TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING AUTHORITY

TVET INSTITUTIONS' ANNUAL RETURNS 2023

(Institutional Self-Assessment Report)

May 2024

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VISION

To deliver competent workforce for sustainable development

MISSION

To develop a TVET system that meets national needs and aspirations

CORE VALUES

- *Integrity*
- *Professionalism*
- *Accountability*
- *Public Participation*
- *Teamwork*
- *Efficiency*

FOREWORD

The Kenyan TVET subsector has experienced rapid growth over the last 15 years due to the favorable initiatives that have been put in place by the Government to catalyze the provision of adequate workforce for accelerated industrial development. The subsector, however, has experienced many data gaps that have greatly affected planning, decision-making, policy formulation and implementation. The establishment of a comprehensive database and strengthening of the data management system can greatly help in supporting evidence-based decision making in education, research and training. Hence, there is an urgent need for regular publication of information related to TVET programs in the country.

Although Section 41 of the TVET Act, 2013 requires all training institutions to submit their annual reports to the Authority, many institutions have not been submitting the data. The TVET Annual Report, 2023 provides an important attempt towards the development of a detailed database for TVET. Since the TVET Annual report will be published annually, it is envisaged that the subsequent editions will incorporate more improvements and include all the accredited TVET institutions in the country. This report provides a comprehensive and information on the gender and disability disaggregated enrolment, graduation, dropout and staffing qualifications and levels in the TVET institutions in Kenya. It is envisaged that subsequent versions of the TVET annual reports shall provide more detailed and systematic data on the TVET subsector in the Country.

This inaugural TVET returns report has collected and presented data from all the categories (National Polytechnics-NPs, University TVET Institutions-UTVETIs, Kenya School of TVET-KS-TVET, Technical and Vocational Colleges-TVCs, and Vocational Training Centres-VTCs) and types of TVET (private and public) in all parts of the country. The Authority plans to develop a simplified but more comprehensive online data collection tool that will help in improving the compliance of the TVET institutions in the country in submission of the data.

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EXECUTIVE SUMMARY

This Technical and Vocational Education and Training (TVET) annual report consists of six (6) Chapters. Chapter one provides brief background information, objectives and rationale of the report and methodology. The subsequent four chapters provide information on the gender disaggregated enrollment, trainers, trainee graduation and dropout rates in the four main categories of TVET institutions, National Polytechnics (NPs), Kenya School of TVET (KS-TVET), Technical and Vocational Colleges (TVCs), and Vocational Training Centres (VTCs) respectively. The last chapter provides a summary of the National Outlook in the TVET institutions and a conclusion on the findings from this report. The report incorporated some information from a previous study undertaken by TVETA on Trends in Enrolment in TVET institutions from 2015 to 2018.

The data in this report was provided by 1,269 TVET institutions, which represented 52% of the 2,469 institutions accredited by TVET Authority as of 31st October 2023. The data showed that the STEM courses recorded much higher enrolments (467,317) than the non-STEM courses (65,012). The overall ratio of enrolment in the STEM to non-STEM courses was 7:1. The ratio of Male: Female enrolment in STEM courses in the public institutions was 8:5 for the STEM courses and 1:1 for the non-STEM courses while the corresponding ratios for the private institutions was 6:5 and 8:5 respectively. The enrollment of persons with disabilities (PWDs) in the TVET institutions was generally low. The PWDs enrolled in all the categories of TVET institutions constituted 0.54% of the total enrolment. National Polytechnics had the lowest proportion (0.56%) of PWDs enrolled. PWD trainees made up 0.56% of the total enrollment in public institutions and 0.25% in the private institutions.

The Graduation rates in the TVET Institutions ranged from 21% to 65%, with NPs recording the lowest and Kenya School of TVET recording the highest rate. The overall graduation rate for TVET Institutions for the year 2023 was 27%. In total, 144,027 trainees successfully graduated from the TVET institutions in the year 2023. The dropout rates in the institutions ranged from 0% to 20% with KS-TVET, National Polytechnics and private UTVET recording the lowest rates while Public and Private VTCs recording the highest rates. The average dropout rates for the institutions were 7% for public and 9% for private institutions respectively. Generally, the dropout rates were higher in STEM compared to non-STEM.

The trainer qualifications in the institutions ranged from the Below Craft Certificate to PhD. The largest proportion (43.58%) of the trainers in TVET institutions held bachelor's degree qualification. The proportion of trainers who held PhD, Masters, Higher National Diploma (HND), Diploma, Craft and below craft qualifications were 0.68%. 6.41%, 5.40%, 25.92%, 5.99% and 10.67% respectively. The highest proportion of trainers who had qualifications below craft were engaged by the VTCs, while the highest PhD trainers were engaged by KS-TVET. Since the Trainer Qualification Framework requires all trainers to have a minimum qualification of Craft certificate, those with below Craft qualifications should upgrade their qualifications to conform to the requirements.

The proportion of STEM male trainers was higher than that of female trainers in all the institutions except those under-line ministries. The gender proportion was however compliant to the two-third gender rule required by the Kenyan constitution. The proportion of non-STEM male trainers was also higher than that of the female trainers in all institutions except in public TVCs where that of the female trainers was slightly higher than that of male staff. The overall ratios of male: female trainers in the STEM courses were 8:5 and 6:5 while the corresponding ratios in the non-STEM courses were 1:1 and 8:5 in the public and private institutions respectively.

The trainer: trainee ratios in the Public TVET institutions were higher than the recommended levels thus implying a shortage of staff in STEM-based programmes, where most of the trainees were enrolled. Private institutions on the other hand had adequate staff in both STEM and Non-STEM programmes. Therefore, there is a need for public TVET institutions to engage additional qualified trainers to help bridge the gap and improve the quality of training. All the public TVET institutions except Kenya School of TVET had trainers employed by the respective institutional governing councils/boards in addition to those employed by the Public Service Commission (PSC). Overall, 61% of trainers in public institutions were engaged by the PSC while 39% were engaged by respective institutions boards/ councils. The significant proportion of trainers employed by the institutional boards/councils showed that there was serious shortage of trainers in the public institutions.

The annual returns data showed that 0.32% and 0.85% of the trainers employed in private and public institutions respectively were PWDs. The overall proportion of PWD trainers employed in TVET institutions was 0.80%, with Vocational Training Centres having the highest proportion of PWD trainers at 1.26% and 1.82% for the public and private institutions respectively. There is an urgent need for institutional management to progressively employ more PWDs to conform to the statutory requirements of at least 5%.

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LIST OF ACRONYMS

CBET	Competence Based Education and Training
CDACC	Curricula Development, Assessment and Certification Council
CoE	Centre of Excellence
CPSB	County Public Service Board
HND	Higher National Diploma
KATTI	Kenya Association of Technical Training Colleges
KASNEB	Kenya Accountants and Secretaries National Examinations Board
KENAPCO	Kenya National Association of Private Colleges
KNEC	Kenya National Examinations Council
KNQA	Kenya National Qualifications Authority
KSTVET	Kenya School of TVET
KTTC	Kenya Technical Trainers College
NITA	National Industrial Training Authority
NP	National Polytechnic
NPSEB	National Police Service Examinations Board
PWD	Persons with Disability
PSC	Public Service Commission
QAI	Qualification Awarding Institution
RPL	Recognition of Prior Learning
R & D	Research and Development
STEM	Science, Technology, Engineering and Mathematics
TVC	Technical and Vocational College
TVET	Technical and Vocational Education and Training
TVETA	Technical and Vocational Education and Training Authority
VTC	Vocational Training Centre
UTVET	University Technical and Vocational Education and Training

DEFINITION OF TERMS

Graduation: refers to the completion and sitting for the final stage/ module examinations for a given course of study.

Dropout: refer to trainees who leave without sitting the end of module/ final examinations in TVET institution.

CHAPTER ONE
INTRODUCTION

1.1 Background information

The Technical and Vocational Education and Training (TVET) Authority was established by the TVET Act No. 29 of 2013. The Act empowers the Authority to regulate and coordinate training in TVET institution in Kenya. The regulation of the TVET sub-sector has improved tremendously since the establishment of TVET Authority ten years ago as the overall regulatory body. Before its establishment, training regulation was fragmented under different line Ministries and County Governments. Section 41 of the Act requires all training institutions to submit their annual reports to the Authority. The information required in the annual reports include gender and disability disaggregated enrolment, trainer employment and qualification, infrastructure, course uptake and dropout rate. The annual reports allow the Authority and other stakeholders to monitor and access information on the institutions' enrolment, staffing, graduation and drop-out levels. The annual reports serve as comprehensive tools for all stakeholders to gain a holistic understanding of the institutions' performance and greatly contribute to informed decision-making.

The TVET institutions play an important role in improving the productivity of citizens by imparting appropriate skills and knowledge required by the labour market or for establishment of enterprises. Since the prosperity of a country is closely related with the productivity of its citizens, increased investment in TVET is crucial in improving the productivity of any nation and addressing the socio-economic challenges facing various societies. The Kenyan government, in collaboration with development partners has placed great investment in equipping and reforming the TVET subsector to make it more responsive to the needs of the labour market. The main reforms being implemented in the TVET subsector include the shift to Competence-Based Education and Training (CBET) curriculum and the introduction of dual training and Recognition of Prior Learning (RPL).

The TVET institutions fall under different management such as national and county governments, line ministries, religious organizations and private companies and individuals. The construction and equipping of new institutions and other government initiatives such as capitation and provision of training loans and bursaries has led to steep increase in enrollment, especially in the public TVET institutions. This TVET Annual Return has been developed to disseminate information to various stakeholders seeking information on enrollment and staffing for stem and non-stem programs offered in the different categories of TVET institutions in Kenya. It is envisaged that the information provided in this document will greatly benefit TVET planners, policy makers, and researchers.

Although this Annual Report had planned to include information from all TVET institutions operating in Kenya, some of the institutions did not provide the information. However, the information that was obtained from the institutions that responded is representative of the Kenyan TVET subsector. The Authority plans to put in place appropriate mechanisms to ensure

that future Annual returns shall incorporate over 90%, if not all TVET institutions operating in Kenya.

1.2 Objectives

The objective of the TVET Annual Report is to provide comprehensive information on the enrollment and staffing levels in Kenyan TVET institutions. The specific objectives of the report are to:

i. Provide information on gender disaggregated enrolment in STEM and non-STEM courses for all the categories of TVET institutions;
ii. Provide information on the trainers' employers, and qualifications;
iii. Provide gender disaggregated data on trainers for STEM and non-STEM courses;

1.3 Classification of TVET institutions

The Kenyan TVET institutions are classified into three main categories, Vocational Training Centers (VTCs), Technical and Vocational Colleges (TVCs) and National Polytechnics (NPs). The classifications are based on the levels of courses offered. VTCs offer training at basic levels up to Artisan (KNQA Level 3), TVCs offer training up to Diploma (KNQA Level 6) while the legal order that establishes NPs permits them to offer training up to bachelor's degree (KNQA Level 7).

1.4 Kenyan TVET landscape

The TVET Authority's register had 2,469 Accredited institutions as of 30th October 2023, comprising 24 national polytechnics, KS-TVET, 1330 Technical and Vocational Colleges (TVCs) and 1114 Vocational Training Centers (VTCs). The institutions offer various TVET programs at different levels of training that are examined by approved National and Foreign examining bodies such as NITA, KNEC, KASNEB, NPSEB, CDACC, The National Polytechnics, and City and Guilds. In addition to the accreditation of institutions, the Authority has accredited 6,806 trainers. The Authority periodically conducts Quality Audit of the accredited TVET institutions to ensure compliance with the established training standards.

The Authority has gazetted 10 TVET regulatory standards, including those for NPs, Centre's of Excellence (CoE), Trainers' Qualifications and RPL standard. It is expected that more Public and Private TVET institutions that satisfy these standards shall be elevated to the status of NPs and CoE. The RPL standard shall enable workers and trainees who have acquired skills in the informal sector to be awarded Nationally recognized qualifications in their areas of specialization. Table 1 shows the distribution of accredited TVET institutions in each of the 47 counties in Kenya.

Table 1

Number of Accredited TVET Institutions per County

No	County	NPs	Public TVCs	Public VTCs	Private TVCs	Private VTCs	Total TVET institutions
1	Baringo	1	6	13	6	0	26
2	Bomet	0	5	21	11	0	37
3	Bungoma	1	8	66	9	1	85
4	Busia	0	8	17	5	1	31
5	Elgeyo-Marakwet	0	4	16	4	0	24
6	Embu	1	6	21	14	0	42
7	Garissa	1	2	3	10	0	16
8	Homa Bay	1	5	27	7	1	41
9	Isiolo	0	1	4	3	1	9
10	Kajiado	1	4	5	38	3	51
11	Kakamega	2	12	56	13	2	85
12	Kericho	1	4	8	13	0	26
13	Kiambu	1	9	38	122	3	173
14	Kilifi	0	3	40	22	6	71
15	Kirinyaga	0	4	15	13	0	32
16	Kisii	1	6	57	20	0	84
17	Kisumu	1	5	22	28	2	58
18	Kitui	1	8	54	12	12	87
19	Kwale	0	3	14	6	2	25
20	Laikipia	0	4	11	6	2	23
21	Lamu	0	1	8	0	0	9
22	Machakos	0	7	35	37	9	88
23	Makueni	0	6	42	13	1	62
24	Mandera	0	2	7	0	0	9
25	Marsabit	0	2	6	0	1	9
26	Meru	1	12	34	18	1	66
27	Migori	0	8	22	13	2	45
28	Mombasa	1	9	3	58	8	79
29	Murang'a	0	8	55	12	1	76
30	Nairobi	1	42	11	315	18	387
31	Nakuru	1	20	32	57	3	113
32	Nandi	1	5	14	7	1	28
33	Narok	0	5	7	7	0	19
34	Nyamira	1	4	31	5	0	41
35	Nyandarua	1	4	16	3	1	25
36	Nyeri	1	10	9	20	1	41
37	Samburu	0	1	1	4	0	6
38	Siaya	0	7	22	9	4	42
39	Taita Taveta	1	3	31	6	0	41
40	Tana River	0	3	7	1	0	11
41	Tharaka Nithi	0	4	18	5	1	28
42	Trans-Nzoia	1	4	36	14	1	56

No	County	NPs	Public TVCs	Public VTCs	Private TVCs	Private VTCs	Total TVET institutions
43	Turkana	0	5	8	9	1	23
44	Uasin Gishu	1	10	11	48	7	77
45	Vihiga	0	3	26	4	1	34
46	Wajir	0	3	8	2	0	13
47	West Pokot	0	1	7	6	1	15
Overall		**24**	**296**	**1015**	**1035**	**99**	**2469**

The 24 NPs are in 23 Counties, with Kakamega having two NPs. Nairobi County had the highest number of accredited TVET institutions (387) followed by Kiambu (173), Nakuru (113) and Machakos (88). The high numbers of institutions in these counties could be attributed to the high population and increased demand for skilled personnel from the surrounding industries and organizations within these counties. The marginalized Counties with basically poor infrastructure and lower number of industries such as Samburu, Lamu, Mandera, Isiolo and Marsabit had the lowest number of institutions.

1.5 Limitations

This comprehensive annual report focused on all TVET institutions in the country. Attempts were made to ensure that all data for accredited TVET institutions was incorporated in this report. Although some of the institutions either provided limited information or failed to submit, the data provided in this report is representative of all the TVET institutions in the country and can therefore be used to make informed decisions or formulate policies.

1.6 Methodology

The Department of research, in collaboration with other functional units within the Authority developed a data collection tool in line with section 41 of the TVET Act 2013, which requires all TVET institutions to submit annual returns to the TVET Authority. Information that was collected from TVET institutions included institutional particulars, gender-disaggregated enrollment of trainees in each course, number of trainees graduating, dropouts, PWDs data, and staffing levels as of 30th October 2023. The data collection tool was developed using google forms to facilitate online data collection. The google form link was circulated to Principals and managers of all the 2469 registered TVET institutions. Vocational Training Centres were reached both directly and through respective County Directors of Vocational Training while TVCs were reached through their associations, such as KATTI and KENAPCO. Follow up calls were made by TVETA officers to the institutions that had not submitted data by expiry of the set deadline. The data was sorted, cleaned, analyzed, summarized and presented in the form of tables, bar graphs, pie charts and narratives.

CHAPTER TWO
NATIONAL POLYTECHNICS

Overview

National polytechnics are established under the TVET Act, No. 29 of 2013. The cabinet secretary of education establishes a national polytechnic by an order that officially constitutes the polytechnic. NPs are authorized to offer education levels from artisan, craft, diploma, and higher diploma. However, they can offer undergraduate courses in collaboration with accredited universities.

2.1 Response Rate

All the twenty-four (24) National Polytechnics submitted their annual returns as requested by the Authority.

2.2 Distribution of National Polytechnics in Kenya

The twenty-four (24) National Polytechnics are distributed in various counties as shown in Table 2.

Table 2

Distribution of NPs per County in Kenya

S/No	Name of Institution	County
1.	Baringo	Baringo
2.	Bungoma	Bungoma
3.	The Jeremiah Nyagah	Embu
4.	The Northeastern	Garissa
5.	Mawego	Homa Bay
6.	Kajiado	Kajiado
7.	Shamberere	Kakamega
8.	Sigalagala	Kakamega
9.	The Kericho	Kericho
10.	The Kiambu	Kiambu
11.	The Kisii	Kisii
12.	The Kisumu	Kisumu
13.	Tseikuru	Kitui
14.	Meru	Meru
15.	Kenya Coast	Mombasa
16.	Kabete	Nairobi
17.	Rift Valley	Nakuru
18.	Kaiboi	Nandi
19.	Nyamira	Nyamira
20.	Nyandarua	Nyandarua
21.	Nyeri	Nyeri
22.	Taita Taveta	Taita Taveta
23.	Kitale	Trans Nzoia
24.	Eldoret	Uasin Gishu

The 24 NPs are in only 23 Counties with some counties like Kakamega having 2, this could result in limited access for trainees from certain marginalized counties without the NPs. Additionally, since the NPs are expected to offer diverse solutions to problems facing local communities, the lack of these institutions in particular counties could also affect the pace of socio-economic development.

The development of standards and guidelines for National Polytechnics and Centers of Excellence by the Authority is expected to provide mechanisms for the elevation of more institutions to National Polytechnics and Centers of Excellence and ensure regional balance. According to section 26(3) of the TVET Act 2013, NPs can develop and implement curricula, and assess and certify qualifications. However, most of them are still offering courses examined and certified by other Qualification Awarding Institutions (QAIs). This could be attributed to lack of sensitization or capacity to develop, assess, and certify their programs. The option of developing their curricula is expected to enable the NPs to develop unique programs that are geared toward solving common challenges in their areas of operation.

2.3 Enrolment

Table 3 summarizes the variation in the total overall enrolment in the 24 NPs and individual enrollment for each NP from 2018 to 2023.

Table 3

Enrollment in National Polytechnics

National Polytechnic	County	2018	2023	% increase
Baringo	Baringo	499	3,230	547%
Bungoma	Bungoma	3,302	6,041	83%
Jeremiah Nyagah	Embu	3,302	4,126	25%
Northeastern	Garissa	1,234	1,274	3%
Mawego	Homa Bay	1,075	5,586	420%
Kajiado	Kajiado	-	1,978	-
Shamberere	Kakamega	816	2,273	179%
Sigalagala	Kakamega	6,507	14,176	118%
Bureti	Kericho	1,447	3,682	154%
Kiambu	Kiambu	4,715	9,187	95%
Kisii	Kisii	7,409	15,694	112%
Kisumu	Kisumu	7,984	10,926	37%
Tseikuru	Kitui	246	318	29%
Meru	Meru	7,861	9,678	23%
Kenya Coast	Mombasa	3,932	5,750	46%
Kabete	Nairobi	10,444	8,817	-16%
Rift Valley	Nakuru	6,945	10,646	53%
Kaiboi	Nandi	1,240	2,506	102%
Nyamira	Nyamira	-	2181	-
Nyandarua	Nyandarua	1,556	2,633	69%
Nyeri	Nyeri	4,682	9,166	96%
Taita Taveta	Taita-Taveta	1,838	3,036	65%
Kitale	Trans Nzoia	4,858	12,025	148%

National Polytechnic	County	2018	2023	% increase
Eldoret	Uasin Gishu	7,249	7,043	-3%
Overall		**89,141**	**151,972**	**70%**

The total enrollment in the NPs increased from 89,141 in 2018 to 151,972 in 2023, representing a percentage increase of 70.48% over the five-year period. There was a significant increase in enrollment in most of the National Polytechnics during this period except for the Kabete National Polytechnic and the Eldoret National Polytechnic, which recorded a decline in enrolment by -16% and -3% respectively. Baringo NP recorded the highest increase in enrolment of 547% during the period. The sharp increase could be attributed to the intensified efforts by the government and other stakeholders to promote access to training. The construction of new facilities and equipping with state-of-the-art equipment also led to improved interest from various trainees in enrolling in the TVET institutions. In a similar trend, there have been reported cases of students opting for TVET programs despite them qualifying for university programs.

2.4 Graduation Rates

Graduation in this context was defined as the completion and sitting for the final stage/ module examinations for a given course of study. Graduation rates are important because they can act as pointers to the effectiveness of the training programs and efficiency of the training system. The data collected from National Polytechnics was disaggregated per gender and course classification i.e. STEM or Non- STEM. Graduation data is depicted in table 4.

Table 4

National Polytechnics Graduation Data for year 2023

Institution	STEM				Non-STEM				
	enrolment	% Male	% female	% STEM	enrolment	% Male	% Female	% non-STEM	% overall
Baringo	2760	14%	11%	26%	470	4%	13%	18%	24%
Bungoma	5203	22%	22%	44%	838	9%	48%	57%	45%
Kericho	3156	9%	5%	14%	526	2%	10%	13%	13%
Kabete	7229	9%	6%	15%	1588	7%	16%	23%	16%
Kaiboi	2126	13%	7%	20%	380	3%	3%	6%	18%
Kajiado	1744	22%	35%	57%	234	68%	26%	94%	61%
Kenya Coast	4828	12%	10%	22%	922	6%	14%	20%	22%
Kitale	9645	2%	3%	5%	2380	3%	7%	9%	6%
Mawego	4766	15%	10%	26%	820	5%	15%	20%	25%
Meru	8496	4%	3%	7%	1182	2%	3%	5%	7%
Nyandarua	2457	23%	10%	33%	176	10%	18%	28%	32%
Shamberere	1944	7%	6%	13%	329	3%	4%	7%	12%
Sigalagala	11805	6%	7%	13%	2371	9%	25%	35%	17%

Institution	STEM				Non-STEM				
	enrolment	% Male	% female	% STEM	enrolment	% Male	% Female	% non-STEM	% overall
Taita Taveta	2103	0%	13%	13%	933	59%	15%	74%	32%
Eldoret	6600	27%	20%	47%	443	9%	25%	34%	46%
Jeremiah Nyagah	3962	10%	5%	15%	164	28%	40%	68%	17%
Kiambu	7624	11%	9%	20%	1563	6%	22%	28%	22%
Kisii	13825	11%	11%	22%	1869	6%	17%	23%	22%
Kisumu	9010	8%	6%	14%	1916	5%	18%	23%	15%
Northeastern	1012	10%	8%	19%	262	9%	24%	33%	22%
Nyamira	2069	16%	9%	25%	112	16%	40%	56%	27%
Nyeri	8207	8%	6%	14%	959	2%	4%	6%	13%
Rift Valley	8934	12%	11%	23%	1712	12%	32%	44%	27%
Tseikuru	207	15%	1%	17%	111	4%	10%	14%	16%
Overall	**129712**	**11%**	**9%**	**20%**	**22260**	**9%**	**18%**	**27%**	**21%**

Graduation rates in NPs ranged from 6% to 61%. The non-STEM courses recorded a higher graduation rate (27%) than STEM courses (20%). The overall graduation rate in NPs was 21%. The overall graduation rate was below the average lowest expected rate of 33.3% for diploma programmes which takes a duration of 3 years. The NPs should strive to improve graduation rates to higher levels due to the improved physical and human resources available in these institutions.

2.5 Dropout Rates

Dropouts in this context was defined as the exiting of a course of study without sitting the end of module/ final examinations. Dropout rates are important indicators of wastages in the training system. High dropout rates can indicate issues with the curriculum, delivery style, trainer effectiveness or trainee support services. Through such feedback, institutions can come up with early interventions aimed at improving trainee engagement and reducing dropouts. Dropouts' data collected from National Polytechnics was disaggregated per gender and course classification i.e. STEM or Non- STEM. Meru National Polytechnics did not submit dropout data for the year 2023. Table 5 depicts dropout data for the 24 National Polytechnics.

Table 5

National Polytechnics Dropout Data for 2023 in STEM and non-STEM

| Institution | STEM | | | | Non-STEM | | | | |
	enrolment	% of male dropouts	% of female dropouts	% of total STEM dropouts	enrolment	% of male dropouts	% of female dropouts	% of total non-STEM dropouts	% of overall Dropouts
Baringo	2760	2.86%	1.30%	4.17%	470	2.13%	2.98%	5.11%	4.30%
Bungoma	5203	5.80%	5.46%	11.26%	838	3.94%	17.06%	21.00%	12.61%
Bureti	3156	0.29%	0.16%	0.44%	526	0.19%	0.19%	0.38%	0.43%
Kabete	7229	0.22%	0.36%	0.58%	1588	0.25%	0.25%	0.50%	0.57%
Kaiboi	2126	0.28%	0.05%	0.33%	380	0.00%	0.00%	0.00%	0.28%
Kajiado	1744	0.46%	0.06%	0.52%	234	0.00%	0.85%	0.85%	0.56%
Kenya Coast	4828	3.02%	0.25%	3.27%	922	11.50%	0.98%	12.47%	4.75%
Kitale	9645	3.35%	1.77%	5.12%	2380	0.17%	0.34%	0.50%	4.21%
Mawego	4766	1.28%	1.09%	2.37%	820	0.49%	1.83%	2.32%	2.36%
Meru	8496	0.00%	0.00%	0.00%	1182	0.00%	0.00%	0.00%	0.00%
Nyandarua	2457	0.81%	0.33%	1.14%	176	0.00%	1.70%	1.70%	1.18%
Shambere	1944	1.03%	0.77%	1.80%	329	0.30%	6.08%	6.38%	2.46%
Sigalagal	11805	0.51%	0.22%	0.73%	2371	0.13%	0.51%	0.63%	0.71%
Taita Taveta	2103	0.19%	0.05%	0.24%	933	0.00%	0.00%	0.00%	0.16%
Eldoret	6600	0.21%	0.32%	0.53%	443	0.00%	0.00%	0.00%	0.50%
Jeremiah Nyagah	3962	0.50%	0.63%	1.14%	164	0.00%	0.00%	0.00%	1.09%
Kiambu	7624	0.75%	0.88%	1.63%	1563	0.77%	1.66%	2.43%	1.76%
Kisii	13825	0.02%	0.00%	0.02%	1869	0.00%	0.00%	0.00%	0.02%
Kisumu	9010	5.62%	2.61%	8.22%	1916	2.56%	6.52%	9.08%	8.37%
North Eastern	1012	-	-	-	262	-	-	-	-
Nyamira	2069	1.11%	2.37%	3.48%	112	0.00%	1.79%	1.79%	3.39%
Nyeri	8207	0.38%	0.40%	0.78%	959	0.00%	0.21%	0.21%	0.72%
Rift Valley	8934	0.93%	0.73%	1.66%	1712	0.64%	0.82%	1.46%	1.63%
Tseikuru	207	0.48%	0.48%	0.97%	111	0.00%	0.00%	0.00%	0.63%
Overall	**129712**	**1.38%**	**0.87%**	**2.26%**	**22260**	**1.07%**	**1.80%**	**2.87%**	**2.35%**

Bungoma and Kisumu NP had the highest proportion of dropouts at 12.61% and 8.37% respectively. Kericho, Kabete, Kaiboi, Meru, Sigalagal, Kajiado, Taita Taveta, Eldoret, Kisii, Nyeri and Tseikuru national polytechnics had less than 1% dropouts in the year 2023. Generally, more male trainees were dropping out from STEM programmes than female trainees in most institutions while for non- STEM programmes, the reverse is true. The relatively low

dropout rate 2.35% in the NPs showed that a large majority of trainers (97.65% were completing their studies

2.6 A Comparison of Enrollment, Grandaunts and Dropouts in National Polytechnics

Table 6 presents a comparison of enrollment, graduation and dropout data for all 24 National Polytechnics. Meru National Polytechnics did not provide data on the number of dropouts

Table 6

Comparison of Enrollment, Graduates and Dropouts

Institution	Total Enrolment	Total Graduates	Total Dropouts
Baringo	3230	790(24.46%)	139(4.30%)
Bungoma	6041	2742(45.39%)	762(12.61%)
Kericho	3682	497(13.50%)	16(0.43%)
Kabete	8817	1429(16.21%)	50(0.57%)
Kaiboi	2506	451(18.00%)	7(0.28%)
Kajiado	1978	1216(61.48%)	11(0.56%)
Kenya Coast	5750	1254(21.81%)	273(4.75%)
Kitale	12025	692(5.75%)	506(4.21%)
Mawego	5586	1382(24.74%)	132(2.36%)
Meru	9678	658(6.80%)	0(0.00%)
Nyandarua	2633	848(32.21%)	31(1.18%)
Shamberere	2273	268(11.79%)	56(2.46%)
Sigalagala	14176	2398(16.92%)	101(0.71%)
Taita Taveta	3036	966(31.82%)	5(0.16%)
Eldoret	7043	3243(46.05%)	35(0.50%)
Jeremiah Nyagah	4126	689(16.70%)	45(1.09%)
Kiambu	9187	2001(21.78%)	162(1.76%)
Kisii	15694	3434(21.88%)	3(0.02%)
Kisumu	10926	1656(15.16%)	915(8.37%)
Northeastern	1274	277(21.74%)	-
Nyamira	2181	581(26.64%)	74(3.39%)
Nyeri	9166	121(13.26%)	66(0.72%)
Rift Valley	10646	2831(26.59%)	173(1.63%)
Tseikuru	318	50(15.72%)	2(0.63%)
Overall	**151,972**	**31,568(20.77)**	**3,564(2.35%)**

The total number of trainees who dropped out in 2023 was 2.94%. This is a significant drop from the 2018 data which indicated that 20.77% of trainees had dropped out of National Polytechnics. This trend could be attributed to the increased funding from the Higher Education Loans Board, Bursaries and other financing agencies extended to trainees enrolled in TVET over the same period. The 2020/2021 HELB sustainability report indicated a sharp growth in number of funded TVET trainees from about 40,000 in 2018/2019 to about 105,000 in 2019/2020 and a corresponding increase in budgetary allocation from Ksh. 1Billion to Ksh. 4 billion respectively.

2.7 Enrollment in STEM and Non-STEM in National Polytechnics

The enrolment in the TVET institutions has been increasing steadily over the last ten years due to various incentives put in place by the government. The enrolment in the STEM and non-STEM courses in the National Polytechnics for the year 2023 are shown in Table 7.

Table 7

Enrollment Trends in National Polytechnics

National Polytechnic	Male Stem	Female STEM	STEM Total	M:F	Non-STEM MALE	Non-STEM FEMALE	Non-STEM Total	M:F
Baringo	1652	1108	2760	3:2	114	356	470	3:10
Bungoma	2534	2669	5203	9:10	142	696	838	1:5
Bureti	2187	969	3156	23:10	122	404	526	3:10
Kabete	4543	2686	7229	17:10	556	1032	1588	1:2
Kaiboi	1593	533	2126	3:1	56	324	380	1:5
Kajiado	757	987	1744	4:5	156	78	234	2:1
Kenya Coast	2927	1901	4828	3:2	325	597	922	1:2
Kitale	5925	3720	9645	8:5	529	1851	2380	3:10
Mawego	2880	1886	4766	3:2	129	691	820	1:5
Meru	4963	3533	8496	7:5	365	817	1182	2:5
Nyandarua	1494	963	2457	8:5	28	148	176	1:5
Shamberere	1142	802	1944	7:5	48	281	329	1:5
Sigalagala	6443	5362	11805	6:5	585	1786	2371	3:10
Taita Taveta	1365	738	2103	9:5	298	635	933	1:2
Eldoret	3531	3069	6600	6:5	72	371	443	1:5
Jeremiah N.	2534	1428	3962	9:5	38	126	164	3:10
Kiambu	4887	2737	7624	9:5	378	1185	1563	3:10
Kisii	7739	6086	13825	13:10	420	1449	1869	3:10
Kisumu	5384	3626	9010	3:2	577	1339	1916	2:5
Northeastern	705	307	1012	23:10	85	177	262	1:2
Nyamira	1151	918	2069	13:10	49	63	112	4:5
Nyeri	4619	3588	8207	13:10	230	729	959	3:10
Rift Valley	5180	3754	8934	7:5	494	1218	1712	2:5
Tseikuru	162	45	207	18:5	15	96	111	1:5
Overall	**76297**	**53415**	**129712**	**7:5**	**5811**	**16449**	**22260**	**2:5**

There were more male trainees than female trainees in STEM based course in all national polytechnics except Kajiado and Bungoma NP. Generally, the ratio of Male to Female trainees in STEM courses in NPs was 7:5. It was also noted that, in non-STEM courses female trainees were the majority in all NPs except Kajiado National polytechnic. Generally, the ratio of Male to Female trainees in non-STEM courses in the NPs was 2:5. Therefore, there is need to enhance gender mainstreaming initiatives in National polytechnics to ensure both genders are fairly represented across the board.

2.8 Trainers

The availability of adequate, qualified and experienced trainers is crucial for quality training in the TVET institutions. The shift to CBET from knowledge-based training requires a suitable balance between trainers and trainees, and industry integration to ensure that essential skills required by the labor market are imparted on graduates at various levels of training. The National Polytechnic had engaged 4,270 trainers with various qualifications

2.8.1 Trainer Qualifications

Trainer qualifications and experience are a critical component of TVET quality assurance. The trainer qualifications framework provides that all trainers should hold a qualification that is at least a level higher than the level they teach. The trainer qualifications in the NPs ranged from Craft Certificate to PhD as shown in Table 8.

Table 8

Trainer Qualifications

Institution	No details	Below Craft	Craft	Diploma	HND	Bachelors	Masters	PhD
Baringo	0.00%	0.00%	1.08%	33.33%	0.00%	65.59%	0.00%	0.00%
Bungoma	0.00%	0.47%	0.93%	32.56%	6.05%	50.70%	8.84%	0.47%
Bureti	0.00%	1.47%	1.47%	10.29%	13.24%	69.12%	4.41%	0.00%
Kabete	0.00%	0.00%	0.00%	7.10%	11.48%	59.56%	21.86%	0.00%
Kaiboi	0.00%	0.00%	0.00%	22.38%	9.09%	63.64%	4.90%	0.00%
Kajiado	0.00%	0.00%	0.00%	17.32%	3.94%	71.65%	6.30%	0.79%
Kenya Coast	0.00%	0.00%	4.22%	10.13%	5.91%	71.31%	8.02%	0.42%
Kitale	0.00%	0.00%	0.00%	5.74%	2.87%	85.65%	4.31%	1.44%
Mawego	0.00%	0.00%	0.00%	11.26%	7.28%	74.83%	6.62%	0.00%
Meru	0.00%	0.00%	0.00%	14.62%	5.93%	69.96%	9.49%	0.00%
Nyandarua	0.00%	0.00%	3.77%	14.15%	3.77%	71.70%	3.77%	2.83%
Shamberere	0.00%	0.00%	0.00%	29.49%	10.26%	48.72%	7.69%	3.85%
Sigalagala	00.00%	0.00%	0.41%	15.45%	6.10%	65.04%	12.60%	0.41%
Taita Taveta	0.00%	0.00%	0.00%	39.58%	4.86%	52.08%	3.47%	0.00%
Eldoret	1.02%	0.00%	0.00%	2.71%	3.73%	83.73%	7.80%	1.02%
Jeremiah N.	0.73%	0.00%	3.65%	13.14%	6.57%	59.85%	16.06%	0.00%
Kiambu	0.00%	0.00%	0.00%	6.67%	6.67%	70.59%	13.33%	2.75%
Kisii	0.00%	0.00%	0.00%	8.72%	1.74%	76.16%	13.37%	0.00%
Kisumu	0.00%	0.00%	0.00%	2.56%	4.15%	74.12%	17.25%	1.92%
Northeastern	0.00%	0.00%	0.00%	2.08%	10.42%	81.25%	6.25%	0.00%
Nyamira	4.76%	0.00%	0.00%	30.16%	6.35%	55.56%	3.17%	0.00%
Nyeri	0.67%	0.00%	0.00%	4.67%	8.67%	63.33%	22.00%	0.67%
Rift Valley	0.00%	0.00%	0.00%	17.06%	3.75%	63.48%	14.68%	1.02%
Tseikuru	2.94%	0.00%	0.00%	26.47%	2.94%	67.65%	0.00%	0.00%
Overall	**0.22%**	**0.05%**	**0.60%**	**13.71%**	**5.68%**	**68.40%**	**10.52%**	**0.82%**

Most of the trainers had bachelor's degrees (68.40%), followed by those with Diplomas (13.71%), master's degrees (10.52%), HNDs (5.68%), PhDs (0.82%), and Craft certificates (0.60%). Trainers below the Craft level accounted for 0.05%, and 0.22% did not have their

details. The NPs Standards and Guidelines TVETS04 2019 in section 4.2.2 requires that diploma and higher qualifications enrolment shall be at least 70%. Furthermore, section 26 (3) of the TVET Act 2013 provides for collaboration with a university to offer programs leading to the award of an undergraduate degree in technical and vocational education and training. This means NP trainer should have HND qualifications and above, as required by the TVET regulations 2015, to effectively discharge their mandate. The table above shows that 85.42% of the trainers in NPs have HND and above qualifications, while 14.58% have diplomas and below.

2.8.2 PWD Staff in National Polytechnics

Disability refers to any physical, sensory, mental, psychological, or other impairment, condition, or illness that has or is perceived by significant sectors of the community to have a substantial or long-term effect on an individual's ability to carry out ordinary day-to-day activities. The TVET Act 2013 dictates that the training programmes shall be designed to operate within a framework which leads to lifelong education and training, and which facilitates the special needs of persons with disabilities. Table 9 illustrates the proportion of PWD staff in National Polytechnics.

Table 9

PWD Staff in National Polytechnics

Institution	Male STEM	Female STEM	Male non-STEM	Female non-STEM	Staff with PWDs	Total Staff	% of PWDs staff
Kajiado	2	1	0	0	3	127	2.36%
Mawego	2	0	0	1	3	151	1.99%
Shamberere	0	1	0	0	1	78	1.28%
Sigalagala	1	1	1	1	4	250	1.60%
Taita Taveta	0	1	1	0	2	142	1.41%
Kiambu	4	1	0	0	5	255	1.96%
Northeastern	2	0	0	0	2	70	2.86%
Tseikuru	0	0	1	0	1	34	2.94%
Overall	**11**	**5**	**3**	**2**	**21**	**4292**	**0.49%**

The returns showed that eight of the National Polytechnics had PWD staff at varying proportions. The overall mean proportion of PWD in all the National Polytechnics was 0.49%. There is a need to continually advocate for integration and inclusivity of PWDs in institutional leadership and governance.

2.8.3 PWD Trainees in National Polytechnics

All the TVET institutions are required to establish, implement and maintain diversity inclusion policy to ensure non-discrimination of a trainee based on disability and assure inclusion to undertake quality education and training. Table 10 below shows the proportion of PWD trainees in National Polytechnics.

Table 10

PWD Trainees in National Polytechnics

NP	Male STEM	Female STEM	Male non-STEM	Female non-STEM	Total PWD	Total Enrolment	% PWD
Baringo	3	2	0	0	5	3230	0.15%
Bungoma	1	0	0	0	1	6041	0.02%
Kabete	2	0	2	2	6	8817	0.07%
Kajiado	5	4	1	3	13	1978	0.66%
Kenya Coast	12	4	0	0	16	5750	0.28%
Kitale	8	4	1	2	15	12025	0.12%
Mawego	5	4	1	1	11	5586	0.20%
Meru	5	2	0	0	7	9678	0.07%
Nyandarua	3	2	0	0	5	2633	0.19%
Taita Taveta	1	0	0	0	1	3036	0.03%
The Eldoret	20	15	9	5	49	7043	0.70%
Jeremiah N.	4	1	0	0	5	4126	0.12%
Kisii	27	28	0	0	55	15694	0.35%
Kisumu	6	4	5	5	20	10926	0.18%
Nyamira	1	0	0	0	1	2181	0.05%
Nyeri	4	5	2	2	13	9166	0.14%
Rift Valley	3	3	3	0	9	10646	0.08%
Overall	**110**	**78**	**24**	**20**	**232**	**151972**	**0.15%**

Trainees with disabilities comprise 0.15% of the overall trainee enrolment in NPs. The survey revealed that there are more male STEM trainees (110) compared to their female (78) counterparts as shown in Table 10. However, in Kisii and Nyeri NPs, it was observed that there were more female trainees with disabilities enrolled in STEM than their male counterparts. Enrollment of trainees with disabilities in both STEM and non-STEM was relatively quite low in all the national polytechnics.

2.8.4 Trainers Gender Distribution in STEM and Non-STEM

Trainer distribution was disaggregated in gender as shown in figure 1.

Figure 1

Gender Distribution of Trainers in STEM and non-STEM Courses
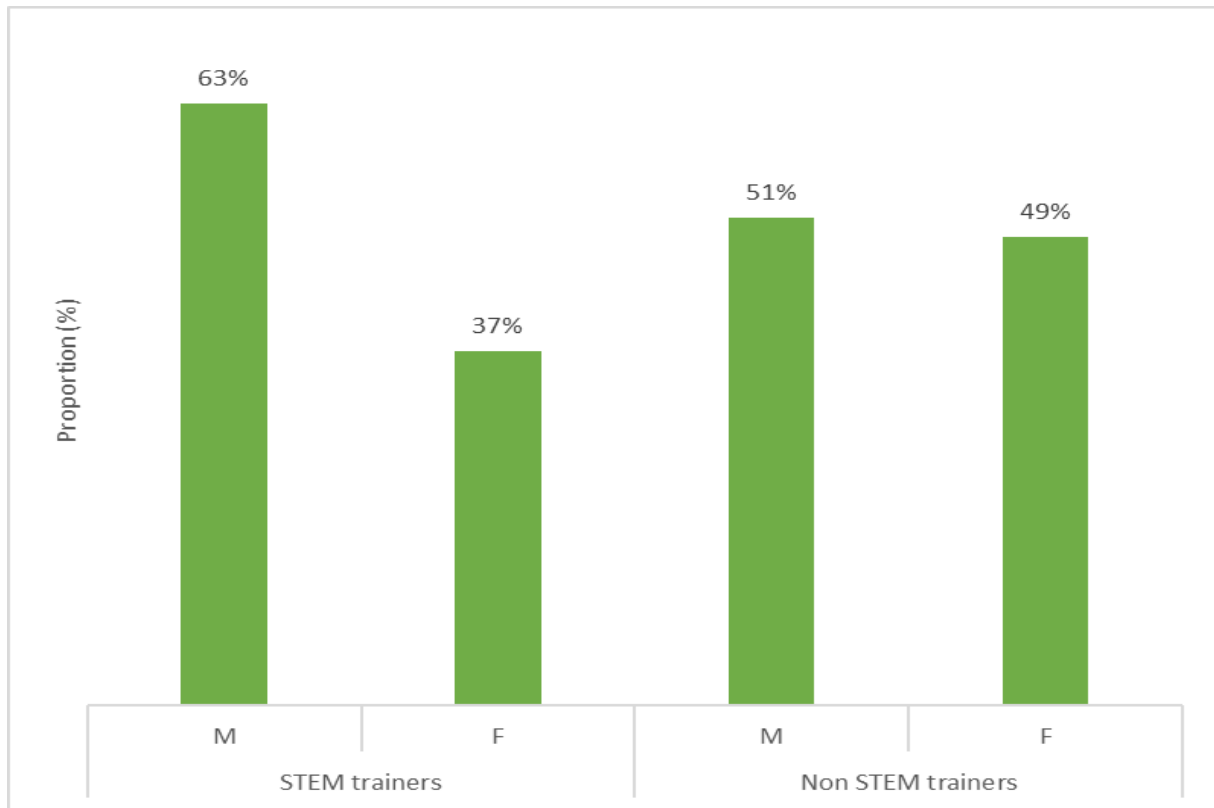
The trainer to trainee ratios in the National polytechnics was found to be higher than the recommended ratio. In STEM courses, it was found that the trainer to trainee ratio is 1:37 against the recommended ratio of 1:20. On the other hand, for non-STEM courses, the trainer-to-trainee ratio was found to be 1:30, slightly above the recommended ratio of 1:30

2.8.5 Trainer to Trainee Ratios in STEM and Non-STEM

A low trainer to trainee ratio is crucial for effective learning. The TVET regulatory standard (TVETA, 2019) prescribes a ratio of 1:20 for practical based programmes and 1:30 for theory-based programmes. This ratio ensures effective learning and allows trainers to provide adequate attention and support to each trainee, which is crucial for skill development and quality education. Lower trainer to trainee ratios could enhance personalized instruction and hands-on training allowing for more individualized attention and better learning outcomes. Table 11 shows trainer to trainee ratios in the National Polytechnics.

Table 11

Trainer to Trainee Ratios in STEM and Non-STEM Courses

National Polytechnic	STEM enrolment	Non-STEM enrolment	STEM staffing	NON-STEM staffing	Trainer: Trainee STEM	Trainer: Trainee non - STEM
Baringo	2760	470	77	16	1:36	29:1
Bungoma	5203	838	179	36	1:29	23:1
Kericho	3156	526	56	12	1:56	44:1
Kabete	7229	1588	206	55	1:35	29:1
Kaiboi	2126	380	110	33	1:19	12:1
Kajiado	1744	234	83	44	1:21	5:1
Kenya Coast	4828	922	202	35	1:24	26:1
Kitale	9645	2380	189	20	1:51	119:1
Mawego	4766	820	126	25	1:38	33:1
Meru	8496	1182	203	50	1:42	24:1
Nyandarua	2457	176	99	24	1:25	7:1
Shamberere	1944	329	60	18	1:32	18:1
Sigalagala	11805	2371	181	69	1:65	34:1
Taita Taveta	2103	933	128	14	1:16	67:1
Eldoret	6600	443	278	17	1:24	26:1
Jeremiah N.	3962	164	147	10	1:27	16:1
Kiambu	7624	1563	221	34	1:34	46:1
Kisii	13825	1869	217	18	1:64	104:1
Kisumu	9010	1916	263	48	1:34	40:1
North-Eastern	1012	262	58	12	1:17	22:1
Nyamira	2069	112	51	12	1:41	9:1
Nyeri	8207	959	193	36	1:42	27:1
Rift Valley	8934	1712	200	93	1:45	18:1
Tseikuru	207	111	26	8	1:08	14:1
Overall	**129712**	**22260**	**3553**	**739**	**1:36**	**30:1**

From Table 11, Kitale and Kisii NPs had the highest trainer to trainee ratio in non-STEM of 1:119 and 1:104 respectively. On the other hand, Sigalagala and Kisii NPs had the highest trainer to trainee ratio in STEM of 1:65 and 1:64 respectively. There is a need for the NPs to recruit more trainers to enhance quality training and acquisition of essential skills by ensuring that the recommended trainer to trainee ratio is not exceeded.

2.8.6 Trainers Employment

Figure 2 shows the proportion of trainers employed by the public service commission or the NP councils.

Figure 2

Proportion of National Polytechnic Trainers by Employer
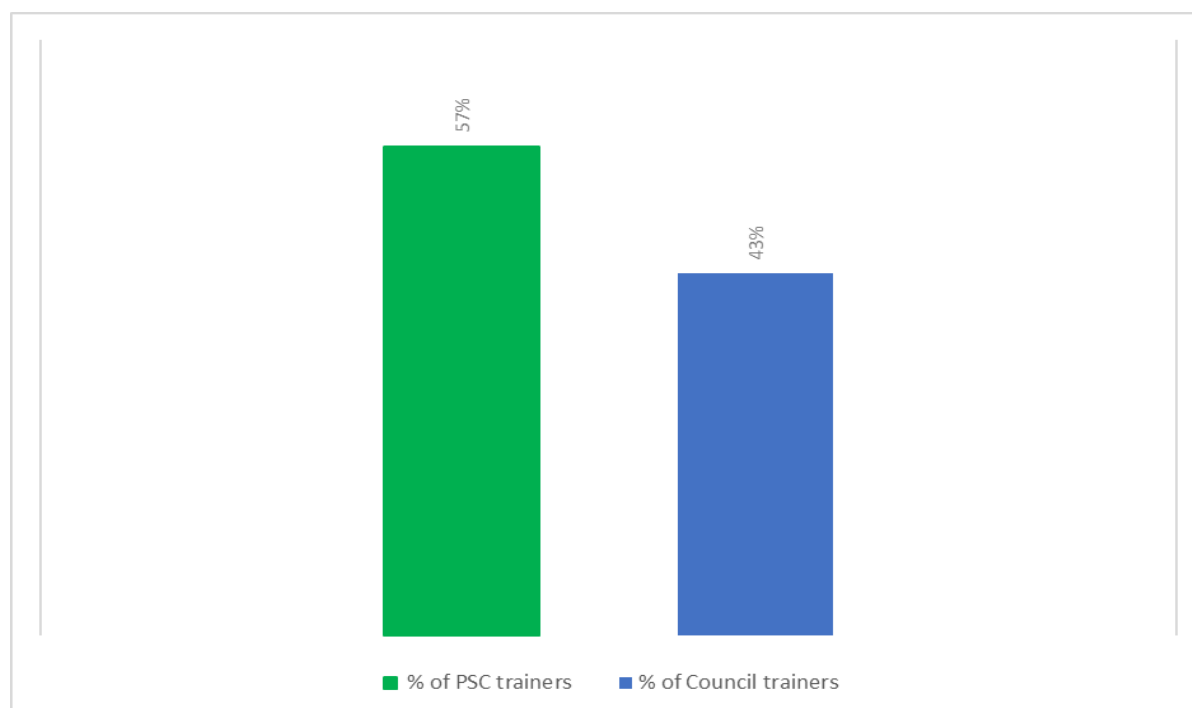
From Figure 2, the majority (57%) of the staff in National Polytechnics are employed by public service while 43% are employed by the respective NPs Councils. Council employment of trainers is a stop gap measure meant to mitigate the trainer shortage in National Polytechnics. A high percentage of council trainers could potentially cause high expenditure that could interfere with the institution's operations.

Table 12

Trainers Terms of Service in National Polytechnic

Institution	% of PSC	% of Council
Baringo	62%	38%
Bungoma	38%	62%
Bureti	53%	47%
Kabete	70%	30%
Kaiboi	45%	55%
Kajiado	75%	25%
Kenya Coast	56%	44%
Kitale	56%	44%
Mawego	40%	60%
Meru	56%	44%
Nyandarua	57%	43%
Shamberere	67%	33%
Sigalagala	45%	55%
Taita Taveta	59%	41%
Eldoret	61%	39%

Institution	% of PSC	% of Council
Jeremiah Nyagah	87%	13%
Kiambu	60%	40%
Kisii	62%	38%
Kisumu	50%	50%
Northeastern	69%	31%
Nyamira	54%	46%
Nyeri	62%	38%
Rift Valley	56%	44%
Tseikuru	62%	38%
Overall	**57%**	**43%**

From the findings, Bungoma and Sigalagala National polytechnic had more trainers employed by respective national polytechnic councils than those employed by public service commission.

CHAPTER THREE
KENYA SCHOOL OF TVET

Overview

The Kenya School of TVET (KS-TVET), formerly KTTC is established under Legal Order No. 123 of June 2022 with the primary objective of training technically skilled personnel, to not only teach in Technical Institutions, but also for employment in all sectors of the economy. This initiative is part of a broader effort to strengthen TVET institutions and enhance learning outcomes.

3.1 Response Rate

There is one Kenya School of TVET in the Country which submitted annual returns as per section 41 of the TVET Act 2013.

3.2 Enrolment

Figure 3 shows the gender disaggregated enrolment at the KSTVET in 2023 for both the STEM and Non-STEM courses.

Figure 3

Gender Disaggregated Enrolment at KSTVET
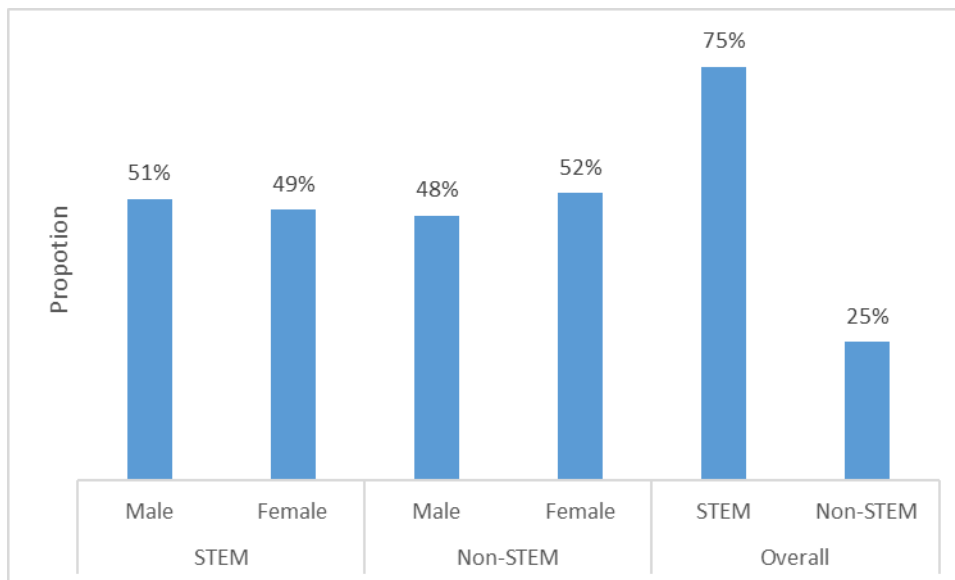
Figure 3 shows enrolment data from KSTVET in STEM and non-STEM courses. There were more male than female trainees in STEM and It was also noted that, in non-STEM courses female trainees were the majority. Generally, the percentage of Male and Female trainees in STEM and non-STEM courses was 75% and 25% respectively. Each gender is fairly distributed in both STEM and non-STEM courses.

3.1 Graduation

Graduation rates are important because they act as pointers to the effectiveness of the training programs and efficiency of the training system. The data collected from the Kenya School of

TVET was disaggregated per gender and course classification i.e. STEM or Non- STEM. Graduation data is depicted in Figure 4.

Figure 4

KSTVET Graduation Rates for the Year 2023
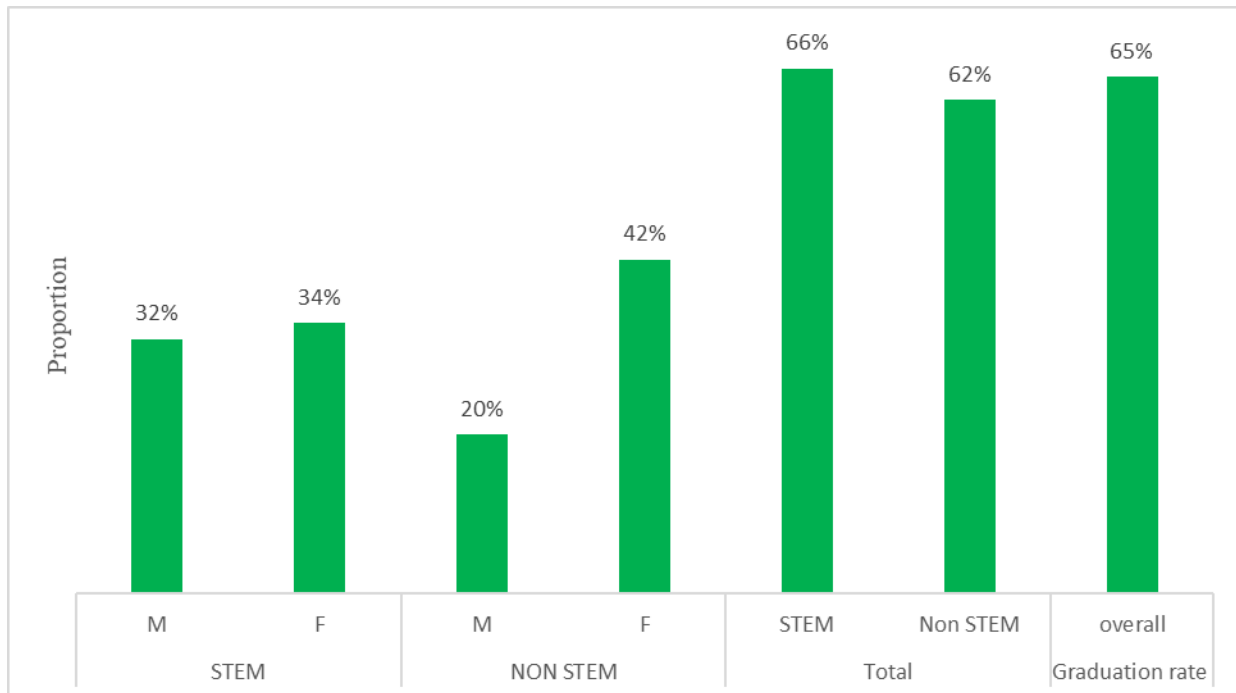
Figure 4 shows that the overall graduation rate in the Kenya School of TVET was 65%. Overall, trainees graduating from KS-TVET under the review period were 32% and 34% males and females respectively in STEM courses and 20% and 42% male and female respectively in non-STEM courses. In total, 2534 trainees at the KS-TVET successfully sat for their final module examinations in the year 2023.

3.2 Dropouts
There were no cases of dropouts recorded at the KSTVET in the year 2023. This could be attributed to an established mechanism at the institution to prevent dropouts of trainees

3.3 Staffing
Trainer qualifications and experience are a critical component of TVET quality assurance. The trainer qualifications framework requires that a trainer to hold a qualification that is at least one level higher than the level that they teach. In addition, the trainer should have undergone pedagogical training.

3.3.1 Trainer Qualification
Trainer qualifications and experience are a critical component of TVET quality assurance. The trainer qualifications framework provides that all trainers should hold a qualification that is at least a level higher than what they teach.

Table 13

Trainer Qualification

Qualification	No Details	Below Craft	Craft	Diploma	HND	BACHELORS	MASTERS	PhD	TOTAL STAFF
Ratio	0(0%)	0(0%)	0(0%)	0(0%)	1(1%)	55(49%)	47(42%)	10(9%)	113(100%)

It was noted that 100% of the trainers at KSTVET had qualifications above Diploma. Most trainers had bachelor's degree at 49%, followed by master's at 42%, PhD at 9% and Higher National Diploma at 1%.

3.3.2 Trainer Gender Distribution in STEM and Non-STEM

Figure 5 shows the gender distribution of trainers engaged by the Kenya School of TVET.

Figure 5

Gender Distribution of Trainers
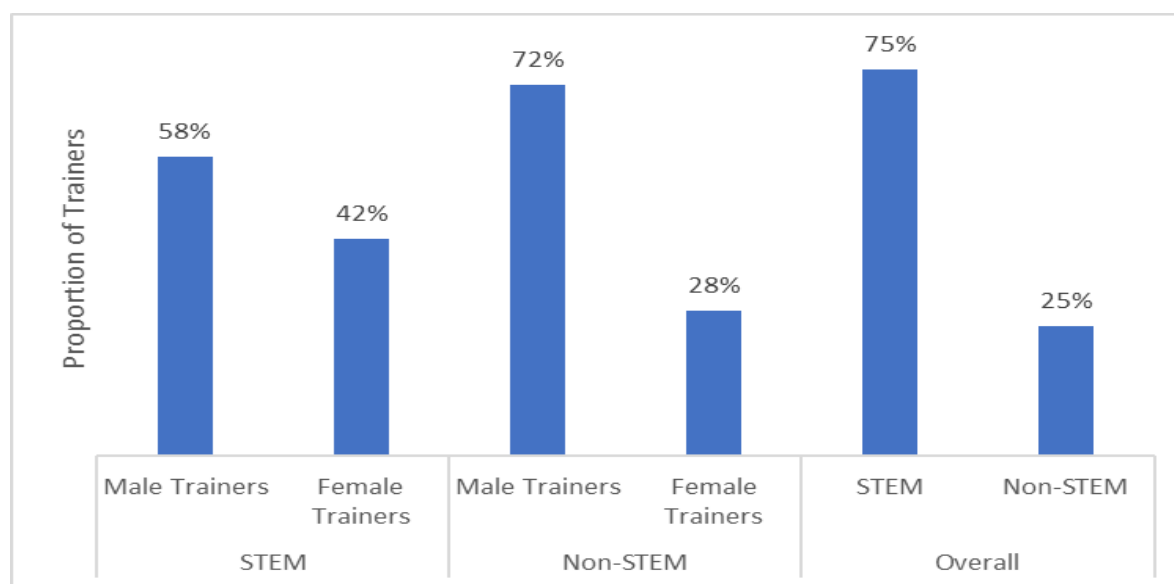
Figure 5 shows that male trainers were more than the female trainers in both STEM and non-STEM courses. Overall, there were more STEM trainers (75%) than non-STEM trainers (25%) engaged by the KS-TVET. This is consistent with the enrolment at the KSTVET in STEM and Non-STEM programs which was 75% and 25% respectively.

3.3.4 Trainer to Trainee Ration in STEM and Non-STEM

Table 14 shows the STEM and non-STEM trainer to trainee ratio at the KSTVET.

Table 14

Trainer to Trainee Ratios in STEM and Non-STEM Programmes

STEM Staff	STEM Trainees	Ratio	Non-STEM Staff	Non-STEM Trainees	Ratio
85	2920	1:33	29	982	1:34

From Table 14, the trainer to trainee ratio in STEM courses was 1:33 against the recommended 1:20 while the non-STEM trainer to trainee ratio was 1:34 against the recommended ratio of 1:30. There is a need for KSTVET to recruit more trainers to enhance quality training and acquisition of essential skills by ensuring that the recommended trainer to trainee ratio is adhered to.

3.3.5 Trainers Employment Category

All trainers (100%) at KS-TVET were employed by the Public Service Commission. As a stop-gap measure, KSTVET could consider engaging some trainers on Council terms to mitigate the shortage of trainers, especially in STEM programmes.

3.3.6 PWDs Staff

There were no PWD trainers in the institution. There is a need to advocate for inclusion and integration of PWDs within the institution staffing framework to comply with Article 54(2) of the Constitution of Kenya.

3.4 PWDs Trainees

Table 15 shows trainees with PWDs in both STEM and non-STEM at KSTVET

Table 15

PWD Trainees in STEM and Non-STEM

STEM trainees PWDs	non-STEM trainees PWDs	Trainees with PWDs	Total enrolment	% of PWDs
6	4	10	3902	0.26%

The proportion of PWD trainees in the institution was 0.26%. There is an urgent need to promote and advocate for disability inclusivity in the enrollment.

CHAPTER FOUR
TECHNICAL AND VOCATIONAL COLLEGES

Overview

Technical and Vocational Colleges (TVCs) equip trainees with the technical skills and knowledge required to meet the demands of various industries and sectors. Technical and Vocational Colleges are classified as public, owned by the government and domiciled in different ministries or privately owned and operated by private sector players. The majority of public TVCs are domiciled in the Ministry of Education in the State Department for Technical and Vocational Training. TVCs play a crucial role in enhancing the employability of graduates and promoting economic development by addressing the skills gap in the labor market. The TVET Authority has accredited 1331 Technical and Vocational Colleges (TVCs).

4.1 Response Rate

All registered TVET institutions are expected to submit annual returns in line with Section 41 (1) of the TVET Act 2013. Institutions were requested to submit annual returns as at the 31st October 2023. Response rate for Technical and Vocational Colleges is presented in Table 16.

Table 16

Response Rate of Technical and Vocational Colleges

Institution Type/Category	No of institutions	Number Submitted	Proportion
Public			
TVCs under MOE	216	176	81%
TVCs under line Ministry	45	30	67%
UTVET	31	18	58%
Private			
TVCs	1035	202	20%
UTVET	4	2	50%
Overall	1331	428	32%

The response rate for Technical and Vocational Collages was 428 representing 32% of all registered TVCs in the Country.

4.2 Enrolment

The enrolment in the TVCs has been increasing steadily over the last 10 years due to various incentives put in place by the government. The enrolment in the STEM and non-STEM courses for 2023 is shown in Table 17.

Table 17

Trainee Ratio by Gender in STEM and Non-STEM

Institution Type/Category	Male STEM	Female STEM	STEM M:F	Male non-STEM	Female non-STEM	Non-STEM M:F	Total STEM	Total non-STEM	STEM : Non-STEM
Public	122092	85388	7:5	9133	21464	2:5	207480	30597	34:5
TVCs under MOE	105308	74849	7:5	7344	18671	2:5	180157	26015	69:10
TVCs under line Ministry	12419	8166	3:2	880	1350	7:10	20585	2230	46:5
UTVET	4365	2373	9:5	909	1443	3:5	6738	2352	29:10
Private	8019	11913	7:10	4413	5773	4:5	19932	10186	2:1
TVCs	7980	11896	7:10	4378	5758	4:5	19876	10136	2:1
UTVET	39	17	23:10	35	15	23:10	56	50	11:10
Overall	**130,111**	**97,301**	**13:10**	**13,546**	**27,237**	**1:2**	**227,412**	**40,783**	**28:5**

The enrolment data received from 224 public TVCs (75.7%) showed that enrollment in STEM courses was much higher than non-STEM courses at a ratio of 34:5. This observation can be attributed to the heavy investments by the government in construction and equipping of both new and existing TVCs with state-of-the-art equipment. Other factors that have led to increased enrolment in TVET courses could include higher demand for STEM skills in the labour market. There were more male trainees than female trainees in STEM based courses across all categories of institutions. Generally, the ratio of Male to Female trainees in STEM courses in TVCs was 13:10. It was also noted that, in non-STEM courses female trainees were the majority across all categories except private university directorate of TVET. Generally, the ratio of Male to Female trainees in non-STEM courses was 1:2. Therefore, there was need to enhance gender mainstreaming initiatives in TVCs to ensure both genders are fairly represented across the board.

4.3 Graduation Rates

Graduation rates are important because they can act as pointers to the effectiveness of the training programs and efficiency of the training system. The data collected from TVCs was disaggregated per institution category and type, gender and course classification i.e STEM or Non- STEM. Graduation data for TVCs is presented in table 18.

Table 18

Technical and Vocational Colleges Graduation Data for year 2023

	STEM				non-STEM				Overall
Category	Enrollment	% Male graduates	% Female graduates	% Total graduates	Enrollment	% Male graduates	% Female graduates	% Total graduates	% Overall graduates
Public	**207480**	**14%**	**9%**	**23%**	**30597**	**8%**	**17%**	**25%**	**23%**
TVC in MoE	180157	11%	8%	19%	26015	6%	16%	22%	19%
TVC Under line Ministry	20585	38%	16%	53%	2230	21%	28%	49%	53%
UTVET	6738	16%	11%	27%	2352	13%	22%	35%	29%
Private	**19932**	**22%**	**29%**	**51%**	**10186**	**18%**	**26%**	**45%**	**49%**
TVC	19876	22%	29%	51%	10136	18%	26%	45%	49%
UTVET	56	5%	0%	5%	50	0%	6%	6%	6%
Overall	**227412**	**14%**	**14%**	**25%**	**40783**	**10%**	**19%**	**30%**	**26%**

Graduation rates in TVCs ranged from 6% to 53% with private UTVET recording the lowest at 6%. TVCs in line Ministries recording the highest rates in both STEM (53%) and non-STEM (49%) courses. The non-STEM courses recorded a higher overall graduation rate (30%) than STEM courses (25%). The overall graduation rate in TVCs was 26% which was below the average lowest expected rate of 33.3% for diploma programmes which takes a duration of 3 years. The TVCs should improve the graduation rates to higher levels.

4.4 Dropout Rates

Dropout rates provide an important indicator of wastage in the training system. High dropout rates can indicate issues with the curriculum, delivery style, trainer effectiveness or trainee support services. Through such feedback, institutions can develop early interventions aimed at improving trainee engagement and reducing dropouts. The dropout data collected from TVCs are shown in Table 19.

Table 19

Dropout Rates in Technical and Vocational Colleges

	STEM	STEM dropout			non-STEM	non-STEM dropout			Overall
Category	Enrollment	% Male	% Female	% Total	Enrollment	% Male	% Female	% Total	% Overall
Public	**207480**	**2.3%**	**1.8%**	**4.1%**	**30597**	**1.7%**	**2.8%**	**4.6%**	**4.2%**
MoE TVCs	180157	2.3%	1.8%	4.1%	26015	1.5%	2.8%	4.3%	4.2%
Line Ministry TVCs	20585	1.7%	1.6%	3.3%	2230	1.5%	1.8%	3.3%	3.3%
UTVET	6738	3.0%	2.7%	5.7%	2352	4.3%	4.4%	8.6%	6.5%

Private	**19932**	**4.0%**	**4.6%**	**8.6%**	**10186**	**4.5%**	**5.1%**	**9.5%**	**8.9%**
TVC	19876	4.0%	4.6%	8.6%	10136	4.5%	5.1%	9.6%	8.9%
UTVET	56	1.8%	0.0%	1.8%	50	2.0%	2.0%	4.0%	2.8%
Overall	**227412**	**2.4%**	**2.1%**	**4.5%**	**40783**	**2.4%**	**3.4%**	**5.8%**	**4.7%**

Dropout rates in TVCs ranged from 2.8% to 8.9% with private UTVETs recording the lowest while private TVCs recording the highest rates at 8.9%. Generally, the dropout rates recorded in the non-STEM (5.8%) were higher than those for the STEM programmes (4.5%). The overall dropout rate for TVCs was 4.7%. This significant dropout rate could be attributed to internal inefficiencies within the institutions and needed to be studied to establish the root cause and help address them. The results from this data are consistent with findings by a study conducted by Yi, H et al (2015) which reported that TVET programmes in developing countries experience generally high dropout rates.

4.5 Staffing

Trainer qualifications and experience are a critical component of TVET quality assurance. The trainer qualifications framework requires that a trainer should hold a qualification that is at least one level higher than the level that they teach. In addition, the trainer should have undergone pedagogical training.

4.5.1 Trainer Qualifications

TVCs are mandated to offer programs up to Diploma level and therefore require well-qualified and experienced trainers to train at all levels. Trainers in public and private TVCs had varied qualifications as shown in Table 20.

Table 20

TVCs Trainer Qualification

Category	Below Craft	Craft	Diploma	HND	Bachelors	Masters	PhD	Total
MoE TVCs	64(1.1%)	140(2.4%)	1642(27.7%)	446(7.5%)	3282(55.3%)	336(5.7%)	21(0.4%)	6074(59%)
Line Ministry TVCs	146(13.1%)	16(1.4%)	196(17.6%)	57(5.1%)	502(45.2%)	187(16.8%)	7(0.6%)	1113(11%)
Public UTVET	0(0%)	0(0%)	75(7%)	47(4.4%)	771(72.3%)	130(12.2%)	43(4.0%)	1066(10%)
Private TVC	44(2.3%)	70(3.7%)	629(33.3%)	134(7.1%)	867(45.9%)	125(6.6%)	18(1.0%)	1921(19%)
Private UTVET	0(0.0%)	0(0.0%)	7(15.2%)	0(0.0%)	27(58.7%)	12(26.1%)	0(0.0%)	57(1%)
Overall	**254(2.5%)**	**226(2.3%)**	**2549(25.4%)**	**684(6.8%)**	**5449(54.3%)**	**790(7.9%)**	**89(0.9%)**	**10231**

Trainer qualifications in TVCs ranged from the Craft Certificate to PhD. The majority (54.3%) of trainers in this category of institutions had bachelor's degree qualification followed by Diploma (25.4%) and master's degree (7.9%). University TVET institutions did not have any trainer with a Craft Certificate and below, which is a pointer to investment in high quality trainers. Public TVCs in line ministries had the largest number of trainers with qualifications

below Craft Certificate. This could be an indicator of lack of enforcement of the trainer qualification framework by line ministries during trainer recruitment processes. Public University TVETs had the highest proportion of trainers with PhD qualification (4%) while private University TVETs had no trainers who were PhD holders.

4.5.2 Trainer Gender Distribution in STEM and Non-STEM

The TVCs were asked to provide gender disaggregated data for trainers that had been engaged to teach both STEM and Non-STEM programmes. Responses are presented in Figure 6

Figure 6

Trainer Gender Distribution in STEM and Non-STEM
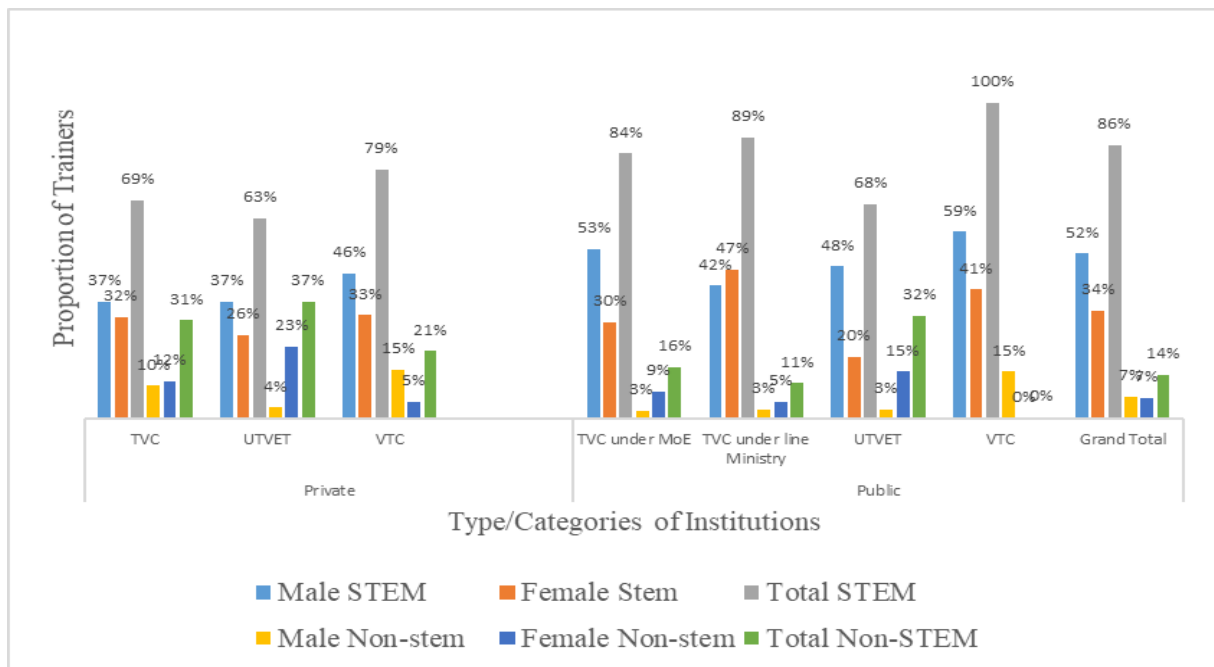
Figure 6 shows that the proportion of male STEM trainers was higher than that of female STEM trainers for all the categories of TVET institutions except in the TVCs under line ministry. The proportion of male non-STEM trainers was relatively lower than that of female non-STEM trainers for all the categories of TVET institutions except in the TVCs under Ministry of Education and private University TVET Directorates. The gender proportion was however compliant to the two-third gender rule required by the Kenyan constitution.

4.5.3 Trainer to Trainee Ratio in STEM and Non-STEM

The table 21 shows trainer to trainee ratio in both STEM and Non-STEM in Technical and vocational colleges

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Table 21

Trainer to Trainee Ratio in STEM and Non-STEM

Institution Type	STEM			Non-STEM		
	Trainers	**Trainees**	**Ratio**	**Trainers**	**Trainees**	**Ratio**
Public	**7073**	**207480**	**1:33**	**1420**	**30597**	**1:20**
Technical and Vocation College	5805	180157	1:33	1125	26015	1:25
Underline Ministry	884	20585	1:25	111	2230	1:20
University TVET Training Institute	384	6738	1:17	184	2352	1:13
Private	**1365**	**19932**	**1:14**	**620**	**10186**	**1:17**
Technical and Vocation College	1329	19876	1:14	599	10136	1:17
University TVET Training Institute	36	56	1:2	21	50	1:2
Overall	**8438**	**227412**	**1:25**	**2040**	**40783**	**1:20**

From the results in Table 21, The ratio of STEM trainer to trainee in public institutions was 1:33 while for non-STEM was 1:20. The Public TVCs had the highest trainer to trainee ratio in STEM. The ratio of STEM trainers to trainees in private institutions was 1:14 while for non-STEM it was 1:17. Generally, the STEM trainer to trainee ratio for all institutions was 1:25 while for non-STEM was 1:20. A higher trainer-to-trainee ratio could negatively impact education quality provided since there is minimal individualized trainee-centered training. There is a need to hire additional trainers to have an optimal ratio thus ensuring delivery of quality education and training.

4.5.4 Trainers Employment Category in TVCs

The government of Kenya employs and deploys trainers in all public institutions. Individual public TVCs can engage trainers on Board terms to mitigate any existing shortages. Private institutions, however, engage their trainers on terms determined by their respective boards of management. Figure 7 shows the proportion of trainers employed by the public and private TVCs on both PSC and Board of management terms.

Figure 7

Trainers Employment Categories in TVCs
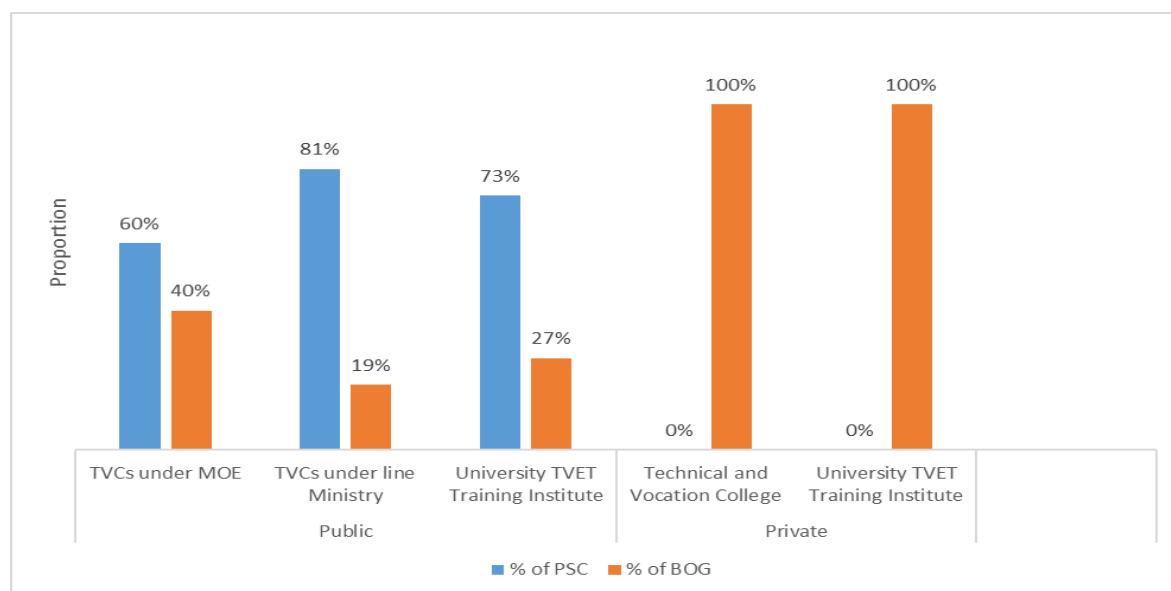
All categories of public institutions had a composition of both Public Service Commission and Individual institutions governing boards as employers. TVCs under line ministry had the highest proportion of trainers (81%) employed by the Public Service Commission, Public UTVETs were 73% and TVCs under Ministry of Education were 60%. The board employment of trainers is a stop gap measure meant to mitigate the trainer shortage in Technical and Vocational colleges. The high percentage of trainers employed by the Board could result in a high expenditure that could potentially interfere with the institution's operations. All trainers in the private TVCs were employed by the individual institutional Boards of Governors.

4.5.5 PWD Staff

The table 22 shows proportion of PWDs staff engaged by Technical and Vocational Colleges

Table 22

Proportion of PWD Staff

Category & Type	Male STEM	Female STEM	Male non-STEM	Female non-STEM	Total PWD	Total Staff	% of PWD
Public TVC MoE	31	12	16	5	64	6096	1.0%
Public TVC Under line Ministry	1	0	0	0	1	1062	0.1%
Public UTVET	1	1	1	0	3	1121	0.3%
Private TVC	2	0	0	1	3	1954	0.2%
Private UTVET	0	0	0	0	0	57	0.0%
Overall	**35**	**13**	**17**	**6**	**71**	**10290**	**0.7%**

The Public TVCs under the Ministry of Education had the highest proportion of both STEM and Non-STEM trainers with disabilities which constituted 1% of the total trainers in TVCs.

There were no PWD staff in private university TVETs. Therefore, there is an urgency to create awareness on inclusivity in the institutions. The total number of Staff in TVCs was 10290 which represented 0.7% of all the trainers engaged. This is below the national recommended ratio of 5% of all employees to be PWDs.

4.4 PWDs Trainees

Integrating learners with disabilities into training programs can have significant economic benefits in that, it increases the employability of individuals with disabilities, allowing them to contribute to the workforce and the economy. Institutions were requested to provide proportion of trainees who were PWDs as of the 31st of October 2023. The responses are presented in table 23.

Table 23

PWD Trainees Enrolment Data in TVCs

Institution Type/Category	STEM			Non-STEM			Total		
	Enrolment	PWDs	Proportion	Enrolment	PWDs	Proportion	Enrolment	PWDs	Proportion
Public	207480	1461	0.70%	30597	425	1.39%	238077	1886	0.79%
TVC	180157	1437	0.80%	26015	423	1.63%	206172	1860	0.90%
Under line Ministry University	20585	20	0.10%	2230	0	0.00%	22815	20	0.09%
TVET Institute	6738	4	0.06%	2352	2	0.09%	9090	6	0.07%
Private	19932	56	0.28%	10186	14	0.14%	30118	70	0.23%
TVC University	19876	56	0.28%	10136	14	0.14%	30012	70	0.23%
TVET Institute	56	0	0.00%	50	0	0.00%	106	0	0.00%
Overall	**227412**	**1517**	**0.67%**	**40783**	**439**	**1.08%**	**268195**	**1956**	**0.73%**

The enrollment of persons with disabilities (PWDs) in the TVCs was generally low. The PWDs enrolled in all the TVCs constituted only 0.73% of the total enrollment. The PWDs trainees constituted only 0.79% of the total enrollment in public institutions. PWD trainees made up 0.23% of the total enrollment in private institutions. There is therefore a need for all TVCs to put in place accessible facilities to ensure persons with disabilities are integrated into the institutions to the extent compatible with their interests in line with Article 54 (b) of the Kenya Constitution 2010.

CHAPTER FIVE
VOCATIONAL TRAINING CENTRES

Overview

Vocational Training Centres (VTCs) equip trainees with the technical skills and knowledge required to meet the demands of various industries and sectors. Vocational Centres are classified either as public, which are owned by the government, or private, which are owned and operated by private sector players. The majority of public VTCs are owned by the County Governments. VTCs play a crucial role in enhancing the employability of graduates and promoting economic development by addressing the skills gap in the labor market. The TVET Authority has accredited 1015 public and 99 private VTCs.

5.1 Response Rate

Vocational Training Centres are required to submit annual returns in line with Section 41(1) of the TVET ACT 2013. VTCs were requested to submit annual returns as at 31st October 2023. Response rate is presented in Table 24.

Table 24

Response Rate of Vocational Training Centres

Institution Type/Category	No. of Institutions	Number Submitted	Proportion
Public VTCs	1015	794	78%
Private VTCs	99	34	34%
Overall	**1114**	**828**	**74%**

The response rate for Vocational Training Centres was 828 representing 74% of all registered VTCs in the Country.

5.2 Enrolment in VTCs

The enrolment in the STEM and non-STEM courses in VTCs for the year 2023 is shown in Table 25.

Table 25

Trainee enrolment by Gender and programme category (STEM and Non-STEM)

| Institution Type | STEM | | | Non-STEM | | | Total | | |
	Male	Female	Ratio	Male	Female	Ratio	STEM	Non-STEM	Ratio
Public VTCs	60443	43171	7:5	0	0	0	103614	0	0
Private VTCs	1507	2152	7:10	404	583	7:10	3659	987	37:10

From the table 25, there were more male trainees than female trainees in public STEM VTCs while in private VTCs, there were more female trainees compared to male trainees in both

STEM and Non-STEM courses. There was need therefore to enhance gender mainstreaming initiatives in VTCs to ensure both genders are fairly represented across the board. The ratio of STEM to Non-STEM trainees in private VTCs was 37:10. This observation can be attributed to only private VTCs offering mostly STEM courses. The non-STEM courses offered by the VTCs included Secretarial Studies and Front Office Operations.

5.3 Graduation Rate

Graduation data collected from Vocational Training Centres was used to determine the trainee transitions from one module/ year of study to another. Table 26 provides the gender disaggregated graduation data in STEM and non-STEM courses for the private and public Vocational training Centres.

Table 26

VTCs Graduation Data for 2023

		STEM Graduates				Non-STEM Graduates			Overall
Category	Enrollment	Male	Female	Total	Enrollment	Male	Female	Total	Overall
Public VTC	103614	21.2%	15.1%	36.4%	0	-	-	-	36.4%
Private VTC	3659	25.2%	37.6%	62.8%	987	12.0%	19.5%	31.4%	56.1%
Overall	**107273**	**21.3%**	**15.9%**	**37.3%**	**987**	**15.4%**	**25.8%**	**41.2%**	**37.3%**

The average graduation rate in VTCs was 36.4% for public and 56.1% for private VTCs. The lower graduation rate in public VTCs could be attributed to lower investment made in them by respective County Governments. The graduation rate in non-STEM courses (41.2%) was higher than in STEM courses (37.3%). The overall graduation rate was 37.3%. The relatively high graduation rate could be attributed to the short duration of courses offered at the VTCs.

5.4 Dropout Rates

Dropout rates are important indicators of wastage in the training system. High dropout rates can indicate issues with the curriculum, delivery style, trainer effectiveness or trainee support services. Through such feedback, institutions can develop early interventions aimed at improving trainee engagement and reducing the rate of dropouts. The gender disaggregated dropout data in STEM and non-STEM programmes is shown in Table 27.

Table 27

Dropout Rates in Vocational Training Centres

	STEM DROPOUTS			Non-STEM DROPOUTS			OVERALL	
Type	Enrollment	Male	Female	Total	Enrollment	Male	Female	Total	Overall
Public VTC	103614	11.4%	8.5%	19.9%	0	-	-	-	19.9%
Private VTC	3659	4.1%	8.0%	12.1%	987	2.7%	2.2%	5%	10.6%
Overall	**107273**	**11.1%**	**8.5%**	**19.6%**	**987**	**5.9%**	**4.6%**	**10%**	**19.5%**

Dropout rates in public VTCs were 19.9% and 10.6% for private VTCs. The overall dropout rate in VTCs was 19.5% which was relatively high. This could be attributed to minimal initiatives in the VTCs by the County Governments.

5.5 Staffing

Trainer qualifications and experience are a critical component of TVET quality assurance. The trainer qualifications framework provides that for an individual to qualify as a trainer, they should hold a qualification that is at least a level higher than what they teach. VTCs are mandated to offer programs up to craft level and therefore require well-qualified and experienced trainers to train at all levels.

5.5.1 Trainer Qualification

Trainers in public and private VTCs had varied qualifications as shown in Table 28.

Table 28

Trainer Qualifications in VTCs

Institution Type	No Details	Below Craft	Craft	Diploma	HND	Bachelors	Masters	PhD
Public	50 (0.94%)	1839 (34.58%)	927 (17.43%)	1997 (37.55%)	135 (2.54%)	335 (6.30%)	35 (0.66%)	0 (0.00%)
Private	14 (6.33%)	37 (16.74%)	32 (14.48%)	61 (27.60%)	9 (4.07%)	58 (26.24%)	7 (3.17%)	3 (1.36%)
Overall	**64 (1.16%)**	**1876 (33.87%)**	**959 (17.31%)**	**2058 (37.15%)**	**144 (2.60%)**	**393 (7.10%)**	**42 (0.76%)**	**3 (0.05%)**

Trainer qualifications in VTCs ranged from the Craft Certificate to PhD. The majority (37.15%) of trainers in this category of institutions had Diploma qualifications followed by Below Craft (33.87%) and Craft (17.31%). Public VTCs had the largest number of trainers with qualifications below Craft Certificate. This could be an indicator of the lack of enforcement of the trainer qualification framework during trainer recruitment processes.

5.5.2 Trainer Gender Distribution in STEM and Non-STEM

The proportion of trainers in VTCs was disaggregated by gender and programme categories as shown in table 29 below.

Table 29

Trainer gender distribution in STEM and Non-STEM

Institution Type	STEM			Non-STEM		
	Male	Female	Ratio	Male	Female	Ratio
Public	3084	2130	7:5	9	11	4:5
Private	102	72	7:5	34	12	14:5
Overall	**3186**	**2202**	**7:5**	**43**	**23**	**19:10**

Results from table 29 shows that, there were more male STEM trainers in both private and public institutions. The ratio of male to female trainers was 7:5 in both public and private STEM institutions which is in line with the two-third gender rule in the Kenyan Constitution. There were more female non-STEM trainers than the male trainers with a ratio of 4:5 in public VTCs institutions. There were more male non-STEM trainers than female non-STEM trainers in private institutions with a ratio of 14:5. This indicates the need to increase gender parity and inclusivity in private institutions.

5.5.3 Trainer to Trainee Ratio in STEM and Non-STEM

Table 30 shows the trainer: trainee ratio in VTCs. The recommended Trainer Trainee ratio for this category is 1:25 and 1:30 for STEM and Non-STEM programmes respectively.

Table 30

Trainer to Trainee Ratio

Institution Type	STEM			Non-STEM		
	Trainers	Trainees	Ratio	Trainers	Trainees	Ratio
Public	5299	105324	1:20	0	0	-
Private	191	3659	1:19	29	987	1:33
Overall	**5490**	**108983**	**1:20**	**29**	**987**	**1:33**

The overall trainer to trainee ratio in STEM public VTCs was 1:20 while the ratio for non-STEM for private VTCs was 1:33. A higher trainer-to-trainee ratio could negatively impact education quality provided since there is minimal individualized trainee-centered training. There is a need to hire additional trainers in non-STEM programmes to ensure delivery of quality education and training.

5.5.4 Trainers Employment Category

Each of the 47 county governments recruit trainers for the public VTC institutions within their respective administrative units. Public VTCs can engage trainers on Board terms to mitigate any existing shortages. Private institutions, however, engage their trainers on terms determined by their respective boards of management. Figure 8 shows the proportion of trainers employed by the County Public Service Board and the VTC Boards of Governors.

Figure 8

Trainer Employment Category
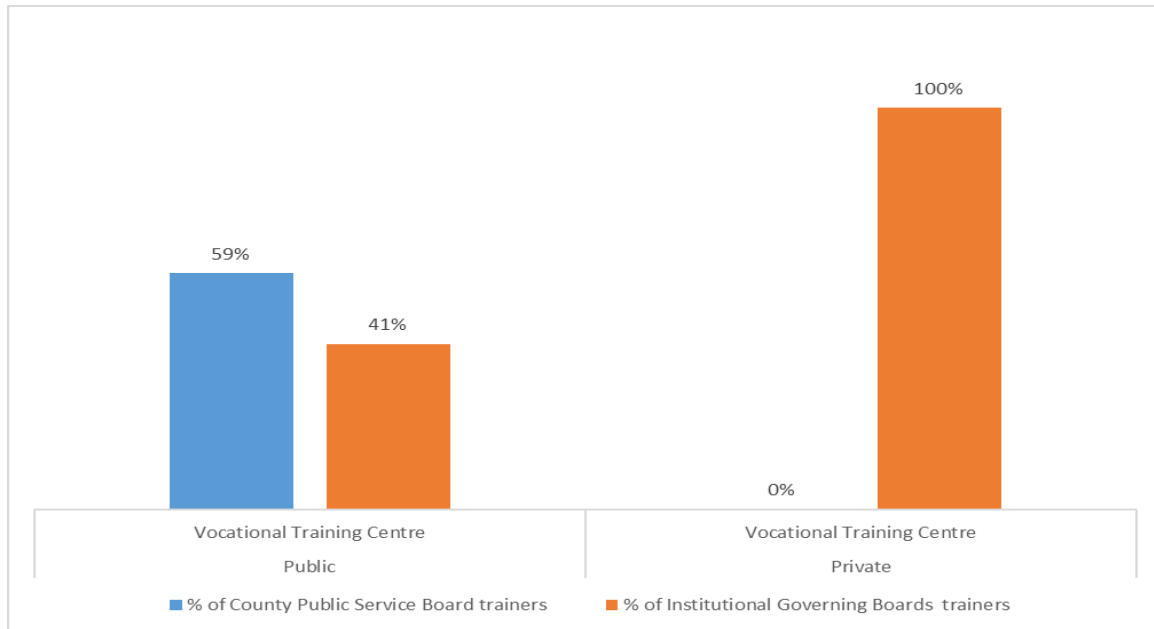
The public VTCs had trainers employed by County Public Service Board and Institutional Governing Boards. From Figure8, 59% and 41% of the trainers in public VTCs trainers were employed by the County Public Service Boards and institutional Boards of Governors respectively. All trainers engaged in private VTCs were employed by their respective institutional Boards.

5.5.5 PWDs Staff

Table 31 shows the proportion of PWDs staff engaged by Vocational Training Centers.

Table 31

PWDs Staff Engaged by VTCs

Type/Category	Total Staffing	Staff With Disability	% of PWDs staff
Public VTCs	5234	66	1.26%
Private VTCs	220	4	1.82%
Overall	**5454**	**70**	**1.28%**

The data showed that the private VTCs had a higher proportion of PWD trainers (1.82%) than the public VTCs (1.26%). The mean proportion of PWDs in the VTCs was 1.28%. The

proportion of PWDs employed by the VTCs is much lower than the recommended ratio of 5%. Therefore, there is an urgent need to employ more PWDs in the institutions to attain the recommended ratio.

5.6 PWDs Trainees

Respondents were asked to provide data on the trainees with disabilities enrolled in their respective institutions. Table 32 presents data of trainees with disabilities in the VTCs.

Table 32

PWD Trainees Enrolment in VTCs in the Year 2023

Type/Category	Total Enrolment	PWD Trainees	% of PWDs trainees
Public VTCs	103614	682	0.66%
Private VTCs	4646	17	0.37%
Overall	**108260**	**699**	**0.65%**

Table 32 shows that the proportion of PWD trainees in public VTCs was higher than that in private VTCs. The ratio of trainees with disabilities enrolled in VTCs was 0.65% which is below the national average of 2.2% of PWDs in Kenya. Therefore, there is an urgent need to involve VTCs stakeholders in planning and implementation of inclusive policies and practices in training.

CHAPTER SIX
NATIONAL OUTLOOK

Overview

This section deals with data for all TVET institutions that provided the annual returns data across the country. It specifically presents the overall enrolment, graduation, dropout and staffing data for all categories and types of institutions as of 31st October 2023.

6.1 Response Rates

6.1.1 Response Rate for All Categories of TVET Institutions

Table 33 shows the response rates for all the types and categories of TVET institutions.

Table 33

Response Rate of Each Category of Institutions

Institution Type/Category	No of institutions	Number Submitted	Proportion
Public			
National Polytechnic	24	24	100%
Technical Trainer College	1	1	100%
TVCs under MOE	216	176	81%
TVCs under line Ministry	45	30	67%
UTVET	31	18	58%
VTCs	1015	794	78%
Private			
TVCs	1035	202	20%
UTVET	4	2	50%
VTCs	99	34	34%
Overall	**2,469**	**1,281**	**52%**

The Authority had accredited 2,469 TVET institutions as of 31st October 2023. The number of institutions that submitted their annual returns data was 1,281, representing 52% of the accredited institutions.

6.1.2 Response Rate per County

Table 34 shows the response rate for each county for each category of institution.

Table 34
Response Rate per County for each Category of Institutions

No	County	Public			Private		Total	Submitted returns	% of Submitted
		NPs	TVCs	VTCs	TVCs	VTCs			
1	Baringo	1	6	13	6	0	26	21	81%
2	Bomet	0	5	21	11	0	37	35	95%
3	Bungoma	1	8	66	9	1	85	79	93%

		Public			Private			Submitted	% of
No	County	NPs	TVCs	VTCs	TVCs	VTCs	Total	returns	Submitted
4	Busia	0	8	17	5	1	31	23	74%
5	Elgeyo-Marakwet	0	4	16	4	0	24	8	33%
6	Embu	1	6	21	14	0	42	11	26%
7	Garissa	1	2	3	10	0	16	8	50%
8	Homa Bay	1	5	27	7	1	41	7	17%
9	Isiolo	0	1	4	3	1	9	6	67%
10	Kajiado	1	4	5	38	3	51	22	43%
11	Kakamega	2	12	56	13	2	85	72	85%
12	Kericho	1	4	8	13	0	26	9	35%
13	Kiambu	1	9	38	122	3	173	64	37%
14	Kilifi	0	3	40	22	6	71	40	56%
15	Kirinyaga	0	4	15	13	0	32	23	72%
16	Kisii	1	6	57	20	0	84	63	75%
17	Kisumu	1	5	22	28	2	58	35	60%
18	Kitui	1	8	54	12	12	87	58	67%
19	Kwale	0	3	14	6	2	25	13	52%
20	Laikipia	0	4	11	6	2	23	20	87%
21	Lamu	0	1	8	0	0	9	1	11%
22	Machakos	0	7	35	37	9	88	57	65%
23	Makueni	0	6	42	13	1	62	51	82%
24	Mandera	0	2	7	0	0	9	9	100%
25	Marsabit	0	2	6	0	1	9	6	67%
26	Meru	1	12	34	18	1	66	36	55%
27	Migori	0	8	22	13	2	45	21	47%
28	Mombasa	1	9	3	58	8	79	27	34%
29	Murang'a	0	8	55	12	1	76	33	43%
30	Nairobi	1	42	11	315	18	387	104	27%
31	Nakuru	1	20	32	57	3	113	51	45%
32	Nandi	1	5	14	7	1	28	22	79%
33	Narok	0	5	7	7	0	19	9	47%
34	Nyamira	1	4	31	5	0	41	8	20%
35	Nyandarua	1	4	16	3	1	25	11	44%
36	Nyeri	1	10	9	20	1	41	24	59%
37	Samburu	0	1	1	4	0	6	2	33%
38	Siaya	0	7	22	9	4	42	26	62%
39	Taita Taveta	1	3	31	6	0	41	33	80%
40	Tana River	0	3	7	1	0	11	10	91%
41	Tharaka Nithi	0	4	18	5	1	28	24	86%
42	Trans-Nzoia	1	4	36	14	1	56	24	43%

| No | County | Public | | | Private | | | | |
		NPs	TVCs	VTCs	TVCs	VTCs	Total	Submitted returns	% of Submitted
43	Turkana	0	5	8	9	1	23	11	48%
44	Uasin Gishu	1	10	11	48	7	77	23	30%
45	Vihiga	0	3	26	4	1	34	31	91%
46	Wajir	0	3	8	2	0	13	1	8%
47	West Pokot	0	1	7	6	1	15	9	60%
Overall		**24**	**296**	**1015**	**1035**	**99**	**2469**	**1281**	**52%**

Mandera county recorded the highest proportion (100%) of institutions that submitted the annual returns followed by Bomet (95%, Bungoma (93%) and Tana River (91%) respectively. On the other hand, Wajir county had the lowest proportion (8%) of TVET institutions that submitted the annual returns followed by Lamu (11%), Homa Bay (17%) and Nyamira (20%) respectively.

6.2 Enrolment

The STEM courses recorded much higher enrolments (467,317) than the non-STEM courses (65,012). The overall ratio of enrolment in the STEM to non-STEM courses was 7:1. Table 35 shows the enrolment in the various categories of public and private TVET institutions.

Table 35

TVET Institutions Enrollment Data for the Year 2023

| | STEM | | | Non-STEM | | | Total | | |
Type/Category	Male	Female	Ratio	Male	Female	Ratio	STEM	Non-STEM	Ratio
Public	260307	183419	7:5	15416	38423	2:5	443726	53839	41:50
NP	76297	53415	7:5	5811	16449	2:5	129712	22260	29:5
TVC	122092	85388	7:5	9133	21464	2:5	207480	30597	34:5
TTC	1475	1445	1:1	472	510	9:10	2920	982	3:1
VTC	60443	43171	7:5	0	0	-	103614	0	-
Private	9526	14065	7:10	4817	6356	4:5	23591	11173	21:10
TVC	8019	11913	7:10	4413	5773	4:5	19932	10186	2:1
VTC	1507	2152	7:10	404	583	7:10	3659	987	37:10
Overall	**269833**	**197484**	**7:5**	**20233**	**44779**	**1:2**	**467317**	**65012**	**7:1**

6.3 Graduation

Graduation rates are important because they can act as pointers to the effectiveness of the training programs and efficiency of the training system. The data collected from TVET

Institutions was disaggregated by institution category and type, gender and course classification i.e STEM or Non- STEM. Graduation data for all the TVET institutions is presented in Table 36.

Table 36

TVET Institutions Graduation Data for the Year 2023

Category/Type	STEM			Non-STEM			Overall
	Enrolment	Male	Female	Enrolment	Male	Female	% Overall
Public	443726	15%	11%	53839	9%	18%	25%
NPs	129712	11%	9%	22260	9%	18%	21%
TVCs	207480	14%	9%	30597	8%	17%	23%
TTCs	2920	32%	34%	982	20%	42%	65%
VTCs	103614	21%	15%	-	34	63	36%
Private	23591	23%)	30%	11173	18%	26%	50%
TVCs	19932	22%	29%	10186	18%	26%	49%
VTCs	3659	25%	38%	987	12%	19%	56%
Overall	**467317**	**15%**	**12%**	**65012**	**10%**	**19%**	**27%**

Graduation rates in TVET Institutions ranged from 21% to 65% with NPs recording the lowest while the Kenya School of TVET recording the highest rate. The overall graduation rate for TVET Institutions for the year 2023 was 27%. This graduation rate is below the lowest expected average rate of 33.3%. Training institutions should strive to optimize their operations by improving graduation rates.

6.4 Dropouts

Dropout data collected from TVET Institutions was disaggregated per gender and course classification i.e. STEM or Non- STEM. Table 37 presents dropout data for all the TVET Institutions.

Table 37
TVET Institutions Dropout Data for 2023

Type	STEM				NON-STEM				Overall
	Enrollment	Male	Female	%	Enrollment	Male	Female	%	%
Public	**443726**	**4%**	**3%**	**7%**	**53839**	**2%**	**3%**	**4%**	**7%**
NP	129712	2%	1%	3%	22260	1%	2%	4%	3%
TVC	207480	2%	2%	4%	30597	2%	3%	5%	4%
KSTVET	2920	0%	0	0%	982	0%	0%	0%	0%
VTC	103614	11%	9%	20%	0	31	23		20%
Private	**23591**	**4%**	**5%**	**9%**	**11173**	**4%**	**5%**	**9%**	**9%**
TVC	19932	4%	5%	9%	10186	4%	5%	10%	9%

	STEM				NON-STEM				Overall
Type	Enrollment	Male	Female	%	Enrollment	Male	Female	%	%
VTC	3659	4%	28%	12%	987	3%	2%	5%	11%
Overall	**467317**	**4%**	**3%**	**7%**	**65012**	**2%**	**3%**	**5%**	**7%**

Dropout rates in TVET Institutions ranged from 0% to 20% with KSTVET, National Polytechnics and private UTVETs recording the lowest while public and private VTCs recording the highest rates. The overall dropout rate for TVET Institutions was 7% for public and 9% for private institutions, respectively. Generally, the dropout rates were higher in STEM compared to non-STEM. The significant dropout rates could be attributed to internal inefficiencies within the institutions and needed to be studied to establish the root cause and help address the issues.

6.5 Staffing

Adequate, qualified, and experienced trainers form part of the TVET quality assurance building blocks. Investing in adequate, well-trained, and experienced trainers is essential for enhancing the instructional process, hence improving learning outcomes.

6.5.1 Trainer Qualification

Institutions were asked to provide summarized trainers academic achievements based on their highest level of qualification in their areas of specialization. Table 38 shows the summary of trainer qualifications in TVET institutions across the country.

Table 38

Summary of TVET Trainer Qualifications in All Categories of Institutions

Type/category	% Below Craft	% of Craft	% of Diploma	% of HND	% of Bachelors	% of masters	% of PhD
Public	11.51%	6.15%	25.21%	5.25%	43.64%	6.41%	0.64%
NPs	0.05%	0.60%	13.71%	5.68%	68.40%	10.52%	0.82%
TVCs	2.75%	1.94%	23.25%	6.78%	55.04%	7.62%	0.84%
KSTVET	0.00%	0.00%	0.00%	0.88%	48.67%	41.59%	8.85%
VTCs	34.80%	17.38%	37.77%	2.55%	6.02%	0.54%	0.00%
Private	3.73%	4.69%	31.80%	6.58%	43.07%	6.44%	0.97%
TVCs	2.25%	3.59%	32.27%	6.86%	44.98%	6.81%	0.92%
VTCs	16.74%	14.48%	27.60%	4.07%	26.24%	3.17%	1.36%
Overall	**10.67%**	**5.99%**	**25.92%**	**5.40%**	**43.58%**	**6.41%**	**0.68%**

The trainer qualifications in the institutions ranged from the Below Craft Certificate to PhD. The majority (43.64%) of the trainers in public institutions had bachelor's degree, Diploma (25.21%) and Below Craft (11.51%). Similarly, for the private institutions, most of the trainers (43.07%) had bachelor's degree while those with Diploma and Below Craft were 31.8% and 3.73% respectively. Overall, Majority (43.58%) of trainers in TVET Institutions in the Country had bachelor's degree, Diploma (25.92%) and Below Craft (10.67%) as their highest

qualifications. There is a need for trainers with below Craft qualifications to consider upgrading their qualifications to conform to the requirements of the trainer qualifications framework.

6.5.2 Trainer Gender Distribution in STEM and Non-STEM

Respondents were asked to provide trainer gender disaggregated data for STEM and non-STEM programmes in their institutions. The responses are captured in Table 39.

Table 39

STEM and Non-STEM Trainers Gender Disaggregated Data for the Year 2023

Type/category	STEM			Non-STEM			Overall		
	Male	Female	M: F	Male	Female	M: F	Total STEM	Total non-STEM	STEM: non-STEM
Public	**9754**	**6171**	**8:5**	**1079**	**1129**	**1:1**	**15925**	**2208**	**36:5**
NPs	2228	1325	17:10	375	364	1:1	3553	739	24:5
TVCs	4393	2680	8:5	687	733	9:10	7073	1420	5:1
TTCs	49	36	7:5	8	21	2:5	85	29	29:10
VTCs	3084	2130	7:5	9	11	4:5	5214	20	261:1
Private	**835**	**703**	**6:5**	**415**	**252**	**8:5**	**1538**	**667**	**23:10**
TVCs	734	631	6:5	380	240	8:5	1365	620	11:10
VTCs	101	72	7:5	35	12	29:10	173	47	37:10

The proportion of STEM male trainers was higher than that of female trainers in all the institutions except those under-line ministries. The gender proportion was however compliant to the two-third gender rule required by the Kenyan constitution. The proportion of non-STEM male trainers was higher than that of the female trainers in all institutions except in public TVCs where female trainers was slightly higher than that of male trainers. The overall proportion of male trainers was slightly higher than that of the female trainers across all institutions. This can be attributed to enhanced advocacy by different agencies on gender mainstreaming.

6.5.3 Trainer to Trainee Ratio in STEM and Non-STEM

A low trainer to trainee ratio is crucial for effective learning. The TVET regulatory standard (TVETA, 2019) prescribes a ratio of 1:20 for STEM programmes and 1:30 for non-STEM programmes. This ratio is to ensure effective learning and allow trainers to provide adequate attention and support to each trainee, which is crucial for skill development and quality education. Lower trainer to trainee ratios could enhance personalized instruction and hands-on training allowing for more individualized attention and better learning outcomes. Table 40 shows trainer to trainee ratios in the various categories of TVET Institutions.

Table 40

Trainer to Trainee Ratios in TVET Institutions

Type/Category	STEM enrolment	STEM staffing	Ratio	Non-STEM enrolment	non-STEM Staffing	Ratio
Public	443726	15925	1:28	53839	2208	1:24
NPs	129712	3553	1:37	22260	739	1:30
TVCs	207480	7073	1:29	30597	1420	1:22
KS-TVET	2920	85	1:34	982	29	1:34
VTCs	103614	5214	1:20	0	20	-
Private	23591	1538	1:15	11173	667	1:17
TVCs	19932	1365	1:15	10186	620	1:16
VTCs	3659	173	1:21	987	47	1:21
Overall	**467317**	**17463**	**1:27**	**65012**	**2875**	**1:23**

Findings in Table 40 showed that all Public TVET institutions had a higher trainer to trainee ratio than the recommended levels thus implying a shortage of staff in STEM-based programmes where most of their trainees are enrolled. Private institutions on the other hand had adequate staff in both STEM and Non-STEM programmes. Therefore, there is a need for public TVET institutions to engage additional qualified trainers to help bridge the gap and improve the quality of training.

6.5.4 Trainers Employment Category

The government of Kenya employs and deploys trainers in all public institutions. Individual public institutions can also engage trainers on council/board terms to mitigate any existing shortages. Private institutions, however, engage their trainers on terms determined by their respective boards of management. Table 41 presents a summary of trainers' employment category in TVET institutions.

Table 41

Trainer Employment Category in TVET Institutions

Type/category	% of PSC/CPSB trainers	% of Council/ Board trainers
Public	**61%**	**39%**
National Polytechnic	57%	43%
TVCs	63%	37%
KS-TVET	100%	0%
VTCs	59%	41%
Private	**0%**	**100%**
TVCs	0%	100%
VTCs	0%	100%
Overall	54%	46%

All categories of public institutions except Kenya School of TVET had trainers employed by both Public Service Commission (PSC) and Individual institutional governing councils/boards. Overall, 61% of trainers in public institutions were engaged by the PSC while 39% were

engaged by respective institutions boards/ councils. The significant proportion of trainers employed by the institutional boards/councils showed that there was serious shortage of trainers in the public institutions.

6.5.5 PWDs Staff

Table 42 presents the national outlook of PWD Staff in TVET institutions.

Table 42

PWD TVET Staff National Outlook

Type/Category	Total Staff	Staff With disability	% of PWDs staff
Public	18133	155	0.85%
National Polytechnic	4292	21	0.49%
Technical and Vocation College	8493	68	0.80%
Technical Trainer College	114	0	0.00%
Vocational Training Centre	5234	66	1.26%
Private	2205	7	0.32%
Technical and Vocation College	1985	3	0.15%
Vocational Training Centre	220	4	1.82%
Overall	**20338**	**162**	**0.80%**

The findings showed that 0.32% and 0.85% of the trainers employed in private and public institutions respectively were PWDs. The overall proportion of PWD trainers employed in TVET institutions was 0.80%, with Vocational Training Centres having the highest proportion of PWD trainers at 1.26% and 1.82% for public and private VTCs respectively. There is an urgent need for institutional management to progressively employ more PWDs to conform to the statutory requirements of at least 5%.

6.6 PWDs Trainees

Integrating learners with disabilities into training programs can have significant economic benefits in that, it increases the employability of individuals with disabilities, allowing them to contribute to the workforce and the economy. The TVET regulatory standards require all institutions to put in place disability-friendly physical facilities to accommodate PWDs and make training truly inclusive. Institutions were required to provide PWD trainees' data. Table 43 shows the provided PWD trainees' gender disaggregated data

Table 43

PWD Trainees Disaggregated Data in TVET

Type/category	Total Enrolment	Trainees With Disability	% of PWDs trainees
Public	497565	2810	0.56%
National Polytechnic	151972	232	0.15%
TVCs	238077	1886	0.79%
Technical Trainer College	3902	10	0.26%

Type/category	Total Enrolment	Trainees With Disability	% of PWDs trainees
Vocational Training Centre	103614	682	0.66%
Private	34764	87	0.25%
Technical and Vocation College	30118	70	0.23%
Vocational Training Centre	4646	17	0.37%
Overall	**532329**	**2897**	**0.54%**

The enrollment of persons with disabilities (PWDs) in the TVET institutions was generally low. The PWDs enrolled in all the categories of TVET institutions constituted 0.54% of the total enrolment. National Polytechnics had the lowest proportion (0.56%) of PWDs enrolled. PWD trainees made up 0.56% of the total enrollment in public intitutions and 0.25% in the private institutions. There is need for all institutions to put in place disability friendly/ accessible facilities to ensure persons with disabilities are integrated to the extent compatible with their interests in line with Article 54 (b) of the Kenya Constitution 2010.

CONCLUSIONS

There were 532,329 trainees enrolled in all TVET institutions in the Country (467,317 in STEM and 65,012 in Non-STEM) as of 31st October 2023. The Overall ratio of Male to Female trainees enrolled in TVET was 7:1. Trainees with disabilities constituted 0.54% of the enrollment.

The overall graduation rate for TVET Institutions for the year 2023 was 27% representing a total of 144,027 trainees while the overall dropout rate was 7% representing 38,227 trainees. The dropout rates were higher in STEM compared to non-STEM

The majority (43.58%) of trainers in TVET Institutions in the Country had bachelor's degree, Diploma (25.92%) and Below Craft (10.67%) as their highest qualifications. The total number of trainers engaged in TVET institutions was 20,338 (17,463 STEM and 2,875 non-STEM). The Overall ratio of Male to Female trainers in TVET was 61:10. Trainers with disabilities constituted 0.8% of all the trainers. Public TVET institutions had a higher trainer to trainee ratio than the recommended levels thus implying a shortage of staff in STEM-based programmes where most of their trainees were enrolled. Private Institutions trainer to trainee ratios were within regulation tolerance. Sixty-one percent (61%) of trainers in public institutions were engaged by the PSC while 39% were engaged by respective institutions councils/ boards.

REFERENCES

Executive office of the President, Presidential Policy and Strategy Unit and UNICEF, Kenya (2019). Youth Education, Training and Employment Initiatives in Kenya: Rapid Baseline and Situational Analysis. Nairobi, Kenya.

Ministry of Education, State Department of Science and Technology (2014). TVET Policy.

Strategic Plan (2018 - 2022). Technical and Vocational Education and Training Authority (TVETA)

The National Council for Law Reporting with the Authority of the Attorney-General (2013). Technical and Vocational Education and Training Authority Act No. 29.

TVETA (2019) National Polytechnics Requirements and Guidelines

Yi, H., Zhang, L., Yao, Y., Wang, A., Ma, Y., Shi, Y., ... & Rozelle, S. (2015). Exploring the dropout rates and causes of dropout in upper-secondary technical and vocational education and training (TVET) schools in China. *International Journal of Educational Development*, *42*, 115-123.

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