Republic of Kenya

TVET Knowledge and Key Highlights Report

Mapping Technical and Vocational Educational and Training Data in Kenya

May 2022

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CONTENTS

ABBREVIATIONS

NP	National Polytechnic
TVC	Technical Vocational College
VTC	Vocational Training Centre
TVET	Technical and Vocational Education and Training
TVETA	Technical and Vocational Education and Training Authority
CDACC	Curriculum Development Assessment and Certification Council
CBET	Competency-Based Education and Training
MIS	Management Information System
KNQA	Kenya National Qualification Authority
AIA	Appropriation-In-Aid
FDI	Foreign Direct Investments
ICT	Information Communication and Technology
STEM	Science, Technology Engineering and Mathematics
SNE	Special Needs Education
RPL	Recognition of Prior Learning
TSC	Teachers Service Commission
PSC	Public Service Commission
HELB	Higher Education Loans Board
KUCCPS	Kenya Universities and Colleges Placement Service
MoE/DTE	Ministry of Education/Directorate of Technical Education
SDGs	Sustainable Development Goals
EFA	Education for All
ODeL	Open and Distance E-Learning

FOREWORD

The mandate of the TVET sector is to provide middle-level manpower which is vital in driving the country's economy and for providing an important gateway for up-skilling of workers. The country has a vibrant and economically viable youth population that needs to be engaged in productive ventures to help make significant contributions to the national development, and to help overcome their vulnerability to anti-social activities that threaten their livelihood. The TVET system in the country has the capacity to fulfil this mandate if it is made accessible, affordable and relevant to the labour market. Evidence-based decision making and policy making process is a requisite to the fulfillment of this commitment.

It is clear that one of the barriers to action in the delivery of TVET is lack of accurate and timely data and information to guide the decision making and policy making process. TVET data mapping, whose aim is to create a common data hub for ease of access to quality, reliable and timely data for policy influence and decision making, is a collective commitment by the Ministry of Education (MOE) and other stakeholders. Overall, this initiative intends to ensure that TVET datasets and information are well synchronized and used effectively as a source of information for planning and improving efficiency in the TVET system. These stakeholders are to be supported by an effective shared platform that is able to provide accurate and up-to-date data to the different role players and support effective reporting, planning, and decision-making.

All the key players are committed to providing data, information and knowledge regarding implementation on TVET and to updating plus maintaining relevant data which shall be available to TVET stakeholders for various purposes. The policymakers, practitioners and researchers in TVET will harness information from the database for informed decision making and to forecast the future patterns in TVET development correlated in formulating social economy, anticipating market labour and trends as well as in revising the existing programs and trainings offered by TVET institutions.

This initiative will be useful for the TVET experts including researchers, practitioners, policymakers, curriculum developers, and others who are having challenges in gathering the relevant data as the existing data sources do not possess accurate data due to improper data management. In addition, the important TVET data are scattered within different ministries, organizations, and agencies which creates bureaucracy and bottom-line returns because of the limited administrative data among them.

To deal with these shortcomings, serious consideration is necessary to facilitate those who are in search of reliable TVET data in this country.

It is our hope that this initiative will be useful and beneficial to all stakeholders.

PROF GEORGE A. O. MAGOHA, CBS
CABINET SECRETARY
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PREFACE

The development of any nation depends on the ideal positioning and empowerment of the youth in the national building plans. In order to realize the national aspirations of our nation's development through the various development blue prints such as the Sustainable Development Goals (SDGs), United Nations Strategy for the Youth (2014), African Union Agenda (2063), Kenya Vision 2030 and The Big Four Agenda, it is imperative that the youth are equipped with requisite skills, competencies and attitudes to enable them compete at an equal footing with their peers in the developed world for global competitiveness.

TVET training requires immense resources to achieve market-ready trainees who match the labour market requirements. This is achievable through pooling of resources from a wide range of stakeholders such as industry, development partners, and parents and community through a sector-wide approach financing model. This requires policy intervention and informed decision making based on evidence. The TVET sector has data which are housed in various agencies and stakeholders, making it difficult to access. Effective and efficient exploitation and utilization of the data and information calls for a centralized data storage with ease of access to all stakeholders.

The State Department for Vocational and Technical Training (SD-VTT) in collaboration with its stakeholders is in the process of developing a TVET Knowledge Hub which will house all the data, information and knowledge that is critical for informed decision making in TVET. Data mapping is the process of managing the availability, usability, integrity and security of the data based on internal data standards and policies that also control data usage. We are committed to ensure that available data are consistent, timely and trustworthy to effectively inform policy formulation, monitoring, and evaluation.

Finally, on behalf of the State Department for Vocational and Technical Training, I thank all stakeholders who participated in the development of this data mapping initiative and call upon the entire TVET sector fraternity to take full advantage of harnessing data and knowledge for informed decision making.

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PRINCIPAL SECRETARY,
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ACKNOWLEDGEMENT

The issue of sustainable development in Kenya through efficient Technical and Vocational Education and Training (TVET) has been of critical concern to the TVET sector. Professional and technical training is instrumental in achieving development agenda of any nation. To acquire the high-end competences there is need for heavy investment in infrastructures and human capital. The government has over the years invested in TVET; however, these interventions are not well informed by evidence and research. This data mapping initiative provides approaches for effective data mapping and sharing for decision making and policy formulation.

Data is a set of facts, figures, measurements, and other information that can be used to start conversations, gain knowledge, and make informed decisions. TVET data are collected from demand, supply, inputs, outputs and outcomes. These data are important because they help the TVET sector to make better decisions, understand demand and supply of TVET, improve resource allocation towards TVET, identify research gaps and to make informed policy decisions.

The amount of data and information that TVET sector collects will continue to grow. All of these data are collected from many different sources and in many different formats. This makes it difficult for different systems to read and interpret the data in the same way hence the need for data mapping and creation of a repository.

Our thanks go to the ESSA team, Dr Late Lawson and Dr Lucy Heady; the Zizi Afrique Foundation team comprising the Executive Director Dr. John Mugo and Renaldah Mjomba, for their continued commitment to this process; our colleagues at the Department of VTT and our fellow team members from the Ministry of Education; Council of Governors and County Governments; TVETA; the Kenya Institute for Public Policy Research and Analysis (KIPPRA) and other agencies and institutions who participated in the initiative. The Technical Committee comprised:

Evelyn Anupi	MOE-VTT
Elijah Obwori	MOE-VTT
Sammy Waititu	KATTI
Peter Kamau	MOE-VTT
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Enock Imani	Zizi Afrique Foundation

The development of this data mapping initiative has benefited considerably from the commitment of the State Department for Vocational and Technical Training, inputs from key stakeholders and support of the Kenya National Bureau of Statistics (KNBS), Kenya Institute of Public Policy Research and Analysis (KIPPRA), Technical Vocational Education and Training Authority (TVETA), Council of Governors, County Governments, Education Sub-Sahara Africa (ESSA) and Zizi Afrique Foundation. Sincere thanks go to the Principal Secretary, State Department for Vocational and Technical Training, for providing support and creating a conducive environment for the data mapping and repository creation initiative.

Special thanks to Zizi Afrique and ESSA for the financial support.

Tom Mulati
Director, Technical Education

CHAPTER ONE: INTRODUCTION

1.1 Introduction

The attainment of the Sustainable Development Goals (SDGs), national and international policies, and of the sustainable economic development of any nation requires equipping the youths with the requisite skills, competencies and attitudes. In Kenya, Technical and Vocational Education and Training (TVET) has been identified as a critical player in the attainment of the Kenya Vision 2030[1] as it equips citizens with the necessary understanding, skills and knowledge for undertaking productive activities and making informed decisions. The importance of TVET is its ability to develop human capital across countries thus enhancing the productive potential of the different regions. At the local level, the TVET systems support industries by providing a steady supply of skilled workers, contributing positively to economic development. Further, TVET provides self-employment opportunities, empowering the communities and especially the youths to engage in sustainable livelihood opportunities. Internationally, improved TVET which is able to produce graduates with quality skills has been poised to attract Foreign Direct Investment (FDI) inflows thus resulting in job creation, technology transfer, and diffusion of economic development.

Understanding this, the government is committed to promoting TVET so as to support the training of the youths. Over the years, the government has continued to support the establishment and running of the TVET Institutions to ensure that their contribution to economic development is sustained. Addressing the challenges in the development and position of the TVET sector will go a long way in dealing with global challenges such as employability, unemployment, and under employment. According to the Kenya Housing and Population Census (2019)[2], about 36.1% of Kenya's population consists of the youth. Among this population, 13% is unemployed. The challenge of youth unemployment is compounded by the fact that a majority of unemployed youths lack vocational skills: either because they dropped out of school or because they did not enrol in any TVET institution. As a result, unemployment and underemployment are persistent problems in Kenya.

Over the recent past, both the national and county governments have continuously invested in infrastructural developments to ensure, among other things, improved access to training by the youths. The distribution of the TVET institutions across the counties presents an avenue through which human capital and skills upgrade can be used as a driver for economic development. However, there have been challenges in equipping the youth through the TVET system given the negative perception that TVET system has had in the past. Other areas in the TVET domain that require intervention include its quality to enable its graduates to compete locally and internationally, relevance to the dynamic labour market, and governance issues. Therefore, as infrastructural investments are being undertaken, there is need to aggregate available knowledge in the TVET domain to ensure that the sub-sector has a balanced focus on addressing issues of access, equity, quality, relevance, resources and governance.

1.2 Legal and Political Economy Environment

A good legal and regulatory framework is essential for the effective management, operation and maintenance of TVET institutions. This report takes cognizance of the provisions in existing legal and policy instruments, relevant international treaties, and conventions. The key legal and policy documents include:

a. The Constitution of Kenya: According to the Constitution of Kenya, Articles 43 (1) (f), 53 (1) (b) and 55 (a)[3], education and training is a right of every Kenyan. Specifically, Article 55 states that the State shall put in place affirmative action programmes designed to ensure that youth have access to relevant training. Article 232(b) provides for efficient, effective and economic use of resources in public service. The 4th Schedule mandates the Cabinet Secretary to develop policies to guide education and training.

b. International Treaties and Conventions: Kenya is a signatory to several instruments on enhancing the

1 *Kenya Vision 2030*

2 *Kenya Housing and Population Census (2019)*

3 *Constitution of Kenya, Articles 43 (1) (f), 53 (1) (b) and 55*

rights to quality education and training for its citizens. These instruments include the Universal Declaration on Human Rights (1948); the Beijing Declaration and Platform for Action (1995)[4]; the Dakar Framework of Action on EFA (2000); the convention on the Elimination of Discrimination against Women (1990)[5]; the convention on the Rights of Persons with Disabilities (2008); African Union's Agenda 2063[6] ; the Global Partnerships for Education; and the Sustainable Development Goals (SDGs).

The Kenya Vision 2030[7]: Kenya Vision 2030 places great emphasis on the following key aspects: (i) linkage between training and the labour market; (ii) the need to create entrepreneurial skills and competences; and (iii) strong public and private sector partnerships. Therefore, the Vision has a considerable influence on the kind of education and training system required to deliver the requisite skills, competencies and attitudes.

TVET Act, 2013[8]: The Act provides for the establishment of a technical and vocational education and training system; provides for the governance and management of institutions offering technical and vocational education and training; provides for coordinated assessment, examination and certification; institutes a mechanism for promoting access and equity in training; and assures standards, quality and relevance. The Act establishes Technical and Vocational Education Training Authority (TVETA), TVET Curriculum Development, Assessment and Certification Council. The Act also prescribes the establishment of Boards/Councils to manage the TVET institutions.

Sessional Paper No. 1 of 2019 on "A Policy Framework for Reforming Education, Training and Research for Sustainable Development": The Sessional Paper provides overall national policy direction for education and training in Kenya. A key recommendation of the paper is to enact a new legislative framework and review existing legislations to govern and regulate education, training and research.

1.3 Focus of the Report

Given that there is significant research done in the TVET domain, there is need to aggregate this information to form a basis for further interventions in the sub-sector. This report focuses on 1) Review of existing information in the TVET sector under the five domains: Access and Equity, Quality, Relevance, Resources and Utilization, and Governance; 2) Present findings on the review of existing data on TVET under the five main domains; and 3) Identify and provide recommendation for existing gaps.

Box 1: Providers of TVET

TVET is provided through state and non-state actors. These include: Technical University Colleges, National Polytechnics (NP), Technical and Vocational Colleges (TVCs), Institutes of Technology, Industrial Training Centres, National Youth Service, Government Training Institutes (e.g. Kenya School of Government), National Industrial Training Agency, Vocational Training Centres, Jua Kali, Non-Governmental Organizations, and private TVET institutions. VTCs offer Trade Test, Artisan; TVCs offer Artisan, Craft, Certificate, Technician, and Diploma; NPs offer Craft, Certificate, Technician, Diploma and Higher National Diploma while Technical Universities offer Diplomas and Degrees in technical fields.

Under the Constitution of Kenya 2010, National Polytechnics, Vocational Training Colleges and Technical Universities are under the responsibility of the National Government whereas the Vocational Training Centres are under the responsibility of their respective County Governments.

4 *Beijing Declaration and Platform for Action (1995)*

5 *The convention on the Elimination of Discrimination against Women (1990)*

6 *African Union's Agenda 2063*

7 *The Kenya Vision 2030*

8 *TVET Act, 2013*

CHAPTER TWO: TVET KNOWLEDGE IN KENYA

2.1 Introduction

This chapter presents a review of existing knowledge on TVET. The review covers published documents, reports and policies aimed at documenting available knowledge in the TVET domain. The review identifies that TVET domain can be grouped into five (5) main thematic areas namely: Access and Equity, Quality, Relevance, Resources and Utilization, and Governance.

2.2 Access and Equity

Research indicates that there is improved access to TVET by youth; however, there exists a stark gender disparity in access especially in enrolment to given courses and study areas (Odondi et al., 2020). As improvements in access and gender equity increase, fewer females are taking certificate courses compared to males thus there is need to promote female enrolment on different courses to enhance their competitive edge and earnings in the market compared to male (Odondi et al., 2020).

Gender inclusion is a crucial component in the attainment of the United Nations (UN) Sustainable Development Goal 5 which aims at achieving gender equality and empowering all women and girls by 2030. Therefore, all forms of human capital development both academic and technical training, have a critical role to play in addressing issues of gender equity and equality in Kenya (Ngugi & Muthima, 2017). Policy makers and formulators have to integrate gender perspectives in TVET to help strengthen the impact of gender mainstreaming. Research indicates that empowering women requires addressing structural issues as well as developing progressive legal frameworks that promote equality between women and men (Munyi & Cheruiyot, 2019; Odondi et al., 2020).

In order to further the access and participation of trainees from every aspect, policy makers and implementers have to take advantage of the identified strengths and opportunities while addressing the weaknesses and threats (Ndegwa et al., 2015). The SWOT results are presented in Table 1.

Table 1: SWOT Results for Access, Participation and Equity

Strengths	Weaknesses
• Presence of secure hostels for female trainees • Increase of courses and conditions that are friendly to female trainees • Provision of training reentry for pregnant female trainees after giving birth • Provision of initiatives and social activities that promote gender equality • Increased enrolment of trainees from marginalized communities • Provision of courses relevant to economic needs • Provision of financial support and related services (County and National Government) • Increase in number of TVET institutions across the country	• Lack of enough TVET institutions across the 47 counties • Lack of national, county and institution level TVET-specific gender policies • Lack of policy infrastructure and system accommodation for people living with disabilities • Lack of comprehensive and deliberate STEM promotion strategies for female students • Lack of strategies to promote a balanced and equitable distribution of courses across different groups • Lack of affordable accommodation • Lack of clearly defined policy on TVET pathways • Lack of framework linking trainees to industrial attachment
Opportunities	
• Strong policy environment and promotion of STEM courses to female students • Introduction of gender and disability inclusive equipment • Expanding participation options for married female trainees and mothers • Guidance and counselling and life skills • Work placement to prevent dropping out for women • Disability-specific support to enable trainers with disabilities to diversify what courses they can take • Provision of government bursaries at the institution level • Adapted learning for trainees with disabilities and trainees from marginalized communities blended with ICT	• Family conflict and gender-based violence • Poverty and financial constraints for most of the trainees • Time poverty for married female trainees due to multiple roles • Ignorance on the part of women on issues of equity • Social stereotyping biases and self-stereotyping • Religion and culture • Corruption and favoritism • Language and communication barriers affecting both trainees with disabilities and those from marginalized communities

Adapted from the Kenya National TVET Blueprint: Access, Participation and Equity Research Report 2021

2.3 Quality

Establishment of quality and assurance framework has played a pivotal role in ensuring provision of quality training. In order to further provision of quality training and improve performance and competitiveness of trainees from every aspect, policy formulators/makers and implementers have to take advantage of the identified strengths and opportunities while addressing the weaknesses and threats in this domain. The SWOT analysis is presented in Table 2.

Table 2: SWOT Analysis for Quality

Strengths	Weaknesses
• Existence of a comprehensive National TVET Quality Assurance Framework • The TVET quality assurance governance and regulatory structure is in place • Kenya has adopted the Kenya National Qualifications Framework, which is a national guideline for the registration of occupations: a backbone for TVET quality assurance • Competence-Based Education and Training and Assessment (CBETA) is introduced as main mode of TVET delivery.	• Slow implementation of external TVET QA requirements, including trainer registration, CBETA and KNQF concepts as well as internal quality management in many cases • Limited quality of TVET courses and lack of practical occupational competences trained with focus on labour market needs • There are many agencies auditing quality, such as KNEC, NITA, TVETA, TVET CDACC etc. and partly overlapping tasks • Not all TVET institutions have competent Internal Quality Assurance Officers • Insufficient funding for the implementation of the quality assurance requirements in part of the TVET institutions • Partly poor qualification and capacity of trainer staff (HR quality). Poor continuous training of trainers, further and retraining mechanisms (Continued Professional Development) • No national TVET programmes information system/ platform in place for informing potential trainees and for matching with TVET institutions
Opportunities	**Threats**
• KNQF provides a basis for international cooperation, recognition, exchange and mobility • International cooperation in quality assurance is welcomed by the national leadership and the sector. The adoption of the best international practices could further improve quality and attraction • The Kenyan TVET sector could develop into a competitive supplier of TVET services to other countries in the region, continentally or internationally • The TVET sector becomes increasingly attractive due to the opportunities it provides throughout all levels of the KNQF from initial vocational training to a doctorate in Technical Universities • Good technical support and funding from various development partners, such as AfDB, WB and others for improving TVET quality assurance	• Weak TVET research and lack of comprehensive data on TVET • Industry exposure of TVET trainers is generally assessed as insufficient • Ineffective Sector Advisory Committees supporting CBETA implementation • Insufficient communication and awareness raising on TVET QA among all stakeholders • Occupations dealing with potential risks, such as construction or electricity, are sometimes not protected. • Insufficient funding of the sector in relation to the ambitious QA transformation enshrined in the TVET Act • Private sector/industry cooperation with TVET sector not much regulated • Understaffing and insufficient staff capacity in TVET agencies

Adapted from the Kenya National TVET Blueprint: Quality Research Report 2021

2.4 Relevance

Relevance of the TVET curricula to the labour market continues to lead to skills mismatch and this increases employers retraining time. As a result, there is need to ensure that the outcomes of the training sufficiently train the trainees in practical skills which are critical in the labour market using up-to-date equipment and technology (Cheruiyot, 2021; Kigwilu & Bwanali, 2016; Murgor, 2013; Ndegwa et al., 2015). Of interest in the 21st Century is the development of a shared vision between industry, trainers and trainees regarding the ICT skills that the industry requires in the various programmes. For this to be effective, efficient and sustainable cooperation between employers and TVET institutions has to be developed with employers actively participating in TVET curriculum development. In terms of access to training equipment, good collaboration with industry players where such equipment is found will ensure that trainees access up-to-date equipment training even if it calls for outsourcing training to the specific industry players (Miseda, 2021).

Industrial attachment is a critical aspect of skills acquisition especially for TVET trainees. However, many trainees are faced with challenges of finding attachment places, meeting basic costs of transport, food and accommodation and insurance, making employers reluctant to take trainees (Otieno & Onyango, 2021). These challenges hamper the realization of the objective of industrial attachment.

Another identified research gap is on pre-career guidance

and counselling for the trainees before they enrol in any program (Obwoge & Kibor, 2016). As such, trainees end up choosing inappropriate programs, increasing chances of drop outs. Trainees with disabilities need not only career guidance, but also support in accessing attachment and job placements.

2.5 Resources: Physical, Finances and Human

Efficiency of TVET institutions is critical in the justification of resource allocation and use. Availability of facilities ensures the delivery of content in skills development while presence of qualified trainers ensures efficient transfer of skills from the instructors to the trainees (Okinyi et al., 2021). It is therefore critical to undertake continuous facility audit and trainers' capability to support development of investment plans in facilities and trainer competence and capabilities (Kigwilu & Githinji, 2015). Further, with guidance from the identified strengths and opportunities, TVET has room for enhancing the quality of facilities and trainers while addressing the weaknesses and threats hampering the realization of the aspirations of technical training (Table 3).

Table 3: SWOT Analysis for Financing and Efficiency

Strengths	Weaknesses
• Established system and courses • Process for management in place • Distributed budget process • Presence of gender and disability provisions • Presence of ICT financial systems	• Less than adequate budget delegation • Poor understanding of gender and disability budget responsiveness • Poor understanding of data unit costs • Little or no use in ICT-based financial management • Lack of ICT capacity in administration
Opportunities	**Threats**
• Strong policy environment • Government support to the sector • Trainee financial support • Private sector and other support for training	• External shocks based economic weaknesses (Covid-19) • Uniform and universal capitation • Unreliability of government funding • No recognition of physical size based needs

Adapted from the Kenya National TVET Blueprint: Financing and Efficiency Research Report 2021

2.6 Governance

Governance in the TVET domain is defined in law and expounded on well by subsidiary legislations. The overall direction of TVET is determined by these governance structures. The structures define the overall purpose of the technical training, financing, and resource allocation. However, despite the strides made in streamlining governance, there exist a few weaknesses and threats.

In order to further governance of TVET institutions, responsible institutions, policy makers, and implementers have to take advantage of the identified strengths and opportunities while addressing the weaknesses and threats (Table 4).

Table 4: SWOT Analysis for Governance

Strengths	Weaknesses
• The Kenyan TVET sector is guided by a national TVET policy, and strategies, which are fully aligned and supportive of national development policies • A TVET governance structure is in place with MoE/DTE, TVETA, KNQA, CDACC and other agencies promoting and supporting TVET • Regulatory agencies and framework are in place • The infrastructure with buildings, classrooms, workshop equipment in leading TVET institutions, such as the National Polytechnics, is good providing national models for good TVET delivery • Guidelines for important aspects of TVET, such as CBET, Quality Assurance, Qualifications Framework, CQF, CBT, curriculum and standard development are in place	• Limited quality delivery of TVET courses and lack of practical occupational competences and trained trainers with labour market needs • Partly poor qualification and capacity of trainer staff (HR quality) • Poor continuous training of trainers, further and retraining mechanisms (Continued Professional Development) • Poor linkage and cooperation between TVET and industry • Lack of funding mechanism for implementation of governance mechanisms, policies, and regulations • Weak communication of TVET opportunities and information about the sector • Weak coordination among TVET providers
Opportunities	**Threats**
• The TVET sector is seen as a priority sector for Kenya with interest in the sector by all stakeholders is increasing • Increased technical support and funding from National and County Governments and various development partners, such as AfDB, WB and others • Increased regional and international cooperation opening more opportunities for the sector	• Insufficient funding of the sector in relation to the ambitious transformation enshrined in the TVET Act • Understaffing and insufficient staff capacity in TVET agencies: Lack of human resources (especially at lower levels) and confusion between the key agencies regarding duties and responsibilities • The cooperation with the private sector is generally too weak, which is slowing down TVET sector development • Low implementation, follow up, and monitoring of regulation: the lack of information as well as delays of registration and licensing

Adapted from the Kenya National TVET Blueprint: Governance Research Report 2021

CHAPTER THREE: TREND ANALYSIS OF TVET IN KENYA

3.1 Introduction

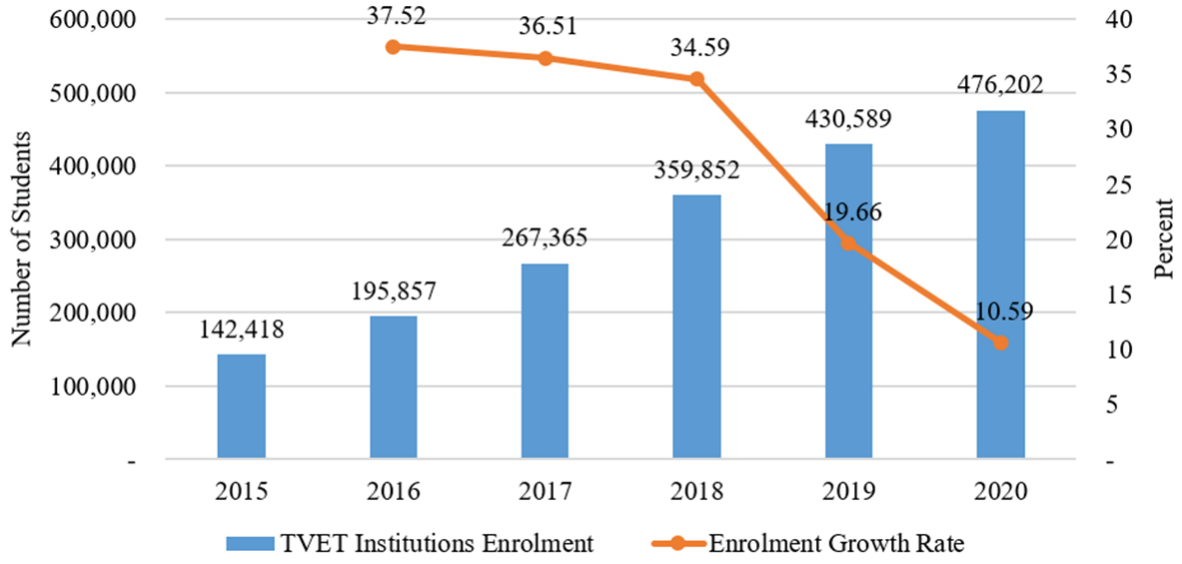
This chapter presents the findings of the review of existing knowledge on TVET coupled with existing data. The review of available data, published documents, reports and policies aims at documenting available knowledge in the TVET domain, assisting in understanding the achievements in the sector and in the identification of existing knowledge gaps. The findings are presented according to the five identified TVET thematic areas namely; Access and Equity, Quality, Relevance, Resources and Utilization, and Governance.

3.2 Access and Equity

3.2.1 Enrolment

In Kenya, enrolment in TVET has been increasing over the years. The total enrolment in TVET institutions grew from 142,418 in 2015 to 476,202 in 2020 (Figure 1). The highest annual enrolment growth rate of 37.5 % was recorded in the year 2016. Thereafter, the growth rate has been declining with a record of 10.6 % in 2020. Nevertheless, the TVET enrolment is still low and more youth should be mobilized to join TVET in order to attain the 1 million annual enrolment target.

Figure 1: TVET Institutions Enrolment and Enrolment Growth Rate From 2015 to 2020



Source: Economic Survey, 2021[9]

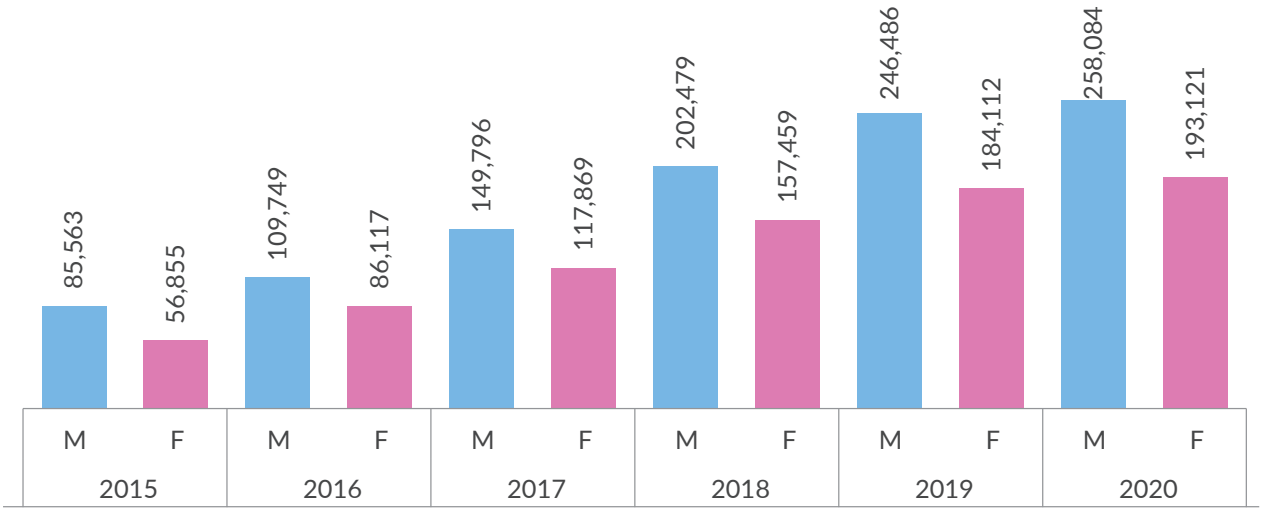
The impetus for TVET improvement has been driven by the implementation of the Big Four Agenda (2018–2022) which potentially increases the demand for technical skills. Key skills demanded by the manufacturing, textile/apparel/cotton industry, leather, agro-processing, construction, oil, mining and gas, iron and steel, Information Communication and Technology (ICT), fish processing, blue economy, medical engineering and technology sectors amongst others are commonly acquired in TVET institutions. Other skills such as welding, technician skills, heavy and light machine operating, engineering, masonry, technology, artisan skills, pipefitting and plumbing are also considered essential for ensuring the realization of the Big Four Agenda. The guaranteed demand for the skills offered by TVET institutions provides an incentive of employability in the job market upon the completion of the TVET courses.

3.2.2 Participation

TVET enrolment by gender indicates disparity between the numbers of male and female trainees who attended the TVET institutions. In 2015, the number of male students in TVET institutions was 85,563 and grew to 258,084 by 2020. Female students' enrolment increased from 56,855 in 2015 to 193,121 in 2020. Review of the data indicates that enrolment of male students in TVET institutions accounted for 57% of all students, while female students accounted for only 43% of total enrolment in TVET institutions across the country as at 2020. Share of male students' enrolment decreased marginally from 60% in 2015 to 57.2% in 2020 whereas the share of female student's enrolment increased slightly from 40% in 2015 to 43% in 2020 (Figure 2).

9 *Economic Survey, 2021*

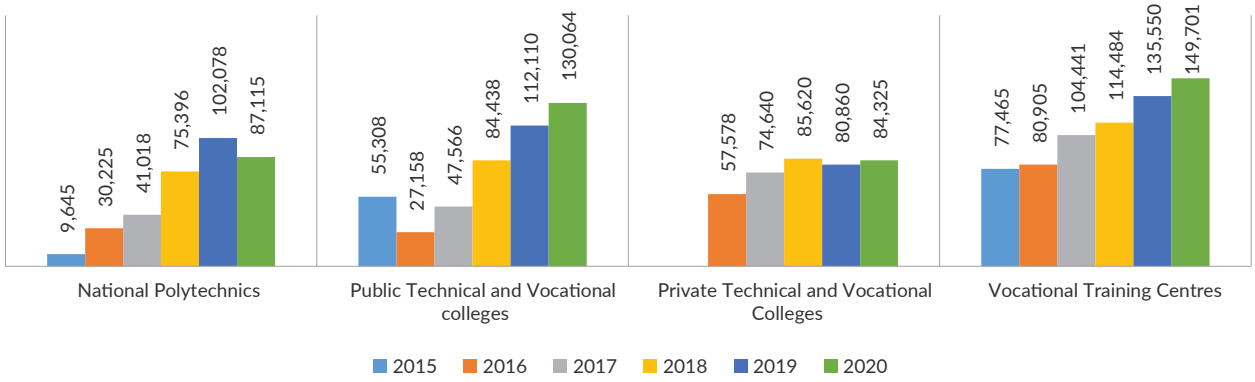
Figure 2: TVET Enrolment by Gender



Source: Economic Survey 2021

In the year 2020, majority of these students were in the Vocational Training Centres (149,701), followed by Public Technical and Vocational Colleges and National Polytechnics, at 130,064 and 87,115 respectively. About 84,325 were in private institutions (Figure 3). The upward enrolment in VTCs enrolment can be attributed to the efforts of county governments to developing and improving existing VTCs infrastructure, introduction of curricula, in-service instructors, and subsidization of fees.

Figure 3: TVET Enrolment by Institution Type



Source: Economic Survey 2021

Figure 4: Change in Gender Parity Index in all TVET Institutions, 2015-2020

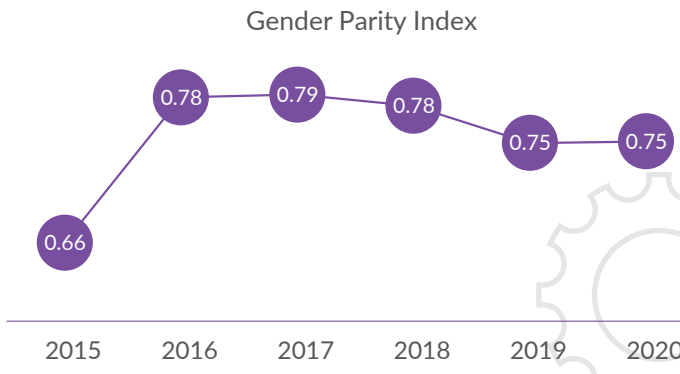


Figure 4 presents the changes in Gender Parity Index (GPI) between 2015 and 2020. The GPI based on enrolment, increased from 0.66 in 2015 to 0.79 in 2017 before falling slightly to 0.75 in 2020 implying that although there is an improvement, males still have an edge over females in accessing TVET education.

Source: Economic Survey 2021 County Level enrolment: Enrolment in VTCs show that VTCs in Kakamega have the highest enrolment of 10,539 followed by Muranga VTCs and Uasin Gishu VTCs of 8,230 and 7,637 trainees respectively while Isiolo VTCs have the lowest enrolment of 344 trainees followed by Marsabit and Wajir and Mombasa with 639,723, and 726 trainees respectively (Figure 5). Other counties have different levels of trainees' enrolment based on the available number of VTCs.

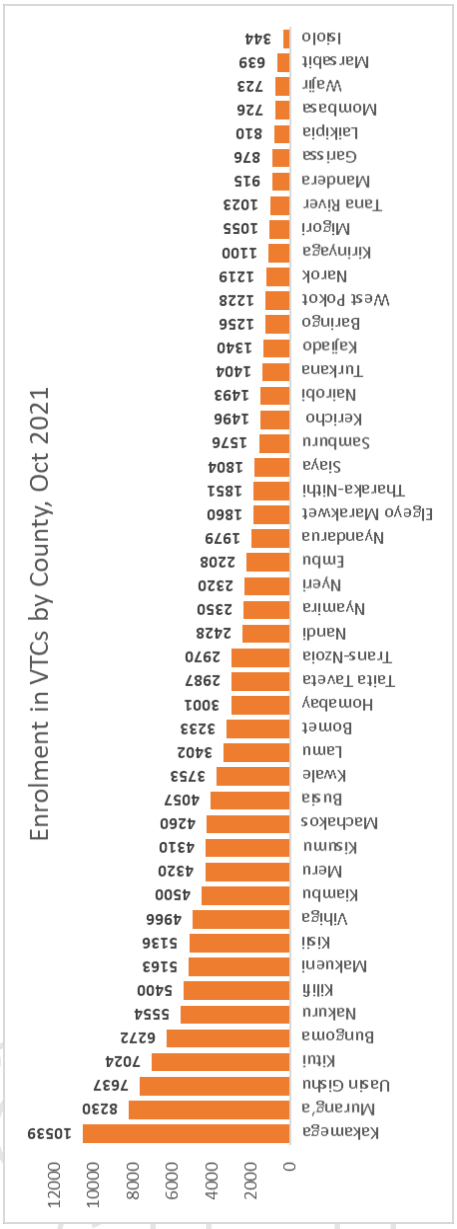


Figure 5: Enrolment in VTCs by County

10 *Langat et al., 2021*

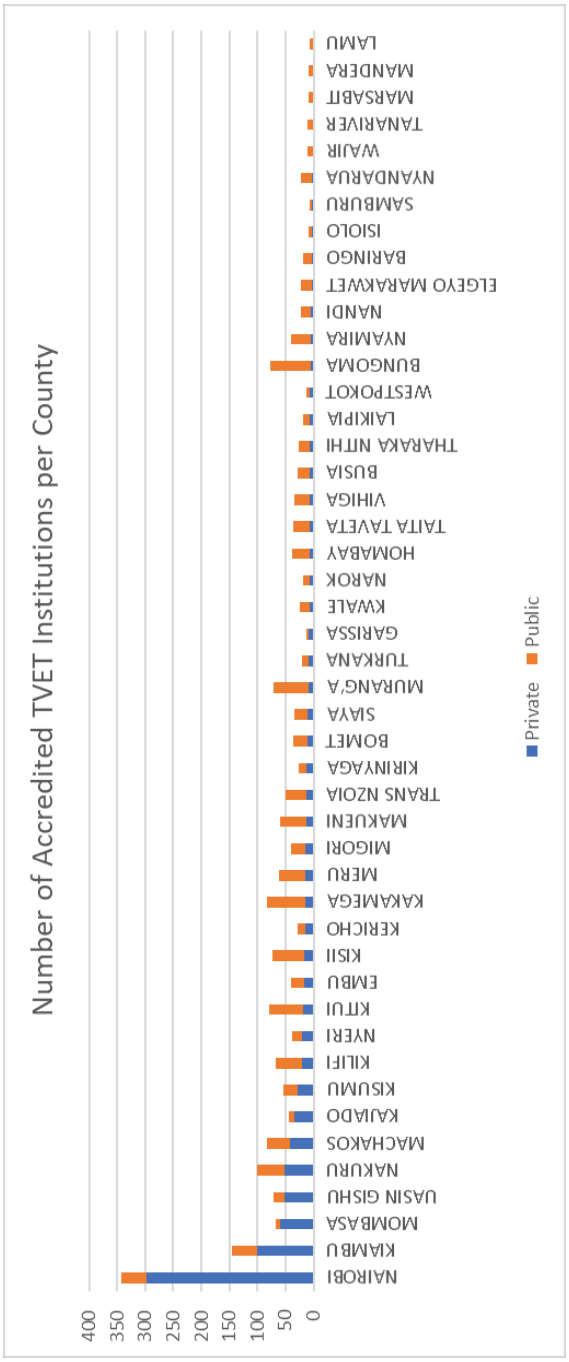
According to TVETA report titled Trends in Enrolment and Staffing in Kenyan TVET Institutions conducted in 2019, enrolment in both Science, Technology Engineering and Mathematics (STEM) programmes and business-related programmes grew significantly between 2014 and 2018 albeit at varying rates. Male trainees dominated enrolment in STEM programmes while female trainees led in business-related programmes. However, the number of female trainees enroled in STEM was much higher than that of female trainees enroled in business related disciplines. Overall, more trainees are enroled in STEM-based programmes in the targeted institutions. Notably, the dropout rates in both NPs and TVCs were significantly high and urgent action needs to be taken to reduce internal inefficiencies in institutions in order to address this issue (Langat et al., 2021)[10]. Factors inhibiting gender participation in TVET-related courses range from social, cultural and institutional to curricula-related issues. Despite much research on gender equity issues, a multitude of social and cultural norms continue to influence the choices of young women to venture or not venture into the fields of Science, Technology Engineering and Mathematics (STEM).

3.2.3 Distribution

To improve the accessibility of technical education at the national and local level, the government has continued to set up technical institutions in every constituency and vocational centres at the ward level. Nevertheless, the low enrolment rate and lack of enrolment in some of the TVET institutions' courses indicate the need for public participation in TVET implementation processes. Apart from increasing awareness, this will ensure that the institutions established are need-based, hence effective and efficient allocation of resources. Evidence on distribution indicate that almost all the counties have accredited TVET institutions (Figure 2). For instance, Nairobi, Kiambu and Nakuru counties had the highest concentration while Marsabit, Mandera and Lamu had the lowest concentration of registered TVET institutions. Langat et al., (2021) indicated that there was uneven distribution of TVET institutions across the country which could have a negative impact on accessibility and inclusivity in training within Kenya. However, the observed higher concentration of TVET institutions within urban

centres compared to rural and other marginalized areas can be attributed to the population densities (Langat et al., 2021)[11].

Figure 6: Accredited Public and Private TVET Institutions by County, February 2022



Source: TVETA, 2022

Between 2015 and 2020 the number of TVET institutions in the country increased. The number of TVET institutions grew by 5% from 2191 in 2019 to 2,301 in 2022. The growth in TVET institutions is partly attributed to the ongoing construction of technical and vocational colleges across all constituencies. Therefore, there is need for research to understand whether the increase in the number of TVET institutions has resulted to a change in the human capital and enrolment statistics distributed geographically.

Table 5: Number of TVET Institutions

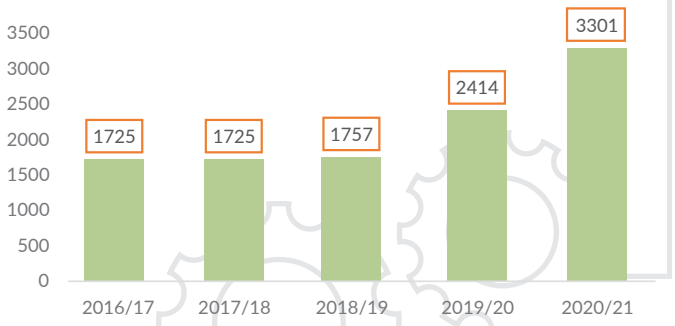
Type of TVET Institution	2015	2016	2017	2018	2019	2020
Public Vocational Training Centres	816	816	1186	1200	1200	1156
Private Vocational Training Centres	-	29	47	47	47	83
Public Technical and Vocational Colleges	55	62	91	101	191	230
Private Technical and Vocational Colleges	-	382	627	628	742	820
National Polytechnics	3	11	11	11	11	12
Total	874	1300	1962	1987	2191	2301

Source: Economic Survey, 2021

3.2.4 Special Needs

There are four TVET SNE institutions in Kenya namely: Machakos TTI for the Blind; Karen TTI for the Deaf; Sikri TTI for Deaf and Blind; and Nyang'oma TTI for the Deaf. The number of students enroled in TVET SNE institutions increased from 1,725 in FY 2016/17 to 3301 in FY 2020/21. TVET SNE institutions require expensive training equipment, thus the limited number and growth. The ministry continues to undertake infrastructure improvements and developments in the TVET SNE institutions to ensure that the trainees operate in a safe and secure environment where they are able to acquire the necessary skills for productive activities. As the TVET SNE institutions continue to be improved, there is need to create awareness on their existence and the vacancies available for the trainees with special needs and the general population.

Figure 7: Enrolment Trends in TVET SNEs



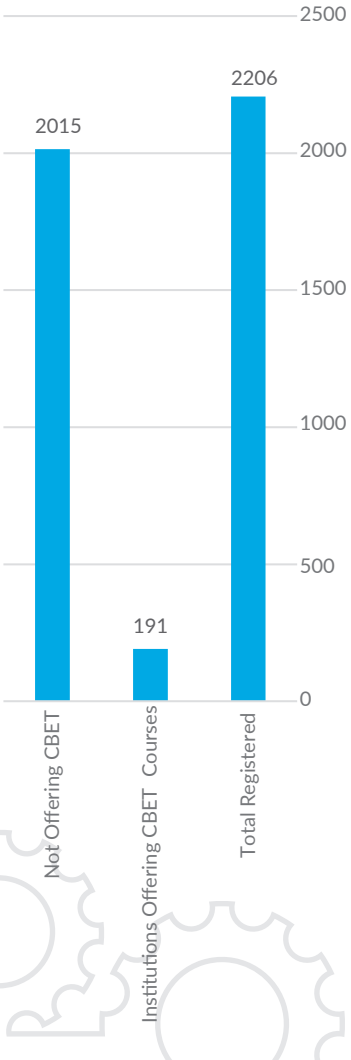
11 *Langat, Ngeno, Omoto and Ambuli, 2021*

3.3 Quality

3.3.1 Curriculum

Data show that there is the existence of approved curricula. Approved curricula ensure that there is standardization in the training offered to trainees. According to information available on the TVET CDACC website, there are 372 approved curricula[12]. These courses cover all the qualification levels given by KNQA (Level 3–6). In terms of approval of institutions to offer CBET curriculum[13], data show that there are 191 institutions given approval to roll out CBET courses by TVETA out of the 2206 registered. Additionally, there are curriculum support materials developed for various courses. As evidenced by the low number of institutions offering CBET courses, there is limited knowledge on, among other things, the low adoption and possible action plans to ensure all TVET institutions adopt it.

Figure 8: Status of CBET Implementation

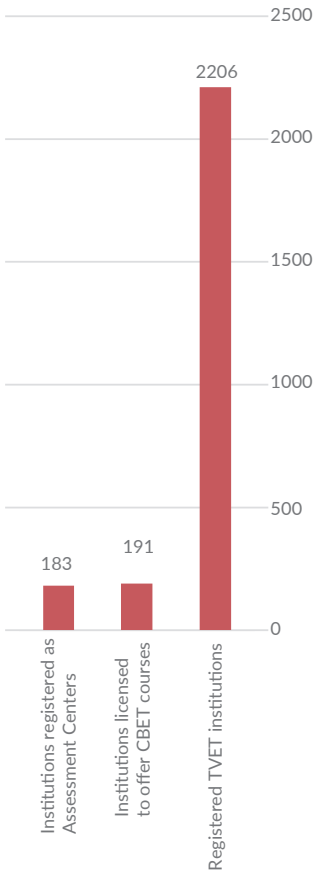


As a measure to ensure quality is maintained in training, TVETA has licensed trainers who meet the approved standards for trainers. Licensing of trainers plays a critical role in standardizing the quality of training offered within TVET institutions. According to the data, TVETA has licensed 1,820 trainers to assist in the implementation of the CBET curricula. These licensed trainers are from both private and public institutions.

3.3.2 Assessments

Trainees are assessed on their competencies regularly. Regular assessment allows monitoring of acquisition of relevant skills and competencies depending on the area of specialization. To regulate and standardize assessment, training centres have been established. Data available show that there are 183 institutions which are registered as Assessment Centres. This number of registered Assessment Centres include the number of institutions that are implementing TVET programs. Compared to registered TVET institutions, the number of registered institutions to offer the CBET courses and as Assessment Centres is about 10%, indicating a need for information on the reasons hindering or limiting registration.

Figure 9: Registered Assessment Centres



12 *http://www.tvetcdacc.go.ke/wp-content/uploads/2020/03/LIST-OF-APPROVED-OCCUPATIONAL-STANDARDS-AND-CURRICULA.pdf*

13 *https://www.tveta.go.ke/approved-cbet-curricula/*

3.3.3 Qualifications

In order to ensure effective and efficient regulation of qualifications, Recognition of Prior Learning (RPL) policy and qualification frameworks is necessary. KNQA has developed the qualification[14] and the RPL policy frameworks; however, the actual RPL is yet to be implemented. Under the CBET implementation policy framework, the role of

industry players is clearly defined. In order for the CBET policy implementation to succeed, there is need to strengthen the link and the role of industry players. Further, a thorough sensitization to selected industry players by TVET CDACC on their roles in CBET training as stipulated in the CBET implementation policy framework is required (Miseda, 2021).

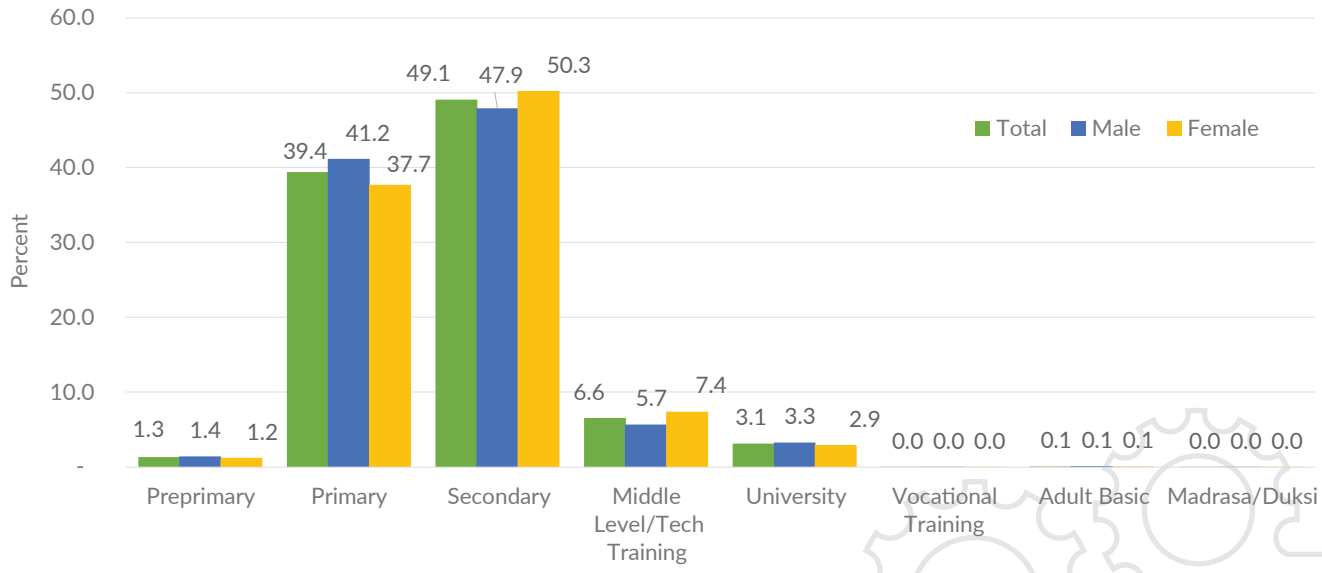
3.3.4 Performance

Following the reforms in the TVET sector, CBET approach has been introduced in the TVET sector whereby assessment is based on exhibiting competency. As such, candidates are assessed against set occupational standards in which instance they are passed as being "competent" if they meet certain predetermined standards. Conversely, candidates that fail to meet the set standards are termed as being "Not yet Competent". Over the past two years, the Competency-Based Assessment (CBA) has been conducted in various institutions and over 500 National Certificates have been awarded to competent individuals. Additionally, there are various candidates that have been awarded Certificates of Competency. These are partial qualification certificates awarded to candidates for showing competence in a Unit of Competency. The number of candidates undertaking CBA is still low, which highlights the need for awareness creation on the same. There is also a low industry participation, which calls for higher advocacy in the different industries and undertaking of research to document reasons and possible action plans for ensuring improved industry participation.

3.3.5 Talent Nurturing

The TVET sub-sector has continued to conduct TVET technological fairs and contests with a view of popularizing the TVET programmes and motivating TVET trainees. To this end, Robot contests at regional and national levels have been held annually. The annual Africa Tech Challenge (ATC) aims at identifying trainees and putting them in an incubation program where winning trainees are awarded contracts to fabricate machine parts for sale in the Chinese Market. In the period under review, the contests were carried out and the winning institutions, Meru National Polytechnic (twice) and Rift Valley Technical Training Institute, were each awarded a Kshs. 10 million contract and three winning trainees were offered scholarships to study in China.

Figure 10: Proportion of Population Who had Acquired Vocational Training by Level of Education Attainment and Sex, 2019



14 *https://www.knqa.go.ke/index.php/about-the-qualification-framework/*

3.4 Relevance

3.4.1 Transition to the Labour Market

Transition to the labour market is assessed by the number of TVET graduates, number of TVET graduates employed and the number of the TVET graduates employed in their area of specialization. From Figure 10, the majority of the TVET graduates are from secondary and primary schools at 49.1% and 39.4% respectively. Trainees from Middle-level /Technical Training colleges graduates who joined TVET institutions were at 6.6% while TVET graduates who had University education were 3.1%.

Figure 10: Indicates Proportion of Population Who had Acquired Vocational Training by Level of Education Attainment and Sex, 2019

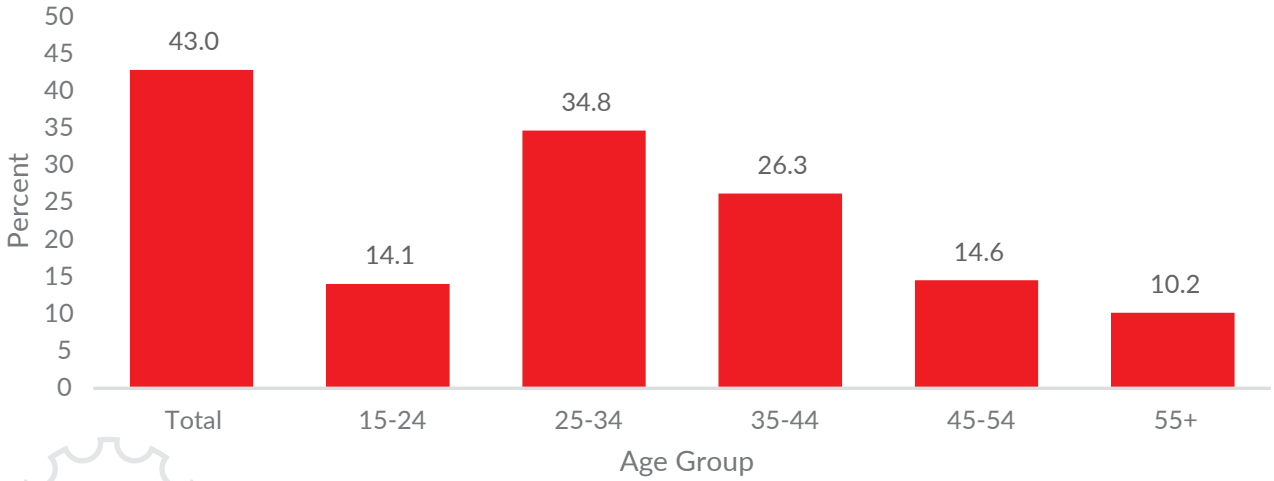
Figure 11 shows that 43.0% of TVET graduates are working in the area they trained on while slightly more than a half (57%) are employed in the fields they didn't train on. In terms of age distribution, graduates in the 25–34 age group had the highest proportion (34.8%) working in the area they trained on while graduates aged 55 and above had only 10.2% of the TVET graduates being in the area they trained on.

Figure 11: Percentage Distribution of Population who had Acquired Vocational Training and Working in the Area of Training by Age Group, 2019

with the required skills. Therefore, transition to the labour market is very crucial. Among the key indicators of transition to the labour market include the number of graduates who have been employed, started their own businesses and those unemployed. Although there have been concerted efforts to collect data on graduate employment statuses, the participation rate by graduates and industry players (and due to lack of modalities to ensure timely, dynamic and accurate data) has not taken root. The establishment of the TVET National Skills Gateway[15] as a one-stop portal for all information related to TVET is a step in the right direction. From this platform, potential TVET trainees and graduates will be able to access information on training programmes, training providers, occupations, career counselling, labour market, skills anticipation and job opportunities, funding, events, innovations, success stories and more.

Additionally, the establishment of the Kenya Labour Information Management System will serve as a Labour Market Observatory/Intelligence/watchtower for the economy through provision of timely, relevant and reliable labour market information. The portal will provide labour information to all levels of job seekers and link them with the job market. The overall aim is to provide a platform where industry players and job seekers are able to link with each other.

Figure 11: Percentage Distribution of Population who had Acquired Vocational Training and Working in the Area of Training by Age Group, 2019.



Source, KHPC 2019

3.4.2 Entrepreneurship, Employability and Self-Employment

The end goal of TVET training is to provide industries

3.4.3 Values and Skills

Values and Life skills complements technical skills propelling whole youth development and business growth.

15 *https://www.nationalskillsgateway.go.ke/*

Integration of the values and life skills in TVET is critical in imparting transferable skills. Integrating values and life skills in the TVET sector is meant to make the acquisition of skills easier and also make those who get such skills more adaptable to the work environment, thereby enhancing youth employability. From the results in Table 3, most TVET graduates were good team players while digital skills had the highest mismatch.

Table 6: Percentage of TVET Graduates with Selected Desired Skills and Values

Skill	Mismatch (%)	No mismatch (%)	Skill not Needed (%)
Numeracy	13.59	78.64	7.77
English	10.68	82.52	6.80
Reliability	13.59	74.76	11.65
Resilient	12.62	76.70	10.68
Innovative	7.77	82.52	9.71
Perseverance	12.14	77.18	10.68
Digital Skills	27.67	43.20	29.13
Team Player	3.88	88.83	7.28
Under Pressure	10.68	80.10	9.22
Adaptability	11.17	79.13	9.71

Source: STEP Skills Measurement Employer Survey 2016–2017 (Wave 3 Data), World Bank[16]

16 *https://microdata.worldbank.org/index.php/catalog/2996/related-materials*

3.4.4 Labour Market Information

Industrial attachment for TVET graduates plays a critical role in linking the graduates with the real labour environment. Otieno and Onyango (2021)[17] posit that through industrial attachment, more than 80% of the trainees acquired necessary skills that prepared them for the labour market, though there exists limited attachment placement areas. In some instances, industrial attachment has been a solution to the problems of shortage of personnel in the organizations.

Access to reliable information on TVET graduates' employability is crucial for the development of TVET curricula. Research on the Influence of Technical, Vocational Education and Training on Graduates' Employability in Kenya observed that majority of trainees were pursuing courses oriented to Mathematics, Information, Natural Sciences and Technology (MINT) which are critical components of TVET, inclined with labour market demands (Nyongesa & Makokha, 2021)[18]. However, the pass rate in examination in these courses which form a basis of certification was very low ranging between 13.5% and 33% for MINT courses, an indication of a high failure rate. To promote TVET graduate employability, limitations on performance, such as interruption as evidenced by the outbreak of Covid-19, need to be addressed.

In addition to promoting employability, there is a need to promote entrepreneurship among TVET graduates. The TVET institutions should incorporate, in the learning mechanisms, positive attitudes toward entrepreneurial behavior, subjective norm, TVET programmes, and entrepreneurial knowledge so as to positively influence entrepreneurial intention. These mechanisms should be adapted so as to align with transformation in the TVET system, changing business environment and thus adapt curriculum designs for TVET to current trends in the business environment (Cheruiyot, 2021)[19]. As such, TVET institutions should embed entrepreneurship education-training module, practical element of entrepreneurship education, effective teaching methods in entrepreneurship education and engage qualified trainers (Koros, 2021)[20].

17 *Otieno and Onyango (2021)*

18 *Nyongesa & Makokha, 2021*

19 *Cheruiyot, 2021*

20 *Koros, 2021*

Therefore, there is need to realign Technical and Vocational Education and Training (TVET) for employment creation in Kenya. This is informed by the understanding that TVET is the main channel of transformative learning and its future could be enhanced through the integration of competency-based training with academia at all tertiary educational institutions.

3.5 Resources and Utilization

3.5.1 Physical Infrastructure

Knowledge of level of physical infrastructure development in TVET institutions is crucial for relevant stakeholders to enable optimal resource acquisition. In TVET, physical infrastructure includes lecture halls, workshops, production units, accommodation and catering, administrative blocks, laboratories, and sanitation facilities. These facilities play a crucial role in the effective and efficient delivery of the course contents to trainees and ensuring proper delivery of the requisite skills. The availability of the prescribed physical infrastructure in place within the TVET sub-sector is likely to propel the country to the realization of the much-needed change towards skills enhancement via TVET.

The state department has continued with construction works for new Technical and Vocational Colleges in constituencies. Construction of TVCs is being undertaken in a phased approach with the phasing split into five phases namely: nine TVCs in counties; Construction of two TVCs; Phase I of 60 TVCs in constituencies; Phase II of 70 TVCs in constituencies; and Phase III of 30 TVCs in constituencies.

Expansion, upgrading, rehabilitation and equipping of existing TVET institutions with modern, state-of-the-art training equipment is critical in order to improve quality of the training. The sub-sector also rehabilitates and upgrades the old existing TVET institutions. A total of 172 departments in the operational institutions in the country have been equipped with modern state-of-the-art training equipment. This has led to an increase in enrolment in Science, Engineering and Technology disciplines, bringing the enrolment in these disciplines to above 71% of the total enrolment in the TVET institutions.

The Kenya Technical Trainers College, the only training centre for trainers for TVET, was supported to improve its infrastructure. Specifically, the Food and Beverage Complex comprising restaurants, modern kitchens, classrooms, open working areas and offices were constructed. The college has an ongoing project to put up an institutional management complex. As a result of these initiatives, enrolment increased from 4,461 in 2018/2019 and further to 5,067 in FY 2019/20 and 4,687 in the 2020/2021.

Table 7: Status Summary of Newly Established TVCs

Phase of the Project	Institutions that are completed	No. of institutions not completed	No. of institutions equipped	No. of institutions not equipped
Nine TVCs in Counties (9)	6	3	6	3
Phase I of TVCs in Constituencies (60)	54	6	54	6
Phase II of TVCs in Constituencies (70)	59	11	42	15
Phase III of TVCs in Constituencies (30)	0	30	0	30

Source: Education, TVET Sub-Sector Report 2021

3.5.2 Human resources

TVET trainers play a crucial role in skills development for the trainees. Trainer engagement is done by the PSC after the Ministry moved trainers from TSC to PSC in order to ensure that the sector gets adequately trained trainers with the requisite industry skills. In the Financial Year 2018/19, 1,178 trainers were registered; 1,829 trainers were registered in FY 2019/2020 and 2,640 trainers were registered in FY 2020/21. However, there is a deficit of 2,596 trainers. TVET institutions have developed mechanisms for recruiting and remunerating teachers with shortages supplemented by recruitment of trainers in the short term. To address the issue of low-quality training, requirements for teaching in TVET have been improved and training on pedagogical competency enhanced.

A survey of Public TVET Institutions in Kenya found out that there exists a positive significant relationship between trainer academic qualification, trainer CPD, trainer pedagogy and training effectiveness. Therefore, the government is on the right path of investing in trainer professional development to improve the effectiveness of trainers in TVET institutions in Kenya (Langat et al., 2021)[21].

In terms of instructors' capabilities in embedding core values and soft skills in TVET institutions, most TVET instructors could teach the main/core courses but some of them had no capacity to train soft skills and core values. Therefore, to ensure embedding of core values in trainees, instructors need to undergo in-service training, and TVET teacher-preparation programmes be reviewed to incorporate Whole Youth Development skills that promote continual industrial exposure for the TVET teachers to learn new skills/technologies (Awiti, et al., 2019; Kiplagat & Kitainge, 2021)[22].

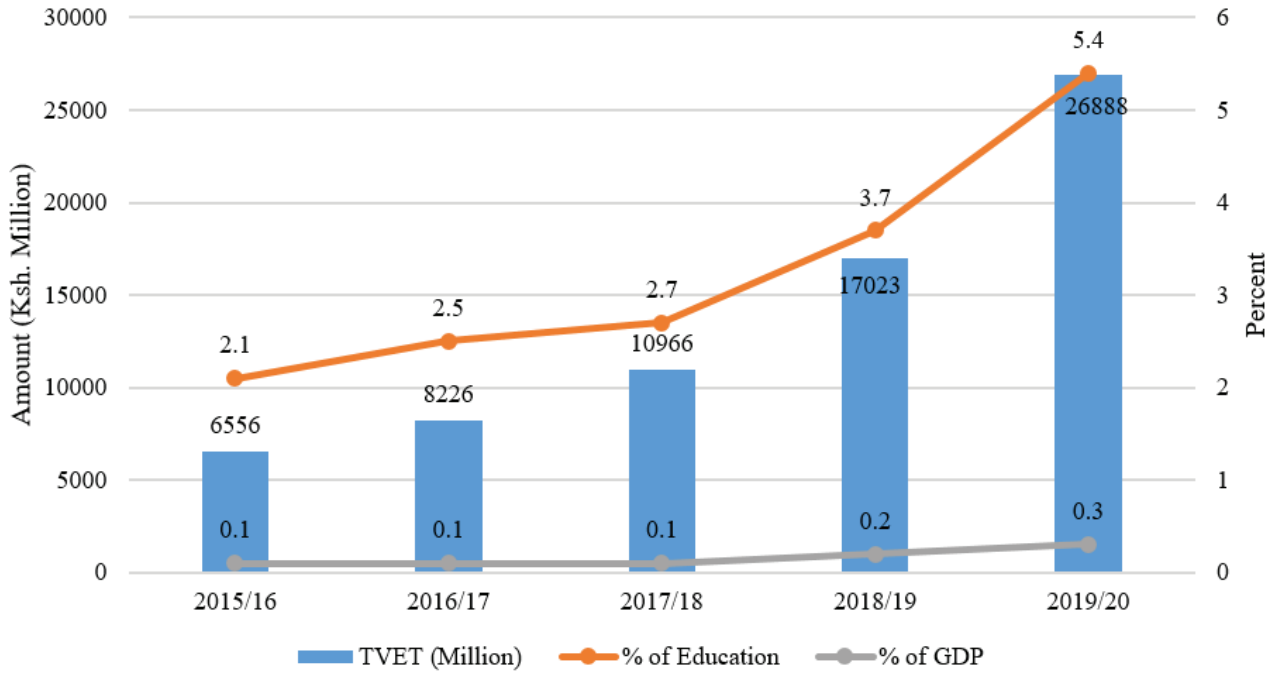
3.5.3 Financing

The TVET budget, as a percentage of the total education budget, increased marginally in 2017/18 (by 2.7% of the education budget), in 2018/19 (by 3.7% of the education budget) and in 2019/20 (by 5.4% of the education budget) (Figure 12). The resources were utilized in the recruitment of training instructors, and in the construction, equipping and operationalization of new TVCs.

21 *Langat, Omoto, Ambuli and Ngeno, 2021*

22 *Kiplagat and Kitainge, 2021*

Figure 12: Public Spending on TVET (2015/16-2019/20)



Source: Economic Survey, 2020/21, Billion

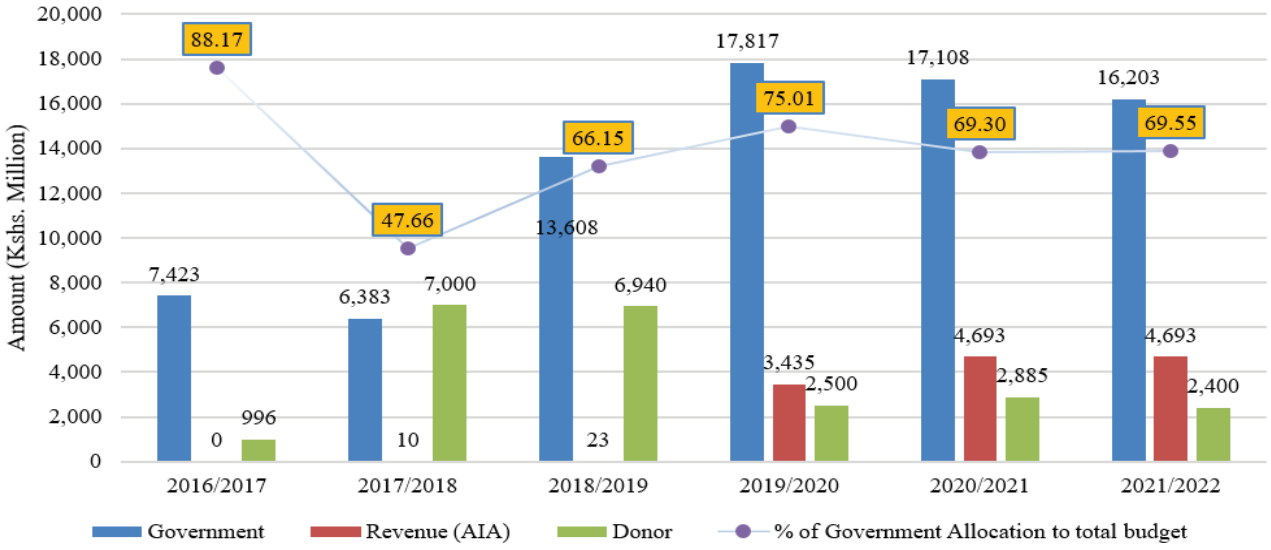
3.5.4 Sources of Funds

TVET institutions receive most of their financing from the government. The contribution of the government allocation to the total budget has, however, been fluctuating over time, with the highest contribution recorded in 2016/17, representing 88.2 %, and the lowest contribution at 47.7 % in 2017/18 (Figure 13). The development partners' contribution has also been declining since 2016/17, from Kshs. 7 billion to Kshs. 2.4 billion in 2021/22. Nevertheless, the revenue from appropriation-in-aid has increased since 2018/19, from Kshs. 23 million, to Kshs. 4.6 billion in 2020/21.

3.5.5 Allocation and Expenditure

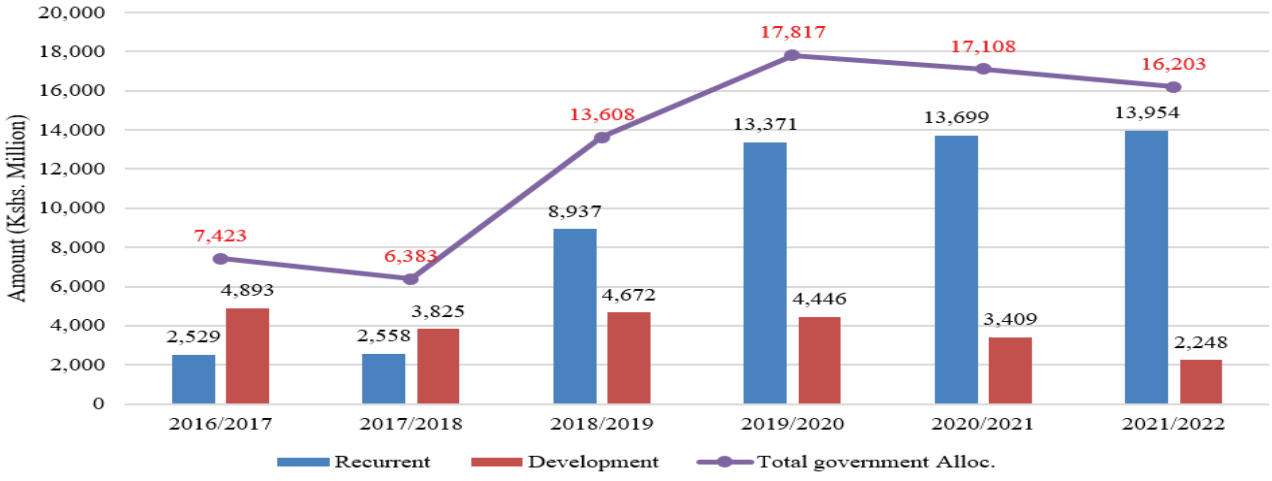
Data show that over time, the allocation and expenditure in the State Department for Vocational and Technical Training has been increasing. The total expenditure increased from Kshs. 7.4 billion in financial year 2016/17 to Kshs. 16.2 billion in the financial year 2021/22 (Figure 14).

Figure 13: TVET Budget Allocation by Source From 2016/17 to 2021/22



Source: Ministry of Education (2020).

Figure 14: Government Allocation by Economic Classification from 2016/17 to 2021/22



Source: Ministry of Education

Data from the Ministry of Education show that recurrent expenditure for the State Department for Vocational and Technical Training increased from Kshs.2.5 billion in 2016/17 to Kshs.13.9 billion in 2021/22 partly due to the recruitment of additional trainers for the TVET institutions and the introduction of capitation. On the other hand, total development expenditure for the State Department for Vocational and Technical Training has been fluctuating, from a high of Kshs.4.8 billion in 2016/17 to a low of Kshs.2.2 billion in 2021/22. The fluctuation in development expenditure is mainly due to re-prioritization in the Ministry of Education, in order to support infrastructure development and implementation of CBC.

Further, all students joining TVET through Kenya Universities and Colleges Placement Service (KUCCPS) are eligible for Kshs. 30,000 capitation allocation each year and a government loan through the Higher Education Loans Board (HELB) amounting to Kshs. 40,000 per year. Part of the loan goes towards payment of tuition fees while part of it is given to the beneficiary student for upkeep. Further, beginning 1st July 2018, the TVET academic year fees reduced by 30 % from Kshs. 92,000 to Kshs. 56,420 and the fees is offset through government payment of capitation grants for every student admitted through (KUCCPS). However, the allocation stagnated at between 0.1% and 0.3% of Gross Domestic Product (GDP) during the same period.

3.5.6 Equipment

In TVET institutions, equipment comprises training equipment and tools, didactic material as well as consumables / material which is in quantitative and quality terms for the provision of relevant practice-oriented, hands-on skills and knowledge. Training equipment availability in a TVET institution is informed by training content, module sequence and occupational profiles, which are ideally during a labour market demand and occupational profiles analysis. TVET institutions with equipment need to consider the relevance of using the available equipment for income generation as they train.

3.6 Governance and Management of TVET

TVET institutions are categorized into National Polytechnics, Technical Vocational Colleges, Vocational Training Centres and Technical Training Institutes. Governance and management in the TVET education and training focuses on the rules and mechanisms through which decisions and accountability are done. Governance and management of the education sector are guided by the Constitution of Kenya 2010, with the overall leadership vested in the ministry responsible for education, training and research. In this space, the Ministry works closely with county governments to ensure effective and efficient delivery of services. At the institutional level, management is delegated to Boards of Management, Boards of Governors, Governing Councils and Board of Trustees. Boards for Vocational Training Centres are appointed by the respective county governments. When the devolution system was introduced back in 2013, the country had 753 TVET institutions. 9 years later, we now have 2,301 institutions, so generally there has been an upward trend in provision of TVET in the country.

In pursuance of Section 33 (4) of the TVET Act 2013[23], the TVETA is tasked to assess the quality of training offered by Vocational Training Centres in the country.

23 *Section 33 (4) of the TVET Act 2013*

CHAPTER FOUR: EMERGING ISSUES AND KNOWLEDGE GAPS

4.1 Introduction

This chapter presents emerging issues and identifies knowledge gaps and their proposed recommendation/action plans. From the literature review and findings, it was noted that even though researchers have endeavored to undertake research on most of the main themes, there still exists some knowledge gaps among those themes. Further, a significant number of knowledge gaps arise due to lack of related data; thus effective, efficient and sustainable data collection will go a long way in ensuring that these gaps are addressed. Additionally, there is need to sensitize industry players on available data for use in policy formulation.

4.2 Emerging Issues

In TVET, there are a number of emerging issues. For instance, with the advent of Covid-19, e-learning has become a critical delivery tool. A review of the Technical and Vocational Education and Training Institutions' Online Learning as a Response to Corona-Virus Disease 2019 in Kenya noted that there was an urgent need to improve remote teaching and learning in Kenyan TVET institutions through investment in additional resources and development of adequate digital infrastructure (Katam & Otieno, 2021). To this end, TVETA should ensure effective implementation of ODeL guidelines and harmonization of its delivery through a national Learning Management System (LMS). Global best practices should be incorporated to provide models for benchmarking for local standards and practice and make the training globally competitive (Katam & Otieno, 2021)[24].

Another emerging issue is the rapid growth of digital economy requiring the development of digital skills to complement the 21st Century skills. Further, there is the development of national, regional and continental qualification frameworks, which facilitate portability of qualifications calling for realignment and review of curricula to conform to international standards.

The TVET sub-sector is faced with a number of human resource challenges: including shortage of highly qualified trainers and administrative staff; lack of industry experience among TVET trainers; inadequate resources to cater for the implementation of the 100% transition policy; weak quality assurance structures; and inadequate capacity to effectively manage financial resources at the institutional level. Another challenge includes mismatched TVET curriculum and structure with industry needs resulting in high unemployment with employed graduates undergoing retraining and re-orientation to enable them to participate in productive activities. Other challenges identified include weak collaboration /linkages between TVET institutions and industry players, and low research capacity of trainers.

24 *Katam and Otieno, 2021*

4.3 Knowledge Gaps

These knowledge gaps are highlighted below by the themes.

Knowledge Gap	Recommendations
Access and Equity	
Lack of information on drop outs rates	Collect data on drop outs rates
Lack of information on the reason for drop outs by certain categories of learners such as young mothers, learners with special needs among others	Collect data on the reason for drop outs by certain categories of learners such as young mothers, learners with special needs among others
Lack of a centralized data hub to access enrolment data	Develop a centralized data hub to collect enrolment data
Lack of information on refugees in TVET in terms gender and disability	Collect/Disaggregate data by nationality, gender and disability in TVET
Quality	
There is limited information on courses with high demand in emerging areas	Collect data on courses with a bias on demand in emerging areas

Instances of curriculum not being adopted in institutions	Collect data on TVET institutions implementing curriculum
Limited information on the impact of the quality standards in TVET	Collect/Disaggregate data on the quality standards in TVET
Lack of information on the industry players who are verifiers for their areas of expertise	Collect/Disaggregate data on the industry players who are verifiers for their areas of expertise
Limited and lack of information on the use of industry as assessment centres	Collect/Disaggregate data on the use of industry as assessment centres
Lack of performance data per region/gender	Collect/Disaggregate data on performance data per region/gender
Low incidence of industries being assessment centres	Develop approaches to ensure high industry participation in assessment process
Lack of current labour market information	Collect/Disaggregate data on current labour market information
Lack of information on the low uptake of CBET	Develop approaches to help increase uptake of CBET
Relevance	
Dynamic data capture especially on enrolment in TVET	Capture the data using Management Information Systems and also ensure that data accuracy is checked before it is fed into the system.
No data on employment available	Conduct institutional tracer studies to capture data on the employment status of the TVET graduates. Undertake a survey on employment state of the TVET graduates to capture industries of preference in order to match skills trained to the market needs.
Mismatch between the skills and the demand	Link with the industry leaders to participate in the design and assessment of the TVET courses.
There is limited training on values and soft skills on TVET graduates	The curriculum should be reviewed to include concepts of values and soft skills
Lack of information on different categories of skills required by graduates to fit in different positions in the workplace	Collect data on different categories of skills required by graduates to fit in different positions in the workplace
Lack of labour information on the opportunities available for TVET graduates	Collect data on opportunities available for TVET graduates
Resources and Utilization	
Lack of information on quality of infrastructure in the TVET institutions	There is need to undertake infrastructural audit on the status and standards of the physical infrastructure in the TVET institutions
There is limited and where available, incomplete information on private TVET institutions	There is need to enhance awareness on the need for registration and participation by private TVET in the generation of data
Information of VTCs from the counties is limited	There is need to engage COG on the collaboration with other institutions to support TVET education in the country by generating and sharing data
There is lack of knowledge on the non-teaching staff and BOG trainers	Collect data on the non-teaching staff and BOG trainers
There are limited data on the funding of private institutions and county-managed VTCs	There is need to engage the county governments and private stakeholders in the sharing of such data so as to understand the issue of funding and develop approaches to ensure equity in funding
Lack of or limited data on the state of the training equipment and their maintenance, their life cycle and lifespan for proper planning of replacement	Collect/Disaggregate data on the state of the training equipment and their maintenance, their life cycle and lifespan for proper planning of replacement

The government has not yet done a public expenditure tracking survey to track the value of the shilling on TVET training	The government to conduct a public expenditure tracking survey to track the value of the shilling on TVET training
The rate of return of TVET training; when the TVET graduands get employment, is the income commensurate to the investment the government did put in place	Undertake a rate of return of TVET on training
Governance and management of TVET	
Lack of knowledge management hubs/ knowledge management teams	Develop knowledge management hubs/ knowledge management teams
Some TVET institutions are operating without valid BOGs	Conduct an assessment on the governance of VTCs to ensure all are properly constituted and are performing their duties
The education officers do not take immediate action and delay the delivery of the required information thus delays in giving strategic direction	Conduct an assessment and training on monitoring and evaluation to ensure education officers take immediate action and prompt delivery of the required information. Quality audits based on criteria like leadership and governance within the TVET institutions to determine the quality of training offered in VTCs
Lack of proactive strategy by management for Capacity building on principles of data collection, consistency and accuracy Research and its capacity to contribute to innovations and enterprise creation Use of digital tools to capture and store data to improve data accuracy in a bid to facilitate the entire data mapping process	There is need for an active strategy by the management to Undertake capacity building to ensure that principles of data collection for data consistency and accuracy apply Promote research and its capacity to contribute to innovations and enterprise creation Promote usage of digital tools to capture and store data to improve data accuracy in a bid to facilitate the entire data mapping process
Lack of demographic-specific and institution-specific information such as development and expenditure	Collection of demographic-specific and institution-specific information on VCTS, TTIs
Lack of information on the impact of conditional grants to VTCs through the county governments.	Undertake a review of the impact of conditional grants to VTCs
Lack of a comprehensive tool for standardized data collection	Development of an analysis tool to be used to facilitate collection and collation (identification, collection, processing & categorization) of data. This will go a long way in improving data accuracy and targeted decision-making

CHAPTER FIVE: SUMMARY, CONCLUSIONS & RECOMMENDATIONS

5.1 Summary and Conclusions

The purpose of this report was to 1) Review existing information in the TVET sector under the five domains: Access and Equity, Quality, Relevance, Resources and Utilization, and Governance; 2) Present findings on the review of existing data on TVET under the five main domains; and to 3) Identify and provide recommendations for existing gaps. From the analysis of the available data, enrolment in TVET and the number of TVET institutions has been increasing over the years growing from 142,418 in 2015 to 476,202 in 2020. Despite an increase in TVET enrolment, gender disparities exist between the numbers of male and female trainees who attended the TVET institutions. The gender parity index (GPI), based on enrolment, moved from 0.66 in 2015 to 0.75 in 2020. In terms of distribution, although the number of TVET institutions grew by 10.3% to 2,235 in 2022, the institutions are not evenly distributed across the country. As for Special Needs Education, there are four TVET SNE institutions in Kenya namely: Machakos TTI for the Blind; Karen TTI for the Deaf; Sikri TTI for Deaf and Blind; Nyang'oma TTI for the Deaf. The number of students enroled in TVET SNE institutions increased from 1,725 in FY 2016/17 to 3301 in FY 2020/21.

In addition, the findings indicate that there are over 372 approved curricula for all the qualifications with 191 institutions given approval to roll out CBET courses by TVETA out of the 2206 registered. As a measure to ensure quality is maintained in training, TVETA has licensed 1,820 trainers to assist in the implementation of the CBET curricula both in private and public institutions. The findings also indicate that, 43% of TVET graduates work in the field in which they were trained, while just over half, 57%, are employed in fields in which they were not trained. This report identifies the need of focusing on Values and Life skills, as they complement technical skills, propelling whole youth development and business growth. Integrating values and life skills in the TVET sector is meant to make the acquisition of skills easier and also make those who get such skills more adaptable to the work environment, thereby enhancing youth employability.

Further, the report found out that the level of physical infrastructure development in TVET institutions such as lecture halls, workshops, production units, accommodation and catering, administrative blocks, laboratories and sanitation facilities has greatly improved. In terms of financing, the contribution of the government allocation to the total budget has, however, been fluctuating over time, with the highest contribution recorded in 2016/17, representing 88.2%, and the lowest contribution at 47.7% in 2017/18. The development partners' contribution has also been declining since 2016/17 while the revenue from appropriation-in-aid has increased since 2018/19.

In TVET, there are a number of emerging issues. For instance, with the advent of Covid-19, e-learning has become a critical delivery tool. Another emerging issue is the rapid growth of the digital economy, requiring the development of digital skills to complement the 21st Century skills.

5.2 Key Recommendations

The report identifies the following key recommendations by theme:

5.2.1 Access, Participation and Equity

- Collect disaggregated data by nationality, gender and disability in TVET with special interest on special interest groups.
- Develop a centralized TVET data and Knowledge Hub.

5.2.2 Quality

- Collect disaggregated data on courses, TVET institutions implementing curriculum, quality standards in TVET, the industry players who are verifiers for their areas of expertise, and performance data per region/gender
- Develop approaches to ensure high industry participation in the assessment process to provide current labour market information

5.2.3 Relevance

- Conduct institutional tracer studies to capture data on the employment status of the TVET graduates.
- Undertake a survey on the employment status of the TVET graduates to capture industries of preference in order to match skills trained to the market needs.

- Link with the industry leaders to participate in the design and assessment of the TVET courses.

5.2.4 Resources

- There is need to undertake infrastructural audit on the status and standards of the physical infrastructure in the TVET institutions
- Collect data on the non-teaching staff and BOG trainers
- There is need to engage the county governments and private stakeholders in the sharing of such data so as to understand the issue of funding and develop approaches to ensure equity in funding
- The government to conduct a public expenditure tracking survey to track the value of the shilling on TVET training

5.2.5 Governance

- Develop knowledge management hubs/ knowledge management teams.
- There is need for an active strategy by the management to Undertake capacity building to ensure that principles of data collection for data consistency and accuracy apply
- Promote research and its capacity to contribute to innovations and enterprise creation
- Promote usage of digital tools to capture and store data to improve data accuracy in a bid to facilitate the entire data mapping process.
- Developing an analysis tool to be used to facilitate collection and collation (identification, collection, processing & categorization) of data. This will go a long way in improving data accuracy and targeted decision-making

REFERENCES

Awiti, A., Orwa, C., Mbuvi, L., & Karumba, M. (2019). Whole Youth Development in Kenya: Survey of employers and employees in the formal and informal sectors to determine entry-level skills among youth (18-30 yrs) in employment Kenya.

Cheruiyot, B. Integration of soft skills into education and training systems by TVET institutions in Kenya. The Kenya Journal of Technical and Vocational Education And Training, 51. Accessed in 14th March 2022] from https://www.tveta.go.ke/wp-content/uploads/2021/08/TVETA-Journal-for-web.pdf

Cheruiyot, B. (2021). Determinants of entrepreneurial intentions among graduates of public Tvet institutions in Kenya. The Kenya Journal Of Technical And Vocational Education And Training, 119.

Edwin Obwoge, M., & James Kibor, S. (2016). Factors influencing trainee career choice in TVET institutions in North Rift Kenya. IRA-International Journal of Management & Social Sciences (ISSN 2455-2267), 3(3). https://doi.org/10.21013/jmss.v3.n3.p9

Katam, E., & Otieno, D. (2021). A review of technical and vocational education and training institutions' online learning as a response to corona-virus disease 2019 in Kenya. The Kenya Journal of Technical And Vocational Education And Training, 96.

Kigwilu, P. C., & Bwanali, J. F. (2016). Efficacy of Life Skills Education in Enhancing the Employability of TVET Graduates: The Case of St. Theresa Community College, Nairobi County. 10.

Kigwilu, P., & Githinji, J. (2015). Teacher Factors Influencing Effective Implementation of Artisan and Craft Curriculum in Community Colleges in Kenya. 14(2), 15.

Kiplagat, H., & Kitainge, K. M. (2021). Instructors' Capabilities in Embedding Core Values and Soft Skills in TVET Institutions in Kenya. The Kenya Journal of Technical and Vocational Education and Training, 4, 39.

Langat, K., Omboto, D. B., Ambuli, A. M., & Ngeno, J. K. (2021a). The Effect of Trainer Competencies on Training Effectiveness: A Survey of Public TVET Institutions in Kenya. The Kenya Journal of Technical and Vocational Education and Training, 4, 2.

Miseda, C. W. (2021). Investigation Of Participation Of Industry In A Quality Electrical Installation Cbet Curricula Development, Delivery And Evaluation. The Kenya Journal Of Technical And Vocational Education And Training, 4, 81.

Munyi, F. W., & Cheruiyot, S. K. (2019). Gender Inclusion in TVET: An Examination of Sustainable Interventions In Selected TVET Institutions In Kenya. 4, 17.

Murgor, T. K. (2013). Relationship between Technical and Vocational Acquired Skills and Skills Required in Job Market; Evidence from TVET Institutions, Uasin Gishu County, Kenya. Journal of Education and Practice, 8.

Ndegwa, M. K., De Groote, H., & Gitonga, Z. M. (2015). Evaluation of artisan training in metal silo construction for grain storage in Africa: Impact on uptake, entrepreneurship and income. International Journal of Educational Development, 43, 12–21. https://doi.org/10.1016/j.ijedudev.2015.04.012

Ngugi, M., & Muthima, P. (2017). Female participation in technical, vocational education and training institutions (TVET) subsector. The Kenyan experience. Public Policy and Administration Research, 7(4), 9–23.

Nyongesa, C. L., & Makokha, L. (2021). Influence of Technical, Vocational Education and Training on Graduates' Employability in Kenya: An Inherent Concern. The Kenya Journal of Technical and Vocational Education and Training, 25.

Odondi, W., Maina, L., & Muhia, N. (2020). The Risk to Achieving Sustainable Development Competencies: A Gendered Analysis of Access and Training Outcomes in TVET Institutions in Kenya. 11.

Okinyi, R. A., Nyerere, J. K., & Kariuki, S. I. (2021). Internal Efficiency of Public Vocational Training Centres in Kenya. African Educational Research Journal, 9(2), 375–384.

Otieno, A., & Onyango, M. (2021). The Impact of Industrial Attachment in TVET Institutions; A Case Study of Engineering Departments in Masai Technical Training Institute in Kajiado, Kenya. The Kenya Journal of Technical and Vocational Education and Training, 4, 14.

Constitution of Kenya. (2010).

Government of Kenya. (2013). TVET Act, 2013.

Session Paper 1 of 2019. Policy framework on education and training in Kenya. Nairobi: Government Printer
Government of Kenya. (2020). Economic Survey, 2020. Nairobi: Government Printer
Government of Kenya. (2020). Economic Survey, 2021. Nairobi: Government Printer