TVET
Statistics of Bhutan

2021

In the Quest for transforming

TVET through Data – Driven approach

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Statistics of Bhutan

In the Quest for Transforming TVET through Data-Driven Approach

Department of Technical Education (DTE)
Ministry of Labour and Human Resources
2021

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Publication: TVET Statistics of Bhutan—In the Quest for Transforming TVET through Data-Driven Approach

Second Issue

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Vision

To become a leader in Technical and Vocational Education and Training (TVET) in the region.

Mission

To achieve a globally competitive workforce through a holistic TVET that creates a more cohesive society and secures a stable economic future for all citizens.

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Technical Working Group

Lham Dorji, Director, Department of Labour (DoL), MoLHR led the Technical Working Group (TWG) for the second issue of TVET statistical report. In 2020, the first TVET statistical report was published at his initiative. Aside from his key role in data collection, he also performed data analysis, writing, and report design. Lham Dorji joined DTE's TVET Institute Support Division in March 2018 as Chief Program Officer. Prior to that, from 2010 to 2018, he served as Chief Research Officer at the National Statistics Bureau (NSB) and as a multi-disciplinary Researcher at the Centre for Bhutan Studies (2001-2010).

Jigme Dorji, Deputy Chief Program Officer, TVET Institute Support Division, DTE, assisted the team with data collection, review, validation, and processing. He joined TISD in 2018 after serving as principal in the Zorig Institutes.

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Ministry of Labour and Human Resources
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Forward

The first ever TVET Statistical Report was produced in 2020. Thanks to the historic initiative of Director Norbu Wangchuk, Department of Technical Education and Director Lham Dorji, Department of Labour, the former Chief Program Officer of DTE's TVET Institute Support Division. Acknowledging the importance of TVET statistics in the field of TVET administration and decision-making, and to maintain the regularity of the TVET statistical report, the second issue of the TVET Statistical Report was released under their direction and supervision.

I am delighted to announce the release of the second issue of the 'TVET statistical report,' titled 'Annual TVET Statistics of Bhutan, 2021.' The Statistics for the reference period of 2019 to June 2021 are included in the report. The report includes statistics derived from administrative and survey data that cover five major areas of TVET: context, access and participation, quality, relevance, and governance and financing. The administrative data were collected from data focal persons in TTIs and IZCs, while the multi-cohort TVET tracer survey (2013-2018) provided some data.

This issue reflects the departments' ongoing commitment to embrace the data-driven processes in policymaking, strategic planning, performance assessment and skills forecasting. The report is expected to provide useful information for policymakers, planners, and managers of various institutions, government organizations, donors, private, NGO, and corporate stakeholders, and research agencies working in various fields of TVET. Likewise, the report represents our commitment and zeal for utilizing data at all stages of TVET management and development to make TVET more sensitive to the needs of the Bhutanese economy and society. I am confident that the report will provide critical information for various TVET reforms.

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The Technical Institute Support Division's data team had taken great care to ensure data accuracy, validity, and completeness. Nonetheless, there will be some flaws in the report. Users/readers should be able to accept the limitations of the report, while the statistical team should use these flaws to improve future TVET statistics. The report has been shortened and made more concise in comparison to the first issue. The report can be further shortened, sharpened, and made more concise in the following issues in the future.

I would like to express my gratitude and appreciation to Director Norbu Wangchuk, Department of Technical Education, Director Lham Dorji, Department of Labor, and the team of officers led by Director Lham Dorji (Former Chief Program Officer, TISD) for their ongoing efforts to ensure the success of this project while carrying out their regular responsibilities.

I'd also like to thank all of the data focal person of TTIs and IZCs for their efforts in making the data available.

Your comments will help to improve the future TVET statistics series. I hope that the following TVET statistical reports will become more valid, relevant, regular, impartial, and accessible in order to contribute to the development of a robust, agile, and resilient TVET system that is responsive to the needs of the economy and society.

Ugyen Dorji
Minister
Ministry of Labour and Human Resources
Thimphu Bhutan

Acknowledgement

Acronyms and Abbreviations

ADB: Asian Development Bank
AES: Annual Education Statistics
APA: Annual Performance Agreement
BCSE: Bhutan Certificate for Secondary Education
BCSEA: Bhutan Council for School Examinations and Assessment
BHSEC: Bhutan Higher Secondary Education Certificate
BOE: Bhutan Overseas Employment
BOW's: Bhutan Overseas Worker
BQF: Bhutan Qualification Framework
BVQF: Bhutan Vocational Qualification Framework
C-SR: Cohort Survival Ratio
CBA: Cost-Benefit Analysis
CBF: Competency-Based Framework
CBRT: Competency Based Training
CST: Critical Skills Training
CZC: College of Zorig Chusum
DAHE: Department of Adult and Higher education
DBMS: Database Management System
DES: Direct Employment Scheme
DoEHR: Department of Employment and Human Resources
DoHR: Department of Human Resources
DOL: Department of Labour
DOS: Department of Occupational Standards
DTE: Department of Technical Education
DTP: Dual Training Programme
EAF: East Asia and Pacific
ECCD: Early childhood and Care Development
ECPF: Education Consultancy and Placement Firm
EPR: Employment-to-Population Ratio
FDI: Foreign Direct Investment
FW: Foreign Workers FY: Financial Year FYP: Five-Year Plan
GER: Gross Enrolment Rate
GETP: Guaranteed Employment Training
GETP: Guaranteed Employment Training Programme
GMI: German-Malaysia Institute
GOI: Government of India
GPI: Gender Parity Index
GPMD: Government Performance Management Division
GPMS: Government Performance Management System
GSP: General Service Personnel

GSP: Graduate Skills Programme
HEPD: Higher Education Planning Division
HRD: Human Resources Development
HRSDD: Human Resource and Skills Development Division
HVAC: Heating, Ventilation and Air Condition
IAG: Inter-Agency Group
IDF: Institute Development Fund
ILO: International Labour Organization IR4: Fourth Industrial Revolution (IR4)
ISCED: International Standard Classification of Education
ISCO: International Standard Classification of Occupations
ISR: Incidence Severity Raing
IZC: Institute of Zorig Chusum
JICA: Japan International Cooperation Agency
JWPTI: Jigme Wangchuck Power Training Institute
KGUMS: Khesar Gyalpo University of Medical Sciences
KTI: Kharbandi Technical Institute
KTS: Kharbandi technical School
LFS: Labour Force Survey
LMIRD: Labour Market Information and Research Division
LTT: Long-Term Training (LTT)
MIS: Management Information System
MoAF: Ministry of Agriculture and Forestry
MoE: Ministry of Education
MoHCA: Ministry of Home and Cultural Affairs
MoLHR: Ministry of Labour and Human Resources
MVI: Motor Vehicle Inspector (MVI)
NC: National Certificates
NCVER: National Centre for Vocational Education Research
ND: National Diploma
NER: Net Enrolment Rate
NGO: Non-Governmental Organization
NIZC: National Institute of Zorig Chusum
NKRA: National Key Results Area
NS: National Standards
NSB: National Statistics Bureau
NTTA: National Technical Training Authority
NTTI: National Technical Training Institute
NTTS: National In-plant Training System
Nu: Ngultrum
NWDP: National Workforce Development Plan
OCR: On-Campus-Recruitment

ODA: Official Development Assistance
OECD: Organization for Economic Co-operation and Development
OHS: Occupation Health Safety
OJT: On-the-Job-Training
OPPTP: Other Public and Private Training Provider
OSD4CS: Occupational Skill Development for the Construction Sector in Bhutan
OHS: Occupational Health and Safety
PAR: Poverty Analysis Report
PCA: Pass Certificate Awarded
PHCB: Population and Housing Census of Bhutan
PMU: Project Management Unit
PP: Pre-Primary
PPP: Public-Private Partnership
QAMIS: Quality Assurance Management Information System.
QAS: Quality Assurance System
QAP: Quality Assurance Procedure
QMS: Quality Management System
RAF: Resource Allocation Formula
RAPA: Royal Academy of Performing Arts
RCSC: Royal Civil Service Commission
RDTC: Rural Development Training Centre
RGoB: Royal Government of Bhutan
REC: Royal Education Council
RoR: Rate of Returns
RPL: Recognition of Prior Learning
RTI: Royal Technical Institute
RUB: Royal University of Bhutan
SEN: Special Educational Needs
SKRAs: Sector Key Results Area
SNA: Standard National Accounting
SOE: State-Owned Enterprise
SS: Supervisory Support
SSDP: Special Skills Development Programme
STD: Standard Deviation
STEP-UP: Skills Training and Education Up-gradation Project
STP: Skills Training Programme
STT: Short-Term Training
STWTP: School-To-Work-Transition Programme
TEP: Training and Employment Programme
TICA: Thailand International Cooperation Agency
TISD: Technical Institutes Support Division

TITP: Technical Intern Training Program
TOT: Training of Trainer
TP: Training Providers
TTI: Technical Training Institute
TVET: Technical and Vocational Education and Training
TWG: Technical Working Group
UNESCO: United Nations Educational, Scientific and Cultural Organization
UNEVOC: International Centre for Technical and Vocational Education and Training VSDC: Vocational Skills Development Curriculum
VSDP: Village Skills Development Programme WB: World Bank
YDF: Youth Development Fund
YES: Youth Employment Skills

Executive Summary

Bhutan's National Education Framework advocates and emphasize on the creation of 'Highly skilled citizens capable of responding to the emerging global challenges. In the same way, the Bhutan Education Blueprint 2014-2024 also emphasizes on the importance of equipping Bhutanese students with both the country's traditional and contemporary knowledge in the face of changing global market demand. To this, Technical and Vocational Educational and Training (TVET) has gained a massive recognition over the country for imparting the right skill, knowledge and values towards the Bhutanese people. Furthermore, the TVET has been receiving several national legislations emphasis for increasing the knowledge, values, and skills of the Bhutanese people thereby leading to the creation of a knowledge-based society.

Nevertheless, Bhutan's TVET Sector Assessment had called for the need to improve TVET data management and its use for strategic planning, monitoring and evaluation in 2016. To this matter, the first ever TVET Statistics report (2020) was published in the year 2020, which signifies the first ever initiative to improve the TVET data management to further guide and direct the TVET policies and programs through evidence-based decision making.

This Publication marks the success of producing the second issue of TVET statistical report for the reference period of 2019 to June 2021. It is expected to provide the required information for strategic TVET development at the national and institutional level and in promoting TVET research. The data non-compliance and irregularity were the two major challenges. Some TTIs/IZCs (TPs) had failed to meet the data request while few had submitted incomplete datasets.

This being a maiden statistical report, some statistical errors were inevitable. The team admits that there is at least 10-15% error in some of the reported statistics. The data accuracy, validity and completeness are expected to improve in the future as the data compliance, reporting and statistical method improve.

II: Context Indicators

1. The total projected youth population (15-24) in 2021 was 137,514 youth. It was 18% of the total population. TVET has a huge responsibility to make the youth a part of viable and capable Bhutanese workforce.

2. The majority of youth were found to be living in two Dzongkhags of Thimphu (22.25%) and Chhukha (9.9 %) in 2021.

3. Population below 25 years is expected to decrease from 45.81% of the total population in 2017 to 35.29% in 2032. This might have some implications on TVET, especially in terms of planning for TVET access and participation.

4. Persons with disabilities (all ages) constituted 2.14% of the Bhutanese population in 2017. Young people with disabilities constituted about 10.40% of the total disabled population. This will have important policy implications for ensuring TVET access and equity.

5. There total students enrolled in class X in the year 2020 were 13,183 and 13,002 in class XII. With no class X cut off policy, the enrolment in class XII is projected to increase until 2022 and then gradually decrease in the subsequent years. Whereas the class X enrolment is projected to steadily decrease to about 7509 in 2028. Similarly, with class X cut off point policy, the class XII enrolment is projected to decrease gradually from 14,448 in 2021 to 11,850 in 2028.

6. The youth unemployment rate increased to 22.6 % in 2020 from 11.9% in 2019. The working population size is projected to reach 488,336 in 2020 (LFS, 2020).

7. In 2020, there were 8309 Foreign Workers (DOL). FWs was roughly 1.7% of the total working population. They were engaged mainly in hydropower and construction sectors.

8. Between 2013 and 2019, Bhutan had witnessed a gradual increase in its GDP till 2016. However, the GDP growth rate started decreasing from 2017 to 5.46 in 2019. The annual GDP growth rate average at 5.12% between 2013 and 2019.

9. The fluctuating GDP growth rates between 2013 and 2019 reflect the consequence of the economics' high reliance on one or two sectors mainly hydropower and construction sectors. The economic diversification and constant GDP growth rate are critical for the growth of the private sector, which in turn will have positive effects on the growth of TVET.

10. The contribution of the Secondary Sector (constituted mainly by manufacturing) to GDP averaged 40.6% while that of the Tertiary Sector (service industry) was 43.9%. The contributions of these two sectors to GDP did not change much between 2013 and 2019. This presents another challenge for the growth TVET in the country as the major source of employment for TVET graduates are the secondary and tertiary sectors.

11. The majority of economic establishments (seen as the source of employment) were concentrated in two Dzongkhags: Chukkha (13.5%) and Thimphu (24.9%) (Economic Census report 2018). This shows the problem of regional disparity in economic and employment opportunities.

12. About 92.5% of the businesses in the country in 2018 was proprietorship and partnership enterprises (Economic Census Report, 2018). Likewise, 95.4% of the industries in the country in 2020 was sole proprietorship. These types of businesses are easy to establish, relatively less stable, typically incur low running costs and employ a smaller number of workers. Tackling unemployment may entail promoting the growth and transformation of smaller businesses into the larger ones. As the source of employment rests with the private sector, TVET reforms in the supply side may bring about the lopsided results if there is no equivalent transformative growth in the private sector (demand side).

13. The characteristics of the economic sectors could be useful to understand the type and extent of skills demand. The dominant economic sectors in 2018 were wholesale and trade & motors repairs (62.5%) and accommodation & food services (21%).

III: TVET Access and Participation Indicators

14. The administrative TVET data were collected from eight TTIs & IZCs, Department of Occupational Standards (DOS), Department of Employment and Human Resources (DoEHR) and Department of Technical Education.

15. Out of 120 registered Training Providers (TPs) in 2021, 70 TPs were located in Thimphu Dzongkhag/Thromde. The other Major towns where the most TPs were congregated were Paro and Chukkha Dzongkhag. The majority of TPs/ Training Institutes were established between 2015 and 2018 (94).

16. On the whole, 80.8% of the TPs belonged to the private sector. TTIs and IZCs under MoLHR's direct administration constituted just 11.7% in 2021.

TTIs and IZCs

1. TTIs and IZCs have listed 87 courses in 45 disciplines including the BBP courses. About 57 courses were National Certification II (NC II) (70.4%), 27 NC III (33.3%), one National Diploma (ND) level (1.2%) and 2 short courses (2.47%). Seventy-two courses were long-term, 2 courses were short term and 13 courses were for Build Bhutan Project.

2. The highest number of courses listed by TTIs and IZCs belonged to the disciplines of Automobile, Masonry, Plumbing, Carpentry, wooden furniture making followed welding, sculpture and Lhadri (painting).

3. The highest number of courses (listed by TTIs and IZCs) belonged to the ISCED-F-2013 category '0214-Handicrafts' constituting 22.2% of the total courses. The second-highest number of courses were under the category '0732-Building and Civil Engineering' (about 19.8%).

4. The total intake capacity (fresh enrolment + existing trainees) of TTIs and IZCs in any given time was estimated at 1740 in 2020. The total number of trainees (strength) in all TTIs and IZCs in 2020 was 922.

5. Out of 2617 enrolments (2019- June 2021), 72% were males and 28% females. Enrolment fluctuated in TTIs and IZCs with the highest number of enrolments in 2017 (1535), 1372 in 2018, and 1043 in 2020.

6. The highest enrolments (2019- June 2021) were in Masonry (345) courses followed by enrolments in construction Carpentry (302), Plumbing (240) and Automobile (227) courses.

7. Taking the average enrolment between 2019 and June 2021, annual enrolment in Long-Term Courses (LTC) was 542 and 330 Build Bhutan Project (BBP). There was no enrollment in Short-Term Courses (STC), and ATPs. On average, the total enrolment in LTC and BBP was 872 in between 2019 and June 2021.

8. On average, enrolment in TTIs and IZCs for 2008 to 2020 was 5.1% of the total enrolment in class X and XII in school education for the period 2008-2020.

9. Gross Enrolment Rate (GER) measures participation in education and training programme. GER for TTIs and IZCs for the period 2015-2020 was 11.11%. In contrast, GER for the higher secondary school education was 89.81% in 2020.

10. TVET Gender Parity Index (GPI) measures equity and participation in training programmes. The average GPI of TTIs and IZCs for the period 2015-2020 was 0.4. GPI for higher secondary school education was 1.06 in 2020. GPI closer to one indicates gender equity in enrolment. GPI of more than one is in favor of females and less than in favor of males.

11. Samthang TTI's GPI caused the major bias in GPI as its GPI was just 0.05. This Lower GPI of TTI-Samthang was due to hard skills and male-dominated courses the institute offered. If Samthang TTI's GPI is excluded, total GPI for TTIs and IZCs would be 0.59. Still then, TTIs and IZCs have a long way to go to achieve satisfactory GPI.

12. Between 2019-2021, 47.2% of trainees in TTIs and IZCs were class X pass outs and 52.8% class XII pass outs. These calculations were based on the record of only 60% of total enrolment during the same period.

13. Enrolment of individuals in TTIs and IZCs with Class X qualification had dropped from 90.03% in 2013 to 45.54% in 2020. Enrolment of individuals with class XII qualification had risen from 9.97% in 2013 to 55.59% in 2019 and 54.46 % in 2020.

Alternative TVET Programmes

14. The Village Skills Development Programme (VSDP) and Special Skills Development Programme (SSDP) represent the non-formal TVET. VSDP was introduced in 1984 and SSDP in 1996 under the Royal Command. Both these programmes provide the opportunity for lifelong learning.

15. The total number of individuals trained through VSDPs between 1997 and 2021 was 2789 (63.61% males and 36.39% females). The most Popular VSDPs among males were electrical house wiring (26.78%), Tshemzo (16.13%) and Home Appliance Repairing (14.20). More females were represented in the programmes like Tshemzo (tailoring), Home appliance repairing, hairdressing and Thagzo.

16. 2966 persons were trained through SSDPs (73.7% males and 26.3% females) between 1997 and 2021. Twenty-five trades were covered under SSDPs. Tshemzo (tailoring) and lhadri (painting) were the most popular courses under SSDP. Courses like saloon, cooking, bakery, weaving, beautician, electrical home appliances had more female participation than their male counterparts.

17. SSDP targets other special groups, besides the armed force members and their spouses. A large number of trainees have not reported their occupations. Among those individuals who had reported their occupations, disabled persons constituted 1.48% of the total and 5.02% were juvenile delinquents. More than 51% were monks and nuns.

18. The school-To-Work-Transition Programmes (STWTPs) represent non- formal TVET. MoLHR organizes STWPTPs outside the Bhutan Qualification Framework (BQF) through Public-Private Partnership (PPP).

19. Between 2019-2020, about 1951 persons (41.5% males and 58.5% females) had attended various STWTPs among which the most popular one was Critical Skills Training (CST).

From among 27 skills area, the top five areas trained through STWTPs in the last two years were Basic Entrepreneurship course, culinary arts and Baking, Food Production, ICT and Online freelancing, and Tailoring.

20. Among STWTP participants, 53.2% had class XII qualification, 24.9% class X and 9.5% degree.

21. MoLHR and its agents have sent abroad over 1848 Bhutanese as BOWs in as many as 7 countries between 2019 and 2020. Most of them were based in Kuwait, UAE, Bahrain and so on. Majority of BOWs are class XII certificate holders (71.8%).

22. Majority of BOWs are class XII certificate holders (71.8%). Among them, no record was found for technical graduate.

IV: TVET Quality Indicators

1. 68 accredited courses (NC and ND level courses) were offered by 6 TTIs and 2 IZCs from 2019 to June 2021.

2. One hundred sixty-eight trainers were registered with DOS as of October 2021. The maximum number of certified trainers were specialized to provide training in Electrical (22), Mechanical (20), and Automobile courses (17).

3. One hundred fourteen course accreditors (91 males and 23 females) were registered with DOS as of March 2021. The maximum number of accreditors were certified to accredit courses related to Computer Application Assistant (12), Mechanical (9), Automobile and commercial accountant (8 each).

4. Four hundred and thirty (342 males and 88 females) were registered with DOS as of March 2021. They were competent to conduct the internal and external assessment for specific qualifications and/or part qualifications. The maximum number of the registered assessors were specialized in trades related to Civil Construction (70), Electrical (60) and Driving (LV & HV) (42).

5. Between 2019- March 2021, DOS had awarded over 1599 certificates to TTIs & IZCs. In all, 67.7% certifications were at NC II level, 24.3% at NC III level and 0.56% at ND level.

6. About 69.7% of the total national certification was awarded to males compared to 30.3% females.

7. Out of 24 occupations, the highest certification was awarded to Automobile Mechanic (18.6%) and Electrician (13.3%) courses. The top three national certifications with more female representation were Tailoring, Plumbing and Tshemdru. There is a need to attract more females into previously male- dominated training and careers and vice-versa.

8. Out of 33 RPL certifications, 30 RPLs were awarded to courses on Tailoring (NC II and NC III). The highest institute- based NC II was awarded to Automobile Mechanic (298) course.

9. The highest national certifications were awarded to the courses classified under the following ISCED-F-2013 occupations: '0716-Motorvehicle, shifts and aircrafts' (26.48) followed by '0214-Handicrafts' (18.23%) and '0732-Building and Civil Engineering' (17.8%).

TVET Trainers (data were drawn from eight TTIs and IZCs)

10. Almost all the TVET trainers in TTIs and IZCs as of June 2021 were regular staff. Over 68.1% of the regular staff were males. This shows the urgent need to increase the participation of female trainers to promote gender equity assuming that having more female trainers would serve as a role model to attract more female TVET aspirants.

11. The highest percentage of trainers in TTIs and IZCs were specialized in five trades namely Electrical (13.1%), Mechanical (11.9%), Automobile (10.1), lhadri (7.14) and Masonry (5.95%).

12. The academic qualifications of trainers in TTIs and IZCs ranged from certificates to masters with the majority (72.02%) of them possessing diploma (standard requirement to teach NC level). About 23.2% of them had a bachelor's degree, 4.2% certificate and 0.6% master's degree.

13. More than 19.6% of the TVET trainers in TTIs and IZCs had not availed all four modules ToT as June 2021. This means the TOT coverage was 80.4%. It cannot be 100% unless the trainers' turnover is zero.

14. The largest number of trainers in TTIs and IZCs in 2021 were in the age cohort of 26-40 years (71.43%) followed by the age group of 41-45 years.

15. About 7.7% of trainers in TTIs and IZCs had worked as trainers for less than a year while 25% had reported having worked as trainers for 10-15 years.

16. Out of 142 training availed by teaching and non-teaching staff of TTIs and IZCs between 2019 and 2021, 67.6% were short-term (5-180 days) and 25.4% were those that took less than five days.

17. Most training were availed within the country. The ex- country training was attended in over 6 countries.

Graduates' Assessment of Quality of various components of training in TTIs and IZCs

The preliminary data from the multi-cohort tracer survey, 2019 were used.

18. The highest percentage (59.4%) of the tracer survey respondents (TTI and IZC graduates) had rated 'food quality' in TTIs and IZCs as poor. This substantiates the concern that the monthly stipend of Nu. 1500 per trainee (out which 90-95% are spent on food) was not adequate to provide food of a reasonable quality during the period 2013-2019.

19. The next variable with the highest number of respondents giving poor rating was 'Quality of training equipment' (49.9) followed by 'Green skilling' (47.6% rated it as poor), and 'Entrepreneurship training' (46.3% rated as poor). The 'Institutes Support to trainees employment/Job searches' at TTIs and IZCs was also rated as poor by most of the graduates (33.8%).

V: TVET Relevance Indicators

The Data were drawn from the final tracer report.

20. Out of 4816 TTI and IZC graduates who responded to the tracer's question on the status of their employment, 73.3% (3533) of them had reported that they were employed.

Among the employed graduates, about 63.3% were males and 36.7% females and among the unemployed, 46.6% were males and 53.4% were females. In all, male graduates were doing relatively well in terms of employability than female graduates.

21. The 73.3% employability of TVET graduates of TTIs and IZCs is a good result. It is relatively higher than the employability of academic graduates. Nevertheless, on further analysis of the data, it was observed that, of the employed graduates, more than 50.3% were regular employees and the rest were temporary (10.5%), 7.3% were on the fixed-term contract and more than 5.4% of the employed graduates were self-employed.

22. More than half of the respondents 2835 (TTI and IZC graduates) had stated that they found it difficult to get the jobs related to their training. Further analysis may be required to identify and address the factors that impact the transition to decent work.

23. Among many reasons, the top three reasons given by TTI and IZC graduates for unemployment were 'low wages and salary' (18.1%), 'lack of job opportunity for TVET graduates' (15.6%) and 'Inadequacy of work skills and experience' (14.7%).

24. Out of 3382 respondents (TTI and IZC graduates) who had reported about their places of work/economic activities, the top three economic and occupational fields where the largest number of TVET graduates (mainly TTI graduates) were working includes (1) Electricity, Gas and Air- Conditioning (18.7%), (2) Manufacturing (18.1%) and (3) Construction (14.4%).

25. Most respondents were found to be employed in the tertiary sector (57%) and the secondary sector (42%) and the least in the primary sector (about 1%).

26. The major occupational group in which TTI and IZCs graduates were employed constituted a 'Craft and related trade workers' group. This group made up about 48% of the total graduates employed. More than 16% of them were 'Electrical Technicians' followed by 'Auto Mechanic (9.3%) and 'Plumbing Technician (6.3%). About 0.9%% of them were working as TVET trainers in various TTIs, IZCs and other institutes.

27. More than 48% of the respondents stated they got their first jobs three months after completing their training. About 2.4% of the graduates reported they got their first jobs only after two years. More than 7.05% of them had a time-lag of one to two years before getting their first jobs.

28. The TVET Sector and Profile Assessment (2016) report mentions 77.7% of TVET graduates earn Nu. 15,000 or less per month. The preliminary results of the final tracer survey show that more than 82% had reported they earn less than Nu. 15,000 per month among the 2013-2015 cohort. While for the cohort of 2016-2018, more than 78% had reported they earn less then Nu. 15,000 per month. Only about 0.9% of graduates form the cohort 2013-2015 had reported they earn between Nu. 30,001 and Nu. 55,000. Whereas about 0.5 % of graduates from the cohort 2016-2018 had reported they earn between Nu. 30,001 and Nu. 55,000

29. The tracer survey data shows that 28% of TTIs and IZCs graduates had changed their jobs after their first employment while 72% did not. This shows that job stability among TTI and IZC graduates is good.

30. On the relevance of Technical and Vocational training to the actual works, more than 53% of the respondents rated as good. About 12.5% of respondents had rated as very good and more than 9% of the respondents had rated as poor.

31. The On-Campus-Recruitment (OCR) involves employers seeking, engaging and hiring the graduates of TTIs and IZCs upon the completion of the training. In 2019-2020, the combined OCRs of all six TTIs and two IZCs constituted 14.43% of the total graduation.

VI: TVET Governance and Financing Indicators

The data sourced from AFD, Ministry of Labour and Human Resources.

32. There was a total of 107 management staff in six TTIs and two IZCs as of 2019- June 2021. Among them, 63.5% of them were male and 36.4% of them were female.

33. The total of 20 staff from TTIs and IZCs resigned in 2019 to June 2021. Among the staff who had left either on transfer, superannuation or resignation, the highest number of them were junior instructors.

34. Among the eight TTIs and IZCs, CZC Tashi Yangtse recorded the highest Annual Performance Agreement (APA) scores of GPMD at 99.1% in FY 2019-2020.

35. DTE commands a large share of the budget to carry out the major infrastructure development, capacity building programmes, curriculum development, TOTs and other major TVET programmes. The financial reporting indicates that the expenditures increased in the FY 2016-17 and 2017-18. The expenditure in FY 2018-2019 had dropped substantially. However, it increased in FY 2019-2020. The major share of the budgets was allocated for capital activities.

36. The annual expenditure of Department of Occupational Standards (DOS) shows a fluctuating trend. DOS is responsible for TVET standard and quality assurance. The highest expenditure it made was in FY 2017-18 with the reported expenditure of Nu. 24.47 million.

37. The annual budgets and expenditures of TTIs and IZCS for FY 2015-2020 by institutes shows that on average, each of eight TTIs and IZCs was allocated the budget of Nu. 24.05 per FY (between 2015-2020) and the reported expenditure on average was about Nu. 23.15 per FY. Between 2015-2020, the total budget allocation for all TTIs and IZCs was about Nu. 962.16 million while the expenditure amounted to Nu. 926.22 million.

38. MoLHR's TVET budget as a percentage share of MOE's budget averaged 4.78% per year. The education sector received on average 20.4% of the total government's annual outlay while MoLHR's TVET sector received on average 0.96% of the total government's expenditure annually. MoLHR's TVET sector budget on average constituted about 0.34% of the country's GDP annually.

39. The per course and per trainee expenditures could not be determined from the present data though these are important indicators crucial to determine the Resource Allocation Formula and Cost-Benefit Analysis.

VII: Conclusion

1. In order to make the report more concise, reliable and timely, only six TTIs and two IZCs were included. The team acknowledges a certain level of inconsistency and inaccuracy in the data presented in this report.

2. For modernizing and overhauling the existing TVET data system, the team makes the following propositions, among many: (1) embracing the latest Database Management System (DBMS), (2) data cataloguing to avoid duplication and double counting, (3) strengthening the regulatory provision for data compliance and (4) decentralizing data collection from institute/programme-based to individual-based.

Chapter One
TVET Statistics of Bhutan

Introduction

The TVET sector in Bhutan has gained increased recognition from the government and public in recent years. This is reflected in a number of current reforms, including the plan to develop an independent TVET governance and management system through several discussions on the TVET Reform activities. Such recognition stems from TVET's enormous potential to evolve as an employment safeguard for young people and adults seeking education and training outside of the schooling system, as well as its critical roles in meeting the economy's demand for a skilled and competent workforce.

Article 9 (12) of the Kingdom of Bhutan Constitution guarantees 'vocational guidance and training' for all Bhutan citizens and demonstrates the state's commitment to developing a knowledge-based economy and productive human resource. TVET's full potential can be harnessed through [its] sustained transformation, revitalization and modernization concurring with the changing socio- economic and technological contexts including the Fourth Industrial Revolution (IR4). All of this would necessitate continuous improvement of TVET quality, relevance, governance, and financing through evidence-based decisions, strategic planning and management, effective progress monitoring, and the use of market information to inform TVET supply. All of these actions would require high-quality, dependable, and timely data.

The use of data to track, evaluate, and enhance TVET sector efficiency is low in Bhutan, according to the TVET Sector Assessment Blueprint Working Paper-I (2016), and available data is generic and unreliable. Few TVET data are available and are managed separately by TVET institutions, departments, and individuals, resulting in data duplication, inconsistency, and confusion. The TVET Blueprint (MoLHR, 2016: 39) identifies the data gap further: "MoLHR lacks a unified labor-market information system to guide decision-making.

As the TVET system expands, it is critical to collect more data in order to better understand the labor market and guide decisions about how resources are allocated for TVET." Even after a few previous assessment reports recommended the need to improve the TVET information system, obtaining basic TVET data still remains difficult, leaving aside the availability of TVET statistics (aggregated/disaggregated data) for comparing public and private provisions and conducting any kind of forecasting and research.

It is unsurprising that in the absence of data, policy intentions may be infused with policy statements about where TVET should go or how it should be rather than where the system is now. This has the potential to seriously stymie any TVET reform. On all accounts, addressing these data and knowledge gaps should receive the highest policy priority.

Against this backdrop, the Technical Institutes Support Division (TISD) of the Ministry of Labour and Human Resources (MoLHR) took the initiative to develop a robust, integrated, and comprehensive TVET database. Accordingly, the first TVET Statistical Report was published in 2020, promoting evidence-based decision making in the TVET system through the practical application of data and evidence. This second issue of the TVET Statistical Report thus marks the continuation of all the efforts and hard work that went into producing the first TVET Statistical Report. This issue of TVET statistics will supplement the first issue and serve as a baseline for future issues.

Purpose of the Report

The purpose of this second issue of the TVET statistical report is to continue to provide baseline information for TVET policies, strategic TVET planning, effective, efficient, and transparent management, appropriate investment decisions, and effective monitoring and evaluation of TVET projects and programs. It is clear from this issue that the publication will be regular and serve as a source of comprehensive, up-to-date, and usable TVET statistics. The TWG hopes that the progress made so far will be useful in strengthening the TVET MIS as part of the ADB's STEP-UP Project.

Report Structure

The report includes TVET statistics organized into five categories: (I) context indicators, (II) access and participation in TVET programs, (III) TVET quality, (IV) relevance, and (V) TVET governance and financing. Without diving into the demand-supply conceptual difficulties, the data were divided into supply and demand statistics. The supply-side statistics were derived from administrative data provided by TTIs and IZCs (responsible for skill supply). TVET relevance data corresponding to demand side statistics were derived from the final multi-cohort TVET tracer survey (2003-2018), Labour Force Surveys (LFSs), and other reliable sources such as MoE, DoEHR, NSB, and DoL reports. The descriptive statistical tables and graphs are the report's key features and strengths.

To make the report more concise, reliable and timely, only the statistics for the six TTIs and two IZCs are included. Furthermore, TTIs and IZCs have more comprehensive data than other public and private training providers (OPPTPs). The majority of TTI and IZC statistics were derived from data collected between 2019 and June 2021.

The report is divided into seven chapters. *Chapter I-TVET Statistics* begins the report by providing a brief history of the TVET database initiative and its purpose, it then discusses the importance of TVET data and describes the current TVET data system. The section also includes a methodological account of the TVET database initiative, as well as key definitions and concepts.

Section II-Context Indicators provides statistics on the socioeconomic and demographic situation of the country in which TVET operates. TVET programmes and their outcomes may be influenced by social, economic, technological, environmental, and other contextual factors.

The main TVET statistics are organized into four TVET domains. *Chapter III-TVET Access and Participation* provides statistics on the characteristics of TVET institutions and programs, as well as access to and participation in TVET. By considering gender inclusion, the emphasis was placed on sex-disaggregated enrolment statistics.

This section also addresses access to and participation in the MoLHR's various Skills Training Programmes (STPs), non-formal TVET programs (Village Skills Development Programmes and Special Skills Development Programmes), and school TVET transition programs.

Section IV-TVET Quality Statistics focuses on the structure and outputs of QAS. It publishes statistics on registered trainers, assessors, accreditors, and national certification. It also includes simple profiling of training staff and statistics from other programs relevant to improving TVET quality.

Section V-TVET Relevance statistics reflect demand for TVET programs as well as their labor market outcomes. The data for this domain came from the MoLHR's labor market information, which was corroborated by preliminary results from the final online tracer survey.

Section VI-Governance and Financing is concerned with TVET governance, management, and financing. Governance indicators should ideally indicate progress in implementing TVET policies, planning, coordination, and outcomes, while financing indicators should provide a clear picture of financial and other resources available for TVET, as well as the per-capita cost of TVET courses. Unfortunately, the data needed to create all of these indicators was not readily available. As a result, the section's scope was limited to management staff profiling and reporting of some information on training, performance rating, and MoLHR TVET financing.

Section VII concludes the report with some recommendations for improving the existing TVET-QAMIS. Some major steps forward were based on the TWG's experiences collecting and handling data.
To the greatest extent possible, statistics are collected and presented in sufficient detail. The annexes contain additional information that could not be included in the main report. Anyone interested in conducting TVET research and analysis may find the information in the annexes useful. Since the second issue is also based on retrospective data, the emphasis on detail was deliberate. Future statistical reports will be shorter, more accurate, and timelier.

TVET Data System

Bhutan's TVET data system is still in its early stages of development. The Labour Market Information and Research Division (LMIRD) of the Ministry of Labour and Human Resources is supposed to be the lead agency for gathering and managing TVET data. LMIRD has many other mandates in addition to the manpower constraint, which prevents it from taking full responsibility for TVET data. Furthermore, given the complexity and large volume of TVET data, managing TVET data will be difficult unless a dedicated agency is established.

The Department of Technical Education (DTE) collects administrative TVET data, but it has a number of shortcomings. To begin, data are only collected from eight TTIs and IZCs; no data are collected from private or other public training institutes. Second, these data are not managed and secured properly, resulting in data duplication and inaccuracy. Third, the data has remained fragmented in the absence of a proper approach to data centralization and aggregation. Fourth, ad hoc data collections from TTIs and IZCs have resulted in data duplication and data fatigue among data providers. Finally, TVET data are never analyzed to generate usable information.

The Department of Occupational Standards (DOS) maintains the records on course assessment, certification and accreditation on its existing TVET-QAMIS. Nevertheless, it remains not so comprehensive and up-to-date. DoEHR maintains the records of skills training programmes but not within the scope of the TVET data system.

Tracer or graduate studies could generate vital information and are required by law in some countries. In Bhutan, however, aside from TVET graduate study in Bhutan in 2019 and a one-time tracer study in 2016, TVET tracer is rarely conducted at the national level. TTIs and IZCs conduct an institution-level tracer, which is usually done without proper methodological frameworks.

To summarize, Bhutan's TVET data management system is fragmented, resulting in unconsolidated, duplicated, and inconsistent data. This is owing to a lack of a centralized organization to collect and manage TVET data, as well as organize, perform, and distribute TVET research and analysis.

However, in 2020, the TVET Institute Support Division under DTE made a first-ever effort in TVET data management by publishing the first-ever TVET statistical report. This will be the second issue of the TVET statistical report, highlighting the importance of good TVET data management.

Significance of TVET data

In general, as countries embrace the Fourth Industrial Revolution (IR-IV), data will emerge as a new type of asset covering all aspects of governance, society, and the economy. Digital communications have proven to be beneficial in increasing data pervasiveness. Digitized data would become an increasingly important source of ideas, innovation, reforms, informed decisions, and digital empowerment. At this critical juncture of data digitization and pervasive data use around the world, no nation or sector can conduct business in the traditional manner. Every governance and management process must be data-driven. As data becomes more valuable to individuals, governments, economies, and society, the challenges of guaranteeing data security and proper use will emerge. The immediate requirement would be to put in place social, legal, technological, economic, and organizational infrastructure to develop a balanced data ecosystem.

At every level of TVET governance, data allows policymakers, TVET managers, and stakeholders to make evidence-based decisions. Data is useful for assessing and monitoring training providers' performance, and projecting demand and supply for TVET graduates.

Since the TVET data collection templates were based on the TVET sector plans specified in the TVET Blueprint, The TVET statistics, in particular, are expected to give information that will help to:

1) Determine the type of TVET programmes available in the country and guide the introduction of new courses to fulfil labour market demand;

2) Identify TVET beneficiaries and participants and determine the access, equity and level of participation in TVET programmes;

3) Assess the performance of the Quality Assurance System and National Standards;

4) Conduct the mapping of skills demand and supply in terms of quantity, skills genre and quality and provide market intelligence;

5) Assess the resources available for various TVET programmes and determine the amount of resource needed to improve the quality and relevance of TVET programmes;

6) Measure the progress made by TVET providers and measure their performances;

7) Provide information needed to develop TVET strategic plan;

8) Determine the priority areas of TVET according to which strategies could be developed;

9) Assess the outcomes for trainees and graduates in terms of employment, earning and career paths; and

10) Ultimately, contribute towards building a robust, agile and resilient TVET system that is responsive to the needs of the economy and society

TVET Database Framework

The methodological account of this statistical report was discussed within the context of the TVET database framework because data for TVET Statistics were largely drawn from the ongoing TVET database initiative. The team from the TVET Institute Support Division began this task in February 2021 under the active guidance and supervision of Mr. Lham Dorji, who is currently the Director at the Department of Labour, MoLHR.

On his initiative, the first TVET statistical report was also published after developing the conceptual and methodological framework for the TVET database, which guided initial planning, data collection, storage, and data sharing. The same conceptual and methodological framework as the first TVET statistical report was adopted for the second edition of the TVET statistical report. The Team identified five TVET domains and several associated indicators. There domains are TVET Access and Participation, TVET Quality, TVET Relevance, TVET Governance and Finance and the Context Indicators.

Each one of these domains is explained in the respective chapters, but the following other elements are discussed in the database framework:

1. Data Collection Templates

The data collection templates (DCTs) are standardized data templates used to collect administrative data across four interconnected TVET domains. The TWG used a deductive approach to develop DCTs, beginning with detailed templates to check data availability and test data collection ease, and then gradually simplifying the templates. There were 37 DCTs relating to TVET access and participation, 27 DCTs relating to TVET quality, 30 DCTs relating to TVET relevance, and 19 DCTs relating to TVET governance and financing. Initially, TPs were required to fill out 113 Excel templates, which were later simplified and condensed to 67.

2. Data Collection

Administrative data were collected from 6 TTIs and 2 IZCs using the previous pre-defined DCTs. Furthermore, the data came from census, surveys, statistical reports, preliminary multi-cohort tracer survey results, HRD Advisory Reports, and other relevant reports published by the NSB, MoE, and MoLHR. After instructing the respective data focal persons to collect the data based on the previous data template, data collection began in February 2021. The first round of data collection did not produce satisfactory results because the Institutes used two different data templates. Furthermore, some institutes submitted incomplete or inconsistent datasets.

The Team conducted the initial reviews of all datasets and sent them to data providers to correct inconsistencies and resolve the issue of missing data. Because there was little progress after the first review, team members visited some institutes to further explain DCTs, discuss data entry issues, and gain their support.

Despite repeated follow-up and requests, the team was unable to obtain a satisfactory dataset from some of the institutes. Following the second round of data collection, a third review was conducted from mid-April to the end of the month 2021. The team then had to proceed with data compilation, integration, analysis, and report writing in order to meet the publication deadline.

3. *Coverage and Scope*

Poor-quality data is practically useless. In this case, data quality was defined as data accuracy, consistency, and completeness. In general, the issue of incomplete and missing data has a significant impact on data aggregation although the report included the data from 6 TTIs and 2 IZCs only. One major issue that slowed down the data integration and aggregation processes was incomplete data.

After several follow-ups, all of the institutes were finally able to send the completed dataset. TTI Thimphu, Khuruthang, and Samthang were able to meet the division's data submission deadline, despite some incomplete data that required further discussion with the team. Although TTI Rangjung, NIZC Thimphu, CZC Tashi Yangtse, TTI Chumey and JWPTI Dekiling were unable to meet the deadline, they were able to submit the dataset within the extended deadline. However, because the data set contained some incomplete and inconsistent information, a second follow-up was required.

4. *Data Validation*

The completed data set of all the institutes was sent back to the respective data focal persons for validation. Then a final validation on the draft report was conducted for two days with the data focal persons from 4 institutes during the five-day workshop in May 2021.

5. *Constraints*

While attempting to meet the key statistical attributes of data quality, reliability, consistency, comparability, and timeliness, the Team encountered numerous challenges. Data comparability is critical because statistics are aggregates of facts and single observations cannot be treated as statistics. Only on average are statistical laws true.

The Teams constraints are highlighted within the methodological framework and are not directed at any individual or entity. The Team believes it is critical to clearly list those constraints for future lessons. The following are the main constraints:

I. *Manpower Constraint:* Most of data focal points were ICT or administrative personnel with little prior experience handling large amounts of data.

The team was unable to provide basic data management training to those focal persons in the central and eastern regions due to a lack of resources and time. The data collection process was hampered as a result of these factors. On the other hand, due to a lack of manpower in the division, one single person from the ministry was tasked with data validation, integration, and analysis, increasing the possibility of bias and faulty information reporting. As a result, a separate group or team can be formed to handle this task.

II.   The absence of regulation to facilitate data collection: In the absence of legal provisions for data compliance, the Team was forced to repeatedly remind and follow up with the institutions, requesting that they submit the dataset. Even after several reminders and notices, there was still a problem with inconsistent, missing, and incomplete data. As a result, there is an urgent need for a regulation to ensure data compliance and incentives for data collection ease, particularly when data is collected for official statistics.

Limitations of the Report

There were some concerns that the team was taking too long to finish the task. Since this will be the second issue of the TVET statistical report, we anticipated that data collection and validation will be much easier than in the first issue. Furthermore, we hoped that the introduction of TVET-MIS would make the aforementioned task easier. Nonetheless, the TVET-MIS did not fully launch, and data was not available in the system. As a result, the team was forced to revert to the previous data collection method using the previous template. Thus, some data providers, particularly those who did not keep good records, found it difficult.

Some errors would have been made in deriving the aggregates due to the different levels of data completeness and some heterogeneity in the datasets. Statistics are true on average because they are based on the law of probability and approximations rather than mathematical and physical laws. Certain limitations in statistical science are widely acknowledged.

The Team advises prospective data users/readers to use certain statistics with caution. The Team believes that the current drawbacks will serve as cautionary notes for future improvements. The following are the major limitations:

(1) Only statistics from six TTIs and two IZCs are included in the report's second issue. To make the report more concise, reliable, and timely, the issue ignores all other public and private training providers. However, when we refer to the country's TVET system, it also includes the other public and private TVET training providers.

(2) Some TTI and IZC data were aggregated for the period 2019-2020, while others were aggregated for the period 2019-2021, and so on. The different reference periods were caused by the different levels of data completeness in the individual datasets.

(3) Each accredited course's curriculum specifies the number of hours required to complete the course. However, for ease of reporting, duration is usually reported in days or months (converted into months for the present purpose).

Some courses offered by TTIs and IZCs appear to be the same in terms of name, content, and level, but their duration varies. This could be due to differences in logistical arrangements among TTIs and IZCs such as some having to accommodate other programs or adjust for vacation, thus shortening or lengthening the duration of these courses by a few weeks or months even if the actual training hours are the same.

This is one issue that needs to be addressed. Ideally, similar courses offered by different TPs should be completed within the same timeframe. This could be the reason why some TTIs and IZCs have unspent stipend towards the end of the budget year while others face the shortage.

(4) Due to variable course durations, enrolment and graduation data may change in a short period of time. Statistics on TVET are more varied than statistics on schools and education. Expecting fixed enrolment and graduation figures within a year is unrealistic. Depending on the nature of the programmes, many enrolments and graduations in TVET happen within a year. Some courses take longer to complete than others in order to acquire the required proficiency level.

(5) No statistics on training tools, equipment, or machines were produced, despite the fact that such statistics may be used as proxy measures for training quality. Although the data were collected, the inclusion of such statistics may be possible in the future due to the large number of them and the time required to sort them.

(6) The report includes some qualitative data. According to the statistical rule, data that cannot be expressed quantitatively cannot be treated as statistics. However, qualitative data are equally important in providing a complete picture of anything under consideration.

(7) Statistical laws are not exact, and statistics are only valid under certain conditions. "Statistics are like clay from which you can make a God or a devil as you please," said Prof. W.I. King (in Business Statistics (2016) Gupta, Alok, and Saxena, J.K).

Chapter Two

TVET Context Indicators

The Context indicators are related to the economic, social, demographic, general education, and other circumstances in which TVET operates. These circumstances will influence TVET policies and programs. Changes in the economy, for example, could place TVET in a new economic context, and education policies could have an effect on TVET policies and programs. Similarly, evolving demographics may have an effect on TVET responses to job creation, while technical advancements may have an impact on TVET programs and labor market outcomes. Some circumstances may have a significant impact on the importance and demand for TVET. This section contains statistics from the following general categories:

- Demographic indicators
- Education statistics
- Economic indicators
- Employment and labour market statistics; and
- Social indicators.

The context indicators used in this study are not all-inclusive. These indicators were chosen for their TVET importance and data availability. TVET policies and programs can have a different relationship with these indicators.

Youth Population

Despite the fact that TVET is a lifelong learning process applicable to people of all ages, youth are a potential target group for TVET programs. As a result, understanding the demographic structure of the youth population remains a critical prerequisite for developing TVET policies and programs.

The UN defines youth as those persons between age 15 and 24 years for statistical purposes, typically in connection with the education and employment without prejudice to other definitions by the Member States. Total youth population in 2021 was 137,514 with more male population (69,846) than female population (67,628). The youth population constitutes only 18 % of total population of Bhutan in the year 2021.

Table 2.1: Projected Youth population by sex and age (2021)

AGE	2021		
	Total	M	F
15	13,740	6,915	6825
16	13,906	6,985	6921
17	13,883	6,961	6922
18	13,743	6,885	6858
19	13,540	6,771	6769
20	13,396	6,698	6698
21	13,395	6,742	6653
22	13,606	6,956	6650
23	13,968	7,290	6678
24	14,337	7,643	6694
Total	**137,514**	**69,846**	**67,668**

Source: Population Projections Bhutan, 2017 - 2047, NSB

In the year 2020, the majority of youth were concentrated in the capital city Thimphu and Chhukha Dzongkhag with the percentage of 21.8% and 10% respectively. Larger share of the youth population in the cities indicates more industries and employment opportunities around the area. Moreover, the projection further indicates that the youth population in the cities will continue to rise while showing the decreasing trend in those small districts.

Table 2.2: Youth population by sex and Dzongkhag/Thromde

Dzongkhag/ Thromde	2020			2021		
	M	F	B	M	F	B
Bumthang	1621	1485	3106	1583	1482	3065
Chhukha	6907	7030	13937	6724	6991	13715
Dagana	2252	1994	4246	2215	1979	4194
Gasa	434	345	779	431	347	778

Dzongkhag/ Thromde	2020			2021		
	M	F	B	M	F	B
Haa	1421	1159	2580	1392	1150	2542
Lhuentse	1179	1033	2212	1144	1007	2151
Monggar	2903	3048	5951	2817	3013	5830
Paro	4964	4827	9791	4918	4881	9799
Pemagatshel	1823	1771	3594	1784	1751	3535
Punakha	3349	3080	6429	3326	3085	6411
Samdrup Jongkhar	3352	3008	6360	3263	2970	6233
Samtse	4892	5166	10058	4757	5123	9880
Sarpang	4654	4491	9145	4598	4513	9111
Thimphu	14722	15634	30356	14653	15957	30610
Trashigang	4432	4070	8502	4268	3974	8242
Trashiyangtse	1405	1346	2751	1365	1322	2687
Trongsa	2779	2025	4804	2783	2037	4820
Tsirang	1890	1812	3702	1864	1811	3675
Wangdue Phodrang	4538	3008	7546	4524	3011	7535
Zhemgang	1482	1295	2777	1435	1266	2701
Bhutan	**70999**	**67627**	**138626**	**69844**	**67670**	**137514**

Source: PPB Dzongkhag wise 2017-2047

The population projection is important for determining the future requirement of development infrastructure, provision of services, in estimating future labor force and many other purposes. Table 2.3 presents the total population projections for 2022-2027 as per Population Projection of Bhutan, NSB. The total population is projected to rise from 2022-2047.

Table 2.3: Population projections of Bhutan (2022 & 2027)

Age Group	2022			2027		
	M	F	T	M	F	T
0-4	30371	29,478	59,849	29,786	28,878	58,664
5-9	28817	27,982	56,799	30,079	29,227	59,306
10-14	31877	30,788	62,665	28,700	27,864	56,564
15-19	34,491	34,163	68,654	31,748	30,692	62,440
20-24	34,390	33,402	67,792	34,248	33,996	68,244

Age Group	2022			2027		
	M	F	T	M	F	T
25-29	40,643	34,079	74,722	34,085	33,197	67,282
30-34	42,249	36,160	78,409	40,198	33,835	74,033
35-39	34,360	29,724	64,084	41,533	35,761	77,294
40-44	28,935	25,383	54,318	33,616	29,254	62,870
45-49	21,630	18,793	40,423	28,201	24,885	53,086
50-54	18,159	16,167	34,326	20,898	18,286	39,184
55-59	14,746	13,236	27,982	17,394	15,501	32,895
60-64	11,626	10,885	22,511	13,907	12,565	26,472
65-69	9,611	9,478	19,089	10,694	10,147	20,841
70-74	6,580	6,206	12,786	8,387	8,376	16,763
75-79	4,662	4,595	9,257	5,269	5,147	10,416
80-84	2,672	2,825	5,497	3,174	3,351	6,525
85	1,912	2,174	4,086	2,033	2,352	4,385
All	397731	365518	763249	413950	383314	797264

Although the total population is projected to rise from 2022-2047, the youth population is projected to decline continuously from 2022-47. However, the Youth population in urban areas is projected to increase gradually from 2022-2047 whereas the youth population in rural areas is projected to decline continuously from 2022-2047.

Table 2.4: Projected Youth population by sex and area (2022-2047)

Year	Urban			Rural			Both area
	M	F	T	M	F	T	T
2022	33448	34401	67849	35436	33168	68604	136453
2027	34641	35547	70188	31359	29148	60507	130695
2032	35026	34479	69505	26131	23896	50027	119532
2037	35318	35747	71065	23021	21033	44054	115119
2042	38201	38465	76666	20941	19103	40044	116710
2047	39309	39311	78620	18087	16518	34605	113225

Source: PPB 2022-2047, NSB

Population with disabilities are the ones who are usually unemployed, underemployed or economically inactive. Their expenditure is borne either by the state or by their family members. Therefore, the country should also plan the programmes to engage them to make them economically productive as well. According to Table 2.5, people with disabilities constituted 2.14 percent (15,567) of the Bhutanese population (PHCB, 2017).

Table 2.5: Population with disabilities across Dzongkhags (2017)

Dzongkhag	Urban			Rural			Both Areas		
	M	F	B	M	F	B	M	F	B
Bumthang	44	43	87	125	181	306	169	224	393
Chhukha	163	198	361	450	442	892	613	640	1253
Dagana	23	28	51	244	258	502	267	286	553
Gasa	1	5	6	29	48	77	30	53	83
Haa	14	17	31	93	116	209	107	133	240
Lhuentse	13	8	21	165	229	394	178	237	415
Monggar	41	54	95	416	502	918	457	556	1013
Paro	48	56	104	249	322	571	297	378	675
Pema Gatshel	45	39	84	280	300	580	325	339	664
Punakha	40	41	81	246	300	546	286	341	627
Samdrup Jongkhar	75	72	147	277	298	575	352	370	722
Samtse	47	46	93	821	710	1531	868	756	1624
Sarpang	108	105	213	416	392	808	524	497	1021
Thimphu	566	652	1218	183	207	390	749	859	1608
Trashigang	74	64	138	591	613	1204	665	677	1,342
Trashi Yangtse	24	38	62	238	310	548	262	348	610
Trongsa	28	23	51	172	229	401	200	252	452
Tsirang	15	20	35	321	293	614	336	313	649
Wangdue Phodrang	65	50	115	385	452	837	450	502	952
Zhemgang	39	23	62	282	327	609	321	350	671
Bhutan	**1473**	**1582**	**3055**	**5983**	**6529**	**12512**	**7456**	**8111**	**15567**

Source: PHCB, 2017

The most recent advancement in this field would require mainstream TVET to improve the labor market situation for disabled people. Statistics on disability would emerge as a critical component of the process to make TVET disability-inclusive. Table 2.6 depicts the distribution of the disabled population (age 25 and under) in rural and urban areas.

Table 2.6: Children and youth population with disabilities (2017)

Age Group	Urban			Rural			Both Areas		
	M	F	B	M	F	B	M	F	B
0-4	8	10	18	20	20	40	28	30	58
5-9	58	57	115	117	83	200	175	140	315
10-14	73	51	124	126	116	242	199	167	366
15-19	74	70	144	142	157	299	216	227	443
20-24	70	75	145	133	159	292	203	234	437
Total	283	263	546	538	535	1073	821	798	1619

Source: PHCB, 2017

Education Context Indicators

According to Australian Literacy Educators Association (AlEA), Literacy is defined as a powerful, wide-ranging life skill beyond traditional notions of talking, listening, reading and writing. Literacy is interpreted in many ways: some people equate literacy with being able to read and write; others see it as a desirable set of skills a person should possess for training and gainful employment.

The statistics on the literacy of a country can provide useful information on the level and distribution of knowledge and skills within the country's workforce. The information on the population's literacy is pertinent to TVET for the reason that it would be easier and more effective to deliver TVET to literate people than non-literate ones. This is more important in the context of changing technologies when ICT is likely to dominate the future TVET programmes.

Table 2.7 presents the information on literate and illiterate persons under 25 years by age groups. In 2017, more than 94% of the total population under 25 years old were reported to be literate.

Table 2.7: Literate and illiterate young population of age 10-24 years by sex

Youth Age Group	Male			Female			%
	Literate	Illiterate	Total	Literate	Illiterate	Total	Literate
10-14	34032	595	34627	33769	508	34277	98.4
15-19	33672	951	34623	32620	978	33598	97.17
20-24	36705	4,127	40832	30455	3,848	34303	89.39
Below 25	104409	5673	110082	96844	5334	102178	94.81

Source: PHCB, 2017

TVET is a continuation of an academic education and serves as the means to improve the knowledge and skills of the person thereby preparing for the world of work. Since, most of the TVET candidates are school leavers, school enrolment can influence the present and future demand for TVET.

Such information is crucially important for proper planning of TVET. Table 2.8 presents the enrolments in school at various levels of education between 2019 and 2020. Their female enrolment showed an increasing trend from 2019-2020 while the male enrolment decreased in 2019 and then increased in 2020. In 2020 alone, there were 170,806 students enrolled in grades PP to XII. Amongst it, there were 13,183 students enrolled in class X and 13,002 in class XII. More female students were enrolled in class X and XII for 2018, 2019 and 2020.

Table 2.8: School Enrolment by sex and level (2019-2020)

Grade	2019			2020		
	M	F	T	M	F	T
PP	6022	5830	11852	8384	8207	16591
I	6570	6912	13482	6,337	6204	12541
II	6353	6708	13061	6822	6516	13338
III	6267	6500	12767	6379	6240	12619
IV	6769	7175	13944	6894	6571	13465
V	6566	6442	13008	6640	6625	13265

Grade	2019			2020		
	M	F	T	M	F	T
VI	6054	5726	11780	5993	6353	12346
VII	6729	6973	13702	6075	6428	12503
VIII	6540	7212	13752	6204	6592	12796
IX	6556	7330	13886	6419	7211	13630
X	5850	7031	12881	6126	7057	13183
XI	5538	6212	11750	5276	6251	11527
XII	5349	5572	10921	6206	6796	13002
Total	81163	85623	166786	83755	87051	170806

Enrolment Projections

The future stock of students completing class X and XII (school-leavers) is the potential source of candidates for TVET programmes, the projected school enrolments (at different levels) can aid in strategic TVET planning.

In light of this, enrolment projections for class X, XI, and XII were made using the Cohort Survival Ration (C-SR) Method or the Grade Progression Method. This Method makes use of the past enrolment trend to forecast future enrollment. The Annual Education Statistics (MoE) provided six-year historical enrollment data (2013-2018).

This method was chosen because of its ease of use, the requirement of fewer historical data, and, most importantly, it considers the net effect of students entering or leaving a particular grade for whatever reason. The CS-R was calculated by dividing the enrolment (E) in grade (g) in year (y) by the enrolment (E) in grade (g-1) in year (y-1) as given below:

$$C\text{-}SR = E(g, y)/E(g\text{-}1, y\text{-}1)$$

The formula above computes the average ratio of survivors from one grade to the next. Instead of total births, the pre-primary enrollment was used as the baseline. Each ratio considers the collective factors that lead to an increase or decrease in the size of a cohort's enrollment when the cohort advances to the next grade.

The ratios encompass the cumulative effects of the factors like migration within and outside the country, births, drop-outs, transfers, retention in the same grade, and so on. The central assumption was that the environment during the period for which projections were made would be comparable to [that of] the period from which data were derived. Because these projections were based on historical data, the accuracy of the predictions would be dependent on the quality of previous enrollment data and the likelihood of similar conditions in the future. A significant change in school admission policy, for example, could affect the accuracy of the projection.

The projections of enrolment in class X, XI and XII were done considering '(1) no cut-off point in class X' and '(2) with cut-off point in class X' for promotion to next grade. Table 2.9 shows the projected enrolment in class X-XII assuming 'no cut-off point policy' (introduced in 2019) would continue. Under this condition, class XII enrolment is likely to increase until 2022 and then gradually decrease in the subsequent years. Class X enrolment may steadily decrease to about 7509 in 2028.

Table 2.9: Projected enrolment (X, XI & XII) with no cut-point in class X

Grade	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
PP										
I	13591									
II	13189	13670								
III	12888	12746	13212							
IV	14205	13907	13754	14256						
V	12794	13299	13019	12876	13346					
VI	11661	11891	12361	12101	11968	12405				
VII	13516	12322	12565	13061	12787	12646	13107			
VIII	13549	12263	11180	11401	11851	11602	11474	11893		
IX	13741	13245	11988	10929	11145	11585	11341	11216	11626	
X	12574	12494	12044	10901	9938	10134	10534	10313	10199	10571
XI	9210	9257	9198	8867	8025	7316	7461	7755	7592	7509
XII	10596	10987	11043	10973	10577	9573	8728	8900	9251	9057

Source: TVET Statistics, MoLHR, 2020

Table 2.10 presents the projected enrolment in class X-XII between 2020 and 2028 assuming that class X 'cut-off point' is applied like in the past so that all BCSE students with Pass Certificate Awarded (PCA) are not atomically upgraded to class XI through the government funding. Under this assumption, class XII enrolment might increase up to 2022 and subsequently decrease. Class X enrolment is likely to increase sharply till 2022 and decrease to around 9848 in 2028.

Table 2.10: Projected enrolment in Class X-XII with class X cut-off point

Grade	2021	2022	2023	2024	2025	2026	2027	2028
X	12044	10901	9938	10134	10534	10313	10199	10571
XI	12064	11629	10525	9596	9785	10171	9958	9848
XII	14448	14357	13839	12525	11419	11644	12104	11850

Source: TVET statistics of Bhutan 2020

Since the above predictions were based on the rule of probability, they could not be 100% correct. Even though the future circumstances remain the same, it is impossible that the predicted and actual enrollment will tally precisely.

Table 2.11 presents the school going age population projection between 2022 and 2047. Such data are useful for planning the future enrolment in TVET in view of the fact the enrolment in formal TVET programmes requires a certain level of academic qualification. Even if the academic qualifications were not obligatory for formal learning, being educated would enhance the ability of TVET learning. As displayed on table 2.9, the school going population is projected to decrease to 211,934 in 2047 from 251,138 in 2022.

Table 2.11: Projected Selected School going age population by sex 2022-2047

Age	3 to 5		6 to 12		13 to 16		17 to 18		19 to 22		Total
	M	F	M	F	M	F	M	F	M	F	
2022	17201	16770	41863	40459	26837	26255	13952	13855	27019	26927	251138
2027	18382	17845	41024	39876	23897	23078	12871	12420	27135	26762	243290
2032	17339	16814	41858	40648	23260	22618	11319	11007	24413	23575	232851
2037	16429	15921	40290	39094	23945	23270	12001	11674	22789	22210	227623

Age	3 to 5		6 to 12		13 to 16		17 to 18		19 to 22		Total
	M	F	M	F	M	F	M	F	M	F	
2042	15523	15044	38186	37037	23095	22425	11801	11474	23951	23327	221863
2047	14950	14481	36190	35094	21897	21251	11314	10989	23195	22573	211934

Source: Population Projection Bhutan 2017-2047

Most students who complete class XII aspire to pursue higher education in colleges and universities. This usually is their first choice. It is only when this choice remains unmet that they either opt for TVET programmes or look for jobs as a secondary option. The capacity of the tertiary education system to absorb class XII students would, to a certain extent, influence enrolment in TVET programmes.

In view of this, Table 2.12 gives rough figures of students pursuing tertiary education programmes both within and outside the country during the period 2015 - 2020 to provide a sketchy picture of how many school-leavers would be accommodated in the universities and other higher education programmes and how many would be available for TVET. Taking the average, 16,095 students were studying at the tertiary level annually during the period 2015-2020.Some students who were pursuing tertiary education on their own expenses might not have been accounted.

Table 2.12: Number of students studying in tertiary education level (2015-2020)

Tertiary Education Institutes	2015	2016	2017	2018	2019	2020	Avg.
RUB	8954	10423	10628	10408	10793	11365	10723
KGMUB	486	473	473	652	628	686	582
Private and others	1649	487	363	199	360	246	331
Total (RUB+KGUM+Others)	11089	11383	11476	11259	11781	12297	11639
Undergrad Scholarship abroad	1046	867	1120	877	1432	1923	1244
Total privately funded	3194	2924	2337	4628	4251	2572	3342
Total in tertiary education	15329	15174	14921	16764	17464	16792	16095

Sources: AES (2013-2020), State of tertiary education, 2020 DAHE

RUB and KGUSM are two universities in the country offering various undergraduate and graduate programmes. The colleges under the two universities had enrolled 4417 students in the year 2020 while roughly 2463 students were enrolled in tertiary education outside the country through various scholarships as shown in table 2.13.

Table 2.13: Enrolment in tertiary education (2015-2020)

Name of institute	2015	2016	2017	2018	2019	2020	Avg.
College of Language and Culture Studies	397	404	426	390	331	319	378
College of Natural Resources	183	213	310	281	321	325	272
College of Science and Technology	260	262	304	262	281	253	270
Gedu College of Business Studies	452	504	614	587	543	554	542
Gyalpozhing College of Information Technology		-	79	79	107	95	90
Jigme Namgyal Engineering College	416	385	458	350	344	705	443
Paro College of Education	253	265	227	479	505	382	352
Samtse College of Education	196	201	241	468	350	106	260
Sherubtse College	543	587	548	530	550	510	545
Yonphula Centenary College	-	-	32	30	14	30	27
Faculty of Nursing and Public Health (KGUMSB)	134	363	151	177	158	192	196
Faculty of Postgraduate Medicine (KGUMSB)	7	42	11	13	20	16	18
Faculty of Traditional Medicine (KGUMSB)	20	87	25	19	26	25	34
Jigme Singye Wangchuck School of Law	-	-	25	18	18	24	21
Royal Institute of Management	301	430	162	208	203	119	237
Norbuling Rigter College	-	-	91	92	170	236	147
Reldri Academy of Health Sciences	-	53	14	17	40	49	35

Name of institute	2015	2016	2017	2018	2019	2020	Avg.
Royal Thimphu College	508	365	388	430	423	477	432
Total (A)	**3670**	**4161**	**4106**	**4430**	**4404**	**4417**	4198
Education Consultancy and Placement Firms (36 ECPFs)			791	791	1216	2160	1240
YDF				13	1	41	18
Youth Welfare and Education Office, Kidu (YWEO)				70	49	74	64
Loden Foundation				7	5	18	10
DAHE Scholarship	204	199	190	196	145	170	184
Total (B)				1077	1416	2463	1652
Grand Total ((A)In-country + (B)Ex-country)	3874	4360	5087	5507	5820	6880	5850

Source: DAHE, State of Tertiary Education 2019-2020

Labor and Market Employment

Labor and employment statistics are useful for identifying factors influencing young people's transition from education and training to gainful employment, as well as projecting future labor supply (PHCB, pp.45,2017) and evaluating the labor market outcomes for TVET graduates. Since LFS does not capture the details of the labor market situation for TVET graduates, more specific indicators were extracted from the ongoing multi cohort tracer survey.

Table 2.14 shed some light on the labour market situation between 2013 and 2020. The labour market information might be relevant to TVET graduates as much as it applies to general graduates and other people seeking employment. The youth unemployment rate had shown a fluctuating trend between 2013 and 2020. However, it was recorded highest in 2020 with the percentage of 22.6.

Table 2.14: Labour force and employment indicators (2013-2020)

Indicator	2014	2015	2016	2017	2018	2019	2020
Unemployment rate	2.6	2.5	2.1	3.1	3.4	2.7	5.0
Male	1.9	1.8	2	2.7	2.7	2.2	4.1
Female	3.5	3.1	2.3	3.6	4.2	3.3	6.0
Labour force participation rate	62.6	63.1	62.2	65.7	62.6	66.4	67.8
Male	65.7	64.8	65.4	72.1	70.1	71.8	72.5
Female	55.3	59.2	54.5	59.9	55.5	61.2	63.5
Youth unemployment rate	9.4	10.7	13.2	12.3	15.7	11.9	22.6
Male	8.6	8.2	16.4	11.2	15.4	9.7	19.2
Female	10	12.7	11	13.2	16.1	13.8	25.4

The Employment-to-Population Ratio (EPR) is defined as the ratio of the total labour force currently employed to the total working-age population. Bhutan's EPRs in 2020 are exhibited in Figure 1, which comes to about 64.4 with higher value in rural areas (67.9) compared to [that of] urban areas (57.6). The male EPR was higher than female EPR in 2020. The EPRs further show that unemployment was predominantly the urban phenomenon.

Employment to population ratio
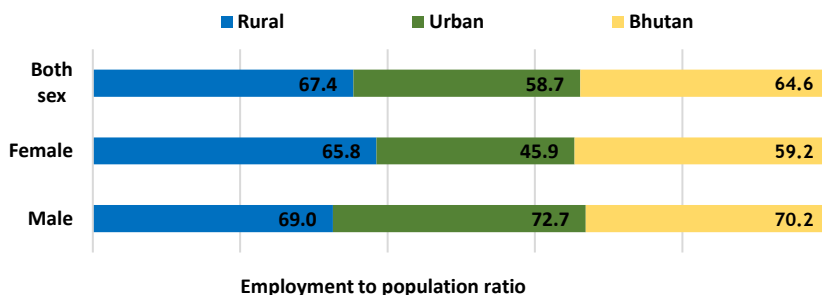
Figure 2.1: Employment-to-Population Ratio (EPR 2020)

Sources: Labor Force Survey 2019, NSB

The statistics on employment in different economic sectors are important for identifying the sectors with potential to employ the greatest number of people. The data for employment in various sectors (as shown in Table 2.15) were drawn from Labor Force Survey 2020, NSB. The agriculture sector was a leading sector employing about 49.92% of the active population followed by the Public Administration (8.52), Manufacturing (8.02) and the Retail & Wholesale trade (7.85).

Table 2.15: Population currently employed by sector, sex and area (2020)

Major economic activity	Rural		Urban		T	%
	M	F	M	F		
Agriculture, Forestry and Fishing	66132	86598	1578	2707	157015	49.92
Mining and Quarrying	1011	92	467	173	1743	0.55
Manufacturing	3284	6807	4712	9882	24685	7.85
Electricity, Gas, Steam and Air Conditioning Supply	1125	299	2071	651	4146	1.32
Water Supply, Sewerage, Waste Management and Remediation Activities	0	0	114	42	156	0.05
Construction	9249	1019	4745	998	16011	5.09
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	3501	7217	6730	7786	25234	8.02
Transportation and Storage	5212	137	3208	289	8846	2.81
Accommodation and Food Service Activities	1132	2320	2421	4607	10480	3.33
Information and Communication	235	137	1440	850	2662	0.85
Financial and Insurance Activities	200	191	1307	1239	2937	0.93
Real Estate Activities	25	10	25	0	60	0.02
Professional, Scientific and Technical Activities	149	42	612	203	1006	0.32
Administrative and Support Service Activities	372	107	662	330	1471	0.47
Public Administration and Defense; Compulsory Social Security	7114	1167	14570	3936	26787	8.52
Education	4547	3068	3076	3357	14048	4.47
Human Health and Social Work Activities	1598	1072	2546	2786	8002	2.54

Major economic activity	Rural		Urban		T	%
	M	F	M	F		
Arts, Entertainment and Recreation	624	124	912	284	1944	0.62
Other service Activities	4135	142	1268	584	6129	1.95
Activities of Households as Employers	72	81	74	557	784	0.25
Activities of Extraterritorial Organizations and Bodies	42	18	260	98	418	0.13
Total	109758	110648	52797	41359	314562	100

Source: LFS 2018-2020, NSB

Amid the country's growing concerns over youth unemployment, various business establishments continue to face difficulties in finding people with the right skills for their firms. One of the reasons for such vacancies could be a skill shortage in certain critical sectors and occupations. As evidenced in Table 2.16, the highest number of vacancies in the past one year was in the tourism and manufacturing sectors. The available statistics cannot conclude much, but this definitely calls for a regular skill demand-supply mapping to inform the strategies of tackling the dual problems of youth unemployment and unfilled vacancies.

Table 2.16: Establishments facing shortage of qualified applicants by sector (2017)

Economic Activity	Sector					
	Tourism	Hydropower	Manufacturing	Mining	T	%
Accommodation and Food Service activities	164	0	0	0	164	46.5
Manufacturing	2	1	137	4	144	40.8
Mining and Quarrying	0	0	0	19	19	5.4
Arts, Entertainment and Recreation	16	0	0	0	16	4.5
Electricity and Gas Supply	0	5	2	0	7	2.0
Agriculture and Forestry	0	0	2	0	2	0.6
Information and Communications	0	0	1	0	1	0.3
Total	182	6	142	23	353	100

Source: TVET Statistics, 2020

Similarly, as shown in Table 2.17, the number of unfilled vacancies in 2017 was higher among small and cottage enterprises than in large and medium ones.

Table 2.17: Unfilled vacancies by category and sector (2017)

Category	Sector				T	%
	Tourism	Hydropower	Manufacturing	Mining		
Cottage	74	1	52	0	127	36.0
Small	85	0	57	16	158	44.8
Medium	22	1	23	6	52	14.7
Large	1	4	10	1	16	4.5
Total	182	6	142	23	353	100

Source: TVET statistics, MoLHR, 2021

The information on the employment trend in various occupations is crucial for TVET providers to design their courses and match the demand for various occupations. Similarly, such information can help students in choosing the TVET programmes as per their occupational choices.

Table 2.18 provides basic information on employment by major occupations. In 2020, the occupations in the agriculture, forestry and fishery sector constituted 49.7% of total occupations. Services and sales workers, technician and associate professionals, craft and related trade workers, and plant/machine operators and assemblers were recorded as other major occupations of those people who were already employed. All these figures show the employment Trends in different economic sectors but not necessarily the actual occupational demand.

Table 2.18: Employed persons by the major occupations (2020)

Major Occupation	2020			
	Male	Female	Total	Percent
Skilled Agricultural, Forestry and Fishery	67255	89176	156431	49.7
Services and Sales Workers	13849	20779	34628	11.0

Major Occupation	2020			
	Male	Female	Total	Percent
Professionals	15865	7645	23510	7.5
Craft and Related Trade Workers	12156	14855	27011	8.6
Plant and Machine Operators and Assemblers	14005	372	14377	4.6
Technicians and Associate Professionals	10555	5048	15603	5.0
Managers	8679	4285	12964	4.1
Elementary Occupations	7,422	5266	12688	4.0
Armed Forces	10054	385	10,439	3.3
Clerical Support Workers	2713	4194	6907	2.2
Total	**162555**	**152007**	**314562**	**100**

Source: Labour Force Survey, 2020 (NSB)

According to the data in Table 2.19, the majority of the employed population was classified as 'Skilled Agricultural, Forestry, and Fishery workers,' followed by 'Service and Sales workers,' from 2015 to 2020. Until 2018, employment in 'Skilled Agricultural, Forestry, and Fishery' was decreasing.

However, the highest employment under the Skilled Agricultural, Forestry and fishery was evident in 2019 with 70.93 %.

Table 2.19: Employed persons by the major occupations (2015-2020)

Major Occupation	2015	2016	2017	2018	2019	2020
Skilled Agricultural, Forestry and Fishery	57.99	57.08	51.21	53.72	70.93	49.7
Services and Sales Workers	8.67	12.12	11.42	10.85	5.77	11
Professionals	8.68	6.82	7.34	7	4.83	7.5
Craft and Related Trade Workers	5.46	5.20	4.85	6.72	6.41	8.6
Plant and Machine Operators and Assemblers	4.43	4.35	7.58	5.45	3.06	4.6
Technicians and Associate Professionals	3.55	3.65	4.36	4.68	1.96	5
Managers	2.02	3.08	4.31	3.5	2.39	4.1

Major Occupation	2015	2016	2017	2018	2019	2020
Elementary Occupations	3.45	2.16	3.53	3.33	3.02	4
Armed Forces	3.15	3.80	2.90	2.56	0.73	3.3
Clerical Support Workers	2.61	1.73	2.49	2.19	0.90	2.2
Total	100	100	100	100	100	100

Source: LFS 2015-2016, MoLHR, NSB

The employment status (usual activity) of any population—employed, unemployed and economically inactive serves as a statistical basis for projecting the trend of young people (1) completing their transition into work, (2) are still in transition, and (3) who did not make the transition.

Statistics in Table 2.20 highlights the key information on the usual activities of Bhutanese youth (15 years and above) across 20 Dzongkhag for 2020.

Table 2.20: Population 15 years and above by usual activity (2020)

Dzongkhag	Employed			Unemployed			Economically Inactive		
	M	F	B	M	F	B	M	F	B
Bumthang	9	3906	7533	139	109	248	1557	1958	3515
Chhukha	14897	11895	26792	753	884	1637	5300	9693	14993
Dagana	6533	6539	13073	199	286	485	2531	3584	6115
Gasa	778	607	1384	16	16	33	336	417	753
Haa	2933	2997	5930	103	87	191	1094	1394	2489
Lhuentse	3147	3661	6808	13	30	43	1227	1456	2683
Monggar	8888	9678	18566	100	119	220	2385	3414	5799
Paro	9297	8954	18251	856	1036	1892	4257	5858	10114
Pema Gatshel	6003	5467	11469	130	232	362	2372	3371	5742
Punakha	5817	5637	11454	206	415	622	2729	4170	6898
Samdrup Jongkhar	8155	7442	15597	139	239	378	2784	3712	6496
Samtse	18091	16349	34440	322	253	575	4523	6757	11280
Sarpang	10540	10748	21288	532	443	974	5706	6347	12052

Dzongkhag	Employed			Unemployed			Economically Inactive		
	M	F	B	M	F	B	M	F	B
Thimphu	27140	21756	48896	2770	4103	6872	12870	22305	35175
Trashigang	10331	9588	19919	163	343	506	3033	4270	7303
Trashi Yangtse	3908	4185	8093	13	166	179	2273	2706	4979
Trongsa	3433	3878	7312	138	157	295	1407	1984	3391
Tsirang	6023	5299	11323	55	96	152	1909	2756	4665
Wangdue Phodrang	8925	8922	17847	305	551	855	4630	5238	9868
Zhemgang	4089	4498	8587	51	92	143	1362	1438	2800
Bhutan	162555	152006	314562	7003	9657	16662	64285	92828	157110

Source: PHCB, 2017

The foreign workers can make up for the skills shortage in a county. The presence of a huge number of foreign workers, on the contrary, could negatively impact the labour market outcomes for TVET graduates unless the foreign workers' regulations are strictly enforced.

In 2018, there were 54,972 foreign workers distributed within the country with highest in the Thimphu region (28.89%) followed by Wangdue Phodrang and Trongsa with 15.49 and 14.21 % respectively. Female foreign workers constituted only 2.77% of the total foreign worker population.

Table 2.21: Number of Foreign Workers by Dzongkhag and gender as of 30th June 2018

Dzongkhag	Gender				Total	Percent
	Male	%	Female	%		
Bumthang	605	1.10	0	0.00	605	1.10
Chhukha	2830	5.15	461	0.84	3,291	5.99
Dagana	813	1.48	0	0.00	813	1.48
Gasa	320	0.58	0	0.00	320	0.58
Haa	781	1.42	43	0.08	824	1.50
Lhuentse	112	0.20	0	0.00	112	0.20
Mongar	909	1.65	86	0.16	995	1.81
Paro	4756	8.65	250	0.45	5,006	9.11
Pema Gatshel	419	0.76	0	0.00	419	0.76

Dzongkhag	Gender				Total	Percent
	Male	%	Female	%		
Punakha	1675	3.05	9	0.02	1,684	3.06
Samdrup Jongkhar	1299	2.36	45	0.08	1,344	2.44
Samtse	1142	2.08	6	0.01	1,148	2.09
Sarpang	2,733	4.97	5	0.01	2,738	4.98
Thimphu	15,681	28.53	200	0.36	15,881	28.89
Trashigang	1469	2.67	391	0.71	1,862	3.39
Trashiyangtse	406	0.74	3	0.01	409	0.74
Trongsa	7,802	14.19	10	0.02	7,812	14.21
Tsirang	678	1.23	3	0.01	681	1.24
Wangdue Phodrang	8,503	15.47	10	0.02	8,513	15.49
Zhemgang	513	0.93	2	0.00	515	0.94
Grand Total	**53,448**	**97.23**	**1,524**	**2.77**	**54,972**	**100**

Source: Annual report 2017-2018, DOL

In 2019, Table 2.22 shows a higher concentration of foreign workers in Thimphu (35.47%), Wangduephodrang (16.50%) and Paro (12.20%) Dzongkhag. Female foreign workers constituted only 2.43% of the sum total.

In 2020, a huge decline in foreign workers was observed in the country from 46,679 in 2019 to 8309 in 2020. This could be due to the travel restriction and other protocols of the Covid-19 pandemic.

The decrease in total population of foreign workers explains the increasing opportunities for the TVET graduates and other Bhutanese youth to get themselves employed and be economically productive.

Table 2.22: Number of Foreign Workers by Dzongkhag and gender as of 30th June 2019-2020

Dzongkhag	2019					2020				
	M		F		T	M		F		T
	N	%	N	%	N	N	%	N	%	N
Bumthang	296	99.7	1	0.3	297	11	0.13	0	0.0	11
Chhukha	2797	88.8	353	11.2	3150	1049	12.4	127	1.5	1176

Dzongkhag	2019					2020				
	M		F		T	M		F		T
	N	%	N	%	N	N	%	N	%	N
Dagana	426	100	0	0	426	29	0.3	0	0	29
Gasa	231	100	0	0	231	5	0.06	0	0	5
Haa	756	96.5	27	3.4	783	189	2.23	26	0.3	215
Lhuentse	113	100	0	0	113	23	0.27	0	0	23
Mongar	441	93.4	31	6.6	472	147	1.73	3	0.04	150
Paro	5434	95.3	263	4.7	5697	530	6.26	142	1.7	672
Pema Gatshel	257	100	0	0	257	57	0.67	0	0	57
Punakha	1074	99.2	8	0.7	1082	130	1.53	2	0.02	132
Samdrup Jongkhar	1323	98.8	15	1.1	1338	330	3.89	4	0.05	334
Samtse	756	99.4	4	0.5	760	176	2.08	2	0.02	178
Sarpang	2581	99.9	2	0.1	2583	277	3.27	1	0.01	278
Thimphu	16372	98.9	187	1.1	16559	1400	16.5	117	1.38	1517
Trashi gang	742	77.2	219	22.8	961	138	1.63	52	0.61	190
Trashi Yangtse	249	99.2	2	0.8	251	33	0.39	1	0.01	34
Trongsa	3513	99.8	7	0.2	3520	979	11.5	2	0.02	981
Tsirang	289	99.7	1	0.3	290	41	0.48	0	0.00	41
Wangdue Phodrang	7690	99.8	12	0.2	7702	2416	28.5	8	0.09	2424
Zhemgang	206	99.5	1	0.5	207	25	0.30	1	0.01	26
Total	45546	97.5	1133	2.4	46679	7955	94.2	488	5.76	8473

Economically inactive population includes full-time students, monks/nuns, full-time homemakers (i.e., housewives, house husbands), the chronically ill, those too young and too old to work, trainees, the retired, disabled, and those who did not do any work during the reference period to generate income, or help in a family business. (LFS, 2020). Table 2.23 shows that 0.9 percent of TVET Graduates are economically inactive in the country as of 2020.

Table 2.23: Percentage of economically inactive population by level of education (2020)

Level of Education	Urban			Rural			Both Areas		
	M	F	T	M	F	T	M	F	T
None	10.5	28	21.8	25.3	38.6	32.7	20.5	34.3	28.7
Primary	3.7	5.6	4.9	3.9	4.6	4.3	3.8	5	4.5
Lower Secondary	7.9	7.7	7.8	9.7	8.2	8.9	9.1	8	8.5
Middle Secondary	21.7	19.1	20	17.5	19.3	18.5	18.9	19.2	19.1
Higher Secondary	23.2	20.2	21.2	16.5	17.6	17.1	18.7	18.7	18.7
TVET Graduate	**1.9**	**0.8**	**1.2**	**1**	**0.6**	**0.8**	**1.3**	**0.7**	**0.9**
Diploma	2.3	1.7	1.9	1.3	0.7	1	1.6	1.1	1.3
Bachelor's Degree	22.7	11	15.2	9.3	6.1	7.5	13.6	8.1	10.4
Master's & above	1.1	1.1	1.1	0.5	0.4	0.5	0.7	0.7	0.7
Monastic Education	4.8	0.3	1.9	14.7	0.9	7	11.5	0.6	5.1
NFE	0.1	4.5	2.9	0.3	3	1.8	0.3	3.6	2.2
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: LFS 2020

Persons who have worked as paid employees, own account workers and contributing family workers are considered as employed (LFS, 2020). Table 2.24 displays that of the total employed population (314,562), 1 % (3145) comprise of TVET graduates. The male TVET graduates and those who are in urban areas have a higher employment rate compared to female and TVET graduates residing in rural areas.

Table 2.24: Percentage of economically inactive population by level of education (2020)

Level of education	Urban	Rural	M	F	Total
None	20.8	51.6	36.6	48.5	42.4
Primary	10.3	12.9	15.4	8.6	12.1
Lowe & Middle secondary	24.2	12.5	17.4	14.5	16
Higher secondary	14.8	5.4	8.2	8.3	8.2
TVET Graduate	**2.1**	**0.5**	**1.4**	**0.5**	**1.0**
Diploma	3.8	0.7	2	1.2	1.6
Bachelor's degree	15.1	3	7.7	5.4	6.6
Master's and above	3.6	0.4	2.1	0.6	1.4

Level of education	Urban	Rural	M	F	Total
Monastic Education	1.8	3.1	5.2	0.1	2.7
NFE	3.4	9.9	4	12.2	8
Total	**100**	**100**	**100**	**100**	**100**

Source: LFS 2020

Table 2.25 indicates that out of total TVET graduates employed, most of them (581) are employed in 'public administration and defense; compulsory social security' sector followed by 'manufacturing' (446) and 'electricity, Gas, Steam and Air Conditioning Supply' (443).

Table 2.25: TVET Graduate currently employed by economic activity by sex and area (2020)

Major economic activity	Rural		Urban		Total			
	M	F	M	F	M	F	T	%
Agriculture, Forestry and Fishing	174	105	0	0	174	105	279	8.99
Mining and Quarrying	0	0	17	0	17	0	17	0.55
Manufacturing	92	63	212	78	304	141	445	14.35
Electricity, Gas, Steam and Air Conditioning Supply	174	54	170	45	344	99	443	14.28
Water Supply, Sewerage, Waste Management and Remediation Activities	0	0	0	0	0	0	0	0.00
Construction	86	14	211	11	297	25	322	10.38
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	59	5	182	48	241	53	294	9.48
Transportation and Storage	50	0	0	0	50	0	50	1.61
Accommodation and Food Service Activities	0	0	66	46	66	46	112	3.61
Information and Communication	0	0	99	25	99	25	124	4.00
Financial and Insurance Activities	0	0	11	0	11	0	11	0.35

Major economic activity	Rural		Urban		Total			
	M	F	M	F	M	F	T	%
Real Estate Activities	0	0	0	0	0	0	0	0.00
Professional, Scientific and Technical Activities	0	0	0	0	0	0	0	0.00
Administrative and Support Service Activities	21	0	0	19	21	19	40	1.29
Public Administration and Defense; Compulsory Social Security	66	0	334	181	400	181	581	18.73
Education	46	21	0	0	46	21	67	2.16
Human Health and Social Work Activities	22	13	109	52	131	65	196	6.32
Arts, Entertainment and Recreation	21	0	52	0	73	0	73	2.35
Other service Activities	0	0	25	0	25	0	25	0.81
Activities of Households as Employers	0	0	0	0	0	0	0	0.00
Activities of Extraterritorial Organizations and Bodies	0	0	25	0	25	0	25	0.81
Total	812	275	1511	504	2323	779	3102	100

Source: LFS, 2021

Table 2.26 presents the proportion of employed population by major occupational categories. By occupational groups, the largest proportion of TVET graduates (1039) are concentrated in the occupational group of 'Technicians and Associate Professionals' followed by 'Craft and Related Trade workers' (628). However, the lowest proportion of TVET graduates are employed in 'Plant and Machine Operators and Assemblers' (48) occupational group.

Table 2.26: TVET graduate employed by major occupation- 2020

Major Occupation	Rural		Urban		Both Areas			
	M	F	M	F	M	F	T	%
Managers	26	0	161	0	187	0	187	6.0
Professionals	46	0	135	25	181	25	206	6.6
Technicians and	240	67	698	302	938	369	1307	42.1

Major Occupation	Rural		Urban		Both Areas			
	M	F	M	F	M	F	T	%
Associate Professionals								
Clerical Support Workers	37	21	0	38	37	59	96	3.1
Services and Sales Workers	34	5	158	97	192	102	294	9.5
Skilled Agricultural, Forestry and Fishery	174	105	0	0	174	105	279	9.0
Craft and Related Trade Workers	196	78	312	42	508	120	628	20.2
Plant and Machine Operators and Assemblers	25	0	23	0	48	0	48	1.5
Elementary Occupations	34	0	25	0	59	0	59	1.9
Armed Forces occupations	0	0	0	0	0	0	0	0.0
Total	812	275	1511	504	2323	779	3102	100

Source: LFS 2020

Table 2.27 shows the unemployed population by level of education as of 2020. Out of the total unemployed population (16,660), 1.12% (354) are the TVET graduates. Although the male unemployment is lower than female unemployment in urban areas, the male unemployment is higher than female unemployment in rural areas.

Table 2.27: Unemployed population by level of education, Area and sex- 2020

Level of education	Urban		Rural		Both Areas		
	M	F	M	F	M	F	T
None	238	529	205	266	443	795	1239
Primary	317	490	32	117	348	607	956
Lower secondary	187	230	270	184	457	413	870
Middle secondary	464	1227	316	567	781	1794	2574
Higher secondary	1098	2065	799	1048	1897	3113	5011
TVET Graduate	**75**	**127**	**116**	**35**	**191**	**162**	**354**
Diploma	299	228	49	30	348	258	606
Bachelor's degree	1413	1361	879	837	2292	2198	4489
Master's and above	52	0	52	50	104	50	154

Level of education	Urban		Rural		Both Areas		
	M	F	M	F	M	F	T
Monastic Education	29	0	112	0	140	0	140
NFE	0	158	0	109	0	267	267
Don't Know	0	0	0	0	0	0	0
Total	4173	6415	2830	3242	7003	9657	16660

KEY ECONOMIC STATISTICS

Various economic factors could affect demand and supply of technical and vocational skills. The macro-economic data were used to determine the employment opportunities and gap. Some key macro-economic indicators are given in Table 2.28.

One major macroeconomic indicator of relevance to TVET is Gross Domestic Product (GDP). Between 2013 and 2019, Bhutan had witnessed a gradual increase in its GDP till 2016. However, the GDP growth rate started decreasing from 2017 to 5.46 in 2019. The other macro-economic indicators of interest are government revenue, expenditure and debt. See the table for details.

Table 2.28: Economic performance indicators (2013-2020)

Indicators	2015	2016	2017	2018	2019	Average
GDP (Nu Million)	128534	145072	159571	167339	178201	142573
GDP Growth Rate (%)	6.64	8.13	4.65	3.06	5.46	5
GDP Per Capita (In Nu.)	179080	199661	216941	227867	240270	196416
Inflation (%)	3.56	4.38	5.1	1.76	0.97	4
Govt. Expenditure as % of GDP						
Current	16.48	16.08	16.17	16.91	16.58	16
Capital	12.27	16.03	16.71	14.74	9.99	14

Govt. revenue as % of GDP						
Tax revenue	15.05	14.96	16.99	16.24	12.75	15
Non-tax revenue	6.17	5.52	6.12	4.5	7.49	6
Govt. Debt as of % GDP						
Total Debt	101.66	108.8	113.43	109.32	106.97	104
External Debt	97.5	104.06	105.87	103.7	104.67	101

According to the statistics in Table 2.29, the 'Agricultural, Livestock and Forestry' sector has been the major contributor to the GDP from 2015 to 2019 followed by 'Construction' sector, 'Electricity and Water' sector and so on.

Table 2.29: Sectoral Share of GDP (2019)

Year	2015	2016	2017	2018	2019	Avg.
Agriculture, livestock and Forestry	14.4	14.4	15.0	16.0	15.8	15.1
Mining and Quarrying	3.5	4.4	4.4	4.9	4.8	4.4
Manufacturing	8.2	7.6	7.5	7.4	7.1	7.6
Electricity and Water	14.7	13.7	13.6	11.7	12.7	13.3
Construction	16.1	16.7	16.3	14.2	11.5	15.0
Wholesale and Retail Trade	8.0	8.1	8.4	9.0	9.8	8.7
Hotels and Restaurants	1.9	2.0	2.2	2.4	2.6	2.2
Transport, Storage and Communication	9.3	9.1	9.5	10.0	10.7	9.7
Financing. Insurance and Real estate	7.6	7.5	7.3	7.8	7.6	7.6
Community, Social and Personal Services	11.5	11.3	10.2	10.4	12.3	11.1
Private Social, Personal and Recreational Services	0.4	0.4	0.4	0.4	0.4	0.4
Plus, Indirect Taxes less Subsidies	4.5	4.7	5.1	5.9	4.7	5.0

Source: RMA, Annual Report, 2020

Economic Establishments

The Statistics on economic establishments can provide valuable insights into the state of the private sector in relation to the labor market. The knowledge and understanding of various economic enterprises are extremely valuable for strategic development in TVET, especially in terms of their role in providing jobs.

The distribution of economic establishments in twenty Dzongkhags is shown in Table 2.30. The largest number of establishments were found in the Dzongkhags of Thimphu (3485) and Chukkha (1896), demonstrating the regional difference in the distribution of economic activities.

Table 2.30: Distribution of economic establishments across 20 Dzongkhags (2017)

Dzongkhag	Number			Percentage		
	Urban	Rural	Total	Urban	Rural	Total
Thimphu	3149	336	3485	35.4	6.6	24.9
Chhukha	1449	447	1896	16.3	8.8	13.5
Sarpang	634	502	1136	7.1	9.8	8.1
Samtse	260	680	940	2.9	13.3	6.7
Paro	472	398	870	5.3	7.8	6.2
Tsirang	283	377	660	3.2	7.4	4.7
Samdrup Jongkhar	406	218	624	4.6	4.3	4.5
Trashigang	296	323	619	3.3	6.3	4.4
Monggar	307	239	546	3.5	4.7	3.9
Wangdue Phodrang	293	248	541	3.3	4.9	3.9
Dagana	180	347	527	2	6.8	3.8
Punakha	242	194	436	2.7	3.8	3.1
Bumthang	255	91	346	2.9	1.8	2.5
Pemagatshel	167	136	303	1.9	2.7	2.2
Tashi Yangtse	131	143	274	1.5	2.8	2
Trongsa	97	161	258	1.1	3.2	1.8
Zhemgang	89	119	208	1	2.3	1.5

Dzongkhag	Number			Percentage		
	Urban	Rural	Total	Urban	Rural	Total
Haa	104	61	165	1.2	1.2	1.2
Lhuentse	52	77	129	0.6	1.5	0.9
Gasa	27	7	34	0.3	0.1	0.2
Total	**8893**	**5104**	**13997**	**100**	**100**	**100**

Source: Bhutan Economic Census Report, 2018 (NSB)

In 2017, sole proprietorships outnumbered all other categories of companies by a large margin (91.7 percent) (Table 2.31). These businesses are typically smaller and easier to start. They have a lower level of stability, have lower operating costs, and hire a smaller number of people. As a result, addressing the country's unemployment problem would entail encouraging the growth and transformation of smaller businesses into larger ones. Overall, the growth of TVET and the private sector are mutually dependent.

Table 2.31: Legal status of economic establishments (2017)

Legal status	Number	Percentage
Single proprietorship or partnership	12,841	91.7
Private limited company	157	1.1
Public limited company	16	0.1
State-owned limited company	28	0.2
FDI company	31	0.2
Permanent shed vendor	919	6.6
Project authority	5	0
Total	**13,997**	**100**

Source: Bhutan Economic Census Report, 2018 (NSB)

An effective relationship between TVET and entrepreneurial training may provide an additional career path for TVET graduates. According to the statistics in Table 2.32, TVET graduates owned approximately 1.3 percent of the establishments.

Since there are fewer TVET graduates who own businesses, there is a need to supplement entrepreneurial training within TVET, primarily to instill entrepreneurial motivations and intentions in trainees, as well as to improve their entrepreneurial competencies.

Table 2.32: Qualifications of the owners of economic establishments (2017)

Educational attainment of owner	Number			Percentage		
	M	F	Both	M	F	Both
VTI/TTI certificat/RTI/ diploma	133	38	171	2.3	0.5	1.3
No education	1474	2785	4259	25.8	38.5	32.9
Primary	1025	905	1930	17.9	12.5	14.9
Lower secondary	444	585	1029	7.8	8.1	7.9
Middle secondary	817	1232	2049	14.3	17	15.8
Higher secondary	630	745	1375	11	10.3	10.6
Bachelor's degree	645	339	984	11.3	4.7	7.6
Master's degree & higher	139	39	178	2.4	0.5	1.4
Traditional education	218	21	239	3.8	0.3	1.8
Non-formal education	126	510	636	2.2	7	4.9
Not reported	72	36	108	1.3	0.5	0.8
Total	**5723**	**7235**	**12958**	**100**	**100**	**100**

Source: Bhutan Economic Census Report, 2018 (NSB)

Several studies in Asia have confirmed the higher efficacy of labor structures in economies where FDIs are thriving well. FDI-based enterprises typically have more resources to create jobs and upgrade their employees' knowledge and skills (Pham LePhuong, 2009). FDI companies play a critical role in the growth of TVET in Malaysia. One example is the German-Malaysia Institute (GMI), which caters to the skills needs of German FDI industries. Table 2.33 shows the FDI countries and the number (and percentage) of FDI-based businesses in Bhutan.

Of the 32 FDI-based businesses in 2017, 31.3 % were from India, followed by Singaporeans (12.5 %) and Americans. Similarly, in 2018-202, 34.1% of FDI-based businesses were from India, followed by Singaporeans (12.2 %).

Table 2.33: FDIs by nationality of the investors (2017-Feb 2021)

Nationality of foreign investor	2017		Nationality of foreign investor	2018-Feb 2021	
	N	%		N	%
India	10	31.3	India	14	34.1
Singapore	4	12.5	Singapore	5	12.2
United States of America	3	9.4	BVI	5	12.2
Australia	2	6.3	USA	4	9.8
Hong Kong SAR, China	2	6.3	Japan	2	4.9
Bangladesh	1	3.1	Germany	2	4.9
France	1	3.1	Australia and India	1	2.4
Japan	1	3.1	Malaysia	1	2.4
Malta	1	3.1	Nepal	1	2.4
Myanmar	1	3.1	Canada	1	2.4
Nepal	1	3.1	Thailand	1	2.4
Samoa	1	3.1	Poland	1	2.4
Switzerland	1	3.1	Bangladesh	1	2.4
Thailand	1	3.1	Vietnam/USA/ UK	1	2.4
United Kingdom	1	3.1	Vietnam	1	2.4
Vietnam	1	3.1			
Total	**32**	**100**		**41**	**100**

Source: Bhutan Economic Census Report 2018, FDI Division, DOI, MoEA, 2021

In 2017, the most important trades and economic activities were wholesale, retail trade, and motor repairs (62.5%), followed by accommodation and food services (21 %).

Table 2.34 contains more specific information. To inform the process of course diversification and curriculum design in TVET, an in-depth analysis of the prevalence of various economic activities is desired.

Table 2.34: Establishments by trades (2017)

Economic sector	Number	Percentage
Wholesale and retail trade; repair of motor vehicles and motorcycles	8,754	62.5
Accommodation and food service activities	2,946	21
Manufacturing	711	5.1
Other service activities	388	2.8
Agriculture, forestry and fishing	352	2.5
Construction	168	1.2
Administrative and support service activities	173	1.2
Arts, entertainment and recreation	171	1.2
Professional, scientific and technical activities	71	0.5
Education	71	0.5
Information and communication	57	0.4
Transportation and storage	45	0.3
Mining and quarrying	33	0.2
Human health and social work activities	30	0.2
Financial and insurance activities	16	0.1
Electricity, gas, steam and air-conditioning	3	0
Water supply; sewerage, waste management and remediation	5	0
Real estate activities	3	0
Total	**13997**	**100**

Source: Economic Census Report (2018)

Industries are the major employer of the TVET and other graduates. Table 2.35 presents the number of industries by types and ownership within the country from 2016 to 2020. From 2016 to 2020, the number of industries has shown an increasing trend from 17,004 to 23,133. In all the years, the sole proprietorship has outnumbered the number of industries in a country.

Similarly, the service industries constituted a major share of industries within the country. However, there was only 11.35% of Production and Manufacturing industries within the country on average

Table 2.35: Number of Industries by type and ownership from 2016 – 2020

Years	Ownership	Production & Manufacturing	Services	Contract	Total
2016	Sole proprietorship	1448	11840	2932	16220
	Partnership	35	119	4	158
	Company	153	237	199	589
	Other	12	25	0	37
	Total	**1648**	**12221**	**3135**	**17004**
2017	Sole proprietorship	1872	14092	3202	19166
	Partnership	47	134	1	182
	Company	192	268	237	697
	Other	14	34	0	48
	Total	2125	14528	3440	**20093**
2018	Sole proprietorship	2256	15921	3195	21372
	Partnership	64	180	0	244
	Company	198	301	250	749
	Other	22	43	7	72
	Total	2540	16445	3452	**22437**
2019	Sole proprietorship	2688	17664	3020	23372
	Partnership	79	223	0	302
	Company	222	353	268	843
	Other	29	42	7	78
	Total	3018	18282	3295	**24595**
2020	Sole proprietorship	2550	17435	2101	22086
	Partnership	72	223	0	295
	Company	191	326	168	685
	Other	32	35	0	67
	Total	2845	18019	2269	**23133**

Source: SYB-2020

Amongst the Industries, the large and medium industries are the ones that provides maximum share of employment. Table 2.36 shows the number of industries by its size and type from 2016-2020. The large and medium industries constitute only the small share of the total industries in the country.

Table 2.36: Number of Industries by type and size, 2016 – 2020

Years	Size	Production and Manufacturing	Services	Contract	Total
2016	Cottage	1039	10680	0	11719
	Small	365	1224	1866	3455
	Medium	151	218	1038	1407
	Large	93	99	231	423
	Total	**1648**	**12221**	**3135**	**17004**
2017	Cottage	1345	12658	0	14003
	Small	470	1472	2087	4029
	Medium	196	297	1083	1576
	Large	114	101	270	485
	Total	**2125**	**14528**	**3440**	**20093**
2018	Cottage	1626	14191	0	15817
	Small	600	1810	2171	4581
	Medium	202	323	1020	1545
	Large	111	122	261	494
	Total	**2539**	**16446**	**3452**	**22437**
2019	Cottage	1882	15971	0	17853
	Small	778	1773	1924	4475
	Medium	231	388	1096	1715
	Large	127	150	275	552
	Total	**3018**	**18282**	**3295**	**24595**
2020	Cottage	1790	15655	0	17445
	Small	794	1923	1879	4596
	Medium	137	306	276	719
	Large	124	135	114	373
	Total	**2845**	**18019**	**2269**	**23133**

Source: SYB-2020

SOCIAL INDICATORS

Poverty indicators are typically associated with the qualitative aspects of labor market outcomes. In primarily market economies, the higher rate of poverty is associated with individuals' or households' inability to earn a sufficient level of income through employment or other means (IAG-TVET,2013).

The Poverty Analysis Report (NSB, 2017) classifies households (and their members) consuming (in real terms) less than the total poverty line of Nu 2195.95 per person per month as poor, and households (and their members) consuming (in real terms) less than the food poverty line of Nu 1473.45 per person per month as 'subsistence poor' (PAR,2017, p.6).

Table 2.37 shows the rates of household and community poverty, as well as subsistence poverty, by area. Such data are essential for TVET because of its position in poverty reduction by growing an individual's job prospects.

Table 2.37: Population and household consumption poverty rates by areas

Area	Consumption Poverty			Subsistence Poverty		
	Pop. Poverty Rate	HH Poverty Rate	Pop. share	Pop. Poverty Rate	HH Poverty Rate	HH share
Urban	0.78	0.48	33.45	0.01	0.02	35.57
Rural	11.94	8.65	66.55	2.31	1.58	64.43
Bhutan	**8.21**	**5.75**	**100**	**1.54**	**1.02**	**100**

Source: Poverty Analysis Report, 2017 (NSB). HH: Household; Pop: Population

Table 2.38 summarizes poverty rates at the Dzongkhag and Thromde levels, with Dagana, Zhemgang, Monggar, Trongsa, and Pemagatshel Dzongkhags having the highest poverty rates. This suggests that additional priority should be given to these Dzongkhags in terms of poverty alleviation efforts, such as job creation through TVET programs, among other things

Table 2.38: Population poverty rates across Dzongkhags (2017)

Dzongkhag	Poverty rate	Distribution of Poor	Distribution of Population
Dagana	33.3	13.7	23,453
Zhemgang	25.1	8.5	19,224
Monggar	17.1	12.6	41,956
Other than Gelephu Thromde	14.7	8.6	33,238
Trongsa	14	4.4	17,768
Pemagatshel	13.7	6.7	27,636
Gasa	12.6	0.8	3,575
Samtse	12.3	13.6	63,132
Sarpang	12.1	8.8	41,254
Trashi Yangtse	11.9	3.2	15,363
Trashigang	10.7	8.9	47,102
Other than Samdrup Jongkhar Thromde	8.3	3.9	26,778
Bhutan	8.2	100	692,895
Lhuentse	6.7	1.8	15,552
Samdrup Jongkhar	6.2	4	36,154
Wangdue Phodrang	5.4	3.9	41,405
Other than Phuntsoling Thromde	4.8	3.6	42,795
Tsirang	4.8	1.7	20,409
Chhukha	3.5	3.9	63,355
Punakha	2.6	1.2	26,724
Bumthang	2.1	0.6	15,959
Gelephu Thromde	1.1	0.2	8,015
Other than Thimphu Thromde	1.1	0.5	27,403
Phuntsoling Thromde	0.9	0.3	20,560
Haa	0.9	0.2	10,995
Thimphu	0.6	1.3	125,551
Thimphu Thromde	0.4	0.7	98,148

Dzongkhag	Poverty rate	Distribution of Poor	Distribution of Population
Paro	0.3	0.2	36,329
Samdrup Jongkhar Thromde	0.3	0	9,376

Source: Poverty Analysis Report, 2017, NSB

Chapter Three

TVET Access and Participation Indicators

TVET access simply refers to making TVET opportunities available to all segments of society, whereas participation refers to overcoming some of the obstacles that may prevent them from participating in TVET. The number and type of TVET institutions (training providers), their locations, course diversity, enrolment-related indicators, and graduation data represent contextual dynamics influencing TVET access, participation, and outcomes. The MoLHR's Skills Training Programmes (STWTs), Village Skill Development Programmes (VSDP), Special Skills Development Programmes (SSDP), and School TVET are initiatives aimed at increasing TVET access and participation among various target groups.

The indicators related to TVET access and participation were broken down by gender to emphasize the equity aspect of TVET, which is measured in terms of gender inclusion and gender balance, among other things. Taking equity into account once more, an effort was made to collect data on disabilities. It was discovered that, with the exception of a few SSDP programs, not many disabled people had received training through registered TPs, and as a result, there was no significant data to report.

Statistics on Formal Training Providers (TPs)

In Bhutan, a mix of formal, non-formal, and informal training providers provides TVET programs. Any TP is required to register with the Department of Occupational Standards under the Regulations for Registration of Training Providers, 2010 (revised in 2014), (DOS). As of March 2021, there were 120 TPs registered with DOS.

In 2021, 70 TPs were centered in Thimphu Dzongkhag, according to the distribution of TPs by Dzongkhag/Thromdes (Table 3.1). The remaining TPs were mainly concentrated in Paro and Phuntsoling region. In the dzongkhags of Gasa, Trongsa, and Lhutshe, no TP was centered.
The physical distribution of TPs as of March 2021 was clearly urban bifurcated.

Table 3.1: Physical distribution of Training Providers (TPs)

Dzongkhag	Number	Percent
Thimphu	70	58.33
Chukhha	11	9.17
Paro	9	7.50
Wangduephodrang	5	4.17
Sarpang	4	3.33
Bumthang	3	2.50
Samdrup Jongkhar	3	2.50
Trashigang	3	2.50
Punakha	2	1.67
Samtse	2	1.67
Haa	2	1.67
Dagana	1	0.83
Monggar	1	0.83
Pemagatshel	1	0.83
Tsirang	1	0.83
Trashiyangtse	1	0.83
Zhemgang	1	0.83
Total	120	100

Source: DOS, MoLHR, 2021

The registration of TPs is based on whether they have met the quality standards, assessment criteria, and have a proper management system in place. There are three levels of training providers: A, B, and C. The majority of them (71%) are in Grade C, and three are in Grade A. (Figure 3.1).
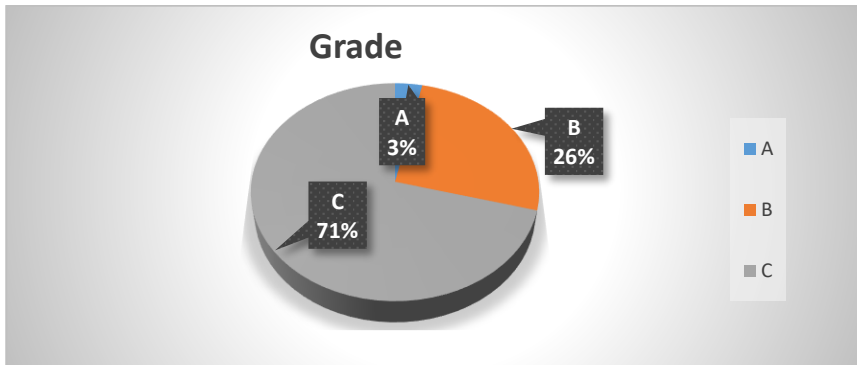
Figure 3.1: Registered trading providers by grades

In the early period of TVET development in Bhutan, the public sector was entirely responsible for TVET provision. The private sector's role in TVET provision began in the 1990s and their number surged between 2015 to 2021 as evident in Table 3.2.

Table 3.2: Training Providers

Year	Freq
2014	2
2015	39
2016	24
2017	17
2018	14
2019	8
2020	12
2021	4
Total	**120**

Source: DOS, MoLHR, 2021

Registered TPs (120) come from a variety of sectors, including public, private, corporate, and non-profit Organization. As shown in Table 3.3, private TPs account for 63.3 percent of the total. TTIs and IZCs under MoLHR account for 11.7 percent of the total.

The public sector manages 14 TPs in total. The presence of nearly a hundred private TPs emphasizes the role of the private sector in TVET provision, despite the fact that the majority of them are Sole proprietorship ventures.

Table 3.3: Registered Training Providers by sectors (2021)

Sector	Frequency	Percent
Private (Sole Proprietorship)	76	63.3
Private (Partnership)	21	17.5
Public (Govt.)	14	11.7
Corporate	6	5.0
NGO	3	2.5
Total	120	100

Source: DOS, MoLHR, 2021

TTIs and IZCs under MoLHR

Registered TPs (120) come from a variety of sectors, including public, private, corporate, and non-profit Organization. The Department of Technical Education (DTE) implements TVET programs for out-of-school youths and in-service candidates through its six TTIs and 2 IZCs. TTIs and IZCs are mentioned in table 3.4 with four institutes receiving grade A and the rest receiving B.

Table 3.4: TTIs and IZCS—physical distribution, grade, sector and establishment

TTI and IZC	Dzongkha/ Thromde	Grade	Sector	Estd.
Technical Training Institute- Chumey	Bumthang	A	Construction	2006
Jigme Wangchuk Power Training Institute-Dekiling	Sarpang	A	Construction and Hydropower	2014
Technical Training Institute- Khuruthang	Punakha	A	Mechanical and Electrical	2003
Technical Training Institute- Rangjung	Trashigang	B	Electrical, CHN, Furniture, Automobile	2003
Technical Training Institute- Samthang	Wangduephodrang	A	Automobile	2003

TTI and IZC	Dzongkha/ Thromde	Grade	Sector	Estd.
Technical Training Institute- Thimphu	Thimphu	B	Automobile	2008
National Institute of Zorig Chusum- Thimphu	Thimphu	B	Traditional Arts and Crafts	1971
College of Zorig Chusum- Trashiyangtse	Trashiyangtse	B	Traditional Arts and Crafts	1997

CHN: Computer Hardware and Networking

TVET Programmes in TTIs and IZCs

TVET programs in TTIs and IZCs were mostly Long-Term Courses (LTCs), which are confined to specific vocational trades requiring significant investment. Zorig (traditional arts and crafts) courses aim not only to address unemployment concerns, but also to promote creativity, design, and pragmatism.

The COVID-19 global pandemic has had an impact on various sectors of the country's economy, creating a significant employment gap in the construction sector. As an immediate response to the growing concern, the MoLHR initiated and implemented the **Build Bhutan Project (BBP)** over a two-year period to address unemployment and layoffs by filling the gap in the construction sector. The initiative in coordination with TTIs offers construction trades skilling, reskilling, and upskilling possibilities leading to national certification.

TTIs and IZCs have identified 74 regular and 13 Build Bhutan Project (BBP) courses across 34 occupations/disciplines. Table 3.5 lists the courses, along with their delivery mode/level and duration (estimated in months). In some cases, despite the fact that the courses offered by TTIs and IZCs are nearly identical, there are some differences in the reporting of course duration. Rather than specifying the duration of each of these similar courses in separate cases/rows, the durations were aggregated in the last column as reported by TTIs and IZCs.

To achieve some degree of homogeneity and make data reporting easier, the durations of similar courses offered in different TTIs and IZCs must be standardized. These are routine courses whose delivery has been modified to accommodate the BBP Programmes. The majority of TTIs have begun to offer BBP courses since 2020 and may continue until 2022, in which case those institutes may be unable to offer routine courses. Two IZCs do not provide BBP Programmes.

Table 3.5: Overview of TVET programmes in TTIs and IZCs by level and duration (2019-2020)

SLN	Courses	NC II	NC III	ND	Total	Duration (in range by months)
1	Automobile (Mechanic)	3	2	0	5	8-24
2	Mechanical Welding	3	2	0	5	12-24
3	Jimzo (Sculpture)	2	2	1	5	7-24
4	Carpentry	2	2	0	4	6-24
5	Masonry	2	2	0	4	6-24
6	Plumbing	2	2	0	4	5-14
7	Trezo (Gold and Silver Smith)	2	2	0	4	6-13
8	Patra (Wood Carving)	2	2	0	4	8-16
9	Tsemzo (Tailoring)	2	2	0	4	12
10	Tshemdru (Embroidery)	2	2	0	4	15-17
11	Heavy Earth Moving Operation (HEM)	1	1	0	2	6
12	Electrical	1	1	0	2	8-12
13	Mechanical Fitting	2	0	0	2	24
14	Shingtsen (Traditional House Painting)	1	1	0	2	18
15	Lhadri (Mural Painting)	1	1	0	2	24
16	Wooden Furniture Making	1	1	0	2	12
17	Wooden Furniture Making	1	1	0	2	6-8

SLN	Courses	NC II	NC III	ND	Total	Duration (in range by months)
18	Heavy Vehicle Driving (HVD)	1	0	0	1	6
19	Panel Beating	1	0	0	1	12
20	Refrigeration and Air Conditioning (RAC)	1	0	0	1	24
21	Shazo (Wood Turning)	1	0	0	1	13
22	Hydro Power Mechanical	1	0	0	1	14
23	Hydro Power Transmission and Distribution Linemen	1	0	0	1	14
24	Thagzo (Weaving)	1	0	0	1	24
25	Auto Electrical	1	0	0	1	24
26	DTP Masonry	1	0	0	1	24
27	DTP Carpentry	1	0	0	1	24
28	DTP Furniture	1	0	0	1	24
29	Transformer Maintenance	0	0	0	1	5
30	UG cable laying and trenching	0	0	0	1	5
31	Domestic Wiring	1	0	0	1	12
32	Industrial Wiring	0	1	0	1	12
33	Computer Hardware and Networking	1	0	0	1	12
34	Auto Painting	1	0	0	1	12
	Total	44	27	1	74	
Build Bhutan Project						
35	Construction Carpentry	3	0	0	3	short course
36	Masonry	2	0	0	2	short course
37	Welding	3	0	0	3	short course
38	Plumbing	2	0	0	2	short course
39	Excavator Operator	1	0	0	1	short course

SLN	Courses	NC II	NC III	ND	Total	Duration (in range by months)
40	Building Painting	2	0	0	2	short course
	Total	13	0	0	13	

Note: reporting of some course duration by different institutes/TPs Varies, though their curricula prescribe duration (estimated in hours) for each course. This Variation in the duration (reported in months) of similar courses offered by different institutes/TPs could be for logistical reasons.

Table 3.6 lists the major courses for TTIs and IZCs. Short-term courses and other programmes are excluded from the list. Certain courses were renamed by respective institutes/TPs in ways that differed from what was originally prescribed in the course curriculum—some were renamed after occupations, while others were renamed after activities. This is another critical area that will require standardization in the future.

Table 3.6: Main courses offered by TTIs and IZCs (2019-2021)

Course	Level
(I) Technical Training Institute-Chumey (TTI-C)	
Carpentry	NC II
Masonry	NC II
Plumbing	NC II
Welding	NC II
Carpentry	NC III
Masonry	NC III
Plumbing	NC III
(II) Jigme Wangchuk Power Training Institute-Dekiling (JWPTI)	
Hydro Power Mechanical	NC II
Hydro Power Transmission and Distribution Line men	NC II
Masonry	NC II & NC III
Plumbing	NC II & NC III
Carpentry	NC II & NC III
Wooden Furniture Making	NC II & NC III

Course	Level
Welder	NC II & NC III
Fitter	NC II
DTP Masonry	NC II
DTP Carpentry	NC II
DTP Furniture	NC II
(III) Technical Training Institute-Thimphu	
Automobile	NC-II & NC III
Auto Painting	NC-II
Panel Beating	NC-II
Refrigerator and Air Conditioning (RAC)	NC-II
(IV) Technical Training Institute-Samthang	
Auto Electrician	NC II
Automobile	NC II & NC III
Heavy Vehicle Driving	NC II
Heavy Earth Moving Operator	NC II & NC III
(V) Technical Training Institute-Khuruthang	
Electrical	NC II & NC III
Mechanical Welder	NC II & NC III
Mechanical Fitter	NC II
(VI) Technical Training Institute-Rangjung	
Domestic Wiring	NC II
Industrial Wiring	NC III
Automobile Mechanic	NC II
Computer Hardware and Networking	NC II
Wooden Furniture Making	NC II & NC III
(VII) College of Zorig Chusum-Tashi Yangtse	
Trezo (Gold & Silver Smith)	NCII & NC III
Jimzo (Sculpture)	NCII, NC III
Jimzo (Sculpture)	ND

Course	Level
Shingtsen (Traditional House Painting)	NCII & NC III
Patra (Wood Carving)	NCII & NC III
Shazo (Wood Turning)	NCII
Tsemzo (Tailoring)	NCII & NC III
Tshemdru (Embroidery)	NCII & NC III
(VIII) National Institute of Zorig Chusum-Thimphu	
Lhadri (Mural Painting)	NC II & NC III
Jimzo (Sculpture)	NC II & NC III
Patra (Wood Carving)	NC II & NC III
Tshemdru (Embroidery)	NC II & NC III
Tsemzo (Tailoring)	NC II & NC III
Trezo (Gold & Silver Smith)	NC II & NC III
Thagzo (Weaving)	NC II

The key features of different TVET courses listed by TTIs and IZCs are presented in Table 3.7. Between 2019 and June 2021, TTIs and IZCs provided 72 LTCs, 2 STCs, and 13 Build Bhutan Project (BBP) courses. According to UNESCO's International Classification of Education (ISCED-F-2013), the majority of the courses belonged to the 'Handicrafts' (0214) and 'Building and Civil Engineering' (0732) categories. Almost all LTCs were designed to cater to pre-service candidates, whereas BBP courses targeted the mix-service groups.

Table 3.7: Summary of TVET programmes in TTIs and IZCs (2019-April 2021)

Particulars	Number	Percent
Type		
long- Term Course	72	82.76
Short-Term Course	2	2.3
BBP (Build Bhutan Project)	13	14.94
Accreditation		
Accredited	83	95.4

Particulars	Number	Percent
Type		
Non- Accredited	4	4.59
Level/Mode of Delivery		
National Certificate II (NC II)	57	65.5
National Certificate III (NC III)	27	31.03
Certificate	2	2.3
National Diploma	1	1.15
Target Group		
Pre-service	70	80.5
Mix of Pre-service and In-service	13	14.9
Inservice	4	4.6
ISCED-F-2013 Classification		
0214 Handicrafts	18	20.7
0732 Building and civil engineering	16	18.4
0722 Materials (glass, paper, plastic and wood)	13	14.9
0715 Mechanics and metal trades	12	13.8
0716 Motor vehicles, ships and aircraft	12	13.8
0713 Electricity and energy	7	8
0213 Fine arts	4	4.6
0723 Textiles (clothes, footwear and leather)	4	4.6
0613 Software and applications development and analysis	1	1.1

The courses were maintained as LTCs and STCs as defined in the original datasets. There is no agreed duration for classifying a course as long-term or short-term. Some courses that lasted less than three months were classified as LTCs. Table 3.8 shows a list of courses in these two broad categories, as well as the number of courses in each. CZC and JWPTI have the most LTCs listed out of the total of 72 LTCs.

Table 3.8: Courses offered TTIs and IZCs by duration (2019-June 2021)

TTI and IZC	Long-Term	Short-Term	BBP	Total
Jigme Wangchuck Power Training Institute -Dekiling	16	2	5	23
College of Zorig Chusum -Trashiyangtse	14	0	0	14
National Institute of Zorig Chusum -Thimphu	13	0	0	13
Technical Training Institute -Chumey	7	0	5	12
Technical Training Institute -Rangjung	6	0	1	7
Technical Training Institute -Samthang	6	0	1	7
Technical Training Institute -Khuruthang	5	0	1	6
Technical Training Institute -Thimphu	5	0	0	5
Total	**72**	**2**	**13**	**87**

Total Intake Capacity of TTIs and IZCs

The total intake capacity should be interpreted as the maximum number of trainees that each TTI and IZC can accommodate in a given period of time. Based on hostel or workshop capacity, each TTI and IZC has estimated the total intake capacity for 2020. According to Table 3.9, Chumey TTI has the highest intake capacity of 288 trainees and Thimphu TTI has the lowest intake capacity of approximately 144 trainees in a given period of time.

Table 3.9: Total intake capacity of TTIs and IZCs-2019-2020 (estimates)

Code	TTI and IZC	Total Intake capacity
2015060129	TTI-Chumey	288
2016040028	JWPTI-Dekiling	270
2015050085	TTI-Rangjung	240
2015060145	NIZC-Thimphu	239
2015050068	TTI-Samthang	161
2015060129	TTI-Khuruthang	212

Code	TTI and IZC	Total Intake capacity
2015080167	CZC-Trashiyangtse	186
2014110003	TTI-Thimphu	144
	Total	1740

The actual intake is represented by the total number of trainees present in the institute at any given time (new enrolment plus senior trainees). The actual intake at any given time may be affected by previous enrolments and graduations in various TVET programmes.

Unlike in schools and colleges, the timing for enrolment and graduation in TVET varies due to the length of the course, which can range from a few weeks to several years.

According to Table 3.10, in 2020, 922 trainees (strength/total of freshers and existing trainees) participated in various training programmes at TTIs and IZCs. The JWPTI had the most trainees (203), while the Rangjung TTI had the fewest (63). In 2020, on average, eight TTIs and IZCs were running short of about 78 trainees from their intake capacity.

Table 3.10: Total trainees in TTIs and IZCs in 2020 (Strength) and enrolment gap

TTI and IZC	Male	Female	Total	Capacity	Gap
TTI-Chumey	142	54	196	288	(-) 92
JWPTI-Dekiling	153	50	203	270	(-) 67
TTI-Rangjung	43	20	63	240	(-) 177
NIZC-Thimphu	113	34	147	239	(-) 92
TTI-Khuruthang	88	47	135	212	(-) 77
CZC-Trashiyangtse	69	49	118	186	(-) 68
TTI-Samthang	104	14	118	161	(-) 43
TTI-Thimphu	130	15	145	144	(+) 1
Total	689	233	922	1740	(-) 818

(+) indicates that the institutes enrolled more than their annual intake capacities while (-) indicates the opposite.

Enrolment in TTIs and IZCs (2019- June 2021)

Enrollment in TVET programs (divided by gender) is one important indicator for measuring TVET access and participation (IAG-TVET, 2013). Enrolment is defined as "a new trainee enrolling in a course at a specific level, regardless of whether the trainee has previously enrolled in other courses at the same institute." It is applicable to a new student starting at an institute. It is known as freshmen enrolment in some countries.

Enrollment in TTIs and IZCs is shown in Table 3.11 from 2019 to June 2021 (2 years 6 months). 72% of the 2617 enrollees were males, while 28% were females. Out of total enrolment, 37.8% constituted the BBP enrolment.

Table 3.11: Total enrolment in TTIs and IZCs (2019- June 2021) by institute and sex

TTIs & IZCs	Regular				BBP				Total			
	M	F	T	%	M	F	T	%	M	%	F	%
JWPTI	227	73	300	42	287	128	415	58	514	27.3	201	27.4
TTI-C	61	52	113	21.3	290	127	417	78.7	351	18.6	179	24.4
NIZC-T	210	102	312	100	0	0	0	0.	210	11.2	102	13.9
TTI-R	127	50	177	64.8	64	32	96	35.2	191	10.1	82	11.2
TTI-S	233	24	257	95.9	11	0	11	4.1	244	13	24	3.3
TTI-K	107	60	167	76.6	35	16	51	23.4	142	7.5	76	10.4
CZC-T	140	54	194	100	0	0	0	0.0	140	7.4	54	7.4
TTI-T	91	16	107	100	0	0	0	0.0	91	4.8	16	2.2
Total	1196	431	1627	62.2	687	303	990	37.8	1883	72	734	28

Figure 3.3 shows that enrollment in TTIs and IZCs fluctuated between 2008 and 2020. Enrollment in six TTIs and two IZCs increased in 2017 but fell in subsequent years.
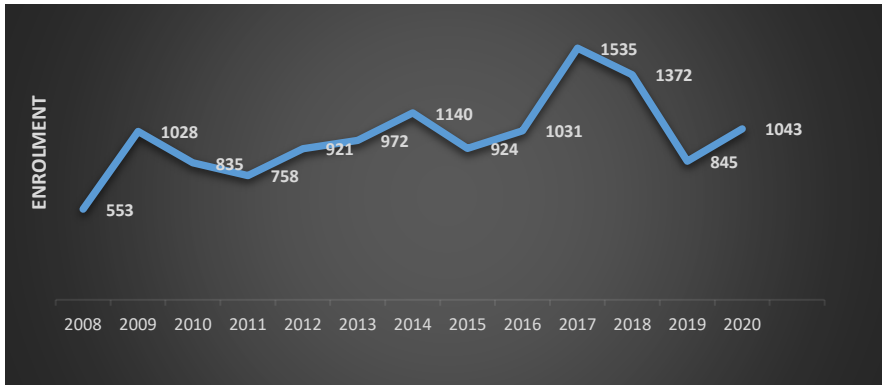
Figure 3.2: Enrolment trend in TTIs and IZCs from 2008 to 2020

From 2008 to June 2021, the average annual enrollment in LTCs, STCs, BBPs, and ATPs was around 977. (Table 3.12). NCs (long-term courses) enrollment averaged 710 per year. For the last 14 years, the total number of students enrolled in TTIs and IZCs (for all types of courses) was 13,686.

Table 3.12: Enrolment in TTIs and IZCs by type of courses (2008- June 2021)

Year	Long-Term Course	Short Course	BBP	ATP	Total
2008	533	20	0	0	553
2009	578	450	0	0	1028
2010	672	163	0	0	835
2011	623	135	0	0	758
2012	715	206	0	0	921
2013	728	244	0	0	972
2014	887	169	0	84	1140
2015	771	112	0	41	924
2016	801	166	0	64	1031
2017	891	643	0	1	1535
2018	1120	241	0	11	1372
2019	845	0	0	0	845
2020	594	0	449	0	1043
2021	188	0	541	0	729

Year	Long-Term Course	Short Course	BBP	ATP	Total
Total	9946	2549	990	201	13686
Average	710	182	71	14	978

The combined enrolment in TTIs and IZCs (2008-June 2021) by level or mode of delivery are presented in Table 3.13. Some TTIs and IZCs offered certifications before standardizing the courses as National Certificates (NCs) and National Diplomas (NDs). Specifically, IZCs had certain courses graded as 'diplomas,' which were outside of BVQF and not accredited by DOS at the time. These diplomas were only recently recognized as NCs. From 2019 to June 2021, however, there was no single enrolment at the 'certificate,' 'diploma,' or 'NC I' levels.

Table 3.13: Aggregated enrolment in TTIs and IZCs by year and level

Year	Certificate	Diploma	NC I	NC II	NC III	ND	BBP	Total
2008	391	134	0	28	0	0	0	553
2009	866	132	11	19	0	0	0	1028
2010	491	136	10	198	0	0	0	835
2011	462	137	8	151	0	0	0	758
2012	537	105	12	267	0	0	0	921
2013	511	140	11	310	0	0	0	972
2014	500	150	0	490	0	0	0	1140
2015	240	123	0	499	62	0	0	924
2016	376	189	0	411	55	0	0	1031
2017	644	12	0	748	131	0	0	1535
2018	252	0	0	928	181	11	0	1372
2019	0	0	0	601	244	0	0	845
2020	0	0	0	259	335	0	449	1043
2021	0	0	0	116	61	11	541	729
Total	5270	1258	52	5025	1069	22	990	13686

For the reference period of 2019-June 2021, Table 3.14 shows course-by-course enrolment in TTIs and IZCs, broken down by gender. When adding both the regular and BBP enrolment, Masonry courses had the greatest enrolment, followed by Construction carpentry, Automobile, Plumbing, Electrical, and so on, according to the data. In comparison to their male counterparts, more females chose courses in tailoring, electrical, and plumbing.

Table 3.14: Enrolment in TTIs and IZCs by course and sex (2019-June 2021)

Course	Male		Female		Total
	Freq.	%	Freq.	%	
Automobile	190	83.70	37	16.30	227
Electrical	114	65.52	60	34.48	174
Tsemzo (Tailoring)	50	32.26	105	67.74	155
Mechanical Welding	77	80.21	19	19.79	96
Masonry	56	62.22	34	37.78	90
Plumbing	37	44.58	46	55.42	83
Painting	71	92.21	6	7.79	77
Patra (Wood Carving)	77	100.00	0	0.00	77
Mechanical Fitting	51	71.83	20	28.17	71
Heavy Vehicle Driving (HVD)	68	100.00	0	0.00	68
Lhadri (Mural Painting)	58	93.55	4	6.45	62
Jimzo (Sculpture)	59	100.00	0	0.00	59
Carpentry	41	74.55	14	25.45	55
Tshemdru (Embroidery)	15	28.85	37	71.15	52
Wooden Furniture Making	45	88.24	6	11.76	51
Heavy Earth Moving Operation (HEM)	46	100.00	0	0.00	46
Transmission and Distribution Lineman	28	80.00	7	20.00	35
Computer Hardware & Networking (CHN)	12	50.00	12	50.00	24

Course	Male		Female		Total
	Freq.	%	Freq.	%	
Trezo (Gold & Silver Smith)	21	95.45	1	4.55	22
Refrigerator and Air Conditioning	16	84.21	3	15.79	19
DTP Masonry	10	66.67	5	33.33	15
DTP Carpentry	9	60.00	6	40.00	15
Furniture Making	12	85.71	2	14.29	14
Auto Painting	8	66.67	4	33.33	12
Panel Beating	9	100.00	0	0.00	9
Auto Electrician	8	88.89	1	11.11	9
DTP Furniture	6	75.00	2	25.00	8
Shazo (Wood Turning)	2	100.00	0	0.00	2
Build Bhutan Project					
Masonry	209	60.58	136	39.42	345
Construction Carpentry	230	76.16	72	23.84	302
Plumbing	102	64.97	55	35.03	157
Welding	103	85.12	18	14.88	121
Domestic Wiring	23	67.65	11	32.35	34
Building Painting	9	45.00	11	55.00	20
Excavator Operator	11	100.00	0	0.00	11
Total	**1883**	**71.95**	**734**	**28.05**	**2617**

Enrollment by target groups is shown in Table 3.15: pre-service, in-service, and a combination aforementioned two categories. The majority of pre-service trainees were recent high school graduates, whereas in-service trainees were those who enrolled in TVET programmes (mainly short courses) as part of re-skilling initiatives. The mixed group included both pre-service and in-service trainees, with BBP accounting for the majority of the mixed category enrollment. The pre-service group, which accounted for around 76.1% of total enrolment in TTIs and IZCs had the highest number of enrolments.

Table 3.15: Enrolment in TTIs and IZCs by target groups (2019-June 2021)

Year	Pre-service		In-service		Mixed		Total
	Freq.	%	Freq.	%	Freq.	%	
2008	533	96.4	0	0.0	20	3.6	553
2009	993	96.6	0	0.0	35	3.4	1028
2010	672	80.5	163	19.5	0	0.0	835
2011	623	82.2	135	17.8	0	0.0	758
2012	715	77.6	160	17.4	46	5.0	921
2013	655	67.4	199	20.5	118	12.1	972
2014	971	85.2	141	12.4	28	2.5	1140
2015	795	86.0	58	6.3	71	7.7	924
2016	865	83.9	117	11.3	49	4.8	1031
2017	892	58.1	483	31.5	160	10.4	1535
2018	1120	81.6	213	15.5	39	2.8	1372
2019	827	97.9	18	2.1	0	0.0	845
2020	563	54.0	31	3.0	449	43.0	1043
2021	188	25.8	0	0.0	541	74.2	729
Total	**10412**	**76.1**	**1718**	**12.6**	**1556**	**11.4**	**13686**

Note: In some other tables, the data shown is mostly for the reference period 2019-2020. However,
the enrolment data in above table for 2021 is included as it is available.

Enrolment in TTI and IZCs as a Share of Enrolment in Schools

The Global TVET group (IAG-TVET) proposed 'TVET enrollment as a percentage of school enrollment' as a significant indicator for measuring TVET access. It was calculated for this purpose by dividing the number of trainees enrolled in TTIs and IZCs by the total population enrolled in formal education at the same level (classes X and XII), then multiplying the result by 100.

Table 3.16 shows the percentage of students enrolled in TTIs and IZCs as a percentage of those enrolled in classes X and XII by year. Enrollment in TTIs and IZCs was 5.07 percent of total enrolment in classes X and XII (257,984) between 2008 and 2020.

The average annual enrolment in TTIs and IZCs was 5.07% of the school enrolment (Class X and XII).

Table 3.16: Share of enrolment in TTIs and IZCs as % of class X & XII enrolment

Year	Enrolment in TTIs and IZCs				Enrolment in Schools			% Of School Enrolment
	M	F	BBP	Total	Class X	Class XII	Class X+XII	
2008	371	182	0	553	7909	4731	12640	4.4
2009	833	195	0	1028	8757	5825	14582	7.1
2010	620	215	0	835	10293	5570	15863	5.3
2011	556	202	0	758	10390	7253	17643	4.3
2012	659	262	0	921	10578	7858	18436	5.0
2013	695	277	0	972	10765	8599	19364	5.0
2014	681	459	0	1140	11857	9279	21136	5.4
2015	604	320	0	924	11339	9736	21075	4.4
2016	717	314	0	1031	11993	10085	22078	4.7
2017	1222	313	0	1535	12058	10011	22069	7.0
2018	966	406	0	1372	12510	10601	23111	5.9
2019	611	234	0	845	12881	10921	23802	3.6
2020	454	140	449	1043	13183	13002	26185	4.0
Total	8989	3519	449	12957	144513	100469	257984	5.0
Avg.	691	271	35	997	11116	8729	19845	5.07

Gross Enrolment Ratio (GER) and Gender Parity Index (GPI)

In some countries, Gross Enrolment Ratio (GER) is used to measure participation in TVET programmes though it is dominantly used in formal academic education. GER generally is 'calculated by dividing the number of students enrolled in a given level of education regardless of age by the population of the age group, which officially corresponds to the given level of education, and then multiplying the result by 100' (http://uis.unesco.org/). GER was preferred over Net Enrolment Ratio (NER) because it allowed taking into account every person enrolled in TVET institutions regardless of their age. In NER, persons enrolled in that level of TVET programmes have to be of the official TVET age.

The GER was calculated by taking the number of students enrolled in TTIs and IZCs from 2015 to 2020. The official TVET age range was 17 to 20 years old. The age group (17-18) corresponds to class XI and XII participation (higher secondary education). However, because many young people enter TVET after class XII, the age group of 19-20 was also taken into account. Population Projection of Bhutan 2017-2047 NSB was used to generate the projected population of the age group (17-20 years). There were 27,137 males and 27,007 females in the 17–20-year age group, making a total of 54,144.

Table 3.17 displays the GERs of TTIs and IZCs for the reference period 2019-2020. For a period of two years, the combined GERs of TTIs and IZCs were (3.49%). In the previous two years, the average enrolment per institute was estimated to be 210 (153 males and 57 females). This resulted in an average GER per institute of 0.39 percent (2019-2020), with males having a GER of 0.6 percent and females having a GER of 0.21 percent. JWPTI-Dekiling had the highest GER (2019-2020) of 0.55 percent, while Thimphu TTI had the lowest. Thimphu TTI and Samthang TTI had the lowest female GER. JWPTI had the highest female GER (0.27 percent), excluding the GER of the Build Bhutan Project.

Table 3.17: Gross Enrolment Ratios of TTIs and IZCs (2019-2020)

TTI and IZC	Male		Female		Total	GER
	Freq.	GER	Freq.	GER	Freq.	
TTI-Chumey	61	0.22	52	0.19	113	0.21
JWPTI-Dekiling	227	0.84	73	0.27	300	0.55
NIZC-Thimphu	153	0.56	57	0.21	210	0.39
CZC-Trashiyangtse	110	0.41	47	0.17	157	0.29
TTI-Khuruthang	107	0.39	60	0.22	167	0.31
TTI-Rangjung	127	0.47	50	0.19	177	0.33
TTI-Thimphu	91	0.34	16	0.06	107	0.20
TTI-Samthang	189	0.70	19	0.07	208	0.38
BBP	309	1.14	140	0.52	449	0.83
Total (2 years)	**1374**	**5.06**	**514**	**1.90**	**1888**	3.49
Average	**153**	**0.6**	**57**	**0.21**	**210**	**0.39**

The annual GERs of TTIs and IZCs between 2015 and 2020 are summarized in Table 3.18. Enrollment in TTIs and IZCs has been fluctuating over the last five years. To normalize the fluctuation, a five-year average was used. The annual GER was 2.08 percent on average. The average GER for postsecondary education (2015-2020) was 74.6 percent.

In the case of higher secondary education, female GER (76.7 percent) was higher than male GER (72.4 percent). TTIs, IZCs, and higher secondary education had a combined annual GER of 76.7 percent on average. Because of the inclusion of over-aged and under-aged students, GER can sometimes exceed 100 percent. There may be some early or late entrants, as well as grade repetition.

Table 3.18: Gross Enrolment Ratios of TTIs and IZCS (2015-2020) and HS Education

Year	TTIs and IZCs						Higher Secondary (Class XI and XII)		
	Enrolment			GER			GER		
	M	F	T	M	F	T	M	F	T
2015	604	320	924	2.23	1.18	1.71	66.57	68.41	67.49
2016	717	314	1031	2.64	1.16	1.90	65.71	67.35	66.53
2017	1222	313	1535	4.50	1.16	2.84	68.9	69.71	69.31
2018	966	406	1372	3.56	1.50	2.53	69.7	72.9	71.33
2019	611	234	845	2.25	0.87	1.56	79.62	86.39	83.01
2020	763	280	1043	2.81	1.04	1.93	83.98	95.65	89.81
Total	4883	1867	6750	17.99	6.91	12.47	434.5	460.4	447.5
Average	814	311	1125	3	1	2.08	72.4	76.7	74.6

The GER is expected to be much higher if the enrolment of the private and other public TVET programmes are included.

The Gender Parity Index (GPI) compares men and women's access to education and training. In its most basic form, it is calculated by dividing female GER by male GER in a given stage of education and training at a given time. GPI equal to one denotes gender equality. GPI less than one indicates gender parity in favor of males, whereas GPI greater than one favors females.

According to Table 3.19, the GPI (averaged for six TTIs and two IZCs) for the period 2019-2020 was 0.41. (Less than 1). The GPIs of Chumey TTI (0.86), TTI Khuruthang (0.56), and CZC (0.43) were approaching one.

Table 3.19: Gender Parity Index of TTIs and IZCS (2019-2020)

TTI and IZC	Male GER	Female GER	GPI
TTI-Chumey	0.22	0.19	0.86
JWPTI-Dekiling	0.84	0.27	0.32
NIZC-Thimphu	0.56	0.21	0.37
CZC-Trashiyangtse	0.41	0.17	0.43
TTI-Khuruthang	0.39	0.22	0.56
TTI-Rangjung	0.47	0.19	0.40
TTI-Thimphu	0.34	0.06	0.18
TTI-Samthang	0.70	0.07	0.10
BBP	1.14	0.52	0.46
Average	0.56	0.21	0.41

Note: Low GPI in Auto sector is evident from the data which calls for attention on how to attract female to the automobile training.

As shown in Table 3.20, GPIs of TTIs and IZCs for the period 2015-2020 averaged at 0.40 annually. For the period 2015-2020, the GPI for higher secondary education (classes XI and XII) averaged 1.06 per year. According to the findings, Bhutan has achieved gender parity in higher secondary education, whereas MoLHR TVET has yet to improve its gender outcomes. The courses and TVET programmes in TVET system that are geared more towards men could be the probable reason for low gender parity in the MoLHR TVET system.

Table 3.20: Gender Parity Index of TTIs and IZCS (2015-2019) and HS education

Year	GPI of TTIs and IZCs	GPI (Higher Secondary Education)
2015	0.53	1.03
2016	0.44	1.02
2017	0.26	1.01
2018	0.42	1.05
2019	0.38	1.09

Year	GPI of TTIs and IZCs	GPI (Higher Secondary Education)
2020	0.37	1.14
Average	0.40	1.06

Entry Qualification and Enrolment in TTIs and IZCs

In TTIs and IZCs, class X is the official entry qualification (BCSE). Nonetheless, in recent years, people with a class XII (BHSEC) qualification have begun to enroll in TVET programs, despite an overall fall in the number of class X school-leavers doing so. Because of the small number of participants, undergraduates, monks, and others were eliminated. Enrolment in TTIs and IZCs is broken down by academic qualifications (classes X and XII) in Table 3.21 for the period 2019-April 2021.

The qualification statistics represent only 60% of the total enrolled in TTIs and IZCs between 2019 and April 2021. While rest are from other qualifications such as degree, monastic education and mostly unreported. The qualification details about the trainees enrolled in some institutes were not recorded. The results show that about 44% of trainees between 2019 and 2021 possessed class X qualification and more than 55% them were class XII graduates.

Table 3.21: Enrolment by Class X and XII qualifications (2019-June 2021)

TTI and IZC	Class X				Class XII				%	Total X & XII
	M	F	T	%	M	F	T	%		
BBP	77	127	204	36.8	94	256	350	63.2		554
JWPTI-Dekiling	105	95	200	46.4	172	59	231	53.6		431
TTI-Samthang	146	13	159	62.1	86	11	97	37.9		256
TTI-Khuruthang	56	26	82	38.3	82	50	132	61.7		214
NIZC-Thimphu	77	49	126	64.6	61	8	69	35.4		195
TTI-Rangjung	8	7	15	13.4	70	27	97	86.6		112
CZC-Trashiyangtse	19	9	28	30.4	54	10	64	69.6		92
TTI-Thimphu	22	4	26	55.3	16	5	21	44.7		47
TTI-Chumey	0	0	0	0	0	0	0	0		0
Total	510	330	840	44.2	635	426	1061	55.8		1901

Figure 3.4 depicts the enrolment trend in TTIs and IZCs in relation to enrollees' academic qualifications. Over the last five years, the demand for TVET programs has shifted to school-leavers with a class XII qualification. Enrolment of applicants with class X qualifications in TTIs and IZCs began to decline in 2017 as shown in the graph below. In 2019, the fall was rapid.

Enrollment of candidates with class XII academic qualifications, on the other hand, has gradually climbed since 2017 and reached to 55.59% in 2019. Enrollees with class X qualifications accounted for around 45.5 percent of total enrolment in 2020 whereas class XII certification accounted for 54.5 percent of enrollees in a given year. The government's decision to eliminate the class X cut-off point may be one of the reasons for the rise in enrolment of trainees with a class XII qualification.
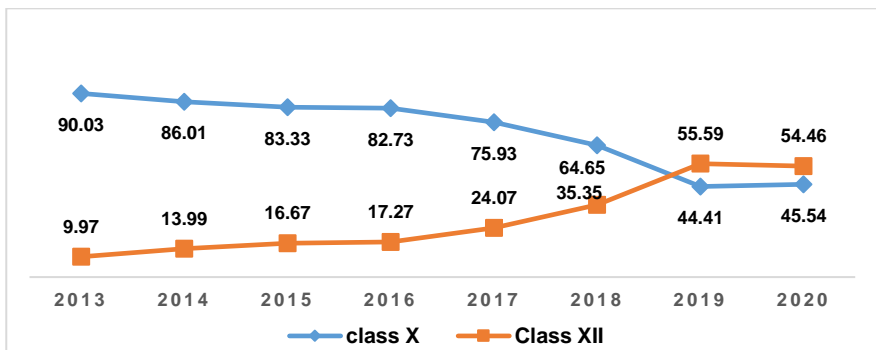
Figure 3.3: Enrolment by enrollees' qualifications (2013-2020)

Land Acreage of TTIs and IZCs

The land is a valuable resource for expanding and enhancing existing TTIs and IZCs. Some TTIs and IZCs have a competitive advantage over others in terms of growth and expansion, and as a result, TVET access. Chumey TTI, Samthang TTI, and JWPTI each have more than 20 acres of land, as stated in Table 3.22. Other institutes have reached the point where they can no longer expand or augment. Six TTIs and two IZCs own 102.3 acres of land in total.

Table 3.22: Land of TTIs and IZCs in acres

TTI and IZC	Quantity (in acre)
TTI-Chumey (TTI-C)	30.67
JWPTI-Dekiling	26.60
TTI-Samthang (TTI-S)	20.85
CZC – Tashi Yangtse	8.35
TTI – Rangjung (TTI-R)	8.20
TTI-Khuruthang (TTI-K)	4.45
TTI-Thimphu* (TTI-T)	2.00
NIZC-Thimphu	1.18
Total	**102.30**

Graduate Statistics of TTIs and IZCs

Table 3.23 shows the total number of TVET graduates from each TTI and IZC during the previous 10 years. Between 2011 and June 2021, 7398 people graduated from TTIs and IZCs out of which 4959 were male and 2439 were female. For three reasons, the enrolling and graduation figures will not match. For starters, some courses have enrolment and graduation in the same year due to variances in course duration. Other courses may take several years to complete. Second, dropouts and repetitions were not recorded in some TTIs and IZCs. Dropouts and repetition may have an impact on graduation rates. In the future, it is critical that every training provider keep accurate records of dropouts and repeaters. These indicators are important for determining the effectiveness of TVET.

Table 3.23: Total number of graduates from TTIs and IZCs (2011-2020)-10 year

TTI & IZC	Sex	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	T
TTI-C	M	26	70	46	51	56	67	61	77	22	42	40	**518**
	F	21	42	22	67	44	49	53	34	27	40	25	**399**
	T	47	112	68	118	100	116	114	111	49	82	65	**917**
TTI-K	M	72	67	73	113	86	67	105	90	45	34	49	**752**
	F	36	20	31	67	40	31	63	50	43	18	26	**399**
	T	108	87	104	180	126	98	168	140	88	52	75	**1151**

TTI & IZC	Sex	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	T
JWPTI	M	30	51	70	52	127	71	156	117	146	46	24	**866**
	F	31	36	48	49	78	46	95	52	57	20	3	**512**
	T	61	87	118	101	205	117	251	169	203	66	27	**1378**
TTI-R	M	53	87	51	88	67	72	85	64	79	55	40	**701**
	F	42	33	27	55	42	40	42	43	47	20	13	**391**
	T	95	120	78	143	109	112	127	107	126	75	53	**1092**
TTI-S	M	105	65	83	101	97	93	131	117	132	71	63	**995**
	F	10	8	3	14	11	13	16	13	19	17	4	**124**
	T	115	73	86	115	108	106	147	130	151	88	67	**1119**
TTI-T	M	17	19	13	25	16	24	28	34	45	35	51	**256**
	F	1	5	5	4	9	11	5	5	6	7	5	**58**
	T	18	24	18	29	25	35	33	39	51	42	56	**314**
NIZC	M	30	28	22	16	22	91	23	91	97	55	34	**475**
	F	12	5	19	20	25	27	43	34	44	2	38	**231**
	T	42	33	41	36	47	118	66	125	141	57	72	**706**
CZC	M	12	4	14	18	27	26	33	49	78	60	49	**321**
	F	9	19	25	32	42	35	28	31	69	12	0	**302**
	T	21	23	39	50	69	61	61	80	147	72	49	**623**
BBP	M	0	0	0	0	0	0	0	0	0	75	0	75
	F	0	0	0	0	0	0	0	0	0	23	0	23
	T	0	0	0	0	0	0	0	0	0	98	0	98
Total	M	345	391	372	464	498	511	622	639	644	473	350	4959
	F	162	168	180	308	291	252	345	262	312	159	114	2439
	T	**507**	**559**	**552**	**772**	**789**	**763**	**967**	**901**	**956**	**632**	**464**	**7398**

Note: T denotes Total, F-Female and M-Male

Figure 3.5 depicts the graduation trend over the previous ten years. From 2011 to 2019, the total number of male trainees graduated had showed an increasing trend. However, it has dropped from 644 in 2019 to 398 in 2020. Female graduation rates, on the other hand, have fluctuated between 2014 and 2019. Nonetheless, it has also decreased from 312 in 2019 to 136 in 2020.
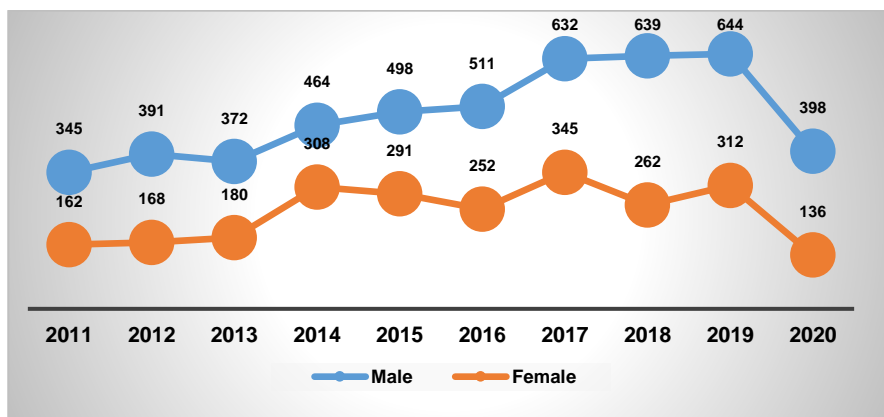
Figure 3.4: Graduates from 2011-2020

Non-Formal/Alternative TVET Programmes

The Village Skills Development Programmes (VSDP) and Special Skills Development Programme (SSDP) represent the non-formal or alternative TVET. Under the Royal Command, the VSDP and SSDP was introduced in 1984 and 1996 respectively.

The VSDP is aimed at community members, NFE students, school dropouts, and villagers. Depending on the training disciplines, the programs can last anywhere from a few weeks to six months. SSDP specifically targets the spouses of armed forces members, juveniles, monks, nuns, prisoners, disbanded gang members, and disabled people.

Table 3.24 shows the enrolment in the VSDP from 1997 to 2021. 63.6 percent of the 2789 people who had applied for the VSDP were men, and the rest were women. Electrical house wiring (26.7%), Tshemzo (tailoring) (16.1%), and home appliance repair were the most common training programs among males (14.2%). Females were reflected in greater numbers in historically female-dominated programs such as Tshemzo (tailoring), thagzo (weaving), Tshemdru (embroidery) and hair dressing.

Table 3.24: Enrolment in VSDP by training disciplines (1997-2021)

Training	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Electrical House Wiring	683	91.43	64	8.57	747	26.78
Tshemzo (Tailoring)	53	11.78	397	88.22	450	16.13
Home Appliance Repairing	244	61.62	152	38.38	396	14.20
Hair Dressing	117	48.75	123	51.25	240	8.61
Carpentry	165	97.63	4	2.37	169	6.06
Furniture Making	131	88.51	17	11.49	148	5.31
Plumbing	126	93.33	9	6.67	135	4.84
Entrepreneurship Development	37	41.57	52	58.43	89	3.19
Thagzo (Weaving)	2	2.33	84	97.67	86	3.08
Tshemdru (Embroidery)	11	18.97	47	81.03	58	2.08
Masonry	49	87.50	7	12.50	56	2.01
Rural Water Supply	44	91.67	4	8.33	48	1.72
Potato Cultivation and Management	3	9.68	28	90.32	31	1.11
Metal Works	25	100	0	0.0	25	0.90
Lhadri (Mural Painting)	18	85.71	3	14.29	21	0.75
Cabbage Cultivation and Management	13	65	7	35.0	20	0.72
Electric Stove Repair	13	86.67	2	13.33	15	0.54
Mud Wall Construction	15	100	0	0	15	0.54
Basket Weaving	10	100	0	0	10	0.36
Hair Cutting	5	50	5	50	10	0.36
Saloon	0	0	9	100	9	0.32
Construction	8	100	0	0	8	0.29
Solar Lighting	2	100	0	0	2	0.07
Bakery	0	0	1	100	1	0.04
Total	1774	63.61	1015	36.39	2789	100

Source: DTE, TPD, 2021

The demand for VSDP was determined by the availability of funding, the type of training provided and the number of training spots available. According to table 3.25, on average, 112 people were trained under VSDP every year, with males accounting for about 60.9% of the total.

Table 3.25: Enrolment in VSDP by sex and year

Year	Male		Female		Total
	Freq.	%	Freq.	%	
1997	146	97.33	4	2.67	150
1998	65	78.31	18	21.69	83
1999	46	100	0	0	46
2000	8	66.67	4	33.33	12
2001	95	96.94	3	3.06	98
2002	85	52.47	77	47.53	162
2003	51	35.42	93	64.58	144
2004	32	51.61	30	48.39	62
2005	63	72.41	24	27.59	87
2006	143	94.7	8	5.3	151
2007	213	78.31	59	21.69	272
2008	230	85.19	40	14.81	270
2009	44	88	6	12	50
2010	64	88.89	8	11.11	72
2011	21	50	21	50	42
2012	33	24.09	104	75.91	137
2013	60	49.59	61	50.41	121
2014	45	72.58	17	27.42	62
2015	87	36.71	150	63.29	237
2016	103	61.31	65	38.69	168
2017	96	61.94	59	38.06	155
2018	1	4.35	22	95.65	23
2019	15	37.5	25	62.5	40
2020	7	10.45	60	89.6	67
2021	21	26.92	57	73.1	78

Year	Male		Female		Total
	Freq.	%	Freq.	%	
Total	1774	66.04	1015	33.96	2789
Average	71	60.9	40.6	38.93	112

Source: TPD, DTE, 2021

Note: The data indicates VSDP is not given enough attention.

Figure 3.6 depicts the trend in VSDP enrollment from 1997 to March 2021. The figure shows that enrolment in VSDP has fluctuated between 1997 and 2021 for both males and females.
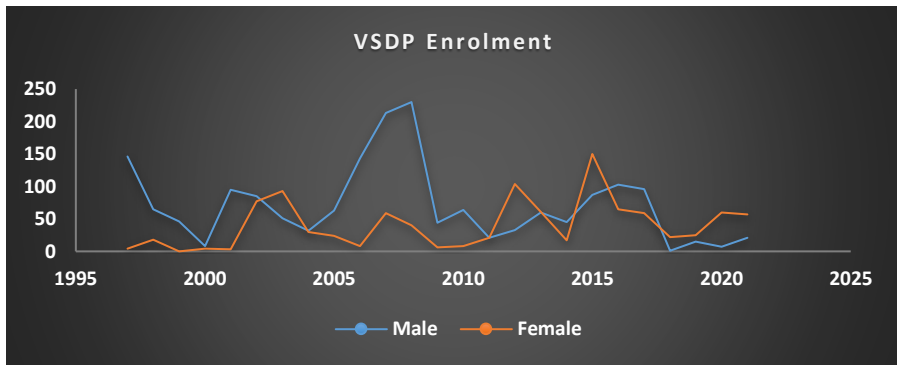
Figure 3.6: Enrolment in VSDP

According to table 3.26, VSDP enrollment was unevenly distributed across the twenty dzongkhags. Trashigang Dzongkhag had the highest VSDP enrolment (13.3%), while Paro Dzongkhag had the lowest (0.8%). In the future, the equitable distribution of VSDPs across 20 dzongkhags will have to be considered.

Table 3.26: Enrolment in VSDP by sex and Dzongkhag (1997-2021)

Dzongkhag	Male		Female		Total
	Freq.	%	Freq.	%	
Trashigang	239	64.4	132	35.6	371
Samtse	196	65.3	104	34.7	300
Zhemgang	123	45.9	145	54.1	268

Dzongkhag	Male		Female		Total
	Freq.	%	Freq.	%	
Trashigang	239	64.4	132	35.6	371
Pemagatshel	145	53.3	127	46.7	272
Trashiyangtse	137	82.0	30	18.0	167
Wangdue Phodrang	78	49.1	81	50.9	159
Sarpang	140	92.7	11	7.3	151
Dagana	123	86.6	19	13.4	142
Samdrup Jongkhar	46	37.1	78	62.9	124
Bumthang	56	38.4	90	61.6	146
Punakha	73	68.9	33	31.1	106
Lhuentse	51	50.5	50	49.5	101
Chhukha	72	74.2	25	25.8	97
Trongsa	73	66.4	37	33.6	110
Tsirang	65	86.7	10	13.3	75
Thimphu	49	68.1	23	31.9	72
Mongar	68	95.8	3	4.2	71
Haa	28	80.0	7	20.0	35
Gasa	11	78.6	3	21.4	14
Paro	1	12.5	7	87.5	8
Total	1774	63.6	1015	36.4	2789

Source: DTE and DOEHR, 2021

Table 3.27 shows the annual SSDP enrolment, broken down by gender. Males constituted 73.7 percent of SSDP trainees, while females constituted 26.3 percent. In some years, only male trainees represented SSDPs.

Between 1997 and 2020, 121 people received SSDP on average per year. The number of people enrolled in the same program has increased since 2009. Between 1997 and 2021, approximately 2966 people were trained through SSDP.

Table 3.27: Enrolment in SSDP by year and sex (1997-2020)

Year	Male		Female		Total
	Freq.	%	Freq.	%	
1997	23	100	0	0	23
1998	49	70	21	30	70
1999	29	100	0	0	29
2000	39	100	0	0	39
2001	15	100	0	0	15
2002	0	0	10	100	10
2003	61	100	0	0	61
2004	23	100	0	0	23
2005	35	79.55	9	20.45	44
2006	87	100	0	0	87
2007	36	100	0	0	36
2008	75	77.32	22	22.68	97
2009	335	68.23	156	31.77	491
2010	342	90.72	35	9.28	377
2011	101	100	0	0	101
2014	4	26.67	11	73.33	15
2015	121	59.02	84	40.98	205
2016	151	41.83	210	58.17	361
2017	85	26.81	232	73.19	317
2018	9	7.5	111	92.5	120
2019	28	12.2	201	87.8	229
2020	0	0	137	100	137
2021	58	73.42	21	26.58	79
Total	1706	64.42	1260	35.58	2966
Average	78	73.7	43	26.3	121

Source: DTE, TPD, 2021

Figure 3.7 depicts SSDP enrollment by year and gender from 1997 to March 20, 2021. The figure shows that male SSDP enrollment fluctuated between 1997 and 2008, peaking in 2009 and 2010. It does, however, demonstrate the fluctuating trend from 2011 to 2021. Similarly, female SSDP enrolment fluctuated from 1997 to 2008, peaking in 2017.
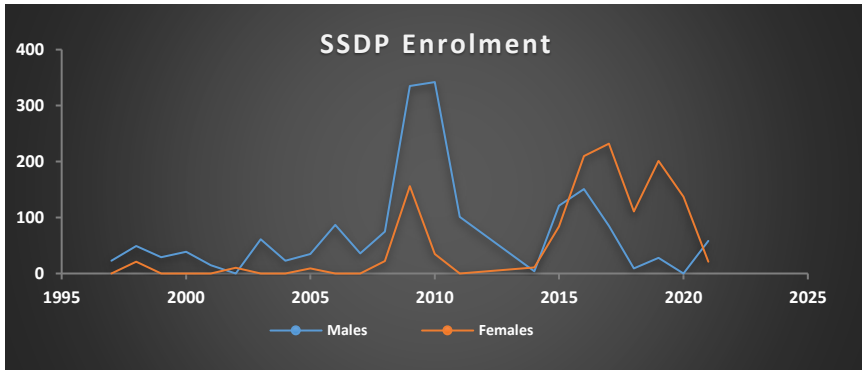
Figure 3.7: Enrolment in SSDP

Twenty-five trades were covered under SSDP. Tshemzo (tailoring) and lhadri (painting) were the most popular courses. Together, 2966 persons had availed SSDP. As Table 3.28 reports, courses like saloon, cooking, bakery, weaving, beautician and electrical home appliances repairing had more female participation than their male counterparts. See table below for details.

Table 3.28: SSDP enrolment by course and sex (1997-2021)

Training	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Tshemzo (Tailoring)	526	52.0	486	48.0	1012	34.12
Lhadri (Mural Painting)	565	90.8	57	9.2	622	20.97
(Home Project) Tailoring/Cooking/Baking/ Home Appliance Repair & Saloon	5	1.8	269	98.2	274	9.24
Home Appliance Repairing	109	51.9	101	48.1	210	7.08
Saloon	20	20.8	76	79.2	96	3.24
Cooking	6	6.5	87	93.5	93	3.14
Bakery	5	5.4	87	94.6	92	3.10
House Wiring	89	100	0	0	89	3.00
Carpentry	86	100	0	0	86	2.90
Zorig Chusum	61	100	0	0	61	2.06

Training	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Furniture Making	48	100	0	0	48	1.62
Plumbing	43	100	0	0	43	1.45
Basic Computer Course	20	48.8	21	51.2	41	1.38
Hair Cutting	33	100	0	0	33	1.11
Masonry	30	100	0	0	30	1.01
Hair Dressing	2	7.7	24	92.3	26	0.88
Beautician	0	0.0	23	100	23	0.78
Thagzo (Weaving)	1	5.0	19	95	20	0.67
Advanced Computer Operation Course	19	100	0	0	19	0.64
Electrical Home Appliances	6	37.5	10	62.5	16	0.54
Light Vehicle Driving	11	100	0	0	11	0.37
Jimzo (Sculpture)	6	100	0	0	6	0.20
Welding and Fabrication	6	100	0	0	6	0.20
Photography	4	100	0	0	4	0.13
Computer Hardware Repair	3	100	0	0	3	0.10
Videography	2	100	0	0	2	0.07
Total	**1706**	**57.5**	**1260**	**42.48**	**2966**	**100**

Source: DTE, TPD, 2021

SSDPs targets specific groups in addition to members of the armed forces, their spouses, and members of the monastic community. As shown in table 3.29, the SSDPs have so far covered disabled people, though only 1.48% of the total. Juvenile delinquents made up about 5.02% of the total. Monks made up the majority of the target groups (42.1%). A significant number of trainees have not reported their occupations. This necessitates proper occupation reporting in the future.

Table 3.29: SSDP target groups (1997-2021)

Groups	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Monk	1249	100	0	0	1249	42.11

Groups	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Occupation Not Specified	114	19.5	471	80.5	585	19.72
Nun	0	0	275	100	275	9.27
Royal Bhutan Army (RBA)	135	71.1	55	28.9	190	6.41
Juvenile	141	94.6	8	5.4	149	5.02
RBA Spouses	0	0	243	100	243	8.19
Disabled persons	17	38.6	27	61.4	44	1.48
RBA, Royal Body Guard (RBG) & RBP	39	100	0	0	39	1.31
RBG Spouses	0	0	38	100	38	1.28
RBP Spouses	0	0	71	100	71	2.39
Royal Bhutan Police (RBP)	11	13.3	72	86.7	83	2.80
Total	1706	437.06	1260	662.9	2966	100

Source: DTE, TPD, 2021

SSDPs were provided in more than 47 training locations up until 2021. Table 3.30 shows that several training programmes were held in monasteries and nunneries to meet the training needs of the monastic community. Other training was provided on RBP, RBA and RBG bases.

Table 3.30: Training locations of SSDP (1997-2021)

No	Location	Female	Male	Total
1	Dechenphodrang Shedra	21	213	234
2	Sarpang	141	19	160
3	Tencholing	0	159	159
4	Dunkhar Lhuentse	0	134	134
5	YDRC Tsimasham	8	133	141
6	Pemagatshel Dratshang	0	98	98
7	Zhemgang Dratshang	0	95	95
8	Tharpaling Dratshang Bumthang	0	93	93
9	Tang Babsur Bumthang	91	0	91

No	Location	Female	Male	Total
10	Tsirang Rabdey	0	79	79
11	Chhukha Rabdey	0	75	75
12	Thimphu	164	5	169
13	Trashigang	50	21	71
14	Samdrupjongkhar	63	41	104
15	Dewathang	94	6	100
16	Wang Sisina	65	0	65
17	HOPE Project (Location no specified)	55	6	61
18	Wangdue Rabdey	0	60	60
19	Haa	57	1	58
20	Daga Trashiyangtse Rabdey	0	52	52
21	Trashigang Rabdey	0	51	51
22	Samtse Namgaycholing Dratshang	0	48	48
23	Gasa Rabdey	0	46	46
24	Dramitse Gomdey Mongar	0	42	42
25	Chhukha	8	29	37
26	Khardung Nunnery	35	0	35
27	Trashiyangtse	0	33	33
28	Samtse	63	2	65
29	Damthang Haa	51	0	51
30	Sipsu Samtse	30	0	30
31	Dagana	0	27	27
32	Palden Tashichholing Shedra	0	27	27
33	Wangduephodrang	69	1	70
34	Serbithang	8	16	24
35	Kungarabten Nunnery	22	0	22
36	Dobji Dratshang	0	20	20
37	Draktsho	19	1	20
38	Trashigang	10	10	20
39	Mongar	1	15	16

No	Location	Female	Male	Total
40	Gelephu	73	9	82
41	Wangdi/Punakha/Talo	0	11	11
42	Trongsa	0	6	6
43	RBP Phuntsoling	20	0	20
44	Pedtseling Jangchubpelri Dratsang	0	22	22
45	Mongar Yakphugang Nunnery	21	0	21
46	Tashiphu Nunnery Serzhong	20	0	20
47	Punakha	1	0	1
	Bhutan	**1260**	**1706**	**2966**

Source: DTE, TPD, 2021

School-To-Work Transition (STWT) Support Services

Through a Public-Private Partnership, the ministry of labour and human resources (MoLHR) offers a number of school-to-work transition programmes (STWTPs). STWTPs are non-formal TVET programs aimed at two main groups: (1) people who have not yet entered the labor force and are actively looking for work, and (2) people who have entered the labor force and are actively looking for work.

STWTPs seek to increase the employability of young job seekers by providing on-the-job learning opportunities and skilling support. Simply put, STWTPs are intended to resolve the issue of ability misalignment. The majority of MoLHR's STWTPs were performed by registered TPs. The details of STWTPs are presented in table 3.31.

Table 3.31: Details of STWTPs

SLN	Program		Internship or skilling	Approx. per head cost	Modality
1	Youth Engagement and Livelihood Program (YELP)		Engagement	Nu. 5,000	YELP is a school-to-work transition program which will provide job seekers with opportunity to enhance their skills and gain work experience.
2	Critical Skills Training (CST)	High Equipment	Skilling	Nu. 90,000	Critical skills are geared towards skilling young jobseekers entering the labour market and will seek to address skills shortage within different sectors.
		Medium Equipment		Nu. 72,000	
		Low Equipment		Nu. 49,500	
3	Entrepreneurship Training Programme (Advance and Basic level)		Skilling	Nu. 28,000	Provided to any individual interested to acquire entrepreneurship or business development skills for self-employment or setting up their small businesses

Majority of STWTPs, including 'Youth Employment Skills, Graduate Skills Programme, Skills for Employment and Entrepreneur Development, Apprenticeship Training Programme, Pre-employment Engagement Programme, University Graduate Internship Programme, and Direct Employment Scheme,' have ended after 2019. Table 3.32 reports the summary of STWTPs conducted between 2019 and 2020.

Table 3.32: Distribution of STWTs participants by sex (2019-2020)

STWTP	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Critical Skills Training (CST)	406	36.3	711	63.7	1117	57.3
Seoul City Scholarship	1	50	1	50	2	0.1
Youth Engagement and Livelihood Program (YELP)	179	47.5	198	52.5	377	19.3
Entrepreneurship Training Programme (Basic)	224	49.2	231	50.8	455	23.3
Total	810	41.5	1141	58.5	1951	100

As summarized in Table 3.33, 4647 individuals had availed STWTPs between 2014-2020. The number of people enrolled in STWTPs fluctuated, with an average annual enrolment of 775 people. The disparity between men and women was not so huge.

Table 3.33: STWTPs participants by sex and year (2014-2020)

Year	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
2014	186	39.8	281	60.2	467	10.0
2015	195	38.8	308	61.2	503	10.8
2016	319	44.1	404	55.9	723	15.6
2017	297	75.6	96	24.4	393	8.5
2018	295	48.4	315	51.6	610	13.1
2019-2020	810	41.5	1141	58.5	1951	42.0
Total	2102	45.2	2545	54.8	4647	100
Average	350	48	424	52	775	

Source: DoEHR, MoLHR, 2021

STWTPs covered about 27 different training areas for CST and ETP. The field of Entrepreneurship course had the highest percentage of trainees (28.9%), as well as higher female presence. Other training areas with higher involvement included courses in 'food production' (7.8%), 'Culinary Arts and Baking' (6.4%), 'ICT and online freelancing' (6.4%) and 'Tailoring' (5.7%) as shown in Table 3.34.

Table 3.34: STWTs by sex and skills area (2019-2020)-CST & ETP

Skill Area	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Machey Handloom Weaving	0	0	8	100	8	0.5
Animation NC 2	17	56.7	13	43.3	30	1.9
Baker and Confectionery baker NC 2	16	53.3	14	46.7	30	1.9
Bhutanese Food Production NC 2	17	56.7	13	43.3	30	1.9
Basic Entrepreneurship Course	224	49.2	231	50.8	455	28.9
Chocolatier	15	60	10	40	25	1.6
Culinary Arts and Baking	24	24	76	76	100	6.4
Dairy Product Development	19	76	6	24	25	1.6
Domestic Helper	0	0	14	100	14	0.9
Early childhood and care development	3	4.3	67	95.7	70	4.4
Farm Machinery Training	22	84.6	4	15.4	26	1.7
Fashion Design NC 3	6	20	24	80	30	1.9
Food and Beverage NC 2	6	20	24	80	30	1.9
Food and Fruit Processing	12	40	18	60	30	1.9
Food Production Associate	15	50	15	50	30	1.9
Food Production	63	51.6	59	48.4	122	7.8
Front Office Associate	17	29.3	41	70.7	58	3.7
Hair and Beauty Therapy	3	6	47	94	50	3.2
House appliance and repair technician	52	74.3	18	25.7	70	4.4
House Keeping	0	0	30	100	30	1.9

Skill Area	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
ICT and Online Freelancing	43	43	57	57	100	6.4
Massage, Spa and Wellness	6	11.1	48	88.9	54	3.4
Mobile Phone repair Technician	26	86.7	4	13.3	30	1.9
Photography and Design	14	70	6	30	20	1.3
Tailoring	10	11.1	80	88.9	90	5.7
Waste Management	0	0	15	100	15	1
Web Programming	1	50	1	50	2	0.1
Total	631	40	943	60	1574	100

Source: DoEHR, MoLHR, 2021

Table 3.35 displays the YELP participants by sector for the 2019-2020 reference period. Under YELP, the sector 'Construction' had the most participants (35.3 percent), followed by 'Cottage and Small Industries' (28.9 percent), 'Agriculture (RNR)' (17.8 percent), 'Tourism' (13%), and so on. There were no single participants in the 'Mining' and 'Hydropower & Power System sector.'

Table 3.35: Yelp participants by sex and sector (2019-2020)

Sectors	No. placed in 2019-20			
	Male	Female	Total	%
Construction	82	51	133	35.3
Agriculture (RNR)	37	30	67	17.8
Tourism	16	33	49	13.0
Mining	0	0	0	0
Cottage and Small Industries	36	73	109	28.9
Hydropower & Power System	0	0	0	0
IT & IT enabled Services	5	3	8	2.1
Medium and Large Industries	3	8	11	2.9
Trading	0	0	0	0
Total	179	198	377	100

Source: DoEHR, MoLHR, 2021

The participants with class XII had the highest participation in the aforementioned STWTPs with 53.2 % followed by class X with 25% and University degree with 9.4%. There were about 8.6% of participants with the TTIs/Diploma/IZCs background. The academic qualification record was not maintained for 'Entrepreneurship Training Programme' since the programme is open to all the participants. Nonetheless, a proper record about qualification of the participants can be maintained in the future.

Table 3.36: CST & YELP participants by qualification and sex (2019-2020)

Qualification	No. placed in 2019-20-CST & YELP			
	Male	Female	Total	%
University Degree	78	63	141	9.4
Class XII	272	523	795	53.2
Class X	152	221	373	25.0
TTI/Diploma/IZC's	64	64	128	8.6
Below Class X	12	12	24	1.6
Class VIII	3	5	8	0.5
Class VI	1	1	2	0.1
Illiterate	3	19	22	1.5
Others	0	1	1	0.1
Total	585	909	1494	100

Source: DoEHR, MoLHR, 2021

The STWTP collaborators for CST are listed in Table 3.37. Until now, the majority of TPs were private institutes registered with DOS. The record about the YELP and ETP collaborators were not properly classified.

Table 3.37: CST Collaborators (2019-2020)

Collaborators	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Agriculture Machinery Centre, Paro	9	2.2	3	0.4	12	1.1
Agriculture Machinery Centre, Khangma	1	0.3	0	0.0	1	0.1

Collaborators	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Agriculture Machinery Centre, Sarpang	12	3.0	1	0.1	13	1.2
Athang Training Academy	26	6.4	64	9.0	90	8.1
Bhutan Institute for Training Development	3	0.7	27	3.8	30	2.7
Bhutan Institute of Tourism and Hospitality	31	7.7	79	11.1	110	9.9
Bhutan International school of Hospitality and Tourism	15	3.7	15	2.1	30	2.7
CMI Gelephu	18	4.4	22	3.1	40	3.6
Dorji International Training Institute	14	3.5	75	10.5	89	8.0
Druk Institute of Management and Technology	41	10.1	34	4.8	75	6.7
Faculty of Traditional Medicine	6	1.5	19	2.7	25	2.2
Fashion Institute of Technology	6	1.5	54	7.6	60	5.4
Kunjung Institute	8	2,0	12	1.7	20	1.8
Lekdrup Skills Development Institute	71	17.5	69	9.7	140	12.5
NLD Training Institute	56	13.8	79	11.1	135	12.1
Norbu International Wellness Institute	2	0.5	28	3.9	30	2.7
RENEW	0	0.0	37	5.2	37	3.3
Rigsum Institute of Technical Education and Management	22	5.4	18	2.5	40	3.6
Royal Institute for Tourism and Management	48	11.8	44	6.2	92	8.2
USD institute for Professional Development	8	2.0	12	1.7	20	1.8
Yarab Institute for Hospitality Management	9	2.2	19	2.7	28	2.5
Total	406	100	711	100	1117	100

Source: DoEHR, MoLHR, 2021

Bhutanese Overseas Employment (BOE) Programmes

In the near future, as in neighboring countries, the level of managing TVET is likely to be influenced by demand for Bhutanese Overseas Workers (BOWs). The Bhutanese Overseas Programme (BOE) is known for helping to alleviate the country's rising youth unemployment crisis. Nonetheless, there is no data to indicate whether BOWs' skills are in demand in other countries. To evaluate the overseas job opportunities for TVET graduates, no foreign market survey or skills recognition were conducted. Table 3.38 presents statistics of BOEs for the period 2019-2020. More females BOWS (54.49%) were recorded compared to the male counterparts (45.5%).

Table 3.38: Bhutan Overseas Workers (BOWs) by sex (2019-2020)

Year	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
2019	736	87.51	846	84.01	1582	85.61
2020	105	12.49	161	15.99	266	14.39
Total	841	45.5	1007	54.49	1848	100

Source: DoEHR, 2021

Table 3.39 indicates that majority of BOWs are working in Kuwait and UAE followed by Bahrain, Qatar, Japan, Thailand, and Singapore.

Table 3.39: BOWs by sex and country (2019-2020)

Country	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Kuwait	600	71.34	693	68.82	1293	69.97
Japan	13	1.55	18	1.79	31	1.68
UAE	100	11.89	192	19.07	292	15.80
Qatar	30	3.57	36	3.57	66	3.57
Thailand	12	1.43	13	1.29	25	1.35
Singapore	2	0.24	1	0.10	3	0.16
Bahrain	84	9.99	54	5.36	138	7.47
Total	841	100	1007	100	1848	100

Source: DoEHR, 2021

Although occupations of BOWs are not properly classified (especially those marked as 'study and work'), the majority of them are engaged in 'sales and 'Cashier' services. The details are given in Table 3.40. Not many of them are working in technical areas. This calls for exploring the overseas market for technical graduates as a strategy to enhance demand for TVET.

Table 3.40: BOWs by occupation (2019-2020)

SL. N0	Occupation	Male	Female	Total
1	Cashier	153	253	406
2	Sales	225	218	443
3	Waiter/waitress	67	145	212
4	Guest Experts	113	102	215
5	Cook	55	0	55
6	Barista	32	20	52
7	Store Associate	13	37	50
8	Crew Member	8	32	40
9	Counter Staff	10	29	39
10	House Keeping	3	33	36
11	Back of House	18	16	34
12	Service Crew	16	16	32
13	Study and Work	14	18	32
14	line cook	25	1	26
15	Teacher	12	13	25
16	Team member	8	15	23
17	Commis/junior chef	18	4	22
18	Warehouse	15	0	15
19	Hostess	0	14	14
20	Receptionist	3	7	10
21	Server	1	9	10
22	F&B	3	7	10
23	Runner	5	0	5
24	Kitchen Helper	4	1	5

SL. N0	Occupation	Male	Female	Total
25	Pastry Maker Helper	0	4	4
26	Service Attendant	1	2	3
27	Data entry operator	1	1	2
28	Room Attendant	2	0	2
29	Administrative Assistant	2	0	2
30	Office boy	2	0	2
31	Bell Attendant	1	0	1
32	Stocker	1	0	1
33	Price Taggers	0	1	1
34	Laundry Attendant	0	1	1
35	Crepe maker	1	0	1
36	Executive Secretary	0	1	1
37	Not specified	11	5	16
	Total	843	1005	1848

Source: DoEHR, 2021

According to Table 3.41, the vast majority of BOWs hold a class XII certificate (71.8 percent). However, there are no BOWs from technical graduate and master level qualification. Nevertheless, many of them are likely to be TTI and IZC graduates working in trades unrelated to their training qualifications.

Table 3.41: BOWs by Qualification (2019-2020)

Qualification	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Class XII	633	75.3	693	68.8	1326	71.8
General Graduate	1	0.1	1	0.1	2	0.1
Class X	81	9.6	137	13.6	218	11.8
Technical Graduate	0	0.0	0	0.0	0	0.0
Degree	104	12.4	152	15.1	256	13.9
Diploma	1	0.1	0	0.0	1	0.1

Qualification	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Post-Graduate Diploma	0	0.0	1	0.1	1	0.1
Others	21	2.5	23	2.3	44	2.4
PhD	0	0.0	0	0.0	0	0.0
Total	841	100	1007	100	1848	100

Source: DoEHR, MoLHR, 2021

Chapter Four

TVET Quality Indicators

The TVET Quality Indicators assess training providers' ability to prepare trainees for the workplace. The IAG-TVET (2008) proposed some areas pertaining to TVET quality. These areas are teaching quality, availability of resources, and the competence of TVET instructors and graduates. The ability of TPs to provide the best possible teaching-learning environment can also have an impact on TVET quality. Above all, the systematic approach to quality assurance (2008) must be present. Some of these dimensions are difficult to quantify. They may need to be supported by qualitative assessments.

TVET performance indicators are usually associated with assessment, accreditation, certification, and rankings. These indicators can be used to compare how training providers perform in comparison to external standards.

This section emphasizes on the structure and outputs of QAS. It reports the statistics on registered trainers, assessors, accreditors and national certification. It also includes simple profiling of training staff and statistics of other programmes relevant for improving TVET quality. Furthermore, the preliminary results of the graduates' assessments of training institutes drawn from the Tracer Survey are reported. The data on training tools, equipment and machines were collected but owing to the vast numbers and time needed to assort them, no statistics were produced. Separate inquiries into the quality and quantity of training tools, equipment and machines are necessary.

TVET Quality and Relevance Initiatives

Since the early 2000s, various initiatives have been launched to improve TVET quality and relevance. Table 4.1 summarizes some of the most important initiatives and reforms. Because some years could not be determined at the time of finalizing this report, these initiatives/reforms are not presented in chronological order.

Table 4.1: Initiatives/reforms undertaken since 2000 to improve TVET Quality

SLN	Initiatives/Reforms
1	VET policy was drafted (2005)
2	Developed Guidelines for Accreditation of Training Courses (2010)
3	Introduced Competency Based Training (CBT) (2010)
4	Developed Regulation and the Registration Regulation for Training Providers (2010)
5	Developed Bhutan Qualification Framework (BQF) (2012)
6	Developed Bhutan Vocational Qualifications Framework (BVQF) (2010)
7	TVET Policy revised (2014)
8	National Qualifications levels were set (National Certificate level I to III and National Diploma level I & II) through BVQF.
9	Regulations for National Assessment and Certification System for TVET in Bhutan, 2015
10	Schedules for National Assessment and Certification System for TVET in Bhutan, 2015
11	Developed National Assessment and Certification system
12	Implemented Recognition of Prior Learning (RPL)
13	Developed Quality Assurance Framework (2010)
14	Developed Quality Management Manuals for TVET Providers (2012)
15	Curriculum Development, Training of Trainers (ToT) and CBT
16	Quality Management System (QMS) implemented in the TTIs/IZCs to improve internal efficiency of TPs (2012 – till date)
17	Qualifications up-gradation of trainers were carried out with the objective to improve the quality of training delivery in TTIs and IZCs
18	Introduced entrepreneurship courses in TTIs and IZCs
19	Introduced green skills programme in TTIs and IZCs
20	Initiated reform in delivering alternate mode of training
21	Decentralized trainee recruitment process to TTIs and IZCs.
22	Strengthened and expanded the alternative modes of TVET delivery through ATP, Skills
23	Training Programme (STP) and SSDP) in 9th FYP
24	Rebranding of STPs through 'Get skilled for work and life' slogan in the 11th FYP
25	Youth Employment Skills (YES), Graduate Skills Programme (GSP) and Skills for Employment and Entrepreneurship Development (SEED) were introduced
26	External participation framework developed and incorporated in the Establishment Regulation to encourage foreign direct investment in TVET delivery

SLN	Initiatives/Reforms
27	A separate guideline for establishment of Nursing Institute developed in partnership with Bhutan Medical and Health Council (BMDC) and launched in 2012
28	Instituted TVET Advisory Body and Industry Liaison and Publicity Units (ILPU)
29	Industries participated in various activities like development of National Competency
30	Standards (NCS), curriculum, assessment, On-the-Job-Training (OJT), accreditation and auditing of QMS
31	Constituted Technical Advisory Committees in 11 sectors to validate NCS
32	Trained industry skilled supervisors to guide and monitor trainees while on OJT in industries
33	Initiated on–campus recruitment by inviting employers to institutes
34	Introduced the Regulation for Registration of Training Providers-2010
35	Developed Guidelines for Accreditation of Course (2011)
36	Developed Guidelines for Training of Trainers (Technical Instruction & Pedagogy (2018)
37	Identified Zorig Day and celebrated at national level since 2002
38	Introduced TVET Convocation in 2012
39	Branding of TVET using the slogans 'Be Somebody!' and 'One–One–Zero'
40	Career counselling of TVET initiated at secondary level school and communities in 2011
41	Introduced TVET Innovation competition in 2014
42	Initiated TVET Winter Camp in 2015
43	Approval of Youth Engagement for Livelihood Programmes (2018-2019)
44	Approval of National Service Program (2018-2019)
45	Approval of Employment Responsibility System (2018-2019)
46	Approval of CSI and Startup Flagship Programmes (2018-2019)
47	Initiated development of TVET database (On-going)
48	Initiated registration of employer and employees of private and corporate sectors (2018-2019)
49	Conducted review and amendment of the Regulation on Training Provider (2018-2019)
50	Developed Framework and Guideline for the implementation of Dual Training Programme (2018-2019)
51	Introduced gender-inclusive courses (2018-2019)
52	Published the first-ever Multi-Cohort Online TVET Tracer
53	TVET MIS launched

SLN	Initiatives/Reforms
54	Published TVET Statistics 2020
55	Green TVET course introduced (RAC & VAC)
56	TVET Reform Initiative was drafted
57	Build Bhutan Project was introduced, 2020
58	Dual Training Program (DTP) in construction sector introduced
59	Institute master plan completed (ADB Consultant)
60	Developed Quality Management Manuals for Private TVET Providers (2018)
61	Skills Competition (National level) 2005
62	Quality excellence award (2011)
63	Introduced and strengthened Registration of Courses (2019)
64	Training of QMS internal and external auditors, Accreditors and Assessors (2005 – till date)
65	Published the Second issue of TVET Statistics 2021

Curriculum development is critical to improving TVET quality. In recent years, progress has been made toward a Competency-Based Curriculum (CBT). Curriculum development is overseen by the TVET Professional Service Division (TPSD) and the Department of Education (DOE). CBT is based on the National Competency Standard (NCS). The details of CBT in TTIs and IZCs at various levels are detailed below in table 4.2.

Table 4.2: CBT curriculum in TTIs & IZCs (2021)

SLN	Course	Level
1	Automobile	NCII & NC III
2	Auto Painting	NC II
3	Panel Beating	NC II
4	Auto Electrician	NC II
5	Heavy Vehicle Driving	NC II
6	Heavy Earth Moving Operator	NC II & NC III
7	Electrical	NC II & NC III
8	Mechanical Welding	NC II & NC III
9	Mechanical Fitting	NC II

SLN	Course	Level
10	Carpentry	NC II & NC III
11	Masonry	NC II & NC III
12	Refrigerator and Air Conditioning	NC II
13	Plumbing	NC II & NC III
14	Trezo (Gold and Silver Smith)	NC II & NC III
15	Jimzo (Sculpture)	NC II, NC III & ND
16	Panting	NC II & NC III
17	Patra (Wood Carving)	NC II & NC III
18	Thagzo (Weaving)	NC II
19	Shazo (Wood Turning)	NC II
20	Tsemzo (Tailoring)	NC II & NC III
21	Tshemdru (Embroidery)	NC II & NC III
22	Lhadri	NC II & NC III
23	Hydro Power Mechanical	NC II
24	Hydropower Transmission and Distribution Linemen	NC II
25	Wooden Furniture Making	NC II & NC III
26	DTP Masonry	NC II
27	DTP Carpentry	NC II
28	DTP Furniture	NC II
29	Domestic Wiring	NC II
30	Industrial Wiring	NC III
31	Automobile Mechanic	NC II
32	Computer Hardware and Networking	NC II
33	Transformer Maintenance	Short course
34	UG cable laying and trenching	Short course
Build Bhutan Project		
35	Construction Carpentry	NC II
36	Masonry	NC II
37	Welding	NC II
38	Plumbing	NC II

SLN	Course	Level
39	Excavator Operator	NC II
40	Building Painting	NC II

Registration of Training Providers (TPs)

The 'Regulation for Registration of Training Provider-2010' mandates every TP to register with DOS. The purpose of registration is to place TPs under one regulatory framework. The registration is done after a TP meets the quality management standards. TPs are placed in grade A, B or C depending on the fulfilment of QMS criteria according to which TPs have to meet minimum infrastructure, training and equipment and qualified trainers. The details of registered TPs were given in chapter III.

Course Accreditation

The QAS is implemented through the accreditation of TVET courses. It denotes the approval of TVET courses that have met the standards developed by experts in the field. Table 4.3 shows that, as of June 2021, TTIs and IZCs had 68 accredited courses in total. JWPTI had the highest number of 15 accredited courses (22.06%) out of 68 accredited courses in 2021.

Table 4.3: Registered Public TTIs & IZCs by accredited courses (as of March 2021)

SLN	Training Provider/Institute	Number	%
1	Jigme Wangchuck Power Training Institute-Dekiling	15	22.06
2	College of Zorig Chusum (CZC)	14	20.59
3	National Institute of Zorig Chusum	12	17.65
4	Technical Training Institute-Chumey	7	10.29
5	Technical Training Institute-Samthang	6	8.82
6	Technical Training Institute-Rangjung	6	8.82
7	Technical Training Institute-Thimphu	4	5.88
8	Technical Training Institute-Khuruthang	4	5.88
	Total	68	100

According to Table 4.4, the courses in Automobile (4), carpentry (4), Masonry (4) Wooden furniture making (4) and plumbing (4) received the highest accreditation. As of 2021, 68 courses in 35 occupations were accredited.

Table 4.4: Accredited courses by trade in TTIs & IZCs (2021)

SLN	Course	Frequency	%
1	Jimzo (Sculpture)	5	7.35
2	Wooden Furniture Making	4	5.88
3	Carpentry	4	5.88
4	Masonry	4	5.88
5	Plumbing	4	5.88
6	Welding	4	5.88
7	Automobile	4	5.88
8	Trezo (Gold & Silver Smith)	4	5.88
9	Patra (Wood Carving)	4	5.88
10	Tsemzo (Tailoring)	4	5.88
11	Tshemdru (Embroidery)	4	5.88
12	Painting	2	2.94
13	Electrical	2	2.94
14	Mechanical Fitting	2	2.94
15	Heavy Earth Moving Operator	2	2.94
16	Lhadri (Mural Painting)	2	2.94
17	Auto Painting	1	1.47
18	Panel Beating	1	1.47
19	Auto Electrician	1	1.47
20	Heavy Vehicle Driving	1	1.47
21	Domestic Wiring	1	1.47
22	Industrial Wiring	1	1.47
23	Automobile Mechanic	1	1.47
24	Computer Hardware and Networking	1	1.47
25	Shazo (Wood Turning)	1	1.47

SLN	Course	Frequency	%
26	Hydro Power Transmission and Distribution Line men	1	1.47
27	DTP Masonry	1	1.47
28	DTP Carpentry	1	1.47
29	DTP Furniture	1	1.47
	Total	**68**	100

Registered Trainers, Accreditors and Trainers

For consistent delivery of quality TVET, a pool of technical trainers, accreditors, and assessors is required. They must be qualified in their trade. They must have sufficient knowledge and skills in training, accreditation, and assessment methodologies. The primary responsibility of a TVET trainer is to ensure that learners develop trade competencies. The trainer can act as a trainer, assessor, accreditor, and curriculum developer.

The 'Regulation for Registration of Training Provider-2010' section 18: "Registration of Trainer" requires a trainer to be registered and certified in order to deliver TVET training. TOT in Technical Instruction and Pedagogy is another important criterion. The registered trainers of TTIs and IZCs by trade are shown in Table 4.5. As of 2021, 17 of the 165 registered trainers were specialized in the field of electrical, 16 each in the field of Automobile and Mechanical, 12 in Lhadri, 10 in the civil engineering and so on.

Table 4.5: Number of registered trainers in TTIs & IZCs by trade (2021)

SLN	Trade	Male	Female	Total	%
1	Electrical	13	9	22	13.10
2	Mechanical	13	7	20	11.90
3	Automobile	12	5	17	10.12
4	Lhadri	11	1	12	7.14
5	Masonry	7	3	10	5.95
6	Tsemzo (Tailoring)	2	7	9	5.36

SLN	Trade	Male	Female	Total	%
7	Carpentry	5	2	7	4.17
8	Plumbing	4	3	7	4.17
9	ICT	7	0	7	4.17
10	English	3	4	7	4.17
11	Math's	1	5	6	3.57
12	Patra (Wood Carving)	6	0	6	3.57
13	Teaching Instruction	5	1	6	3.57
14	Jimzo (Sculpture)	5	0	5	2.98
15	Dzongkha	3	1	4	2.38
16	Trezo (Gold Silver Smith)	4	0	4	2.38
17	Auto Electrical	2	1	3	1.79
18	Tshemdru (Embroidery)	0	2	2	1.19
19	Heavy Vehicle Driving	2	0	2	1.19
20	Computer Hardware	1	1	2	1.19
21	Chazo (Metal Works)	2	0	2	1.19
22	Shazo (Wood Turning)	2	0	2	1.19
23	Furniture making	0	1	1	0.60
24	Auto Painting	1	0	1	0.60
25	Heavy Earth Mover	1	0	1	0.60
27	Welding	1	0	1	0.60
28	HEMO	1	0	1	0.60
29	Industrial production	1	0	1	0.60
	Grand Total	**115**	**53**	**168**	100

The registration and accreditation of trainers, assessors, and accreditors are ongoing processes. DOS is responsible for training course assessors and accreditors. Registered trainers frequently serve as assessors and accreditors. Table 4.6 lists the registered accreditors by trade and level. By 2021, the majority of the 81 accreditors were at the level B. (103). There was only one accreditor in level C and none in level A. 91 accreditor were men, while 23 were women.

In descending order, the majority of accreditors specialized in computer application assistant, mechanical, automobile, commercial accountant, hotel management and tailoring.

Table 4.6: Number of registered accreditors by trade (2021)

SLN	Trade	level B	Level C	Licensed Accreditor	Total
	Male	83	0	8	91
	Female	20	1	2	23
1	Computer Application Assistant	12	0	0	12
2	Mechanical	7	0	2	9
3	Automobile	8	0	0	8
4	Commercial Accountant	8	0	0	8
5	Hotel Management	7	0	0	7
6	Electrical	6	0	1	7
7	Lhadri (Mural Painting)	6	0	0	6
8	Tshemzo (Tailoring)	5	0	1	6
9	Computer Hardware Technician	4	0	1	5
10	Jimzo (Sculpture)	5	0	0	5
11	Driving (LV & HV)	5	0	0	5
12	Civil Construction	3	0	1	4
13	Front Desk	4	0	0	4
14	Traditional Folk Dancer	3	0	0	3
15	Beautician	3	0	0	3
16	Cooking	1	0	2	3
17	Cultural Tourist Guide	3	0	0	3
18	Driving (HV)	2	0	0	2
19	Driving (LV)	2	0	0	2
20	Food and Beverage	2	0	0	2
21	Traditional Musician	1	0	1	2
22	Baking	1	0	0	1
23	Cable Technician	1	0	0	1
24	Furniture Making	0	0	1	1

SLN	Trade	level B	Level C	Licensed Accreditor	Total
25	House Keeping	0	1	0	1
26	Patra (Wood Carving)	1	0	0	1
27	Tourism	1	0	0	1
28	Tshemdru (Embroidery)	1	0	0	1
29	Welding	1	0	0	1
	Total	103	1	10	114

Source: TVET-MIS, DOS, MoLHR, 2021

National Assessment is carried out by registered assessors. A registered assessor is qualified to carry out internal and external assessments for specific qualifications and/or part qualifications. According to Table 4.7, the majority of the 367 registered assessors in 2021 belonged to level C and were predominantly male. By 2021, the DOS had registered over 430 assessors. About 80% of the assessors were men, while 20% were women. The civil construction trade had the greatest number of assessors.

Table 4.7: Number of registered assessors by trade (as of March 2021)

Trade	Level A	Level B	Level C	Licensed Assessor	Total
Male	19	27	290	6	342 79.5%
Female	2	6	77	3	88 20.4%
Civil Construction	1	4	64	1	70
Electrical	3	9	48	0	60
Computer Application Assistant	2	3	35	0	40
Driving (LV & HV)	4	3	34	1	42
Automobile	3	4	34	0	41
Automobile Electrician	0	0	1	0	1
Commercial Accountant	0	2	30	0	32
Tourism	4	3	20	2	29
Mechanical	0	2	21	0	23
Hotel Management	0	0	19	0	19
Computer Hardware Technician	1	0	10	0	11

Trade	Level A	Level B	Level C	Licensed Assessor	Total
Tshemzo (Tailoring)	3	0	7	0	10
Driving (HV)	0	0	5	1	6
Food & Beverage	0	1	5	0	6
Transmission and Distribution lineman	0	0	4	1	5
Welding	0	0	6	0	6
Lhadri (Mural Painting)	0	0	4	0	4
Cooking	0	0	3	0	3
Cultural Tourist Guide	0	1	2	1	4
Driving (LV)	0	1	2	0	3
Furniture Making	0	0	2	1	3
Jimzo (Sculpture)	0	0	3	0	3
Traditional Musician	0	0	2	0	2
Baking	0	0	1	0	1
House Keeping	0	0	0	1	1
Mask Dancer	0	0	1	0	1
Patra (Wood Carving)	0	0	1	0	1
Traditional Folk Dancer	0	0	1	0	1
Trezo (Gold & Silversmith)	0	0	1	0	1
Tshemdru (Embroidery)	0	0	1	0	1
Total	**21**	**33**	**367**	**9**	**430**

Source: TVET-QAMIS, DOS, MoLHR, 2021

National Certificates

The certificates are awarded in two ways: Institute-based and through Recognition of Prior Learning (RPL). NC II received the highest award out of 1599 national certifications awarded between 2019 and June 2021. It accounted for approximately 74% (1189) of total certifications, including 1.25% (20) of RPL in NC II and 5.38% (86) of RPL in BBP NC II.

NC III received the second highest certification (401, 25.1%) including 0.81% (13) of RPL in NC III. The lowest national certification was awarded at ND level with 0.56%. Table 4.8 lists the certifications in detail.

Table 4.8: Number of graduates by National Certification (2019-2021)

Year	NC II	NC III	ND	RPL NC II	RPL NC III	RPL BBP NC II	Total
2019	374	112	0	17	0	0	503
2020	369	169	9	3	13	86	649
2021	340	107	0	0	0	0	447
Total	**1083**	**388**	**9**	**20**	**13**	**86**	**1599**
%	**67.73**	**24.27**	**0.56**	**1.25**	**0.81**	**5.38**	**100**

Source: DOS, MoLHR, 2021

By gender, 67.07% (780) of males were awarded various national certifications compared to 32.93% of females. Males dominated in all other certifications except in RPL-NC II (Table 4.9).

Table 4.9: National Certifications by sex (2019- 2021)

Level	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
NC II	768	70.91	315	29.09	1083	67.73
NC III	256	65.98	132	34.02	388	24.27
RPL BBP-NCII	70	81.40	16	18.60	86	5.38
RPL-NC II	4	20.00	16	80.00	20	1.25
RPL-NC III	8	61.54	5	38.46	13	0.81
ND	9	100.00	0	0.00	9	0.56
Total	**1115**	**69.73**	**484**	**30.27**	**1599**	**100**

Source: DOS, MoLHR, 2021

As reported in Table 4.10, out of 29 trades, the highest numbers of certifications were awarded to the trades of the Automobile Mechanic (18.64%), Electrician (13.26%) and Masonry (9.76%). In the field Build Bhutan Project, the highest certification was done in Masonry and Plumbing with 29 numbers each.

Tailoring, Plumbing and Tshemdru were the top three national certifications with more female representation. Female participation was relatively low in courses such as heavy vehicle driving, Automobile Electrician, Patra, Trezo, and so on. This emphasizes the importance of increasing female participation in hard skills in order to make TVET more gender-inclusive. More females must be recruited into male-dominated training programs and careers, and vice versa.

Table 4.10: National Certifications by course and sex (2019-2021)

SN	Course	Male		Female		Total	
		Freq.	%	Freq.	%	Freq.	%
1	Automobile Mechanic	246	82.6	52	17.4	298	18.6
2	Electrician	153	72.2	59	27.8	212	13.3
3	Masonry	91	58.3	65	41.7	156	9.8
4	Tsemzo (Tailoring)	30	21.4	110	78.6	140	8.8
5	Shingtsen (Traditional House Painting)	91	97.8	2	2.2	93	5.8
6	Plumbing	32	36.4	56	63.6	88	5.5
7	Furniture Making	60	89.6	7	10.4	67	4.2
8	Tshemdru (Embroidery)	4	8.0	46	92.0	50	3.1
9	Heavy Vehicle Driving	46	100	0	0.0	46	2.9
10	Carpentry	32	74.4	11	25.6	43	2.7
11	Patra (Wood Carving)	42	100	0	0.0	42	2.6
12	Transmission and Distribution Linemen	28	70.0	12	30.0	40	2.5
13	Heavy Earth Mover	23	67.6	11	32.4	34	2.1
14	Mechanical Fitter	27	79.4	7	20.6	34	2.1
15	Jimzo (Sculpture)	31	96.9	1	3.1	32	2.0
16	Lhadri (Mural Painting)	25	92.6	2	7.4	27	1.7
17	Automobile Electrician	20	90.9	2	9.1	22	1.4
18	Welder	8	38.1	13	61.9	21	1.3
19	Construction Carpentry	13	72.2	5	27.8	18	1.1
20	Trezo (Gold & Silver Smith)	11	100	0	0.0	11	0.7
21	Computer Hardware and Networking	5	45.5	6	54.5	11	0.7
22	Auto Denter	11	100	0	0.0	11	0.7

SN	Course	Male		Female		Total	
		Freq.	%	Freq.	%	Freq.	%
23	Refrigeration and Air Conditioning	9	100	0	0.0	9	0.6
24	Auto Painting	7	87.5	1	12.5	8	0.5
25	Masonry (BBP)	25	86.2	4	13.8	29	1.8
26	Plumbing (BBP)	21	72.4	8	27.6	29	1.8
27	Excavator Operator (BBP)	10	100	0	0.0	10	0.6
28	Construction Carpentry (BBP)	10	100	0	0.0	10	0.6
29	Welding (BBP)	4	50.0	4	50.0	8	0.5
	Total	**1115**	69.7	**484**	30.3	**1599**	100

Source: DOS, MoLHR, 2021

298 NC certifications were awarded to courses on Automobile Mechanic (NC II, NC III) out of 1599 certifications being the highest. Aside from Automobile Mechanic course, tailoring courses received the highest certification. There were only 119 RPL certifications awarded in between 2019 and 2021 out of which 86 were the BBP participants. Table 4.11 contains the specifics.

Table 4.11: National Certifications by course and level (2019-2021)

SN	Course	Institute-Based			RPL		
		NC II	NC III	ND	NC II	NC III	Total
1	Automobile Mechanic	198	100	_	_	_	298
2	Electrician	154	58	_	_	_	212
3	Masonry	115	41	_	_	_	156
4	Tsemzo (Tailoring)	89	21	_	17	13	140
5	Shingtsen (Traditional House Painting)	90	_	_	3	_	93
6	Plumbing	59	29	_	_	_	88
7	Furniture Making	38	29	_	_	_	67
8	Tshemdru (Embroidery)	19	31	_	_	_	50
9	Heavy Vehicle Driving	46	_	_	_	_	46
10	Carpentry	20	23	_	_	_	43

SN	Course	Institute-Based			RPL		
		NC II	NC III	ND	NC II	NC III	Total
11	Patra (Wood Carving)	38	4	_	_	_	42
12	Transmission and Distribution Linemen	40	_	_	_	_	40
13	Mechanical Fitter	34	_	_		_	34
14	Heavy Earth Mover	23	11	_	_	_	34
15	Jimzo (Sculpture)	12	11	9	_	_	32
16	Lhadri (Mural Painting)	_	27	_	_	_	27
17	Automobile Electrician	22	_	_	_	_	22
18	Welder	21	_	_		_	21
19	Construction Carpentry	18	_	_		_	18
20	Trezo (Gold & Silversmith)	8	3	_	_	_	11
21	Computer Hardware and Networking	11	_	_		_	11
22	Auto Denting	11	_	_		_	11
23	Refrigeration and Air Conditioning	9	_	_		_	9
24	Auto Painting	8	_	_		_	8
Build Bhutan Project (BBP)							
25	Masonry (BBP)	_	_	_	29	_	29
26	Plumbing (BBP)	_	_	_	29	_	29
27	Construction Carpentry (BBP)	_	_	_	10	_	10
28	Excavator Operator (BBP)	_	_	_	10	_	10
29	Welding (BBP)	_	_	_	8	_	8
	Total	1083	388	9	106	13	1599

Source: DOS, MoLHR, 2021

The introduction of occupational standards was one of the significant developments in Bhutan's TVET. It promotes the development of high-quality training programs and curricula to meet a range of competency levels. Individual trainees' occupational competency is defined as their ability to perform trade-related tasks.

According to Table 4.12, 1599 trainees are awarded as competent while approximately 91 were graded as incompetent.

Table 4.12: National Certifications by competency level (2019-April 2021)

Course	Competent			Not Yet Competent		
	M	F	Total	M	F	Total
Automobile Mechanic	246	52	298	19	3	22
Electrician	153	59	212	18	14	32
Masonry	91	65	156	0	0	0
Tsemzo (Tailoring)	30	110	140	4	2	6
Shingtsen (Wood Painting)	91	2	93	3	0	3
Plumbing	32	56	88	0	1	1
Furniture Making	60	7	67	0	0	0
Tshemdru (Embroidery)	4	46	50	0	3	3
Heavy Vehicle Driving	46	0	46	2	0	2
Carpentry	32	11	43	1	0	1
Patra (Wood Carving)	42	0	42	0	0	0
Transmission and Distribution Linemen	28	12	40	0	0	0
Heavy Earth Mover	23	11	34	0	0	0
Mechanical Fitter	27	7	34	0	0	0
Jimzo (Sculpture)	31	1	32	5	0	5
Lhadri (Mural Painting)	25	2	27	1	0	1
Automobile Electrician	20	2	22	0	0	0
Welder	8	13	21	0	0	0
Construction Carpentry	13	5	18	0	0	0
Trezo (Gold & Silver Smith)	11	0	11	3	0	3
Computer Hardware and Networking	5	6	11	0	0	0
Auto Denting	11	0	11	0	0	0
Refrigeration and Air Conditioning	9	0	9	0	0	0
Auto Painting	7	1	8	0	0	0
Masonry (BBP)	25	4	29	4	7	11
Plumbing (BBP)	21	8	29	0	0	0

Course	Competent			Not Yet Competent		
	M	F	Total	M	F	Total
Construction Carpentry (BBP)	10	0	10	1	0	1
Excavator Operator (BBP)	10	0	10	0	0	0
Welding (BBP)	4	4	8	0	0	0
Total	1115	484	1599	61	30	91

Source: DOS, MoLHR, 2021

The occupations with the highest number of national certifications completed between 2019 and 2021 were classified as ISCED-F-2013 occupations: 0716-Motor vehicles, ships and aircraft (27.39%), followed by 0732-Building and Civil Engineering (21.58%) and 0713-Electricity and Energy (20.39%) as shown in Table 4.13.

Table 4.13: National Certifications by occupations classified under ISCED-F-2013

SLN	ISCED-F-2013	Graduates	Percent
1	0716 Motor vehicles, ships and aircraft	438	27.39
2	0732 Building and civil engineering	345	21.58
3	0713 Electricity and energy	326	20.39
4	0214 Handicrafts	228	14.26
5	0723 Textiles (clothes, footwear and leather)	140	8.76
6	0722 Materials (glass, paper, plastic and wood)	95	5.94
7	0213 Fine arts	27	1.69
	Total	**1599**	**100**

Source: DOS, MoLHR, 2021

Statistics on TVET Teaching Personnel

In the context of globalization and sustainable development, advances in ICT, and rapid technological change, the role of TVET trainers must be redefined. Human capital, also known as knowledge asset, is the most valuable asset of any TVET institution. The effort to revitalize TVET in Bhutan must be accompanied by a concerted effort to produce high-quality trainers. Their professional standards must be raised through ongoing skill-upgrading programs. Although Teacher Training Colleges prepare teachers for general education, whereas TVET lacks a dedicated teacher training institute/college.

As a result, the majority of TVET trainers are either fresh recruits from TTIs/IZCs or have university degrees. The Ministry of Labour and Human Resources had trained some trainers outside of the country. The majority of trainers were educated through its pedagogy-focused TOT programs. In general, professionalization of TVET trainers remains a problem in terms of both quality and quantity. Some information about the teaching staff in TTIs and IZCs was gathered. This information may be useful in developing various capacity-building programs for trainers.

TVET Personnel of TTIs and IZCs

The emphasis was placed on gathering detailed information on teaching personnel. Such data could reveal information about the quality and quantity of TVET personnel. These data were used to profile TVET personnel, resulting in statistics on the number of trainers, their employment type, and their qualifications. As of June 2021, the highest number of trainers were reported by JWPTI and NIZC Thimphu. Thimphu TTI reported the lowest number of trainers (14).

Table 4.14: Number of TVET trainers in TTIs and IZCs by sex (2021)

TTI and IZC	Male	Female	Total	%
JWPTI-Dekiling	22	5	27	16.1
NIZC-Thimphu	20	4	24	14.3
TTI-Khuruthang	7	15	22	13.1
TTI-Samthang	13	7	20	11.9

TTI and IZC	Male	Female	Total	%
CZC-Trashiyangtse	16	7	23	13.7
TTI-Rangjung	14	4	18	10.7
TTI-Chumey	12	8	20	11.9
TTI-Thimphu	10	4	14	8.3
Total	114	54	168	100

Table 4.15 shows the sex-disaggregated frequency and percentage of TVET trainers by employment type in 2021. Regular/permanent, contract, and volunteer and hired expert are the three types of employment. Most TVET trainers in TTIs and IZCs were regular staff. Over 68% of the 163 regular staff members were male, indicating the need for more female trainers to promote gender equity. It is assumed that having more female trainers as role models will help attract more female TVET aspirants.

Table 4.15: Trainers in TTIs and IZCs by employment status (2021)

Type	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Regular	111	68.10	52	31.9	163	91.57
Contract	4	80.00	1	20	5	2.81
Volunteer	2	66.67	1	33.33	3	1.69
Hired Expert	7	100.00	0	0	7	3.93
Total	124	69.66	54	30.34	178	100

The statistics on designation and level of TVET personnel in TTIs and IZCs are presented in Table 4.16. As shown in the table below, there were 168 TVET trainers/teachers in six TTIs and two IZCs. Female trainers were under-represented at senior levels. The highest number of trainers were instructors in SS4 (35) followed by assistant instructors II in S2 level.

Certain designations are repeated in the table below due to the variation in the RCSC's categories such as S (supervisory) and SS (Supervisory and Support) at different levels (1, 2, 3, etc.).

Table 4.16: TVET trainers by designation and occupation (2021)

Designation	Male		Female		Total	Level
	N	%	N	%	N	%
Principal I	4	67.0	2	33.0	6	P1
Vice Principal I	4	100.0	0	0.0	4	P2
Sr. lecturer	2	100.0	0	0.0	2	P1
Specialist III	2	100.0	0	0.0	2	ES3
Vice Principal II	1	100.0	0	0.0	1	P2
Instructor	25	71.0	10	29.0	35	SS4
Assistant Instructor II	15	58.0	8	42.0	23	S2
Assistant Instructor	8	50.0	8	50.0	16	S2
Sr. instructor I	15	93.0	1	7.0	16	SS3
Assistant Instructor I	12	92.0	1	8.0	13	S1
Assistant Lecturer II	5	42.0	7	58.0	12	P5
Assistant Instructor	4	44.0	5	56.0	9	S1
Assistant Lecturer	4	44.0	3	56.0	7	P4
Instructor	4	67.0	2	33.0	6	SS3
Assistant Lecturer I	3	60.0	2	40.0	5	P4
Assistant Lecturer	2	40.0	3	60.0	5	P5
Instructor	4	100.0	0	0.0	4	S2
Assistant Instructor II	0	0.0	2	100.0	2	S1
Sr. Instructor II	1	50.0	1	50.0	2	SS4
Lecturer	1	100.0	0	0.0	1	P1
Sr. instructor	1	100.0	0	0.0	1	P3
Assistant Lecturer I	1	100.0	0	0.0	1	P3
Associate lecturer	1	100.0	0	0.0	1	P3
Assistant Lecturer II	1	100.0	0	0.0	1	P4
Assistant Instructor	1	100.0	0	0.0	1	P4
Instructor	1	100.0	0	0.0	1	S1
Assistant Instructor I	1	100.0	0	0.0	1	S2
Jr. Instructor II	1	100.0	0	0.0	1	S2
Assistant Instructor	1	100.0	0	0.0	1	S3
Jr. Instructor IV	1	100.0	0	0.0	1	S4
Total	**126**	**69.6**	**55**	**30.4**	**181**	

Table 4.17 highlights the course of male and female trainers as of June 2021. Electrical was the most common specialization among them (10.3%). In descending order, the next highest number of trainers were specialized in Automobile and Mechanical (9.7% each), Lhadri (7.27%), civil engineering (6.06%), Tshemzo (5.45%), and so on.

Table 4.17: TVET trainers in TTIs and IZCs by trade and sex (2021)

SLN	Trade	Male	Female	Total	%
1	Electrical	13	9	22	13.10
2	Mechanical	13	7	20	11.90
3	Automobile	12	5	17	10.12
4	Lhadri	11	1	12	7.14
5	Masonry	7	3	10	5.95
6	Tsemzo (Tailoring)	2	7	9	5.36
7	Carpentry	5	2	7	4.17
8	Plumbing	4	3	7	4.17
9	ICT	7	0	7	4.17
10	English	3	4	7	4.17
11	Math's	1	5	6	3.57
12	Patra (Wood Carving)	6	0	6	3.57
13	Teaching Instruction	5	1	6	3.57
14	Jimzo (Sculpture)	5	0	5	2.98
15	Dzongkha	3	1	4	2.38
16	Trezo (Gold Silver Smith)	4	0	4	2.38
17	Auto Electrical	2	1	3	1.79
18	Tshemdru (Embroidery)	0	2	2	1.19
19	Heavy Vehicle Driving	2	0	2	1.19
20	Computer Hardware	1	1	2	1.19
21	Chazo (Metal Works)	2	0	2	1.19
22	Shazo (Wood Turning)	2	0	2	1.19
23	Furniture making	0	1	1	0.60
24	Auto Painting	1	0	1	0.60
25	Heavy Earth Mover	1	0	1	0.60

SLN	Trade	Male	Female	Total	%
27	Welding	1	0	1	0.60
28	HEMO	1	0	1	0.60
29	Industrial production	1	0	1	0.60
	Grand Total	115	53	168	100

According to the BVQF, TVET trainers must have one qualification higher than the level they teach. Table 4.18 shows the academic qualification profile of TVET trainers in 2021. Their academic credentials ranged from certificates to master's degrees. The majority (72.02%) had diplomas, which is the standard requirement for teaching at the NC level, and 23.21% had bachelor's degrees.

Table 4.18: TVET trainers in TTIs and IZCs by academic qualification (2021)

Qualifications	Male	Female	Total	Percent
Diploma	87	34	121	72.02
Bachelor	22	17	39	23.21
Certificate	5	2	7	4.17
Master	1	0	1	0.60
Total	115	53	168	100

Furthermore, Table 4.19 depicts the distribution of TVET trainers in TTIs and IZCs based on academic qualifications. Each institute has an average of 21 trainers. The highest number of TVET trainers with a bachelor's degree was reported by JWPTI and Khuruthang TTI. Thimphu NIZC and Yangtse CZC have the most diploma-educated trainers.

Table 4.19: Qualification of TVET trainers in TTIs and IZCs (2021)

TTI and IZC	Bachelor	Certificate	Diploma	Master	Total	%
JWPTI	8	0	19	0	27	16.1
NIZC	1	1	22	0	24	14.3
TTI-K	8	2	12	0	22	13.1
TTI-S	4	1	14	1	20	11.9

TTI and IZC	Bachelor	Certificate	Diploma	Master	Total	%
CZC	3	0	20	0	23	13.7
TTI-R	4	0	14	0	18	10.7
TTI-C	7	0	13	0	20	11.9
TTI-T	4	3	7	0	14	8.3
Total	**39**	**7**	**121**	**1**	**168**	**100**
Average	4.9	0.9	15.1	0.1	21.0	12.5

TOT remains one key strategy to ensure that instructors have mastered required competencies in TVET delivery. TOT, as defined in the 'TVET Trainers Pathways,' is a customized capacity development program. Its goal is to help trainers improve their skills and competencies in instruction and pedagogy.

Table 4.20 shows that by 2021, approximately 77% of TTI and IZC instructors had completed the first level TOT. More than 22% of existing TVET trainers are not TOT certified Trainer. Of total 168 Trainers, 6 trainers were recorded to be undergoing the ToT as of 2021. Because of trainer turnover, TOT coverage will never be 100%. (Leaving and joining).

Table 4.20: Status of TOT certification (2021)

TTI and IZC	Certified Trainer	% Certified Trainer	Not Certified Trainer	% Not Certified Trainer	On-going	% Of Ongoing	Total
JWPTI	17	62.96	3	11.11	7	25.93	27
NIZC	23	95.83	1	4.17	0	0.00	24
TTI-K	17	77.27	0	0.00	5	22.73	22
TTI-S	19	95.00	0	0.00	1	5.00	20
CZC-T	20	86.96	2	8.70	1	4.35	23
TTI-R	14	77.78	4	22.22	0	0.00	18
TTI-C	14	70.00	4	20.00	2	10.00	20
TTI-T	11	78.57	3	21.43	0	0.00	14
Total	**135**	**80.36**	**17**	**10.12**	**16**	**9.52**	**168**

Table 4.21 presents trainers in TTIs and IZCs by age groups in 2021. The largest age cohort was 36-45 years (48.21%) followed by the age cohort of 26-30 years (29.17%).

Table 4.21: TVET trainers in TTIs and IZCs by age group (2021)

Age Range	Frequency	Percent
22-25	6	3.57
26-30	49	29.17
31-35	21	12.50
36-40	50	29.76
41-45	31	18.45
46-50	5	2.98
51-55	3	1.79
56-60	2	1.19
Unspecified	1	0.60
Total	**168**	**100.00**

The longer the trainer is in service, the more experience he or she is likely to gain in pedagogy, knowledge, and skills. By 2021, 7.74% of TTI and IZC trainers had been working as trainers for less than a year. Approximately 25% had worked as trainers for 10 to 15 years (Table 4.22).

Table 4.22: Trainers in TTIs and IZCs by number of years in the profession (2021)

Years in Service	Frequency	Percent
Less than 1 Year	13	7.74
1 to 3 Years	48	28.57
More than 3 to 5 Years	10	5.95
More than 5 to 10 Years	22	13.10
More than 10 to 15 Years	43	25.60
More than 15 to 20 Years	24	14.29
More than 25 to 30 Years	8	4.76
Total	**168**	**100**

As per the RCSC's HRD Guideline (Chapter 9), Long-Term Training (LTT) includes training availed for more than 180 days and Short-Term Training (STT) takes less than 180 days. STT includes inspection visits/procurement visits, seminar, workshop, conference, symposium, forum, meeting, study tour, etc. The attempt was made to categorize training into LTT and STT. STT were further grouped into those that took less than 5 days and between 5 and 180 days.

Table 4.23 shows the training statistics of TTI and IZC teaching and non-teaching staff from 2019 to 2021. Out of 142 training sessions, approximately 67.6% were STT (5-180 days) and 25.4% were STT lasting less than five days. Yangtse CZC and Khuruthang TTI employees had received the most training on average. The staff at JWPTI, Samthang TTI and Rangjung TTI had received the least amount of training. The greatest training recorded for CZC Tashi Yangtse is due to the fact that the data includes a record of trainings, meetings, and workshops attended by the institute's personnel, but the data for the other institutes just contains a record of trainings attended by the staff.

Table 4.23: Trainings availed by all staff of TTIs and IZCs (2019-2021)

TTIs and IZCs	Long-term		Short-term		Short-term (< =5 days		Total	
	N	%	N	%	N	%	N	%
CZC- Tashi Yangtse	0	0	50	58.8	35	41.2	85	59.9
TTI- Khuruthang	0	47.6	21	52.4	0	0	21	14.8
TTI- Samthang	0	0	5	100	0	0	5	3.52
TTI- Thimphu	0	0	7	100	0	0	7	4.93
TTI- Rangjung	0	0	4	80	1	20	5	3.52
NIZC- Thimphu	0	0	10	100	0	0	10	7.04
TTI- Chumey	0	0	6	100	0	0	6	4.23
JWPTI- Dekiling	0	0	3	100	0	0	3	2.11
Total	0	7.04	96	67.6	36	25.4	142	100

The majority of in-service training was obtained within the country (131). Ex-country training was attended in 6 countries, as shown in Table 4.24. India and Korea had the second-highest number of training requests (3) followed by Malaysia (2).

Table 4.24: TVET Trainers Training by destination country (2019-2021)

Country	CZC	KTTI	STTI	TTTI	RTTI	NIZC	CTTI	JWPTI	Total
Bhutan	84	20	1	4	5	8	6	3	131
Singapore	1	0	0	0	0	0	0	0	1
Malaysia	0	1	1	0	0	0	0	0	2
India	0	0	2	1	0	0	0	0	3
Korea	0	0	1	1	0	1	0	0	3
China	0	0	0	1	0	0	0	0	1
Philippines	0	0	0	0	0	1	0	0	1
Total	85	21	5	7	5	10	6	3	142

Overseas volunteers from Korea, Thailand, Germany and Australia assisted with training delivery in TTIs and IZCs in 2019 and 2021. Their participation addressed the scarcity of TVET trainers. Table 4.25 shows the details of volunteers from 2019 to 2021. Because of the pandemic, there was only 10 overseas volunteers in TTIs and IZCs as of 2021. The TTIs and IZCs like JWPTI, Rangjung, CZC- Tashi Yangtse did not have any overseas volunteers from 2019 to 2021.

Table 4.25: Overseas volunteers in TTIs and IZCs (2019-2021)

TTI and IZC	Sex	Field of Expertise	Employee Type	Country	Duration	
					B	E
TTI-Khuruthang	M	Electrical	Volunteer	Korea	2020	2021
TTI -Samthang	M	Auto-electrician	TICA Expert	Thailand	2018	2019
TTI- Thimphu	M	Refrigerator and Air Conditioning	Volunteer	Thailand	2020	2021
NIZC- Thimphu	F	Students Counselling	Volunteer	Australia	2018	2019

TTI and IZC	Sex	Field of Expertise	Employee Type	Country	Duration	
					B	E
TTI-Chumey	M	Tile Laying	KOICA Expert	Korea	2021	2021
TTI-Chumey	M	Welding	KOICA Expert	Korea	2021	2021
TTI-Chumey	M	Specialized in design concept & digital model architecture.	Hired Expert	Thailand	2020	2021
TTI-Khuruthang	M	Metal	Hired Expert	Germany	2021	2021
TTI- Chumey	M	Carpentry	Hired Expert	Germany	2021	2021
TTI- Chumey	M	Bricklaying, Masonry	Hired Expert	Germany	2021	2021

Note B-Beginning, E-End*

Other Programmes Relevant for Improving TVET Quality

The UNESCO-UNEVOC has recognized the critical need to promote innovation in TVET. Entrepreneurship and green technology are two other areas of importance in TVET. The effective integration of TVET with ICT may turn out to be critical for TVET. Some information about ICT training, green initiatives, entrepreneurship programs, and innovative practices was gathered. The changing economy and labour markets would entail TVET to foster not only trade-related skills among trainees but also entrepreneurial skills, attitudes and behaviors. The entrepreneurship skills can enhance the employability of TVET graduates through self-employment, innovation and business creativity.

Currently, entrepreneurial skills are taught as soft skills modules in TTIs and IZCs though these are not necessarily sufficient.

Table 4.26 displays details of various entrepreneurship programs in TTIs and IZCs from 2019 to 2020. The data show that there hasn't been much progress in this field.

Table 4.26: Entrepreneurship activities in TTIs & IZCs (2019-2020)

Entrepreneurship Programme	Duration (days)	Year	Participants
(I) CZC- Tashi Yangtse			
Develop Entrepreneurship Skill	1 day 4 hours	2019-2020	28
(II) TTI- Samthang			
unlocking competencies	14 days	2019	58
Introduction to CEFE PECs			
Introduction to personal balance sheet			
Introduction to personal Goal Setting			
unlock PECs			
Generating Business Idea	14 days	2020	47
conducting idea screening Macro/Micro			
Idea selection-SWOT analysis			
Market Research			
Introduction to financial plan			
(III) TTI- Thimphu			
unlocking competencies	14 days	2019-2020	145
Introduction to CEFE PECs			
Introduction to personal balance sheet			
Entrepreneurship class			
unlock PECs			
Generating Business Idea			
conducting idea screening Macro/Micro			
Idea selection-SWOT analysis			
Market Research			
Introduction to financial plan			
(IV) TTI- Rangjung			
Business Advocacy Workshop	1	2019	41
(V)NIZC- Thimphu			
Loden Seed Program	2 Days	2019	44

Entrepreneurship Programme	Duration (days)	Year	Participants
Tshongrig Gatoen celebration	1 Day	2019	212
Zoripreneur Club	1hr/Friday	2020	11

The skill development programmes cover a wide range of general, soft, and occupation-specific skills. Soft skills are recognized as essential for work, career advancement, and empowerment. As of 2021, Table 4.27 lists various soft skills programs in TTIs and IZCs. These programs are aimed at trainees at various NC levels.

Table 4.27: Soft skills programmes in TTIs and IZCs

Soft-Skills	Total Hours
(I) CZC- Tashi Yangtse	
Computer Literacy	206
Dzongkha	90
Math	58
English	133
(II) TTI- Thimphu	
ICT	206
Engineering Drawing	208
English	269
Mathematics	237.5
Dzongkha	172
(III) TTI- Chumey	
ICT	28/month
English	28/month
Dzongkha	28/month
Math	28/month
(IV) TTI- Rangjung	
Technical English	82
Dzongkha	42
Mathematics	60

Soft-Skills	Total Hours
Basic IT Skills	68
(V) TTI- Khuruthang	
ICT	4/month
English	4/month
Math	4/month
(VI) TTI- Samthang	
ICT	28/month
English	28/month
Math	28/month
(VII)NIZC- Thimphu	
Technical English NC II	82
Technical English NC III	51
Dzongkha NCII&NCIII	50
Mathematics NC II	28
Mathematics NC III	30
Sustainable consumption NCII& NC III	36
Entrepreneurship NC II	220
Entrepreneurship NC III	167
Basic IT Skills NC II	68
Basic IT skills NC III	48
(VIII)JWPTI- Sarpang	
ICT	8 hours per course

The IAG-Global TVET database has proposed the ICT capability indicator as a proxy measure for innovation in TVET. This indicator does not assess the effectiveness of training. Rather, it acknowledges that ICT can spur innovation and progress in TVET (IAG-2014). The majority of TVET instructors have some knowledge and skills in basic ICT applications. They might not be capable of using advanced ICT applications for training purposes. This necessitates a thorough evaluation of the ICT capabilities of TVET trainers. This is critical if TVET is to integrate with current technological advancement.

Table 4.28 shows that there are only a few ICT programmes and trainings availed by TTIs and IZCs staff in 2019 and 2020.

Table 4.28: ICT training availed by staff of TTIs and IZCs (2019-2020)

Year	ICT training	Number of instructors receiving ICT	Number of days
(I) CZC- Tashi Yangtse			
2020	Digital Literacy	8	3
(II) NIZC- Thimphu			
2020	Google Classroom Usage Training	19	7

The term "innovation" refers to the creation of new products and services that have the potential to influence teaching and learning processes as well as management practices. However, the team did not find any initiatives in the institutes that fulfills the definition of Innovation.

The Tracer's Results: The Graduates' Assessment of TVET Quality

The multi-cohort online TVET tracer survey asked respondents to rate various aspects of their training programs. The questions centered on TVET graduates from 2016 to 2018. They were asked to rate whether various aspects of training were 'good' or 'poor.' Table 4.29 shows the preliminary results of the graduates' subjective assessments of 25 different areas of training in TTIs and IZCs.

Table 4.29: Graduates' assessment of TTIs and IZCs and training programmes 2016-2018

SN	TVET Quality Components	Graduates' Assessment	Freq.	Percent
1	Quality of classroom learning (theory)	Good	2372	92.7
		Poor	188	7.3
		Total	2560	100
2	Quality of practical learning	Good	2246	87.8
		Poor	312	12.2
		Total	2558	100
3	Quality of training equipment	Good	1284	50.1
		Poor	1277	49.9
		Total	2561	100
4	Availability of technical equipment	Good	1490	61.6
		Poor	930	38.4
		Total	2420	100
5	Teaching methods of instructors	Good	2205	86.3
		Poor	351	13.7
		Total	2556	100
6	Supply of learning materials (e.g., text books, note books, etc.)	Good	1676	65.6
		Poor	878	34.4
		Total	2554	100
7	Safety conditions during practical training	Good	1935	75.7
		Poor	620	24.3
		Total	2555	100

SN	TVET Quality Components	Graduates' Assessment	Freq.	Percent
8	On-the-Job-Training (OJT)	Good	2342	92.6
		Poor	186	7.4
		Total	2528	100
9	Workshop (size, light and noise condition, location)	Good	1922	75.6
		Poor	621	24.4
		Total	2543	100
10	Classrooms (size, light and noise condition, location)	Good	2109	82.5
		Poor	447	17.5
		Total	2556	100
11	Books in the library	Good	2019	79.4
		Poor	525	20.6
		Total	2544	100
12	Career counselling	Good	2163	84.6
		Poor	394	15.4
		Total	2557	100
13	Learning of soft skills	Good	1846	71.1
		Poor	749	28.9
		Total	2595	100
14	ICT training	Good	1740	69.8
		Poor	753	30.2
		Total	2493	100
15	Entrepreneurship training	Good	1369	53.7
		Poor	1178	46.3
		Total	2547	100
16	Green skilling (environment related)	Good	1336	52.4
		Poor	1215	47.6
		Total	2551	100
17	Industrial Tour	Good	2284	
		Poor	267	10.5
		Total	2551	100

SN	TVET Quality Components	Graduates' Assessment	Freq.	Percent
18	Quality of food	Good	992	40.6
		Poor	1451	59.4
		Total	2443	100
19	Quality of hostel facilities	Good	1937	79.1
		Poor	511	20.9
		Total	2448	100
20	Recreational facilities on the campus	Good	1947	76.1
		Poor	610	23.9
		Total	2557	100
21	Hygiene and sanitation facilities	Good	2087	81.7
		Poor	468	18.3
		Total	2555	100
22	Transportation facilities	Good	1858	72.7
		Poor	696	27.3
		Total	2554	100
23	Institute's leadership and management quality	Good	2244	87.7
		Poor	315	12.3
		Total	2559	100
24	Trainees' involvement in the institute's decision-making	Good	1649	64.5
		Poor	909	35.5
		Total	2558	100
25	Institute support to trainees' employment/job searches	Good	1685	66.2
		Poor	860	33.8
		Total	2545	100

Source: TVET Graduate Study 2013-2019, MoLHR 2020

Figure 4.1 depicts the ranking of each of the twenty-five variables with a rating of 'poor.' The majority of tracer survey respondents (59.4%) rated 'food quality' in TTIs and IZCs as poor. This validates the concern that a monthly stipend of Nu. 1,500 per trainee (of which 90-95 percent is spent on food) was insufficient to provide adequate food.

The next variable that received the most negative feedback was 'Quality of Training equipment' (49.9% rated it as poor) followed by 'Green Skilling' (47.6% rated as poor), 'Entrepreneurship Training' (46.3% rated as poor), 'Availability of Technical equipment' (38.4% rated as poor) and so on. The 'OJT' and 'Quality of classroom leaning' was rated as poor by the fewest respondents (7.4% and 7.3% respectively).
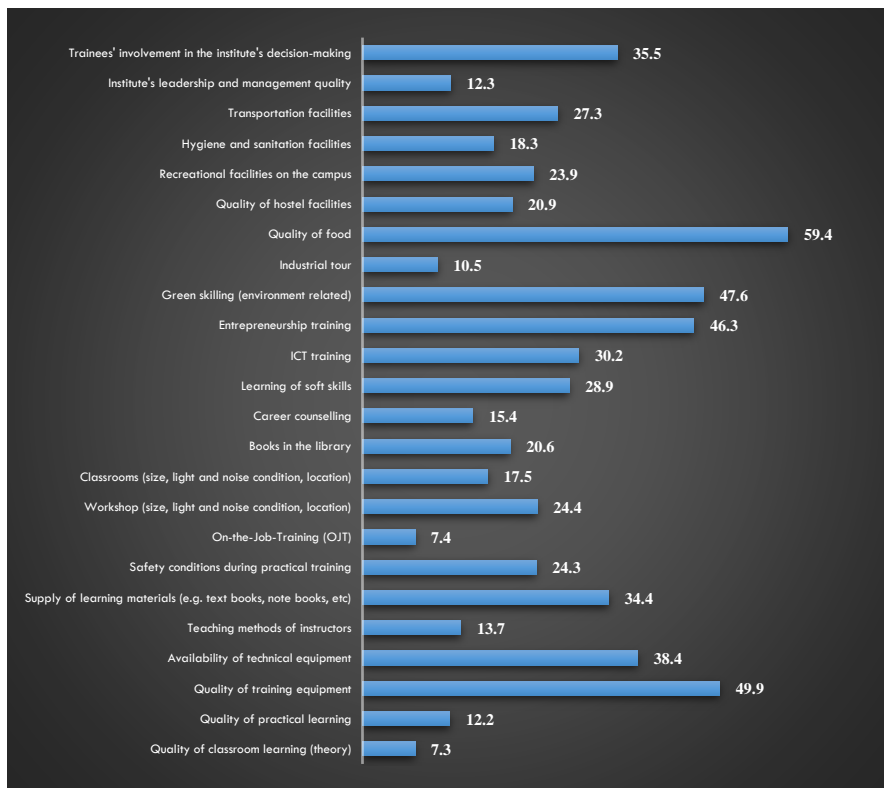
Figure 4.1: Graduates' assessment of institutes and training components

The IAG-Global suggests that the Trainee-Trainer ratio be used as a proxy measure of TVET quality. The logic behind this is that higher-quality training can be delivered with fewer trainees per trainer. The DOS regulation for TP registration also requires each TP to maintain a trainer-trainee ratio of 1:20 for classroom instruction and 1:12 for practical training.

Rather than dividing the number of trainees by trainers for a specific course and level, the ratio was calculated by aggregating the number of trainers and trainees at the institution level for one year (2019 to 2020). The teacher-student ratio is calculated for each level of education and field of study in general education. The aggregated trainer-trainee ratio for TTIs and IZCs is shown in Table 4.30.

The aggregated ratios for all courses for one TTIs in one year may indicate an overall allocation of trainers to trainees rather than a course-by-course allocation. It is not a reliable indicator because aggregated data can obscure differences between courses within a single training institution. As a result, the ratios presented below should be interpreted with caution. Furthermore, when computing the Trainee-Trainer ratio, Soft Skill Trainers in the institutes were eliminated.

Table 4.30: Trainee-Trainer Ratios 8 TTIs & IZCs (2021)

SLN	Institute/Training Provider	Trainer	Trainees	Ratio
1	CZC- Tashi Yangtse	18	125	7:1
2	JWPTI-Dekiling	27	561	20:1
3	TTI-Khuruthang	19	136	7:1
4	TTI-Samthang	19	77	4:1
5	TTI-Rangjung	15	198	13:1
6	TTI-Chumey	17	164	10:1
7	NIZC-Thimphu	19	172	9:1
8	TTI-Thimphu	9	66	7:1

Institutional Linkages among TTIs & IZCs

The UNESCO recommends strengthening ties between TPs and industries in order to improve TVET quality. Only TTI Samthang, Chumey, and Khuruthang have such collaborations and linkages on record. Table 4.31 depicts the links and networks that exist between TTIs and industries in the country. There was no evidence of institutional linkages with other countries. There were no indications of institutional ties with other countries. The linkages are particularly confined to the workplace-based training.

There are numerous links between the industry and workplace-based training institutes, but many of them are informal, so they are not included in the table below.

Table 4.31: The Institute-Industry linkages and collaborations (Two TTIs- 2019-June 2021)

Institute/Agency	Country	Year of linkage
(I) Samthang TTI		
Bhutan Hyundai	Bhutan	2019
5 Star workshop	Bhutan	2019
Road Safety and Transport Authority (RSTA)	Bhutan	2019
Royal Bhutan police	Bhutan	2019
Bhutan Narcotics Control Agency	Bhutan	2019
Bhutan Insurance	Bhutan	2019
Bajo Hospital	Bhutan	2019
Tenzin Hiring Unit	Bhutan	2019
SP Automobile Paro	Bhutan	2020
Khamsa Engg, Paro	Bhutan	2020
Paro Auto workshop, Bondey	Bhutan	2020
Brother's workshop, Paro	Bhutan	2020
2Q Automobile workshop, Bondey	Bhutan	2020
Tee Dee Workshop, Thimphu	Bhutan	2020
Wangchuk Auto electrical workshop	Bhutan	2020
Yangki Automobile	Bhutan	2020
R.K Auto Electrical	Bhutan	2020
A.S automobile	Bhutan	2020
Dungkhar ugyen automobile	Bhutan	2020
SMCL, Samtse	Bhutan	2020
CMU, Bumthang	Bhutan	2020
Bhutan Hyundai Motors	Bhutan	2021
Zimdra Automobile	Bhutan	2022
RSTA	Bhutan	2021
Royal Bhutan Police	Bhutan	2021

Institute/Agency	Country	Year of linkage
(II) Khuruthang TTI		
Yoeselma Fabrication	In-Country	2021
LG Construction	In-Country	2021
Kuenzer Fabrication	In-Country	2021
(III) Chumey TTI		
Druk Chabchap Construction pvt. l.	In-country	2019-20
Ongdue Somil Thimphu	In-country	2019-20
CDCL	In-country	2019-20
NHDCL	In-country	2019-20

Dropout and repetition data are also important indicators for determining the effectiveness of training. The dropout rate of TTIs and IZCs between 2019 and 2020 is shown in Table 4.32. Only two repeaters were recorded from Rangjung TTI between 2019 and 2020, out of 6 TTIs and 2 IZCs. In terms of dropout rates, NIZC Thimphu had the highest (44.4%), followed by CZC Trashi Yangtse (23.2%). TTI Chumey and JWPTI did not have any dropouts.

Table 4.32: Dropout from TTIs & IZCs (2019-2020)

Institute	Male	%	Female	%	Total	%
TTI-Khuruthang	14	74	5	26.3	19	19.2
TTI-Chumey	0	0	0	0	0	0.0
JWPTI-Dekiling	0	0	0	0	0	0.0
NIZC-Thimphu	38	86.4	6	13.6	44	44.4
TTI-Samthang	5	100	0	0	5	5.1
TTI-Rangjung	1	100	0	0	1	1.0
CZC-Yangtse	18	78.3	5	21.7	23	23.2
TTI-Thimphu	6	85.7	1	14.3	7	7.1
Total	82	82.8	17	17.2	99	100

The reasons for dropouts are depicted in Figure 4.2. Twenty-one of the dropouts completed NC 2 but dropped out at NC 3. Dropouts due to health and medical issues were ranked second most common reason for dropout. The covid 19 pandemic, as well as its protocols such as lockdowns and vaccination, has also caused students to drop out from the institutes. A total of 5 students have dropped out from the institute due to pandemic-related reasons.
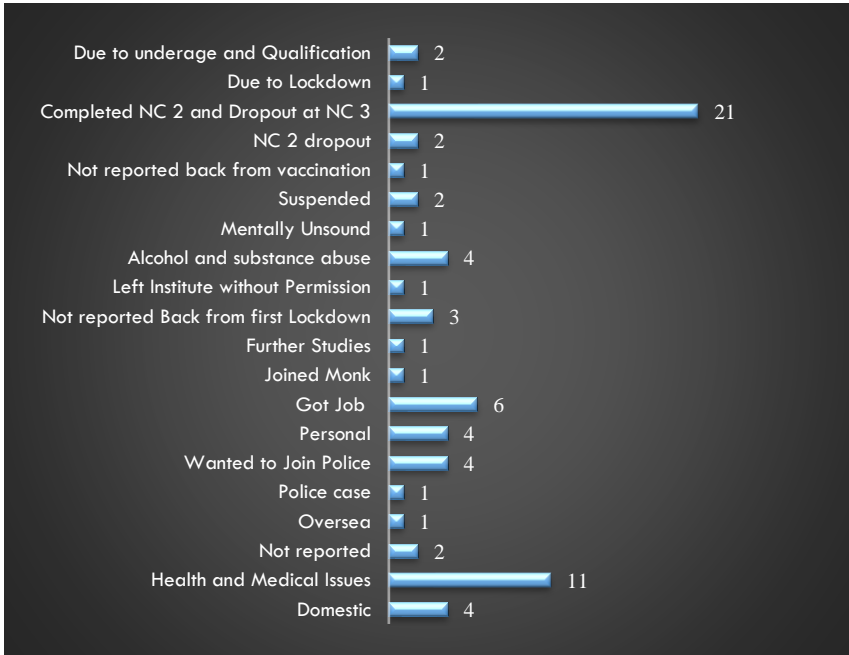
Figure 4.2: Reasons for Dropout

On-the-job-training

The OJT programme is one widely recognized method of workplace training for preparing trainees for the actual work. The effectiveness of OJT can, to a certain extent, determine the quality and relevance of the entire training programme. Table 4.33 presents the Number of students sent to OJT by gender and OJT duration.

Table 4.33: On-the-job training status of TTIs& IZCs (2019-2020)

Trade	Male	Female	Total	Duration in months
(I) CZC- Tashi Yangtse				
Patra	32	0	32	1
Embroidery	0	11	11	2
Jimzo	25	1	26	1
Painting	36	5	41	1-2
Tshemdru	0	12	12	1
Tailoring	0	30	30	1
Tailoring	0	34	34	2
(II) TTI- Khuruthang				
Electrical NC II	41	28	69	3
Electrical NC II	22	22	44	2
Electrical NC III	15	10	25	1
Mechanical Fitter	29	9	38	3
Mechanical Welder	21	18	39	3
(III) TTI- Samthang				
Auto Electrician	10	7	17	3
Auto electrician and Automobile	41	4	45	3
Automobile	41	4	45	3
HEMO	24	0	24	3
(IV) TTI- Thimphu				
Auto painting	7	3	10	3
Automobile	53	11	64	3
Panel Beating	11	0	11	3

Trade	Male	Female	Total	Duration in months
RAC	9	0	9	3
(V) TTI- Rangjung				
Automobile	22	0	22	3
Computer Hardware	10	10	20	3
Electrical	29	18	47	2
Electrical	47	17	64	3
Furniture Making	7	3	10	2
Furniture Making	14	1	15	1
(VI) JWPTI- Dekiling				
Carpentry	7	6	13	3
Carpentry	8	0	8	2
Furniture	13		13	2
Masonry	27	8	35	3
Plumbing	25	16	41	3
(VII) TTI- Chumey				
Carpentry	11	4	15	1-2
Masonry		6	6	3
Masonry	7	3	10	1-2
Plumbing	2	7	9	1-2
(VIII) NIZC- Thimphu				
Jimzo	38	1	39	1- 2
Lhadri	111	5	116	1-2
Patra	18	0	18	1-2
Trezo	8	0	8	1
Tshemdru	3	35	38	1-2
Tshemzo	21	39	60	1-2

Chapter Five

TVET Relevance Indicators

The TVET Relevance domain elaborates on TVET's responsiveness to labor market demand (IAG-2014), and it includes both the process and the outcomes. TVET reforms on the supply side may not achieve significant success without concurrent reforms in areas where TVET demand is met. In essence, TVET must provide skills and qualifications that are in demand in dynamic labor markets by bridging the gap between TVET providers and employers. This section focuses on demand-side statistics, specifically the broad indicators listed below:

(1) Share of TVET graduates who obtained jobs and who did not (employability)
(2) Reported reasons for being unemployed
(3) Employment of TVET graduates (status, economic sector, and occupation)
(4) Time span between graduation and placement
(5) The average wage of TVET graduates
(6) Employment stability of TTI and IZCs graduates
(7) Ease of getting jobs
(8) Critical Skills shortage

This domain's data came primarily from the finalized multi-cohort online TVET tracer survey. The findings results were limited to a representative sample of TTI and IZC graduates. A separate tracer report will be issued that will cover a wide range of indicators. TTI/VTI and IZC graduates from 2003 to 2018 are referred to as TVET graduates in this context.

Employment Status of TTI and IZC Graduates

The TVET quality and relevance can be measured through the extent of demand for TVET graduates and their employability and productivity. Data on training outcomes can be used to inform policies and programs aimed at improving TVET programs and increasing the marketability and employability of TVET graduates. The employment profile of TTI and IZC graduates is depicted in Figure 5.1.

Out of 4815 TTI and IZC graduates who responded to the tracer's question about their employment status, 73% (3532) said they were employed and the rest said they were unemployed. Approximately 69.3% of employed graduates were males, while 30.7% were females. Females made up 53.4% of the unemployed, while males made up 46.6%. Overall, male graduates fared better than female graduates in terms of employability.
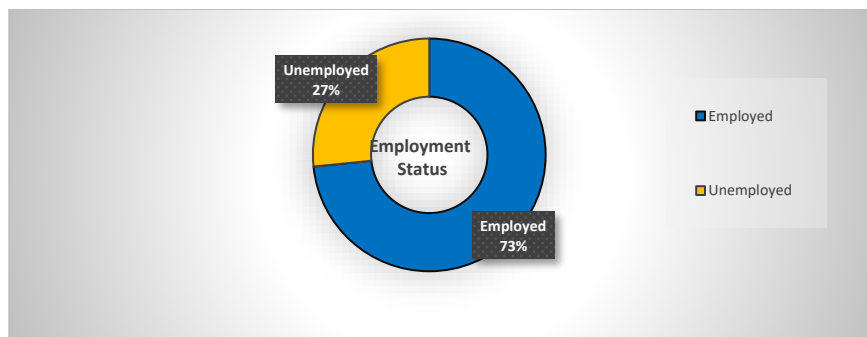
Figure 5.1: Employment status of TTIs and IZCs graduates (2003-2018)

TVET graduates' employability rate of 73 percent (from 2013 to 2018) is a good TVET outcome. It is relatively higher than academic graduates' employability. Nonetheless, further analysis of the data (reported in Table 5.1) revealed that more than 42.04% of the employed graduates in 2016 to 2018 were permanent workers while 13.6% of them were temporary workers. 8.39% were on a fixed-term contract and more than 5% of employed graduates were self-employed (not necessarily in the self-business).

Table 5.1: TTI and IZC graduates by their employment type (2016-2018)

Employment Type	2016-2018
	%
Own Account Worker	5.43
Temporary	13.6
Regular/Permanent	42.04
Contract	8.39
Unemployed	30.54
Total	**100**

Ease of Getting Jobs

One of the most pressing policy issues is the relevance of training to employment. As shown in figure 5.2, nearly half of the total 1995 respondents (48.7%) said it was difficult to find jobs related to their training. This demand-supply equilibrium could be influenced by a variety of factors and co-founding factors. Nonetheless, this finding suggests a problem with skills mismatch or a lack of demand for TVET graduates in the labor market. This necessitates an urgent study to identify and address factors influencing TVET graduates' transition to decent jobs.
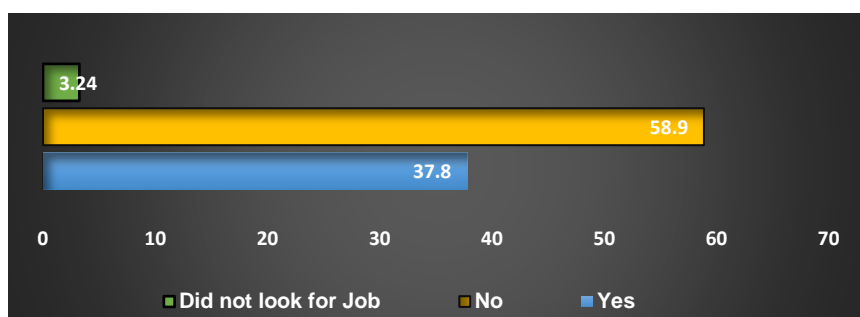
Figure 5.2: Ease of getting jobs as reported by TTI and IZC graduates

Reported Reasons for Being Unemployed

The out-of-job respondents had stated reasons for being unemployed. As shown in Table 5.2, the top three reasons they gave were 'low salary/wage' (18.1%), 'No job opportunity for technical and vocational graduate' (15.6%) and 'Inadequacy of work skills and experience' (14.7%).

Table 5.2: Reasons for being unemployed as reported by TTI and IZC graduates

Rank	Reason	Freq.	Percent
1	I can get a job, but the salary/wage is very low	239	18.1
2	No job opportunity for technical and vocational graduate	206	15.6
3	Inadequacy of work skills and experience	195	14.7
4	Undergoing further study/training	169	12.8
5	Family problem, decided not to find job	107	8.1

Rank	Reason	Freq.	Percent
6	Did not look for a job	106	8.0
7	Health related reasons	75	5.7
8	More job preference given to males	75	5.7
9	Salary not paid on time	29	2.2
10	I did not want to work in blue collar job	29	2.2
11	No stable job	26	2.0
12	Private works	22	1.7
13	Contract Expired	16	1.2
14	Difficult to get job due to low assessment rank	16	1.2
15	Others	7	0.5
16	Overseas	3	0.2
17	Want to join Armed Force	2	0.2
18	Position not given as per labour rule	1	0.1
	Total	1323	27.5
	Missing	3492	72.5
	Total	4815	100

Source: TVET Graduate Study, MoLHR 2020

Distribution of TTI and IZC Graduates by Major Sectors of the Economy

The employment distribution of TTI and IZC graduates by the major sector of the economy (Figure 5.3) shows that most graduates were employed in the tertiary sector (57%) and secondary sector (42%) respectively. The least was employed in the primary sector (about 1%).
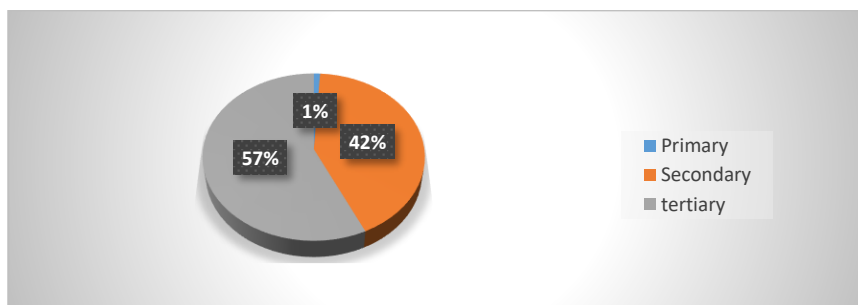
Figure 5.3: Employment of TTIs and IZCs graduates by economic sector

The private sector was the largest sector to employ graduates of TTIs and IZCs when all the private economic activities were combined. The private sector was closely followed by the public (government) and corporate sectors (as shown in Figure 5.4). TTI and IZC graduates make up a small percentage of the workforce in non-profit organizations. Graduates who worked for themselves through their own businesses were classified as working in the private sector.

EMPLOYER SECTOR

NGO 0.2 | Public 31.4 | Private 35.5 | Corporate 32.9
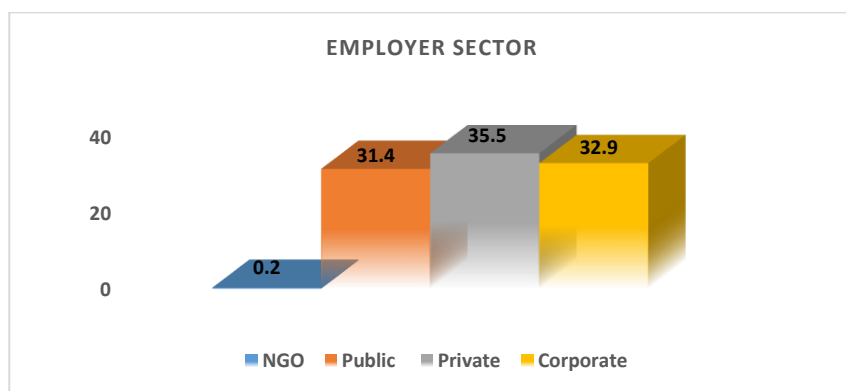
Figure 5.4: Employment distribution of graduates by economic sector

Distribution of TTI and IZC Graduates across Economic Activities

The distribution of TTI and IZC graduates by fields of employment/economic activities is shown in Table 5.3. The NSB's economic activity classification system, which was used in the Economic Census (2018), was used to classify the economic activities. Out of 3,382 respondents who reported their places of work/economic activities, the top three economic activities/occupational fields (where the greatest number of TVET graduates, primarily TTI graduates), were (1) Electricity, Gas, and Air-Conditioning (18.7%); (2) Manufacturing (18.1%%) and Construction (14.4%).

Table 5.3: Distribution of TTI and IZC graduates by economic activities (ISIC, REV-4)

SLN	Sector	Frequency	%
1	Electricity, gas, steam and air conditioning supply	631	18.7
2	Manufacturing	611	18.1
3	Construction	488	14.4
4	Wholesale and retail trade; repair of motor vehicles and motorcycles	354	10.5
5	professional, Scientific and Technical Activities.	254	7.5
6	Activities of households as employers(self-employed)	177	5.2
7	Real Estate Activities	96	2.8
8	Information and Communication	108	3.2
9	Education	105	3.1
10	Human health and social work activities	90	2.7
11	Agriculture, Forestry and Fishing	42	1.2
12	Administrative and support service activities	74	2.2
13	Water Supply, Sewerage, Waste Management and remediation activities	67	2.0
14	Mining and Quarrying	39	1.2
15	Accommodation and food service activities	92	2.7
16	Financial and Insurance Activities	47	1.4
17	Transportation and Storage	42	1.2
18	Other Service Activities: Furniture and Woodworks	14	0.4
19	Arts, entertainment and recreation	12	0.4
20	Other Service Activities: Motors, Heavy Machines and Hiring	4	0.1
21	Others: Employed Overseas	7	0.2
22	Public administration and defense; compulsory social security	28	0.8
	Total	3382	100

Source: Tracer Survey for TVET Graduates (2003-2018), 2020.

The top 25 employer of TVET graduate are presented in Table 5.4. The top ten largest employers of TTI and IZCs graduates were Bhutan Power Corporation (BPC), Druk Green power Corporation limited (DGCPL), Construction Development Corporation Limited (CDCL), National Housing Development Corporation Limited (NHDCL), Farm Machinery Corporation Limited (FMCL), Dzong Construction Project, Dzongkhag Engineering Section, Self-Business and self Employed, Punatsangchhu Hydroelectric Project Authority, Royal Academy Construction Projects and Department of National Properties.

Table 5.4: Employers of the graduates of 2013-2018

SN	Employer/Sector	n	%
1	Bhutan Power Corporation Limited (BPCL)	327	20.78
2	Druk Green Power Corporation Limited (DGCPL)	115	7.31
3	Construction Development Corporation Limited (CDCL)	92	5.84
4	National Housing Development Corporation Limited (NHDCL)	88	5.59
5	Farm Machinery Corporation Limited (FMCL)	82	5.21
6	Dzong Construction Project	76	4.83
7	Dzongkhag Engineering Section	75	4.76
8	Self-Business	67	4.26
9	Self-Employed	57	3.62
10	Punatsangchhu Hydroelectric Project Authority	52	3.30
11	Royal Academy Construction Project	52	3.30
12	Department of National Properties	51	3.24
13	Department of Roads	49	3.11
14	Mangdechhu Hydroelectric Project Authority	44	2.80
15	Ministry of Health	41	2.60
16	Private Construction	41	2.60
17	Tashi Infocom Limited	35	2.22
18	Royal University of Bhutan	34	2.16
19	Bhutan Ferro Alloys Limited	33	2.10
20	Dungsam Cement Corporation Limited	31	1.97
21	Thimphu Thromde office	31	1.97

SN	Employer/Sector	n	%
22	State Trading Corporation of Bhutan	26	1.65
23	Army Welfare Project Limited	25	1.59
24	Bank of Bhutan Limited	25	1.59
25	Nikachhu Hydroelectric Project	25	1.59
	Total	1574	100

Source: Tracer Survey for TVET Graduates (2013-2018)

Occupations of TTI and IZCs Graduates

The occupations of TTI and IZC graduates are shown in Table 5.5. Classification of jobs was based on the reported occupations rather than using the International Standard Classification of Occupations, 1988 (ISCO-88). The differentials in occupational distributions between males and females were not considered.

The major occupational group constituted the 'technician group' constituting different levels. Electrical Technicians made up 16.16% of the total graduates employed in 80 different occupations. Less than 0.9%% of them were working as TVET Trainers in various TTIs, IZCs and other institutes.

Table 5.5: Occupations of TTI and IZC Graduates (2019)

SLN	Designation	n	%	SLN	Designation	n	%
1	Electrical Technician	289	16.6	41	Field Assistant	5	0.3
2	Auto Mechanic	162	9.3	42	Maintenance In-Charge	5	0.3
3	Plumbing Technician	109	6.3	43	Manager	5	0.3
4	Tailor	105	6.0	44	Policeman	4	0.2
5	Carpentry Technician	103	5.9	45	Production Supervisor	4	0.2
6	Welding Technician	102	5.9	46	Service Manager	4	0.2
7	Site Supervisor	95	5.5	47	Auto Denting	3	0.2
8	Mason	73	4.2	48	Banking Assistant	3	0.2

SLN	Designation	n	%	SLN	Designation	n	%
9	Traditional Painter	60	3.4	49	Fabrication Technician	3	0.2
10	HV Driver	59	3.4	50	Freelance Zorig	3	0.2
11	Wood Carver (Patra)	37	2.1	51	Housekeeping	3	0.2
12	IT Technician	35	2.0	52	Security Guard	3	0.2
13	Machine Operator	34	2.0	53	Teacher	3	0.2
14	Embroiderer	32	1.8	54	Accountant	2	0.1
15	Mechanical Fitter	28	1.6	55	Assistant Transport Officer	2	0.1
16	Plant Operator	25	1.4	56	Auto Painter	2	0.1
17	VEEET	25	1.4	57	Bio-Medical Technician	2	0.1
18	Furniture-Maker	22	1.3	58	Car Washer	2	0.1
19	Business	20	1.2	59	Despatcher	2	0.1
20	General Technician	19	1.1	60	Fabrication Technician	2	0.1
21	Elementary Service Personnel (ESP)	18	1.0	61	Hiring Coordinator	2	0.1
22	Sculptor	18	1.0	62	Mechanical Supervisor	2	0.1
23	Store In-Charge	16	0.9	63	Messenger	2	0.1
24	TVET Trainer	16	0.9	64	Mobile Technician	2	0.1
25	HEM Operator	14	0.8	65	Order Desk Executive	2	0.1
26	Sales and Marketing In-Charge	14	0.8	66	Safety Steward	2	0.1
27	Gold & Silver Smith (Trezop)	13	0.8	67	School Counsellor	2	0.1
28	LV Driver	13	0.8	68	Shift In-Charge	2	0.1
29	Manual Worker	13	0.8	69	Sound Technician	2	0.1
30	Civil Technician	10	0.6	70	Technical In-Charge	2	0.1
31	Cable TV Technician	9	0.5	71	Technician	2	0.1
32	Panel Beater	9	0.5	72	Tour Executive	2	0.1
33	Wood Turner (Shazo)	8	0.5	73	Warranty Manager	2	0.1
34	Mechanical Technician	7	0.4	74	Wood Fabricator	2	0.1

SLN	Designation	n	%	SLN	Designation	n	%
35	Office Assistant	7	0.4	75	Caregiver	1	0.1
36	Road Inspector	7	0.4	76	Clearing In-Charge	1	0.1
37	Auto Electrician	6	0.3	77	Motor Winder	1	0.1
38	Motor Vehicle Inspector	6	0.3	78	Overseas Job	1	0.1
39	Spare Parts Executive	6	0.3	79	Solar Technician	1	0.1
40	Coach and Referee	5	0.3	80	Water Caretaker	1	0.1

Source: Tracer Survey for TVET Graduates (2003-2018)

Time-Lag to Get the First Job

Table 5.6 provides data on the duration taken by graduates of TTIs and IZCs in securing the first job after TVET training. More than 49 percent of 2016-2018 graduates had reported that they got their first job within three months of graduation while 31% of 2013-2015 graduates reported same. Some graduates (2.4% in case of 2016-18 cohort and 4.52% of the 2013-15 cohort) reported time-lag of more than two years. If six months is considered a reasonable time-lag, about 60% (2016-18) and 41% (2013-15 cohort) got their job first job within six months after graduation.

Table 5.6: Time-lag to get first jobs after TVET training by gender

Duration	2016-2018	2013-2015
3 months & less than 3 months	48.57	30.85
>3 Months & less than 6 months	12.89	10.25
>6 Months & less than 9 months	11.4	9.83
Six Months	10.02	8.95
>9 Months & less than one year	7.65	4.99
Between 1 and 2 years	7.05	8.29
More than 2 years	2.4	4.52

Source: TVET Graduate Tracer Study, 2020

According to the TVET Sector and Profile Assessment (2016), low wage/income associated with TVET occupations is a deterrent for TVET graduates seeking employment in the fields for which they were trained. This was also contributing to TVET's poor image and attractiveness. According to the same report, 77.7% of graduates earn Nu. 15,000 or less per month.

Table 5.6 shows the wage/income distribution of TTI and IZCs graduates working in various economic sectors. More than 67 percent of respondents reported earning less than Nu. 15,000 per month, with 12.8 percent earning more than Nu. 15,000 and less than Nu. 17,000 per month. Among many wage/income ranges, the highest proportion (24%) reported earning between (more than) Nu. 13,000 and 17,000 per month.

Table 5.7: Wage distribution among employed TTI and IZC graduates

Monthly Income	Freq.	%
Under Nu. 5,000	49	2.6
Between Nu. 5001-Nu. 7,000	76	4
Between Nu.7,001 - Nu. 9,000	151	8
Between Nu. 9,001-Nu. 11,000	231	12.2
Between Nu.11,001 – Nu. 13,000	316	16.7
Between Nu. 13,001-Nu. 15,000	454	24
Between Nu. 15,001-Nu. 17,000	243	12.8
Between Nu. 17,001-Nu. 19,000	125	6.6
Between Nu. 19,001-Nu.21,000	78	4.1
Between Nu. 21,001-Nu. 23,000	41	2.2
Between Nu. 23,001-Nu. 25,000	29	1.5
Between Nu. 25,001-Nu. 25,000	6	0.3
Between Nu. 25,001-Nu. 27,000	24	1.3
Between Nu. 27,001-Nu. 30,000	42	2.2
Between Nu. 30.001-Nu. 35,000	14	0.7
Between Nu. 35,001-Nu. 45,000	11	0.6
Above Nu. 55,000	3	0.2
Total	1893	100

Source: TVET Statistics Report 2020, MoLHR

Employment Stability of TTI and IZC Graduates

The general perception is that TTI and IZC graduates change jobs frequently. According to figure 5.5, about 70% of graduates (2016-18) did not change their jobs after their first employment. Close to 60% of the 2013-15 cohort had reported the same. About 23% (2016-18) and 29% (2013-15) had experienced two jobs. The remaining graduates had worked in three or more jobs. Those graduates who changed jobs did so primarily due to low wages in their current jobs and a lack of training incentives. The detailed report will be presented in a separate tracer report.
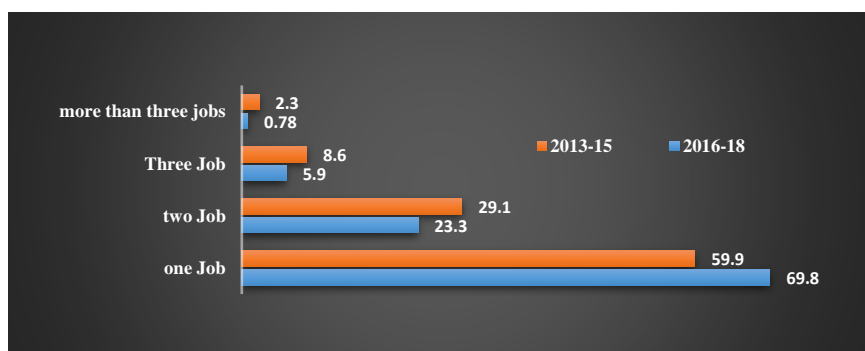
Figure 5.5: Job stability among employed TTI and IZC graduates

Table 5.8 presents the reasons mentioned by those Graduates who had changed their jobs. A total of 1134 respondents had given 1861 responses. The top five reasons stated by the graduates are 'Low salary in my job' (30.9%), 'No training opportunity in my previous job' (15.9%), 'The job was not related to the TVET programme I undertook' (13.3), 'Not moving up on the career ladder' (8.7%) and 'Employer was not good and supportive' (6.7%).

Table 5.8: Reasons for Job change as reported by graduates (2013-2018)

Reasons for change	n	%
Low Salary in my previous job	575	30.9
No training opportunity in my previous job	295	15.9
Job not related with TVET programme the student undertook	247	13.3

Reasons for change	n	%
Not moving up on the career ladder	161	8.7
Employer was not good and Supportive	122	6.6
Had to do all kinds of works rather than those related to my skills	109	5.9
Domestic Problem	78	4.2
No job allowance in my previous job	76	4.1
No housing allowance in my previous job	55	3.0
No provision for pension and provident fund	53	2.8
The workplace far from my place	48	2.6
people looked down on me for being that job	26	1.4
Family influence	9	0.5
Friend's influence	7	0.4
Total	1861	100
N	1134	

Source: Tracer Survey for TVET Graduates (2013-2018)

Relevance of technical and vocational training to job

Respondents to the TVET tracer survey were asked about the relevance of their theoretical and practical learnings [at institutes] to their actual jobs. Of 4815 respondents, 2581 had rated relevancy of the training as good while 443 of them had rated the training as poor.
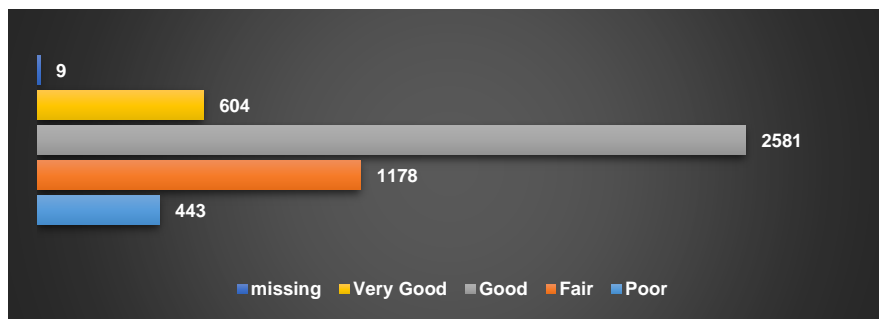
Figure 5.6: Relevance of technical and vocational training to job

On-Campus-Recruitment of TTI and IZC Graduates

To some extent, training quality influences not only TVET graduates' competencies, but also their prospects for employment by industries/employers. Some TTIs and IZCs have pioneered On-the-Campus-Recruitment (OCR) by inviting employers to their campuses as part of an institute-industry linkage program.

Employers seek, engage, and hire graduates of TTIs and IZCs after they complete their training under the OCR. As illustrated in Table 5.10, The combined OCRs of seven TTIs and IZCs accounted for 18.86% of total graduation in 2019 to 2020. TTI Thimphu, Chumey and Samthang had highest percentage of OCR against total graduation. There was no Single graduate employed through OCR TTI Rangjung.

Table 5.10: The OCR in TTIs and IZCs as % of total graduates (2019-2020)

Institute	On-Campus-Recruitment		
	2019-2020	% Of total Graduate	2019-2020
CZC-Yangtse	23	10.50	219
JWPTI-Dekiling	55	10.00	550
TTI-Khuruthang	3	2.14	140
TTI-Samthang	58	24.27	239
TTI-Rangjung	0	0.00	201
TTI-Chumey	44	33.59	131
NIZC-Thimphu	76	38.38	198
TTI-Thimphu	75	80.65	93
Total	334	18.86	1771

According to Table 5.11, graduates of Automobile, Masonry, Tsemzo (Tailoring), Lhadri (Traditional Painting) and Patra (Wood Carving) had the highest OCRs in 2019 and 2020. Overall, 65.9% of OCR recruits were male graduates, with the remainder being female graduates.

Table 5.11: OCRs in TTIs and IZCs by course and sex (2019-2020)

Course	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Automobile	78	78	22	22	100	29.9
Masonry	43	58.9	30	41.1	73	21.9
Tsemzo (Tailoring)	2	8	23	92	25	7.5
Lhadri (Traditional Painting)	20	95.2	1	4.8	21	6.3
Patra (Wood Carving)	19	100	0	0	19	5.7
Jimzo (Sculpture)	17	100	0	0	17	5.1
Tsemdru (Embroidery)	2	11.8	15	88.2	17	5.1
Panel Beating	16	100	0	0	16	4.8
Plumbing	3	21.4	11	78.6	14	4.2
Auto Electrician	9	90	1	10	10	3
Carpentry	4	40	6	60	10	3
Auto Painting	4	57.1	3	42.9	7	2.1
Electrical	1	33.3	2	66.7	3	0.9
Welding	2	100	0	0	2	0.6
Total	220	65.9	114	34.1	334	100

According to the data in Table 5.12, the largest on-campus recruiters in 2019 and 2020 were Handicrafts shops other shops (20.7%) followed by private construction firms (19.5%), Workshop (13.5%) and Automobile Workshops (11.7%). The main OCR recruiters for Zorig Chusum graduates were tailoring shops and private handicraft businesses.

Table 5.12: The OCR of TTI and IZC graduates by sector (2019-2020)

Sector	2019-2020			%
	Male	Female	Total	
Shops	42	27	69	20.7
Private Construction Firms	37	28	65	19.5
Workshop	36	9	45	13.5
Automobile Workshop	29	10	39	11.7
Automobile firms	32	6	38	11.4

Sector	2019-2020			%
	Male	Female	Total	
Private Firms	16	17	33	9.9
Tailoring shops	0	12	12	3.6
Dzong Renovation	11	0	11	3.3
Hydropower project	5	4	9	2.7
Private Driving Institute	5	0	5	1.5
Engineering Workshop	4	0	4	1.2
Corporation Limited	2	0	2	0.6
Public Project	0	1	1	0.3
Public Sector	1	0	1	0.3
Total	220	114	334	100

Chapter Six

TVET Governance and Financing Indicators

Effective and efficient TVET governance is critical for providing high-quality education and training. TVET governance at the macro level includes, among other things, TVET policies, legal provisions, national institutions, and the availability of national resources for TVET. At the institutional level, it could include institutional autonomy, resource utilization, leadership, administration, decision-making process, strategic management, course guidance, career counselling, control of trainees' employment outcomes, institute-industry linkage, TVET advocacy and image building, data management, research and innovation, trainee welfare, capacity building, project management and development of infrastructure, and a host of other areas.

This section is limited to reporting statistics on TVET management staff, staff turnover, training, organizational APA rating, and occupational safety and health. The most crucial aspect of this section is TVET financing. It includes the budget and expenditures for TVET programs administered by the MoLHR.

TVET Management Staff in TTIs and IZCs

TVET management staff has a significant role to play in improving the performance of training institutions in collaboration with TVET trainers through effective management of TVET structures, processes, and outcomes. Furthermore, the consolidation and continuation of TVET reforms are heavily reliant on management staff to drive these reform processes.

To gain a better understanding of the TVET governance and management system, non-teaching personnel were profiled by occupation, qualification, and quantity. At a higher systemic level, the information can be used for personnel management and HRD planning.

Table 6.1 summarizes the management personnel/non-teaching staff statistics by TTIs and IZCs as of June 2021. It shows that the number of management personnel ranges from 8 to 19 across six TTIs and two IZCs. There were 107 management personnel in total. JWPTI Dekiling Had the highest management personnel (19) followed by CZC Tashi Yangtse, NIZC Thimphu, and TTI Khuruthang with 14 each. NIZC Thimphu and TTI Khuruthang have more females in management than males, whereas other institutes have more males.

Table 6.1: Management personnel of TTIs and IZCs by sex (March 2021)

Institutes	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
JWPTI-Dekiling	14	73.68	5	26.32	19	17.76
CZC-Trashiyangtse	9	64.29	5	35.71	14	13.08
NIZC-Thimphu	8	57.14	6	42.86	14	13.08
TTI-Chumey	9	64.29	5	35.71	14	13.08
TTI-Khuruthang	8	57.14	6	42.86	14	13.08
TTI-Rangjung	8	61.54	5	38.46	13	12.15
TTI-Samthang	9	81.82	2	18.18	11	10.28
TTI-Thimphu	3	37.50	5	62.50	8	7.48
Total	68	63.55	39	36.45	107	100

The occupations of TTI and IZC management personnel in 2021 are shown in Table 6.2. As of March 2021, there were 24 Management personnel with the designations 'Cook' and 'Driver.' The detail information's are presented in table below.

Table 6.2: Management personnel of TTI and IZCs by occupation and sex (June 2021)

Designation	Male	Female	Total
Cook	21	2	23
Driver	14	0	14
Administration Assistant	5	4	9
Principal	4	2	6
Account Assistant	4	2	6

Designation	Male	Female	Total
Library Assistant	0	6	6
Messenger	0	6	6
Lab Assistant	1	4	5
Security Guard	4	1	5
Sweeper	0	5	5
Store Keeper	4	0	4
Wet Sweeper	1	3	4
Vice Principal	3	0	3
Store Assistant	3	0	3
Specialist III	2	0	2
Accountant	1	1	2
Night Guard	1	1	2
Dispatcher	0	2	2
Total	68	39	107

Table 6.3 presents the management personnel of TTIs and IZCs by their academic qualifications. The highest number of management staff has class XII certification followed by certificate.

Table 6.3: Qualification of management staff of TTI and IZCs

Qualification	Male	Female	Total
None	26	9	35
XII	9	11	20
Certificate	11	5	15
X	3	6	9
Master	5	2	7
Bachelor	2	0	2
Diploma	4	2	6
General	2	2	4
Certificate NC II	1	0	1
Class I	0	1	1

Qualification	Male	Female	Total
Class IX	1	1	2
Class VII	1	0	1
Class VIII	1	0	1
NDTI	1	0	1
PG	1	0	1
Total	68	39	107

Staff Turnover in TTIs and IZCs

Table 6.4 shows the number of staff (both teaching and non-teaching) who left TTIs and IZCs between 2019 and March 2021. The data did not allow the attrition rate to be calculated. This necessitates not only information about staff leaving institutes, but also their replacement. In the future, such data may need to be improved in order to calculate the attrition rate in the TVET system. Between 2019 and March 2021, 11 employees resigned, 3 superannuated, 4 transferred and 2 expired in TTIs and IZCs. The institute with the most staff leaving was Khuruthang TTI, Samthang TTI and NIZC Thimphu (4 each).

Table 6.4: Staff leaving TTIs and IZCs (2019-March 2021)

Institute	Resigned	Superannuated	Transferred	Expired	Total
TTI-Khuruthang	3	0	1	0	4
TTI-Samthang	2	1	0	1	4
NIZC-Thimphu	1	2	0	1	4
TTI-Thimphu	2	0	1	0	3
JWPTI-Dekiling	2	0	0	0	2
TTI-Rangjung	0	0	2	0	2
CZC-Yangtse	1	0	0	0	1
TTI-Chumey	0	0	0	0	0
Total	11	3	4	2	20

Table 6.5 shows the number of management staff leaving TTIs and IZCs by year. The highest number of staff had resigned in 2019 followed by in 2020.

Table 6.5: Staff leaving TTIs and IZCs by year (2019-March 2021)

Year	2019		2020		2021		Total
	M	F	M	F	M	F	
Resigned	4	1	3	1	2	0	11
Transferred	4	0	0	0	0	0	4
Superannuated	0	0	2	0	1	0	3
Expired	1	0	1	0	0	0	2
Total	9	1	6	1	3	0	20

According to Table 6.6, Junior instructors constituted the majority of those who had left TTIs and IZCs due to transfer and resignation.

Table 6.6: Staff turnover in TTIs and IZCs by designation (2019 – June 2021)

Designation	Resigned	Superannuated	Transferred	Expired	Total
Jr. Instructor	2	0	2	0	4
Instructor	2	1	0	0	3
Sr. Instructor	1	1	1	0	3
Vice principal	1	1	1	0	3
Asst. Lecturer	2	0	0	0	2
Security Guard	1	0	0	0	1
Zhungkha Teacher	1	0	0	0	1
Sr. Lecturer	0	0	0	1	1
Asst. Instructor	1	0	0	0	1
Driving Instructor	0	0	0	1	1
Total	11	3	4	2	20

Annual Performance Agreement (APA) Rating of TTIs and ZICs

The Government Performance Management System (GPMS) assess the performance of various government ministries and agencies. Each government ministry/agency is given a score against their annual performance in the activities agreed in the Annual Performance Agreement (APA). Among eight TTIs and IZCs, CZC Tashi Yangtse recorded the highest scores at 99.10 in FY 2019-2020. (Table 6.7).

Table 6.7: APA Score of TTIs and IZCs for FY 2019-2020

SLN	Institute	2019-2020
1	CZC- Tashi Yangtse	99.1
2	TTI-Samthang	98.8
3	TTI-Thimphu	98.7
4	TTI-Rangjung	97.5
5	NIZC-Thimphu	94.24
6	TTI-Chumey	93
7	JWPTI-Dekiling	90.15
8	TTI-Khuruthang	90.9

An effective TVET governance and management system is critical for improving the quality, effectiveness, efficiency, relevance, and sustainability of TVET delivery. Monitoring and evaluation provide information and feedback from TTIs and IZCs to DTE for reviewing the impact of training delivery. Table 6.8 summarizes the auditing, monitoring, and evaluation activities carried out in six TTIs and two IZCs between 2019 and April 2021. TTI Rangjung had recorded the highest number of Auditing/monitoring/Evaluation while there was no record from JWPTI Dekiling.

Table 6.8: Auditing/Monitoring/Evaluation of TTIs and IZCs for (2019- June 2021)

Auditing/Monitoring/Evaluation	Frequency			
	2019	2020	2021	Total
(I) TTI - Thimphu				
QMS Internal Auditing	1	1	0	3
Monitoring and Evaluation (TISD)	-	-	1	
(II) TTI-Rangjung				
QMS Internal Auditing	2	2		6
Monitoring & Evaluation (TISD)	1	-	1	
(III) CZC- Tashi Yangtse				
Monitoring & Evaluation (TISD)	1	-	1	2
(IV) TTI- Samthang				
Monitoring & Evaluation (TISD)	-	-	1	1
(V) TTI- Khuruthang				
Monitoring & Evaluation (TISD)	-	-	1	1
(VI) NIZC-Thimphu				
QMS Internal Auditing	1	-	-	3
RAA auditing	-	1	-	
Monitoring & Evaluation (TISD)	-	-	1	
(VII) TTI-Chumey				
QMS Internal Auditing	1	1		4
Monitoring & Evaluation (TISD)	1	-	1	

Financing of MoLHR's TVET Component

The data for this component was obtained from the Ministry of Labour and Human Resources, 'Finance Division', Directorate of Services, 2019-2020.

TVET financing includes resource mobilization, allocation, and utilization for TVET programs. It remains the most important issue in the context of national budgetary constraints and other priorities. The evidence of budgetary distribution to the TVET sector may help in proper allocation of the financial resource. The data on TVET financing could also help in carrying out various assessment and impact evaluation such as a Cost-Effectiveness Analysis (CEA), Rate of Returns (RoR) study, and Cost-Benefit Analysis (CBA).

TTIs and IZCs receive nearly all of their funding from government budgetary allocations. Through training, production, or other activities, these institutions generate insignificant amounts of money for the Institute Development Fund (IDF). The IDFs are used for productive purposes that are not funded by the government. Donor funding, also known as ODA disbursements, and technical assistance account for a sizable portion of public funding. These funds are channeled through the government's financial system. Government funding remains the most important source of funds for public TVET providers.

Due to the fragmented nature of TVET programs, obtaining a comprehensive measure of total investment in TVET is difficult. The current statistics do not cover the entire TVET system.

Table 6.9 shows the annual budgets and expenditures of DTE (Department of Technical Education) for the fiscal years 2019-2020. DTE commands a large portion of the total public TVET budget in order to carry out major infrastructure development, capacity building programs, curriculum development, TOTs, and other major TVET programs. According to the financial reporting, expenditures increased in fiscal years 2016-17 and 2017-18. In the fiscal year 2018-2019, spending was significantly lower.

However, it increased in the FY 2019-2020. The majority of the budget was set aside for capital expenditures. The rescheduling of several infrastructure development activities (capital) in the FY as a result of ongoing TVET reforms could be attributed to the decrease in expenditure in the 2018-19 fiscal year

Table 6.9: Annual budget and expenditure of DTE (2010-2020) in Million Nu.

Year	Budget			Expenditure			
	Current	Capital	Total	Current	Capital	Total	Balance
2010-2011	24.57	137.55	162.1	17.02	60.25	77.27	84.85
2011-2012			224.5			180.84	43.64
2012-2013	18.43	175.37	193.8	15.71	163.96	179.67	14.14
2013-2014	14.53	223.89	238.4	12.76	161.18	173.94	64.48
2014-2015	19.39	148.96	168.4	17.95	129.46	147.4	20.95
2015-2016			167.1			152.95	14.13
2016-2017			317			243.86	73.14
2017-2018	10.68	248.71	259.4	10.5	210.5	221	38.4
2018-2019	15.56	97.63	113.2	15.08	67.18	82.26	30.93
2019-2020	14.45	284.43	298.9	14.11	139.53	153.65	145.22

The annual expenditure of Department of Occupational Standards (DOS) shows a fluctuating trend. DOS is responsible for TVET standard and quality assurance. The highest expenditure it made was in the FY 2017-2018 with the reported expenditure of Nu. 24.47 million (Table 6.10).

Table 6.10: Annual budget and expenditure of DOS (2010-2020) in Million Nu.

Year	Budget	Expenditure	Balance
2010-2011	19.31	12.29	7.01
2011-2012	21.67	19.68	1.99
2012-2013	16.89	16.82	0.06
2013-2014	15.17	14.76	0.41
2014-2015	20.73	15.44	5.29
2015-2016	19.86	19.84	0.02
2016-2017	21.26	21.1	0.16

Year	Budget	Expenditure	Balance
2017-2018	24.69	24.47	0.22
2018-2019	19.06	18.69	0.37
2019-2020	20.4	17.85	2.55
2010-2020	199.04	180.94	18.08

Table 6.11 shows the annual budgets and expenditures of TTIs and IZCS for the fiscal years 2015-2020. Each institute received a budget of Nu. 24.05 per fiscal year on average (between 2015-2020). The average reported expenditure per institute per fiscal year was about Nu. 23.15. Between 2015 and 2020, the total expenditure of all TTIs and IZCs was Nu. 926.22 million, compared to a budget allocation of Nu. 962.16 million.

Table 6.11: Annual budgets and expenditures of TTIs and IZCs (2015-2020)

Year	Budget (Mn. Nu)	Expenditure (Mn. Nu)	Balance (Mn. Nu)
(I) TTI Chumey			
2015-2016	18.06	17.81	0.25
2016-2017	19.25	18.75	0.5
2017-2018	24.91	24.7	0.21
2018-2019	21.29	21.15	0.14
2019-2020	33.00	32.31	0.69
Total (A)	116.51	114.72	1.79
Average (A)	23.302	22.944	0.358
(II) TTI-Khuruthang			
2015-2016	27.18	25.43	1.76
2016-2017	25.95	25.17	0.79
2017-2018	32.93	32.23	0.7
2018-2019	23.27	22.79	0.48
2019-2020	35.11	32.27	2.84
Total (A)	144.44	137.89	6.55
Average (A)	28.888	27.578	1.314

Year	Budget (Mn. Nu)	Expenditure (Mn. Nu)	Balance (Mn. Nu)
(III)JWPTI Dekiling			
2015-2016	20.44	19.72	0.72
2016-2017	21.49	21.3	0.19
2017-2018	25.48	25.21	0.27
2018-2019	28.61	28.13	0.48
2019-2020	39.78	37.52	2.26
Total (A)	135.8	131.88	3.92
Average (A)	27.16	26.376	0.784
(IV) TTI Rangjung			
2015-2016	23.07	22.72	0.34
2016-2017	20.57	20.28	0.29
2017-2018	23.16	23.03	0.13
2018-2019	20.71	20.55	0.16
2019-2020	28.75	25.53	3.22
Total (A)	116.26	112.11	4.15
Average (A)	23.252	22.422	0.828
(V) TTI Samthang			
2015-2016	17.96	16.8	1.16
2016-2017	20.85	20.04	0.81
2017-2018	23.4	21.43	1.96
2018-2019	22.46	22.3	0.17
2019-2020	30.93	27.72	3.21
Total (A)	115.6	108.29	7.31
Average (A)	23.12	21.66	1.46
(VI) TTI Thimphu			
2015-2016	10.33	9.86	0.47
2016-2017	13.71	13.11	0.6
2017-2018	14.01	13.47	0.54
2018-2019	13.59	13.4	0.18
2019-2020	18.71	16.45	2.26

Year	Budget (Mn. Nu)	Expenditure (Mn. Nu)	Balance (Mn. Nu)
Total (A)	70.35	66.29	4.06
Average (A)	14.07	13.26	0.81
(VII) NIZC Thimphu			
2015-2016	26.09	25.38	0.71
2016-2017	24.54	24.22	0.31
2017-2018	27.01	26.68	0.33
2018-2019	29.41	29.19	0.22
2019-2020	37.52	35.08	2.44
Total (A)	144.57	140.55	4.02
Average (A)	28.91	28.11	0.80
(VIII) CZC Trashiyangtse			
2015-2016	18.5	18.27	0.23
2016-2017	22.12	21.28	0.85
2017-2018	25.11	24.9	0.21
2018-2019	21.34	21.18	0.16
2019-2020	31.56	28.86	2.7
Total (A)	**118.63**	**114.49**	**4.14**
Average (A)	**23.726**	**22.898**	**0.83**
Total (B)	**962.16**	**926.22**	**35.94**
Average (B)	**24.05**	**23.15**	**0.89**

As shown in Table 6.12, a total annual budget of Nu. 173.43million was allotted to eight TTIs and IZCs (average). On average, the total annual expenditure was around Nu. 160.88 million. Some of DTE's budgets would have gone toward various activities carried out in TTIs and IZCs, primarily for infrastructure development through technical assistance and project-related activities.

Table 6.12: Annual Budgets and Expenditures of TTIs and IZCs in Million Nu.

Year	Budget	Expenditure	Balance
2010-2011	190.45	157.64	32.81
2011-2012	172.33	147.47	24.84
2012-2013	123.33	112.43	10.92
2013-2014	136.79	125.91	10.9
2014-2015	149.34	139.14	10.21
2015-2016	161.62	155.99	5.64
2016-2017	168.48	164.15	4.34
2017-2018	196	191.65	4.35
2018-2019	180.68	178.69	1.99
2019-2020	255.36	235.74	19.62
Total	1734.38	1608.81	125.57
Average	173.43	160.88	12.56

Table 6.13 presents the combined budget of DTE, DOS and institutes (TTIs and IZCs). This budget represented the major proportion of the government-funded TVET. The budgets and expenditures of training institutions under various ministries and agencies were not accounted for. Because of this exclusion, the total public spending on the TVET programmes was slightly under-reported. Between 2010 and 2020, TVET under MoLHR had received the total budget of Nu 4076.13 million with the reported expenditure of Nu. 3402.59 million. The MoLHR's TVET sector was allocated on average Nu. 407.61 million per FY with the reported annual expenditure of Nu. 340.26 million.

Table 6.13: Annual budgets/expenditures (DTE, DOS and Institutes) in Million Nu.

Year	Budget	Expenditure	Balance
2010-2011	371.88	247.2	124.67
2011-2012	418.48	347.99	70.47
2012-2013	334.03	308.92	25.12
2013-2014	390.38	314.61	75.79
2014-2015	338.42	301.98	36.45

Year	Budget	Expenditure	Balance
2015-2016	348.56	328.78	19.79
2016-2017	506.74	429.11	77.64
2017-2018	480.08	437.12	42.97
2018-2019	312.93	279.64	33.3
2019-2020	574.63	407.24	167.39
Total (2010-2019)	4076.13	3402.59	673.59
Average FY	407.61	340.26	67.36

Table 6.14 shows the annual combined budget allocated to MoLHR's TVET programs, the budget for the Education Sector, GDP, and the government's annual total budget outlay. Between 2010 and 2020, the MoLHR's TVET budget was approximately Nu. 4.07 billion, compared to the education sector's budget of Nu. 87.21 billion.

Table 6.14: Annual budgets of MoLHR's TVET & MOE and RGoB outlay and GDP

Year	In Billion Ngultrums			
	Budget Allocation to MoLHR's TVET (TTIs, IZCs, DTE &DOS)	Budget Allocation to the Education Sector	GDP	Budget Outlay of RGoB
2010-2011	0.37	5.74	72.5	32.42
2011-2012	0.42	10.87	85.58	35.07
2012-2013	0.33	6.77	97.45	37.89
2013-2014	0.39	6.79	105.38	36.11
2014-2015	0.34	6.69	119.55	39.62
2015-2016	0.35	9.31	132.14	40.88
2016-2017	0.51	10.92	149.15	49.71
2017-2018	0.48	10.93	164.63	56.28
2018-2019	0.31	8.66	167.33	52.21
2019-2020	0.57	10.53	178.2	68.81
Total	4.07	87.21	1271.91	449
Average	0.407	8.721	127.191	44.9

Source: Annual Financial Statement & National Budget Financial Year, MoF

The most important budget presentation is shown in Table 6.15. It shows the budget for MoLHR's TVET component as a percentage of the budget for formal education (MoE), the total government budget, and GDP. The TVET budget of the MoLHR averaged 4.78% of the MOE budget per year. The education sector received 20.40% of the total government's annual budget on average, while the MoLHR's TVET sector received only 0.96% of the total government's budget on average. The annual budget of the MoLHR's TVET was approximately 0.34% of the country's annual GDP on average.

Bhutan's investment in public TVET has so far been less than a tenth of a percent of the country's GDP. Of course, the exclusion of private and other public TVET spending may have contributed to the underreporting.

Table 6.15: Spending on MoLHR's TVET as % MOE spending, RGoB outlay and GDP

Year	TVET budget as % of Education Sector Budget	Education Sector's budget as % of total RGoB outlay	TVET Sector's budget as %of total RGoB outlay	TVET Sector's budget as % of GDP
2010-2011	6.48	17.7	1.147	0.51
2011-2012	3.85	31.01	1.193	0.49
2012-2013	4.93	17.88	0.882	0.34
2013-2014	5.75	18.81	1.081	0.37
2014-2015	5.06	16.88	0.854	0.28
2015-2016	3.74	22.78	0.853	0.26
2016-2017	4.64	21.97	1.019	0.34
2017-2018	4.39	19.42	0.853	0.29
2018-2019	3.57	16.58	0.59	0.18
2019-2020	5.41	15.30	0.82	0.31
Average	4.78	19.83	0.93	0.34

Source: Annual Financial Statement & National Budget Financial Year, MoF

The findings (presented in the table above) are worth nothing because budgetary allocations appear to reflect less importance given to the TVET sector previously compared to general education though the conventional wisdom holds that unit cost in TVET is much higher than in general education. Some may argue that the formal education sector is much larger in volume than the TVET sector, but there is still a need to determine a minimum threshold budgetary allocation to the TVET sector.

Occupational Health and Safety (OHS)

TVET must emphasize occupational safety and health (OSH) programs in the same way that it emphasizes the acquisition of knowledge and skills for the workplace. To prevent work-related injuries and diseases, a TVET trainee must develop a responsible attitude and behavior toward a healthy and safe working environment. It is critical to integrate OHS into TVET programmes because a trainee's behavior and practices acquired at a younger age will last for the rest of his or her life. OHS is regarded as an important component of inclusive TVET by both UNESCO-UNEVOC and the ILO. TTIs and IZCs have initiated a variety of OHS programs, as shown in Table 6.16.

Table 6.16: Occupational Health Safety Measures in TTIs and IZCS (2019-2021 April)

OHS Measures Initiated	Year of Introduction of OHS measure
TTI- Chumey	
OHS Module	2019
OHS Module	2020
Hand washing water tap in the college	2020
Awareness on COVID 19 health protocol	2021
CZC- Tashi Yangtse	
OHS Module	2019
Hand washing water tap in the college	2020
Awareness on COVID 19 health protocol	2021
JWPTI Dekiling	
OHS Module	2019

OHS Measures Initiated	Year of Introduction of OHS measure
Hand washing water tap in the college	2020
Awareness on COVID 19 health protocol	2021
TTI- Khuruthang	
OHS Module	2019
Fire Extinguishers	2020
Hand washing water tap in the college	2020
Awareness on COVID 19 health protocol	2021
Safety tools and other necessary items	2021
Displayed safety signs and symbol in every practical workshop	2021
NIZC- Thimphu	
Apron	2019
OHS Module	2019
Hand washing water tap in the college	2020
Awareness on COVID 19 health protocol	2021
TTI Rangjung	
OHS Module	2019
Hand washing water tap in the college	2020
Awareness on COVID 19 health protocol	2021
TTI- Samthang	
Accident Monitor Chart	2019
Advocacy on OHS	2019
Injury report form	2019
Mock Drill on OHS	2019
Hand washing water tap in the college	2020
Awareness on COVID 19 health protocol	2021
TTI - Thimphu	
Fire Extinguishers	2019
OHS Module	2019
Labour and Employment Act, 2007	2019
Introduction to occupational health and safety	2019

OHS Measures Initiated	Year of Introduction of OHS measure
Fire Extinguishers	2020
Labour and Employment Act, 2007	2020
Introduction to occupational health and safety	2020
Hand washing water tap in the college	2020
Awareness on COVID 19 health protocol	2021

Chapter Seven

Conclusion and Way Forward

This chapter concludes the report. It briefly mentions a way forward to achieve the desired outcome. The final notes are based on the TWG's experience with data collection, analysis, and compilation. The TWG acknowledges that there are some inconsistencies and inaccuracies in the second issue of TVET statistics. In some cases, it was simply not possible to correct the flaws. In the long run, only a consistent effort will suffice to address the data problem. As a result, developing TVET data systems and MIS should always be a dynamic process managed by a dedicated team.

Until now, data from TTIs and IZCs had been collected in an inconsistent manner. This has resulted in untrustworthy data, duplication, gaps, and data fatigue among data providers. Although the data was collected from OPPTPs in the first TVET statistical report, majority of private TPs had a faulty data system and some TPs even failed to submit enrolment and graduation data thus leading to missing data. In line to this, the second issue of TVET statistical report will feature only six TTIs and two IZCs to make the report more concise, reliable and timely. And the report is presented in five domains; Access, Quality, Relevance, Governance and Financing. This second issue of TVET statistics will supplement the first and serve as a baseline for future issues.

TVET MIS is critical for empowering and improving TVET processes and outcomes. MoLHR's TVET-QAMIS program began many years ago, but it is still in its early stages and is limited to TVET's quality assurance component. It should be expanded and improved. There are several reasons why the current TVET-QAMIS needs to be updated. The main reasons are that it has fewer data and is not properly cataloged. It is high time for Bhutan's TVET system to embrace the latest technology in its data management.

There are several Database Management System software's like MySQL, SQL Server, Oracle or dBase. The TWG proposes the following actions for modernizing and overhauling existing data systems:

1. Data cataloguing is exigent to avoid data duplication and double counting. Presently, some TVET courses with similar contents are named differently as it suits the TPs. This poses a problem of data integration. Various courses and occupations could be classified using the International Classification System of Education (ISCED-F-2013) or any other similar system for promoting coherence with international statistical standards.

2. Several cases of non-response and non-cooperation were reported during the first release of the TVET statistical report. The same problem arose during the development of the second issue of the TVET statistical report. Such issues will have an impact on data quality, completeness, and timeliness in the future. Through the QMS compliance system, it is critical to strengthen and enforce data regulatory provisions for data compliance. Data policies for data collection, compliance, and protection may be required. There should also be a variety of incentives to encourage data compliance. Adequate consultations and collaborative development with data providers should be used in addition to data compliance regulation. The advocacy on the significance of data for strategic TVET development needs to be prioritized.

3. Priority should be given to developing institutional capacity for data collection and analysis. Technical expertise, facilities, and financial resources could all be part of the institutional capacity. The cost of statistical collection and the process of building the data system is enormous. Long-term returns on investment in data expertise and infrastructure would outweigh the initial costs. Allocating a regular budget to cover the costs of data collection, processing, and management may be critical to the effort's long-term viability.

4. The long-term viability of this effort is critical. The likelihood of the effort dying down is high unless a sustained effort is made.

As a result, it is critical to recruit people with sufficient statistical knowledge and skills to manage the TVET data system.

5. Data accuracy could be improved by decentralizing the data collection system. When a trainee leaves one course to join another within the same institute, data providers frequently count him or her twice. This is because of course-based counting. The individual-based counting system is the most appropriate. If an online data system is created, it is preferable to investigate the possibility of decentralizing data entry to a single trainee/trainer via online log-in credentials. The institutional data managers would save time as a result of this. A system like this would allow trainees to be tracked after they graduated.

6. Unlike in school, calculating GER and GPI in TVET is complicated due to trainees' varying ages. Because TVET is a lifelong learning process, determining the official TVET age is difficult. There may be people who are over the age of 25 who are pursuing TVET. It is suggested that TPs be required to keep track of their trainees' ages so that official TVET ages can be determined in the future for accurate estimation of Gross Enrolment/Net Enrolment Ratios and the Gender Parity Index.

7. Frequent consultations and open discussions among data providers and collectors are critical for resolving data gaps and data collection issues. Furthermore, such consultations could reinforce the ownership of data.

8. Since TVET data must be sourced from various other ministries and agencies such as NSB, DoEHR, MOE, and RUB, frequent consultation is recommended for developing TVET data policy and data sharing. As the online TVET MIS takes shape, the provision for sharing data APIs (Application Programming Interface) among different MIS should be worked out. APIs, in general, are software-to-software interfaces that allow for the sharing of content and data.

9. In addition to these broad suggestions, the TWG will need to collaborate closely with the TVET MIS team on specific statistical components of the proposed TVET MIS, particularly the data input and output elements.

Publishing statistical reports does not serve the ultimate goal of developing the TVET statistical system; instead, more analysis and research should be conducted, including data use for decision-making, evaluations of training institutions and TVET programs, and transparency and accountability for results.

The advancement of the data system should pave the way for the deepening of the TVET knowledge base through ongoing research and analysis.

Reference

Australian Literacy Educators' Association. (n.d). Literacy in 21st Century Australia: The ALEA Declaration. https://www.alea.edu.au/documents/item/1196#:~:text=Literacy%20is%20the%20ability%20to,materials%20associated%20with%20varying%20contexts.

Department of Adult and Higher Education. (2019). State of Tertiary Education in Bhutan. http://www.education.gov.bt/wp-content/downloads/publications/other/State of Tertiary EducationFinal.pdf

Department of Adult and Higher Education. (2020). State of Higher Education of Bhutan. http://www.education.gov.bt/wpcontent/uploads/2021/01/State-of-TE-2020-30.12.20.pdf

Department of Labour. (2018). Annual Report (July 2017-June 2018).

Department of Labour. (2019). Annual Report (2018-2019).

Department of Occupational Standards. (2013). Bhutan Vocational Qualifications Framework.

Department of Technical Education (MoLHR). (2020). TVET Statistics of Bhutan 2020: In the Quest for Transforming TVET through Data-Driven Approach. https content/uploads/2020/07/TVET_Statistics_Web_Version_30_7_2020_compressed.pdf

Ministry of Education. (2014). Annual Education Statistics, 2013.

Ministry of Education. (2014). Bhutan Education Blueprint: Rethinking Education. https://www.globalpartnership.org/sites/default/files/bhutan_education_blueprint_2014-2024.pdf

Ministry of Education. (2015). Annual Education Statistics,2014.

Ministry of Education. (2016). Annual Education Statistics, 2015.

Ministry of Education. (2017). Annual Education Statistics, 2016.

Reference

Ministry of Education. (2018). Annual Education Statistics, 2017.

Ministry of Education. (2019). Annual Education Statistics, 2018.

Ministry of Education. (2019). Annual Education Statistics, 2018.

Ministry of Education. (2020). Annual Education Statistics, 2019

Ministry of Education. (2021). Annual Education Statistics, 2020

Ministry of Labour and Human Resources. (2016, June). TVET Blueprint 2016 - 2026. https://www.molhr.gov.bt/molhr/wp-content/uploads/2017/07/TVET-Blueprint-Inside-Page.pdf

National Assembly of Bhutan. (2008). Constitution of Kingdom   of Bhutan. Article 9. (15) Principals of State policy, p.19. http://www.nab.gov.bt/assets/templates/ima ges/ constitution–of–bhutan–2008.pdf.

National Statistics Bureau. (2017). Poverty Analysis Report.

National Statistics Bureau. (2018). Population and Housing Census of Bhutan 2017 (National Report)

National Statistics Bureau. (2019). Dzongkhag Population Projections 2017-2022. https://bhutan.unfpa.org/sites/default/files/pub-pdf/Bhu_Dzo_pop_proj.pdf

National Statistics Bureau. (2019). Population Projections of Bhutan 2017-2047. https://bhutan.unfpa.org/sites/default/files/pub-pdf/Bhu_Pop_proj.pdf

National Statistics Bureau. (2019). Economic Census of   Bhutan, 2018.

National Statistics Bureau. (2020). Labour Force Survey Report 2020

National Statistics Bureau. (2020). National Accounts Statistics 2020.

National Statistics Bureau. (2020, October). Statistical Yearbook of Bhutan 2020

Reference

Pham Le Phuong. (2009). High Quality Labour Force for Industrial Parks—A Challenge for Vocational Training in Linking Vocational Training with the Enterprises -   Asian Perspectives. https://unevoc.unesco.org/up/Link_Voc_End.pdf. Accessed on 23 November, 2019.

UNESCO. (2020, January 10). International Classification of Education. Available from http://uis.unesco.org/

Annexes

Annex 1: Details of Registered TVET institutions/Training Providers in Bhutan (2021)

SLN	Name of Institute	Registration No	Grade	Location	Dzongkhag	Sector
1	Advanced Institute for Tourism.	2016050036	C	Thimphu	Thimphu	Private (Sole Propritorship)
2	Agriculture Machinery Training Centre	2017050353	C	Chhundudingkhay	Paro	Corporate
3	Athang Training Academy	2017090366	B	Bebayna	Thimphu	Private (Partnership)
4	Athang Learning Institute	2020090593	c	Bebayna	Thimphu	
5	Bhutan Centre for Japanese Studies	2015050073	C	Town	Thimphu	Private (Sole Propritorship)
6	Bhutan Elite Security Services	2015070158	C	Bondey	Paro	Private (Sole Propritorship)
7	Bhutan Institute for Training and Development (BITAD)	2016070126	B	Near DAHE Office	Thimphu	Private (Partnership)
8	Bhutan Institute of Information Technology and Management	2015040067	B	Jangsa	Paro	Private (Sole Propritorship)
9	Bhutan Institute of International Language, IT and Management	2016070121	C	Thimthrom	Thimphu	Private (Sole Propritorship)
10	Bhutan Institute of Management and Technology	2020010581	C	Chnagzamtog	Thimphu	
11	Bhutan Institute of Martial Arts	2018050444	C	Olakha, Thimphu	Thimphu	Private (Sole Propritorship)
12	Bhutan Institute of Tourism and Hospitality	2019070531	B	Thimphu	Thimphu	Private (Partnership)
13	Bhutan International School of Hospitality & Tourism	2015060128	B	Town	Thimphu	Private (Sole Propritorship)

SLN	Name of Institute	Registration No	Grade	Location	Dzongkhag	Sector
14	Bhutan Media & Communications Institute	2015010051	B	Dondrup Lam, Pedling Complex	Thimphu	Private (Sole Propritorship)
15	Bongde Institute of Hotel and Tourism	2016060118	B	Bongde	Paro	Private (Partnership)
16	Chundu Trainig Institue	202103061	c			
17	Choki Traditional Art School	2015040066	B	kabisa	Thimphu	Private (Partnership)
18	College of Zorig Chusum	2015080167	B	Trashiyangtse	Trashi yangtse	Public (Govt.)
19	Computer & management Institute	2015010049	B	Phuntsholing	Chukha	Private (Sole Propritorship)
20	Dechen IT & Management Institute	2016050055	C	Chang Gangkha	Thimphu	Private (Sole Propritorship)
21	Dickie training institute	2017080360	C	changzamtok	Thimphu	Private (Sole Propritorship)
22	Dorji International Training Institute	2018030423	B	Olakha	Thimphu	Private (Sole Propritorship)
23	Draktsho Vocational Training Centre for Special Children and Youth	2020080591	c	Kanglung	Trashigang	
24	Druk Institute of Management and Technology	2015060127	C	Phuentsholing	Chukha	Private (Sole Propritorship)
25	Druk Tshemzo Training Institute	2015060130	B	Olakha	Thimphu	Private (Sole Propritorship)
26	Drukwings Aviation Training Institute	2018100476	C	Langama, Gepty	Paro	Private (Sole Propritorship)
27	Dzongkha Kherig Pelkhang					
28	Dzongkha Learning Centre	2015060126	C	NPPF Building	Thimphu	Private (Sole Propritorship)

SLN	Name of Institute	Registration No	Grade	Location	Dzongkhag	Sector
29	Eastern Computer Training Centre	2016010173	C	S/jongkhar Town	Samdrupjongkhar	Private (Sole Propritorship)
30	Eastern Driving Training Institute	2017080361	C	Mongar town	Mongar	Private (Sole Propritorship)
31	Fablab Bhutan Training Institute	2017040337	C	changzamtok	Thimphu	Private (Sole Propritorship)
32	Fashion Institute of Technology	2018050445	C	Town	Thimphu	Private (Sole Propritorship)
33	Financial Institutions Training Institute Limited	2018030422	B	Changeney	Thimphu	Corporate
34	Gangchen Language and Management Institute	2017110372	C	Thimthrom	Thimphu	Private (Sole Propritorship)
35	Gangjung Driving Centre of Excellence	2016050030	B	Jungshina	Thimphu	Private (Sole Propritorship)
36	Gawa Driving Training Institute	2019030488	C	Town	Samtse	Private (Sole Propritorship)
37	Ghadyen Driving Training Institute	2015070159	C	Bajo, Wangdue Phodrang	Wangdue Phodrang	Private (Sole Propritorship)
38	Global Computer Training Center	2016060116	C	Bajo	Wangdue Phodrang	Private (Sole Propritorship)
39	Global Retail Academy	2015050070	C	Changzamtok	Thimphu	Public (Govt.)
40	Guide Association of Bhutan	2016030176	C	Hongkong Market	Thimphu	NGO
41	Gyalyong Driving Training Institute	2020100602			Thimphu	
42	Heurka Security Services	2018030424	C	chabakha	Wangdue Phodrang	Private (Sole Propritorship)
43	Himalayan Institute of Technology & Management	2015020060	C	Gelephu	Sarpang	Private (Sole Propritorship)

SLN	Name of Institute	Registration No	Grade	Location	Dzongkhag	Sector
44	Himalayan School of Music	2015020058	C	Below helipad, Lungtenphu	Thimphu	Private (Sole Propritorship)
45	iBEST Institute of Media, Management and Technical Studies	2015050075	B	Changzamtog	Thimphu	Private (Partnership)
46	Institute for Excellence and Development (i-ED)	2015010043	C	BABESA	Thimphu	Private (Partnership)
47	Institute for Excellence and Development (iED)	2016030179	C	Phuntsholing	Chukha	Private (Sole Propritorship)
48	Skills Development Institute	20200030582	c	Wangsingmo	Thimphu	
49	Institute for Learning Solutions	2018120485	C	Near Jichu Drakey	Thimphu	Private (Sole Propritorship)
50	Institute for Management Studies Limited	2015050074	B	Serbethang	Thimphu	Private (Partnership)
51	Institute for Professional Excellence	2019070530	C	Thimthrom	Thimphu	Private (Sole Propritorship)
52	Institute for professional studies	2016050031	B	Town	Thimphu	Private (Sole Propritorship)
53	Institute of Advanced Tailoring and Fashion Design	2020030584	c	Town	Thimphu	
54	Institute of Happiness	2018110482	C	Thimphu	Thimphu	Private (Sole Propritorship)
55	Institute of Information Technology and Management	2016050057	C	Town	Thimphu	Private (Sole Propritorship)
56	Institute of Tourism and Hospitality Management	2020060588	c	Town	Thimphu	
57	Institute of Zorig Chusum	2015060145	B	Kawajangsa	Thimphu	Public (Govt.)
58	Jachung Security Services Pvt Ltd	2016120174	B	Jazaam, Babesa	Thimphu	Private (Partnership)

SLN	Name of Institute	Registration No	Grade	Location	Dzongkhag	Sector
59	JCB Operators Training Centre	2017110371	C	Olakha	Thimphu	Private (Partnership)
60	Jigme Wangchuck Power Training Institute	2016040028	A	Dekiling	Sarpang	Public (Govt.)
61	Jigyang Driving Training Institute	2017080362	C	Phuentsholing	Chukha	Private (Sole Propritorship)
62	Karma Driving Training Institute	2015050115	C	Gedu	Chukha	Private (Sole Propritorship)
63	Karma Driving Training Institute	2015050116	C	Babesa	Thimphu	Private (Sole Propritorship)
64	Karsel Dawa Driving Training Institute	2018010376	C	Dangrayna	Thimphu	Private (Sole Propritorship)
65	Kesang Driving School	2015060148	C	Changzamtog, Thimphu	Thimphu	Private (Sole Propritorship)
66	Kilu Bhutan Music School	2017070355	C	Youth Center	Thimphu	Private (Sole Propritorship)
67	Kinley Yergay Tailoring Training Institute	2017090364	C	Chubachu	Thimphu	Private (Sole Propritorship)
68	Kinzang Driving Training Institute	2017060354	C	Gongkhar	Bumthang	Private (Sole Propritorship)
69	Kuenphen Computer and Tailoring Training Institute	2016070123	C	Haa Throm	Haa	Private (Sole Propritorship)
70	Kuenphen Language and Culture Training Institute	2016070122	C	Haa Throm	Haa	Private (Sole Propritorship)
71	Kunjung Institute of Technology & Innovation	2016060117	B	Gelephu	Sarpang	Private (Partnership)
72	Lekdrup Skill Development Institute	2016080167	B	KMT Building, Opposite Taj Tashi	Thimphu	Private (Sole Propritorship)

SLN	Name of Institute	Registration No	Grade	Location	Dzongkhag	Sector
73	Lhawang Yugyel Technical Training Institute	2019100566	C	Dewathang	Samdrupjongkhar	Private (Sole Propritorship)
74	NLD Training Institute	2018010377	B	Olakha	Thimphu	Private (Sole Propritorship)
75	Norbu International Wellness Institute	2016080168	C	Thimthrom	Thimphu	Private (Partnership)
76	Norter Training Institute	2016070124	C	kawajangsa	Thimphu	Private (Sole Propritorship)
77	Padmakara Training Institute	2015040064	C	Phuntsholing	Chukha	Private (Sole Propritorship)
78	Paro Institute of Management (PIM)	2018120486	C	Paro Town	Paro	Private (Sole Propritorship)
79	Pema Driving Training Institute	2018010374	C	Tashigang	Trashigang	Private (Sole Propritorship)
80	Puensum Driving Institute	2015070161	C	Khuruthang	Punakha	Private (Sole Propritorship)
81	RDTC (Rural Development Training Centre, MoAF, Zhemgang	2017100370	C	Above Trong	Zhemgang	Public (Govt.)
82	RENEW Vocational Training Institute	2020030583	B	Selaykha	Thimphu	
83	Rigsum Institute of Technical Education & Management Studies	2015010047	B	Near Thromde Office	Thimphu	Private (Sole Propritorship)
84	Royal Academy of Performing Arts	2017020330	C	Chubachu	Thimphu	Public (Govt.)
85	Royal Institute for Tourism and Hospitality	2015080166	B	Motithang	Thimphu	Public (Govt.)
86	Royal Textile Academy	2020070590				
87	RTC Training and Professional Services	2016060119	B	RTC	Thimphu	Private (Sole Propritorship)

SLN	Name of Institute	Registration No	Grade	Location	Dzongkhag	Sector
88	Sacho Driving Training Institute	2015070154	C	Lhamozyingkha	Dagana	Private (Sole Propritorship)
89	Sacho Driving Training Institute	2015070152	C	Samtse	Samtse	Private (Sole Propritorship)
90	Sacho Ga Driving Training Institute	2017070359	C	Phuentsholing	Chukha	Private (Sole Propritorship)
91	Shacho Driving Training Institue	2015070155	C	Phuntsholing	Chukha	Private (Sole Propritorship)
92	SD Driving Training Institute		C	Paro		
93	Sompal Driving Training Institute	2017100368	C	Town	Paro	Private (Sole Propritorship)
94	Sompal Driving Training Institute	2019050520	C	Town	Thimphu	Private (Sole Propritorship)
95	Star Tourism Institute	2019040489	C	Thimphu	Thimphu	Private (Partnership)
96	Sunrise Driving Institute	2018100478	C	Bajo	Wangdue Phodrang	Private (Sole Propritorship)
97	Tacho Bala Ha	2017070358	C	Samdrupjongkar Throme	Samdrupjongkhar	Private (Partnership)
98	Tacho Bala Ha Driving Training Institute	2015070153	C	Nganglam	Pemagatshel	Private (Sole Propritorship)
99	Technical Training Institute Samthang	2015050068	A	Samthang	Wangdue Phodrang	Public (Govt.)
100	Technical Training Institute-Chumey, Bumthang	2015060129	A	Chumey	Bumthang	Public (Govt.)
101	Technical Training Institute-Ranjung	2015050085	B	Rangjung	Trashigang	Public (Govt.)
102	Technical Training Institute-Thimphu	2014110003	B	Lungtenzampa	Thimphu	Public (Govt.)

Annex

SLN	Name of Institute	Registration No	Grade	Location	Dzongkhag	Sector
103	Tenzin's Hair and Beauty Academy	2015060144	C	Town	Thimphu	Private (Sole Propritorship)
104	The Education and Technology Academy	2021020606	C			
105	Thimphu Institute of Management (TIM)	2017020329	C	Jojo's Building	Thimphu	Private (Partnership)
106	Thimphu TechPark Ltd	2015080168	C	Olakha	Thimphu	Corporate
107	TTI Khuruthang	2014110004	A	Kuruthang	Punakha	Public (Govt.)
108	Ugyen International Language and culture Training Institute	2016050035	C	Thimthrom	Thimphu	Private (Sole Propritorship)
109	Ugyen Wangchuck Institute for Conservation and Environment	2015020057	B	Lamai Goempa	Bumthang	Public (Govt.)
110	Ugyen Pee ROFESSIONAL	2020100596	C		Thimphu	
111	USD Driving School	2015050084	C	Phuentsholing	Chukha	Private (Sole Propritorship)
112	USD Driving Training Institute	2019110576	B	Damphu	Tsirang	
113	USD Driving Training Institute	2015050083	C	Thimthrom	Thimphu	Private (Sole Propritorship)
114	USD Driving Training Institute	2015050082	C	Gelephu	Sarpang	Private (Sole Propritorship)
115	USD Institute for Professional Development	2019050519	C	Phuentsholing	Chukha	Private (Partnership)
116	USD Institute for Professional Development	2021020607	C	Thimphu		
117	WhyDee Driving Training Institute	2016050053	C	Town	Paro	Private (Partnership)

SLN	Name of Institute	Registration No	Grade	Location	Dzongkhag	Sector
118	Wood Craft Centre Ltd.	2016050059	C	Langjo-phakha	Thimphu	Corporate
119	Yarab Institute for Hospitality Management	2016060062	B	Changzamtok	Thimphu	Private (Sole Propritorship)
120	Youth Development and Rehabilitation Center (YDRC)	2018040435	C	Tshemasham	Chukha	Public (Govt.)

Note:

1. *The list of Training Providers is as of March 2021. The list will be updated in the third issue of TVET Statistics.*
2. *Some TPs have been upgraded lately, which has not been reflected in the ABOVE list.*
3. *The number of TPs keep on changing due to new registration and de-registration. Until the time is fixed for the statistical updating and collection, the number of active TPs will not be fixed*

Annex 2: Details of TVET Courses in TTIs and IZCs accredited by DOS (2021)

Institute	Name of the course	Level (MoD)	Duration (in Months)	Type (long or short course)	Accredited/Not accredited	Year of accreditation	Accreditor	Type
Thimphu TTI	Automobile	NC-II	24	Long Course	Accredited	2018	DoS	pre-service
	Automobile	NC-III	8	Long Course	Accredited	2018	DoS	pre-service
	Auto Painting	NC-II	12	Long Course	Accredited	2018	DoS	pre-service
	Panel Beating	NC-II	12	Long Course	Accredited	2020	DoS	pre-service

Institute	Name of the course	Level (MoD)	Duration (in Months)	Type (long or short course)	Accredited/Not accredited	Year of accreditation	Accreditor	Type
	Refrigerator and Air Conditioning (RAC)	NC-II	24	Long Course	Not accredited			pre-service
Samthang TTI	Auto Electrician	NC II	24	Long course	Accredited	2020	DOS	Pre-service
	Automobile	NC II	24	Long course	Accredited	2019	DOS	Pre-service
	Automobile	NC III	8	Long course	Accredited	2019	DOS	Pre-service
	Heavy Vehicle Driving	NC II	6	Long course	Accredited	2019	DOS	Pre-service
	Heavy Earth Moving Operator	NC II & NC III	6	Long course	Accredited	2019	DOS	Pre-service
Khuruthang TTI	Electrical	NC III	12	Long course	Accredited	2018	DOS	In-service
	Electrical	NC II	8	Long course	Accredited	2019	DOS	Pre-service
	Mechanical Welder	NC II	24	Long course	Accredited	2017	DOS	Pre-service
	Mechanical Fitter	NC II	24	Long course	Accredited	2018	DOS	Pre-service
	Mechanical Welder	NC III	12	Long course	Not Accredited			In-service
Chumey TTI	Carpentry	NC II	24	long course	Accredited	2011	DOS	Pre-service
	Masonry	NC II	24	long course	Accredited	2011	DOS	Pre-service
	Plumbing	NC II	6	long course	Accredited	2011	DOS	Pre-service
	Welding	NC II		long course	Accredited	2011	DOS	Pre-service
	Carpentry	NC III	6	long course	Accredited	2011	DOS	Pre-service

Institute	Name of the course	Level (MoD)	Duration (in Months)	Type (long or short course)	Accredited/Not accredited	Year of accreditation	Accreditor	Type
	Masonry	NC III	6	long course	Accredited	2011	DOS	Pre-service
	Plumbing	NC III	5	long course	Accredited	2011	DOS	Pre-service
CZC Tashi Yangtse	Gold & Silver Smith	NCII	5.90	Long term	Accredited	2018	DOS	Pre-service
	Gold & Silver Smith	NCIII	9.90	Long term	Accredited	2018	DOS	Pre-service
	Sculpture	NCII	6.50	Long term	Accredited	2018	DOS	Pre-service
	Sculpture	NCIII	9.80	Long term	Accredited	2018	DOS	Pre-service
	Sculpture	ND	13.60	Long term	Accredited	2018	DOS	Pre-service
	Painting	NCII	6.27	Long term	Accredited	2018	DOS	Pre-service
	Painting	NCIII	9.60	Long term	Accredited	2018	DOS	Pre-service
	Wood Carving	NCII	9.93	Long term	Accredited	2018	DOS	Pre-service
	Wood Carving	NCIII	8.27	Long term	Accredited	2018	DOS	Pre-service
	Wood Turning	NCII	13.07	Long term	Accredited	2018	DOS	Pre-service
	Tailoring	NCII	3.83	Long term	Accredited	2018	DOS	Pre-service
	Tailoring	NCIII	7.50	Long term	Accredited	2018	DOS	Pre-service
	Embroidery	NCII	10.73	Long term	Accredited	2018	DOS	Pre-service
	Embroidery	NCIII	10.17	Long term	Accredited	2018	DOS	Pre-service
NIZC Thimphu	Lhadri NC II	NC II	18	Long-term course	Accredited	2017	DoS	pre-service

Annex

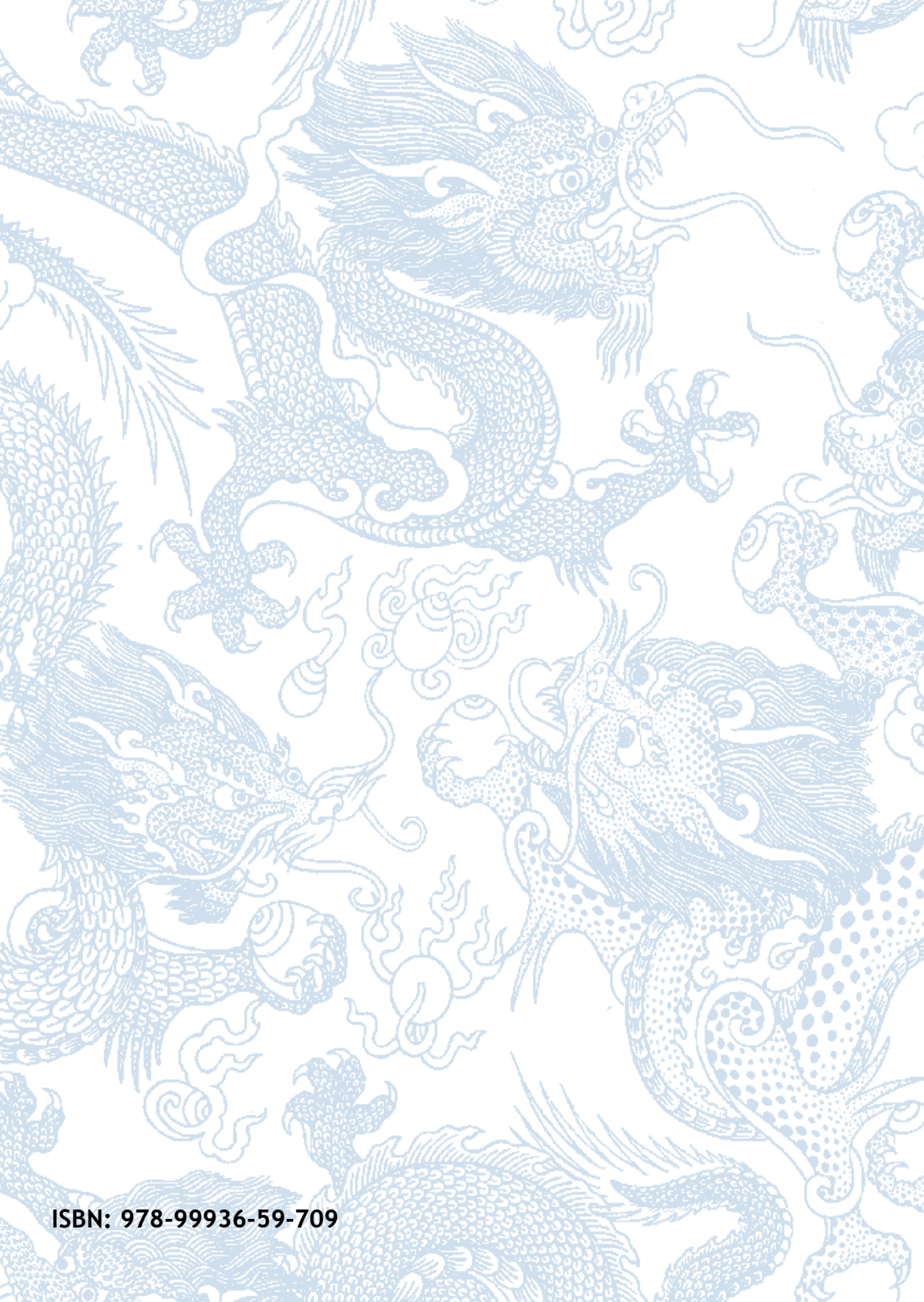| Institute	Name of the course	Level (MoD)	Duration (in Months)	Type (long or short course)	Accredited/Not accredited	Year of accreditation	Accreditor	Type
	Lhadri NC III	NC III	24	Long-term course	Accredited	2018	DoS	pre-service
	Jimzo NC II	NC II	14	Long-term course	Accredited	2018	DoS	pre-service
	Jimzo NC III	NC III	24	Long-term course	Accredited	2018	DoS	pre-service
	Patra NC II	NC II	18	Long-term course	Accredited	2017	DoS	pre-service
	Patra NC III	NC III	16	Long-term course	Accredited	2018	DoS	pre-service
	Tshemdru NC II	NC II	17	Long-term course	Accredited	2018	DoS	pre-service
	Tshemdru NC III	NC III	15	Long-term course	Accredited	2018	DoS	pre-service
	Tshemzo NC II	NC II	12	Long-term course	Accredited	2017	DoS	pre-service
	Tshemzo NC III	NC III	12	Long-term course	Accredited	2018	DoS	pre-service
	Trezo NC II	NC II	12	Long-term course	Accredited	2018	DoS	pre-service
	Trezo NC III	NC III	13	Long-term course	Accredited	2020	DoS	pre-service
	Weaving	NC II	24	Long-term course	Not Accredited			pre-service
JWPTI Dekiling	Hydro Power Mechanical	NC II	14	long term	Not Accredited			Pre-service

Institute	Name of the course	Level (MoD)	Duration (in Months)	Type (long or short course)	Accredited/Not accredited	Year of accreditation	Accreditor	Type
	Hydro Power Transmission and Distribution Line men	NC II	14	long term	Accredited			Pre-service
	Masonry	NC II, NC III	16, 6	long term	Accredited			Pre-service
	Plumbing	NC II, NC III	14, 6	long term	Accredited			Pre-service
	Carpentry	NC II & NC III	16, 6	long term	Accredited			Pre-service
	Wooden Furniture Making	NC II, NC III	8, 6	long term	Accredited			Pre-service
	Welder	NC II & NC III	14, 8	long term	Accredited			Pre-service
	Fitter	NC II	24	long term	Accredited			Pre-service
	DTP Masonry	NC II	24	long term	Accredited			Pre-service
	DTP Carpentry	NC II	24	long term	Accredited			Pre-service
	DTP Furniture	NC II	24	long term	Accredited			Pre-service
	Transformer Maintenance		0.5	Short term	Not accredited			In-service

Institute	Name of the course	Level (MoD)	Duration (in Months)	Type (long or short course)	Accredited/Not accredited	Year of accreditation	Accreditor	Type
	UG cable laying and trenching		0.5	Short term	Not accredited			In-service

Note:

1. *Courses listed are up to March 2021. New courses would have been accredited since then which can be updated only in the next issue.*