
2027	8044	10048	18092	7133	6503	13636	911	3545	
2028	8614	10931	19545	7321	6659	13980	1293	4272	
2029	9203	11848	21051	7510	6817	14327	1693	5031	
2030	9821	12807	22628	7707	6981	14688	2114	5826	35.49
Enrolment trend (%)	30.96	39.17	35.49						

Table 18 shows the projected senior secondary school enrolment in Ugenya sub-county. Senior school enrolment will increase by 35.49% from 16,701 in 2026 to 22,628 in 2030. Increment in enrolment for girls in senior secondary schools in Ugenya sub-county is also projected to be higher (39.17%) than the increment in enrolment for boys (30.96%) by 2030. This implies that senior secondary schools in Ugenya sub-county will have to invest more in girls' toilets as they are gender specific. A total of 2,114 boys and 5,826 girls enrolled in senior secondary schools in Ugenya sub-county in 2030 will either be underage or overage. The trend indicates that enrolment will maintain an upward trend from 2026 up to the end of the projection period. Enrolment for girls in senior secondary schools in this sub-county will also remain higher than enrolment for boys by 2030.

4.4.5 Projected enrolment for senior secondary schools in Rarieda sub-county by 2030

Enrolment for senior secondary schools in Rarieda sub-county was projected as shown in Table 18. The findings show that there will be an increase in enrolment by 27.95% from 19,838 in 2026 to 25,382 in 2030. The increment in enrolment for girls (30.92%) will be more than increment in enrolment for boys (25.08%) with a total of 5,126 boys and 5,717 girls enrolled in senior secondary schools in Rarieda sub-county in 2030 being either overage or underage. In determining the trend in senior secondary school enrolment in the sub-county, there will be an increase between 2026 and 2030. There will be more boys than girls enrolled in senior secondary schools between 2026 and 2028. However, enrolment for girls in senior secondary schools in Rarieda sub-county will be higher than enrolment for boys between 2029 and 2030. The study findings are as demonstrated in Table 19.

Table 19: Projected enrolment for senior secondary schools in Rarieda sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2026	10107	9731	19838	6985	6588	13573	3122	3143	
2027	10712	10450	21162	7114	6693	13807	3598	3757	
2028	11335	11192	22526	7245	6801	14046	4090	4391	
2029	11979	11955	23934	7380	6911	14291	4599	5044	
2030	12642	12740	25382	7516	7023	14539	5126	5717	27.95
Enrolment trend (%)	25.08	30.92	27.95						

4.4.6 Projected enrolment in senior secondary schools in Ugunja sub-county by 2030

Enrolment for senior secondary schools in Ugunja sub-county was projected to enable the projection of educational resources required in these schools by 2030. As depicted in Table 20, enrolment in senior secondary schools in Ugunja sub-county is projected to increase by 25.96% from 12,669 in 2026 to 15,958 in 2030. Enrolment for boys will increase by 25.19 % from 6,040 in 2026 to 7,562 in 2030 while enrolment for girls will increase by 26.67% from 6,629 in 2026 to 8,396 in 2030. A total of 15,958 students will be enrolled in senior secondary schools in Ugunja sub-county by 2030. The projected school age population for senior secondary schools for Ugunja sub-county is 10,603. Therefore 5,355 students who will be enrolled in senior secondary schools in Ugunja sub-county will either be underage or overage. The trend depicts an increase between 2026 and 2030. Enrolment of girls in senior secondary schools in Ugunja sub-county is projected to be higher than enrolment of boys by 2030. See Table 20 for the projections.

Table 20: Projected enrolment for senior secondary schools in Ugunja sub-county by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2026	6040	6629	12669	4907	4832	9739	1133	1797	
2027	6403	7049	13451	5007	4943	9950	1396	2106	
2028	6775	7482	14257	5107	5055	10162	1668	2427	
2029	7163	7934	15097	5212	5171	10383	1951	2763	
2030	7562	8396	15958	5317	5286	10603	2245	3110	25.96
Enrolment trend (%)	25.19	26.67	25.96						

The senior secondary schools' enrolment projections in the six sub-counties are summed up and presented below. Table 21 gives a summary of projected enrolment for senior secondary schools in Siaya County by 2030.

Table 21: Projected enrolment for senior secondary schools in Siaya County by 2030

Year	Projected enrolment			Projected school age population			Overage & underage/ out of school population		Enrolment trend %
	M	F	T	M	F	T	M	F	
2026	54815	61542	116357	44935	43950	88885	9880	17592	
2027	58200	66333	124532	45860	44895	90755	12340	21438	
2028	61698	71298	132996	46804	45860	92664	14894	25438	
2029	65317	76446	141763	47769	46847	94616	17548	29599	
2030	69055	81781	150835	48753	47854	96607	20302	33927	29.63
Enrolment trend (%)	25.98	32.89	29.63						

Senior secondary school enrolment in Siaya County is projected to increase by 29.63% from 116,357 in 2026 to 150,835 in 2030. The projected school age population for senior secondary schools in Siaya County by 2030 is 96,607. With 150,835 students enrolled at this level, it implies that 54,229 students enrolled will be either overage or underage. Boys' enrolment is projected to increase by 25.98% from 54,815 in 2026 to 69,055 in 2030 while girls' enrolment is projected to increase by 32.89% from 61,542 in 2026 to 81,781 in 2030. Girls' enrolment across all the six sub-county will be higher than enrolment for

boys. A total of 1,053 boys in Siaya County (from Siaya sub-county) will be out of school by 2030. Concerted effort by educational stake holders should be made to ensure that all children are enrolled in schools by 2030. Figure 3 shows the projected enrolment in senior secondary schools in Siaya County by the year 2030.

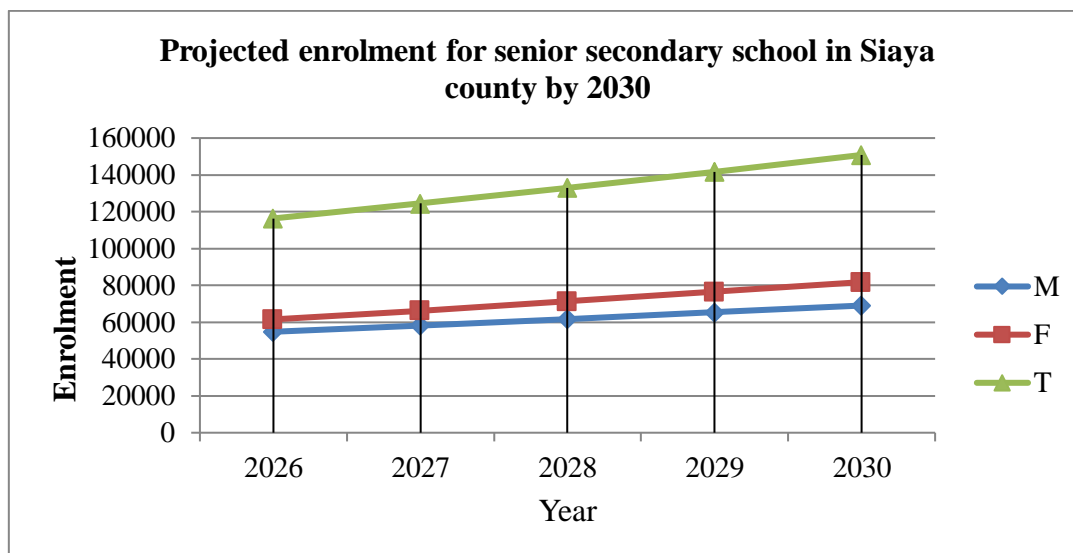


Figure 3: Projected enrolment for senior secondary schools in Siaya County by 2030

Enrolment in senior secondary schools in Siaya County will increase gradually from the year 2026 to 2030. Enrolment of girls in senior secondary schools in Siaya County will be higher than enrolment for boys by 2030. This has an implication on provision of educational facilities that are gender specific like the toilets. According to 2014 school census results, of the three levels of education in Kenya, secondary schools recorded the highest annual growth of 8.2% followed by primary at 5.1% and then ECDE at 1.0%. Generally, the demand for education has increased over the years. The relative demand is highest at secondary level of education and is attributed to the ripple effects from FPE and FDSE (MOE Basic education statistical booklet, 2017).

5. Conclusion

The primary school age population (6-11) in Siaya County was 170,877 according to 2019 Kenya Population and Housing Census. This population is projected to increase by 12.54% from 188, 270 in 2024 to 211,876 in 2030. There will be more pupils enrolled in primary schools in Siaya County (229,432) as compared to the corresponding 6-11 school age population (211,876). Planning for provision of educational resources at the primary school level in Siaya County should not be limited to the primary school age population (6-11) alone. There should be provision for under age and over age pupils who will be enrolled in primary schools by 2030.

Enrolment in junior secondary schools in Siaya County will increase by 87.73% between 2021 and 2025. Planning for educational resources should therefore be guided

by the projected enrolment for the year 2025 as it is the year that will require the highest educational resource requirement in junior secondary level. Senior secondary school enrolment on the other hand will increase by 29.63% between 2026 and 2030. Planning for provision of educational resources at this level of education should be gradual to avoid wastage of educational resources.

About the Author

Norich Muindi Munyasia works with Teachers' Service Commission, Kenya as a Curriculum Support Officer. She is currently undertaking her PHD in Planning and Economics of Education at Maseno University, Kenya. She holds a masters degree in Planning and Economics of Education and a bachelors' degree in Education Arts (English and Literature), both from Maseno University. Her current publications include "Linking expenditures on Board of Management Teachers' wage bill and academic performance: Lessons from Gem sub-county, Kenya" and "A review of Board of Management Teachers' Wage bill with a special focus on public secondary schools in Gem sub-county, Kenya".

References

- Agboola, B. M., & Adeyemi, J. K. (2013). Projecting Enrollment for Effective Academic Staff Planning in Nigerian Universities. *Educational Planning*, 21(1), 5-17.
- Ahmed, S. K. (2000). *Projection of Population, Enrolment and Costs to the State of Primary, Secondary and Higher Education in Bangladesh for the Period 2000-2020*. Bangladesh, CPD-UNFPA paper 8
- Fwaya, M. O. (2014). *Challenges of Implementing Free Day Secondary Education Strategy among Public Secondary Schools in Ugenya Sub-County*. Unpublished Masters Dissertation, The University of Nairobi, Nairobi.
- GOK (2007). *The Constitution of Kenya, 2010*. Nairobi: Government Printer.
- GOK (2011). *Report of the Task Force on the Implementation of Free Primary Education*. Nairobi. Government Printers
- Kamunya, M. F. (2012). *Primary School-Age Population Projections for Counties in Central Province, Kenya*. Unpublished MSC Project, The University of Nairobi, Nairobi.
- KICD (2017). *Basic Education Curriculum Framework*. Nairobi: Kenya Institute of Curriculum Development.
- KNBS (2019). *2019 Kenya Population and Housing Census: Distribution of Population by Age and Sex*, Vol 111. Nairobi: KNBS.
- Mehta, A. C. (1994). Enrolment Projections: Education for All in India. *Journal of Education Planning and Administration*, VIII(1), , Number 1, January, New Delhi.
- NCPD (2017). *2015 Kenya National Adolescents and Youth Survey (NAYS)*. Nairobi: National Council for Population and Development
- World Bank (2014). *Kenya National Education Profile*. Washington DC: World Bank.

Creative Commons licensing terms

Author(s) will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Education Studies shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflicts of interest, copyright violations and inappropriate or inaccurate use of any kind content related or integrated into the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a [Creative Commons Attribution 4.0 International License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).