TVET
STATISTICS OF BHUTAN

In the Quest for Transforming TVET through Data-Informed Approach

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TVET Statistics of Bhutan 2020

In the Quest for Transforming TVET through Data-Driven Approach

Department of Technical Education (DTE)
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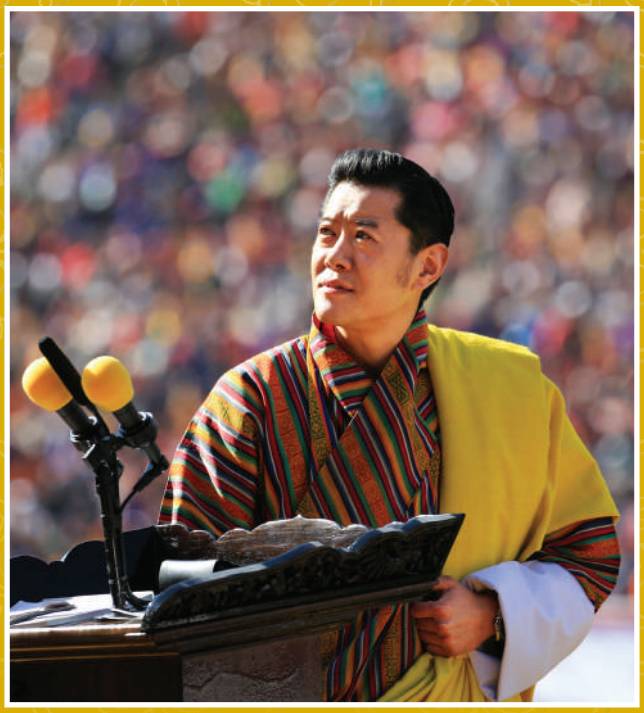
Most humbly dedicated to
40th Birth Anniversary of His Majesty Druk Gyalpo
Jigme Khesar Namgyel Wangchuck



"The government has provided education to our youth. But for the nation to prosper for all time, a sound education must be succeeded by access to the right jobs and responsibilities, so that our youth may bloom as individuals and at the same time serve their Nation well."

- His Majesty The King's Address at the 2012 National Day Celebration

"The greatest and the most valuable wealth we have in Bhutan is our people. We can never go wrong if we invest in human resources - no matter how much it cost, that investment will give our Nation rich dividends and what we lack in number, we must make up in talent."

- His Majesty The King's Address at the 10th Convocation of the Royal University of Bhutan on 25th February 2015.

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Technical Working Group (TWG) for TVET Data

Lham Dorji, Chief Program Officer, Technical Institute Support Division (TISD), DTE led the Technical Working Group (TWG) for TVET Data. Besides his key role in the data collection, he carried out the data analysis, writing and report designing. Dorji joined TISD in March 2018. He worked as Chief Research Officer at National Statistics Bureau (NSB) from 2010-2018 and as a multi-disciplinary Researcher at the Centre for Bhutan Studies (2001-2010).

Yeshey Wangchuk, Program Officer, TISD, DTE contributed to developing the data templates and in data collection, validation and integration of datasets. He joined TISD in 2019. He worked as a labour officer in MoLHR's Regional Office, Phuentsholing.

Choki Wangmo, Assistant Engineer, TISD contributed to developing the data templates. She participated in the data collection, validation and integration of datasets.

Thinley Gyeltshen, Labour Officer, DOL, MoLHR joined the TWG after the first round of the data collection. He helped the TWG in the second round of the data collection, validation and integration of datasets.

Kinga Wangdi, Specialist was TWG member until he superannuated towards the end of 2019. He participated in developing data templates, data collection and validation.

Yeshey Khandu, Chief Program Officer, DOS was TWG member until she had to join the RCSC's ODA exercise team. She helped the team develop the data templates and in the data collection, review and data processing. She liaised between the TWG and Other Public and Private Training Providers (OPPTPs).

Sancha Bahadur Subba, ICT Associate, JWPTI was a member of TWG. He participated in developing the data templates and in conducting the data review and data processing. He worked as an ICT associate in Thimphu TTI from 2010 to 2017 before joining JWPTI.

Sonam Tenzin, ICT Officer, Directorate Service, MoLHR was a member of TWG. He took part in reviewing the first datasets. He had to leave the TWG for other important assignments after the first round of data collection and review.

Data Focal Persons of TTIs and IZCs

1. Choki Wamgmo ADM, TTI Samthang
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12. Tashi Lhendup, IT instructor, TTI Thimphu
13. Yeshi Wangdi, Vice Principal, TTI Rangjung

Note: *The list of the data focal persons of OPPTPs could not be included because the TWG did not receive the formal nominations. The correspondences with them were made through the registered emails.*

Royal Government of Bhutan

Ministry of Labour and Human Resources

MINISTER

Foreword

I am pleased to release the first-ever TVET statistical report entitled 'Annual TVET Statistics of Bhutan'. It is a comprehensive TVET statistics from 2008 up to the quarter ending October 2019. The report presents a combination of statistics drawn from the administrative and survey data covering five major areas of TVET: context, access and participation, quality, relevance, and governance and financing. The administrative data were collected from TVET providers and government agencies. Some preliminary survey data were obtained from the ongoing multi-cohort TVET tracer study (2003-2018).

The paucity of data and systematic information on TVET remains a serious obstacle to TVET reforms and development in Bhutan. The existing TVET Quality Assurance Management and Information System (QAMIS) is confined to the quality assurance system and its indicators. Research and analysis that are critical to inform TVET policies and plans and monitor and evaluate TVET programmes and projects are almost absent.

The cost of generating TVET statistics is high but neglecting it would have some adverse consequences on the TVET system. In the age of Data Science, any agency or reform must rely on data for making informed policy decisions, strategic planning, performance measurement and forecasting. Because of these, the report is expected to serve as the baseline information for policymakers, planners and managers of various institutions, government organisations, donors, private, NGO and corporate stakeholders and research agencies working in various fields of TVET.

Spearheaded by the Department of Technical Education (DTE), this inaugural issue of TVET statistics is a by-product of our bigger resolve to build a robust TVET MIS. The report makes explicit our commitment and zeal for exploiting data at every stage of TVET management and development so that TVET becomes increasingly sensitive to the needs of the Bhutanese economy and society. I am confident that the report will provide crucial information for various TVET reforms under an independent TVET body/institute.

The MoLHR's Technical Working Group (TWG) for TVET data had taken due care to ensure every possible data accuracy, validity and completeness. Nevertheless, the report is expected to have some shortcomings for being the first of its kind. This was so much the TWG could do. The users/readers should be able to bear with the report's limitations while the statistical team should use these shortcomings as the basis for improving future TVET statistics. The report was deliberately detailed and lengthened but it will be short, sharp and concise from the next issue onwards.

I am aware of a scale of the challenge the TWG had to face in trying to put the report in the present form. TVET constitutes hundreds of courses in several occupations with varying duration, rendering data collection, processing, integration and analysis complex. Moreover, in the absence of systematic management of data in many TVET institutions, the TWG had to start the data collection process almost from scratch. I am delighted that we have made this modest beginning. It is crucially important to sustain the effort into the future.

I place on my record my appreciation and thanks to Director Norbu Wangchuk of the Department of Technical Education for this historic initiative. I convey my sincere appreciation to the team of officers led by Lham Dorji (Chief Program Officer). They worked diligently to make this project successful while shouldering their regular responsibilities. I also want to convey my appreciation to all the data focal persons of participating training providers for their effort to make the data available.

Your comments will be useful to improve the future series of TVET statistics. I hope the TVET statistical reports will become more valid, relevant, regular, impartial and accessible to be able to contribute towards building 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

February 20, 2020

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Acronyms and Abbreviations

ADB: Asian Development Bank
AES: Annual Education Statistics
AFD: Administration and Finance Division
AfDB: African Development Bank
APA: Annual Performance Agreement
ATP: Apprenticeship Training Programme
BCSE: Bhutan Certificate of Secondary Education
BCSEA: Bhutan Council for School Examinations and Assessment
BHSEC: Bhutan Higher Secondary Education Certificate
BOE: Bhutanese Overseas Employment
BOWs: Bhutanese Overseas Worker
BQF: Bhutan Qualification Framework
BVQF: Bhutan Vocational Qualification Framework
C-SR: Cohort Survival Ratio
CBA: Cost-Benefit Analysis
CBF: Competency-Based Framework
CBT: Competency-Based Training
CEA: Cost-Effectiveness Analysis
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
EC: European Commission
ECCD: Early Childhood and Care Development
ECPF: Education Consultancy and Placement Firm

EPR: Employment-to-Population Ratio
ETF: European Training Foundation
FDI: Foreign Direct Investment
FW: Foreign Workers
FY: Financial Year
FYP: Five-Year Plan
GER: Gross Enrolment Rate
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 Organisation
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
KPI: Key Performance Indicators
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 Organisation
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
NWfP: National Workforce Development Plan
OCR: On-Campus-Recruitment
ODA: Official Development Assistance
OECD: Organisation 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
OSH: Occupational Safety and Health
PAR: Poverty Analysis Report
PCA: Pass Certificate Awarded
PD: Professional Driving
PEEP: Pre-Employment Engagement Programme

PHCB: Population and Housing Census of Bhutan
PMU: Project Management Unit
PP: Pre-Primary
PPP: Private–Public Partnership
PSL: Priority Sector Lending
PTA: Project-Tied Assistance
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 (RoR)
RPL: Recognition of Prior Learning
RTI: Royal Technical Institute
RUB: Royal University of Bhutan
SEED: Skills for Employment and Entrepreneurship Development:
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
TPSD: TVET Professional Service Division
TTI: Technical Training Institute
TTI-C: Technical Training Institute-Chumey
TTI-K: Technical Training Institute-Khuruthang
TTI-R: Technical Training Institute-Rangjung
TTI-S: Technical Training Institute-Samthang
TTI-T: Technical Training Institute-Thimphu
TVET: Technical and Vocational Education and Training
TWG: Technical Working Group
UGIP: University Graduates Internship Programme
UNESCO: United Nations Educational, Scientific and Cultural Organisation
UNEVOC: International Centre for Technical and Vocational Education and Training
UWICER: Ugyen Wangchuck Institute of Conservation and Environment Research
VSDC: Vocational Skills Development Curriculum
VSDP: Village Skills Development Programme
WB: World Bank
WG: Washington Group
YDF: Youth Development Fund
YES: Youth Employment Skills

Acknowledgement

This report is the result of a team effort. The members of the Technical Working Group (TWG) for TVET data are grateful to His Excellency the Minister and Dasho Secretary of the Ministry of Labour and Human Resources (MOLHR) for their inspiration and unwavering support. Their support was manifested in sparing their time and effort to review and monitor the work progress through several joint sittings. We are highly indebted to Director Norbu Wangchuk of the Department of Technical Education (DTE) for his guidance and constant supervision as well as for providing necessary support.

We would like to thank the principals and staff of TTIs, IZCs and all the participating registered training providers for their efforts to make the administrative data available. The datasets they had prepared served as the main input data. DAHE of MOE, RUB and DoEHR, DOS, AFD, ICT of MoLHR were other main data contributors. A substantial amount of data for the context indicators were sourced from NSB's regular and survey reports. We remain indebted to all those individuals and agencies for sharing or allowing us to use their data.

The TWG appreciates the contribution of Jigmi Dorji, Deputy Chief Program Officer, TISD for taking up the major responsibilities of TISD when three officers were engaged in the data initiative.

The entire initiative was jointly funded by RGoB, Asian Development Bank and Helvetas Bhutan. We would like to thank ADB-Project Management Unit (PMU) and Helvetas PMU, DTE.

Finally, the TWG would like to acknowledge the contribution of each and every data focal persons from the participating training institutions. The report would not have been possible without their contribution and collaboration.


TRAINING VEHICLE
(Alto) No. 6


AINING INSTITUTE-KHURUTHANG
1-A0009

Executive Summary

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. Still then, there is so much to improve in using feedback data to inform TVET reforms and development. Getting credible TVET data is difficult, let alone getting statistics (aggregated data). Two attempts to create comprehensive TVET statistics did not materialise. Thus, this publication marks the success of producing the TVET statistical report for the first time in the history of TVET. It is expected to provide the baseline 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 registered Training Providers (TPs) had failed to meet the data request while several others had submitted incomplete datasets. This being a maiden statistical report, some statistical errors were inevitable. The TWG 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.

I: Context Indicators

(1) The total population of youth (15-24) in 2017 was 143, 356 youth (PHCB). It was 19.76% 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 (20.9%) and Phuentsholing (10.27%) in 2017.

(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) Enrolment in class X is likely to decrease from 12,574 in 2019 to 10,571 in 2028 (projected). It is projected that enrolment in Class XII will increase from 10,596 in 2019 to 11,850 in 2028 with no class XI cut-off point. On the contrary, enrolment in class XII is projected to decrease from 10,596 in 2019 to 9,057 in 2028 if class XI cut-off point is re-introduced in the near future. The accuracy of these projections will depend on whether the conditions associated with school enrolments remain almost similar to the

conditions that prevailed during the period that was used as the basis for the projections.

(6) The average youth unemployment rate between 2009 and 2018 was 10.95%. The working population size in 2017 was 332,099 (PHCB).

(7) In 2019, there were 46,679 Foreign Workers (DoEHR). FWs was roughly 14% of the total working population. They were engaged mainly in hydropower and construction sectors.

(8) Bhutan had experienced a gradual increase in its Gross Domestic Products (GDP). The annual GDP growth rate averaged at 5.34% between 2013 and 2017. GDP of 2017 was Nu. 164 billion (roughly 2.5 billion USD).

(9) The fluctuating GDP growth rates between 2013 and 2017 reflect the consequence of the economy's 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 40.57% while that of the Tertiary Sector (service industry) was 42.06%. The contributions of these two sectors to GDP did not change much between 2013 and 2017. 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). These type 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%).

II: TVET Access and Participation Indicators

(1) The administrative TVET data were collected from eight TTIs & IZCs and 67 Other Public Training Providers (OPPTPs). Seven OPPTPs did not resubmit the data after reviews, 17 OPPTPs refused to submit any data, 3three Training Providers (TPs) were new and seven TPs were closed after the first round of data collection.

(2) Out of 115 registered Training Providers (TPs) in 2019, 64 TPs were based in Thimphu Dzongkhag/Thromde. The other major towns where most TPs were congregated were Paro and Phuentsholing Thromdes. The distribution of TPs in 2019 was urban-biased. The majority of TPs/training institutes were established between 2016 and 2019 (47 TPs).

(3) The majority of TPs (72%) were classified under Grade C. Three TPs had attained Grade A (3%) by 2019.

(4) On the whole, 84.4% of the TPs belonged to the private sector. TTIs and IZCs under MoLHR's direct administration constituted just 6.96% in 2019.

(5) Driving, IT, Media and Management were the top courses offered by the TPs until now.

TTIs and IZCs

(6) TTIs and IZCs have listed 86 courses in 41 disciplines. About 16 courses were the institute-level certification (18.60%), 46 National Certification II (NC II) (53.49%), 23 NC III (26.74%) and one National Diploma (ND) level (1.16%). Seventy-one courses until 2019 were long-term and 15 courses were short term.

(7) The highest number of courses listed by TTIs and IZCs belonged to the disciplines of Automobile Mechanic and Jimzo (sculpture) followed the courses in Carpentry, Masonry, Plumbing, Electrical, Lhadi (painting), and Patra (carving).

(8) The highest number of courses (listed by TTIs and IZCs) belonged to the ISCED-F-2013 category '0732-Building and Civil Engineering' constituting roughly 25% of the total courses. The second-highest number of courses were under the category '0716-Motor vehicles, ships and aircraft' (about 17%).

(9) The total intake capacity (fresh enrolment + existing trainees) of TTIs and IZCs in any given time was estimated at 1770 in 2019. The total number of trainees (strength) in all TTIs and IZCs in 2018 was 1708.

(10) Out of 12,026 enrolments (2008-2019), 71.73% were males and 28.27% females. Enrolment fluctuated in TTIs and IZCs with the highest number of enrolment in 2017 (1535), 1372 in 2018, and 957 in 2019.

(11) The highest enrolments (2008-2019) were in Electrician (1819) courses followed by enrolments in Masonry (726), Automobile (723) and Lhadi (676) courses.

(12) Taking the average enrolment between 2008 and 2019, annual enrolment in Long-Term Courses (LTC) was 906, 234 in Short-Term Courses (STC), and just 23 in ATPs. On average, the total enrolment in LTC, STC and STP was 1164 per year.

(13) On average, enrolment in TTIs and IZCs was 5.20% of the total enrolment in class X and XII in school education for the period 2008-2019.

(14) Gross Enrolment Rate (GER) measures participation in education and training programme. GER for TTIs and IZCs for the period 2015-2019 was 4.05%. In contrast, GER for the higher secondary school education was 71.3% in 2018.

(15) TVET Gender Parity Index (GPI) measures equity and participation in training programmes. The average GPI of TTIs and IZCs for the period 2015-2019 was 0.42. GPI for higher secondary school education was 1.06 in 2018. GPI closer to one indicates gender equity in enrolment. GPI of more than one is in favour of females and less than in favour of males.

(16) Samthang TTI's GPI caused the major bias in GPI as its GPI was just 0.05. This Lowe 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 0.56. Still then, TTIs and IZCs have a long way to go to achieve satisfactory GPI.

(17) Between 2013-2019, 76% of trainees in TTIs and IZCs were class X pass outs and 24% class XII pass outs. These calculations were based on the record of only 67% of total enrolment during the same period. About 33% of the trainees had not reported their academic qualifications.

(18) Enrolment of individuals in TTIs and IZCs with Class X qualification had dropped from 75.93% in 2017 to 64.65% in 2018 and 44.41% in 2019. Enrolment of individuals with class XII qualification had risen from 24.07% in 2017 to 35.35% in 2018 to 55.59% in 2019.

Alternative TVET Programmes

(19) 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.

(20) The total number of individuals trained through VSDPs between 1997 and 2019 was 2644 (66.04% males and 33.96% females). The most popular

VSDPs among males were electrical house wiring (28.25%), home appliance repairing (14.22%) and tshemzo (12.29%). More females were represented in the programmes that are traditionally considered female-friendly like courses in tshemzo (tailoring), thagzo (weaving), tshemdru (embroidery) and hairdressing.

(21) 2532 persons were trained through SSDPs (64.42% males and 35.58% females) between 1997 and 2019. Twenty-four trades were covered under SSDPs. Tshemzo (tailoring) and lhadi (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.

(22) 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 1.74% of the total and 5% were juvenile delinquents. More than 47% were monks and nuns.

(23) The School-To-Work-Transition Programmes (STWTPs) represent non-formal TVET. MoLHR organises STWPTPs outside the Bhutan Qualification Framework (BQF) through Public–Private Partnership (PPP).

(24) Between 2014-2019, about 2748 persons (48% males and 52% females) had attended various STWTPs among which the most popular one was the Youth Employment Scheme (YES). From among 71 occupations, the top five occupations trained through STWTPs in the last six years were Tailoring, Food and Beverages, Commercial Cooking, Furniture Making and Front Office.

(25) Among STWTP participants, 44% had class XII qualification, 37.59% class X and 14.12% degree.

(26) Additionally, 7711 individuals (4938 females and 2773 males) had availed ATP, University Graduates Internship Programme (UGIP) and Pre-Employment Engagement Programme (PEEP) from 2010 to 2018. The highest number of individuals who had availed ATP possessed class X (62%) qualification. PEEP was popular among class XII graduates (50%) and UGIP among university graduates (94.5%).

(27) MoLHR and its agents have sent abroad over 5000 Bhutanese as BOWs so far in as many as 12 countries mostly based in Kuwait and India followed by Japan, UAE, Qatar, Thailand and so on. Though occupations of BOWs were not properly classified (especially those marked as 'study and work'), more than 59 occupations were listed among which the majority of them were recorded as engaged in 'sales' and other services. The

majority of BOWs are class XII certificate holders (44.93%). Among them, more than 300 are technical graduates.

(28) As of 2018, seven school-based TVET programmes had provided TVET-related course to 776 students. These pilot schools were located close to TTIs and IZCs.

Registered Other Public and Private Training Providers (OPPTPs)

The number of OPPTPs varies for different variables such as courses listed, enrolment, graduation, etc, as not all 67 OPPTPs could provide the datasets with the same level of completeness.

(29) Sixty-seven registered OPPTPs have listed 147 LTCs (duration of >3 months) and 822 STCs (<3 months) in 2018-2019. Among STCs, 24.7% were the courses of less than one-week duration. It is to be noted that not all the courses were offered regularly but depended on market demand. The catalogue of courses only reflects the potential number of courses that 67 OPPTPs could offer in 2018-19.

(30) Among the courses that were in the list, about 89% were the institute level Certificates, 8.64% National Certificates (NCs) and about 2% diplomas (institute-level diplomas). Less than 1% were the National Diplomas.

(31) About 91% of the courses that were listed were not accredited while about 9% were accredited. This shows there is a need to reinforce the Quality Assurance System (QAS) to increase the course accreditation.

(32) Top five courses that 67 OPPTPs offered were related to Management and Administration (16% of the total courses listed); Information Technology (9.30%), Audio-Visual and Media Production (9.10%), Personal Skills (6.80%) and Accounting and Taxation (6.80%).

(33) Sixty-seven OPPTPs provided training to pre-service group (31.1%), in-service (10.5%) and both pre-and in-service (58.4%).

(34) In 2018, 62 OPPTPs had enrolled 7388 males and 4992 females, making the total of 12,380.

(35) Gross Enrolment Ratios among 62 OPPTPs in 2018 was 8.62% while GPI was 0.75 (far better than TTIs and IZCs). GPI was again biased towards enrolment in driving courses which were dominantly males. If the enrolments in driving courses were excluded, GPI among OPPTPs would turn out to be favour of females (>1).

(36) Sixty-two OPPTPs (number of OPPTPs varied due to the availability of data) had offered 138 courses in 2018. The highest enrolments were in Light Vehicle Driving Training (3047, 24.5%), One-day Introductory Course on Driving (1896, 15.3%), Tourism Vehicle Driving Training (594,

4.8%), Professional Driving Courses (501, 4.1%) and Cultural Tours Guide (361, 2.9%).

(37) Data duplication was evident, as many of the trainees in OPPTPs could have been the beneficiaries of MoLHR's STWTPs. This happens when the records are maintained at the institute/programme level rather than at the individual level. The future data management should need to consider this lapse.

(38) About 79% of the enrolments in 62 OPPTPs in 2018 corresponded to institutional certificate courses (not certified by DOS). The second-highest enrolment was observed in NC II (National Certificates II). The enrolments in other levels were relatively insignificant.

(39) In 2018, out 62 OPPTPs, 55 had reported the qualifications of their trainees. Among the trainees, 30.15% were class X graduates, 43.67% were class XII, 2.81% diploma, 8.3% university graduates. About 13% of the enrolees had qualification below class X while the qualification 2.12% were categorised as 'others' (possibly includes ex-monks as well).

(40) The graduation record of 56 OPPTPs shows that in total 22,465 individuals had graduated between 2008 and 2019 with slightly more males graduates (57.92%) compared to female graduates (42.08%). The graduation increased from 2008 to 2018 with a sharp increase in 2017 and 2018 and then a steep drop in 2019.

(41) The data shows the insignificant number of disabled people taking up TVET programmes, and thus, their statistics were excluded from this report. However, this indicates the need to enhance access and participation of people with disabilities in TVET.

III: TVET Quality Indicators

The data for SL 1-13 were sourced from DOS's TVET-QAMIS.

(1) Forty TPs out of 115 offered 92 accredited courses (NC and ND level courses) as of October 2019. The maximum number of the courses that were accredited were in the fields of driving (14) followed by guide training (11) and tailoring (5).

(2) One hundred ninety-nine trainers were registered with DOS as of October 2019. Among them, 28 trainers were certified to teach/train at certificate level courses, 28 at NC II level, 54 NC III and 62 at ND level. The maximum number of certified trainers were specialised to provide training in Electrical (14), Forestry (12), and Automobile (10) courses.

(3) Eight-one course accreditors (68 males and 13 females) were registered with DOS as of October 2019. The maximum number of the accreditors

were certified to accredit courses related to Computer Application Assistant (10), Automobile (9) and Tailoring, Lhadi and Computer Hardware Technicians (6 each).

(4) Four hundred and eleven assessors (328 males and 83 females) were registered with DOS as of October 2019. 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 specialised in trades related to Civil Construction (67), Electrician (6), and Computer Application Assistant (40).

(5) Between 2011-2019, DOS had awarded over 9070 certificates. In all, 69.25% certifications were at NC II level, 4.20% at NC III level and 1.65% at NC I level.

(6) About 73% of the total national certification was awarded to males compared to 27% females. Relatively more males were awarded the RPL certification.

(7) Out of 50 occupations, the highest certification was awarded to electrician (20.38%) and cultural tour guide (13.17%) courses. The top nine national certifications with more female representation were computer application, commercial accounting, tailoring, hotel supervisor operation, tradition/ folk dance, food and beverages, auto-electrician, auto-painting and plumbing. There is a need to attract more females into previously male-dominated training and careers and vice-versa.

(8) Out of 1623 RPL certifications, 664 RPLs were awarded to courses on Transmission and Distribution Linemen (NC II). The highest institute-based NC II was awarded to Cultural Tour Guide (1849) course.

(9) The highest national certifications were awarded to the courses classified under the following ISCED-F-2013 occupations: '0731-Electricity and Energy' (24.7%) followed by '1015-Travel, Tourism and Leisure' (22.0%) and '0732-Building and Civil Engineering' (18.7%) and 14 other occupations.

TVET Trainers (data were drawn from eight TTIs and IZCs and 60 OPPTPs)

(10) TVET trainers in TTIs and IZCs in 2019 were mostly regular staff. Over 70% 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 specialised in four trades namely, mechanical engineering (21.1%), electrical engineering (11.4%), civil engineering (8.6) and painting (8.1%).

(12) The academic qualifications of trainers in TTIs and IZCs ranged from certificates to masters with the majority (66.5%) of them possessing diploma (standard requirement to teach NC level). About 24.3% of them had a bachelor's degree, 5.4% certificate and 3.8% master's degree.

(13) More than 21% of the TVET trainers in TTIs and IZCs had not availed all four modules ToT as October 2019. This means the TOT coverage was 79%. It cannot be 100% unless the trainers' turnover is zero.

(14) The largest number of trainers in TTIs and IZCs in 2019 were in the age cohort of 22-30 years (37.20%) followed by the age group of 26-30 years. The mean age of the trainers in TTIs and IZCs was 35 years (STD 8.3).

(15) About 19.5% of trainers in TTIs and IZCs had worked as trainers for less than a year while 26.5% had reported having worked as trainers for 10-15 years.

(16) Out of 1358 training availed by teaching and non-teaching staff of TTIs and IZCs between 1990 and 2019, 78% were short-term (5-180 days) and 19.5% were those that took less than five days. Training were classified as per the RCSC's definition and includes even workshops and seminars. The staff who did not avail any training were the management staff—and among them—mostly new recruits and GSP staff. In all, 73 staff members have not availed any training at the time of reporting this data.

(17) Most training were availed within the country (510, 35.64%). The ex-country training were attended in over 17 countries. The second-highest number of training was availed in Thailand (83) followed by in India (74), Nepal (37), Philippines (20) and so on.

(18) Out of 351 trainers in 60 OPPTPs, only 158 trainers (45%) had TOT certifications. About 55% of trainers were not certified in all four modules of DTE's ToT or any other related TOTs. Close to 14% have completed all the four modules while some trainers were undergoing various modules of TOT at the time of reporting the data. Among trainers who were TOT certified, some had availed TOTs from the sources other than TOT provided by DTE.

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

The preliminary data from the tracer survey, 2019 were used. The results pertain to only the graduates of TTIs and IZCs. The respondents from among the graduates of other OPPTPs were committed and will be included in the tracer study report.

(19) The highest percentage (41.93%) 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 2013-2018.

(20) The next variable with the highest number of respondents giving poor rating was 'lack of post-graduation support in terms of job search' (36.58% rated it as poor). The availability and quality of training tools and equipment relatively had the third highest poor rating followed by the rating of ICT learning and entrepreneurship training at TTIs and IZCs. About 25.50% (rank 7) rated the quality of practical learning as poor.

III: TVET Relevance Indicators

The Data were drawn from the on-going online TVET tracer survey. The results may change in terms of frequency but percentage change may be very small in the final tracer report.

(1) Out of 2356 TTI and IZC graduates who responded to the tracer's question on the status of their employment, 76% (1791) of them had reported that they were employed. Among the employed graduates, about 67.88% were males and 32.12% females and among the unemployed, 46.40% were males and 53.60% were females. In all, male graduates were doing relatively well in terms of employability than female graduates.

(2) The 76% 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 60.02% were regular employees and the rest were temporary (34.67%)—17.70% were on the fixed-term contract and about 17% were casual workers. More than 5% of the employed graduates were self-employed.

(3) Close to half of the 1995 respondents (TTI and IZC graduates) had stated that they found it difficult to get the jobs related to their training. Although many factors could be influencing this demand-supply equilibrium, it may also the indications of the skills mismatch and the situation in the labour market. This remains the major issue facing the TVET sector as this issue is likely to affect not only the employability of the TVET graduates but also the TVET image and attractiveness. This issue is much beyond the TVET sector and is cross-cutting in nature. Further analysis may be required to identify and address the factors that impact the transition to decent work.

(4) Among many reasons, the top three reasons given by TTI and IZC graduates for unemployment were 'lack of job opportunity'(28.03%), 'lack of work experience (15.75%) and low wage/income (15.09%).

(5) Out of 1829 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 (22.46%), (2) Professional, Scientific and Technical Activities (18.85%) and (3) Manufacturing (9.32%).

(6) 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%).

(7) The major occupational group in which TTI and IZCs graduates were employed constituted a 'technician group'. This group made up about 31% of the total graduates employed in 96 different occupations. Roughly 12.08% of them were electricians. Although electricians are also technicians, they are reported separately as reported by the respondents. Less than 1% of them were engaged in their own businesses. About 1.6% of them were working as TVET trainers in various TTIs, IZCs and other institutes.

(8) More than 45% of the respondents stated they got their first jobs three months after leaving their training. About 47% of males reported getting their first jobs within three months while 43.48% of females reported the same. More than 6% of the graduates reported they got their first jobs only after two years. More than 11% of them had a time-lag of one to two years before getting their first jobs. If six months is considered a reasonable time-lag, about 68% got their first jobs within this time frame.

(9) 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 ongoing tracer survey show that more than 67% had reported they earn less than Nu. 15,000 per month while 12.8% earn between Nu, 15,000 and Nu. 17,000 per month. About 24% of the respondents had reported they earn between Nu. 13,000 and 17,000 per month.

(10) 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.

(11) On the relevance of theoretical and practical learning in TTIs and IZCs to their actual works. More than 75% of the respondents stated their theoretical learning was relevant while close to 79% reported their practical learning was relevant.

(12) The On-Campus-Recruitment (OCR) involves employers seeking, engaging and hiring the graduates of TTIs and IZCs upon the completion of the training. In 2017, the combined OCRs of all seven TTIs and IZCs constituted 23.74% of the total graduation while it was roughly 23.64% in 2018.

IV: TVET Governance and Financing Indicators

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

(1) The highest number of TTI and IZC staff resigned in 2018. Among the staff who had left either on transfer, superannuation or resignation, the highest number of them were junior instructors. Twenty junior instructors (trainers) and 8 instructors had resigned between 2008 and 2019.

(2) Among the eight TTIs and IZCs, Thimphu TTI recorded the highest Annual Performance Agreement (APA) scores of GPMD at 99.70% and 98.80% in FY 2017-18 and 2018-19 respectively.

(3) 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. The major share of the budgets was allocated for capital activities.

(4) 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.

(5) The annual budgets and expenditures of TTIs and IZCS for FY 2010-2019 by institutes shows that on average, each of eight TTIs and IZCs was allocated the budget of Nu. 20.94 per FY (between 2010-2019) and the reported expenditure on average was about Nu. 19.65 per FY. Between 2010-2019, the total budget allocation for all TTIs and IZCs was about Nu. 1479.02 million while the expenditure amounted to Nu. 1373.07 million.

(6) MoLHR's TVET budget as a percentage share of MOE's budget averaged 4.72% per year. The education sector received on average 20.13% of the total government's annual outlay while MoLHR's TVET sector received on average 0.94% of the total government's expenditure annually. MoLHR's TVET sector budget on average constituted about 0.34% of the country's GDP annually. Studies have shown that East Asia-Pacific countries spend about 1-2% of GDP on TVET.

(7) The budgets and expenditures of OPPTPs were not included otherwise the investments on TVET by other public training institutions like AMC, WCCL, RAPA, RITH, RDTC, YDRC and UWICER and private TPs would add to the total investments on TVET.

(8) 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.

V: Conclusion

(1) The report was detailed for the reason that it is first of its kind. The subsequent annual TVET statistics would be concise, more reliable and timely. The team acknowledges a certain level of inconsistency and inaccuracy in the data presented in this report.

(2) For modernising 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) decentralising data collection from institute/programme-based to individual-based.


TECHNICAL TRAINING INSTITUTE
THIMPHU

SECTION 01

TVET Statistics of Bhutan

Introduction

In recent years, the TVET sector in Bhutan has gained enhanced recognition from the government and public. This is manifested in various current reforms including the plan to establish an independent TVET governance and management system. Such recognition stems from TVET's huge potential to evolve as the employment safeguard for young people and adults seeking education and training outside the schooling system and for its crucial roles in meeting the economy's demand for a skilled and competent workforce. Article 9 (12) of the Constitution of the Kingdom of Bhutan ensures 'vocational guidance and training' for every Bhutan citizen and testifies the state's recognition for building build a knowledge-based economy and productive human resource. TVET's full potential can be harnessed through [its] sustained transformation, revitalisation and modernisation concurring with the changing socio-economic and technological contexts including the Fourth Industrial Revolution (IR4). All these would entail constant improvement of TVET quality, relevance, governance and financing through evidence-based decisions, strategic planning and management, effective monitoring of progress and use of market information to inform TVET supply. For all these courses of actions, quality, reliable and timely data would remain indispensable.

The Department of Occupational Standards (DOS) has developed the TVET Quality Assurance Management Information System (QAMIS) as a part of its Quality Management System (QMS). The TVET-QAMIS is specifically for quality assurance and is still in a formative stage. It needs to broaden its indicators and invigorate its management, including data analysis and use. Bhutan's TVET Sector Assessment Blueprint Working Paper-I (2016) had reported that the use of data to monitor, evaluate, and improve TVET sector performance is poor while available data remain generic and inaccurate. Few available TVET data are managed discretely by TVET institutions, departments, and individuals resulting in data duplication, inconsistency and confusion. The TVET Blueprint (MoLHR, 2016: 39) further ascertains the data gap: "MoLHR does not have a coherent labour market information system to guide decision-making. Information is collected in an ad-hoc manner and based on individual surveys or studies. As the TVET system grows, it would become important to ensure that more data are collected to understand the labour market and guide decisions on how resources are allocated for TVET."

Even after a few earlier assessment reports had recommended the need to improve TVET information system, getting basic TVET data is still difficult, set aside the availability of TVET statistics (aggregated/disaggregated data) for comparing public and private provisions and conducting any kind of forecasting and research. There is poor feedback data to inform TVET progress and development at both institutional and national level. It is not surprising that in the absence of data, the policy intention may remain infused with policy statements of where TVET should go or how it should be rather than where the system is now. This can seriously undermine any reform in TVET. Addressing these data and knowledge gaps, on all account, should actually receive the highest policy consideration.

Against these backdrops, the TVET Conference held in Thimphu (22-24 October 2018) recommended revamping the existing system of collecting, processing, and (dis)aggregating TVET data and their use for various purposes. The conference decided that Technical Institutes Support Division (TISD) under Department of Technical Education (DTE), MoLHR would take initiative to develop a robust, integrated, and comprehensive TVET database and promote regular TVET research and analysis. As recommended, TISD began this ambitious task in December 2018. Four staff members from TISD and one each from the ICT Division, DOS and JWPTI constituted the inceptive team, henceforth referred to as 'Technical Working Group' or simply TWG. The data initiative was grounded on the motto: "If we [TVET staff] do not initiate and build TVET database, who will? If not today, then when?"

The TWG was conscious of the complexities involved in developing TVET database but insisted on the urgency to begin the process somewhere and then get going with persistence. The process was complex because TVET is conceptually and administratively more complex than general education with a diverse group of training providers implementing a huge number of TVET programmes of different duration and delivery mode. Such complexities render maintaining, standardising, and aggregating administrative data a big challenge. TVET database is a dynamic process due to the requirement of consistent and conscientious effort until the system becomes practical and perfect. The dynamic characteristics of TVET data can be largely ascribed to the changing nature of TVET and labour market systems. Understanding such dynamism would require a systematic accumulation of data for analysis, assessment and research.

This inaugural issue of Annual TVET Statistics is the by-product of the bigger attempt to build the online TVET database and ultimately 'a revamped TVET MIS'. This report should serve as the basis for exploring the effective method of collecting, analysing and putting the TVET data into practical use. The information it contains should be useful to anyone working in TVET — in policy, training and research and for wider general interest.

Purpose of the Report

The present statistical report primarily aims to provide the baseline information for TVET policies, strategic TVET planning, effective, efficient and transparent management, proper investment decisions and effective monitoring and evaluation of TVET projects and programmes. It is expected to become a regular publication and source of comprehensive, up-to-date, and usable TVET Statistics. The ultimate aim is to revamp the existing TVET-QAMIS using the modern software for Database Management System (DBMS). Achieving this ultimate motivation would necessitate systematising and sustaining the TVET data collection, processing, integration, analysis, sharing and data dissemination.

With this publication, the TWG has completed some preliminary works for revamping TVET-QAMIS. The DCTs were developed, data providers were familiarised with the DCTs, and some awareness among TPs on the importance of generating institute-level data were completed. The TWG hopes the progress made so far will be useful for strengthening the TVET MIS under ADB's STEP-UP Project.

Report Structure

The report contains TVET statistics, consolidated under five TVET domains viz., (i) context indicators, (ii) access [to] and participation in TVET programmes, (iii) TVET quality, (iv) relevance, and (v) TVET governance and financing. The data were segregated into supply and demand statistics without delving into the demand-supply conceptual issues. The supply-side statistics were drawn from administrative data that training providers (responsible for the supply of skills) made available. TVET relevance data, corresponding to the demand side statistics, were drawn from the ongoing multi-cohort TVET tracer survey (2003-2018), Labour Force Surveys (LFSs) and other reliable sources such as the reports of MoE, DoEHR, NSB and DoL. The report's key attributes and strength are the descriptive statistical tables and graphs.

In most cases, the statistics are divided into two parts—the statistics of six TTIs and two IZCs and Other Public and Private Training Providers, hence referred to as OPPTPs. TTIs and IZCs have more comprehensive data than OPPTPs. This segregation of statistics was necessary given that TVET institutions (registered with DOS) are diverse in their size, level, capacity, courses, course-length, and establishment-year, thus complicating and constraining integration of their data.

The issues of data completeness and comparability made it difficult to incorporate all the indicators pre-defined in the DCTs. As the retrospective data were collected, various TPs submitted datasets with different level of data completeness. Moreover, certain OPPTPs did not have proper records of their institutions and programmes. Nothing could be done to resolve the missing data issues. It is hoped that the scope

for integrating data of all registered TPs might improve when statistical standards, procedures and compliance improve in the future.

Most statistics of TTIs and IZCs were referenced to the period from 2008 to 2019. Two TTIs had data from 2003 while datasets of other TTIs and IZCs had reference period. Most statistics of OPPTPs belonged to that of recent years (2018 and 2019). All these issues made it problematic to settle on a common baseline year for all the datasets.

The report is organised into seven sections. *Section I-TVET Statistics* introduces the report with a short background of TVET database initiative and its purpose, followed by a thumbnail history of TVET development in the country and [its] TVET typology. It then outlines the significance of TVET data and describes the existing TVET data system. The section further provides the methodological account of the TVET database initiative including key definitions and concepts.

Section II-Context Indicators presents statistics on the country's socio-economic and demographic situation within which TVET operates. Social, economic, technological, environmental, and other context factors could affect TVET programmes and their outcomes.

The main statistics on TVET are organised under four TVET domains. *Section III-TVET Access and Participation* presents statistics demonstrating the characteristics of TVET institutions and programmes and access [to] and participation in TVET. The emphasis was placed on the sex-disaggregated enrolment statistics by way of considering gender inclusion. This section further deals with access and participation in MoLHR's various Skills Training Programmes (STPs), non-formal TVET programmes (Village Skills Development Programmes and Special Skills Development Programmes) and school TVET programmes.

Section V-TVET Relevance statistics reflects demand for TVET programmes and their labour market outcomes. The data for this domain were sourced from MoLHR's labour market information corroborated by preliminary results of the ongoing online tracer survey.

Section VI-Governance and Financing relates to TVET governance, management and financing. Ideally, the governance indicators should indicate progress in implementing TVET policies, planning, coordination and outcomes while financing indicators should give a clear picture of financial and other resources available for TVET, and importantly, per-capita cost of TVET course. Unfortunately, the data were not readily available to develop all these indicators. Therefore, the section's scope was confined to the profiling of management staff and reporting of some information on training, performance rating and MoLHR's TVET financing.

Section VII concludes the report with some suggestions on what needs to be done to improve the existing TVET-QAMIS. Some major way-forwards were based on the TWG's experiences gained while collecting and handling the data.

The statistics are, to the extent possible, collected and presented at a sufficient level of detail. The annexes contain some more details that couldn't be incorporated in the main report. The information in annexes may be useful for anyone wishing to conduct TVET research and analysis. This being a maiden report (grounded on the retrospective data), the emphasis on detailing was deliberate. The future statistical reports will be less in volume and more succinct, accurate and timely.

Chronology of TVET Development in Bhutan

The TVET development in Bhutan began in 1961 in consonance with the introduction of the first Five-Year Plan (FYP). The establishment of Kharbandi Technical School (KTS) in 1961 (also known as Don Bosco School) and renamed as the Royal Technical Institute (RTI) in 1964, marked the formal introduction of TVET in the country. The school became Royal Technical Institute (RTI) in 1989 and trained Bhutanese youth in automobile, general mechanic, building construction, civil draughting and electrical engineering through a five-year certificate level training programme, including general matriculation affiliated with North East Indian State Board. RTI graduates had the option to enter either technical education, general academic education or job market. However, in the mid-1980s, RTI introduced specialised technical courses in different vocations. This came at the cost of the academic syllabus and narrowed the education and career pathways for technical graduates.

The TVET development continued leading to the establishment of Royal Bhutan Polytechnic (RBP) in 1974. RBP trained the mid-level technicians in Civil and Electrical Engineering at diploma level and Surveying at certificate level. Third diploma programme in Mechanical Engineering was introduced in 1987 and the National In-plant Training System (NITS) in the 1980s. The Technical Cell (upgraded to TVET Division) under the Ministry of Social Services implemented the TVET programmes until 1990. Since then, much of the emphasis was accorded to the general education as the demand for specialised technical training did not grow much. The TVET Division established the National Trade Training Institute (NTTI) to offer certificate level courses in plumbing, carpentry and masonry. However, those programmes lasted only for three years, signalling the low popularity of technical and vocational training among the Bhutanese youths even at that time.

The National Technical Training Authority (NTTA) was established in 1999. NTTA emphasised on TVET regulations besides its mandate on the TVET plans and programmes. NTTA was dissolved in 2003 when TVET governance and administration were placed under the new Ministry of Labour and Human Resources (MoLHR). The Department of Human Resources (DoHR) and Department of Occupational Standards

(DOS) were formed under MoLHR. DoHR took up the responsibility for TVET delivery and DOS the regulatory functions. Following the closure of RTI, new vocational institutes were set up in Serzhong (Gelephu), Chumey, Samthang, Rangjung, Thimphu and Khuruthang. These vocational institutes became Technical Training Institutes (TTIs). The Department of Technical Education (DTE) was formed in 2017 and took over the responsibility of administering six TTIs and two IZCs, besides other TVET programmes outside the BVQF. Figure 1.1 summarises the historical development of TVET governance and institutions in Bhutan.

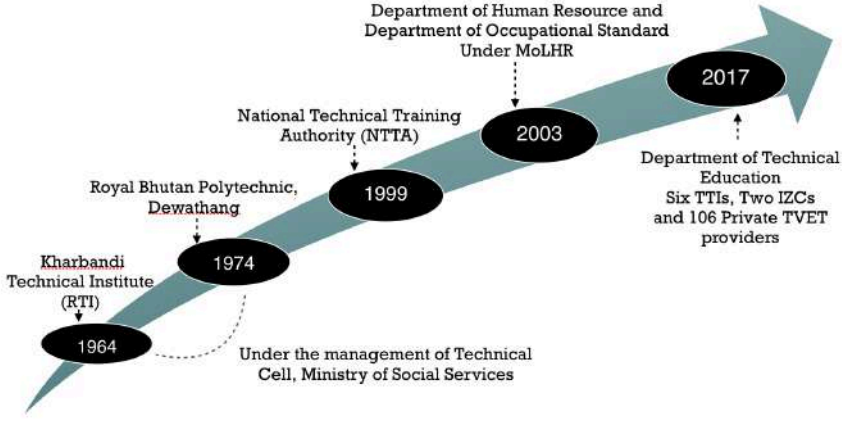


Figure 1.1: Chronology of TVET development in Bhutan

Source: DTE's Official Powerpoint Presentation (2018)

TVET involves several types of linkages to the private sector indicating TVET is not a field to be left to the government alone. While the government needs to ensure effective policy regulation and the provision of adequate resources for the overall growth and development of TVET, the private sector has an equal role to play. Private provision of TVET had received an equal priority since 2011. Consequently, many private training institutes have come up with the majority of them coming into operation between 2011 and 2019.

Donor Support to TVET Development

The donor support to TVET in terms of funding and technical expertise plays a major role in developing and strengthening TVETs in developing countries. In this context,

Bhutan had received external assistance since the inception of its first TVET programme. Various external donors and project-tied assistance had contributed substantially to Bhutan's TVET development process. Table 1.1 presents the list of external donors for TVET along with the key areas of assistance. Such information can provide valuable insights into the past TVET strategies, programmes and projects. The information is not exhaustive; some donor assistance might have been unintentionally omitted.

Table 1.1: External donors and areas of assistance in the TVET sector

Donor	Area of Assistance
ILO	Establishment of Don Bosco School (Kharbandi Technical School)
British Council	Technical and Capacity Development
GTZ	Support to RTI in terms of infrastructure development, training equipments, technical assistance in curriculum design and promoting quality assurance system and developing VET policy
UNDP	Skills Development Programmes
JICA	Support to VET through Overseas Cooperation Volunteers and capacity development programmes
HELVETAS Swiss Intercooperation	Support to Skills Development Programmes
Netherlands Development Organization (SNV)	Capacity Development
Save the Children (United States)	Capacity Development
Asian Development Bank (ADB)	Infrastructure, Curriculum, and Capacity Development
DANIDA	Enhancing quality of VET and skilled workers, capacity building, curriculum development and quality assurance
GOI	Infrastructure development and capacity building

Typology of the TVET System in Bhutan

A country's TVET system can bear immense influence on the standard of its Management Information System (MIS) mainly due to the variation in conceptual and administrative approaches to TVET in different countries.

According to the TVET Sector Assessment (MoLHR) Report (2016), Bhutan adheres to UNESCO's definition and conceptual framework of TVET, which defines TVET as "the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life." Contrary to general education, TVET is more diverse and complex. Table 1.2 outlines a rough construct of TVET in Bhutan showing formal, informal and non-formal TVET. These categories are further classified into institution-based, workplace-based and combination of various modes of TVET delivery.

Six Technical Training Institutes (TTIs), two institutes of Zorig Chusum (IZCs) and 107 private and other public training providers constitute the formal TVET. Bhutan Vocational Qualification Framework (BVQF) guides the formal TVET programmes in terms of quality assurance, enforcement of occupational standards and qualification pathways. Formal TVET programmes take place in an organised and structured environment typically leading to national certification.

Table 1.2: Typology of the TVET System in Bhutan

Type	Mode of provision	Sector	Responsible agency/ ministry
Institution-based TVET	Formal education system	Public	DAHE, HEPD (MOE), REC and others
			DTE, DOS (MoLHR) TTIs & IZCs
Institution-based TVET	Outside formal education system	Public	Tourism Council, AMC, MoA, MoH, MOHCA, Corporations, etc.
		NGO	YDRC, GAB, Draktsho, etc.
		Private	Registered private training providers

Type	Mode of provision	Sector	Responsible agency/ ministry
Workplace-based TVET	Pre-employment training	Formal Apprenticeship Programme (ATP)	TTIs, IZCs, industries, MoLHR, private institutes and others
		On-the-Job-Training (OJT)	
		Traditional learning/ apprenticeship	Local/traditional artisans
		Skills Training Programmes (YES,DES, GSP, SEED, TEP, CST,GETP,PEEP,TITP, etc)	MoLHR and others
	In-service training	Training of Trainers (ToTs)	TTIs, IZCs, industries, MoLHR and others
		Skills up-gradation and re-skilling programmes (ex: inservice drivers)	
Combination of multiple TVET		Pre-vocational school-based training	MoE/pilot TVET schools
		Formal/informal ATPs	TTIs, IZCs, industries, MoLHR and others
		Dual Training Programme (DTP)	DTE (MoLHR), TTIs and IZCs and industries/ companies/corporations
		Village Skills Development Programmes (VSDP), Special Skills Development Programmes (SSDP) and traditional learning	MoLHR, NGOs and Local Governments, communities, etc.
		Recognition of Prior Learning (RPL)	MoLHR/companies/ employers

Recognition of Prior Learning (RPL) and traditional apprenticeship learning are treated as informal TVET. Learning in these cases takes place together with daily activities. The informal learning does not have clear objectives and timing but has scope for validation and certification through formal TVET. DOS conducts the assessment and certification of the RPLs. The TVET typology presented above is not conclusive; more research is needed for proper classification of different TVET programmes and mode of delivery.

TVET Data System

The TVET data system in Bhutan is at an early stage of development. Labour Market Information and Research Division (LMIRD) under MoLHR is supposed to be the lead agency for gathering and managing TVET data. LMIRD has many other mandates beside the manpower constraint due to which it is unable to take the full responsibility of TVET data. Moreover, given the complexity and a huge volume of TVET data, managing TVET data is going to be a challenge unless a dedicated agency is set up for the purpose. LMIRD, nevertheless, had conducted several sample surveys like Job Prospecting Survey (2015), Establishment Surveys and Censuses, Unemployed Youth Perception Survey (2014) and Beyond Graduation Survey (2017) that have generated a substantial amount of TVET data. LMIRD publishes National HRD Advisory Reports, Labour Market Information Bulletin and other reports of relevance to TVET.

The National Statistics Bureau (NSB) took over the responsibility of the Labour Force Survey (LFS) from LMIRD in 2018. LFS generates little TVET-related data while in many countries LFS continues to be one of the main sources of TVET data. LFS does not even consider the option of reporting vocational qualifications among the educational attainment. If the option of reporting 'technical and vocational education' is included among other educational attainments, LFS might generate information on TVET graduates, their employment status and participation in different occupational sectors. TVET graduates who had participated in LFS might have had reported their formal academic qualifications in the absence of the provision for TVET qualifications, and hence, their data cannot be segregated.

The Ministry of Education's Statistics section publishes the Annual Education Statistics (AES). AES covers some information on eight TTIs and IZCs. Those statistics are not comprehensive and are usually sourced either from LMIRD or DTE.

The Department of Technical Education (DTE) collects administrative TVET data, but it has many drawbacks. Firstly, the data collection is confined to eight TTIs and IZCs; no data are collected from private and other public training institutes. Secondly, these data are not properly managed and secured, resulting in data duplication and inaccuracy. Thirdly, in the absence of a proper approach to data centralisation and aggregation, the data have remained fragmented. Fourthly, several ad hoc collections of data from TTIs and IZCs have resulted in data duplication as well as data fatigue among data providers. Fifthly and the last, TVET data are never analysed 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 a legal requirement in some countries. But in Bhutan's case, other than 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.

In sum, the institutional structure of the TVET data management system in Bhutan is fragmented, resulting in unconsolidated, replicated and inconsistent data. This occurs due to lack of a specific agency to collect and manage TVET data and coordinate, conduct and disseminate TVET research and analysis. A cursory review of how TVET data are assembled, managed and used in other countries shows that institutionalising and strengthening responsible agency/institute to oversee collection and analysis of data and dissemination of findings through research have become an integral part of TVET reforms.

Significance of the TVET Data

In general, as the nations embrace the Fourth Industrial Revolution (IR-IV), data would emerge as a new form of asset covering all aspects of governance, society and economy. Digital communications have proven helpful to increase data pervasiveness. The digitised data would increasingly become a critical source of ideas, innovation, reforms, informed decisions, and digital empowerment. At this critical junction of data digitisation and pervasive use of data worldwide, no nation and sector can go about doing its businesses a customary way. Every process of governance and management must be data-driven. As valuable as data would become for individuals, governments, economies and societies, the hassles for ensuring data protection and proper use of data would emerge. The obligation to put in place social, legal, technological, economic and organisational facilities for building a balanced data ecosystem would emerge as the pressing need.

Data enables policymakers, TVET managers and stakeholders at every level of TVET governance to make evidence-based decisions. Data helps in measuring and monitoring the performance of training providers, forecasting demand and supply of TVET programmes and in informing TVET graduates about the employment scenario.

His Majesty the King of Bhutan proclaimed in the National Day address on 17 December 2019 that big data and data science may, hereon, shape the Bhutanese economy and society just as other countries. In the international arena, Alibaba's Multibillionaire businessman Jack Maa advocates the indispensability of data and skills associated with data analysis for future jobs. His recent statement on CNBC: "At the heart of the fast-approaching technological new age…the world is going to be data…We think data are going to be so important for human life in the future" (www.cnbc.com) speaks so much about the significance of data for every aspect of human life. The other mega-corporations like Google, Apple and Microsoft acknowledge the increasingly important role of data in the global economy,

governance, and technological advancement. UNESCO validates the claim that quality statistical information system on TVET is essential to address the youth unemployment problem and their integration into work through better monitoring and evaluation of the TVET system. Proper data collection, analysis and use can improve linkages between skills supply and demand (http://www.unesco.org/).

Since the basis for the TVET data collection templates was the TVET sector strategies outlined in the TVET blueprint, data may provide Key Performance Indicators (KPIs) necessary to measure the progress against major TVET objectives at the sector and national levels. Specifically, the TVET data are expected to provide information that could address the information need 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 scope of the TVET database framework for the reason that data for TVET Statistics were largely drawn from the ongoing TVET database initiative.

The seven-member TWG of MoLHR began this task in December 2018 by developing the conceptual and methodological framework for the TVET database to guide initial planning, data collection, storage and data sharing. Plain review of the online resources concluded that there is no universal framework for the TVET data system. The framework that UNEVOC had developed for the Global TVET database was rather qualitative. It was in this context that the TWG had to develop the country-specific TVET database framework while taking recourse to the Inter-Agency Group's proposed framework for developing TVET indicators.' The Inter-Agency Group (IAG) on Technical and Vocational Education and Training (IAG-TVET) was established in 2008 by a group of international agencies, namely, UNEVOC, ILO, OECD, UNESCO, WB, EC, ETF, AfDB, and ADB. The TVET Blueprint (MoLHR, 2016) also informed the database framework, indicators and templates. The TVET Blueprint is an important document that embodies an overarching roadmap for TVET programmes set within the four-pillar TVET strategies.

The TWG identified five TVET domains and several associated indicators. These domains are *TVET Access and Participation*, *TVET Quality, TVET Relevance*, T*VET Governance and Financing*, and *Context Indicators*. While each of these domains is explained in the respective chapters, the other elements of the database framework are discussed below:

I. Data Collection Templates (DCTs)

The data collection templates (DCTs) are standardised data templates for collecting administrative data under four inter-connected TVET domains. The TWG adopted a deductive approach to developing DCTs, that is, starting with the detailed templates to check data availability and test the ease of data collection and then gradually simplifying the templates. There were 37 DCTs related to TVET access and participation, 27 DCTs for TVET quality, 30 for TVET relevance and 19 DCTs for TVET governance and financing. TPs were initially required to fill up 113 templates (in excel format), which were later simplified and condensed to 67. A separate manual was shared containing data elements: context, instructions for filling up the templates and format attributes. To ease the data entry, separate instructions were given in each template.

II. Data collection

Using the pre-defined DCTs, the administrative data were collected from 72 registered TPs out of 115. Besides, the data were sourced from censuses, surveys,

statistical reports, preliminary multi-cohort tracer survey result, HRD Advisory Reports, and other relevant reports published by NSB, MoE and MoLHR.

The data collection started in January 2019 after conducting the data advocacy and template introduction programmes for registered training providers. The first round of data collection did not yield satisfactory results as only about half of the targeted training providers had responded. Moreover, many TPs had submitted incomplete and inconsistent datasets.

The TWG conducted the first reviews of all datasets and sent them to data providers/ TPs to rectify inconsistencies and resolve the issue of missing data. Since not much progress was made after the first review, the members of TWG visited all participating institutes to further explain DCTs, discuss issues related to data entry and foster their support. Even with the mix of advocacy and persuasion, some TPs were not able to submit consummate datasets while several others missed many deadlines. QMS's data compliance regulation proved less effective. The data collection had to go by individual provider's propensity and capacity to submit the data.

After the second round of data collection, one more review was conducted in October-November, 2019. At the time of compiling this report, some training providers did not submit their final datasets. The TWG could not wait [for them] but had to proceed ahead to meet the publication deadline.

III. Coverage and Scope

Poor quality data becomes practically less useful. Data quality in the present case was construed in terms of data accuracy, consistency and completeness. In general, the issue of missing data seriously affects data aggregation especially when data are collected from several providers. The missing data was one major issue that prolonged the data integration and aggregation processes.

The list of TPs that managed to submit satisfactory datasets is presented in Table 1.3. Out of 112 potential data providers at the beginning of the data collection, 72 TPs had submitted their datasets. Seven institutes (one was closed while in the process) could not finalise their datasets after the second review. Eighteen training providers did not at all respond to the official data requests even after persistent follow-ups. Ten TPs were either closed or just established at the time of final data collection. Only 72 (64.28%) datasets were of reasonable quality to be included in the data aggregation. However, even among these 72 datasets, the level of data completeness varied substantially. Therefore, the data aggregation (to produce statistics) had to be done with a varying number of datasets. This is the reasons why one could observe some differences in the number of TPs for a different set of indicators/variables.

Table 1.3: OPPTPs that submitted satisfactory datasets (72)

SLN	Institute/Training Provider
1	Advanced Institute for Tourism
2	Agriculture Machinery Training Centre
3	Athang Training Academy
4	Bhutan Elite Security Services
5	Bhutan Institute for Training and Development
6	Bhutan Institute of Information Technology and Management
7	Bhutan Institute of International Language, IT and Management
8	Bhutan Institute of Martial Arts
9	Bhutan International School of Hospitality & Tourism
10	Bhutan Media & Communications Institute
11	Bongde Institute of Hotel and Tourism
12	Choki Traditional Art School
13	College of Zorig Chusum-Trashiyangtse
14	Computer & Management Institute
15	Dechen IT & Management Institute
16	Dorji International Training Institute
17	Druk Institute of Management Technology
18	Druk Tshemzo Training Institute
19	Eastern Computer Training Centre
20	Eastern Driving Training Institute
21	Fashion Institute of Technology
22	Financial Institutions Training Institute Limited
23	Gangjung Driving Centre of Excellence
24	Ghadyen Driving Training Institute
25	Global Computer Training Centre
26	GPY Computer Training Institute
27	Guide Association of Bhutan
28	Heruka Security Services
29	iBEST Institute of Media, Management and Technical Studies
30	Institute for Excellence and Development (2)
31	Institute for Professional Studies
32	Institute of Information Technology Management
33	Institute of Management Studies Ltd.

SLN	Institute/Training Provider
34	Institute of Zorig Chusum
35	Jachung Security Service Pvt Ltd
36	JCB Operator Training Centre
37	Jigme Wangchuck Power Training Institute
38	Jigyang Driving Training Institute
39	Karma Driving Training Institute (2)
40	Karsel Dawa Driving Training Institute
41	Kesang Driving School
42	Kilu Bhutan Music School
43	Kinzang Driving Training Institute
44	Learn Zone Institute
45	Lekdrup Skills Development Institute
46	NLD Training Institute
47	Norbu International Wellness Institute
48	Pema Driving Training Institute
49	Professional Skills Institute
50	Puensum Driving Institute
51	Rigsum Institute of Technical Education & Management Studies
52	Royal Academy of Performing Arts
53	Royal Institute for Tourism and Hospitality
54	RTC Training and Professional Services
55	Rural Development Training Centre
56	Sacho Driving Training Institute (2)
57	Sacho-Gaa Driving Training Institute
58	Samthang Technical Training Institute
59	Shacho Driving Training Institute
60	Sompal Driving Training Institute
61	Sunrise Driving Institute
62	Tacho Bala Ha Driving Training Institute
63	Technical Training Institute-Chumey
64	Technical Training Institute-Khuruthang
65	Technical Training Institute-Rangjung
66	Technical Training Institute-Thimphu
67	Tenzin's Hair and Beauty Academy

SLN	Institute/Training Provider
68	Ugyen International Language and culture Training Institute
69	Ugyen Wangchuck Institute for Conservation and Environmental Research
70	USD Driving Training Institute (3)
71	Yarab Institute for Hospitality Management
72	Youth Development and Rehabilitation Centre

Table 1.4 presents the list of OPPTPs that initially submitted their data but did not finalise their datasets despite several requests via telephonic calls or emails. Nevertheless, the TWG tried to extract some data from these seven training providers' datasets, wherever possible.

Table 1.4: OPPTPs that failed to finalise the data after the second review

SLN	Institute/Training Provider
1	Bhutan Centre for Japanese Studies
2	Kuenphen Computer and Tailoring Training Institute
3	Kuenphen Language and Culture Training Institute
4	Kunjung Institute of Technology & Innovation
5	Norter Training Institute
6	Wood Craft Centre Ltd.
7	Niche Institute of Management & Technology (closed during the process of data collection)

TPs that failed to respond to the Ministry's data call are listed in Table 1.5. The data request was routed through the Department of Occupational Standards (DOS). After repeated follow-ups, DOS had to even go to the extent of reminding them of facing de-registration though this did not serve the purpose. Names of the non-cooperating training providers are given to show the extent of data coverage so that data analysis and generalisation of findings could take into consideration the missing data vis-a-vis type of training institutions missed out in this report. These TPs might face some inconvenience later in fulfilling the QMS when TVET QAMIS becomes more comprehensive, online and fully operational.

Table 1.5: OPPTPs that did not comply to the data request

SLN	Institute/Training Provider
1	Drukwings Aviation Training Institute (reasoned that it's a new institute)
2	Institute of Happiness
3	Thimphu Tech Park Ltd (made several reminders)
4	Fablab Bhutan Training Institute

SLN	Institute/Training Provider
5	Dickie Training Institute
6	Dzongkha Learning Centre
7	Bhutan Training Institute
8	Global Retail Academy
9	Gangchen Language and Management Institute
10	Institute for Learning Solutions
11	Language and Culture Institute
12	Language and Management Institute
13	Padmakara Training Institute
14	Paro Institute of Management (PIM)
15	Professional Development Institute
16	Thimphu Institute of Management (TIM)
17	USD Institute for Professional Development
18	WhyDee Driving Training Institute

OPPTPs that were excluded on account of being new or shut down at the time data collection are shown in Table 1.6.

Table 1.6: OPPTPs excluded on account of being new, closed or due to unknown status

SLN	Institute/Training Provider	Status
1	Himalayan Institute of Technology & Management	Closed
2	Himalayan School of Music	Status not known
3	Kinley Yergay Tailoring Training Institute	Closed
4	Film & Television Institute of Bhutan (FTIB)	Closed
5	Bhutan Institute of Himalayan Studies	Status not known
6	Manju Shiri International	Closed
7	ReWang Driving Training School	Status not known
8	Lhawang Yugyel Technical Training Institute	New (not in the initial list)
9	Institute for Professional Excellence	New (not in the initial list)
10	Star Tourism Institute	New (not in the initial list)

IV. Data Validation

The draft report was shared with all the data providers/TPs for their comments and rectification. The corrections done by respective TPs were incorporated. A one-day validation meeting at the ministry level was conducted involving the staff from DTE, DOS, DoEHR, DOL, NSB, ADB-PMU, Helvetas Bhutan and others. The second validation meeting was attended by the representatives of 35 TPs in Thimphu. For TTIs and IZCs, the data was discussed for one day with the heads of the institutes and data focal persons during the three-day budget review meeting in November 2019.

V. Constraints

The TWG faced many challenges while trying to meet the key statistical attributes: data quality, reliability, consistency, comparability and timeliness. The data comparability is essential considering that statistics are aggregates of facts and that single observation cannot be treated as statistics. The statistical laws are true only on average. The constraints that the TWG had to face are highlighted within the methodological framework and are not directed to any individual or entity. The TWG considers it important to transparently list down those constraints for future lessons. The main constraints are listed as follows:

(1) *Budgetary constraint*: There was no specific budget for the entire exercise. The team had to rely on whatever budget the ADB's STEP-UP and OSD4CS (Helvetas) projects (with DTE) were in the position to dispense. Maybe because this was a new initiative, the focal persons in the finance section saw some activities and the claims unreasonable that they refused to verify the claims, though they were not. These unnecessarily prolonged the payment/reimbursement for more than six months. This had severely affected the entire process to the extent that some members reached the point of giving up. The TWG saw it as a serious setback and the most important lesson. The financial mechanism for developing TVET data system and TVET research may have to be rationalised in the future according to the needs of developing TVET database. The financial mechanism should facilitate but not obstruct the processes of certain new initiatives.

(2) *Manpower constraint*: Most data focal persons were ICT or administrative staff without much prior experience in handling data at this scale. The TWG could not provide them with even the basic data management training due to the resource limitations. These constrained the data collection process. Four members of the TWG had to take leave for other important assignments at the time when data integration and analysis were intensifying.

(3) *The absence of regulation to facilitate the data collection*: The TWG, despite the shortage of time and resources, tried to promote the data providers' buy-

ins and ownerships by (1) inviting the representatives of most TPs to the two-day advocacy and consultative workshops (in Thimphu) and other major places; (2) explaining them about the benefits of data through emails and phone calls; and (3) seeking their support in persons by visiting all participating institutions to discuss data templates. Even after engaging many tactics, the effort went under-appreciated by some TPs. Some of them failed to ascertain the cost and benefit of creating their own institutional datasets. Several training providers saw the data submission as some sort of obligation to MoLHR rather than looking at it as a joint effort. In the absence of legal provision for data compliance, the TWG could not collect data from all registered TPs. There is a dire need for a regulation to ensure the data compliance and incentives for ease of data collection, especially when data are collected for the official statistics.

Limitations of the Report

There were some concerns that the TWG was taking a longer time to complete the task. Building a database 'right from scratch' was not plain sailing. To reiterate, as the first initiative of its kind, the retrospective collection of data was difficult for some data providers, especially those that did not keep good records. The intricacies of TVET itself due to its diverse providers and courses stood as the stumbling blocks.

Due to different level of data completeness and some heterogeneity in the datasets, some errors would have been made in deriving the aggregates. Statistics are true on average and based on the law of probability and approximations rather than the mathematical and physical laws. Certain limitations are generally accepted in statistical science. Prof. L.R Connor has stated: "Statistics deals only with measurable aspects of things, and therefore, can seldom give the complete solution to a problem. They provide a basis for judgement but not the whole judgment."

The TWG urges prospective data users/readers to exercise some caution while using certain statistics. The TWG is optimistic that the present drawbacks will serve as caveats for future improvement. The major limitations are listed as follows:

(1) Some data of TTIs and IZCs were aggregated for 2008-2019 and others for 2015-2019 and so on. This varying reference period was due to different level of data completeness in the individual datasets.

(2) In the case of OPPTPs, there was a sampling variability (variation in the number of TPs) in the aggregation. This problem ensued because while some TPs had data for certain indicators, others did not have data for the same. Only those datasets with complete data were aggregated to derive the indicators. That is, the data uniformity determined the sample size for various indicators/variables.

(3) The curriculum of each accredited course has specified duration in terms of the number of hours. However, for convenience, the reporting of

duration is usually done either in days or months (converted into months for the present purpose). Some courses offered by more than one TP look homogeneous by name, content and level but varies in their duration. This could be due to some difference in the logistical arrangement among TPs like some of them having to accommodate other programmes or adjust for the vacation thus shortening or prolonging the duration of these courses by few weeks or months even if the actual training hours are 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) Enrolment and graduation data may change within a short period because of varying course duration. TVET statistics is more variable than school/education statistics. It is wrong to expect fixed enrolment and graduation figures within a year. Many enrolments and graduation in TVET take place within a year depending on the nature of courses. Some courses take a longer duration to achieve a required competency level while others take a shorter duration.

(5) There was the problem of double-counting (in enrolment) especially when training were funded through MoLHR's STPs kills Training Programmes and were conducted by registered TPs. From MoLHR's perspective, Skills Training Programmes are non-formal TVET, but from the training providers' perspective, these programmes are formal TVET. The problem of double-counting was inevitable because the same person could have been counted in MoLHR's STP record as well as in TPs' enrolment records. This problem can be resolved only if in the future the enrolment and graduation are recorded at the individual level rather than at the institute/programme level.

(6) Though the attempt to collect data for dropouts and repeaters was made, many TPs did not have a good record of these two indicators. These indicators had to be omitted though they are generally considered important to measure the effectiveness of TVET programmes.

(7) No statistics on training tools, equipment and machines were produced though such statistics may serve as the proxy measures for the quality of training. The data were collected but owing to the vast numbers and time required to assort them, the inclusion of such statistics may be possible in the future.

(8) Some qualitative data are presented in the report. Going by the statistical rule, the data that cannot be expressed in quantitative terms can't be

treated as statistics. However, qualitative data are equally important to give the complete picture of anything into consideration.

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

Definitions and Key Concepts

Some key terms and concepts are explained to aid the reading audience /data users in making correct interpretation of statistics in the report.

Access and Equity: A policy or set of strategies to make vocational education and training available to all members of the community, increase participation and improve outcomes, particularly focusing on those groups that have been traditionally under-represented (UNEVOC/NCVER, 2009).

Accreditation: The official recognition and approval of training courses, programmes and institutions (ILO 2006, Global).

Accredited Courses: The courses that are eligible for National Assessment and award of National Certificates leading to National Vocational Qualifications (BVQF, 2013).

Apprenticeship Programme (ATP): ILO (2006) refers it to a system of training that usually combines On-the-Job-Training (OJT) or work experience with institution-based training.

Assessment of Competence: The means by which evidence of performance is collected, compared with a standard and judgment about acceptable performance is made and formally recorded. The person is assessed as Competent with Distinction, Competent with Merit, Competent, and Not Competent. Individuals are not ranked against each other even when their abilities are assessed within the standard (DOS).

Certificate: TVET Qualifications awarded by the respective training providers without having fulfilled the requirements of the DOS' quality assurance system.

Competency-Based Education (CBE): "It is built on the philosophy that almost all learners can learn equally well if they receive the kind of instructors they need.[...] Although technical vocational education has always been concerned with the practical demonstration of the skill, CBE places a new and systematic emphasis on this principle" (NCTVET, 2006, Jamaica).

Competency-Based Training (CBT): "[It] ensures that training and assessment are based on National Competency Standards (NCS). Competency-based training ensures a responsive and quality TVET system in the country" (BVQF, pp. 21, 2013).

Competency Standard: "An industry-determined specification of performance, which sets out the skills, knowledge and attitudes required to operate effectively in

employment. In vocational education and training, competency standards are made up of units of competency, which are themselves made up of elements of competency, together with performance criteria, a range of variables, and an evidence guide. Competency standards are an endorsed component of a training package" (NCVER, 2013, Australia).

Data Provider: Any training institute or agency that provides data.

Demand-Driven: "It means responsive to the workforce challenges and needs defined by employers" (ETA, 2008, USA).

Diploma: TVET Qualifications awarded by the respective training providers rather than through DOS assessment and certification processes.

Dual Training Programme (DTP): A TVET delivery system that combines in-industry and in-institute training based on a training plan collaboratively designed and implemented by an institute or training provider and a partner industry or employer.

Dzongkhag: An administrative and judicial district of Bhutan. The twenty dzongkhags of Bhutan are further divided into 205 *gewogs*. Its most recent legislation regarding dzongkhags is the Local Government Act of 2009.

Employability: "The degree of adaptability an individual demonstrates in finding and keeping a job and updating occupational skills" (UNEVOC/NCVER, 2009, Global).

Employability Skills: "The skills which enable people to gain, keep and progress in employment, including skills in the clusters of work readiness and work habits, interpersonal skills and learning, thinking and adaptability skills" (NCVER, 2013, Australia).

Enrolment: Number of trainees enrolled in a particular course at a particular level. It refers to freshmen enrolment irrespective of the same course undertaken previously by the same individuals at different levels.

Entrepreneurship Training: "A training scheme to develop persons for self-employment or for organising, financing and/or managing an enterprise" (TESDA, 2010, Philippines).

Equity: Also called access and equity refers to "a policy or set of strategies that ensure that vocational education and training is responsive to the needs of all members of the community" (NCVER, 2013, Australia).

Establishment: According to SNA, an establishment is defined as an enterprise or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value are added. The establishment is a physical entity where one entrepreneurial activity (or sometimes more than one, with no separate accounts) is carried out. Examples of establishments are workshops, factories, manufacturing plants, warehouses, shops, and offices (Establishment Survey, NSB, 2018-19).

Generic Skill: "A skill which is not specific to work in a particular occupation or industry, but is important for work, education and life generally, including communication skills, mathematical skills, organisational skills, computer literacy, interpersonal competence and analytical skills" (NCVER, 2013, Australia).

Greening TVET: "It is an essential and cross-cutting theme for sustainable development. It refers to the efforts to reorient and reinforce existing TVET institutions and policies in order to reinforce achievement of sustainable development. Thus, greening TVET acknowledges the relationship between sustainable development and green development and clarifies different definitions of green jobs and green skills as well" (Majumdar, 2010, Global).

Hard Skills: "The technical and analytical competencies and know-how that allow the worker to perform the mechanical aspects of a job" (KRIVET, 2012, South Korea).

ICT Capability: ICT Skills/digital competences that involve confident and critical use of information society technology (ICT) in teaching and learning programmes.

Informal Learning: "Forms of learning that are intentional or deliberate but are not institutionalised. They are less organised and structured than either formal or non-formal education. Informal learning may include learning activities that occur in the family, in the work place, in the local community, and in daily life, on a self-directed, family directed or socially directed basis" (UNESCO UIS, 2011, Global).

In-Plant Training: "Any training (including apprenticeship) provided on the premises of an undertaking in which the trainee is employed; may be given on the job or off the job or in a combination of the two" (TESDA, 2010, Philippines).

In-Service Trainee: A person who has worked or is working elsewhere prior to applying for training.

Institute Registration: The authorisation of training institutes under the BVFQ to deliver training and/or conduct assessments and issue nationally recognised qualifications (DOS, NCVER).

Knowledge-Based Society: "A society whose processes and practices are based on the production, distribution and use of knowledge" (CEDEFOP 2008, Europe).

Labour Force: The economically active population, employed and unemployed (UNEVOC/NCVER, 2009, Global).

Labour Market: "The system of relationships between the supply of people available for employment and available jobs" (NCVER 2013, Australia).

Labour Market Information: "Any information concerning the size and composition of the labour market or any part of the labour market; the way it or any part of it functions, its problems, the opportunities which may be available to it, and the employment-related intentions or aspirations of those who are part of it" (ILO 2001, Global).

Level: "One of the series of levels of learning achievement arranged in ascending order from one to 10 according to which the National Qualifications Framework (NQF) is organised and to which qualification types are linked" (SAQA 2013, South Africa).

Lifelong Learning (LLL): "All learning activities undertaken throughout life for the development of competencies and qualifications" (ILO 2006, Global).

National Certificates (NC): TVET Qualifications awarded to individuals upon assessment of competencies against assessment criteria defined for each level in the respective National Competency Standards (NCS). The registered Training Institutions provides training and assessment of competence but the awards are made by DOS to ensure consistency of quality outcomes. NC levels from I to II allow trainees to upgrade competencies from being semi-skilled to master craftsmen stage through the acquisition of competencies specified at each level. NC I to III are mainly skills or practical based with only about 20% of trade-related theory. In the workplace, NC I co-relates to semi-skilled; NC II to craftsperson; NC III to master craftsperson (BVQF, 2013).

National Diploma (ND): Represents BVQF levels IV and V leading to supervisor or manager level qualifications. The ND I and ND II focuses on the mastery of more knowledge component with a decreased proportion of skills competency as compared to competencies at lower levels (BVQF, 2013).

Occupational Standards: National Occupational Standards (NOS) specify standards of performance that people are expected to achieve in their work, and the knowledge and skills they need to perform effectively.

On-the-Job-Training (OJT): Vocational training given in the normal work situation usually attached with the employers for a maximum of three months.

OPPTPs: Its full form is Other Public and Private Training Providers. These are registered training providers. Some OPPTPs are operated by MoLHR and classified as TTIs and IZCs; those administered by other Ministries and government agencies are categorised as other public training institutions such as RAPA under MoHCA and RDTC and UWICER under MoAF. Some institutes belong to the corporate sector like AMC and Wood Craft Centre while the majority belongs to the private sector.

Pre-Service Trainee: A person who has not worked anywhere else or not working when applying for training.

Recognition of Prior Learning(RPL): The skilled workers who have acquired competencies through work experience or other modes (informal) are assessed and certified through Recognition of Prior Learning without having to go formal training (BVQF, 2013).

Quality Assurance Management System: "System designed and developed to provide guidelines that will enable the management of Enterprises and TVET Institutions to set valid and reliable Quality Controls (QC) in place with a view to having reasonable

Quality Assurance (QA) that their workers/trainees/students are well trained, assessed, verified, proved to be competent and provided "Evidences" that they can effectively perform all tasks assigned to them, including Health, Safety and Environmental Protection (HSEP) (or Occupation Health and safety OHS) and Business Critical Tasks, up to the Minimum Competency Level (Standard) required at Work Location" (Wahba, 2013, Global).

Quality Management System: "The totality of an organisation's management processes designed to meet identified quality standards" (TESDA, 2010, Philippines).

Short Course: A TVET programme involving short duration ranging from a few days to a few weeks that are aimed at skills up-gradation and do not fall within the BVQF.

Skills: "An ability to perform a particular mental or physical activity that may be developed through vocational training or practice" (NCVER 2013, Australia).

Soft Skills: "A set of intangible personal qualities, traits, attributes, habits and attitudes that can be used in many different types of jobs (UNESCO IBE 2013, Global).

Teaching Staff: Number of staff whose main duty is teaching/training in the TVET programmes and institutions.

Thromde: A second-level administrative division in Bhutan. The legal administrative status of thromdes was most recently codified under the Local Government Act of 2009.

Trainer: "A person with pedagogical and professional skills, as well as experience, who imparts practical and theoretical training in an education and training institution or enterprise (ILO, 2006, Global). A trainer is also referred to as an instructor in the report.

Training Programme: "Designed to achieve a specific vocational outcome, may include course, module (subject), on-the-job training. Training activities defined in terms of objectives, target population, contents and results" (UNEVOC/NCVER 2009, Global).

Training Provider: Refers to a training institute registered with Department of Occupational Standards (DOS), MoLHR.

Training of Trainers (TOT): Any Training of Trainers programme of any level specified in the TVET Trainers pathways. TOTs are given in (1) Technical instruction, pedagogy, (2) Curriculum design and assessment, (3) Technical supervision and analysis, and (4) Training research and development. TOTs are aimed at enhancing the quality of TVET delivery. Regulation for Registration of Training Provider-2010 under section 18: "Registration of Trainer" requires certified and registered TVET trainers to conduct any training in registered TVET institutes (TPSD, DTE, 2018).

Transition Programme: "A programme, class or course designed to prepare people for the transfer from one level of education to the next, or from education to the workforce" (Wahba 2013, Global).

TVET: "Technical and Vocational Education and Training' is understood as comprising education, training and skills development relating to a wide range of occupational fields, production, services and livelihoods. TVET, as part of lifelong learning, can take place at secondary, post-secondary and tertiary levels and includes work-based learning and continuing training and professional development which may lead to qualifications. TVET also includes a wide range of skills development opportunities attuned to national and local contexts. Learning to learn, the development of literacy and numeracy skills, transversal skills and citizenship skills are integral components of TVET" (UNESCO (GC)-2015, UN).

TVET Institution: Any establishment (public, corporate, NGO-based and private) providing Technical and Vocational Education and Training. Registered institutions are the ones approved by DOS to carry out education and training services. TVET institution is referred by other terms like TVET provider, Training Provider (TP) and TTIs and IZCs. TVET institution, TVET institute and Training Providers are used synonymously.

UNESCO-UNEVOC: "The UNESCO-UNEVOC International Centre acts as a key component of UNESCO's international programme on technical and vocational education and training. It also works to support UNESCO's mandate for Education for All and Education for Sustainable Development" (https://unevoc.unesco.org/).

Vocational Pedagogy: "the sum total of the many decisions which vocational teachers take as they teach, adjusting their approaches to meet the needs of learners and to match the context in which they find themselves" (Locas 2014, Global).

Workplace Learning: "Learning or training undertaken in the workplace, usually on the job, including on-the-job training under normal operational conditions, and on-site training, which is conducted away from the work process" (NCVER 2013, Australia).

Youth and Young people: There are no universally accepted definitions of youth and young people. The United Nations defines youth as those between 15-24 years and young people as encompassing the ages of 10-24 years for statistical purposes.

SECTION 02

TVET Context Indicators

The context indicators have got to do with the country's economic, social, demographic, general education and other situations within which TVET operates. These contexts could shape TVET policies and programmes. For examples, changing the economic situation could put TVET in a new economic milieu and education policies could influence TVET policies and programmes. Likewise, changing demography could impact TVET responses to generating employment while technological advancement could impact TVET programmes and labour market outcomes. Some contexts can bear strongly on TVET relevance and demand. Statistics under the following broad areas are included in this section:

- Demographic indicators
- Education statistics
- Economic indicators
- Employment and labour market statistics, and
- Social indicators

The context indicators taken into account in this report are not exhaustive. These indicators were chosen for their relevance to TVET as well as based on the availability of data. These indicators may have a differential relationship with TVET policies and programmes.

Youth Population

Youth is the potential target group for TVET programmes, even though TVET is a lifelong learning process applicable to people of all ages. That being so, understanding the demographic structure of the youth population remains a fundamental precondition for formulating TVET policies and programmes.

The definition of youth varies from a country to another depending on demographic, financial, economic and socio-cultural contexts. The UN defines youth as those persons between age 15 and 24 years for statistical purpose, typically in connection with the education and employment without prejudice to other definitions by the Member States.

Development of any nation depends on the national stock of workforce that is viable and capable. TVET being responsible for developing the national workforce must take into account the national stock of young people and assess its demographic structure including the prospect for benefitting from its demographic dividend when planning and implementing TVET programmes.

In this context, Table 2.1 presents the age-wise population of young people by sex (abbreviated as M for Male, F for Female and B for Both sexes). In 2017, youth population (age 15-24 years) constituted 19.76% (143,356) of the total Bhutanese population of 727,145 (PHCB, 2017). Up to now, young people represented a disproportionate share of unemployment and many people tend to connect this situation to young people lacking the relevant skills in various occupations. As the data indicate, there were slightly more young males in 2017 than females. Rural areas had reported slightly more young people than in urban areas.

Table 2.1: Youth population by sex and age (2017)

Age	Urban			Rural			Bhutan		
	M	F	B	M	F	B	M	F	B
15	2498	2667	5165	4104	4102	8206	6602	6769	13371
16	3044	3081	6125	4228	4062	8290	7272	7143	14415
17	3084	3300	6384	3898	3616	7514	6982	6916	13898
18	3226	3250	6476	3696	3306	7002	6922	6556	13478
19	3221	3030	6251	3680	3193	6873	6901	6223	13124
20	3560	3253	6813	4115	3380	7495	7675	6633	14308
21	3636	3356	6992	4011	3336	7347	7647	6692	14339
22	3980	3349	7329	4471	3451	7922	8451	6800	15251
23	3860	3444	7304	4588	3666	8254	8448	7110	15558
24	3970	3364	7334	4884	3741	8625	8854	7105	15959
Total	34079	32094	66173	41675	35853	77528	75754	67947	143356

Source: Table A2.11 Population by Singulate Age, Sex and Area, Bhutan 2017, PHCB (2017), page 114.

Table 2.2 shows that in 2017 the majority of youth were concentrated in Thimphu and Chukkha Dzongkhags in 2017. Large cities (thromde) tend to have a higher population of youth indicating a growing trend of youth migration towards metropolis. Thimphu Dzongkhag reported about 20% of the youth population in 2017 on account of the higher migration of young people to the capital city.

Table 2.2: Youth population by sex and Dzongkhag/Thromde

Dzongkhag/Thromde	Male	Female	Both	%
Bumthang	1768	1502	3270	2.28
Chhukha	7541	7185	14726	10.27
Phuentshogling Thromde	3298	3010	6308	
Other than Phuentsholing Thromde	4243	4175	8418	
Dagana	2356	2046	4402	3.07
Gasa	450	341	791	0.55
Haa	1533	1194	2727	1.90
Lhuentse	1310	1114	2424	1.69
Monggar	3223	3167	6390	4.46
Paro	5154	4691	9845	6.87
Pemagatshel	1977	1836	3813	2.66
Punakha	3477	3076	6553	4.57
Samdrupjongkhar	3671	3129	6800	4.74
Samdrupjongkhar Thromde	1247	974	2221	
Other than Samdrupjongkhar Thromde	2424	2155	4579	
Samtse	5386	5321	10707	7.47
Sarpang	4887	4452	9339	6.51
Gelegphu Thromde	1061	1131	2192	
Other than Gelegphu Thromde	3826	3321	7147	
Thimphu	15149	14812	29961	20.90
Thimphu Thromde	12476	12615	25091	
Other than Thimphu Thromde	2673	2197	4870	
Trashigang	5016	4375	9391	6.55
Trashiyangtse	1550	1424	2974	2.07
Trongsa	2762	2005	4767	3.33
Tsirang	1998	1825	3823	2.67
Wangduephodrang	4595	3017	7612	5.31
Zhemgang	1652	1389	3041	2.12
Bhutan	75455	67901	143356	

Population Projection (2022-2032)

The population projection is useful in determining the future requirements of various development infrastructures, provision of various services, in estimating future labour force, and many other purposes. For TVET, it is important for planning for future enrolment and labour market development. Table 2.3 presents the population projections for three years: 2022, 2027 and 2032 as per the National Statistics Bureau (NSB).

Table 2.3: Population projections of Bhutan (2022, 2027 & 2032)

Age Group	2022			2027			2032		
	M	F	T	M	F	T	M	F	T
0-4	30,371	29,478	59,849	29,786	28,878	58,664	28,436	27,548	55,984
5-9	28,817	27,982	56,799	30,079	29,227	59,306	29,556	28,690	58,246
10-14	31,877	30,788	62,665	28,700	27,864	56,564	29,977	29,126	59,103
15-19	34,491	34,163	68,654	31,748	30,692	62,440	28,600	27,795	56,395
20-24	34,390	33,402	67,792	34,248	33,996	68,244	31,551	30,571	62,122
25-29	40,643	34,079	74,722	34,085	33,197	67,282	33,985	33,823	67,808
30-34	42,249	36,160	78,409	40,198	33,835	74,033	33,765	33,001	66,766
35-39	34,360	29,724	64,084	41,533	35,761	77,294	39,606	33,517	73,123
40-44	28,935	25,383	54,318	33,616	29,254	62,870	40,746	35,271	76,017
45-49	21,630	18,793	40,423	28,201	24,885	53,086	32,855	28,747	61,602
50-54	18,159	16,167	34,326	20,898	18,286	39,184	27,326	24,277	51,603
55-59	14,746	13,236	27,982	17,394	15,501	32,895	20,080	17,593	37,673
60-64	11,626	10,885	22,511	13,907	12,565	26,472	16,461	14,773	31,234
65-69	9,611	9,478	19,089	10,694	10,147	20,841	12,843	11,769	24,612
70-74	6,580	6,206	12,786	8,387	8,376	16,763	9,380	9,016	18,396
75-79	4,662	4,595	9,257	5,269	5,147	10,416	6,760	6,996	13,756
80-84	2,672	2,825	5,497	3,174	3,351	6,525	3,628	3,796	7,424
85	1,912	2,174	4,086	2,033	2,352	4,385	2,356	2,737	5,093
All	397,731	365,518	763,249	413,950	383,314	797,264	427,911	399,046	826,957

Source: Population Projections of Bhutan, 2017-2047 (NSB, 2019)

Whilst the overall population is likely to grow in both medium and long term, the population of young people (below 25) is projected to decline. By 2032, the population below 25 years is estimated to decline by about 10 percentage points

(Figure 2.1). This may have implications on TVET expansion and infrastructure development.

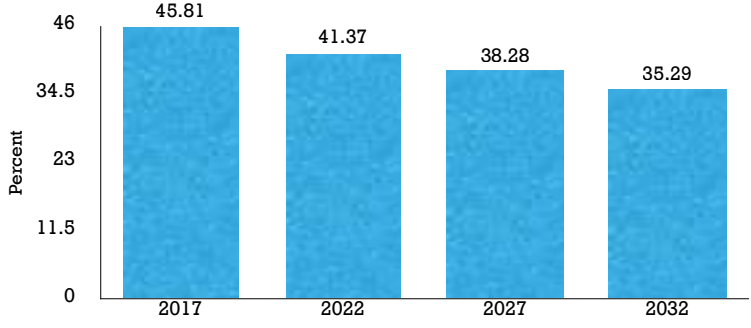


Figure 2:1: Projected population below 25 years by year

Population with Disabilities

Persons with disabilities represent a marginalised group in the labour market. They are more likely to be unemployed, underemployed or economically inactive than the normal persons. In countries where disabled persons receive state benefits, they entail costs on state spending; and others, the costs are borne by their families and communities. There is now the universal call for addressing the need of disabled people so that they can equally contribute to the national economic productivity while enhancing their own social and economic welfare.

Bhutan's Constitution, Article 7 (21) states: "All persons shall have the right to life, liberty and security of a person and shall not be deprived of such rights except in accordance with the due process of law." Article 7 (10) ensures that every Bhutanese citizen has right to practise any lawful trade, profession or vocation. Article 9 (12) ensures every Bhutanese citizen the right to work, vocational guidance and training as well as just and favourable work conditions. The Constitution reaffirms Bhutan's commitment to building an inclusive society—one that enables all Bhutanese people to lead fulfilling lives and participate as full members of the society.

As shown in Table 2.4, persons with disabilities made up 2.14% (15,567) of the Bhutanese population (PHCB, 2017). PHCB had collected information on population with disabilities using the Washington Group (WG)'s set of questions. These questions are usually designed to identify people having difficulty in performing basic universal activities: walking, seeing, hearing, cognition, self-care and communication.

Table 2.4: 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	1,253
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	1,013
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
Samdrupjongkhar	75	72	147	277	298	575	352	370	722
Samtse	47	46	93	821	710	1,531	868	756	1,624
Sarpang	108	105	213	416	392	808	524	497	1,021
Thimphu	566	652	1,218	183	207	390	749	859	1,608
Trashigang	74	64	138	591	613	1,204	665	677	1,342
Trashiyangtse	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
Wangduephodrang	65	50	115	385	452	837	450	502	952
Zhemgang	39	23	62	282	327	609	321	350	671
Bhutan	1,473	1,582	3,055	5,983	6,529	12,512	7,456	8,111	15,567

Source: PHCB, 2017

The national policy for persons with disabilities is now in place and its action plan is being drafted. Bhutan has been preparing for ratification of the UN Convention on the Rights of Persons with Disabilities since 2016. The policy may necessitate the government to increase access to vocational training and employment for persons with disabilities through inclusive admission policy, inclusive approaches and Special Educational Needs (SEN) programmes and the strengthening of access to specialised institutes. Draktsho Vocational Training Centre for Special Children and Youth, a non-profit organisation, currently plays a key role in providing disabled children with vocational skills to enhance their employability and decent livelihood.

The recent development in this field would entail the mainstream TVET to improve the labour market situation for disabled people. Statistics on disability would emerge as vital part of the process to make TVET the disability-inclusive. Table 2.5 presents the distribution of the disabled population (age 25 and below) in rural and urban areas. In 2017, young people with disabilities constituted 10.40% (1619) of the total population with disabilities (15,567). They are one of the potential targets for TVET interventions.

Table 2.5: 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	1,073	821	798	1,619

Source: PHCB, 2017

Education Statistics

According to the UNESCO, literacy is the 'ability to identify, understand, interpret, create, communicate, compute and use printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, develop their knowledge and potential, and participate fully in their community and wider society.' PHCB, 2017 defines literacy as 'the ability to read and write a short text in Dzongkha, English, *Lhotshamkha*, or any other language' and is associated more with functional literacy.

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. It is the second perspective that makes the mass literacy relevant to TVET. 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 future TVET programmes. Learning and using ICT requires a person to have at least some literacy ability. Table 2.6 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 2.6: Literate and illiterate young population of age 10-24 years by sex

Youth Age Group	Male			Female			% Literate
	Literate	Illiterate	Total	Literate	Illiterate	Total	
10-14	34032	595	34627	33769	508	34277	98.40
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

Furthermore, literate youth populations (15-24) in each Dzongkhag are given in Table 2.7. Thimphu Thromde recorded the highest number of literate population (24,062, 18.03) in 2017. There were close to 13,000 more literate youth males than females.

Table 2.7: Literate youth population by sex and Dzongkhag/Thromde (2017)

Dzongkhag/Thromde	Male	Female	Both	%
Bumthang	1666	1429	3095	2.32
Chhukha	7081	6646	13727	10.29
Phuentsholing Thromde	3161	2885	6046	4.53
Other than Phuentsholing Thromde	3920	3761	7681	5.76
Dagana	2158	1890	4048	3.03
Gasa	395	251	646	0.48
Haa	1394	1117	2511	1.88
Lhuentse	1244	1027	2271	1.70
Monggar	2963	2785	5748	4.31
Paro	4766	4434	9200	6.89
Pemagatshel	1868	1721	3589	2.69
Punakha	3334	2919	6253	4.69
Samdrupjongkhar	3431	2864	6295	4.72
Samdrupjongkhar Thromde	1202	939	2141	1.60
Other than SJ Thromde	2229	1925	4154	3.11
Samtse	4943	4692	9635	7.22
Sarpang	4518	4175	8693	6.51
Gelephu Thromde	962	1080	2042	1.53
Other than Gelephu Thromde	3556	3095	6651	4.98
Thimphu	14383	14224	28607	21.44
Thimphu Thromde	11910	12152	24062	18.03
Other than Thimphu Thromde	2473	2072	4545	3.41
Trashigang	4658	3955	8613	6.45

Dzongkhag/Thromde	Male	Female	Both	%
Trashiyangtse	1458	1328	2786	2.09
Trongsa	2602	1936	4538	3.40
Tsirang	1876	1717	3593	2.69
Wangduephodrang	4125	2688	6813	5.11
Zhemgang	1514	1277	2791	2.09
Bhutan	70377	63075	133452	100.00

Source: PHCB, 2017

TVET is the continuation of academic education and serves as the means to prepare a person for the world of work. It is an integral component of national human resource development, productivity and economic growth. Therefore, TVET policies and programmes cannot be implemented in complete isolation from the development of general education. Given that most TVET candidates are the school-leavers, school enrolment can influence the present and future demand for TVET. Such information is crucially important for TVET planning. Table 2.8 presents the enrolments in schools at various levels of education between 2013 and 2018. There were slightly higher female enrolments in the recent past at the level PP-XII. In 2018 alone, there were 167,108 students enrolled in grades PP to XII while there were 10,601 students in class XII and 12,510 students in class X.

Table 2.8: School Enrolment by sex and level (2013-2018)

Grade	2013		2014		2015		2016		2017		2018	
	M	F	M	F	M	F	M	F	M	F	M	F
PP	6345	6088	6756	6419	7198	6684	7038	6527	6839	6410	7004	6677
I	6941	6408	6413	6073	6795	6423	7124	6521	6953	6437	6796	6317
II	7860	7677	6988	6528	6482	6133	6,806	6498	7151	6545	6898	6438
III	7997	7883	7570	7532	6647	6501	6134	6016	6463	6349	6772	6393
IV	8611	8485	8571	8214	8173	8019	7423	7088	6754	6558	6941	6725
V	7629	7877	7892	8123	7797	7872	7428	7643	6782	6820	6205	6341
VI	7239	7283	7003	7585	7007	7560	6965	7443	6881	7242	6228	6563
VII	7343	7630	7494	7692	7319	8073	7380	8110	7396	7902	7239	7694
VIII	6299	6746	6642	7101	6619	6981	6457	7406	6509	7489	6623	7433
IX	5958	6858	6081	6462	6443	6904	6462	6927	6322	7302	6412	7416
X	5233	5532	5549	6308	5489	5850	5778	6215	5818	6240	5817	6693
XI	4000	3870	3997	4121	4238	4459	4038	4048	4388	4531	4283	4599
XII	4454	4145	4796	4483	4864	4872	4947	5138	5033	4978	5247	5354
Total	85909	86482	85752	86641	85071	86331	83980	85580	83289	84803	82465	84643

Annual Education Statistics (2013-2018)

Enrolment Projections

Given that 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. Considering this, the projections of enrolment in class X, XI and XII were done using the Cohort Survival Ratio (C-SR) Method or Grade Progression Method. This method uses the past enrolment trend to project future enrolment. Six-year historical enrolment data (2013-2018) were sourced from the Annual Education Statistics (MoE). This method was preferred due to its ease of use, the requirement of a fewer historical data, and importantly, it takes into account the net effect of students entering or leaving a particular grade for whatever reason.

The CS-R was computed by dividing the enrolment (E) in grade (g) in a year (y) by Enrolment (E) in grade (g-1) in the year (y-1) as given below:

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

The above formula calculates the average ratio of survivors from one grade to the successive grade. The pre-primary enrolment was taken as the base instead of the total births. Each ratio takes into account the collective factors leading to an increase or decrease in the size of a cohort enrolment when the cohort moves on to 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 is likely to remain comparable to [that of] the period from which data were drawn. As the basis for these projections were the past data, the accuracy of the predictions would depend on the quality of previous enrolment data and the likelihood of similar conditions in the future. A major change in school admission policy, for example, might affect the accuracy of the projection.

Two types of projection were made considering (1) current 'no cut-off point for class X' continues and (2) with one-time 'no cut-off point' in 2019. Table 2.9 shows the projected enrolment in class X-XII assuming 'no cut-off point policy' (introduced in 2019) would not continue. Under this condition, class XII enrolment is likely to increase until 2022 and then gradually decrease in the subsequent years. Class XI enrolment may steadily decrease to about 7509 in 2028.

Table 2.9: Projected enrolment (X, XI & XII) with one time no cut-off 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

Then again, Table 2.10 presents the projected enrolments in class X-XII between 2020 and 2028 assuming there is class no X 'cut-off point' so that all BCSE students with Pass Certificate Awarded (PCA) are automatically upgraded to class XI through the government funding. Under this assumption, class XII enrolment might increase up to 2022 and subsequently decrease. Class XI enrolment may steadily decrease to about 9848 in 2028.

Table 2.10: Projected enrolment in Class X-XII with no class X cut-off point

Grade	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
X	12574	12494	12044	10901	9938	10134	10534	10313	10199	10571
XI	12033	12141	12064	11629	10525	9596	9785	10171	9958	9848
XII	10596	14319	14448	14357	13839	12525	11419	11644	12104	11850

Since the above projections were based on the law of probability, the projections may not be 100 per cent accurate. Even if the future conditions remain the same, it is unlikely that the projected and actually enrolment will tally precisely.

Table 2.11 shows the persons of age 6 to 24 years 'who are Currently Attending (CA) school,' 'Attended (A) formerly,' and 'Not Attended (NA),' distributed across Dzongkhags and Thromdes. The data were extracted from PHCB, 2017. Such data may be 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 qualification is not obligatory for informal TVET learning, being educated would enhance the ability of TVET learning. As shown in the table below, there were about 13,940 persons who were not attending schools in 2017.

Table 2.11: Population (6-24)'s attendance in school by Dzongkhag/Thromde

Dzongkhag/Age Group	Male			Female		
	CA	A	NA	CA	A	NA
Bumthang	2142	535	308	2155	416	98
Chukha	8567	1791	747	8675	1604	564
Phuentsholing Thromde	3129	771	244	2903	785	140
Other than Phuentsholing Thromde	5438	1020	503	5772	819	424
Dagana	3479	585	298	3285	473	146
Gasa	465	154	96	408	93	128
Haa	1808	335	203	1826	220	68
Lhuentse	1804	445	230	1770	343	117
Monggar	4799	805	618	5028	780	377
Paro	5459	1417	605	5730	1129	298
Pema Gatshel	3004	493	166	2919	472	140
Punakha	3817	1099	354	3967	742	168
Samdrupjongkhar	4701	845	489	4793	649	266
Samdrupjongkhar Thromde	1337	222	87	1359	208	41
Other than SJ Thromde	3364	623	402	3434	441	225
Samtse	7895	1457	572	7751	1161	590
Sarpang	5755	1227	439	6005	914	253
Gelephu Thromde	1094	248	110	1341	225	52
Other than Gelephu Thromde	4661	979	329	4664	689	201
Thimphu	15586	3999	1197	16165	3971	633
Thimphu Thromde	13201	3051	877	13616	3324	488
Other than Thimphu Thromde	2385	948	320	2549	647	145
Trashigang	6014	1238	741	6432	689	511
Trashi Yangtse	2439	374	224	2628	302	111
Trongsa	2031	818	272	2308	394	109
Tsirang	2893	519	185	2803	398	121
Wangduephodrang	4129	1750	725	4439	796	343
Zhemgang	2248	464	305	2345	327	125

Dzongkhag/Age Group	Male			Female		
	CA	A	NA	CA	A	NA
Bhutan	89035	20350	8774	91432	15873	5166

Source: PHCB, 2017

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 2013-2018 (six years) 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. The data were sourced from DAHE and RUB. Taking the average, 14126 students were studying at the tertiary level annually during the period 2013-2018. It is possible that some students who were pursuing tertiary education on their own expenses might not have been taken into an account.

Table 2.12: Number of students studying in tertiary education level (2013-2018)

Tertiary Education Institutes	2013	2014	2015	2016	2017	2018	Avg.
RUB	8289	8954	8954	10423	10628	10408	9609
KGMUB		486	486	473	473	652	514
Private and others	1061	1649	1649	487	363	199	901
Total (RUB+KGUM+Others)	9350	11089	11089	11383	11476	11259	10941
Undergrad Scholarship abroad	735	895	1046	867	1120	877	923
Private							
Bachelor		2373					2373
Diploma		284					284
Others: Masters, PG, Phd.		122					122
Total privately funded	3245	2779	3194	2924	2337	4628	3185
Total in tertiary education	12595	13868	14283	14307	13813	15887	14126

RUB and KGUSM are two universities in the country offering various undergraduate and graduate programmes. The colleges under the two universities had enrolled on average 4,000 students annually while roughly 1,000 students were sent overseas per year through various scholarships programmes and private funding. On average, 5,170 young people had been enrolled annually in the tertiary education between 2015 and 2018 as shown in Table 2.13.

Table 2.13: Enrolment in tertiary education (2015-2018)

Name of institute	2015	2016	2017	2018	Avg.
College of Language and Culture Studies	397	404	426	390	404
College of Natural Resources	183	213	310	281	247
College of Science and Technology	260	262	304	262	272
Gedu College of Business Studies	452	504	614	587	539
Gyalpozhing College of Information Technology		-	79	79	79
Jigme Namgyel Engineering College	416	385	458	350	402
Paro College of Education	253	265	227	479	306
Samtse College of Education	196	201	241	468	277
Sherubtse College	543	587	548	530	552
Yonphula Centenary College	-	-	32	30	31
Faculty of Nursing and Public Health (KGUMSB)	134	363	151	177	206
Faculty of Postgraduate Medicine (KGUMSB)	7	42	11	13	18
Faculty of Traditional Medicine (KGUMSB)	20	87	25	19	38
Jigme Singye Wangchuck School of Law	-	-	25	18	22
Royal Institute of Management	301	430	162	208	275
Norbuling Rigter College	-	-	91	92	92
Reldri Academy of Health Sciences	-	53	14	17	28
Royal Thimphu College	508	365	388	430	423
Total (A)	3670	4161	4106	4430	4092
Education Consultancy and Placement Firms (36 ECPFs)			791	791	
YDF				13	13
Youth Welfare and Education Office, Kidu (YWEO)				70	70
Loden Foundation				7	7
DAHE Scholarship	204	199	190	196	197
Total (B)				1077	1078
Grand Total ((A)In-country + (B)Ex-country)					5170

DAHE, MOE (2019) & RUB

Labour Market and Employment

The labour and employment statistics are useful for identifying the factors affecting the transition of young people from education and training to gainful employment, projecting future labour supply (PHCB, pp.45, 2017) and assessing the labour market

outcomes for TVET graduates. Since LFS do not capture details of the labour market situation for TVET graduates, more specific indicators were extracted from the on-going online multi-cohort tracer survey. The precursory results are presented in Section IV-TVET Relevance Indicators.

Table 2.14 shed some light on the labour market situation between 2009 and 2018. 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 been increasingly 2013 and reached the highest in 2018 (15.7). It was higher among female youths.

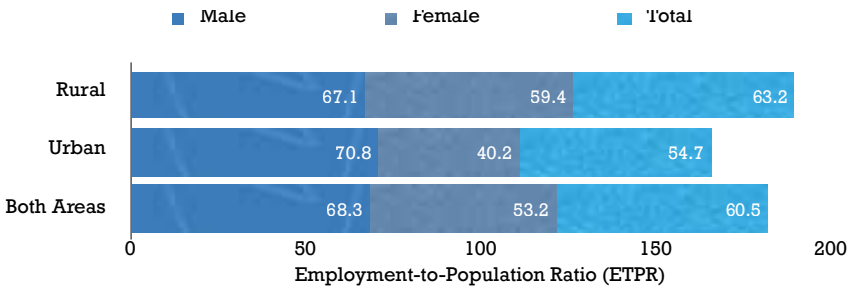
Table 2.14: Labour force and employment indicators (2009-2018)

Indicator	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unemployment rate	4.0	3.3	3.1	2.1	2.9	2.6	2.5	2.1	3.1	3.4
Male	2.6	2.7	1.8	1.9	2.2	1.9	1.8	2.0	2.7	2.7
Female	5.3	4.0	4.5	2.2	3.7	3.5	3.1	2.3	3.6	4.2
Labour force participation rate	68.5	68.6	67.4	64.4	65.3	62.6	63.1	62.2	65.7	62.6
Male	71.9	69.3	70.1	66.6	67.9	65.7	64.8	65.4	72.1	70.1
Female	63.2	67	61.2	59.2	59.5	55.3	59.2	54.5	59.9	55.5
Youth unemployment rate	12.9	9.2	9.2	7.3	9.6	9.4	10.7	13.2	12.3	15.7
Male	10.7	7.1	6.8	7.3	9.2	8.6	8.2	16.4	11.2	15.4
Female	14.7	11.0	10.9	7.2	9.9	10.0	12.7	11.0	13.2	16.1

Source: Labour Force Survey, MoLHR (2009-2016) & NSB (2017-2018)

The Employment-to-Population Ratio (EPR) is defined as the ratio of the total labour force currently employed to the total working-age population. It provides information on a country's ability to create employment. In general, a higher overall ratio shows higher employment. But, one must be cautious while interpreting the EPR, which may be high but not necessarily favourable. For example, in a certain case, a high EPR might indicate fewer opportunities for education and training compelling young people to take advantage of any jobs available in the market (TVET-IAG, 2013).

Bhutan's EPRs in 2018 are exhibited in Figure 2.2, which comes to about 60.5 with higher value in rural areas (63.2) compared to [that of] urban areas (54.7). The male EPR was higher than female EPR in 2018. The EPRs further show that unemployment was predominantly the urban phenomenon.



Source: Labour Force Survey, NSB, 2018

Figure 2.2: Employment-to-Population Ratio (EPR 2018)

The statistics on employment in different economic sectors are important for identifying the sectors with the potential to employ the greatest number of people. In the economic development process, labour shift usually occurs from the agriculture to industry (labour-intensive) and then to the service sectors, which in turn stimulates rural to urban migration. The data for employment in various sectors (as shown in Table 2.15) were drawn from PHCB (2017) even if similar data could have been sourced from LFS. The reason for this was that census data had better sectors detailing. The agriculture sector was a leading sector employing about 44% of the active population followed by the construction and public administration sectors.

Table 2.15: Population currently employed by sector, sex and area (2017)

Industry Type	Number	Sex		Area		Total
		M	F	Urban	Rural	
Agriculture	145,691	34.2	59.3	4.4	62.7	43.9
Construction	36,167	16.2	2.5	13.5	9.6	10.9
Public Administration	35,599	13.8	5.8	22.1	5.3	10.7
Others	18,771	6.4	4.4	8.3	4.4	5.7
Wholesale/Retail Trade	18,395	4.1	7.8	11.7	2.6	5.5
Education Services	16,029	4.4	5.5	6.6	4	4.8
Electricity/Gas/Water	14,126	6	1.4	3.9	4.4	4.3
Manufacturing	13,559	4.5	3.5	8.9	1.8	4.1
Transport/Communication	11,998	5	1.5	6.8	2.1	3.6
Accommodation/Food Services	11,316	2.3	5.2	6.9	1.7	3.4
Health Services	5,503	1.5	1.9	3.7	0.7	1.7

Industry Type	Number	Sex		Area		Total
		M	F	Urban	Rural	
Finance/Insurance	2,761	0.8	0.9	2.2	0.2	0.8
Mining/Quarrying	2,184	0.8	0.4	1	0.5	0.7
Total	332,099	100	100	100	100	100

Source: PHCB, 2017

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. Such a situation could adversely impact the economic productivity of firms. It is not clear whether such a contrasting problem of unemployment and unfilled vacancies is due to a lack of trained people or skills mismatch.

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 can't 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)

Major economic activity	Sector				Total
	Tourism	Hydro	Mfg.	Mining	
Accommodation and Food Service Activities	164	0	0	0	164
Manufacturing	2	1	137	4	144
Mining and Quarrying	0	0	0	19	19
Arts, Entertainment and Recreation	16	0	0	0	16
Electricity and Gas Supply	0	5	2	0	7
Agriculture and Forestry	0	0	2	0	2
Information and Communications	0	0	1	0	1
Total	182	6	142	23	353

Establishment Survey, 2017, MoLHR

By the same token, 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				Total
	Tourism	Hydropower	Manufacturing	Mining	
Cottage	74	1	52	0	127
Small	85	0	57	16	158
Medium	22	1	23	6	52
Large	1	4	10	1	16
Total	182	6	142	23	353

Establishment Survey, 2017, MoLHR

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 TVET programmes as per their occupational choices. Table 2.18 provides basic information on employment by major occupations. In 2018, the occupations in agriculture, forestry and fishery sector constituted 53.72% of total occupations. Services and sale 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 trend in different economic sectors but not necessarily the actual occupational demand.

Table 2.18: Employed persons by the major occupations (2018)

Major Occupation	Male	Female	Total	Percent
Skilled Agricultural, Forestry and Fishery	75,846	85,549	161,395	53.72
Services and Sales Workers	14,072	18,532	32,604	10.85
Professionals	14,329	6,713	21,042	7.00
Craft and Related Trade Workers	10,653	9,530	20,183	6.72
Plant and Machine Operators and Assemblers	16,101	266	16,367	5.45
Technicians and Associate Professionals	9,553	4,498	14,051	4.68
Managers	7,977	2,536	10,513	3.5
Elementary Occupations	5,406	4,597	10,003	3.33
Armed Forces	7,362	344	7,706	2.56
Clerical Support Workers	3,494	3,084	6,578	2.19
Total	164,792	135,649	300,442	100.00

Labour Force Survey, 2018 (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. Persons without works and are available or seeking works are designated as unemployed. Contrarily, an economically inactive youth population represents persons who are neither working nor seeking any work. Statistics in Table 2.19 highlights the key information on the usual activities of Bhutanese youth (15 years and above) across 20 Dzongkhags for 2017.

Table 2.19: Population 15 years and above by usual activity

Dzongkhag	Employed			Unemployed			Economically Inactive		
	M	F	B	M	F	B	M	F	B
Bumthang	695	421	1116	56	41	97	1017	1040	2057
Chhukha	2561	1909	4470	286	268	554	4751	5016	9767
Dagana	836	600	1436	66	41	107	1502	1406	2908
Gasa	239	173	412	4	6	10	207	162	369
Haa	659	241	900	34	27	61	845	928	1773
Lhuentse	325	410	735	24	16	40	963	690	1653
Monggar	1118	1132	2250	55	68	123	2054	1967	4021
Paro	1871	1192	3063	194	150	344	3129	3353	6482
Pemagatshel	665	491	1156	58	55	113	1256	1293	2549
Punakha	1054	764	1818	74	90	164	2357	2224	4581
Samdrupjongkhar	1068	675	1743	106	92	198	2514	2365	4879
Samtse	2072	1552	3624	132	100	232	3192	3675	6867
Sarpang	1736	911	2647	167	139	306	3012	3407	6419
Thimphu	5278	3571	8849	1124	1205	2329	8764	10042	18806
Trashigang	1330	1020	2350	75	68	143	3619	3289	6908
Trashiyangtse	511	386	897	38	35	73	1009	1003	2012
Trongsa	1426	382	1808	34	34	68	1311	1589	2900
Tsirang	769	459	1228	69	42	111	1161	1325	2486
Wangduephodrang	2589	1049	3638	117	99	216	1922	1870	3792
Zhemgang	578	374	952	47	36	83	1029	980	2009
Bhutan	27380	17712	45092	2760	2612	5372	45614	47624	93238

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 foreign workers' regulations are strictly enforced. The Regulation on Recruitment and Management of Foreign Workers, 2012 prohibits the foreign workers from participating in about 32 occupations. Some of these 'closed occupations' include accountants, administrators, business managers,

computer operators, electricians, plumbers, gardeners, receptionists, tailors, security guards, carpenters in furniture units, architects, construction supervisors, and Early Childhood and Care Development (ECCD) manager, among others. It is often alleged that many foreign workers perform skills-related jobs in occupations that are banned for them. The available information points out that several thousands of foreign workers are engaged in construction (mainly hydropower and housing) and production sectors where Bhutanese youth are reluctant to work (TVET Blueprint 2016-26).

In terms of the regional distribution, Table 2.20 shows a higher concentration of foreign workers in Thimphu (35.47%), Wangduephodrang (16.50%) and Paro (12.20%) Dzongkhags. In 2019, female foreign workers constituted only 2.43% of the sum total. The available information does not reveal much about the adverse repercussions of foreign workers on the national employment composition.

Table 2.20: Distribution of foreign workers by Dzongkhags (2019)

Dzongkhag	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Thimphu	16,372	98.87	187	1.13	16,559	35.47
Wangduephodrang	7,690	99.84	12	0.16	7,702	16.5
Paro	5,434	95.38	263	4.62	5,697	12.2
Trongsa	3,513	99.8	7	0.2	3,520	7.54
Chhukha	2,797	88.79	353	11.21	3,150	6.75
Sarpang	2,581	99.92	2	0.08	2,583	5.53
Samdrupjongkhar	1,323	98.88	15	1.12	1,338	2.87
Punakha	1,074	99.26	8	0.74	1,082	2.32
Trashigang	742	77.21	219	22.79	961	2.06
Haa	756	96.55	27	3.45	783	1.68
Samtse	756	99.47	4	0.53	760	1.63
Mongar	441	93.43	31	6.57	472	1.01
Dagana	426	100	0	0	426	0.91
Bumthang	296	99.66	1	0.34	297	0.64
Tsirang	289	99.66	1	0.34	290	0.62
Pemagatshel	257	100	0	0	257	0.55
Trashiyangtse	249	99.2	2	0.8	251	0.54
Gasa	231	100	0	0	231	0.49
Zhemgang	206	99.52	1	0.48	207	0.44
Lhuentse	113	100	0	0	113	0.24
Total	45,546	97.57	1,133	2.43	46,679	100

DoL, 2019 (MoLHR)

Key Economic Statistics

Various economic factors could affect demand and supply of technical and vocational skills. The macroeconomic data were used to determine employment opportunities and gap. Some key macroeconomic indicators are given in Table 2.21.

One major macro-economic indicator of relevance to TVET is Gross Domestic Product (GDP). Between 2013 and 2017, Bhutan had witnessed a gradual increase in its GDP. The GDP annual growth rate averaged at 5.34 (2013-2017). Though GDP saw positive growth, its growth rates had fluctuated in the recent past. The other macroeconomic indicators of interest are government revenue, expenditure and debt. See the table for details.

Table 2.21: Economic performance indicators (2013-2017)

Indicators	2013	2014	2015	2016	2017
GDP (Nu Billion)	105,378	119,546	132,141	149,152	164,628
GDP Growth Rate (%)	2.14	5.75	6.64	8.02	4.63
GDP Per Capita (In Nu.)	144,353	160,464	184,105	205,275	223,815
Inflation (%)	5.86	7.28	3.65	4.49	5.49
Govt. Expenditure as % of GDP					
Current	16.62	16.11	16.48	15.64	15.68
Capital	15.39	14.74	12.27	15.59	16.20
Govt. revenue as % of GDP					
Tax revenue	15.17	14.46	15.05	15.52	12.01
Non-tax revenue	6.20	5.78	6.17	5.68	6.08
Govt. Debt as % of GDP					
Total Debt	90.92	97.54	101.66	105.82	109.94
External Debt	90.59	97.39	97.50	15.59	16.20

Source: National Accounts Statistics, 2018 (NSB)

The primary sector constitutes crop, livestock and forestry; the secondary sector consists of manufacturing activities and; the service sector constitutes the tertiary sector. The focus of the economic activities had been gradually shifting from the primary sector to the secondary and tertiary sector. The statistics in Table 2.22 show that contributions of the secondary and tertiary sectors to GDP had surpassed the contribution of the primary sector during the period 2013-2018. The contribution of the secondary sector to GDP averaged 40.57% and that of the tertiary sector was 42.06%.

Table 2.22: Percentage share of major economic sectors to GDP (2013-2017)

Year	2013	2014	2015	2016	2017
Primary	16.10	16.69	16.71	16.64	17.37
Secondary	42.35	40.85	41.33	41.39	40.57
Tertiary	41.55	42.46	41.96	41.97	42.06

Source: National Accounts Statistics, 2018 (NSB)

Economic Establishments

The 'Establishment' refers to economic structures belonging to all sectors of the economy like State-Owned Enterprises (SOEs), sole proprietorships, partnership, private and public companies, FDIs and NGOs. Statistics on economic establishments can provide valuable insights into the state of private sector vis-a-vis labour market situation. The knowledge and understanding of various economic enterprises are invaluable for strategic development in TVET mainly in terms of their role in providing employment. Table 2.23 shows the distribution of economic establishments across twenty Dzongkhags. Thimphu (3485) and Chukkha (1896) Dzongkhags recorded the highest number of establishments showing the regional disparity in the distribution of economic activities.

Table 2.23: Distribution of economic establishments across 20 Dzongkhags (2017)

Dzongkhag	Number			Percentage		
	Urban	Rural	Total	Urban	Rural	Total
Thimphu	3,149	336	3,485	35.4	6.6	24.9
Chhukha	1,449	447	1,896	16.3	8.8	13.5
Sarpang	634	502	1,136	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
Samdrupjongkhar	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
Wangduephodrang	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
Trashiyangtse	131	143	274	1.5	2.8	2
Trongsa	97	161	258	1.1	3.2	1.8

Dzongkhag	Number			Percentage		
	Urban	Rural	Total	Urban	Rural	Total
Zhemgang	89	119	208	1	2.3	1.5
Haa	104	61	165	1.2	1.2	1.2
Lhuntse	52	77	129	0.6	1.5	0.9
Gasa	27	7	34	0.3	0.1	0.2
Total	8,893	5,104	13,997	100	100	100

Source: Bhutan Economic Census Report, 2018 (NSB)

In 2017, single proprietorships had far outnumbered (91.7%) other types of businesses (Table 2.24). These establishments are usually smaller and easy to establish. They are relatively less stable, typically incur low running costs, and employ a smaller number of workers. Therefore, tackling the unemployment problem in the country would entail promoting the growth and transformation of smaller businesses into the larger ones. All things considered, the growth of TVET and the private sector are mutually dependent.

Table 2.24: 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	0.0
Total	13,997	100.0

Source: Bhutan Economic Census Report, 2018 (NSB)

An effective relationship between TVET and entrepreneurial training might provide an optional career pathway for TVET graduates. The statistics presented in Table 2.25 show that about 1.3% of the establishments were owned by TVET graduates. A comparatively lower number of TVET graduates owning enterprises offer the grounds for augmenting the entrepreneurial training within TVET, mainly to inculcate in trainees the entrepreneurial motivations, intentions and enhance their entrepreneurial competencies.

Table 2.25: Qualifications of the owners of economic establishments (2017)

Educational attainment of owner	Number			Percentage		
	Male	Female	Both	Male	Female	Both
VTI/TTI certificate/RTI/ diploma	133	38	171	2.3	0.5	1.3
No education	1,474	2,785	4,259	25.8	38.5	32.9
Primary	1,025	905	1,930	17.9	12.5	14.9
Lower secondary	444	585	1,029	7.8	8.1	7.9
Middle secondary	817	1,232	2,049	14.3	17.0	15.8
Higher secondary	630	745	1,375	11.0	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	7.0	4.9
Not reported	72	36	108	1.3	0.5	0.8
Total	5,723	7,235	12,958	100.0	100.0	100.0

Source: Bhutan Economic Census Report, 2018 (NSB)

Studies in Asia have confirmed the higher efficacy of labour structures in economies where FDIs are thriving well. FDI-based enterprises usually tend to have more resources to create employment and upgrade knowledge and skills of their workers (Pham Le Phuong, 2009). In Malaysia, FDI companies play a critical role in the growth of TVET. One example is German-Malaysia Institute (GMI) that caters to skills need of German FDI industries. Table 2.26 lists the FDI countries and number (and percentage) of FDI enterprises in Bhutan. Among 32 FDI-based establishments, 31.3% of investors were from India, followed by Singaporeans (12.5%) and American investors.

Table 2.26: FDIs by nationality of the investors (2017)

Nationality of foreign investor	Foreign investors	
	Number	Percentage
India	10	31.3
Singapore	4	12.5
United States of America	3	9.4
Australia	2	6.3
Hong Kong SAR, China	2	6.3
Bangladesh	1	3.1
France	1	3.1
Japan	1	3.1
Malta	1	3.1

Nationality of foreign investor	Foreign investors	
	Number	Percentage
Myanmar	1	3.1
Nepal	1	3.1
Samoa	1	3.1
Switzerland	1	3.1
Thailand	1	3.1
United Kingdom	1	3.1
Vietnam	1	3.1
Total	32	100.0

Source: Bhutan Economic Census Report, 2018 (NSB)

The information on type and size of manpower could indicate the skills needed in various economic establishments. The dominant trades and economic activities in 2017 were wholesale, retail trade and motors repairs (62.5%) and accommodation and food services (21%). The detailed information is given in Table 2.27. An in-depth analysis of the prevalence of various economic activities is desired to inform the process of course diversification and curriculum design in TVET.

Table 2.27: 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	21.0
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

Economic sector	Number	Percentage
Real estate activities	3	0
Total	13,997	100

Source: Economic Census Report (2018)

The distribution of monthly earning among regular and contract employees of the establishments in 2017 is given in Table 2.28. About 36% of the employees had reported earning between Nu. 5000 and 15,000 per month while 31% reported they earned between Nu. 20,000 and 25,000. Statistics further indicate the higher proportion of female employees at lower income bracket when compared to male employees. Computation of earnings by occupations could have provided more meaningful information but with no access to the raw dataset, the data disaggregation to that extent was not possible

Table 2.28: Distribution of monthly earning by employment type (2017)

Monthly remuneration	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Less than 5000	1554	4.5	846	5.8	2400	4.9
5000-9999	5486	15.8	4007	27.3	9493	19.2
10000-14999	5318	15.3	3102	21.1	8420	17.0
15000-19999	2694	7.8	1088	7.4	3782	7.6
20000-24999	12811	36.9	2565	17.5	15376	31.1
25000-29999	2532	7.3	1138	7.7	3670	7.4
30000-39999	2787	8.0	957	6.5	3744	7.6
40000 and more	1568	4.5	989	6.7	2557	5.2
Total	34750	100.0	14692	100.0	49442	100.0

Source: Bhutan Economic Census Report, 2018 (NSB)

Social Conditions

Poverty indicators are usually associated with qualitative aspects of the labour market outcomes. In predominately market economies, the higher rate of poverty is linked with the inability of individuals or households to earn a sufficient level of income through employment and other means (IAG-TVET, 2013). The Poverty Analysis Report (NSB, 2017) considers '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 2.29 shows household and population poverty and subsistence poverty rates by areas. Such information is relevant for TVET given its role in poverty reduction by way of increasing an individual's prospect for employment.

Table 2.29: 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	100.00	1.54	1.02	100.00

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

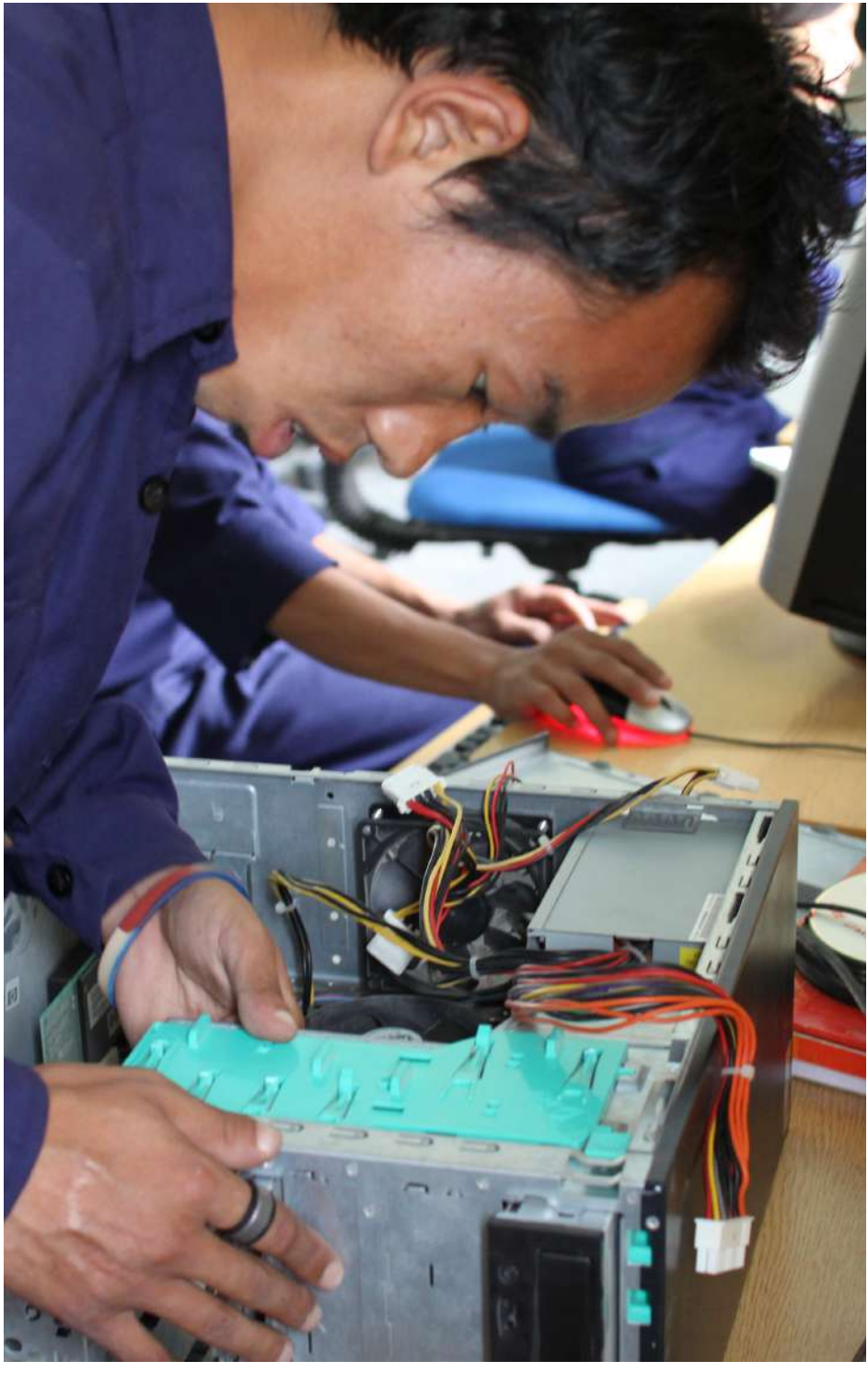
Dzongkhag and Thromde-level poverty rates are shown in Table 2.30 according to which the highest poverty rates were observed in Dagana, Zhemgang, Monggar, Trongsa, and Pemagatshel Dzongkhags. This suggests that additional priority may have to be accorded to these Dzongkhags in terms of poverty alleviation efforts, including employment generation through TVET programmes, among others.

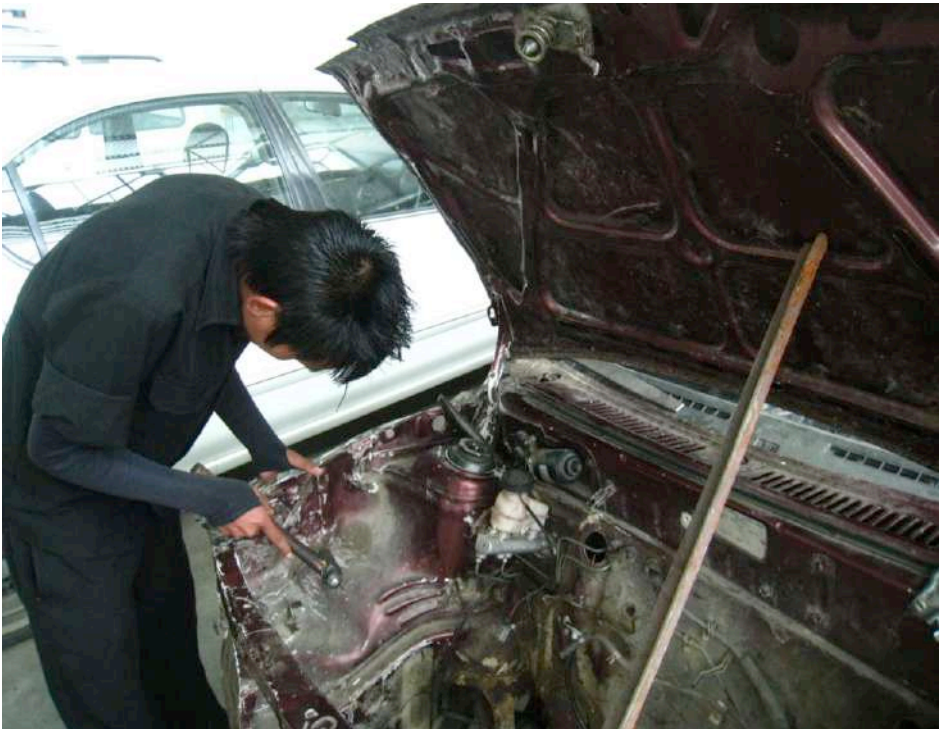
Table 2.30: Population poverty rates across Dzongkhags (2017)

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 Samdrupjongkhar Thromde	8.3	3.9	26,778
Bhutan	8.2	100	692,895
Lhuentse	6.7	1.8	15,552
Samdrupjongkhar	6.2	4	36,154
Wangdue Phodrang	5.4	3.9	41,405
Other than Phuentsholing 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

Dzongkhag	Poverty rate	Distribution of Poor	Distribution of Population
Other than Thimphu Thromde	1.1	0.5	27,403
Phuentsholing 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
Paro	0.3	0.2	36,329
Samdrupjongkhar Thromde	0.3	0	9,376

Poverty Analysis Report, 2017 (NSB)





SECTION 03

TVET Access and Participation Indicators

TVET access simply means creating TVET opportunities for all groups of society while participation concerns overcoming some barriers that can block their actual participation in TVET. The number and type of TVET institutions (training providers), their locations, course diversity, enrolment-related indicators and graduation data represent the contextual dynamics that affect TVET access, participation and outcomes. MoLHR's Skills Training Programmes (STWTs), Village Skill Development Programmes (VSDP), Special Skills Development Programmes (SSDP) and School TVET represent the undertakings towards providing TVET access [to] and ensuring participation of various target groups. The indicators related to TVET access and participation were disaggregated by sex to underscore the equity aspect of TVET, which among others is measured in terms of gender inclusion and gender balance. Taking into account the equity consideration again, the effort was made to collect data related to disabilities. It came out that except for a few programmes under SSDP, not many disabled people had availed training through registered TPs, and on that account, there was no significant data to report.

Statistics on Formal Training Providers (TPs)

In general, the combination of formal, non-formal and informal providers supply TVET programmes in Bhutan. The Regulations for Registration of Training Provider, 2010 (revised in 2014) mandates every TP to register with the Department of Occupational Standards (DOS). The purpose of registration is to allow standard monitoring and enforcement of quality assurance. When the administrative data collection began in December 2018, there were 111 TPs registered with DOS, which has now increased to 115. Eight TPs are inactive today, though not necessarily deregistered. Four TPs were established recently. The number of TPs and their physical locations change often due to the establishment of new providers and closure of a few existing ones.

The distribution of TPs by Dzongkhags/Thromdes (Table 3.1) shows that out of 115 TPs in 2019, 66 were based in Thimphu Dzongkhag. The other TPs were mostly concentrated in the metropolis of Paro and Phuentsholing with piecemeal coverage for remaining parts of the country. No TP was based in Gasa, Trongsa, Lhuentshe and

Tsirang Dzongkhags. It is obvious that the physical distribution of TPs in 2019 was urban biased and regionally imbalanced.

Table 3.1: Physical distribution of Training Providers (TPs)

Dzongkhag	Number	Percent
Thimphu	66	57.39
Chukhha	13	11.30
Paro	9	7.83
Wangduephodrang	5	4.35
Sarpang	3	2.61
Bumthang	3	2.61
Samdrupjongkhar	3	2.61
Haa	2	1.74
Punakha	2	1.74
Samtse	2	1.74
Trashigang	2	1.74
Dagana	1	0.87
Monggar	1	0.87
Pemagatshel	1	0.87
Trashiyangtse	1	0.87
Zhemgang	1	0.87
Total	115	100

The registration of TPs is based on whether they have met the quality standards, assessment criteria and have a proper management system in place. Training providers are categorised into grade A, B and C. The majority of them (72) falls under Grade C and three TPs have attained Grade A (Figure 3.1).

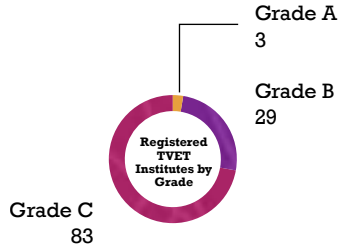


Figure 3.1: Registered trading providers by grades

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 2016 and 2019 as shown in Figure 3.2.

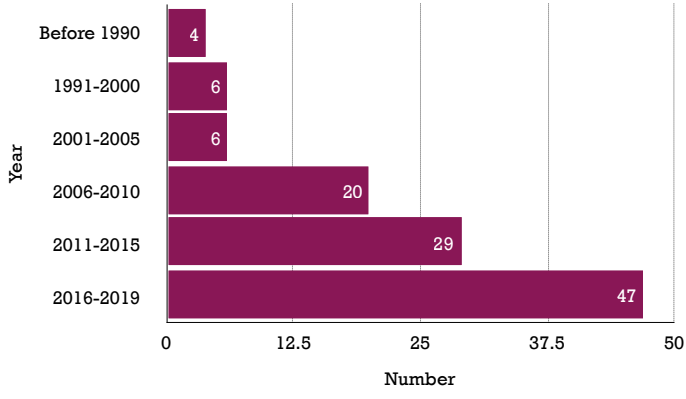


Figure 3.2: Registered training providers and year of establishment

Registered TPs (115) belong to various sectors, viz., public, private, corporate, and NGO. As obvious from the statistics in Table 3.2, private TPs account for 84.35% of the total. TTIs and IZCs under MoLHR constitute 6.96%. On the whole, the public sector manages 15 TPs. The presence of close to a hundred private TPs underscores the role of the private sector in TVET provision though most of them are sole proprietorship ventures.

Table 3.2: Registered training providers by sector (2019)

Sector	Frequency	Percent
Private (Sole Propritorship)	71	61.74
Private (Partnership)	25	21.74
Public (Govt.)	15	13.04
Corporate	3	2.61
NGO	1	0.87
Total	115	100.00

Registered TPs offer courses in diverse occupational disciplines at Certificate, National Certificate (NC), Diploma and National Diploma levels, including traditional livelihoods, arts and crafts and other indigenous skills and short courses of cross-cutting competencies. The rudimentary classification of training sectors/occupations offered by 111 training institutions (courses offered by four new institutes were

excluded in this case) is given in Table 3.3. The courses of driving, ICT and media, finance and management and guiding occupations top the list.

Table 3.3: Courses offered by 111 registered training providers

SLN	Field Specialisation	Number	Percent
1	Driving	24	17.39
2	ICT and Media	20	14.49
3	Management	15	10.87
4	Guide (Tourism)	13	9.42
5	Finance	12	8.70
6	Language	9	6.52
7	Hospitality	6	4.35
8	Furniture-Making	4	2.90
9	Tailoring	4	2.90
10	Automobile	3	2.17
11	Electrical	3	2.17
12	Security	3	2.17
13	Beauty	3	2.17
14	Zorig	3	2.17
15	Agriculture	3	2.17
16	Construction	2	1.45
17	Music	2	1.45
18	Mechanical	1	0.72
19	Power	1	0.72
20	Sales	1	0.72
21	Film	1	0.72
22	Aviation	1	0.72
23	Fashion	1	0.72
24	Performing Arts	1	0.72
25	Martial Arts	1	0.72
26	JCB operation	1	0.72
	Total	138	100

Source: Department of Occupational Standards, 2019. Note: This is a broad classification.

The statistical overview of all 115 registered TPs is presented only up to this point. The variation in the quality and completeness of datasets posed a comparability issue due to which statistical aggregation and analysis were segregated into those belonging to (1) TTIs and IZCs and (2) Private and Other Public Training Providers (hereafter referred as OPPTPs).

Part I: TTIs and IZCs under MoLHR

The Department of Technical Education (DTE) implements TVET programmes for out-of-school youths and in-service candidates through its six Technical Training institutes (TTIs) and two Institutes for Zorig Chusum (IZC). Table 3.4 presents some details of TTIs and IZCs, which shows that three institutes have attained grade A and the rest are grade 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	B	Construction	2006
Jigme Wangchuck 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
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 programmes in TTIs and IZCs and a few other public TPs were mostly Long-Term Courses (LTCs), confined to specific vocational trades and are investment-intensive while most private TPs offered Short-Term Courses (STCs) entailing less investment. Zorig (traditional arts and crafts) courses are aimed at not only addressing the unemployment concerns but also to promote creativity, design, and preservation of traditional arts and crafts. TTIs and IZCs have listed 86 courses under 42 occupations/disciplines. Table 3.5 shows the courses with delivery mode/level and duration (estimated in months). The reference period used was 2008-2019. In some cases, though courses offered by TTIs and IZCs are almost the same, some differences in the reporting of course duration were observed. Instead of specifying the duration of each of these similar courses in different cases/rows, durations were clubbed together in the last column as reported by TTIs and IZCs. The durations for similar

courses offered in different TTIs and IZCs must be standardised to attain some level of homogeneity and ease data reporting.

Table 3.5: Overview of TVET programmes in TTIs and IZCs by level and duration

SLN	Courses	Cert.	NC II	NC III	ND	Total	Duration (in months)
1	Automobile Electrician	0	1	0	0	1	24
2	Automobile Mechanic	0	3	2	0	5	6,8,10, 24
3	Automobile Painting	0	1	0	0	1	12
4	Basic Carpentry	1	0	0	0	1	1
5	Basic Masonry	1	0	0	0	1	1
6	Basic PLC	1	0	0	0	1	<1
7	Basic Plumbing	1	0	0	0	1	1
8	Cable TV Technician	1	0	0	0	1	9
9	Carpentry	0	2	2	0	4	4,6,16,24
10	Computer Hardware and Networking (CHN)	0	1	0	0	1	18
11	DTP Carpentry	0	2	0	0	2	24
12	DTP Masonry	0	2	0	0	2	24
13	Electrician	0	2	2	0	4	7,8,9,18
14	Heavy Earth Moving (HEM)	0	2	0	0	2	6
15	Heavy Vehicle Driving (HVD)	0	1	0	0	1	6
16	House Wiring	1	0	0	0	1	<1
17	Hydropower Mechanical	0	1	0	0	1	8
18	Hydropower Transmission and Distribution	0	1	0	0	1	14
19	Jimzo (Sculpture)	0	2	2	1	5	7,10,12,14,17
20	Lhadi (Painting)	0	2	2	0	4	6,10, 15,24
21	Masonry	0	2	2	0	4	6,16,24
22	Mechanical Fitter	0	2	1	0	3	12,24
23	Mechanical Welder	0	3	1	0	4	12,18
24	Motor Control System	1	0	0	0	1	<1
25	Motor Vehicle Mechanical Maintenance for IS Drivers	1	0	0	0	1	<1
26	Patra (Wood Carving)	0	2	2	0	4	8,10,14,16
27	Plumbing	0	2	2	0	4	5,6,15,18
28	*Shazo* (Wood Turning)	0	1	0	0	1	12
29	Single Phase Motor Winding	1	0	0	0	1	<1
30	Solar Photovoltaic System	1	0	0	0	1	<1

SLN	Courses	Cert.	NC II	NC III	ND	Total	Duration (in months)
31	Three Phase Motor Winding	1	0	0	0	1	<1
32	Tile Laying and Benching	1	0	0	0	1	1
33	Tile Laying	1	0	0	0	1	<1
34	Trezo (Gold & Silver Smith)	0	2	2	0	4	6,10,13
35	Troubleshooting and Maintenance of PC	1	0	0	0	1	<1
36	Tshemdru (Embroidery)	0	2	2	0	3	12,18, 17, 15
37	Tshemzo (Tailoring)	0	2	1	0	3	4,6,12, 13
38	Thagzo (Weaving)	1	0	0	0	1	6
39	Furniture-Making	1	2	1	0	4	18
40	Panel Beating	0	1	0	0	1	
41	Refrigeration and Air Conditioning (RAC)	0	1	0	0	1	
42	Solar Water Heating	1	0	0	0	1	NA
	Total	16	46	23	1	86	

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.

The main courses specific to TTIs and IZCs are listed in Table 3.6. Short courses, ATPs and other programmes are excluded (from the list). Certain courses were named differently by respective institutes/TPs than originally prescribed in the course curriculum—some courses were named as per the occupation while others are activity-specific. This is another important area that needs to be standardised in the future.

Table 3.6: Main courses offered by TTIs and IZCs

Course	Level
(I) Technical Training Institute-Chumey (TTI-C)	
Carpentry	NC II, NC III
Masonry	NC II, NC III
Plumbing	NC II, NC III
Furniture-Making	Certificate, NC II
Mechanical Welder	NC II
Tile Laying and Benching	Certificate
Solar Water Heating	Certificate
(II) Jigmi Wangchuck Power Training Institute-Dekiling (JWPTI)	

Course	Level
Carpentry	NC II, NC III
Masonry	NC II, NC III
Plumbing	NC II, NC III
Furniture-Making	NC II
Mechanical Welder	NC II
Mechanical Fitter	NC II
Hydropower Mechanical	NC II
Hydropower Transmission and Distribution	NC II
Tile Laying and Benching	Certificate
(III) Technical Training Institute-Khuruthang (TTI-K)	
Electrical	NC II, NC III
Mechanical Fitter	NC II, NC III
Mechanical Welder	NC II, NC III
(IV) Technical Training Institute-Rangjung (TTI-R)	
Automobile Mechanic	NC II
Electrical	NC II, NC III
Cable TV Technician	Certificate
Computer Hardware and Networking (CHN)	NC II
House Wiring	Certificate
Motor Control System	Certificate
Motor Winding	Certificate
Solar Photovoltaic System	Certificate
Wooden Furniture-Making	NC II
Basic PLC	Certificate
(V) Technical Training Institute-Samthang (TTI-S)	
Automobile Electrician	NC II
Automobile Mechanic	NC II, NC III
Heavy Earth Moving	NC II
Heavy Vehicle Driving	NC II
Motor Vehicle Mechanical Maintenance for In-Service Drivers	Certificate
(VI) Technical Training Institute-Thimphu (TTI-T)	
Automobile Mechanic	NC II, NC III
Automobile Painting	NC II
Panel Beating	NC II
Refrigerator and Air Conditioning (RAC)	NC II

Course	Level
(VII) National Institute of Zorig Chusum (NIZC)-Thimphu	
Jimzo (Sculpture)	NC II, NC III
Lhadi (Painting)	NC II, NC III
Patra (Wood Carving)	NC II, NC III
Trezo (Gold & Silver Smith)	NC II
Tshemdru (Embroidery)	NC II, NC III
Tshemzo (Tailoring)	NC II
Weaving (Thagzo)	Certificate
(VIII) College of Zorig Chusum (CZC)-Trashiyangtse	
Jimzo (Sculpture)	NC II, NC III, ND
Lhadi (Painting)	NC II, NC III
Patra (Wood Carving)	NC II, NC III
Shazo (Wood Turning)	NC II
Trezo (Gold & Silver Smith)	NC II, NC III
Tshemdru (Embroidery)	NC II, NC III
Tshemzo (Tailoring)	NC II, NC III

The salient features of different TVET courses listed by TTIs and IZCs are shown in Table 3.7. In total, TTIs and IZCs offered 71 LTCs and 15 STCs between 2008 and 2019. The number of courses changes annually depending on the change in demand. On classifying courses according to the International Classification of Education (ISCED-F-2013) of UNESCO, most of the courses belonged to 'Building and Civil Engineering' (0732), 'Motor Vehicles, Ships and Aircraft' (0716) and 'Handicrafts' (0214). Almost all LTCs were designed to cater to pre-service candidates while short courses targeted the in-service groups.

Table 3.7: Summary of TVET programmes in TTIs and IZCs

Particulars	Number	Percent
Type		
Long-Term Course	71	82.6
Short-Term Course	15	17.4
Accreditation		
Accredited	61	70.9
Not-Accredited	25	29.1
Level/Mode of Delivery		
Certificate	22	26.5
National Certificate II (NC II)	40	48.2

Particulars	Number	Percent
National Certificate III (NC III)	20	24.1
National Diploma	1	1.2
Target Group	83	100
Pre-service	65	78.3
Inservice	16	19.3
Mix of Pre-service and In-service	2	2.4
ISCED-F-2013 Classification		
0213 Fine arts	9	10.8
0214 Handicrafts	12	14.5
0713 Electricity and energy	8	9.6
0714 Electronics and automation	4	4.8
0715 Mechanics and metal trades	7	8.4
0716 Motor vehicles, ships and aircraft	14	16.9
0722 Materials (glass, paper, plastic and wood)	5	6.0
0723 Textiles (clothes, footwear and leather)	3	3.6
0732 Building and civil engineering	21	25.3

The courses were kept as LTCs and STCs as pre-defined in the original datasets. There is no agreed duration to treat a course as long-term or short-term. Some courses of less than three months were considered as LTCs. Table 3.8 presents the list of courses under these two broad categories along with the number. Out of the total of 71 LTCs, CZC and JWPTI have listed the highest number of LTCs. In the future, rather than classifying the courses in terms of duration, it could be best done in term Competency-Base Training (CBT) and Non-CBT courses. The issue of duration seems to be there in other countries as well due to different competency requirement for different trades/occupations. Certain competencies can be achieved within a short duration while others take a longer time. For example, the hair-cutting course takes much shorter time compared to a course in patra (carving), which usually takes six years.

Table 3.8: Courses offered TTIs and IZCs by duration

TTI and IZC	Long-Term	Short Course	Total
Technical Training Institute-Chumey	10	5	15
Jigmi Wangchuck Power Training Institute-Dekiling	13	1	14
College of Zorig Chusum,-Trashiyangtse	14	0	14
Technical Training Institute-Rangjung	5	8	13
National Institute of Zorig Chusum-Thimphu	11	1	12

TTI and IZC	Long-Term	Short Course	Total
Technical Training Institute-Samthang	7	0	7
Technical Training Institute-Khuruthang	6	0	6
Technical Training Institute-Thimphu	5	0	5
Total	71	15	86

Total Intake Capacity of TTIs and IZCs

The total intake capacity should be understood as the maximum number of trainees each TTI and IZC can accommodate in a given time. A simple analogy is an automobile's fuel capacity. It remains almost constant unless some modification is done on the fuel tank. Each TTI and IZC has estimated the total intake capacity at any given time based on either hostel or workshop capacity. As shown in Table 3.9, JWPTI has the highest intake capacity of 350 and Thimphu TTI the least of about 72 trainees at one time.

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

Code	TTI and IZC	Total Intake
2016040028	JWPTI-Dekiling	350
2015060129	TTI-Chumey	288
2015060129	TTI-Khuruthang	240
2015050085	TTI-Rangjung	240
2015060145	NIZC-Thimphu	260
2015080167	CZC-Trashiyangtse	180
2015050068	TTI-Samthang	140
2014110003	TTI-Thimphu	72
	Total	1770

The total number of trainees present in the institute in a given time represents the actual intake (new enrolment plus senior trainees). The actual intake at any given time may depend on the previous enrolments and graduations in different TVET programmes. Unlike in schools and colleges, the timing for enrolment and graduation in TVET vary due to the variation in course duration, which ranges from few weeks to some years. Sometimes, certain TTIs and IZCs fail to attract a sufficient number of trainees in a given year and thus operate with fewer trainees while other institutes face the problem of overcrowding. Going by Table 3.10, 1708 trainees (strength/total of freshers and existing trainees) were attending various training programmes in TTIs and IZCs in 2018. JWPTI recorded the highest number of trainees while Thimphu TTI had the lowest. In 2018, on average, eight TTIs and IZCs were running short of about 62 trainees from their combined intake capacity.

Table 3.10: Total trainees in TTIs and IZCs in 2018 (Strength) and enrolment gap

TTI and IZC	Male	Female	Total	Capacity	Gap
JWPTI-Dekiling	240	123	363	350	(+) 13
TTI-Chumey	134	107	241	288	(-) 47
NIZC-Thimphu	175	65	240	260	(-) 20
TTI-Khuruthang	134	99	233	240	(-) 7
CZC-Trashiyangtse	126	78	204	180	(+) 24
TTI-Rangjung	117	61	178	240	(-) 62
TTI-Samthang	122	30	152	140	(+) 12
TTI-Thimphu	83	14	97	72	(+) 25
Total	1131	577	1708	1770	(-) 62

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

Enrolment in TTIs and IZCs (2008-2019)

In a narrow sense, enrolment in TVET programmes (broken down by gender) is one important indicator for measuring TVET access and participation (IAG-TVET, 2013). 'Enrolment' is understood as 'a new trainee enrolling in a course at a particular level, irrespective of whether the trainee had availed other courses in the same institute in the past'. It applies to a fresher joining an institute. In some countries, it is referred to as freshmen enrolment.

Some TTIs and IZCs had enrolment data from 2003 while others had the data only from 2008. For achieving the data comparability, the enrolment data from 2008 to 2019 were used. Table 3.11 presents enrolment in TTIs and IZCs for the period 2008 to 2019 (12 years). Out of 12,026 enrolments, 71.8% were males and 28.2% females.

Table 3.11: Total enrolment in TTIs and IZCs (2008-2019) by institute and sex

TTI and IZC	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Technical Training Institute-Samthang	3292	96.4	123	3.6	3415	28.4
College of Zorig Chusum-Trashiyangtse	907	56.79	690	43.21	1597	13.28
Technical Training Institute-Khuruthang	983	64.88	541	35.12	1549	12.88
Jigme Wangchuck Power Training Institute-Dekiling	940	62.09	574	37.91	1514	12.59
Technical Training Institute-Chumey	762	58.57	539	41.43	1301	10.82
Technical Training Institute-Rangjung	829	65.07	445	34.93	1274	10.59

TTI and IZC	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
National Institute of Zorig Chusum-Thimphu	546	58.09	394	41.91	940	7.82
Technical Training Institute-Thimphu	349	80.05	87	19.95	436	3.63
Total	8068	71.73	3394	28.27	12026	100

UNESCO's Institute of Statistics in its Initial Statistical Study (2006, pp.5) recognises several challenges associated with the compilation of TVET statistics. The problem of double counting is evident when data is institution-based rather than individual-based. In such a case, if a person is enrolled in one programme and choose to drop it and take up another the same person is counted twice. Additionally, as mentioned earlier, course diversity and variability of course duration complicates the statistical computation.

Enrolment in TTIs and IZCs saw a fluctuating trend between 2008 and 2019 as is conspicuously evident from Figure 3.3. The aggregated enrolment of six TTIs and two IZCs surged in 2017 and dropped in subsequent years.

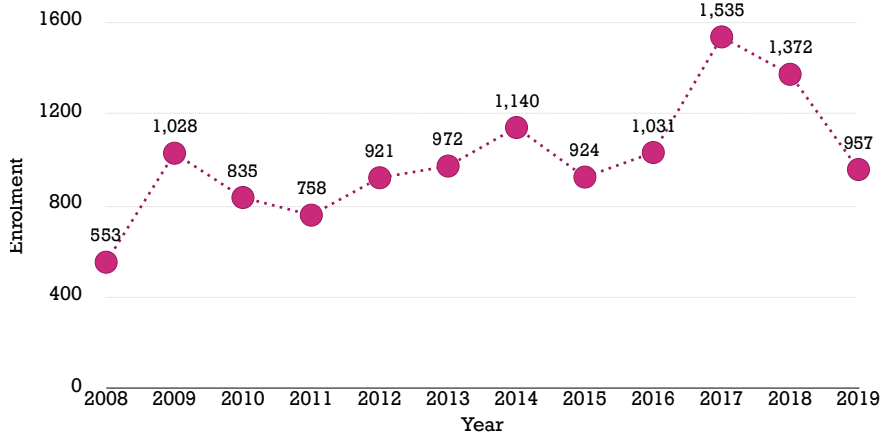


Figure 3.3: Enrolment trend in TTIs and IZCs from 2008 to 2019

The average enrolment in LTCs, STCs and ATPs averaged about 1002 annually from 2008 to 2019 (Table 3.12). Enrolment in NCs and ND (long-term courses) averaged 772 per year. The total enrolments in TTIs and IZCs (for all type of courses) for the last 12 years was 12,026.

Table 3.12: Enrolment in TTIs and IZCs by type of courses (2008-2019)

Year	Long-Term Course	Short Course	ATP	Total
2008	533	20	0	553
2009	578	450	0	1028
2010	672	163	0	835
2011	623	135	0	758
2012	715	206	0	921
2013	728	244	0	972
2014	887	169	84	1140
2015	771	112	41	924
2016	801	166	64	1031
2017	891	643	1	1535
2018	1120	241	11	1372
2019	949	8	0	957
Total	9268	2557	201	12026
Average (2008-2019)	772	213	17	1002

The combined enrolment in TTIs and IZCs (2008-2019) by level or mode of delivery are presented in Table 3.13. Some TTIs and IZCs were offering their certifications before standardising the courses as National Certificates (NCs) and National Diplomas (NDs). Especially, IZCs had certain courses graded as 'diplomas', which outside BVQF and not accredited by DOS then. These diplomas were accredited as NCs only in the recent years.

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

Year	Certificate	Diploma*	NC I	NC II	NC III	ND	Total
2008	391	134	0	28	0	0	553
2009	866	132	11	19	0	0	1028
2010	491	136	10	198	0	0	835
2011	462	137	8	151	0	0	758
2012	537	105	12	267	0	0	921
2013	511	140	11	310	0	0	972
2014	500	150	0	490	0	0	1140
2015	240	123	0	499	62	0	924
2016	376	189	0	411	55	0	1031
2017	644	12	0	748	131	0	1535
2018	252	0	0	928	181	11	1372
2019	8	0	0	794	145	10	957

Year	Certificate	Diploma*	NC I	NC II	NC III	ND	Total
Total	5278	1258	52	4843	574	21	12026

**Known as institute-level diploma but not certified by DOS until the recent years.*

Table 3.14 presents the course-wise enrolment in TTIs and IZCs, disaggregated by gender, for the reference period of 2008-2019. As the data shows, electrician course had the highest enrolment followed by courses in masonry, automobile, lhadi (painting), tshemzo (tailoring), and so on. The higher demand for certain courses reflects the training wishes of young people whose course preferences would have been based on then the prevailing demand in the labour market as well as availability of alternative course options. More females had opted for courses in plumbing, auto-painting, tshemzo (tailoring) *luzo* (casting), tshemdru (embroidery) and thagzo (weaving) comparing to their male counterparts.

Table 3.14: Enrolment in TTIs and IZCs by course and sex (2008-2019)

Course	Male		Female		Total
	Freq.	%	Freq.	%	
Electrician	1210	66.52	609	33.48	1819
Masonry	476	65.56	250	34.44	726
Automobile	598	82.71	125	17.29	723
Lhadi (Painting)	510	75.44	166	24.56	676
Tshemzo (Tailoring)	109	18.92	467	81.08	576
Plumbing	202	41.56	284	58.44	486
Mechanical	300	66.08	154	33.92	454
Heavy Vehicle Driving (HVD)	417	100	0	0	417
Patra (Wood Carving)	403	98.05	8	1.95	411
Auto Mechanic	304	78.55	83	21.45	387
Carpentry	218	57.67	160	42.33	378
Mechanical Welder	202	62.73	120	37.27	322
Tshemdru (Embroidery)	33	10.68	276	89.32	309
Computer Hardware & Networking (CHN)	144	50.35	142	49.65	286
Jimzo (Sculpture)	185	82.59	39	17.41	224
Light Vehicle Driving (LVD)	214	99.53	1	0.47	215
Trezo (Gold/Silversmith)	123	77.36	36	22.64	159
Furniture-Making	88	70.97	36	29.03	124
Mechanical Fitter	88	72.73	33	27.27	121
Heavy Earth Moving (HEM)	114	100	0	0	114
Machine Embroidery	4	7.84	47	92.16	51
Shazo (Wood Turning)	38	76.00	12	24.00	50

Course	Male		Female		Total
	Freq.	%	Freq.	%	
Transmission and Distribution Linemen	32	72.73	12	27.27	44
Baapzo (Mask Carving)	36	100	0	0	36
DTP Carpentry	22	73.33	8	26.66	30
Panel Beating	32	100	0	0	32
DTP Masonry	24	80.00	6	20.00	30
Information Technology	16	57.14	12	42.86	28
Auto Electrician	18	81.82	4	18.18	22
Upholstery	1	4.55	21	95.45	22
Hydropower Mechanical	15	71.43	6	28.57	21
Tsho Lham (Traditional Boot)	7	33.33	14	66.67	21
Refrigerator and Air Conditioning	10	100	0	0	10
Thagzo (Weaving)	0	0	9	100	9
Auto Painting	3	42.86	4	57.14	7
Luzo (Casting)	1	25.00	3	75.00	4
ATP	81	40.30	120	59.70	201
Short Courses	2397	93.74	160	6.26	2557
Total	8630	71.76	3396	28.24	12026

Table 3.15 shows enrolment by target groups: pre-service, in-service and the mix of the other two groups. Most pre-service trainees were fresh school-leavers while in-service trainees were the ones who took up TVET programmes (mostly short courses) as a part of the re-skilling programmes. The mixed category constituted both pre-service and in-service trainees. Ideally, it would have been good to keep only two target groups but the data had been collected that way. This oversight ought to be rectified in the future. On the whole, the highest number of enrolment in TTIs and IZCs was in the pre-service group, which constituted about 81% of the total enrolment.

Table 3.15: Enrolment in TTIs and IZCs by target groups, 2008-2019

Year	Pre-service		In-service		Mixed		Total
	Freq.	%	Freq.	%	Freq.	%	
2008	533	96.38	0	0.00	20	3.62	553
2009	993	96.60	0	0.00	35	3.40	1028
2010	672	80.48	163	19.52	0	0.00	835
2011	623	82.19	135	17.81	0	0.00	758
2012	715	77.63	160	17.37	46	4.99	921
2013	655	67.39	199	20.47	118	12.14	972
2014	971	85.18	141	12.37	28	2.46	1140

Year	Pre-service		In-service		Mixed		Total
	Freq.	%	Freq.	%	Freq.	%	
2015	795	86.04	58	6.28	71	7.68	924
2016	865	83.90	117	11.35	49	4.75	1031
2017	892	58.11	483	31.47	160	10.42	1535
2018	1120	81.63	213	15.52	39	2.84	1372
2019	949	99.16	8	0.84	0	0.00	957
Total	9783	81.35	1677	13.94	566	4.71	12026

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

The Global TVET group (IAG-TVET) had proposed 'the enrolment in TVET as a share of enrolment in schools' as a significant indicator for measuring TVET access. For the present purpose, it was calculated by dividing the number of trainees enrolled in TTIs and IZCs by the total population enrolled in formal education at the same level (class X and XII), and multiplying the result by 100. Enrolment in TTIs and IZCs as a percentage share of enrolment in class X and XII by year are illustrated in Table 3.16. Enrolment in TTIs and IZCs between 2008 and 2019 constituted 5.19% of the total enrolment in class X and XII (231,799) in the same reference period. The average annual enrolment in TTIs and IZCs was 5.20% 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
	Male	Female	Total	Class X	Class XII	Class X+XII	
2008	371	182	553	7909	4731	12640	4.38
2009	833	195	1028	8757	5825	14582	7.05
2010	620	215	835	10293	5570	15863	5.26
2011	556	202	758	10390	7253	17643	4.30
2012	659	262	921	10578	7858	18436	5.00
2013	695	277	972	10765	8599	19364	5.02
2014	681	459	1140	11857	9279	21136	5.39
2015	604	320	924	11339	9736	21075	4.38
2016	717	314	1031	11993	10085	22078	4.67
2017	1222	313	1535	12058	10011	22069	6.96
2018	966	406	1372	12510	10601	23111	5.94
2019	706	251	957	12881	10921	23802	4.02
Total	8630	3396	12026	131330	100469	231799	5.19

Year	Enrolment in TTIs and IZCs			Enrolment in Schools			% of School Enrolment
	Male	Female	Total	Class X	Class XII	Class X+XII	
Average	719	283	1850	10944	8372	19317	5.20

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. TVET being the life-long learning, older persons may also participate. Moreover, it was not possible to get the single age data of trainees in TVET institutions.

GER was calculated by taking the number of enrolments in TTIs and IZCs for the period 2015-2019. The age group 17-20 was considered as the official TVET age. The age group (17-18) corresponds to the participation in class XI and XII (higher secondary education). However, since many young people join TVET after class XII, the age group of 19-20 was additionally considered. The population of the age group (17-20 years) was drawn from PHCB (2017). There were 28,480 males and 23,328 females in the age group of 17-20 years, making a total of 54,808.

Table 3.17 presents GERs of TTIs and IZCs for the period 2015-2019. The combined GERs of TTIs and IZCs for five years was (10.62%). The average enrolments per institute in the last five years was estimated at 722 (527 males and 201 females). This has produced the average a GER per institute of 1.33% (2015-2019) with GER of 1.85% for males and 0.76% for females. Samthang TTI had the highest GER (2015-2019) of 2.57% while Thimphu TTI had the lowest. Samthang TTI's GER was highest on account of a huge number of enrolment in the in-service driving training programme. Thimphu TTI and Samthang TTI had the lowest female GER. JWPTI had the highest female GER (1.15%).

Table 3.17: Gross Enrolment Ratios of TTIs and IZCs (2015-2019)

TTI and IZC	Male		Female		Total	
	Freq.	GER	Freq.	GER	Freq.	GER
TTI-Chumey	452	1.59	296	1.12	748	1.36
JWPTI-Dekiling	595	2.09	306	1.16	901	1.64

TTI and IZC	Male		Female		Total	
	Freq.	GER	Freq.	GER	Freq.	GER
NIZC-Thimphu	330	1.16	223	0.85	553	1.01
CZC-Trashiyangtse	426	1.50	261	0.99	687	1.25
TTI-Khuruthang	502	1.76	279	1.06	781	1.42
TTI-Rangjung	346	1.21	157	0.60	503	0.92
TTI-Thimphu	212	0.74	23	0.09	235	0.43
TTI-Samthang	1352	4.75	59	0.22	1411	2.57
Total (5 years)	4215	14.80	1604	6.09	5819	10.62
Average	527	1.85	201	0.76	727	1.33

The annual GERs of TTIs and IZCs between 2015 and 2019 are reported in Table 3.18. The enrolment in TTIs and IZCs were fluctuating in the last five years. The average of five years was taken to normalise the fluctuation. The annual GER averaged at 2.12%. The average GER for higher secondary education level (2015-2018) was 75.90%. GER of females (76.45%) was higher than GER of males (73.43%) in the case of higher secondary education. The combined annual GER of TTIs & IZCs and higher secondary education was on average 77.02%. GER can sometimes exceed 100% due to the inclusion of over-aged and under-aged students. There could be some early or late entrants and grade repetition.

Table 3.18: Gross Enrolment Ratios of TTIs and IZCS (2015-2019) and HS Education

Year	TTIs and IZCs						Higher Secondary (Class XI and XII)		
	Enrolment			GER			GER		
	M	F	Total	M	F	Total	M	F	Total
2015	604	320	924	2.12	1.22	1.69	77.00	81.00	79.00
2016	717	314	1031	2.52	1.19	1.88	72.50	73.80	73.10
2017	1222	313	1535	4.29	1.19	2.80	74.90	77.50	76.20
2018	966	406	1372	3.39	1.54	2.50	69.30	73.50	71.30
2019	706	251	957	2.48	0.95	1.75			
Total	4215	1604	5819	14.80	6.09	10.62			
Average	843	321	1164	2.96	1.22	2.12	73.43	76.45	74.90

Higher secondary level GERs (2015-2018) sourced from Annual Education Statistics, 2015 to 2018, MoE.

Gender Parity Index (GPI) measures relative access of males and females to education and training. In its simplest 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 equality between males and females. GPI of less than one indicates gender parity in favour of males while GPI of more than one is on the side of females.

As reported in Table 3.19, GPI (averaged for six TTIs and two IZCs) for the period 2015-2019 was 0.49 (less than 1). GPIs of Chumey TTI (0.70), NIZC (0.73) and CZC (0.66) were moving closer to one. Samthang TTI had GPI close to zero (0.05), indicating a huge gender disparity. It could be because the institute offers courses in truck driving and heavy machine operation. These courses are generally considered as hard skills and male occupations.

Table 3.19: Gender Parity Index of TTIs and IZCS (2015-2019)

TTI and IZC	Male GER	Female GER	GPI
TTI-Chumey	1.59	1.12	0.70
JWPTI-Dekiling	2.09	1.16	0.56
NIZC-Thimphu	1.16	0.85	0.73
CZC-Trashiyangtse	1.50	0.99	0.66
TTI-Khuruthang	1.76	1.06	0.60
TTI-Rangjung	1.21	0.60	0.50
TTI-Thimphu	0.74	0.09	0.12
TTI-Samthang	4.75	0.22	0.05
Average	1.85	0.76	0.49

As shown in Table 3.20, GPIs of TTIs and IZCs for the period 2015-2019 averaged at 0.43 annually. GPI of the higher secondary education (class XI and XII) for the period 2015-2018 averaged at 1.03 annually. GPI for 2019 was not available from MoE at the time of preparing this report. The results imply that Bhutan has achieved gender parity in higher secondary education while MoLHR's TVET has yet to improve its gender outcomes. GPIs of OPPTPs are not considered here but presented separately in the subsequent part of this section. The combined GPI of MoLHR-administered TVET and other public and private training providers is expected to be much better.

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	0.58	1.01
2016	0.47	1.02
2017	0.28	1.04
2018	0.45	1.06
2019	0.38	
Average	0.43	1.03

Entry Qualification and Enrolment in TTIs and IZCs (2013-2019)

The official entrance qualification in TTIs and IZCs is class X (BCSE). Nevertheless, persons with class XII (BHSEC) qualification have started to take up TVET programmes in recent years alongside the general decline in class X school-leavers availing the same. The undergraduates, monks and others were excluded due to their insignificant representation. Table 3.21 presents enrolment in TTIs and IZCs by academic qualifications (class X and XII), aggregated for seven years (2013-2019). The qualification statistics represent only 67% of the total enrolled in TTIs and IZCs between 2013 and 2019. About 33% of enrolees did not report their qualification and was omitted from the analysis. The results show that about 76% of trainees between 2013 and 2019 possessed class X qualification; close to 24% were class XII graduates.

Table 3.21: Enrolment by Class X and XII qualifications (2013-2019)

TTI and IZC	Class X				Class XII			%
	Male	Female	Total	%	Male	Female	Total	
TTI-Rangjung	196	144	340	49.78	236	107	343	50.22
JWPTI-Dekiling	259	211	470	64.56	210	48	258	35.44
TTI-Samthang	523	56	579	76.18	170	11	181	23.82
CZC-Trashiyangtse	152	195	347	80.7	60	23	83	19.3
TTI-Thimphu	131	36	167	82.27	32	4	36	17.73
TTI-Khuruthang	499	267	766	85.11	85	49	134	14.89
TTI-Chumey	486	412	898	85.12	106	51	157	14.88
NIZC-Thimphu	269	189	458	86.09	63	11	74	13.91
Total	2515	1510	4025	76.07	966	305	1266	23.93

Figure 3.4 illustrates the enrolment trend in TTIs and IZCs vis-a-vis the academic qualifications of the enrolees. The demand for TVET programmes over the past five years had shifted towards school-leavers with class XII qualification. As evident from the figure below, enrolment of candidates with class X qualifications in TTIs and IZCs started to drop from 2017. The decline was steep in 2019. On the contrary, enrolment of candidates with class XII academic qualifications gradually increased from 2017 with a slight escalation in 2019. In 2019, enrolees with class X qualifications constituted about 44% of the total enrolment. About 56% of enrolees in 2019 possessed class XII certification outpacing enrolees with class X for the first time.

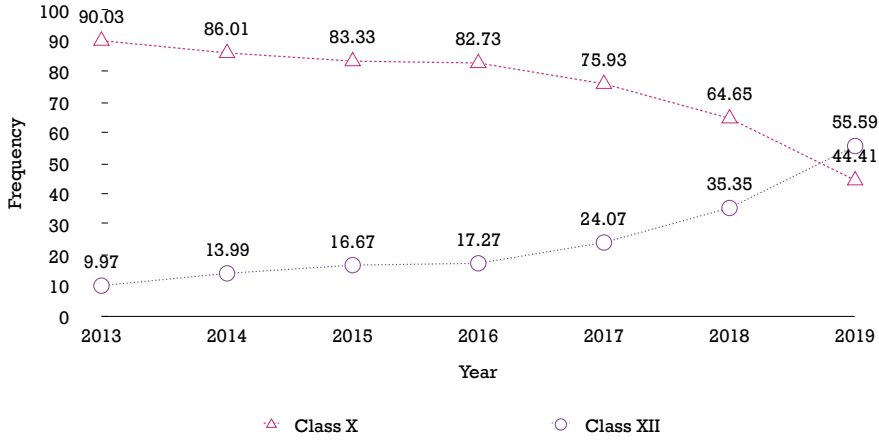


Figure 3.4: Enrolment by enrolees' qualifications (2013-2019)

Land Acreage of TTIs and IZCs

The land is a crucial asset for expansion and augmentation of the existing TTIs and IZCs. Some TTIs and IZCs have a comparative advantage over others for growth and expansion and consequently to increase TVET access. As shown in Table 3.22, Chumey TTI, Samthang TTI, and JWPTI have more than 20 acres of land each. Other institutes have reached the maximum limit for any further expansion and augmentation. In total, six TTIs and two IZCs own about 106.43 acres of land.

Table 3.22: Land of TTIs and IZCs in acres

Asset Code	TTI and IZC	Quantity (in acre)
L01	TTI-Chumey (TTI-C)	30.67
L01	JWPTI-Dekiling	26.6
L01	TTI-Samthang (TTI-S)	20.85
L01	TTI-Rangjung (TTI-R)	12.32
L01	CZC-Trashiyangtse	8.35
L01	TTI-Khuruthang (TTI-K)	4.46
L01	TTI-Thimphu* (TTI-T)	2
L01	NIZC-Thimphu	1.18
Total		106.43

** Land ownership right with City Bus Service, Bhutan Post*

Graduate Statistics of TTIs and IZCs

The total numbers of TVET graduates from each TTI and IZC in the last 12 consecutive years are shown in Table 3.23. Graduation statistics are specific to LTCs and excludes STCs and ATPs. In total, 8108 persons had graduated from TTIs and IZCs from 2008-2019 against the total enrolment of 9268. The total enrolment in STCs and ATPs was about 12,026 in the same reference period. The enrolment and graduation figures won't tally for three reasons. First, because of some differences in the duration of courses certain courses have enrolment and graduation in the same year. Some other courses take over some years. Second, certain TTIs and IZCs had not recorded dropouts and repetition. Dropouts and repetition might affect the graduation figures. And third, Thimphu TTI did not provide the graduation data for 2008 and 2009. In future, it is important that every training provider maintain proper records of dropouts and repeaters. These indicators are relevant for measuring TVET effectiveness.

Table 3.23: Total number of graduates from TTIs and IZCs (2008-2019) year

TTI & IZC	Sex	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	T
TTI-C	M	149	10	25	26	70	46	51	56	67	61	77	39	677
	F	84	9	21	21	42	22	67	44	49	53	34	40	486
	T	233	19	46	47	112	68	118	100	116	114	111	79	1163
TTI-K	M	54	61	45	72	67	73	113	86	67	105	90	63	896
	F	16	34	26	36	20	31	67	40	31	63	50	48	462
	T	70	95	71	108	87	104	180	126	98	168	140	111	1331
JWPTI	M	25	28	44	30	51	70	52	127	71	156	117	65	836
	F	21	11	48	31	36	48	49	78	46	95	52	30	545
	T	46	39	92	61	87	118	101	205	117	251	169	95	1381
TTI-R	M	55	54	54	53	87	51	88	67	72	85	64	122	852
	F	20	28	43	42	33	27	55	42	40	42	43	56	471
	T	75	82	97	95	120	78	143	109	112	127	107	178	1323
TTI-S	M	105	131	123	105	65	83	101	97	93	131	117	91	1242
	F	3	5	4	10	8	3	14	11	13	16	13	17	117
	T	108	136	127	115	73	86	115	108	106	147	130	108	1359
TTI-T	M			18	17	19	13	25	16	24	28	34	62	263
	F			4	1	5	5	4	9	11	5	5	10	55
	T			22	18	24	18	29	25	35	33	39	72	318
NIZC	M	21	26	36	30	28	22	16	22	91	23	91	69	475
	F	19	14	12	12	5	19	20	25	27	43	34	2	232
	T	40	40	48	42	33	41	36	47	118	66	125	71	694
CZC	M	8	13	10	12	4	14	18	27	26	33	49	12	226
	F	9	12	12	9	19	25	32	42	35	28	31	19	273

TTI & IZC	Sex	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	T
	T	17	25	22	21	23	39	50	69	61	61	80	31	499
Total	M	417	323	355	345	391	372	464	498	511	632	639	494	5441
	F	172	113	170	162	168	180	308	291	252	345	262	200	2623
	T	589	429	525	507	559	552	772	789	763	966	901	729	8108

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

Non-Formal/Alternative TVET Programmes

The Village Skills Development Programmes (VSDP) and Special Skills Development Programme (SSDP) represent the non-formal or alternative TVET. VSDP was introduced in 1984 and SSDP in 1996 under the Royal Command. Both these programmes provide the opportunity for lifelong learning. The training programmes are basic and do not necessarily lead to formal qualifications or continuous education pathways. VSDP targets community members, NFE learners, school leavers and villagers. The skills training are relevant for income generation and community development. The programmes range from a few weeks to six months depending on the training disciplines. SSDP targets some special groups: spouses of armed force members, juveniles, monks, nuns, prisoners, disbanded gang members, and disabled persons. SSDP embodies the alternative TVET programmes for ensuring equity. DTE currently implements VSDP and SSDP. MoLHR's regional offices coordinate some of these programmes with other stakeholders.

Table 3.24 presents the enrolment in VSDP between 1997 and 2019. Out of 2644 persons who had so far availed VSDP, 66.04% were males and the rest females. The most popular training programmes among males were electrical house wiring (28.25%), home appliance repairing (14.22%) and tshemzo (12.29%). More females were represented in the programmes that are traditionally considered female-friendly. These courses are tshemzo (tailoring), thagzo (weaving), tshemdru (embroidery) and hairdressing as reported in the table below.

Table 3.24: Enrolment in VSDP by training disciplines (1997-2019)

Training	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Electrical House Wiring	683	91.43	64	8.57	747	28.25
Home Appliance Repairing	224	59.57	152	40.43	376	14.22
Tshemzo (Tailoring)	45	13.85	280	86.15	325	12.29
Hair Dressing	117	48.75	123	51.25	240	9.08
Carpentry	165	97.63	4	2.37	169	6.39
Furniture Making	131	88.51	17	11.49	148	5.60
Plumbing	126	93.33	9	6.67	135	5.11

Training	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Entrepruneurship Development	37	41.57	52	58.43	89	3.37
Thagzo (Weaving)	2	2.33	84	97.67	86	3.25
Tshemdru (Embroidery)	11	18.97	47	81.03	58	2.19
Masonry	49	87.50	7	12.50	56	2.12
Rural Water Supply	44	91.67	4	8.33	48	1.82
Potato Cultivation and Management	3	9.68	28	90.32	31	1.17
Metal Works	25	100	0	0	25	0.95
Lhadi (Painting)	18	85.71	3	14.29	21	0.79
Cabbage Cultivation and Management	13	65.00	7	35.00	20	0.76
Electric Stove Repair	13	86.67	2	13.33	15	0.57
Mud Wall Construction	15	100	0	0	15	0.57
Basket Weaving	10	100	0	0	10	0.38
Hair Cutting	5	50.00	5	50.00	10	0.38
Saloon	0	0	9	100	9	0.34
Construction	8	100	0	0	8	0.30
Solar Lighting	2	100	0	0	2	0.08
Bakery	0	0	1	100	1	0.04
Total	1746	66.04	898	33.96	2651	100

DTE and DOEHR

The demand for VSDP was contingent on the availability of resources, type of training, and training places. As reported in Table 3.25, 115 persons on average had availed VSDP per year with about 65% representation of males.

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	100.00	0	0.00	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

Year	Male		Female		Total
	Freq.	%	Freq.	%	
2005	63	72.41	24	27.59	87
2006	143	94.70	8	5.30	151
2007	213	78.31	59	21.69	272
2008	230	85.19	40	14.81	270
2009	44	88.00	6	12.00	50
2010	64	88.89	8	11.11	72
2011	21	50.00	21	50.00	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	37.50	25	62.50	40
Total	1746	66.04	898	33.96	2644
Average	76	64.54	39	35.46	115

DTE and DOEHR

It is obvious from Table 3.26 that VSDP enrolment were unevenly distributed across twenty Dzongkhags. The highest number of VSDP enrolment was recorded in Paro Dzongkhag (87.50%) and the lowest (4.23%) in Monggar Dzongkhag. The equitable distribution of VSDPs across 20 Dzongkhags may have to be considered in the future.

Table 3.26: Enrolment in VSDP by sex and Dzongkhag-venue of training (1997-2019)

Dzongkhag	Male		Female		Total
	Freq.	%	Freq.	%	
Trashigang	218	65.27	116	34.73	334
Samtse	196	65.33	104	34.67	300
Zhemgang	123	48.43	131	51.57	254
Pemagatshel	141	58.26	101	41.74	242
Trashiyangtse	137	82.04	30	17.96	167
Wandguephodrang	78	49.06	81	50.94	159
Sarpang	140	92.72	11	7.28	151
Dagana	123	86.62	19	13.38	142
Samdrupjongkhar	46	37.1	78	62.9	124
Bumthang	53	47.75	58	52.25	111

Dzongkhag	Male		Female		Total
	Freq.	%	Freq.	%	
Punakha	73	68.87	33	31.13	106
Lhuentse	51	50.5	50	49.5	101
Chhukha	72	74.23	25	25.77	97
Trongsa	73	90.12	8	9.88	81
Tsirang	65	86.67	10	13.33	75
Thimphu	49	68.06	23	31.94	72
Mongar	68	95.77	3	4.23	71
Haa	28	80	7	20	35
Gasa	11	78.57	3	21.43	14
Paro	1	12.5	7	87.5	8
Total	1746	66.04	898	33.96	2644

DTE and DOEHR

The individual qualification varied among trainees of VSDP and SSDP. The qualifications were not reported for all the trainees. The largest group, among individuals who had reported their qualifications, constituted individuals with their qualifications 'not specified' (3977,76.84%). The details are reported in Table 3.27. The reporting of qualification may need improvement in future, as this would help in determining the socio-economic characteristics of trainees.

Table 3.27: VSDP and SSDP trainees by qualification (1997-2019)

Qualification	VSDP		SSDP		Total	
	Freq.	%	Freq.	%	Freq.	%
Class X	108	4.1	47	1.9	155	2.99
Class VI	85	3.2	47	1.9	132	2.55
NFE	11	0.4	85	3.4	96	1.85
Below Class VI	29	1.1	63	2.5	92	1.78
Class VII	40	1.5	32	1.3	72	1.39
Class XII	29	1.1	14	0.6	43	0.83
Class VIII	16	0.6	24	0.9	40	0.77
Class IX	24	0.9	9	0.4	33	0.64
University Graduate & above	5	0.2	3	0.1	8	0.15
Class XI	1	0	2	0.1	3	0.06
None	259	9.8	266	10.5	525	10.14
Not Specified	2037	77	1940	76.6	3977	76.84
Total	2644	100	2532	100	5176	100.00

Table 3.28 shows annual enrolment in SSDP disaggregated by sex. Among SSDP trainees, 64.42% were males and females constituted 35.58%. In certain years, SSDPs were represented by male trainees only. On average, 121 persons availed SSDP annually during the period 1997-2019. The number of persons attending the same programme had risen since 2009. The total individuals trained through SSDP between 1997 and 2019 was about 2532.

Table 3.28: Enrolment in SSDP by year and sex (1997-2019)

Year	Male		Female		Total
	Freq.	%	Freq.	%	
1997	23	100	0	0	23
1998	49	70.00	21	30.00	70
1999	29	100	0	0.00	29
2000	39	100	0	0.00	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	7.50	111	92.50	120
2019	11	100	0	0	11
Total	1631	64.42	901	35.58	2532
Average	78	73.70	43	26.30	121

Twenty-four trades were covered under SSDP. Tshemzo (tailoring) and lhadi (painting) were the most popular courses. Together, 2523 persons had availed SSDP. As Table 3.29 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 3.29: SSDP enrolment by course and sex (1997-2019)

Training	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Tshemzo (Tailoring)	500	55.80	396	44.20	896	35.39
Lhadi (Painting)	521	90.14	57	9.86	578	22.83
Home Appliance Repairing	109	51.90	101	48.10	210	8.29
Saloon	20	20.83	76	79.17	96	3.79
Cooking	6	6.45	87	93.55	93	3.67
Bakery	5	5.43	87	94.57	92	3.63
House Wiring	89	100	0	0	89	3.52
Carpentry	86	100	0	0	86	3.40
Zorig Chusum	61	100	0	0	61	2.41
Furniture Making	48	100	0	0	48	1.90
Plumbing	43	100	0	0	43	1.70
Basic Computer Course	20	48.78	21	51.22	41	1.62
Hair Cutting	33	100	0	0	33	1.30
Masonry	30	100	0	0	30	1.18
Hair Dressing	2	7.69	24	92.31	26	1.03
Beautician	0	0.00	23	100.00	23	0.91
Thagzo (Weaving)	1	5.00	19	95.00	20	0.79
Advanced Computer Operation Course	19	100	0	0	19	0.75
Electrical Home Appliances	6	37.50	10	62.50	16	0.63
Light Vehicle Driving	11	100	0	0	11	0.43
Jimzo (Sculpture)	6	100	0	0	6	0.24
Welding and Fabrication	6	100	0	0	6	0.24
Photography	4	100	0	0	4	0.16
Computer Hardware Repair	3	100	0	0	3	0.12
Videography	2	100	0	0	2	0.08
Total	1631	64.42	901	35.58	2532	100.00

SSDPs target special groups, besides the armed force members, their spouses and members of the monastic community. As given in Table 3.30, the SSDPs had so far covered disabled persons even if the coverage was only 1.74% of the total. Juvenile delinquents constituted about 5%. The majority of the target groups constituted monks (47.04%). A large number of trainees have not reported their occupations. This calls for proper reporting of occupations in the future.

Table 3.30: SSDP target groups (1997-2019)

Groups	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Monk	1191	100	0	0	1191	47.04
Occupation Not Specified	114	19.49	471	80.51	585	23.1
Nun	0	0	234	100	234	9.24
Royal Bhutan Army (RBA)	130	86.09	21	13.91	151	5.96
Juvenile	129	100	0	0	129	5.09
RBA Spouses	0	0	110	100	110	4.34
Disabled persons	17	38.64	27	61.36	44	1.74
RBA, Royal Body Guard (RBG) & RBP	39	100	0	0	39	1.54
RBP Spouses	0	0	25	100	25	0.99
Royal Bhutan Police (RBP)	11	45.83	13	54.17	24	0.95
Total	1631	64.42	901	35.58	2532	100

Until 2019, SSDPs were delivered in more than 42 training places. As is obvious from Table 3.31, several training programmes were conducted in monasteries and nunneries to cater to the training needs of the monastic community. The other training were conducted in RBP, RBA and RBG bases.

Table 3.31: Training locations of SSDP (1997-2019)

No	Location	Female	Male	Total
1	Dechenphodrang Shedra	21	213	234
2	Sarpang	141	19	160
3	Tencholing	0	159	159
4	Dunkhar Lhuntse	0	134	134
5	YDRC Tsimasham	0	121	121
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
10	Tsirang Rabdey	0	79	79
11	Chhukha Rabdey	0	75	75
12	Thimphu	67	5	72
13	Trashigang	50	21	71
14	Samdrupjongkhar	63	5	68
15	Dewathang	60	6	66
16	Wang Sisina	65	0	65
17	HOPE Project (Location no specified)	55	6	61

No	Location	Female	Male	Total
18	Wangdue Rabdey	0	60	60
19	Haa	57	1	58
20	Daga Tashiyangtse 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	Tashiyangtse	0	33	33
28	Samtse	30	2	32
29	Damthang Haa	30	0	30
30	Sipsu Samtse	30	0	30
31	Dagana	0	27	27
32	Palden Tashichholing Shedra	0	27	27
33	Wangduephodrang	26	1	27
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
40	Gelephu	11	4	15
41	Wangdi/Punakha/Talo	0	11	11
42	Trongsa	0	6	6
43	Punakha	1	0	1
		901	1631	2532

School-To-Work Transition (STWT) Support Services

MoLHR provides several School-To-Work-Transition Programmes (STWTPs) through Public-Private Partnership (PPP). STWPTs represents non-formal TVET targeted at two main groups: (1) individuals who are not yet in the transition to work and (2) individuals who have entered the labour force and are actively seeking employment. STWTPs aims to provide on-the-job learning experiences and skilling support to enhance the employability of young job-seekers. Simply put, STWTPs are meant to address the problem of skills mismatch. Registered TPs had conducted most of MoLHR's STWTPs. Various STWTPs are detailed in Table 3.32.

Table 3.32: Details of STWTPs

SLN	Program	Internship or skilling	Approx. per head cost	Modality
1	Youth Employment Skills (YES)	Skilling	Nu. 69,000	Funding based on employment guarantee and targeted at class X/XII jobseekers
2	Graduate Skills Programme (GSP)	Skilling	Nu. 69,000	Funding based on employment guarantee and targeted at jobseekers with university degree
3	Skills for Employment & Entrepreneur Development (SEED)	Skilling	Nu. 120,000	Targeted at aspiring entrepreneurs interested to set up their businesses
4	Apprenticeship Training Programme (ATP)	Industry attachment or internship	Nu. 21,600 (for 12 months support)	Implemented through cost-sharing modality with industry
5	Pre-Employment Engagement Programme (PEEP)	Industry attachment or internship	Nu. 11,250 (for 3 months support)	Maximum duration ranges from 3 months (fully funded) to 6 months (cost-sharing)
6	University Graduate Internship programme (UGIP)	Industry attachment or internship	Nu. 11,250 (for 3 months support)	Maximum duration ranges from 3 months (fully funded) to 6 months (cost-sharing)
7	Direct Employment Scheme (DES)	Industry attachment or internship	University graduates: Nu. 90,000/-	Jobseekers attached with different sectors (1-3 years). Salary incentive provided by MoLHR with mandatory top-up by the Industry/employer
			Class XII/TVET graduates: Nu. 63,000/-	
			Class X: Nu. 45,000/-(for 12 months support)	
8	Entrepreneurship training programme (basic and advance 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

SLN	Program	Internship or skilling	Approx. per head cost	Modality
9	Construction/ Furniture Training	Skilling	Nu. 80,000	Critical skills in furniture and construction trades provided in partnership with both local and regional partners/TPs

Source: National HRD Advisory Series 2017

The government has initiated various entrepreneurship programmes like Priority Sector Lending (PSL) and incubation services and entrepreneurship support programmes of the Department of Cottage and Small Industry (DCSI), among others. These initiatives reflect the effort to strengthen the demand-side of TVET.

STWTPs uses three approaches: training-based, employment-based and incentive-based. The training-based approach involves only TPs with no role of the industries. The employment-based approach engages industries in identifying the training need. TPs have to meet the minimum employment threshold. Yet, TPs do not get incentives to facilitate employment. The incentive-based approach addresses this shortcoming.

STWTPs that began in 2006 were implemented with the main support from GOI, World Bank and UNDP. Helvetas, ADB and GOI fund most of the ongoing STWTPs besides the government's funding. In 9th and 10th FYPs, STWTs had focused more on the acquisition of skills and work experience. The focus had shifted towards employment outcomes in 11th FYP.

Table 3.33 reports the summary of STWTPs conducted between 2014 and 2019. The Youth Employment Scheme (YES) recorded the highest number of participants (41.05%). More females (66.13%) represented the scheme. The second popular programme was Furniture and Construction Training (16.48%). The third popular programme was Training and Employment Programme (14.52%). In all, 52.04% who availed nine STWTPs and other skills training were females.

Table 3.33: Distribution of STWTs participants by sex (2014-2019)

STWTP	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Youth Employment Scheme (YES)	382	33.87	746	66.13	1128	41.05
Furniture and Construction	339	74.83	114	25.17	453	16.48
Training and Employment Programme (TEP)	146	36.59	253	63.41	399	14.52
Graduate Skills Programme (GSP)	177	56.01	139	43.99	316	11.50
Skills for Employment and Entrepreneurship Development (SEED)	116	54.21	98	45.79	214	7.79

STWTP	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Critical Skills Training (CST)	25	50.00	25	50.00	50	1.82
Guaranteed Employment Training Programme (GETP)	11	37.93	18	62.07	29	1.06
Seoul City Scholarship	7	43.75	9	56.25	16	0.58
Other Skills Training Programme (STP)	115	80.42	28	19.58	143	5.20
Total	1318	47.96	1430	52.04	2748	100

Source: DoEHR, MoLHR, 2019

As summarised in Table 3.34, 2748 individuals had availed STWTPs between 2014-2019. The number of people availing STWTs rose and fell, with the average annual enrolment of 458 persons. The gender gap was not so prodigious.

Table 3.34: STWTPs participants by sex and year (2014-2019)

Year	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
2014	186	39.83	281	60.17	467	16.99
2015	195	38.77	308	61.23	503	18.30
2016	319	44.12	404	55.88	723	26.31
2017	297	75.57	96	24.43	393	14.30
2018	295	48.36	315	51.64	610	22.20
2019	26	50.00	26	50.00	52	1.89
Total	1318	47.96	1430	52.04	2748	100.00
Average	220	49.44	238	50.56	458	

Source: DoEHR, MoLHR, 2019

About 71 training areas were listed under STWTPs. The highest (42.68%) traineeship was in the field of tailoring, which also had a higher female representation. As reported in Table 3.35, the other training areas with the higher participation were courses in 'food and beverages' (7.2%), 'commercial cooking' (6.8%) and 'furniture design and making' (5.1%).

Table 3.35: STWTs by sex and skills area (2014-2019)

SLN	Skills Area	Male		Female		Total	
		Freq.	%	Freq.	%	Freq.	%
1	Tailoring	56	14.9	320	85.1	376	13.7
2	Food & Beverages	83	42.1	114	57.9	197	7.2

SLN	Skills Area	Male		Female		Total	
		Freq.	%	Freq.	%	Freq.	%
3	Commercial Cooking	120	63.8	68	36.2	188	6.8
4	Furniture Design and Making	102	72.9	38	27.1	140	5.1
5	Front Office	30	28.3	76	71.7	106	3.9
6	House Keeping	0	0.0	84	100.0	84	3.1
7	Accounts Officer	37	47.4	41	52.6	78	2.8
8	Construction Management Supervisor	41	56.2	32	43.8	73	2.7
9	Food Production Training	35	54.7	29	45.3	64	2.3
10	Spa Therapy	13	21.7	47	78.3	60	2.2
11	Heavy Machine Operator	50	90.9	5	9.1	55	2.0
12	Sale Executive	10	20.0	40	80.0	50	1.8
13	ECCD Facilitator	0	0.0	37	100.0	37	1.4
14	Furniture Machine Operator	36	97.3	1	2.7	37	1.4
15	Site Supervisor	27	73.0	10	27.0	37	1.4
16	Marble & Tiles	28	80.0	7	20.0	35	1.3
17	Upholstery	27	77.1	8	22.9	35	1.3
18	Welding and Fabrication	21	63.6	12	36.4	33	1.2
19	Pedagogy: Teaching Skill & Strategy	4	12.9	27	87.1	31	1.1
20	3D Animation	24	80.0	6	20.0	30	1.1
21	Advanced 2D & 3D Animation	21	70.0	9	30.0	30	1.1
22	Advanced Visual Effects (After Effects)	24	80.0	6	20.0	30	1.1
23	Automobile	25	83.3	5	16.7	30	1.1
24	Bakery	4	13.3	26	86.7	30	1.1
25	Construction Carpentry	26	86.7	4	13.3	30	1.1
26	S. Networking, Blockchain & Web	20	66.7	10	33.3	30	1.1
27	Movie Editing	22	73.3	8	26.7	30	1.1
28	Tar Boiler	21	70.0	9	30.0	30	1.1
29	VFX	25	83.3	5	16.7	30	1.1
30	Basic Furniture Making	9	34.6	17	65.4	26	1.0
31	2D Animation	23	92.0	2	8.0	25	0.9
32	Beauty and Hair	0	0.0	25	100.0	25	0.9
33	Hardware and Networking	20	80.0	5	20.0	25	0.9
34	Mobile Application Development	15	60.0	10	40.0	25	0.9
35	Store Keeper	2	8.0	23	92.0	25	0.9
36	Tally Accountant	6	24.0	19	76.0	25	0.9

SLN	Skills Area	Male		Female		Total	
		Freq.	%	Freq.	%	Freq.	%
37	Java Programming	19	79.2	5	20.8	24	0.9
38	Welding	20	83.3	4	16.7	24	0.9
39	Plumbing	19	82.6	4	17.4	23	0.8
40	Fruits & Vegetables Processing	10	47.6	11	52.4	21	0.8
41	SEO Expert and Tourism Business Development	12	57.1	9	42.9	21	0.8
42	Solar Installation & Maintenance	15	71.4	6	28.6	21	0.8
43	2D & 3D Animation	13	65.0	7	35.0	20	0.7
44	Button Mushroom Cultivation	15	75.0	5	25.0	20	0.7
45	Dairy Product Development	9	45.0	11	55.0	20	0.7
46	Heating, Ventilation and Air-con(HVAC)	12	60.0	8	40.0	20	0.7
47	Noodle Technology & Development	9	45.0	11	55.0	20	0.7
48	P.C. Technician	5	25.0	15	75.0	20	0.7
49	Beauty Product Development	5	25.0	15	75.0	20	0.7
50	Sound Mixing and Movie Editing	15	75.0	5	25.0	20	0.7
51	Mobile Repairing(Android and IOS)	19	100.0	0	0.0	19	0.7
52	Sales and Marketing	9	47.4	10	52.6	19	0.7
53	Sales Management	2	10.5	17	89.5	19	0.7
54	Mobile Application Development	12	66.7	6	33.3	18	0.7
55	Computer Hardware and Assembly	12	70.6	5	29.4	17	0.6
56	Graphic Design and Web Designing	10	58.8	7	41.2	17	0.6
57	Marketing Management	5	29.4	12	70.6	17	0.6
58	Shoe Design and Making	4	23.5	13	76.5	17	0.6
59	Bakery & Confectionary	6	40.0	9	60.0	15	0.6
60	Construction Management Services	5	33.3	10	66.7	15	0.6
61	Front Desk & Reservation	5	33.3	10	66.7	15	0.6
62	Interior and Furniture Design	9	60.0	6	40.0	15	0.6
63	Tally Management	3	20.0	12	80.0	15	0.6
64	Motor Winding	10	76.9	3	23.1	13	0.5
65	Cable TV Technician	10	100.0	0	0.0	10	0.4
66	Masonry	7	87.5	1	12.5	8	0.3
67	Web Programming	1	20.0	4	80.0	5	0.2
68	Green Car Maintenance	3	100.0	0	0.0	3	0.1
69	Web Design	1	33.3	2	66.7	3	0.1
70	Hair Design	0	0.0	1	100.0	1	0.0

SLN	Skills Area	Male		Female		Total	
		Freq.	%	Freq.	%	Freq.	%
71	Jewelry Design	0	0.0	1	100.0	1	0.0
		1318	48.0	1430	52.0	2748	100.0

Source: DoEHR, MoLHR, 2019

STWTPs target young people of different academic qualifications, among which the highest group so far had been individuals with class XII qualification. The next group was young people with class X qualification followed by degree (reported in Table 3.36). There were few people below class X, diploma and TVET graduates.

Table 3.36: STWTPs participants by qualification and sex (2014-2019)

Qualification	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Class XII	559	46.24	650	46.24	1209	44
Class X	496	48.02	537	48.02	1033	37.59
Degree	214	55.15	174	55.15	388	14.12
Class VIII	17	28.33	43	28.33	60	2.18
Class VI	13	36.11	23	36.11	36	1.31
Technical Graduate	18	85.71	3	85.71	21	0.76
Diploma	1	100	0	100	1	0.04
	1318	47.96	1430	52.04	2748	

Source: DoEHR, MoLHR, 2019

STWTPs are multi-disciplinary programmes and cover an array of skills. As shown in Table 3.37, most ex-country STWTs were conducted in India and few in South Korea. DoEHR plans to train about 2,000 individuals in various STWTPs with funding from GOI-PTA in 12th FYP (ToR for CST, DoEHR, 2019).

Table 3.37: STWTPs participants by country-location (2014-2019)

STWTs	Bhutan		India		S.Korea	Total
	Freq.	%	Freq.	%	%	
Skills for Employment and Entrepreneur Development (SEED)	79	36.9	135	63.1	0	214
Critical Skills Training (CST)	50	100	0	0.0	0	50
Furniture and Construction Training	178	39.3	275	60.7	0	453
Graduate Skills Program (GSP)	316	100	0	0	0	316

STWTs	Bhutan		India		S.Korea	Total
	Freq.	%	Freq.	%	%	
Guaranteed Employment Training Programme (GETP)	29	100	0	0	0	29
Seoul City Scholarship	0	0	0	0	16 (100%)	16
Training and Employment Programme (TEP)	399	100	0	0	0	399
Youth Employment Scheme (YES)	1128	100	0	0	0	1128
Other Skills Training Programme (STP)	82	57.3	61	42.7	0	143
Total	2261	82.3	471	17.1	16	2748

Source: DoEHR, MoLHR, 2019

DoEHR coordinates STWTPs with the registered TPs. MoLHR supports TPs and trainees with the tuition fee and stipend. The tuition fee covers trainer's fee, curriculum development and design, training facility, training material/equipment, On-the-job Training (OJT) and job placement. The stipend is determined based on the MOF's prevailing financial norms. Table 3.38 presents the list of STWTP collaborators. The majority of the TPs until now were private institutes registered with DOS.

Table 3.38: STWTs collaborators (2014-2019)

STWTP Collaborator/Provider	Male		Female		Total
	Freq.	%	Freq.	%	
Bhutan International School of Hospitality & Tourism	164	39.14	255	60.86	419
Druk Tshemzo Training Institute	56	14.89	320	85.11	376
Yarab Institute for Hospitality Management	78	37.86	128	62.14	206
Computer and Management Institute (CMI)	66	35.87	118	64.13	184
iBEST Institute of Media, Management and Technical Studies	137	78.74	37	21.26	174
Rigsum Institute of Technical Education & Management Studies	76	48.1	82	51.9	158
Athang Training Academy	90	70.31	38	29.69	128
Niche Institute of Management and Technology & CIDC	77	74.76	26	25.24	103
Lekdrup Skill Development Institute & Quivan Institute	86	84.31	16	15.69	102
Bhutan School of Management and Technology	50	52.08	46	47.92	96
Institute for Management Studies	14	16.47	71	83.53	85
Kunjung Institute of Technology & Innovation	37	47.44	41	52.56	78

STWTP Collaborator/Provider	Male		Female		Total
	Freq.	%	Freq.	%	
Nyenjor Institute of Technical Skills and Human Value	41	56.16	32	43.84	73
Wood Craft Centre Ltd.	28	44.44	35	55.56	63
Royal Institute for Tourism and Hospitality	25	50	25	50	50
Rumi Spa and Beauty Training Institute	13	27.08	35	72.92	48
Construction Development Corporation Ltd Lingmethang	36	92.31	3	7.69	39
Jigme Wangchuck Power Training Institute	32	82.05	7	17.95	39
Computer and Management Institute (CMI) & Don Dosco, Shilong	36	97.3	1	2.7	37
Bongde Institute of Hotel and Tourism	15	44.12	19	55.88	34
Computer and Management Institute (CMI) & PPDC	21	63.64	12	36.36	33
Lekdrup Skills Development Institute	25	83.33	5	16.67	30
Technical Training Institute-Rangjung	23	85.19	4	14.81	27
Technical Training Institute-Chumey	17	68	8	32	25
Tenzin Hair and Beauty Academy	0	0	25	100	25
Southtech Private Limited	19	79.17	5	20.83	24
Niche Institute of Management and Technology	10	47.62	11	52.38	21
Druk Institute of Management and Technology	16	80	4	20	20
Bhutan Media & Communications Institute	9	47.37	10	52.63	19
Construction Development Corporation Ltd Hesothangka	14	87.5	2	12.5	16
Seoul Vocational School	6	54.55	5	45.45	11
Seoul Institute of Information and Technology	1	20	4	80	5
	1318	47.96	1430	52.04	2748

Source: DoEHR, MoLHR, 2019

MoLHR had organised Apprenticeship Training Programmes (ATPs), Pre-Employment Engagement Programmes (PEEPs) and University Graduates Internship Programmes (UGIPs) between 2010 and2019. These were short-term skilling programmes popular in 9th and 10th FYPs. Introduced in 2000, ATPs were implemented through the contracts between apprentices and employers. UGIP and PEEP were short-term internship support programmes provided for any interested job-seekers.

Table 3.39 presents gender-disaggregated statistics on ATP, PEEP and UGIP. The data for ATP, PEEP and UGIP had been maintained separately. It is obvious from the table

that more males (64.04%) participated in these programmes than females (35.96%). The gender gap was narrow in recent STWPTs compared to the similar programmes in 9th and 10th FYPs.

Table 3.39: ATP, PEEP and UGIP participants by sex (2010-2019)

Programme	Male		Female		Total
	Freq.	%	Freq.	%	
University Graduates Internship Programme (UGIP)	1261	39.88	1901	60.12	3162
Pre-Employment Engagement Programme for X-XII (PEEP)	1023	36.77	1759	63.23	2782
Apprenticeship Training Programme (ATP)	489	27.67	1278	72.33	1767
	2773	35.96	4938	64.04	7711

Source: DoEHR, MoLHR, 2019

As shown in Table 3.40, the number of individuals availing ATP, PEEP and UGIP dropped in 2018. This drop started after new STWTPs were introduced.

Table 3.40: Participants of ATP, PEEP and UGIP by year

Year	ATP		PEEP		UGIP		Total
	Freq.	%	Freq.	%	Freq.	%	
2010	4	12.12	27	81.82	2	6.06	33
2011	235	97.51	4	1.66	2	0.83	241
2012	243	96.81	4	1.59	4	1.59	251
2013	451	61.28	92	12.50	193	26.22	736
2014	228	18.10	451	35.79	581	46.11	1260
2015	160	8.42	881	46.34	860	45.24	1901
2016	226	11.25	868	43.23	914	45.52	2008
2017	198	21.11	300	31.98	440	46.91	938
2018	22	6.41	155	45.19	166	48.40	343
	1767	22.92	2782	36.08	3162	41.01	7711

Source: DoEHR, MoLHR, 2019

The highest number of individuals who availed ATPs possessed class X (62%) qualification while PEEP was popular among class XII graduates (50%) and UGIP among university graduates (94.5%). The details are given in Table 3.41.

Table 3.41: Participants of ATP, PEEP and UGIP by academic qualification

Qualification	ATP		PEEP		UGIP		Total	
	Freq	%	Freq.	%	Freq.	%	Freq.	%
Below VI	8	100	0	0	0	0	8	0.10
VI	273	100	0	0	0	0	273	3.54
VII	53	98.15	1	1.85	0	0	54	0.70
VIII	86	100	0	0	0	0	86	1.12
IX	68	100	0	0	0	0	68	0.88
X	695	62.11	424	37.89	0	0	1119	14.51
XI	2	33.33	2	33.33	2	33.33	6	0.08
XII	503	17.24	2197	75.32	217	7.44	2917	37.83
University Graduate & above	29	0.93	147	4.71	2943	94.36	3119	40.45
NFE	39	100	0	0	0	0	39	0.51
None	11	50	11	50.00	0	0	22	0.29
	1767	22.92	2782	36.08	3162	41.01	7711	100

Source: DoEHR, MoLHR, 2019

Direct Employment Scheme (DES)

Direct Employment Scheme (DES) under the Guaranteed Employment Programme (GEP) had been specifically designed to engage unemployed job-seekers of classes X and above. It replaced the traditional ATPs. As reported in Table 3.42, out of 5881 DES participants between 2013 and 2018, 54.68% were females. The number of participants in DES dropped in 2018 [probably] due to a shortage of funding.

Table 3.42: DES participants by sex (2013-2018)

Year	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
2013	0	0	1	100	1	0.0
2014	457	48.6	484	51.4	941	16.0
2015	852	46.9	963	53.1	1815	30.9
2016	478	45.0	585	55.0	1063	18.1
2017	558	42.2	765	57.8	1323	22.5
2018	320	43.4	418	56.6	738	12.6
Total	2665	45.3	3216	54.7	5881	100.0

Source: DoEHR, MoLHR, 2019

As regards academic qualification, 12% of DES takers were technical graduates. More individuals with class XII qualification availed DES (42.54%) and 27.48% were class X graduates. Few participants had a master's degree as reported in Table 3.43.

Table 3.43: DES participants by academic qualification (2013-2018)

Qualification	Female	Male	Total	%
Class XII	1449	1053	2502	42.5
Class X	939	677	1616	27.5
General Graduate	531	457	988	16.8
Technical Graduate	254	432	686	11.7
Certificate	11	15	26	0.44
Diploma	15	9	24	0.4
Masters	12	10	22	0.4
Class VI	2	3	5	0.1
Class VIII	1	6	7	0.1
Illiterate	2	1	3	0.1
Others	0	2	2	0.0
Total	3216	2665	5881	100.0

Source: DoEHR, MoLHR, 2019

DES (2013-2018) covered about 157 different trades/occupations (as listed in Table 3.44). Top three trades were sales (9.30%), management services (8.16%) and accounting (4%). Several technical programmes were also covered. Among them, carpentry, mechanics and technician courses topped the list.

Table 3.44: Skills areas/occupations covered under DES (2013-2018)

SLN	Occupation	Female	Male	Total	%
1	Sales	368	179	547	9.30
2	Management Services	318	162	480	8.16
3	Accounting	192	121	313	5.32
4	Marketing	136	99	235	4.00
5	Engineering	52	154	206	3.50
6	Teaching	127	78	205	3.49
7	Carpentry	69	116	185	3.15
8	Technician	65	104	169	2.87
9	Mechanics	26	130	156	2.65
10	TVET Trainer	54	95	149	2.53
11	Procurement and Store	93	48	141	2.40

SLN	Occupation	Female	Male	Total	%
12	Call Agent	92	44	136	2.31
13	Electrical	49	76	125	2.13
14	Machine Operation	43	75	118	2.01
15	Farm Management and Associates	56	46	102	1.73
16	Support Services	66	35	101	1.72
17	Food and Beverages	68	30	98	1.67
18	Housekeeping	88	7	95	1.62
19	Distribution Associate	49	44	93	1.58
20	Welding	30	63	93	1.58
21	Site Supervisor	33	56	89	1.51
22	Tailoring	80	5	85	1.45
23	Masonry	30	42	72	1.22
24	Administration	45	25	70	1.19
25	Cooking and Kitchen Stewarding	36	34	70	1.19
26	ECCD Facilitator	61	1	62	1.05
27	Helper	21	41	62	1.05
28	Nursing	41	21	62	1.05
29	ICT	17	43	60	1.02
30	Waiter/Waitress	52	7	59	1.00
31	Project Management	21	31	52	0.88
32	Receptionist	42	10	52	0.88
33	Field Associates	20	30	50	0.85
34	Bakery	37	10	47	0.80
35	Front Office	31	10	41	0.70
36	Multi-Skilled Worker	17	23	40	0.68
37	Reservation	25	11	36	0.61
38	Auto-Mechanic	7	28	35	0.60
39	Business Services	16	18	34	0.58
40	Coaching	5	27	32	0.54
41	Media & Communication	18	14	32	0.54
42	Trainee	20	11	31	0.53
43	Laboratory Technician	13	17	30	0.51
44	Legal Services	17	11	28	0.48
45	Office Assistant	24	4	28	0.48
46	Manual Labour	16	11	27	0.46

SLN	Occupation	Female	Male	Total	%
47	Plumbing	17	10	27	0.46
48	Financial Services	15	11	26	0.44
49	Incense-Making	20	6	26	0.44
50	Painting	7	19	26	0.44
51	Beauty Care	25	0	25	0.43
52	Driving	2	22	24	0.41
53	Caregiver	20	3	23	0.39
54	Security Services	15	8	23	0.39
55	Research Services	5	17	22	0.37
56	Animation	7	14	21	0.36
57	Development Services	6	14	20	0.34
58	Bartender	13	6	19	0.32
59	Coordinator	12	6	18	0.31
60	Fabrication	6	12	18	0.31
61	Audio Visual	6	10	16	0.27
62	Embroidery	15	1	16	0.27
63	Food Production	9	7	16	0.27
64	Graphics and Design	3	13	16	0.27
65	Production Services	5	11	16	0.27
66	Peer Counsellor	5	10	15	0.26
67	Bill Collector	10	4	14	0.24
68	Auto Technician	2	11	13	0.22
69	Cashier	8	5	13	0.22
70	Ticketing	6	7	13	0.22
71	Human Resources	8	4	12	0.20
72	Operational Health Services	6	6	12	0.20
73	Packing and Binding	9	3	12	0.20
74	Team Member	5	7	12	0.20
75	Chemical Technician	4	7	11	0.19
76	Guest Services	8	3	11	0.19
77	Service Man	4	7	11	0.19
78	Tally Checker	8	3	11	0.19
79	Cable Services	0	10	10	0.17
80	Wood Carving	1	9	10	0.17
81	Auditing Services	3	6	9	0.15

SLN	Occupation	Female	Male	Total	%
82	Architecture	2	6	8	0.14
83	Attendant	4	4	8	0.14
84	Auctioneer	2	6	8	0.14
85	Construction Management	1	7	8	0.14
86	Loom Operation	6	2	8	0.14
87	Public Relations	6	2	8	0.14
88	Spa and Massage Therapy	7	1	8	0.14
89	Communication Services	7	0	7	0.12
90	Library	7	0	7	0.12
91	Manufacturing	4	3	7	0.12
92	Sawyer	3	4	7	0.12
93	Shoe Making	4	3	7	0.12
94	Softwares and Applications	1	6	7	0.12
95	Dance and Entertainment	5	1	6	0.10
96	Scholarship Officer	2	4	6	0.10
97	Controller	2	3	5	0.09
98	Environmental Services	4	1	5	0.09
99	Executive Services	4	1	5	0.09
100	Furniture Making	3	2	5	0.09
101	Hotels and Restaurants	4	1	5	0.09
102	Upholstery	5	0	5	0.09
103	Vehicle Emission Technician	4	1	5	0.09
104	Wood Turning	1	4	5	0.09
105	Customer Services	3	1	4	0.07
106	Dispatching	4	0	4	0.07
107	Fruit Processing	2	2	4	0.07
108	Hardware Technician	3	1	4	0.07
109	Liaison Services	1	3	4	0.07
110	Milk Processing	3	1	4	0.07
111	Service Technician	1	3	4	0.07
112	Steward	1	3	4	0.07
113	Web Design	1	3	4	0.07
114	Bricks Maker	2	1	3	0.05
115	Computer Hardware & Network Engineer	0	3	3	0.05
116	Editor	0	3	3	0.05

SLN	Occupation	Female	Male	Total	%
117	General Services	2	1	3	0.05
118	Logistic Services	1	2	3	0.05
119	Phlebotomist	0	3	3	0.05
120	Polishing	2	1	3	0.05
121	Transport Management	2	1	3	0.05
122	Bouncer	0	2	2	0.03
123	Consultancy Services	0	2	2	0.03
124	Crew Member	2	0	2	0.03
125	Grinder	0	2	2	0.03
126	Inventory	0	2	2	0.03
127	Laundry Service	0	2	2	0.03
128	Medical Associate	1	1	2	0.03
129	Mess	1	1	2	0.03
130	Monitoring & Evaluation Services	0	2	2	0.03
131	Pharmacy	1	1	2	0.03
132	Production Assistant	2	0	2	0.03
133	Recruitment Agents	2	0	2	0.03
134	Rigger	0	2	2	0.03
135	Social Worker	2	0	2	0.03
136	Tyre Repairing	1	1	2	0.03
137	Analyst	0	1	1	0.02
138	Anchor	0	1	1	0.02
139	Auto Electrician	1	0	1	0.02
140	Bell Boy	0	1	1	0.02
141	Brass Carver	0	1	1	0.02
142	Coffee Maker	1	0	1	0.02
143	Counsellor	1	0	1	0.02
144	Draftsman	0	1	1	0.02
145	Electronics	0	1	1	0.02
146	Hair Dresser	0	1	1	0.02
147	Lacquering	1	0	1	0.02
148	Matron	1	0	1	0.02
149	Miller	0	1	1	0.02
150	Paper-Making	0	1	1	0.02
151	Rotoscope	0	1	1	0.02

SLN	Occupation	Female	Male	Total	%
152	Sports	0	1	1	0.02
153	Survey and Data	0	1	1	0.02
154	Terminal Inspector	1	0	1	0.02
155	Trekking	0	1	1	0.02
156	Voice Artist	1	0	1	0.02
157	Warden	0	1	1	0.02
	Total	3216	2665	5881	100.00

Source: DoEHR, MoLHR, 2019

Bhutanese Overseas Employment (BOE) Programmes

In future, the level of managing TVET is likely to somewhat depend on the demand for Bhutanese Overseas Workers (BOWs) like in the neighbouring countries. MoLHR and its agents have coordinated and sent abroad over 5,000 Bhutanese to as many as 12 countries. This does not take into account BOWs who went on their own. Going by this trend, it is probable that the stock of overseas BOWs would grow over time. The Bhutanese Overseas Programme (BOE) in general is known to ease the problem of growing youth unemployment in the country. Nonetheless, there are no data to show whether the skills of BOWs match the skills demand overseas. No foreign market survey and skills identification were done to determine the overseas employment options for TVET graduates.

Table 3.45 presents statistics of BOEs for the period 2013-2019. More females BOWS (63.7%) were recorded compared to the male counterparts (36.3%).

Table 3.45: Bhutan Overseas Workers (BOWs) by sex (2013-2019)

Year	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
2013	23	51.1	22	48.9	45	0.9
2014	124	27.6	325	72.4	449	8.8
2015	80	29.0	196	71.0	276	5.4
2016	280	23.0	938	77.0	1218	23.8
2017	594	42.8	795	57.2	1389	27.1
2018	610	42.8	814	57.2	1424	27.8
2019	147	45.7	175	54.3	322	6.3
Total	1858	36.3	3265	63.7	5123	100

Source: DoEHR, MoLHR, 2019

Among over 5000 BOWs in 12 countries, the majority of them are currently working in Kuwait and India (Table 3.46) followed by Japan, UAE, Qatar, Thailand and so on in descending order.

Table 3.46: BOWs by sex and country (2013-2019)

Country	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Kuwait	696	40.6	1018	59.4	1714	33.46
India	197	16.4	1001	83.6	1198	23.38
Japan	326	45.6	389	54.4	715	13.96
UAE	218	34.1	421	65.9	639	12.47
Qatar	229	51.1	219	48.9	448	8.74
Thailand	85	42.5	115	57.5	200	3.9
Malaysia	42	57.5	31	42.5	73	1.42
Bahrain	22	34.4	42	65.6	64	1.25
Israel	24	85.7	4	14.3	28	0.55
Australia	11	57.9	8	42.1	19	0.37
Saudi Arabia	4	25	12	75	16	0.31
Oman	4	44.4	5	55.6	9	0.18
Total	1858	36.3	3265	63.7	5123	100

Source: DoEHR, MoLHR, 2019

Though occupations of BOWs are not properly classified (especially those marked as 'study and work'), the majority of them are engaged in 'sales' and other services. The details are given in Table 3.47. 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 3.47: BOWs by occupation (2013-2019)

SLN	Occupation	Male	Female	Total
1	Sales	547	956	1503
2	Study and Work	358	413	771
3	Beauty, Hair & Spa	22	579	601
4	F&B	102	381	483
5	Teacher	88	119	207
6	Waitress	7	193	200
7	Team member	70	95	165
8	Waiter	138	19	157
9	Cashier	48	89	137

SLN	Occupation	Male	Female	Total
10	Crew Member	53	57	110
11	Fitness Specialist	49	20	69
12	Information Technology Enabled Services	38	23	61
13	Barista	28	24	52
14	Service Crew	17	33	50
15	House Keeping	18	31	49
16	Cook	31	17	48
17	Bus Attendant	19	25	44
18	Caddie	3	39	42
19	Counter Staff	20	19	39
20	Commis/junior chef	17	13	30
21	Intern	24	4	28
22	Room Attendant	8	16	24
23	Finance & Accounts	14	6	20
24	General	11	8	19
25	Warehouse	16	3	19
26	Service Attendant	9	9	18
27	Runner	15	0	15
28	Assistant Server	3	11	14
29	Customer Service Representative	3	10	13
30	Security Officer	12	1	13
31	Back of House	7	5	12
32	Stocker	7	3	10
33	Kitchen Helper	8	1	9
34	Hostess	0	8	8
35	Ride Operator	8	0	8
36	Server	3	5	8
37	Steward	8	0	8
38	Pastry Maker Helper	0	7	7
39	Trainer	4	2	6
40	Bartender	2	3	5
41	Receptionist	1	4	5
42	Store Helper	4	0	4
43	Administrative Assistant	1	2	3
44	Language Scholarship	1	2	3

SLN	Occupation	Male	Female	Total
45	Mechatronic	3	0	3
46	Restaurant Manager	1	2	3
47	Team leader	2	1	3
48	Hot Food Sales	1	1	2
49	Price Taggers	0	2	2
50	Public Area Attendant	0	2	2
51	Technician	2	0	2
52	Ticketing Staff	2	0	2
53	IT	1	0	1
54	Laundry Attendant	1	0	1
55	Locker Room Attendant	1	0	1
56	Picker	1	0	1
57	Quality Assurance	0	1	1
58	Room Attendant	1	0	1
59	Telephone Operator	0	1	1
		1858	3265	5123

Source: DoEHR, MoLHR, 2019

As presented in Table 3.48, the majority of BOWs are class XII certificate holders (44.93%). Among them, more than 300 are technical graduates. Many of them are likely to be graduates of TTIs and IZCs, but possibly working in the trades different from their training qualifications.

Table 3.48: BOWs by qualification (2013-2019)

Qualification	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Class XII	875	38	1427	62	2302	44.93
General Graduate	624	37.2	1052	62.8	1676	32.72
Class X	190	23.5	617	76.5	807	15.75
Technical Graduate	154	50.2	153	49.8	307	5.99
Masters	8	53.3	7	46.7	15	0.29
Class VIII	3	37.5	5	62.5	8	0.16
Others	3	42.9	4	57.1	7	0.14
PhD	1	100	0	0	1	0.02
Total	1858	36.3	3265	63.7	5123	100.00

Source: DoEHR, MoLHR, 2019

TVET is usually thought of as programmes for out-of-school youth. Still, seven pilot schools, located close to TTIs, have introduced TVET programmes. TVET programmes in schools are meant to allow vocalisation and diversification of school curriculum. The Education Blueprint (2014-2024) outlines the priorities to enhance school TVET. MOE and MOLHR have jointly developed the Vocational Skills Development Curriculum (VSDC) with the support of ADB's STEP-UP project. As highlighted in Table 3.49, 776 students have taken up TVET programmes as the optional subject in seven pilot schools as of 2018. There were more female takers than males.

Table 3.49: Enrolment in School-based TVET programmes by school (as of 2018)

School	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Bajo Higher Secondary School	92	46.94	104	53.06	196	25.26
Rangjung Higher Secondary School	73	45.06	89	54.94	162	20.88
Babesa Middle Secondary School	51	44.35	64	55.65	115	14.82
Baylling Higher Secondary School	49	47.12	55	52.88	104	13.4
Punakha Higher Secondary School	36	45.57	43	54.43	79	10.18
Chhumey Middle Secondary School	33	50.77	32	49.23	65	8.38
Khuruthang Middle Secondary School	20	36.36	35	63.64	55	7.09
	354	45.62	422	54.38	776	100.00

Source: AES, MOE, 2018

PART II: Registered Other Public and Private Training Providers

Part II of this section presents statistics on TVET access and participation in Other Public and Private Training Providers (OPPTPs). While TTIs and IZCs had fixed base of eight training institutions, the incomplete datasets of OPPTPs have affected the data aggregation such that the statistical tabulations of OPPTPs had to been done with varying numbers of TPs. Nevertheless, the generalisation of results may not be a serious issue as the data from more than 60 OPPTPs were used in most of the statistical aggregation.

TVET Programmes in OPPTPs

Table 3.50 presents the courses listed by 67 OPPTPs. The courses were divided into LTCs and STCs. Most LTCs were usually those courses that DOS have certified, including institute diplomas (not certified by DOS). As earlier highlighted, there were conceptual and definitional problems on the 'course duration'. The data were retained as LTCs and STCs as reported in TPs' datasets. Sixty-seven TPs had listed 147 LTCs and 822 STCs. These courses were mostly institute-based while a few courses were outsourced to TVET providers outside the country. Not all the listed courses were offered on a regular basis but only when there was the demand. The main issue with

some OPPTPs was that some TPs issued their own certificates that were not calibrated with the national standards and certification system. This non-standardised TVET delivery structure (if continued) may affect quality assurance and standards.

Table 3.50: Courses offered by 67 OPPTPs by duration

SLN	Institute/Training Provider	LTCs	STCs	Total
1	Computer and Management Institute	9	150	159
2	Rigsum Institute of Technical Education & Management Studies	33	76	109
3	Bhutan Institute of International Language, IT and Management	2	64	66
4	Bhutan Institute of Information Technology and Management	1	64	65
5	Druk Institute of Management Technology	9	50	59
6	iBEST Institute of Media, Management and Technical Studies	0	35	35
7	Kunjung Institute of Technology and Innovation (first submission)	2	30	32
8	Bhutan Media and Communications Institute	0	28	28
9	Ugyen Wangchuck Institute for Conservation and Environmental Research (public)	2	25	27
10	Financial Institutions Training Institute Limited	0	25	25
11	Institute for Excellence and Development	0	25	25
12	GPY Computer Training Institute	7	13	20
13	Bhutan Institute for Training and Development	0	19	19
14	Guide Association of Bhutan	0	18	18
15	Rural Development Training Centre (public)	0	16	16
16	Dechen IT & Management Institute	1	14	15
17	Learn Zone Institute	0	15	15
18	Bhutan International School of Hospitality & Tourism	7	7	14
19	Athang Training Academy	4	9	13
20	Niche Institute of Management and Technology (deregistered)	0	12	12
21	Agriculture Machinery Training Centre (public)	0	10	10
22	Choki Traditional Art School	9	0	9
23	Druk Tshemzo Tailoring Institute	9	0	9
24	Institute of Information Technology Management	0	9	9
25	Lekdrup Skills Development Institute	3	6	9
26	NLD Training Institute	3	6	9
27	Gangjung Driving Centre of Excellence	0	8	8
28	Eastern Computer Training Centre	3	4	7
29	Yarab Institute for Hospitality Management	4	3	7

SLN	Institute/Training Provider	LTCs	STCs	Total
30	Sompal Driving Institute	4	2	6
31	Global Computer Training Centre	5	0	5
32	Institute for Management Studies	0	5	5
33	Jachung Security Service Private Ltd	5	0	5
34	RTC Training and Professional Services	0	5	5
35	Bhutan Institute of Martial Arts	0	4	4
36	Karma Driving Training Institute (Gedu)	0	4	4
37	Kilu Bhutan Music School	4	0	4
38	Phunsum Driving Institute	0	4	4
39	Professional Skills Institute	0	4	4
40	Sacho Driving Training Institute	0	4	4
41	Sacho-Gaa Driving Training Institute	0	4	4
42	Tacho Bala Ha Driving Training Institute	0	4	4
43	USD Driving School (Phuentsholing)	0	4	4
44	USD Driving Training Institute (Thimphu)	0	4	4
45	Youth Development and Rehabilitation Centre (public)	4	0	4
46	Institute for Professional Studies (IPS)	0	3	3
47	Bongde Institute of Hotel and Tourism	3	0	3
48	Dorji International Training Institute	3	0	3
49	Eastern Driving Training Institute	0	3	3
50	Norbu International Wellness Institute	2	1	3
51	Pema Driving Training Institute	0	3	3
52	Royal Academy of Performing Arts (public)	3	0	3
53	Royal Institute of Tourism and Hospitality (public)	3	0	3
54	Sunrise Driving Institute	0	3	3
55	Ugyen International Language and Culture Training Institute	0	3	3
56	Advanced Institute for Tourism	0	2	2
57	Gangchen Language and Management Institute	0	2	2
58	Ghadyen Driving Training Institute	0	2	2
59	Jigyang Driving Training Institute	0	2	2
60	Karsel Dawa Driving Training Institute	0	2	2
61	Kesang Driving School	0	2	2
62	Sachog Driving Institute (Samtse)	0	2	2
63	Heruka Security Services	0	2	2

SLN	Institute/Training Provider	LTCs	STCs	Total
64	Fashion Institute of Technology	1	0	1
65	JCB Operator Training Centre (OTC)	0	1	1
66	Tenzin Hair and Beauty Academy	1	0	1
67	Woodcraft Centre Ltd (first submission) (public)	1	0	1
	Total	147	822	969

There was the problem of double-counting in enrolment and graduation data. This problem had ensued from the current system of programme/institute-based record keeping. Most partakers of MoLHR's STWTPs were counted twice: once by MoLHR and another by OPPTPs that had conducted STWTPs. The double-counting can be avoided only if the future statistics are decentralised and made 'individual-based'. In the decentralised system, a trainee will be counted only once in any programme.

On aggregating the courses based on the reported duration, 30.8% of 892 courses had the duration of more than two weeks and less than one month. About 24.7% of the courses took less than one week to complete while 14.7% took more than two months and less than 3 months (Table 3.51). About one per cent of the courses had a duration longer than two years.

Table 3.51: Courses listed 67 OPPTPs by duration

Duration	Frequency	Percent
One Week	220	24.7
More than 1 week & less than 2 weeks	27	3
More than 2 weeks & less than one month	275	30.8
More than 1 month & less than 2 months	98	11
More than 2 months & less than 3 months	131	14.7
More than 3 months & less than 6 months	86	9.6
More than 6 months & less than 9 months	11	1.2
More than 9 months & less than 12 months	2	0.2
More than 12 months & less than 18 months	19	2.1
More than 18 months & less than 24 months	13	1.5
More than 24 months	10	1.1
Total	892	100
Missing value	System	7.2
Total		100

The International Standard Classification of Education (ISCED-F-2013) was used to determine group the courses into 41 categories. The highest number of courses were grouped under ISCED-0413 Management and Administration (16%), 0061 Information and Communication (9.30%) and 0211 Audio-visual Techniques and Media Production (9.10%). Various occupational disciplines presented in Table 3.52 represent the attempt to use ISCED-F-2013 but cannot be treated as flawless.

Table 3.52: Courses offered by 67 OPPTPs classified according to ISCED-F-2013

SLN	ISCED-F-2013	Freq.	%
1	0413 Management and administration	154	16.00
2	0061 Information and communication technology (Broad Group)	89	9.30
3	0211 Audio-visual techniques and media production	87	9.10
4	0031 Personal skills	65	6.80
5	0411 Accounting and taxation	65	6.80
6	1041 Transport services	56	5.80
7	0231 Language acquisition	31	3.20
8	0412 Finance, banking and insurance	29	3.00
9	0414 Marketing and advertising	29	3.00
10	1013 Hotel, restaurants and catering	29	3.00
11	0612 Database and network design and administration	27	2.80
12	0613 Software and applications development and analysis	26	2.70
13	1015 Travel, tourism and leisure	24	2.50
14	0417 Work skills	23	2.40
15	0811 Agriculture: Crop and livestock production	19	2.00
16	0721 Food processing	17	1.80
17	0000 Others	16	1.70
18	0714 Electronics and automation	16	1.70
19	0532 Earth sciences	14	1.50
20	0713 Electricity and energy	14	1.50
21	0715 Mechanics and metal trades	11	1.10
22	0716 Motor vehicles, ships and aircraft	11	1.10
23	0212 Fashion, interior and industrial design	10	1.00
24	0213 Fine arts	9	0.90
25	1032 Protection of persons and property	9	0.90
26	0215 Music and performing arts	8	0.80

SLN	ISCED-F-2013	Freq.	%
27	0722 Materials (glass, paper, plastic and wood)	8	0.80
28	0723 Textiles (clothes, footwear and leather)	8	0.80
29	1012 Hair and beauty services	8	0.80
30	0114 Teacher training with subject specialisation	7	0.70
31	0214 Handicrafts	7	0.70
32	0542 Statistics	6	0.60
33	0732 Building and civil engineering	6	0.60
34	0112 Training for pre-school teachers	5	0.50
35	0321 Journalism and reporting	5	0.50
36	0917 Traditional and complementary medicine and therapy	5	0.50
37	0421 Law	2	0.20
38	0821 Forestry	2	0.20
39	0722 Food processing	2	0.20
40	0915 Therapy and rehabilitation	1	0.10
41	1022 Occupational health and safety	1	0.10
	Total	961	100.00

In 2018-19, 67 OPPTPs had provided a total of 89 accredited courses and 872 non-accredited courses (Figure 3.5). DOS is responsible to accredit the courses after meeting certain quality and standards.

Figure 3.5: Courses offered by 67 OPPTPs by accreditation status

The courses are certified at the institute or national level. In the latter's case, DOS conducts an assessment and awards the national certification. Courses at National Certificate I, National Diploma I and II levels were not so common among OPPTPs. Courses they offered were in a large majority certified by the respective training providers (88.76%). Only 6.87% were NC level courses and about 2% were institute-level diploma courses (Table 3.53).

Table 3.53: Courses listed by 67 OPPTPs by level (Mode of Delivery)

Level	Frequency	Percent
Certificate	853	88.76
NC II	66	6.87
Diploma	19	1.98
NC III	17	1.77
ND I	3	0.31
ND II	2	0.21
NC I	1	0.1
Total	961	100

Until 2019, OPPTPs had catered their programmes to both pre-service and in-service candidates. In all, 31.1% of the courses had targeted pre-service candidates and 10.5% in-service candidates. About 58.4% of 67 training providers had served the demand of both pre-service and in-service groups as illustrated in Figure 3.6.

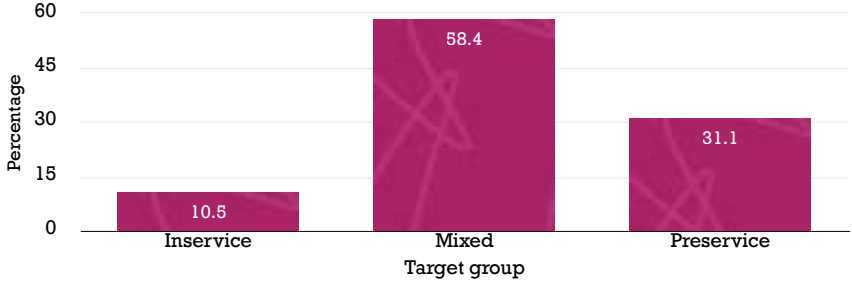


Figure 3.6: Courses offered by 67 OPPTPs by target group (%)

Enrolment in OPPTPs

Sixty-two OPPTPs recorded enrolments in 138 different courses in 2018 (Table 3.53). The most popular training programme was Light Vehicle Driving Training (24.61%).

This particular course came high due to the inclusion of a one-day introductory driving course. The top four enrolments were in courses related to driving. Only 62 TPs had given the enrolment data.

It is observed from Table 3.54 that female trainees constituted about 40.4% of the total enrolments in 2018. This relatively high rate of female enrolment in OPPTs compared to female enrolment in TTIs and IZCs can be explained by course profile. Naturally, most private providers offer courses not requiring a large investment. Courses are mostly related to service occupations that females usually prefer. The heavy courses in construction, manufacturing and production (offered by TTIs) were more popular among males.

Table 3.54: Enrolment by course and sex in 62 OPPTPs (2018)

SLN	Courses	Male		Female		Total	
		Freq	%	Freq	%	Freq	%
1	Light Vehicle Driving Training	1550	50.9	1497	49.1	3047	24.6
2	One Day Introductory Driving Course	1479	78.0	417	22.0	1896	15.3
3	Tourist Vehicle Driving Training	577	97.1	17	2.9	594	4.8
4	Professional Driving Course	461	92.0	40	8.0	501	4.1
5	Cultural Tour Guide	312	85.7	52	14.3	364	2.9
6	Food and Beverages	183	53.0	162	47.0	345	2.8
7	Tally ERP	110	34.4	210	65.6	320	2.6
8	Karate	202	67.6	97	32.4	299	2.4
9	Food Production	87	34.0	169	66.0	256	2.1
10	Security Course	209	82.9	43	17.1	252	2.0
11	Handicraft Items (Tailoring)	23	9.2	227	90.8	250	2.0
12	Information Technology	48	30.4	110	69.6	158	1.3
13	Certificate in Commercial Accounting	50	31.9	107	68.2	157	1.3
14	Office Management	43	28.3	109	71.7	152	1.2
15	Vegetable Production Training	48	37.2	81	62.8	129	1.0
16	Chinese Mandarin Language	90	73.2	33	26.8	123	1.0
17	Refresher Course Computer Application	23	19.5	95	80.5	118	1.0
18	2D and 3D Animation	68	65.4	36	34.6	104	0.8
19	Driglam Namzha Training	70	70.0	30	30.0	100	0.8
20	Front Desk Management	26	27.7	68	72.3	94	0.8
21	Dzongkha Yegdrel and Unicode	55	67.9	26	32.1	81	0.7
22	Action Research*	56	70.0	24	30.0	80	0.7
23	GNH Training	60	75.0	20	25.0	80	0.7

SLN	Courses	Male		Female		Total	
		Freq	%	Freq	%	Freq	%
24	Training on Psychological Flexibility and Well Being	60	75.0	20	25.0	80	0.7
25	Commercial Accountant and Computer Application	14	20.3	55	79.7	69	0.6
26	E-World	15	21.7	54	78.3	69	0.6
27	BCSE Preparatory Class (PE and ME)*	33	52.4	30	47.6	63	0.5
28	CMI Rapid*	16	26.2	45	73.8	61	0.5
29	Customer Care	12	20.0	48	80.0	60	0.5
30	Bakery and Pastry	22	37.3	37	62.7	59	0.5
31	School Agriculture Awareness Program	39	66.1	20	33.9	59	0.5
32	Leadership and Management	40	69.0	18	31.0	58	0.5
33	Media Course	35	60.3	23	39.7	58	0.5
34	Music	26	44.8	32	55.2	58	0.5
35	Training on Team Building Exercise*	30	53.6	26	46.4	56	0.5
36	Certificate in Computer Operation	18	33.3	36	66.7	54	0.4
37	Microsoft Excel	31	57.4	23	42.6	54	0.4
38	Certificate in Computer Application Assistant (CCAA)	23	43.4	30	56.6	53	0.4
39	Creative Teaching-Learning	41	78.9	11	21.2	52	0.4
40	Diploma in Hotel management and Tourism Management	25	50.0	25	50.0	50	0.4
41	Iconography Training	40	80.0	10	20.0	50	0.4
42	Refresher Course for Security	25	50.0	25	50.0	50	0.4
43	Spa Therapy	7	14.9	40	85.1	47	0.4
44	Mushroom Cultivation	35	79.6	9	20.5	44	0.4
45	Visual Effects	23	52.3	21	47.7	44	0.4
46	Project Management/Finance/Appraisal	28	65.1	15	34.9	43	0.4
47	HTML	17	41.5	24	58.5	41	0.3
48	Movie Editing	25	69.4	11	30.6	36	0.3
49	Basic Farm Mechanisation Course for CNR	13	37.1	22	62.9	35	0.3
50	Teaching Children to Think	24	68.6	11	31.4	35	0.3
51	Diploma in Commercial Accounting	6	17.7	28	82.4	34	0.3
52	Trekking Guide	34	100.0	0	0.0	34	0.3
53	Poultry Production	11	33.3	22	66.7	33	0.3
54	Fruit Production	24	75.0	8	25.0	32	0.3
55	Music and Dances	11	35.5	20	64.5	31	0.3

SLN	Courses	Male		Female		Total	
		Freq	%	Freq	%	Freq	%
56	Advance VFX	15	50.0	15	50.0	30	0.2
57	Certificate in Basic Networking	10	33.3	20	66.7	30	0.2
58	Japanese Language Course	24	80.0	6	20.0	30	0.2
59	Shingtshen (Painting)	10	33.3	20	66.7	30	0.2
60	System Development and Network Administration	15	50.0	15	50.0	30	0.2
61	Tshemdrup (Embroidery) Certificate Course	10	33.3	20	66.7	30	0.2
62	Tshemzho (Tailoring) Certificate Course	13	43.3	17	56.7	30	0.2
63	Introduction to GIS	13	44.8	16	55.2	29	0.2
64	Digital Management	8	28.6	20	71.4	28	0.2
65	Inventory Control and Store Management	11	39.3	17	60.7	28	0.2
66	Dairy Production	12	44.4	15	55.6	27	0.2
67	Teaching to Develop Student Competencies	19	73.1	7	26.9	26	0.2
68	Forester	22	88.0	3	12.0	25	0.2
69	Spoken English and Personal Development	16	64.0	9	36.0	25	0.2
70	Performance Management System	14	58.3	10	41.7	24	0.2
71	Sales and Marketing	17	70.8	7	29.2	24	0.2
72	Strategic Leadership	19	79.2	5	20.8	24	0.2
73	Training on Young Adolescents*	10	41.7	14	58.3	24	0.2
74	Workload Analysis	15	62.5	9	37.5	24	0.2
75	Farm machinery Mechanics	23	100.0	0	0.0	23	0.2
76	Furniture making	14	60.9	9	39.1	23	0.2
77	Massage Therapy	5	21.7	18	78.3	23	0.2
78	Farm Machinery Entrepreneurship Development	13	59.1	9	40.9	22	0.2
79	AML/CFT	10	50.0	10	50.0	20	0.2
80	BHL Training	20	100.0	0	0.0	20	0.2
81	Training Based on the Needs	15	75.0	5	25.0	20	0.2
82	Business Plan Development Training	12	63.2	7	36.8	19	0.2
83	Experience Exchange Programme	7	43.8	9	56.3	16	0.1
84	Fruit and Vegetable Processing	0	0.0	19	100.0	19	0.2
85	Operation and Maintenance of Power Tiller	18	94.7	1	5.3	19	0.2
86	Piggery Production	19	100.0	0	0.0	19	0.2

SLN	Courses	Male		Female		Total	
		Freq	%	Freq	%	Freq	%
87	Agriculture Awareness Training for NFE Instructors	9	50.0	9	50.0	18	0.2
88	Automobile	13	72.2	5	27.8	18	0.2
89	Direct Test on Power Tiller and Tractor	18	100.0	0	0.0	18	0.2
90	Housekeeping	3	16.7	15	83.3	18	0.2
91	HPOM	12	66.7	6	33.3	18	0.2
92	Leadership and Management	12	70.6	5	29.4	17	0.1
93	Social Media	11	64.7	6	35.3	17	0.1
94	Strategic Communication (Media)	9	52.9	8	47.1	17	0.1
95	Training on Effective Secretarial and Administration Skills	7	41.2	10	58.8	17	0.1
96	Business Management	7	58.3	5	41.7	12	0.1
97	Finance for Non-Finance	9	56.3	7	43.8	16	0.1
98	Hair and Beauty Therapy	2	12.5	14	87.5	16	0.1
99	Java Script	10	62.5	6	37.5	16	0.1
100	Teaching-Learning	13	81.3	3	18.8	16	0.1
101	Positive Classroom Environment and Use of Language	12	80.0	3	20.0	15	0.1
102	Beautician Course	2	14.3	12	85.7	14	0.1
103	Trade Finance - LC & UCP 600	6	42.9	8	57.1	14	0.1
104	Hardware and Networking	13	100.0	0	0.0	13	0.1
105	Need Analysis	9	69.2	4	30.8	13	0.1
106	Training on Action Research for Dzongkha Teachers	13	100.0	0	0.0	13	0.1
107	Training on Competency Based Assessment	9	69.2	4	30.8	13	0.1
108	Bee Keeping Training	10	83.3	2	16.7	12	0.1
109	Denting and Painting	12	100.0	0	0.0	12	0.1
110	Smart Office Management	1	8.3	11	91.7	12	0.1
111	C/C++ Programming	10	90.9	1	9.1	11	0.1
112	Fashion Design	1	9.1	10	90.9	11	0.1
113	Hair and Skin Care	0	0.0	11	100.0	11	0.1
114	Adobe Photoshop	3	30.0	7	70.0	10	0.1
115	MS Workspace Skills	7	70.0	3	30.0	10	0.1
116	Front Office and Housekeeping	8	100.0	0	0.0	8	0.1
117	Innovative Teaching	5	62.5	3	37.5	8	0.1
118	Operation and Maintenance of Tractor	8	100.0	0	0.0	8	0.1

SLN	Courses	Male		Female		Total	
		Freq	%	Freq	%	Freq	%
119	Applied Phonetics for Effective Communication	6	85.7	1	14.3	7	0.1
120	Database Management	2	28.6	5	71.4	7	0.1
121	Double Entry Book Keeping	7	100.0	0	0.0	7	0.1
122	Haircutting	7	100.0	0	0.0	7	0.1
123	Tailoring	6	100.0	0	0.0	6	0.1
124	Financial Management with IT Skill	0	0.0	5	100.0	5	0.0
125	AutoCAD	4	100.0	0	0.0	4	0.0
126	Diploma in Information Technology	4	100.0	0	0.0	4	0.0
127	Laglen Zhibtsoel	4	100.0	0	0.0	4	0.0
128	Painting	4	100.0	0	0.0	4	0.0
129	Website Development using Wordpress	3	75.0	1	25.0	4	0.0
130	Computer Graphics	2	66.7	1	33.3	3	0.0
131	Web Design	2	66.7	1	33.3	3	0.0
132	Auto cad	0	0.0	2	100.0	2	0.0
133	Ethical Hacking	2	100.0	0	0.0	2	0.0
134	Sales Executive	0	0.0	2	100.0	2	0.0
135	Basic Performance Skill	1	100.0	0	0.0	1	0.0
136	Communication Skills	1	100.0	0	0.0	1	0.0
137	Human Resource Management	1	100.0	0	0.0	1	0.0
138	Mailing System	0	0.0	1	100.0	1	0.0
	Total	7382	59.6	4998	40.4	12380	100.0

** Some courses are presumably not related to TVET*

About 79% of enrolment in 62 registered OPPTPs in 2018 were institutional certificate courses (not certified by DOS) as given in Table 3.55. The second-highest enrolment was observed in NC II (20%). The enrolments in other levels were insignificant.

Table 3.55: Enrolment in 62 OPPTs by sex and level/Mode of Delivery (2018)

Level	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Certificate	3993	41	5752	59	9745	78.7
NC II	939	37.9	1538	62.1	2477	20
NC III	10	22.2	35	77.8	45	0.4
ND II	25	50	25	50	50	0.4

Level	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Diploma	28	73.7	10	26.3	38	0.3
NC II & NC III	3	12	22	88	25	0.2
Total	4998	40.4	7382	59.6	12380	100.0

The higher educational qualification helps trainees in their personnel development and career development. Figure 3.7 shows educational qualification of trainees of 55 OPPTs. About 43.75% of trainees were class XII graduates and 30.15% were class X graduates. Around 8% had some university degree and 2.81% diploma.

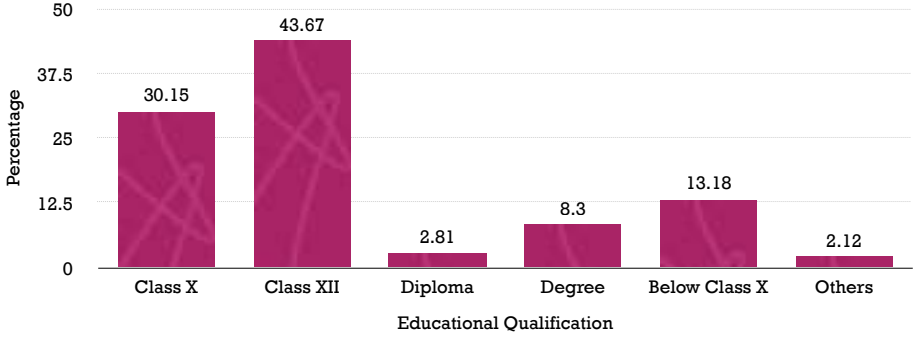


Figure 3.7: Qualification of individuals enrolled in 55 OPPTs, 2018

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

Table 3.56 highlights Gross Enrolment Ratio (GER) and Gender Parity Index (GPI) by course of 62 OPPTPs in 2018. Some training providers did not have a complete set of enrolment data of 2018. In such case, the data of 2019 was considered. The qualification of the trainees were mix of class X, XII, diploma, degree and below class X. Thus, instead of taking the population of age group (17-20) like in case of TTIs and IZCs, the population of age group 15-24 as the base population. In 2017, there were 75,754 males and 67,947 females in the age group 15-24, making the total of 143,701.

Some important observations were: (1) annual GERs of OPPTPs were higher than annual GERs of TTIs and IZCs; (2) average GPI was 0.75, almost double of TTIs and IZCs; and (3) among OPPTPs, Fashion Institute of Technology and Druk Tshemzo Training Institute had the highest GPIs. GPIs of other OPPTPs are given in the table below in descending order.

Table 3.56: Enrolment, GERs and GPIs of 62 OPPTPs (2018)

SLN	Institute/Training Provider	Male	Female	Total	GER	GPI
1	Fashion Institute of Technology (FIT)	1	10	11	0.01	11.15
2	Druk Tshemzo Training Institute	23	227	250	0.17	11.00
3	Druk Institute of Management Technology	27	160	187	0.13	6.61
4	Norbu International Wellness Institute*(2019)	7	32	39	0.03	5.10
5	Eastern Computer Training Centre	10	39	49	0.03	4.35
6	Dorji International Training Institute	54	121	175	0.12	2.50
7	NLD Training Institute	75	156	231	0.16	2.32
8	Rigsum Institute of Technical Education and Management Studies	174	362	536	0.37	2.32
9	Choki Traditional Art School	30	60	90	0.06	2.23
10	Niche Institute of Management and Technology	2	4	6	0.00	2.23
11	Royal Academy of Performing Arts	11	20	31	0.02	2.03
12	Computer and Management Institute	169	308	477	0.33	2.03
13	GPY Computer Training Institute	42	65	107	0.07	1.73
14	Pema Driving Training Institute	225	314	539	0.38	1.56
15	Learn Zone Institute	8	11	19	0.01	1.53
16	Kesang Diving Institute	24	32	56	0.04	1.49
17	Jigyang Driving Training Institute	20	26	46	0.03	1.45
18	Kilu Bhutan Music School	26	32	58	0.04	1.37
19	Bhutan International School of Hospitality and Tourism	56	63	119	0.08	1.25
20	Eastern Driving Training Institute	31	34	65	0.05	1.22
21	Sunrise Driving Institute	78	83	161	0.11	1.19
22	Karsel Dawa Driving Training Institute*(2019)	77	80	157	0.11	1.16
23	Dechen IT and Management Institute	43	44	87	0.06	1.14
24	Royal Institute of Hospitality and Tourism	25	25	50	0.03	1.11
25	Athang Training Academy	45	45	90	0.06	1.11
26	RTC Training and Professional Services	46	46	92	0.06	1.11
27	Rural Development Training Centre	252	225	477	0.33	1.00
28	Professional Skills Institute	14	11	25	0.02	0.88
29	Bhutan Institute for Training and Development (BITAD)	69	54	123	0.09	0.87
30	Financial Institutions Training Institute Limited	151	117	268	0.19	0.86

SLN	Institute/Training Provider	Male	Female	Total	GER	GPI
31	Sacho-Gaa Driving Training Institute	229	174	403	0.28	0.85
32	Yarab Institute for Hospitality Management	195	144	339	0.24	0.82
33	Bhutan Media and Communications Institute	52	37	89	0.06	0.79
34	Bongde Institute of Hospitality and Tourism	55	49	104	8.62	0.75
35	Heruka Security Services	51	34	85	0.06	0.74
36	Wood Craft Centre Ltd	14	9	23	0.02	0.72
37	Karma Driving Training Institute	67	35	102	0.07	0.58
38	Sompal Driving Training Institute*(2019)	79	39	118	0.08	0.55
39	Bhutan Institute for Martial Arts	202	97	299	0.21	0.54
40	Institute for Excellence and Development	239	106	345	0.24	0.49
41	USD Driving Training (Thimphu)	492	210	702	0.49	0.48
42	Gangjung Driving Centre of Excellence	1869	742	2611	1.82	0.44
43	Guide Association of Bhutan	225	85	310	0.22	0.42
44	iBEST Institute of Media, Management and Technical Studies	92	35	127	0.09	0.42
45	Tacho Bala Ha Driving Training Institute	105	40	145	0.10	0.42
46	Agriculture Machinery Training Centre*(2019)	93	32	125	0.09	0.38
47	Bhutan Institute of International Language, IT and Management	47	16	63	0.04	0.38
48	Institute of Information Technology Management	21	6	27	0.02	0.32
49	Sachog Driving Institute	171	49	220	0.15	0.32
50	Gangchen Language and Management Institute	32	9	41	0.03	0.31
51	Ugyen International Language and Culture Training Institute	157	41	198	0.14	0.29
52	USD Driving School (Phuentsholing)	470	110	580	0.40	0.26
53	Lekdrup Skills Development Institute	25	5	30	0.02	0.22
54	Jachung Security Service Pvt Ltd	183	34	217	0.15	0.21
55	Advanced Institute for Tourism	104	16	120	0.08	0.17
56	Ugyen Wangchuck Institute for Conservation and Environmental Research	22	3	25	0.02	0.15
57	Institute for Professional Studies	111	14	125	0.09	0.14
58	Youth Development and Rehabilitation Centre	21	1	22	0.02	0.05
59	Phunsum Driving Institute	95	3	98	0.07	0.04
60	JCB Operator Training Centre	20	0	20	0.01	0.00
61	Sacho Driving Training Institute	35	0	35	0.02	0.00

SLN	Institute/Training Provider	Male	Female	Total	GER	GPI
62	Tenzin's Hair & Beauty Academy	0	11	11	0.01	
	Total	7388	4992	12380	8.62	0.75

** The data of 2019 was used in place of 2018's data as some TPs were not able to provide 2018's data.*

Graduate Statistics of OPPTPs (2008-2019)

The number of graduates produced represents the outcomes of TVET access and participation as well as quality. The data of dropouts and repeaters would have better informed TVET effectiveness but many of OPPTPs as well could not furnish these data. Table 3.57 reports the graduation statistics by sex and year. It includes the statistics of only 56 OPPTPs. Some major observations were (1) in total 22,465 graduates were recorded from 56 OPPTPs between 2008 and 2019 and (2) there were slightly more male (57.92%) than female graduates (42.08%).

Table 3.57: Graduates by sex and year (56 OPPTPs)

Year	Male		Female		Total
	Freq.	%	Freq.	%	
2008	62	93.94	4	6.06	66
2009	129	83.23	26	16.77	155
2010	212	82.81	44	17.19	256
2011	275	63.07	161	36.93	436
2012	422	67.52	203	32.48	625
2013	292	53.68	252	46.32	544
2014	572	62.24	347	37.76	919
2015	1041	63.63	595	36.37	1636
2016	862	52.21	789	47.79	1651
2017	3113	59.40	2128	40.60	5241
2018	4147	54.18	3507	45.82	7654
2019	1885	57.43	1397	42.57	3282
Total	13012	57.92	9453	42.08	22465

The data shows some trend when it is represented in the graph. Graduation had increased from 2008 to 2018 (Figure 3.8). The sharp increase was observed in 2017 and 2018. It dropped steeply in 2019. This steep drop in 2019 could be partly because the data were collected before the year ended.

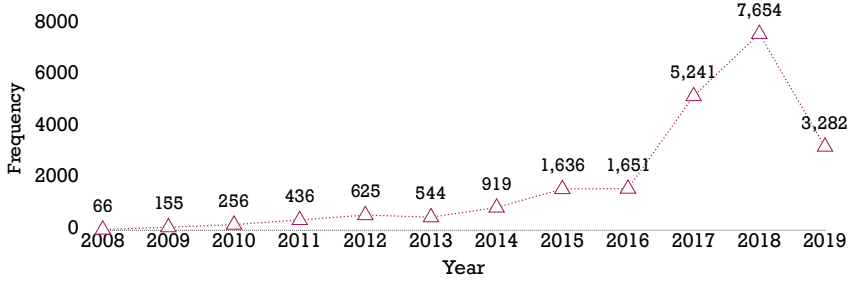


Figure 3.8: Graduation trend (2008-2019) in 56 OPPTs (aggregated)

OPPTP's graduation data are presented by respective training providers in Table 3.58. The data is only for 2018. Athang Training Academy and Ganjung Driving Centre recorded the highest numbers of graduates in 2018.

Table 3.58: Graduates by OPPTP (2018)

SLN	Institute/Training Provider	Year	Male	Female	Total
1	Athang Training Academy	2018	1375	241	1616
2	Gangjung Driving Centre of Excellence	2018	1310	216	1526
3	Agriculture Machinery Training Centre	2018	282	854	792
4	USD Driving Training Institute,Thimphu	2018	368	205	573
5	Pema Driving Training Institute	2018	225	314	539
6	Rural Development Training Centre	2018	252	225	477
7	Computer & Management Institute	2018	160	280	440
8	Institute for Excellence and Development	2018	239	106	345
9	Bhutan Institute of Information Technology and Management	2018	227	96	323
10	Financial Institutions Training Institute Limited	2018	151	117	268
11	Druk Tshemzo Training Institute	2018	23	227	250
12	USD Driving Training Institute	2018	220	15	235
13	Jachung Security Service Pvt Ltd	2018	183	34	217
14	Sacho Driving Training Institute	2018	112	97	209
15	Ugyen International Language and culture Training Institute	2018	157	41	198
16	Institute for Professional Studies	2018	170	22	192
17	Druk Institute of Management Technology	2018	27	155	182
18	Karma Driving Training Institute	2018	102	57	159

SLN	Institute/Training Provider	Year	Male	Female	Total
19	Karsel Dawa Driving Training Institute	2018	80	77	157
20	Guide Association of Bhutan	2018	109	29	138
21	Tacho Bala Ha Driving Training Institute	2019	85	24	109
22	Advanced Institute for Tourism	2018	85	13	98
23	Phunsum Driving Institute	2019	88	2	90
24	Bhutan Institute of Training and Development	2018	42	39	81
25	Bhutan Media & Communications Institute	2018	43	32	75
26	Sunrise Driving Institute	2019	43	30	73
27	Eastern Driving Training Institute	2018	31	34	65
28	NLD Training Institute	2018	26	34	60
29	Kesang Diving Institute	2018	24	32	56
30	Norbu International Wellness Institute	2018	7	47	54
31	Tenzin's Hair & Beauty Academy	2016	2	49	51
32	Royal Institute of Tourism and Management	2018	25	25	50
33	Eastern Computer Training Centre	2018	10	39	49
34	Institute of Information Technology Management	2016	30	18	48
35	Jigyang Driving Training Institute	2018	20	21	41
36	GPY Computer Training Institute	2018	14	22	36
37	Lekdrup Skills Development Institute	2018	25	5	30
38	Professional Skills Institute	2018	14	11	25
39	Ugyen Wangchuck Institute for Conservation and Environmental Research	2018	22	3	25
40	Royal Academy of Performing Arts	2018	14	9	23
41	Wood Craft Centre	2018	13	10	23
42	JCB Operator Training Centre	2018	20	0	20
43	Youth Development and Rehabilitation Centre	2018	10	0	10
44	Fashion Institute of Technology	2019	1	8	9
45	Gangchen Language & Management Institute	2018	7	0	7
		Total	6473	3915	10044

Trainees-Female Trainers Ratio (2018)

It is important to conduct training by both male and female trainers. Having more female trainers reflect the appreciation and acceptance of females' roles in TVET. Eighteen OPPTPs had not reported any female trainer. Some OPPTPs had more than

100 trainees per female trainee (Table 3.59). The trainees-female trainers' ratios were better among TTIs and IZCs.

Table 3.59: Trainee-Female Trainer ratios (2018)

SLN	Institute/Training Provider	No. of Female Trainers	No. of Trainees	Trainee-Female Trainer Ratio
1	Professional Skills Institute	1	3	3:1
2	Niche Institute of Management and Technology (deregistered)	2	6	3:1
3	Ugyen Wangchuck Institute for Conservation and Environmental Research	5	25	5:1
4	Royal Institute of Hospitality and Tourism	10	50	5:1
5	Tenzin's Hair & Beauty Academy	2	11	6:1
6	Wood Craft Centre Ltd	1	9	9:1
7	Norbu International Wellness Institute	6	54	9:1
8	Royal Academy of Performing Arts	3	31	10:1
9	Learn Zone Institute	1	10	10:1
10	JCB Operator Training Centre	2	20	10:1
11	Kilu Bhutan Music School	2	28	14:1
12	Bongde Institute of Hotel and Tourism	3	42	14:1
13	Bhutan Media & Communications Institute	4	71	18:1
14	Choki Traditional Art School	5	90	18:1
15	Athang Training Academy	3	60	20:1
16	Bhutan International School of Hospitality & Tourism	6	119	20:1
17	Institute of Information Technology Management	1	20	20:1
18	Phunsum Driving Institute	1	23	23:1
19	Yarab Institute for Hospitality Management	6	170	28:1
20	Youth Development and Rehabilitation Centre	1	28	28:1
21	NLD Training Institute	4	116	29:1
22	Eastern Computer Training Centre	2	40	20:1
23	Druk Tshemzo Training Institute	11	250	23:1
24	Global Computer Training Centre	1	30	30:1
25	Advanced Institute for Tourism	2	74	37:1
26	Financial Institutions Training Institute Limited	8	297	37:1
27	Dorji International Training Institute	5	187	37:1
28	Agriculture Machinery Training Centre	3	125	42:1
29	Druk Institute of Management Technology	3	129	43:1
30	Bhutan Institute for Training and Development	1	51	51:1

SLN	Institute/Training Provider	No. of Female Trainers	No. of Trainees	Trainee-Female Trainer Ratio
31	Institute for Professional Studies	4	140	35:1
32	Sacho Driving Training Institute	1	35	35:1
33	RTC Training and Professional Services	2	92	46:1
34	Kesang Diving Institute	1	56	56:1
35	Rigsum Institute of Technical Education & Management Studies	1	60	60:1
36	Karsel Dawa Driving Training Institute	1	77	77:1
37	Bhutan Institute for Martial Arts	1	101	101:1
38	Computer & Management Institute	3	477	159:1
39	Ugyen International Language and Culture Training Institute	1	198	198:1
40	Sacho-Gaa Driving Training Institute	2	403	202:1
41	iBEST Institute of Media, Management and Technical Studies	3	671	224:1
42	Institute for Excellence and Development	1	345	345:1
43	Rural Development Training Centre	1	477	477:1
44	Dechen IT & Management Institute	0	87	
45	Gangjung Driving Centre of Excellence	0	732	
46	Ghadyen Driving Training Institute	0	44	
47	Fashion Institute of Technology	0	10	
48	Guide Association of Bhutan	0	138	
49	Heruka Security Services	0	50	
50	Sompal Driving Training Institute	0	25	
51	Sunrise Driving Institute	0	21	
52	Bhutan Institute of International Language, IT and Management	0	63	
53	Eastern Driving Training Institute	0	65	
54	Gangchen Language & Management Institute	0	41	
55	GPY Computer Training Institute	0	107	
56	Jachung Security Service Pvt Ltd	0	217	
57	Jigyang Driving Training Institute	0	46	
58	Karma Driving Training Institute	0	102	
59	Lekdrup Skills Development Institute	0	30	
60	Pema Driving Training Institute	0	359	
61	Tacho Bala Ha Driving Training Institute	0	145	
62	USD Driving Training (Thimphu)	0	702	


BROTHER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SECTION 04

TVET Quality Indicators

The TVET Quality indicators measure the ability of training providers to prepare trainees for the world of work. The IAG-TVET (2008) had proposed some areas that concern TVET quality. These areas are teaching quality, resources availability, the competence of TVET instructors and graduates. The capacity of TPs to provide the best teaching-learning environment can as well affect the TVET quality. Above all, the presence of the systematic approach to quality assurance (2008) is crucial. Some of these areas are difficult to quantify. They may have to be substantiated by some qualitative assessments.

The TVET performance indicators are usually linked to assessment, accreditation, certification and rankings. These indicators can be used to assess how training providers are doing against external standards. Bhutan's TVET system is yet to improve these performance indicators and their uses. The available data are not sufficient to assess the relationship between institutional characteristics and learners' outcomes.

This section emphasises 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 on-going online 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

Various initiatives were undertaken since the early 2000s to improve TVET quality and relevance. Some main initiatives and reforms are compiled in Table 4.1. These initiatives/reforms are not presented in the chronological order as some years could not be ascertained at the time of finalising this report.

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	Established 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	Developed National Assessment and Certification System
10	Implemented Recognition of Prior Learning (RPL)
11	Developed Quality Assurance Framework
12	Developed Quality Management Manuals for TVET Providers
13	Curriculum Development, Training of Trainers (ToT) and CBT
14	Quality Management System (QMS) implemented in the TTIs/IZCs to improve internal efficiency of TPs
15	Qualifications up-gradation of trainers were carried out with the objective to improve the quality of training delivery in TTIs and IZCs
16	Introduced entrepreneurship courses in TTIs and IZCs
17	Introduced green skills programme in TTIs and IZCs
18	Initiated reform in delivering alternate mode of training
19	Decentralised trainee recruitment process to TTIs and IZCs
20	Strengthened and expanded the alternative modes of TVET delivery through ATP, Skills Training Programme (STP) and SSDP) in 9th FYP
21	Rebranding of STPs through 'Get skilled for work and life' slogan in the 11th FYP
22	Youth Employment Skills (YES), Graduate Skills Programme (GSP) and Skills for Employment and Entrepreneurship Development (SEED) were introduced
23	External participation framework developed and incorporated in the Establishment Regulation to encourage foreign direct investment in TVET delivery
24	A separate guideline for establishment of Nursing Institute developed in partnership with Bhutan Medical and Health Council (BMDC) and launched in 2012
25	Instituted TVET Advisory Body and Industry Liaison and Publicity Units (ILPU)
26	Industries participated in various activities like development of National Competency Standards (NCS), curriculum, assessment, On-the-Job-Training (OJT), accreditation and auditing of QMS
27	Constituted Technical Advisory Committees in 11 sectors to validate NCS
28	Trained industry skilled supervisors to guide and monitor trainees while on OJT in industries
29	Initiated on–campus recruitment by inviting employers to institutes

SLN	Initiatives/Reforms
30	Introduced the Regulation for Registration of Training Providers-2010
30	Developed Guidelines for Accreditation of Course (2011)
31	Developed Guidelines for Training of Trainers (Technical Instruction & Pedagogy (2018)
32	Identified Zorig Day and celebrated at national level since 2002
33	Introduced TVET Convocation in 2012
34	Branding of TVET using the slogans 'Be Somebody!' and 'One–One–Zero'
35	Implemented Skills Competition since 2002
36	Career counselling of TVET initiated at secondary level school and communities in 2011
37	Introduced TVET Innovation competition in 2014
38	Initiated TVET Winter Camp in 2015
39	Approval of Youth Engagement for Livelihood Programmes (2018-2019)
40	Approval of National Service Program (2018-2019)
41	Approval of Employment Responsibility System (2018-2019)
42	Approval of CSI and Startup Flagship Programmes (2018-2019)
43	Initiated development of TVET database (On-going)
44	Initiated registration of employer and employees of private and corporate sectors (2018-2019)
45	Conducted review and amendment of the Regulation on Training Provider (2018-2019)
46	Developed Framework and Guideline for the implementation of Dual Training Programme (2018-2019)
47	Introduced gender-inclusive courses (2018-2019)
48	Initiated the first-ever Multi-Cohort Online TVET Tracer (On-going)
49	Initiated groundwork for developing TVET database and TVET MIS

Source: TVET Sector Assessment Report, 2016 & Annual Report for the Fiscal Year 2018-2019, MoLHR

During the 12th FYP, MoLHR is responsible for implementing two of the seventeen National Key Result Areas (NKRAs). Two NKRAs concerns the improvement of TVET quality and relevance. These are (I) Productive and gainful employment created, and (ii) Quality of education and skills improved. MoLHR is the lead agency for implementing NKRA I and is to collaborate with MOE to implement NKRA II. Two NKRAs are measured through sixteen broad Key Performance Indicators (KPIs). These KPIs are related to various activities at the agency level. They are implemented through Annual Performance Agreements (APAs). Sixteen broad areas are listed in Table 4.2. The report might provide statistics for these sixteen KPIs.

Table 4.2: Sixteen Key Result Areas (KRA) for 12th FYP

SLN	Activities	Plan Targets	FY 2018-19 Targets
1	Number of Young people trained in entrepreneurship development programmes	2100	0
2	Number of new startups businesses established	420	0
3	Number of jobs created through new business Startups	1260	0
4	Number of youths placed through overseas employment programmes	6000	700
5	Number of youth engaged through Youth Engagement for Livelihood Program (YELP)	6330	330
6	Number of jobs facilitated	52930	9714
7	Number of job seekers enrolled in the skills training programme	3320	120
8	Percentage of students enrolled in TVET Institutes	20	10
9	Number of subjects/programmes diversified to meet 21st century needs	30	4
10	Percentage of TVET Instructors with diploma and above	>85	67
11	Percentage of TTIs and IZCs graduates awarded national certificates	>95	>95
12	Percentage of TVET graduates/skilled workers assessed through BVQF	100	100
13	Number of TVET Institutions accredited by National/Regional/International bodies	6	0
14	Number of incidences of occupational hazards/ injuries	<20	27
15	Number of enterprises with Internal Service Rules	700	140
16	Percentage of employees under Provident Fund scheme	100	67.4

Source: Annual Report for Fiscal Year 2018-2019

The activities number 9, 10, 11, 12, and 13 above are aimed at improving TVET quality. Some outcomes would depend on the strict implementation of the Quality Assurance System (QAS). Figure 4.1 provides the abridged version of the QAS. DOS is responsible for (i) implementation of BVQF; (ii) registration of the TVET system (providers, trainers, accreditors and assessors), (iii) development and implementation of the accreditation system (course and assessment centre); and (iv) quality management and assurance (QMS and quality auditing).

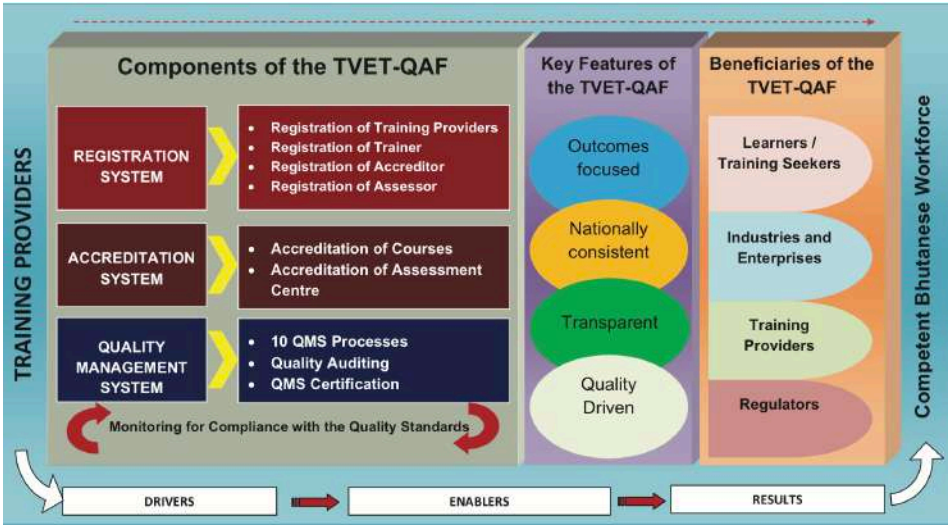


Figure 4.1: TVET Quality Assurance Framework of Bhutan

Extracted from TVET-Quality Assurance Framework (QAF), DOS

The curriculum development is integral to improving TVET quality. In recent years, the progress had been made towards the Competency-Based Curriculum (CBT). The TVET Professional Service Division (TPSD) and DOS are responsible for curriculum development processes. The industries, TVET experts and other stakeholders are involved in curriculum development. CBT is built upon the National Competency Standard (NCS). It adheres to standard curriculum development guidelines. CBT focuses on imparting skills and subsequent assessment as per on the industry work standards. DTE has developed more than 100 CBT curricula at NC II, NC II, ND I and ND II levels and nine short courses (Table 4.3). Details of the curriculum are annexed.

Table 4.3: CBT curriculum (as of October 2019)

SLN	Course	Level
1	Auto Electrician	NC II & NC III
2	Auto Air Conditioning Mechanic	NC III
4	Automobile upholster	NC II & NC III
5	Auto Mechanic(Light)	NC II & NC III
6	Earthmoving Equipment Mechanic	NC II & NC III

SLN	Course	Level
7	Auto Mechanic	NC II & NC III
8	Penal Beater	NC II & NC III
9	Automobile Painter	NC II
11	Agriculturist (Mushroom)	NC II
12	Agriculturist (Poultry)	NC II
13	Agriculturist (Vegetable)	NC II
14	Farm Machinery Technician	NC II & NC III
15	Power Tiller Operator	NC II
16	Power Tiller Mechanic	NC II & NC III
17	Forester	NC II & NC III
18	Commercial Accountant (Diploma)	ND I & ND II
19	Sales Person	NC II
20	Commercial Accountant	NC II & NC III
21	Asphalt Plant Operator	NC II & NC III
22	Blaster	NC II
23	Building Painter	NC II & NC III
24	Bulldozer Operator	NC II & NC III
25	Excavator Operator	NC II & NC III
26	Road Roller Operator	NC II & NC III
27	Surveyor	NC II & NC III
28	Construction Supervisor	ND I & ND II
29	Road Maintenance Worker	NC I
30	Construction Assistant	NC I
31	Pay Loader Operator	NC II & NC III
32	Mason	NC II & NC III
33	Plumber	NC II & NC III
34	Backhoe Operator	NC II & NC III
35	Construction Carpenter	NC II & NC III
36	Electrician (Hydropower Plant)	NC II & NC III
37	Mechanic(Hydropower Plant)	NC II & NC III
38	Operator (Hydropower Plant)	NC II & NC III
39	Hydropower Mechanical Technician	NC II & NC III
40	Hydropower Instrumentation Technician	NC III
41	Computer Hardware & Network Technician	NC II & NC III
42	Cable TV Technician	NC II & NC III

SLN	Course	Level
43	Animator	NC II & NC III
44	Computer Application Assistant	NC II & NC III
45	Visual Effects Artist	NC III
46	Mobile Application Developer	NC III
47	Polymer Loom Operator	NC II
48	Polymer Tape Plant Operator	NC II
49	Refrigeration & Air Conditioning Technician	NC II & NC III
50	Store Keeper	NC II
51	Control Room Operator	NC II
52	Cement Plant Attendant	NC II
53	Lab Technician	NC II
54	Boiler Operator	NC II
55	Metal Worker	NC II
56	Home Appliances Repair Technician	NC II & NC III
57	Mobile Phone Technician	NC II & NC III
58	Fashion Designer	NC III
59	Mechanical Fitter	NC II & NC III
60	Welder	NC II & NC III
61	Electrician (Cement Industries)	NC II
62	Instrumentation Technician	NC II
63	Electrician	NC II & NC III
64	Transmission & Distribution Lineman	NC II & NC III
65	Substation Operator	NC II
66	Power Cable Technician	NC II
67	House Keeper	NC II & NC III
68	Nature Guide	NC III
69	Trekking Guide	NC III
70	Food Production Associate	NC II & NC III
71	Cultural Tourist Guide	NC II
72	Trekking Cook	NC II
73	Tour Operation Supervisor	ND II
74	Hotel Operation Supervisor	ND II
75	Baker	NC II & NC III
76	Bhutanese Food Production Associate	NC II & NC III
77	Food & Beverage Associate	NC II & NC III

SLN	Course	Level
78	Front Office Associate	NC II & NC III
79	Massage Therapist	NC II & NC III
80	Hair & Beauty Therapist	NC II
81	Driver (Light Vehicle)	NC II
82	Driver (Heavy Vehicle)	NC II
83	Professional Driver	NC II
84	Trainer (TVET)	ND I & ND II
85	Wooden Furniture Maker	NC II & NC III
86	Upholsterer	NC II & NC III
87	Dozop	NC I, NC II & NC III
88	Shingzop	NC I, NC II & NC III
89	Tshemzop	NC II & NC III
90	Shagzop	NC II & NC III
91	Trezop	NC II & NC III
92	Jimzop (Sculptor)	NCII, NC II, ND I & ND II
93	Tsemdrup	NC II & NC III
94	Patrap	NC II & NC III
95	Lhadip	NC III and ND II
96	Shingtshen	NC II
97	Thagzop	NC II & NC III
98	Wind Power	Short Course
99	UG Power Cable Trenching, Laying and Termination	Short Course
100	Repair, Maintenance and Commissioning of Transformer	Short Course
101	Installation, Testing and Maintenance of Diesel Generator	Short Course
102	Power System Operation, Control & Protection	Short Course
103	Power Plant Management	Short Course
104	Occupational Health and Safety in Power System	Short Course
105	Advanced Welding	Short Course

Source: TVET-QAMIS, DOS, MoLHR, 2019

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

equipment and qualified trainers. The details of registered TPs were given in section II.

Course Accreditation

The QAS is implemented through the accreditation of TVET courses. It marks the approval of TVET courses after meeting the standards developed by experts in the field. The course accreditation ensures that every graduating trainee acquires some minimum skills and competence for the actual practice. The course accreditation helps in quality monitoring and improvement of courses. Table 4.4 shows that out of 115 registered TPs, 40 offered accredited courses at NC and ND levels as of October 2019. TTIs and IZCs offered the highest number of accredited courses. JWPTI had listed the highest number of 15 accredited courses (16.48%) out of 92 accredited courses in 2019.

Table 4.4: Registered training providers by accredited courses (as of October 2019)

SLN	Training Provider/Institute	Number	%
1	Jigme Wangchuck Power Training Institute-Dekiling	15	16.48
2	National Institute of Zorig Chusum	7	7.69
3	Technical Training Institute-Ranjung	5	5.49
4	College of Zorig Chusum (CZC)	5	5.49
5	Technical Training Institute-Thimphu	4	4.40
6	Technical Training Institute-Chumey	4	4.40
7	Rigsum Institute of Technical Education & Management Studies	4	4.40
8	Technical Training Institute-Khuruthang	3	3.30
9	Sacho Driving Training Institute	3	3.30
10	Yarab Institute for Hospitality Management	3	3.30
11	Advanced Institute for Tourism	2	2.20
12	Druk Institute of Management and Technology	2	2.20
13	NLD Training Institute	2	2.20
14	Technical Training Institute-Samthang	3	3.30
15	Sunrise Driving Institute	2	2.20
16	Ugyen International Language and Culture Training Institute	2	2.20
17	Ugyen Wangchuck Institute for Conservation and Environment	2	2.20
18	Bhutan Institute of Himalayan Studies	1	1.10
19	Bhutan Institute of International Language, IT and Management	1	1.10
20	Bhutan Institute of Tourism and Hospitality	1	1.10
21	Bhutan International School of Hospitality & Tourism	1	1.10
22	Centre for Professional Development	1	1.10
23	Dorji International Training Institute	1	1.10

SLN	Training Provider/Institute	Number	%
24	Druk Tshemzo Training Institute	1	1.10
25	Gangchen Language and Management Institute	1	1.10
26	Gangjung Centre for Excellence	1	1.10
27	Institute for Professional Excellence	1	1.10
28	Karma Driving Training Institute	1	1.10
29	Karsel Dawa Driving Training Institute	1	1.10
30	Kinzang Driving Training Institute	1	1.10
31	Kunjung Institute of Technology and Innovation	1	1.10
32	Learn Zone Institute	1	1.10
33	Lekdrup Skill Development Institute	1	1.10
34	USD Driving School-Phuentsholing	1	1.10
35	Puensum Driving Institute	1	1.10
36	Sacho Ga Driving Training Institute	1	1.10
37	Star Tourism Institute	1	1.10
38	Tacho Bala Ha	1	1.10
39	Tacho Bala Ha Driving Training Institute	1	1.10
40	USD Driving Training Institute-Thimphu	1	1.10
	Total	92	100.00

Source: TVET-QAMIS, DOS, MoLHR, 2019

As given in Table 4.5, courses in Driving (15) and Cultural Tourist Guide (11) recorded the highest number of accreditation. Ninety-two courses in 29 occupations were accredited as of 2019.

Table 4.5: Accredited courses by trade (2019)

SLN	Course	Frequency	%
1	Professional Driving	14	15.22
2	Cultural Tourist Guide	11	11.96
3	Tshemzo (Tailoring)	5	5.43
4	Automobile	4	4.35
5	Computer Application Assistant	4	4.35
6	Construction Carpentry	4	4.35
7	Masonry	4	4.35
8	Plumbing	4	4.35
9	Welding	4	4.35
10	Commercial Accountant	3	3.26
11	Computer Hardware Technician	3	3.26

SLN	Course	Frequency	%
12	Electrician	3	3.26
13	Food Production	3	3.26
14	Furniture Making	3	3.26
15	Lhadi (Painting)	3	3.26
16	Trekking Guide	3	3.26
17	Forester	2	2.17
18	Front Office Associate	2	2.17
19	Jimzo (Sculpture)	2	2.17
20	Mechanical	2	2.17
21	Patra (Carving)	2	2.17
22	Auto Painting	1	1.09
23	Heavy Vehicle Driving	1	1.09
24	Light Vehicle Driving	1	1.09
25	Nature Guide	1	1.09
26	Panel Beater	1	1.09
27	Transmission and Distribution Lineman	1	1.09
28	Trezo (Metal Smith)	1	1.09
29	Tshemdru (Embroidery)	1	1.09
	Total	92	100.00

Source: TVET-QAMIS, DOS, MoLHR, 2019

Figure 4.2 shows courses accredited by year. The highest number of course accreditation was done in 2018 followed by in 2019.

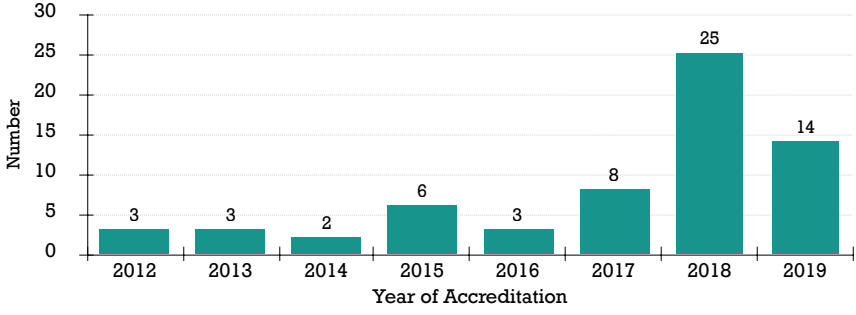


Figure 4.2: Course accreditation by year

Source: TVET-QAMIS, DOS, MoLHR, 2019

Registered Trainers, Accreditors and Trainers

A pool of technical trainers, accreditors and assessors are imperative for consistent delivery of quality TVET. They must be competent in trade qualifications. They are required to have enough knowledge and skills in training, accreditation and assessment methodologies. A TVET trainer's main role is to ensure that learners develop trade competencies. The trainer may serve as a training facilitator, 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 to deliver TVET training. TOT in Technical Instruction and Pedagogy is another important criteria. The data shows that many trainers, especially the fresh recruits had not availed TOT certification by 2019. TOT cannot be 100% achieved owing to a high turnover rate of trainers.

Table 4.6 presents the registered trainers by TPs. As of 2019, out of 204 registered trainers, 54 were certified to train certificate level courses, 37 at NC II, 54 at NC III and 59 at ND levels and institutional diplomas. JWPTI had recorded the highest number of registered trainers (23). The data further shows that only 32 registered TPs had registered trainers as of 2019. This gap might impact the delivery of quality TVET programmes.

Table 4.6: Trainers certified to deliver different course level by TP (as of 2019)

SLN	Institute/Training Provider	Cert.	NC II	NCI II	ND/ Dip.	Total
1	Jigme Wangchuck Power Training Institute	1	1	16	5	23
2	National Institute of Zorig Chusum (NIZC)	1	1	0	18	20
3	Technical Training Institute-Chumey	8	4	4	1	17
4	College of Zorig Chusum (CZC)	5	3	0	9	17
5	Technical Training Institute-Khuruthang	1	2	8	3	14
6	Ugyen Wangchuck Institute for Conservation and Environment	0	0	11	2	13
7	Agriculture Machinery Training Centre	8	3	0	0	11
8	Technical Training Institute-Rangjung	0	11	4	0	15
9	Rigsum Institute of Technical Education & Management Studies	4	1	0	4	9
10	Technical Training Institute-Samthang	1	3	3	2	9
11	Technical Training Institute-Thimphu	0	4	2	3	9
12	Choki Traditional Art School	6	0	0	0	6
13	Royal Institute for Tourism and Hospitality	0	0	0	5	5
14	Computer & Management Institute	0	1	1	2	4
15	iBEST Institute of Media, Management and Technical Studies	3	0	1	0	4

SLN	Institute/Training Provider	Cert.	NC II	NCI II	ND/ Dip.	Total
16	Yarab Institute for Hospitality Management	3	0	0	1	4
17	Athang Training Academy	3	0	0	0	3
18	Bhutan International School of Hospitality & Tourism	2	1	0	0	3
19	Dorji International Training Institute	0	1	0	1	2
20	Druk Tshemzo Training Institute	0	0	2	0	2
21	Eastern Computer Training Centre	2	0	0	0	2
22	Financial Institutions Training Institute Limited	1	0	0	1	2
23	GPY Training Institute	0	0	1	1	2
24	Advanced Institute for Tourism	0	1	0	0	1
25	Bhutan Institute of International Language, IT and Management	1	0	0	0	1
26	Bhutan Institute of Tourism and Hospitality	1	0	0	0	1
27	Institute for Professional Studies	0	0	1	0	1
28	Kunjung Institute of Technology & Innovation	0	1	0	0	1
29	Niche Institute of Management & Technology (deregistered)	1	0	0	0	1
30	NLD Training Institute	0	0	0	1	1
31	Shacho Driving Training Institute	1	0	0	0	1
32	Thimphu TechPark Ltd	1	0	0	0	1
	Total	54	37	54	59	204

Source: TVET-QAMIS, DOS, MoLHR, 2019

Most trainers among 199 registered trainers by 2019 were specialised in training of 53 trades. Among 53 trades, top specialisations were in electrical, forestry, automobile and tailoring fields. The details are shown in Table 4.7.

Table 4.7: Number of registered trainer by trade (as of 2019)

SLN	Trade	Number	%
1	Electrical Engineering	14	7.04
2	Forestry	12	6.03
3	Automobile Engineering	10	5.03
4	Tshemzo (Tailoring)	10	5.03
5	Computer Application	9	4.52
6	Information Technology	9	4.52
7	Welding	9	4.52
8	Accounting	8	4.02

SLN	Trade	Number	%
9	Lhadi (Painting)	8	4.02
10	Patra (Carving)	8	4.02
11	Agriculture Farm Machineries	7	3.52
12	Carpentry	7	3.52
13	Masonry	7	3.52
14	Food and Beverages	5	2.51
15	Plumbing	5	2.51
16	Trezo (Smithing)	5	2.51
17	Auto Mechanic	4	2.01
18	Entrepreneurship Development	4	2.01
19	Jimzo (Sculpture)	4	2.01
20	Mechanical Engineering	3	1.51
21	Mechanical Fitter	3	1.51
22	Shazo (Wood Turning)	3	1.51
23	Solar Voltaic and Transmission	3	1.51
24	TOT (Four Modules)	3	1.51
25	Tourism and Hospitality	3	1.51
26	Tshemdru (Embroidery)	3	1.51
27	Basic English, Maths and IT	2	1.01
28	Civil Engineering	2	1.01
29	Computer Hardware	2	1.01
30	House Keeping	2	1.01
31	Management	2	1.01
32	Upholstery & Design Works	2	1.01
33	Academic	1	0.50
34	Auto Electrical	1	0.50
35	Civil Construction	1	0.50
36	Computer Networking	1	0.50
37	Cultural Tourist Guide	1	0.50
38	Driving	1	0.50
39	Education	1	0.50
40	Environmental Science	1	0.50
41	Financial Management	1	0.50
42	Food Production	1	0.50
43	Front Office	1	0.50

SLN	Trade	Number	%
44	Graphics Design	1	0.50
45	Heavy Vehicle Driving	1	0.50
46	Hospitality and Tourism	1	0.50
47	Hydropower Instrumentation	1	0.50
48	Hydropower Mechanical	1	0.50
49	Light Vehicle	1	0.50
50	Refrigeration and Air Conditioning	1	0.50
51	Restaurant Management	1	0.50
52	Trekking Guide	1	0.50
53	Visual Effects and Animation	1	0.50
	Total	199	100

Source: TVET-QAMIS, DOS, MoLHR, 2019

The registration and accreditation of trainers, assessors and accreditors are continuous processes. DOS is responsible to train the course assessors and accreditors. Registered trainers usually take dual functions of assessors and accreditors. Table 4.8 shows the registered accreditors by trade and level. Most of the accreditors out of 81 accreditors by 2019 were in level C (74). There was none in level B. Sixty-eight accreditors were males (84%) and 13 were females. Most accreditors were specialised in computer application assistant, mechanical, automobile, and lhadi (painting), and tailoring in descending order.

Table 4.8: Number of registered accreditors by trade (as of 2019)

SLN	Trade	Level A	Level C	Licensed Accreditor	Total
	Male	6	62	0	68 (83.95%)
	Female	0	12	1	13 (16.05%)
1	Computer Application Assistant	0	10	0	10
2	Mechanical	2	7	0	9
3	Automobile	0	6	0	6
4	Lhadi (Painting)	0	6	0	6
5	Tshemzo (Tailoring)	1	5	0	6
6	Computer Hardware Technician	1	4	0	5
7	Electrical	0	5	0	5
8	Jimzo (Sculpture)	0	5	0	5
9	Driving (LV & HV)	0	4	0	4
10	Hotel Management	0	4	0	4
11	Commercial Accountant	0	3	0	3

SLN	Trade	Level A	Level C	Licensed Accreditor	Total
12	Traditional Folk Dancer	0	3	0	3
13	Driving (HV)	0	2	0	2
14	Driving (LV)	0	2	0	2
15	Baking	0	1	0	1
16	Cable Technician	0	1	0	1
17	Civil Construction	1	0	0	1
18	Cooking	0	1	0	1
19	Cultural Tourist Guide	0	1	0	1
20	Furniture Making	1	0	0	1
21	House Keeping	0	0	1	1
22	Patra (Carving)	0	1	0	1
23	Tourism	0	1	0	1
24	Tshemdru (Embroidery)	0	1	0	1
25	Welding	0	1	0	1
	Total	6	74	1	81

Source: TVET-QAMIS, DOS, MoLHR, 2019

The registered assessors are responsible to conduct National Assessment. This is the process of appraising performance through evidence gathering to determine whether learners, trainers, training methodologies, programmes and institutions are within the parameters of prescribed standards (DOS, ILO, 2006). A registered assessor is considered competent to conduct the internal and external assessments for specific qualifications and/or part qualifications. As shown in Table 4.9, out of 411 registered assessors as of 2019, the highest number belonged to level C and were dominantly male. More than 400 assessors were registered with DOS by 2019. About 80% of assessors were males and 20% females. The highest number of accessors belonged to the trade of civil construction.

Table 4.9: Number of registered assessors by trade (as of 2019)

Trade	Level A	Level B	Level C	Licensed Assessor	Total
Male	19	23	281	5	328 (79.89%)
Female	1	6	73	3	83 (20.19%
Civil Construction	1	4	61	1	67
Electrical	3	9	48	0	60
Computer Application Assistant	2	3	35	0	40
Driving (LV & HV)	4	2	31	1	38

Trade	Level A	Level B	Level C	Licensed Assessor	Total
Automobile	2	1	33	0	36
Commercial Accountant	0	2	27	0	29
Tourism	4	3	19	2	28
Mechanical	0	2	21	0	23
Hotel Management	0	0	19	0	19
Computer Hardware Technician	1	0	10	0	11
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	5	0	5
Lhadi (Painting)	0	0	4	0	4
Cooking	0	0	3	0	3
Cultural Tourist Guide	0	1	2	0	3
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 (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	20	29	354	8	411

Source: TVET-QAMIS, DOS, MoLHR, 2019

National Certificates

DOS had awarded 9071 National Certifications (NC) including 80 National Diplomas at various levels from 2011 to 2019. This number is a bit lower than the actual one. Because some awards had not been updated at the time of the data collection. The next issue of the statistical report will update those awards. The certificates awards were done through two main modes of delivery—institute-based and Recognition of Prior Learning (RPL). RPL is the means of certifying prior learning and work experiences in the established industries. It enables the movement of workers into a

formal system. RPL is aligned with the competencies of the uncertified workforce to the BVQF. It involves identification, assessment and acknowledgement through the registered training assessment centres. RPL certification improves the quality and productivity of the workforce, enables the creation of a sustainable work ecosystem and brings about equity in TVET.

Out of 9071 national certifications awarded between 2011 and 2019, the highest award was given to NC II. It constituted about 87.15% (7905) of the total certifications including 17.89% (1623) of RPL in NC II. The second highest certification was done for NC III (571, 6.29%) with about 2.09% (190) of RPL in NC III. From among 515 NC I certifications, 4.02% were RPL. NC I certification was common in the early years of DOS's operation. The first NC certification was conducted in 2011. It increased until 2017 and then dropped in 2018 and 2019. These national certifications represent the TVET outcomes under the QAS. The details of certifications are given in Table 4.10.

Table 4.10: Number of graduates by National Certification (2011-2019)

Year	NC I	NC II	NC III	ND I & II	RPL NC I	RPL NC II	RPL NC III	Total
2011	92	101	0	0	0	15	0	208
2012	5	209	0	0	0	22	0	236
2013	53	565	1	0	131	87	6	843
2014	0	966	19	0	8	160	4	1157
2015	0	1006	43	31	98	74	0	1252
2016	0	1033	48	0	114	122	38	1355
2017	0	1338	150	49	14	1014	142	2707
2018	0	527	54	0	0	66	0	647
2019	0	537	66	0	0	63	0	666
Total	150	6282	381	80	365	1623	190	9071
%	1.65	69.25	4.20	0.88	4.02	17.89	2.09	100.00

Source: TVET-QAMIS, DOS, MoLHR, 2019

By gender, 72.64% (6589) of males were awarded various national certifications compared to 27.36% of females. Males dominated in all other certifications except in NC I and ND (Table 4.11). Relatively more males were awarded the RPL certification.

Table 4.11: National Certifications by sex (2011-2019)

Level	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
NC II	4214	67.08	2068	32.92	6282	69.25
RPL-NC II	1452	89.46	171	10.54	1623	17.89
NC III	284	74.54	97	25.46	381	4.2

Level	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
RPL-NC I	354	96.99	11	3.01	365	4.02
RPL-NC III	172	90.53	18	9.47	190	2.09
NC I	75	50	75	50	150	1.65
ND	38	47.5	42	52.5	80	0.88
Total	6589	72.64	2482	27.36	9071	100

Source: TVET-QAMIS, DOS, MoLHR, 2019

As reported in Table 4.12, out of 50 trades, the highest numbers of certifications were awarded to the trades of the Electrician (20.38%), Cultural Tour Guide (13.17%) and Transmission and Distribution Linemen (10.01%). The top nine national certifications with more female representation were computer application, commercial accounting, tailoring, hotel supervisor operation, tradition/folk dance, food and beverages, auto-electrician, auto-painting and plumbing. The female participation in courses like heavy vehicle driving, trekking guide, excavator operation and so on was relatively low. This implies the urgency of expanding females' participation in hard skills to make TVET more gender-inclusive. There is the need to attract more females into the male-dominated training programmes and careers and vice-versa.

Table 4.12: National Certifications by course and sex (2011-2019)

SLN	Course	Male		Female		Total	
		Freq.	%	Freq.	%	Freq.	%
1	Cultural Tour Guide	1627	87.99	222	12.01	1849	20.38
2	Electrician	801	67.03	394	32.97	1195	13.17
3	Transmission and Distribution Linemen	897	98.79	11	1.21	908	10.01
4	Masonry	435	67.97	205	32.03	640	7.06
5	Commercial Accounting	116	21.89	414	78.11	530	5.84
6	Computer Application	95	19.51	392	80.49	487	5.37
7	Automobile Mechanic	377	85.1	66	14.9	443	4.88
8	Plumbing	196	47	221	53	417	4.6
9	Shingzo (Wood Carpentry)	359	98.9	4	1.1	363	4
10	Professional Driving I	295	97.68	7	2.32	302	3.33
11	Tshemzo (Tailoring)	82	31.06	182	68.94	264	2.91
12	Carpentry	149	57.31	111	42.69	260	2.87
13	Welding	168	74.01	59	25.99	227	2.5
14	Mechanical Fitting	94	86.24	15	13.76	109	1.2
15	Furniture Making	98	89.91	11	10.09	109	1.2
16	Heavy Vehicle Driving	107	100	0	0	107	1.18

SLN	Course	Male		Female		Total	
		Freq.	%	Freq.	%	Freq.	%
17	Trekking Guide	93	100	0	0	93	1.03
18	Excavator Operation	79	100	0	0	79	0.87
19	Cement Plant Attendant	50	68.49	23	31.51	73	0.8
20	Hydropower Plant Electrician	56	98.25	1	1.75	57	0.63
21	Automobile Technician	42	79.25	11	20.75	53	0.58
22	Hydropower Plant Mechanic	45	100	0	0	45	0.5
23	Automobile Electrician	18	40.91	26	59.09	44	0.49
24	Hotel Supervisor Operation	14	34.15	27	65.85	41	0.45
25	Tour Operator Supervisor	24	61.54	15	38.46	39	0.43
26	Hydropower Plant Operation	31	93.94	2	6.06	33	0.36
27	Computer Hardware & Network	16	53.33	14	46.67	30	0.33
28	Sales Person	15	55.56	12	44.44	27	0.3
29	Trezo (Gold & Silver Smith)	24	88.89	3	11.11	27	0.3
30	Metal Works	24	100	0	0	24	0.26
31	Shingtshen (Wood Painting)	22	95.65	1	4.35	23	0.25
32	Traditional Dance	8	38.1	13	61.9	21	0.23
33	Auto Denting	18	100	0	0	18	0.2
34	Operator Polymer	17	100	0	0	17	0.19
35	Dozo (Masonry)	6	50	6	50	12	0.13
36	Heavy Earth Moving	12	100	0	0	12	0.13
37	Traditional Music	12	100	0	0	12	0.13
38	Trekking Cook	9	81.82	2	18.18	11	0.12
39	Patra (Wood Carving)	11	100	0	0	11	0.12
40	Jimzo (Sculpture)	10	100	0	0	10	0.11
41	Lab Technician	5	55.56	4	44.44	9	0.1
42	Auto-Painting	3	42.86	4	57.14	7	0.08
43	Store Assistant	5	83.33	1	16.67	6	0.07
44	Backhoe Operation	6	100	0	0	6	0.07
45	Operation Plant Technician	6	100	0	0	6	0.07
46	Food & Beverages	2	40	3	60	5	0.06
47	Instrumentation	4	100	0	0	4	0.04
48	Mask Dance	3	100	0	0	3	0.03
49	Traditional painting	2	100	0	0	2	0.02
50	House Keeping	1	100	0	0	1	0.01
		6589	72.64	2482	27.36	9071	100

Source: TVET-QAMIS, DOS, MoLHR, 2019

Out of 1623 RPL certifications, 664 RPLs were awarded to courses on Transmission and Distribution Linemen (NC II) while the highest institute-based NC II was awarded to course on Cultural Tour Guide (1849). Besides Cultural Tour Guide course, the highest certification was awarded to electrician courses. The details are given Table in 4.13.

Table 4.13: National Certifications by course and level (2011-2019)

SLN	Course	Institute-Based				RPL			
		NC I	NC II	NC III	ND II	NC I	NC II	NC III	Total
1	Cultural Tour Guide	0	1849	0	0	0	0	0	1849
2	Electrician	0	1100	30	0	0	65	0	1195
3	Transmission and Distribution Linemen	0	28	0	0	216	664	0	908
4	Masonry	20	439	101	0	0	41	39	640
5	Commercial Accounting	58	472	0	0	0	0	0	530
6	Computer Application	0	487	0	0	0	0	0	487
7	Automobile Mechanic	0	378	19	0	0	18	28	443
8	Plumbing	12	274	74	0	0	43	14	417
9	Shingzo (Wood Carpentry)	0	0	0	0	141	166	56	363
10	Professional Driving I	0	302	0	0	0	0	0	302
11	Tshemzo (Tailoring)	0	136	0	0	0	128	0	264
12	Carpentry	7	206	33	0	0	13	1	260
13	Welder	0	186	0	0	0	41	0	227
14	Furniture Making	0	58	0	0	0	51	0	109
15	Mechanical Fitting	0	81	0	0	0	28	0	109
16	Heavy Vehicle Driving	0	76	31	0	0	0	0	107
17	Trekking Guide	0	0	93	0	0	0	0	93
18	Excavator Operation	0	12	0	0	0	17	50	79
19	Cement Plant Attendant	0	0	0	0	0	73	0	73
20	Hydropower Plant Electrician	0	0	0	0	0	57	0	57
21	Automobile Technician	53	0	0	0	0	0	0	53
22	Hydropower Plant Mechanic	0	0	0	0	0	45	0	45
23	Automobile Electrician	0	44	0	0	0	0	0	44
24	Hotel Supervisor Operation	0	0	0	41	0	0	0	41
25	Tour Operator Supervisor	0	0	0	39	0	0	0	39
26	Hydropower Plant Operation	0	0	0	0	0	33	0	33
27	Computer Hardware & Network	0	30	0	0	0	0	0	30
28	Sales Person	0	0	0	0	0	27	0	27

SLN	Course	Institute-Based				RPL			
		NC I	NC II	NC III	ND II	NC I	NC II	NC III	Total
29	Trezo (Gold & Silver Smith)	0	27	0	0	0	0	0	27
30	Metal Works	0	16	0	0	0	8	0	24
31	Shingtshen (Wood Painting)	0	23	0	0	0	0	0	23
32	Traditional Dance	0	0	0	0	0	21	0	21
33	Auto-Denting	0	18	0	0	0	0	0	18
34	Operator Polymer	0	0	0	0	0	17	0	17
35	Dozo (Masonry)	0	0	0	0	8	2	2	12
36	Heavy Earth Moving	0	12	0	0	0	0	0	12
37	Traditional Music	0	0	0	0	0	12	0	12
38	Patra (Wood Carving)	0	11	0	0	0	0	0	11
39	Trekking Cook	0	0	0	0	0	11	0	11
40	Jimzo (Sculpture)	0	10	0	0	0	0	0	10
41	Lab Technician	0	0	0	0	0	9	0	9
42	Auto Painting	0	7	0	0	0	0	0	7
43	Backhoe Operation	0	0	0	0	0	6	0	6
44	Operation Plant Technician	0	0	0	0	0	6	0	6
45	Store Assistant	0	0	0	0	0	6	0	6
46	Food & Beverages	0	0	0	0	0	5	0	5
47	Instrumentation	0	0	0	0	0	4	0	4
48	Mask Dance	0	0	0	0	0	3	0	3
49	Traditional Painting	0	0	0	0	0	2	0	2
50	House Keeping	0	0	0	0	0	1	0	1
		150	6282	381	80	365	1623	190	9071

Source: TVET-QAMIS, DOS, MoLHR, 2019

One significant development in Bhutan's TVET was the introduction of occupational standards. It supports designing quality training programmes and curricula to meet various competency levels. Occupational competency is the ability of individual trainees to perform trade-related tasks. In the assessment, trainees are categorised into four levels of competency rather than ranking them. These categories are 'competent with distinction, competent with merit, just competent and not yet competent'. Table 4.14 shows that the highest numbers of certification were awarded as 'competent with merit' (4369) while about 66 were graded as incompetent.

Table 4.14: National Certifications by competency level

Year	Competent	Competent with Distinction	Competent with Merit	Not Yet Competent	Total
2011	7	97	104	0	208
2012	12	161	63	0	236
2013	81	328	434	0	843
2014	339	378	440	0	1157
2015	419	230	603	0	1252
2016	368	378	609	0	1355
2017	483	756	1468	0	2707
2018	108	177	336	26	647
2019	125	189	312	40	666
	1942	2694	4369	66	9071

Source: TVET-QAMIS, DOS, MoLHR, 2019

The highest numbers of national certifications done in the period 2011-2019 were classified under the following ISCED-F-2013 occupations: 0731-Electricity and Energy (24.7%) followed by 1015-Travel, Tourism and Leisure (22.0%) and 0732-Building and Civil Engineering (18.7%) and other 14 occupations as given in Table 4.15. Occupations that could not be classified as per ISCED-F-2013 were placed under the 'others' category.

Table 4.15: National Certifications by occupations classified under ISCED-F-2013

SLN	ISCED-F-2013	Graduates	Percent
1	0713 Electricity and energy	2238	24.7
2	1015 Travel, tourism and leisure	1992	22
3	0732 Building and civil engineering	1692	18.7
4	0716 Motor vehicles, ships and aircraft	695	7.7
5	0411 Accounting and taxation	530	5.8
6	0611 Computer use	487	5.4
7	1041 Transport services	376	4.1
8	0715 Mechanics and metal trades	360	4
9	0723 Textiles (clothes, footwear and leather)	264	2.9
10	0711 Chemical engineering and processes	105	1.2
11	0722 Materials (glass, paper, plastic and wood)	109	1.2
12	1013 Hotel, restaurants and catering	47	0.5
13	0213 Fine arts	35	0.4
14	0214 Handicrafts	38	0.4

SLN	ISCED-F-2013	Graduates	Percent
15	0215 Music and performing arts	36	0.4
16	0416 Wholesale and retail sales	33	0.4
17	0714 Electronics and automation	30	0.3
18	0000 Others	4	0
	Total	9071	100

Source: TVET-QAMIS, DOS, MoLHR, 2019

Statistics on TVET Teaching Personnel

The role of TVET trainers needs to be redefined in the context of globalisation and sustainable development, advances in ICT and rapid technological change. The foremost asset of any TVET institution is its human capital, often known as knowledge asset. The effort to revamp TVET in Bhutan must go along with an effort to produce high-quality trainers. Their professional standards must be enhanced through regular skills updating programmes. TVET teaching should be made more meaningful and attractive. Teacher Training Colleges supply trained teachers for general education while TVET does not have any dedicated teacher training institute/college. So, most TVET trainers are either fresh recruits from TTIs/IZCs or university degrees. MoLHR had trained some trainers outside the country. Most trainers were trained through its TOT programmes that focus on pedagogy. In general, the professionalisation of TVET trainers remains an issue both in terms of quality and quantity.

Some information on the teaching personnel were collected. This information may help in developing various trainers' capacity building programmes. Part I of this section presents the profiles of teaching staff in TTIs and IZCs. Part II summarises the statistics on teaching staff in OPPTPs.

Part I: TVET Personnel of TTIs and IZCs

The emphasis was placed on gathering detailed information on teaching personnel. Such information might provide insights into the quality and quantity of TVET personnel. These data were used for profiling of TVET personnel resulting in the statistics on trainers' headcount, employment type and qualification. Table 4.16 reports trainers in TTIs and IZCs by gender as of October 2019. JWPTI and NIZC Thimphu had reported the highest number of trainers. The least number of trainers was reported in Thimphu TTI (14).

Table 4.16: Number of TVET trainers in TTIs and IZCs by sex (2019)

TTI and IZC	Male	Female	Total	%
JWPTI-Dekiling	22	7	29	15.22
NIZC-Thimphu	24	4	28	15.22
TTI-Khuruthang	9	15	24	13.04
TTI-Samthang	17	7	24	13.04
CZC-Trashiyangtse	17	7	24	13.04
TTI-Rangjung	17	4	21	11.41
TTI-Chumey	14	7	21	11.41
TTI-Thimphu	10	4	14	7.61
	130	55	185	100

Table 4.17 shows the sex-disaggregated frequency and percentage of TVET trainers by employment type in 2019. The types of employment are regular/permanent, contract and volunteer. Contrary to private TPs, most TVET trainers in TTIs and IZCs were the regular staff. Over 70% of 185 regular staff were males, indicating the need to increase the number of female trainers to promote gender equity. It is assumed that having more female trainers as role models would help attract more female TVET aspirants.

Table 4.17: Trainers in TTIs and IZCs by employment status (2019)

Type	Male		Female		Total	Percent
	Freq.	%	Freq.	%	Freq.	%
Regular	125	70.62	52	29.38	177	95.7
Contract	6	85.71	1	14.29	7	3.8
Volunteer	0	0	1	100	1	0.5
	131	70.20	54	29.80	185	100

The statistics on designation and level of TVET personnel in TTIs and IZCs are presented in Table 4.18. Most TVET trainers belonged to the RCSC's major occupational group—the 'Education and Training Service' among 19 major occupational groups and further placed under the group of 'Training-Tertiary Teaching Services.' A few staff from the 'Vocational Education and Management Services' group were engaged in teaching and training, especially in teaching soft skills. As shown in the table below, there were 185 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 (47) followed by assistant instructors I in S1 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 4.18: TVET trainers by designation and occupation (as of October 2019)

Designation	Male		Female		Total	Level
	N	%	N	%	N	%
Training Director	1	100	-	0	1	EX3
Principal I	5	100	2	0	7	P1
Senior Instructor I	1	100	-	0	1	P1
Senior Lecturer	2	100	-	0	2	P1
Vice Principal I	2	100	-	0	2	P2
Lecturer	1	100	-	0	1	P2
Senior Instructor II	1	100	-	0	1	P2
Vice Principal II	2	100	-	0	2	P2
Assistant Lecturer I	1	100	-	0	1	P3
Associate Lecturer	2	100	-	0	2	P3
Assistant Lecturer I	8	53.3	7	46.7	15	P4
Assistant Lecturer II	1	100	0	0	1	P4
Assistant Lecturer II	5	38	8	61.5	13	P5
Assistant Instructor I	23	70.6	10	29.4	34	S1
Instructor	1	100	0	0	1	S1
Assistant Instructor II	17	54.8	14	45.2	31	S2
Instructor	4	100	0	0	4	S2
Assistant Lecturer II		0.0	1	100	1	S3
Assistant Instructor IV	5	83.3	1	16.7	6	S4
Assistant Lecturer II	1	100	0	0	1	S4
Assistant Lecturer II	1	100		0	1	S5
Instructor	2	100	0	0	2	SS3
Senior Instructor I	6	85.7	1	14.3	7	SS3
Instructor	36	78.7	9	21.3	47	SS4
Instructor II	2	50.0	2	50.0	4	SS4
	130	70.3	55	29.7	185	

Table 4.19 highlights male and female trainers by occupation as of 2019. The highest percentage of them were specialised in mechanical engineering (21.1%). The next highest number of trainers were specialised in electrical engineering (11.4%), civil engineering (8.6%), painting (8.1%), and so on in descending order.

Table 4.19: TVET trainers in TTIs and IZCs by trade and sex (as of October 2019)

SLN	Trade	Male	Female	Total	%
1	Mechanical Engineering	26	13	39	21.1
2	Electrical Engineering	12	9	21	11.4
3	Civil Engineering	10	6	16	8.6
4	Lhadi (Painting)	14	1	15	8.1
5	Technical Instruction	10	3	13	7
6	Automobile	12	0	12	6.5
7	Tshemzo (Tailoring)	3	7	10	5.4
8	English & History	2	4	6	3.2
9	Jimzo (Sculpture)	5	1	6	3.2
10	Maths & Physics	1	5	6	3.2
11	Patra (Carving)	6	0	6	3.2
12	Administration & Management	4	0	4	2.2
13	Computer	2	2	4	2.2
14	Dzongkha	3	1	4	2.2
15	Information Technology	4	0	4	2.2
16	Trezo (Gold & Silversmith)	4	0	4	2.2
17	Education	3	0	3	1.6
18	Carpentry	2	0	2	1.1
19	Chagzo (Metal Work)	2	0	2	1.1
20	Electronic & Communication	1	1	2	1.1
21	Shazo (Wood Turning)	2	0	2	1.1
22	Environment	1	0	1	0.5
23	Buddhist Studies	1	0	1	0.5
24	Industrial Production	1	0	1	0.5
25	Tshemdru (Embroidery)	0	1	1	0.5
	Total	131	54	185	100

The BVQF requires TVET trainers to have one qualification higher than the level they instruct. The profile of TVET trainers as of 2019 by academic qualification is given in Table 4.20. Their academic qualifications ranged from certificates to masters. The majority (66.5%) of them possessed diplomas—the standard requirement to teach NC level and 24.3% had bachelor's degrees.

Table 4.20: TVET trainers in TTIs and IZCs by academic qualification (2019)

Qualifications	Male	Female	Total	Percent
Diploma	89	34	123	66.5
Bachelor	26	19	45	24.3
Certificate	9	1	10	5.4
Master	7	0	7	3.8
	131	54	185	100

Besides, Table 4.21 shows the distribution of TVET trainers in TTIs and IZCs by academic qualifications. On average, each institute has 23 trainers. JWPTI, Chumey TTI, and Khuruthang have reported the highest number of TVET trainers with a bachelor's degree. Thimphu NIZC and Yangtse CZC have the highest number of trainers with a diploma.

Table 4.21: Qualification of TVET trainers in TTIs and IZCs (2019)

TTI and IZC	Bachelor	Certificate	Diploma	Master	Total	%
JWPTI-Dekiling	9	0	18	1	28	15.14
NIZC-Thimphu	4	0	24	0	28	15.14
TTI-Khuruthang	8	3	12	1	24	12.97
TTI-Samthang	4	3	15	2	24	12.97
CZC-Yangtse	4	0	19	1	24	12.97
TTI-Rangjung	4	1	16	1	22	11.89
TTI-Chumey	8	0	12	1	21	11.35
TTI-Thimphu	4	3	7	0	14	7.57
Total	45	10	123	7	185	100
Average	6	1	15	1	23	

RCSC had identified TVET trainers among other seven positions for Competency-Based Framework (CBF). CBF includes three role profiles, seven competency areas, 23 competencies and 73 behaviour indicators. This framework defines skills and professionalism for TVET trainers. TTIs, IZCs and other public TVET institutions are yet to implement CBF.

In the absence of a recognised in-country training institution to train TVET trainers, TOT remains one key strategy to ensure that instructors have mastered required competencies in TVET delivery. TOT, as specified in the 'TVET Trainers Pathways', is a customised capacity development programme. It is aimed at developing trainers' skills and competencies in instruction and pedagogy. TOT starts with a programme on technical instruction and pedagogy (level I). This level covers skills, knowledge, visualisation and evaluation. The second level of TOT covers curriculum design and

assessment. The third level emphasises on developing skills for technical supervision and analysis. An instructor ought to be capable of doing research and training on completion of TOT level IV. He/she can then sit for RPL assessment to become a national diploma trainer.

Table 4.22 shows that about 79% of the instructors in TTIs and IZCs had completed the first level TOT by 2019. More than 21% of the existing TVET trainers had not availed all four modules of ToT. TVET trainers who had just started but not completed all the modules were treated as having 'not availed TOT'. This accounted for a higher percentage of trainers 'not having availed TOT'. TOT coverage is never going to be 100% due to trainers' turnover (leaving and joining).

Table 4.22: Status of TOT certification by sex (2019)

TTI and IZC	TOT Certified	% TOT Certified	TOT Not Certified	% Not Certified	Total
JWPTI-Dekiling	23		5	2.78	28
NIZC-Thimphu	23	82.14	5	2.78	28
TTI-Khuruthang	16	82.14	8	4.44	24
TTI-Samthang	22	66.67	2	1.11	24
CZC-Trashiyangtse	22	91.67	2	1.11	24
TTI-Rangjung	15	91.67	2	1.11	22
TTI-Chumey	12	68.18	9	5	21
TTI-Thimphu	9	57.14	5	2.78	14
Total	142	64.29	38	21.11	180
		78.89			

Table 4.23 presents trainers in TTIs and IZCs by age groups in 2019. The largest age cohort was 22-30 years (37.20%) followed by the age cohort of 26-30 years. The mean age of trainers in TTIs and IZCs was 35 years (STD 8.3).

Table 4.23: TVET trainers in TTIs and IZCs by age group (2019)

Age Range	Frequency	Percent
22-25	26	14.00
26-30	43	23.2
31-35	35	18.9
36-40	39	21.1
41-45	24	13
46-50	7	3.8
51-55	6	3.2
56-60	5	2.7
Total	185	100

The longer the duration in service, the trainer is likely to gain more experience in pedagogy, knowledge and skills. Among trainers in TTIs and IZCs, 19.5% of them had worked as trainers for less than a year by 2019. About 26% had reported having worked as trainers for 10-15 years (Table 4.24).

Table 4.24: Trainers in TTIs and IZCs by number of years in the profession (2019)

Years in Service	Frequency	Percent
Less than 1 Year	36	19.5
1 to 3 Years	28	15.1
More than 3 to 5 Years	14	7.6
More than 5 to 10 Years	32	17.3
More than 10 to 15 Years	49	26.5
More than 15 to 20 Years	23	12.4
More than 25 to 30 Years	2	1.1
More than 30 to 35 Years	1	0.5
Total	185	100

Training for Teaching and Non-Teaching Personnel of TTIs and IZCs

As per the RCSC's HRD Guideline (Chapter 9), Long-Term Training (LTT) includes training availed for more than 180 days. 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 categorise training into LTT and STT. STT were further grouped into those that took less than 5 days and between 5 and 180 days.

Table 4.25 presents the training statistics of both teaching and non-teaching staff of TTIs and IZCs for the period 1990 to 2019. Out of 1360 training, about 78% were STT (5-180 days) and 19.5% were STT that took less than five days. The staff of Yangtse CZC and JWPTI had availed, on average, the highest number of training. The staff of Thimphu TTI and NIZC had availed the lowest number of training. The records of TTIs and IZCs and HRD, MoLHR were consolidated.

Table 4.25: Trainings availed by all staff of TTIs and IZCs (1990-2019)

TTI and IZC	Long-Term		Short-Term		Short-Term (<=5 days		Online		Total	
	N	%	N	%	N	%	N	%	N	%
CZC-Yangtse	0	0	192	68.1	90	31.9	0	0	282	20.8
JWPTI-Dekiling	11	4.1	189	70.8	67	25.1	0	0	267	19.7
TTI-Khuruthang	2	1.1	184	97.9	2	1.1	0	0	188	13.8

TTI and IZC	Long-Term		Short-Term		Short-Term (<=5 days		Online		Total	
	N	%	N	%	N	%	N	%	N	%
TTI-Samthang	8	4.4	154	84.2	21	11.5	0	0	183	13.5
TTI-Rangjung	7	4.3	117	72.2	37	22.8	1	0.62	162	11.9
TTI-Chumey	7	5	113	80.1	21	14.9	0	0	141	10.4
NIZC-Thimphu	2	0	75	91.5	7	8.5	0	0	82	6
TTI-Thimphu	0	0	33	62.3	20	37.7	0	0	53	3.9
	37	2.6	1057	77.8	265	19.5	1	0.07	1360	100

The staff of TTIs and IZCs who did not avail any training were the management staff, and among them, most were new recruits and GSP staff. Yangtse CZC had reported the highest number of staff members who did not avail any training. Rangjung TTI had reported the lowest number of staff without any training. In all, 73 staff members had not availed any training at the time of reporting this data (Figure 4.3).

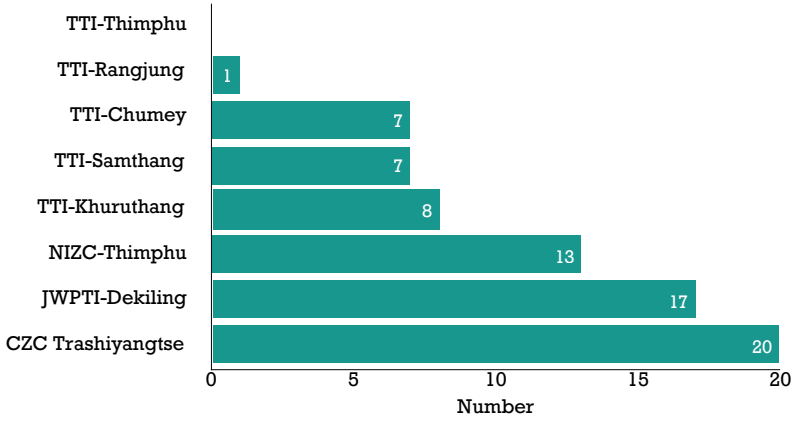


Figure 4.3: The staff of TTIs and IZCs who did not avail any training

Most in-service training were availed within the country (510). The ex-country training were attended in over 17 countries as listed in Table 4.26. Training that did not specify the country were categorised under 'country not mentioned.' The second-highest number of training was availed in Thailand (83) followed by in India (74), Nepal (37), Philippines (20) and so on in descending order.

Table 4.26: TVET trainers' training by destination county (1990-2019)

Country	CTTI	JWPTI	KTTI	RTTI	STTI	NIZC	TTTI	CZC	T
Bhutan	53	147	97	55	95	17	0	46	510
Thailand	21	21	13	4	5	17	0	2	83
India	7	4	6	5	25	24	0	3	74
Nepal	11	11	3	4	8	0	0	0	37
Philippines	2	0	2	2	10	4	0	0	20
Malaysia	3	2	2	3	4	0	0	0	14
Netherlands	4	5	0	0	1	0	0	0	10
South Korea	1	1	1	2	3	1	0	0	9
Australia	1	0	4	0	1	0	0	0	6
Pakistan	0	0	2	0	1	1	0	0	4
Singapore	0	0	1	0	3	0	0	0	4
Switzerland	2	2	0	0	0	0	0	0	4
Germany	0	0	0	1	2	0	0	0	3
Japan	1	0	0	0	2	0	0	0	3
United Kingdom	0	0	0	1	1	0	0	0	2
Columbia	1	0	0	0	0	0	0	0	1
Denmark	0	1	0	0	0	0	0	0	1
Sri Lanka	0	0	0	0	1	0	0	0	1
Country Not Mentioned	36	72	57	85	21	18	53	235	577
Total	148	284	196	163	190	95	53	302	1431

The overseas volunteers from Japan, Thailand, Denmark, USA and Canada were involved in training delivery in TTIs and IZCs. Their engagement addressed the shortage of TVET trainers. The record of volunteers between 2004 and 2019 is given in Table 4.27. The highest number of volunteers came from Japan and Thailand under JICA and TICA programmes. Details are given in the table below. JWPTI did not have any overseas volunteer due to its proximity to the southern border.

Table 4.27: Overseas volunteers in TTIs and IZCs (2004-2019)

TTI and IZC	Sex	Field of Expertise	Employee Type	Country	Duration	
					B	E
TTI-Chumey	Male	Plumbing	JICA Volunteer	Japan	2016	2018
	Male	Carpentry	TICA Volunteer	Thailand	2018	2019
	Male	Plumbing	JICA Volunteer	Japan	2014	2015
	Male	Mechanical	JICA Volunteer	Japan		

TTI and IZC	Sex	Field of Expertise	Employee Type	Country	Duration	
					B	E
TTI-Khuruthang	Male	Electrical	JICA Volunteer	Japan		
	Male	Mechanical	JICA Volunteer	Japan	2016	2018
	Male	Electrical	JICA Volunteer	Japan	2018	2020
TTI-Rangjung	Male	Computer Hardware	TICA Volunteer	Thailand	2011	2013
	Male	Furniture Making	TICA Volunteer	Thailand	2011	2013
	Male	Furniture Making	TICA Volunteer	Thailand	2014	2015
	Female	Furniture Making	TICA Volunteer	Thailand	2016	2017
	Male	Computer Hardware	TICA Volunteer	Thailand	2016	2018
TTI-Samthang	Male	Automobile	JICA Volunteer	Japan		
	Male	Automobile	JICA Volunteer	Japan	2014	2016
	Male	Auto Electrician	TICA Volunteer	Thailand	2018	2019
TTI-Thimphu	Male	Automobile	JICA Volunteer	Japan	2018	2019
NIZC-Thimphu	Female	Lacquering	JICA Volunteer	Japan	2002	2004
	Female	Doll Making	JICA Volunteer	Japan	2004	2006
	Male	Casting	JICA Volunteer	Japan	2006	2008
	Female	Silk Screen	JICA Volunteer	Japan	2006	2008
	Male	Leather Craft	JICA Volunteer	Japan	2006	2008
	Female	Designing	Volunteer	Denmark	2007	2007
	Female	Designing and Tailoring	Volunteer	Canada	2007	2007
	Female	Souvenir Making	JICA Volunteer	Japan	2007	2009
	Female	Designing	Volunteer	Denmark	2007	2007
	Female	Student Counsellor	Australian Volunteer	America	2018	2019
Yangtse-CZC	Female	3D Sculpture	TICA Volunteer	Thailand	2017	2020
	Female	Packaging and Design	TICA Volunteer	Thailand	2017	2018

Note: B denotes beginning and E end

Other Programmes Relevant for Improving TVET Quality

The UNESCO-UNEVOC has acknowledged the urgent need to promote innovation (2018) in TVET. The other areas of importance to TVET are entrepreneurship and green technology. The effective integration of TVET with ICT might emerge as crucial for TVET. Some data on ICT training, green initiatives, entrepreneurship programmes and innovative practices were collected. There will be unrelenting demand for such

data with the country's transition to a greener economy, integration of digital technologies into workplaces and development of new forms of entrepreneurship.

The changing economy and labour markets would entail TVET to foster not only trade-related skills among trainees but also entrepreneurial skills, attitudes and behaviours. 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 4.28 presents the data of various entrepreneurship programmes in TTIs and IZCs for the period 2015 to 2019. The data do not reveal much progress in this field. MoEA's Business Opportunity Workshop was one regular entrepreneurship programme. The purpose of the workshop is to sensitise participants on the process of obtaining business licences and inform them about the access to finance and other business support schemes BOW is also used to educate the participants on various business rules and regulations and the government's policies.

Table 4.28: Entrepreneurship activities in TTIs & IZCs (as of October 2019)

Entrepreneurship Programme	Duration (days)	Year	Participants
(I) TTI-Chumey			
Basic Entrepreneurship Course	14	2015	71
	14	2016	76
	14	2017	92
Business Opportunity Workshop organised by DSCI, MOEA		2019	116
		2018	157
(II) JWPTI-Dekiling			
Basic Entrepreneurship Course	10	2017	54
	10	2018	44
Business Opportunity Workshop organised by DSCI, MOEA		2018	112
(III) TTI-Khuruthang			
Basic Entrepreneurship Course	14	2017	56
Business Opportunity Workshop organised by DSCI, MOEA		2019	129
		2018	68
(IV) TTI-Rangjung			
Business Opportunity Workshop organised by DSCI, MOEA	3	2019	131
		2018	109

Entrepreneurship Programme	Duration (days)	Year	Participants
Entrepreneurship Training by Loden Foundation Workshop	3	2019	86
(V) TTI-Samthang			
Business Opportunity Workshop organised by DSCI, MOEA		2019	142
		2018	47
'Unlocking Competencies' Course	14	2016	51
'Introduction to Personal Balance Sheet' Course	14	2017	55
Introduction to personal Goal Setting' Course	14	2018	59
Unlock PECs Course	14	2019	47
(VI) TTI-Thimphu			
Basic Entrepreneurship Course	14	2018	42
	2	2019	17
(VII) NIZC-Thimphu			
Basic Entrepreneurship Course	10	2017	32
(VIII) CZC-Trashiyangtse			
Basic Entrepreneurship Course	9	2017	30
			1823

The skills development programmes cover a range of generic, soft skills and occupation-specific skills. Soft skills are recognised as crucial to work, career progression, and empowerment. Table 4.29 lists various soft skills programmes in TTIs and IZCs as of 2019. These programmes target trainees of various NC levels.

Table 4.29: Soft skills programmes in TTIs and IZCs by level and teaching hours

Soft Skills	Soft Skills Provided to NC Level	Total Hours Taught
(I) TTI-Chumey		
Computer Skills (ICT)	NC II	68
Computer Skills (ICT)	NC III	48
Technical English	NC II	82
Technical English	NC III	51
Applied Mathematics	NC II	60
Applied Mathematics	NC III	53
Dzongkha	NC II	42

Soft Skills	Soft Skills Provided to NC Level	Total Hours Taught
Dzongkha	NC III	42
(II) JWPTI-Dekiling		
Computer Skills (ICT)	NC II	68
Computer Skills (ICT)	NC III	
Technical English	No teacher	
Technical English	No teacher	
Applied Mathematics	No teacher	
Applied Mathematics	No teacher	
(III) TTI-Khuruthang		
Computer Skills (ICT)	NC II	68
Computer Skills (ICT)	NC III	48
Technical English	NC II	82
Technical English	NC III	51
Applied Mathematics	NC II	60
Applied Mathematics	NC III	53
Dzongkha	NC II	42
Dzongkha	NC III	42
(IV) TTI-Rangjung		
Computer Skills (ICT)	NC II	68
Computer Skills (ICT)	NC III	48
Technical English	NC II	82
Technical English	NC III	51
Applied Mathematics	NC II	60
Applied Mathematics	NC III	53
Computer Skills (ICT)	NC II	68
(V) TTI-Samthang		
Computer Skills (ICT)	NC III	48
Technical English	NC II	82
Technical English	NC III	51
Applied Mathematics	NC II	60
Applied Mathematics	NC III	53
Dzongkha	NC II	42
Dzongkha	NC III	42
(VI) TTI-Thimphu		

Soft Skills	Soft Skills Provided to NC Level	Total Hours Taught
Computer Skills (ICT)	NC II	68
Computer Skills (ICT)	NC III	48
Technical English	NC II	82
Technical English	NC III	51
Applied Mathematics	NC II	60
Applied Mathematics	NC III	53
Dzongkha	NC II	42
Dzongkha	NC III	42
(VII) NIZC-Thimphu		
Computer Skills (ICT)	NC II	68
Computer Skills (ICT)	NC III	48
Applied Mathematics	NC II	30
Applied Mathematics	NC III	28
Dzongkha	NC II	45
Dzongkha	NC III	45
SCP	All levels	36
(VIII) CZC-Yangtse		
Computer Skills (ICT)	NC II	68
Computer Skills (ICT)	NC III	48
Computer Skills (ICT)	ND I	90
Technical English	NC II	82
Technical English	NC III	51
Technical English	ND I	136
Applied Mathematics	NC II	30
Applied Mathematics	NC III	28
Applied Mathematics	ND I	48
Dzongkha	NC II	45
Dzongkha	NC III	45
Dzongkha	ND I	45
Applied Mathematics	ND I	48
Dzongkha	NC II	45
Dzongkha	NC III	45
Dzongkha	ND I	155

The IAG-Global TVET database has proposed the ICT capability indicator as a proxy measure for innovation in TVET. This indicator does not measure the actual effect of training. Rather, it recognises that ICT can drive innovation and progress in TVET (IAG-2014). Most TVET trainers have some knowledge and skills in basic ICT applications. They may not have enough capability in using advance ICT applications for training purposes. This calls for a detailed assessment of the TVET trainers' ICT capability. This is important if TVET were to integrate with up-to-date technological advancement. The data shown in Table 4.30 show a limited number of programmes in TTIs and IZCs for upgrading the trainers' ICT capacity.

Table 4.30: ICT training availed by staff of TTIs and IZCs

Year	ICT training	Number instructors receiving ICT	Number of hours of training
(I) JWPTI-Dekiling			
2013	Microsoft Productivity tools	16	2
2015	Google Apps	29	5
2018	Google Apps	24	6
(II) TTI-Khuruthang			
2018	Google Apps	16	8
(III) TTI-Rangjung			
2013	Microsoft Productivity tools	22	12
2018	Google Apps	20	2
(IV) TTI-Samthang			
2018	Google Apps	20	16
(V) TTI-Thimphu			
2018	Google Apps	12	6
(VI) NIZC-Thimphu			
2010	Basic AutoCAD	1	21
2013	Microsoft Productivity tools	25	28
2017	Dzongkha Unicode	14	42
2018	Google Apps	19	14
(VII) CZC-Trashiyangtse			
2018	Google Apps	20	16
		238	178

Table 4.31 list various innovative practices and projects implemented by trainers and trainees as of October 2019. The innovation here is understood as the development of new products and services with the potential to impact teaching and learning

processes and management practices. The products and practices that are given in the table below were not certified by any competent authority.

Table 4.31: Innovative practices/activities in TTIs and IZCs

Activity/product	Year	Name(s) of contributors	Department
(I) TTI-Chumey			
Room Heating Sytem	2017	Nima Dorji	Welding
		Kuenzang Gyeltshen	Mason
(II) TTI-Khuruthang			
Korean Traditional Room Heating System	2018	Dr.Kim, Mr. Thinley Wangchuk & Mechanical Trainees	Mechanical
Korean Metal Stove (Bhukhari)	2018	Dr.Kim, Thinley Wangchuk & Mechanical Trainees	Mechanical
Korean Metal Stove (Round Tube Bhukhari)	2018	Dr.Kim, Mr. Thinley Wangchuk & Mechanical Trainees	Mechanical
(III) TTI-Rangjung			
Solar Fencing with Siren Alarm.	2015	Rinchen Dorji (Instructor) and Electrical trainees	Electrical
Hybrid Eco-Friendly LED Fencing	2017	Rinchen Dorji (Instructor) and Electrical trainees	Electrical
Wireless Fire Alarm	2017	CHN Trainees led by TICA Volunteer. Pokpong Patta Wekongka	CHN
(IV) TTI-Samthang			
Google classroom	2017	Ugyen Dorji (Instructor)	Automobile
(V) Thimphu-NIZC			
Institute Memento	2017	Tshewang Peldon (Principal)	Management
		Tshewang Tenzin (Instructor)	Painting
		Dorji (Instructor)	Patra
		Tshering Dorji (Instructor)	Trezo
Taagi Bumzoo	2017	Sangay Wangchuk (Trainee)	Patra

Activity/product	Year	Name(s) of contributors	Department
Bike Model (Tashi Taagay)-Landscaping	2018	Kinley Dorji (Trainee)	Patra

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

The ongoing multi-cohort online TVET tracer survey asked the respondents to assess various facets of their training programmes. The questions focused on TVET graduates from 2013 to 2018. They were asked to rate whether various components of training were 'good' or 'poor'. Table 4.32 presents the preliminary results of the graduates' subjective assessments of 25 different areas of training in TTIs and IZCs. The tracer's results, based on the sample size of 1850 (+-), did not include the graduates of OPPTPs. The final tracer report is expected to be completed in March 2020.

Table 4.32: Graduates' assessment of TTIs and IZCs and training programmes

SLN	TVET Quality Components	Graduates' Assessement	Freq.	Percent
1	Quality of classroom learning (theory)	Good	1511	86.59
		Poor	234	13.41
			1745	
2	Quality of practical learning	Good	1297	74.41
		Poor	446	25.59
			1743	
3	Quality of training equipment	Good	1163	66.72
		Poor	580	33.28
			1743	
4	Availability of technical equipment	Good	1140	65.48
		Poor	601	34.52
			1741	
5	Teaching methods of instructors	Good	1474	84.57
		Poor	269	15.43
			1743	
6	Supply of learning materials (e.g. text books, note books, etc)	Good	1314	75.39
		Poor	429	24.61
			1743	
7	Safety conditions during practical training	Good	1350	77.94
		Poor	382	22.06

SLN	TVET Quality Components	Graduates' Assessement	Freq.	Percent
			1732	
8	On-the-Job-Training (OJT)	Good	1564	90.67
		Poor	161	9.33
			1725	
9	Workshop (size, light and noise condition, location)	Good	1488	85.76
		Poor	247	14.24
			1735	
10	Classrooms (size, light and noise condition, location)	Good	1517	86.98
		Poor	227	13.02
			1744	
11	Books in the library	Good	1376	79.54
		Poor	354	20.46
			1730	
12	Career counselling	Good	1518	87.19
		Poor	223	12.81
			1741	
13	Quality of soft skills training (English, Dzongkha, Maths, etc.)	Good	1417	81.53
		Poor	321	18.47
			1738	
14	ICT training	Good	1176	70.63
		Poor	489	29.37
		System	1665	
15	Entrepreneurship training	Good	1257	73.68
		Poor	449	26.32
			1706	
16	Green skilling (environment related)	Good	1326	77.63
		Poor	382	22.37
			1708	
17	Industrial tour	Good	1526	87.95
		Poor	209	12.05
			1735	
18	Quality of food	Good	1000	58.07
		Poor	722	41.93

SLN	TVET Quality Components	Graduates' Assessement	Freq.	Percent
			1722	
19	Quality of hostel facilities	Good	1331	77.25
		Poor	392	22.75
			1723	
20	Recreational facilities on the campus	Good	1377	79.41
		Poor	357	20.59
			1734	
21	Hygiene and sanitation facilities	Good	1468	84.76
		Poor	264	15.24
			1732	
22	Transportation facilities	Good	1361	78.76
		Poor	367	21.24
			1728	
23	Institute's leadership and management quality	Good	1560	89.55
		Poor	182	10.45
			1742	
24	Trainees' involvement in the institute's decision-making	Good	1364	78.35
		Poor	377	21.65
			1741	
25	Institute support to trainees' employment/job searches	Good	1094	63.42
		Poor	631	36.58
			1725	

The rating of 'poor' for each of the twenty-five variables was ranked as shown in Figure 4.4. The highest percentage (41.93%) of tracer survey respondents had rated 'food quality' in TTIs and IZCs as poor. This substantiates the concern that monthly stipend of Nu. 1,500 per trainee (out of which 90-95% are spent on food) was not adequate to provide food of reasonable quality. The next variable with the highest number of respondents giving a poor rating was 'lack of post-graduation support in terms of job search' (36.58% rated it as poor). The availability and quality of training tools and equipment had a poorer rating followed by a rating of ICT learning and entrepreneurship training in TTIs and IZCs. About 25.50% (rank 7) rated the quality of practical learning as poor. The least number of respondents (9.33%) rated OJT as poor.

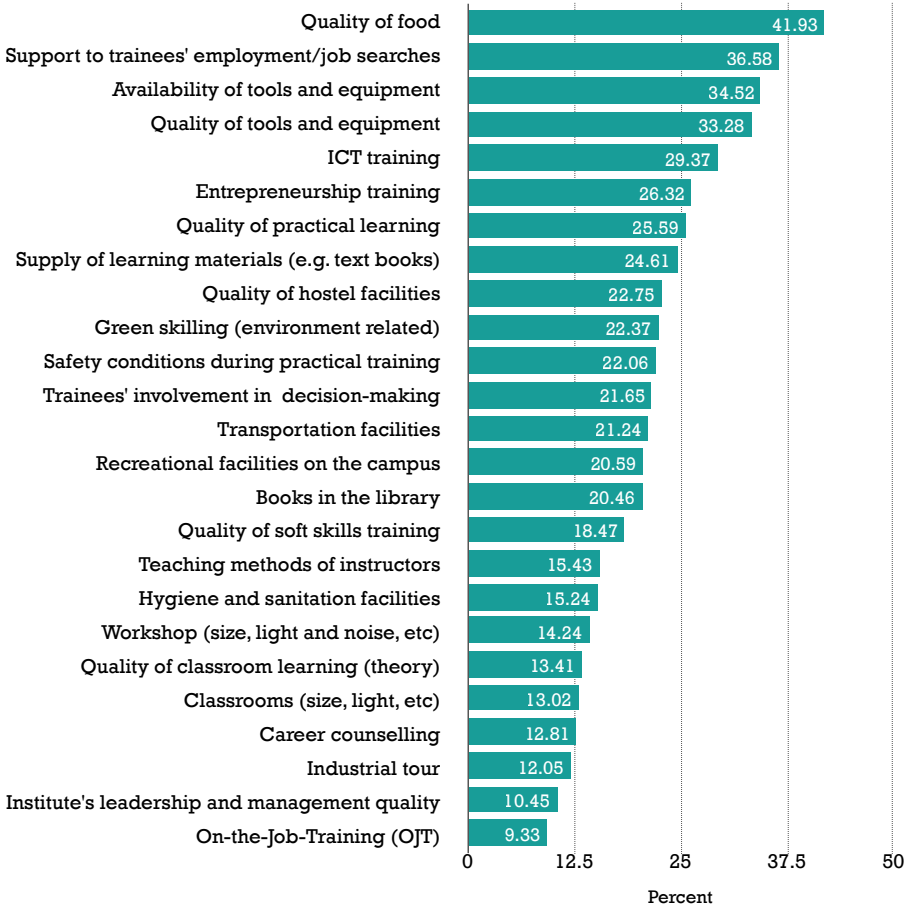


Figure 4.4: Graduates' assessment of institutes and training components

Part II: Teaching Personnel of OPPTPs

The tables reported in part II gives the statistics of TVET trainers in OPPTPs covering indicators like number (quantity), type of employment, qualification and TOT certification. The information on TVET trainers of OPPTPs was not as complete as that of TTIs and IZCs. The 'Guidelines for Accreditation of Course, 2011' specifies qualification and competency requirements for TVET trainers. In spite of this rule, the capacity building programmes in most private TPs were found to be very few and

irregular. The capacity building programmes in other public TVET institutions were dependent on the priority areas of their parent ministries/agencies.

Table 4.33 presents the information on trainers in OPPTPs for 2019. The number of TPs and their datasets ranged between 50 and 65 depending on the completeness of the data for certain variables. In total, 395 trainers were reported to be working in 64 OPPTPs in 2019 out of which 68% were males and 32 females.

Table 4.33: TVET trainers in 64 registered OPPTPs (2019)

SLN	Institute/Training Provider	Female	Male	Total
1	Bhutan Media & Communications Institute	12	15	27
2	Ugyen Wangchuck Institute for Conservation and Environmental Research	4	22	26
3	Royal Institute of Hospitality and Tourism	10	8	18
4	Druk Tshemzo Training Institute	11	5	16
5	Agriculture Machinery Training Centre	3	12	15
6	RTC Training and Professional Services	5	10	15
7	iBEST Institute of Media, Management and Technical Studies	1	12	13
8	Gangjung Driving Centre of Excellence	0	12	12
9	Institute for Professional Studies	3	9	12
10	Choki Traditional Art school	5	6	11
11	Athang Training Academy	6	4	10
12	Bhutan Institute for Training and Development	5	5	10
13	Bongde Institute of Hotel and Tourism	4	5	9
14	Royal Academy of Performing Arts	3	6	9
15	Institute for Management Studies	4	4	8
16	NLD Training Institute	5	3	8
17	Bhutan International School of Hospitality & Tourism	6	1	7
18	Financial Institutions Training Institute Limited	3	4	7
19	Jachung Security Services Pvt Ltd	0	7	7
20	Rural Development Training Centre	1	6	7
21	USD Driving Institute (Thimphu)	0	7	7
22	Yarab Institute for Hospitality Management	4	3	7
23	Computer & Management Institute	2	4	6
24	Druk Institute of Management Technology	2	4	6
25	Institute of Information Technology Management	1	5	6
26	Norbu International Wellness Institute	4	2	6

SLN	Institute/Training Provider	Female	Male	Total
27	Dorji International Training Institute	5	0	5
28	JCB Operator Training Centre	0	5	5
29	Learn Zone Institute	2	3	5
30	Lekdrup Skills Development Institute	0	5	5
31	Rigsum Institute of Technical Education & Management Studies	1	4	5
32	Sacho Gaa Driving Institute (Phuentsholing)	1	4	5
33	Youth Development and Rehabilitation Centre	1	4	5
34	Advanced Institute for Tourism	0	4	4
35	Bhutan Institute of Information Technology and Management	0	4	4
36	Global Computer Training Centre	1	3	4
37	Kesang Diving Institute	0	4	4
38	Kilu Bhutan Music School	2	2	4
39	Phunsum Driving Institute	1	3	4
40	Tacho Bala Ha Driving Training Institute	0	4	4
41	Tenzin's Hair & Beauty Academy	3	1	4
42	Gangchen Language & Management Institute	0	3	3
43	Institute for Excellence and Development	0	3	3
44	Karma Driving Training Institute, Gedu	0	3	3
45	Kunjung Institute of Technology and Innovation	2	1	3
46	Niche Institute	1	2	3
47	Sacho Driving Training Institute (Phuentsholing)	0	3	3
48	Ugyen International Language and culture Training Institute	0	3	3
49	Eastern Computer Training Centre	1	1	2
50	Eastern Driving Training Institute	0	2	2
51	GPY Computer Training Institute	0	2	2
52	Guide Association of Bhutan	0	2	2
53	Jigyang Driving Training Institute	0	2	2
54	Karsel Dawa Driving Training Institute	0	2	2
55	Pema Driving Training Institute	0	2	2
56	Professional Skills Institute	1	1	2
57	Sachog Driving Institute (Samtse)	1	1	2
58	Sunrise Driving Institute	0	2	2
59	Wood Craft Centre Ltd	1	1	2

SLN	Institute/Training Provider	Female	Male	Total
60	Bhutan Institute of International Language, IT and Management	0	1	1
61	Bhutan Institute of Martial Arts	0	1	1
62	Dechen IT & Management Institute	0	1	1
63	Fashion Institute of Technology	0	1	1
64	Ghadyen Driving Training Institute	0	1	1
	Total	127	268	395
	Percent	32.15	67.85	100

Table 4.34 presents the trainers in OPPTPs in 2019 and their academic qualifications. Most of them had reported possessing bachelor's degrees (27.3%) followed by master's degrees (18.2%). Contrary to TTIs and IZCs, qualification of trainers in OPPTPs varied from pre-primary level to PhD.

Table 4.34: TVET trainers of OPPTs (2019) by qualification

SLN	Qualification	Frequency	Percent
1	Bachelor Degree	108	27.3
2	Master Degree	72	18.2
3	Diploma	63	15.9
4	Class X	35	8.9
5	Class XII	31	7.8
6	Certificate	22	5.6
7	PG Diploma	17	4.3
8	Qualification Not Given	15	3.8
9	National Certificate	14	3.5
10	Below Class VI	7	1.8
11	PhD	6	1.5
12	Class VIII	3	0.8
13	Monk	2	0.5
	Total	395	100

The employment types of TVET trainers in OPPTs are reported in Figure 4.5. About 288 trainers in 2019 were regular staff while 95 trainers were on contract and nine need-based recruits.

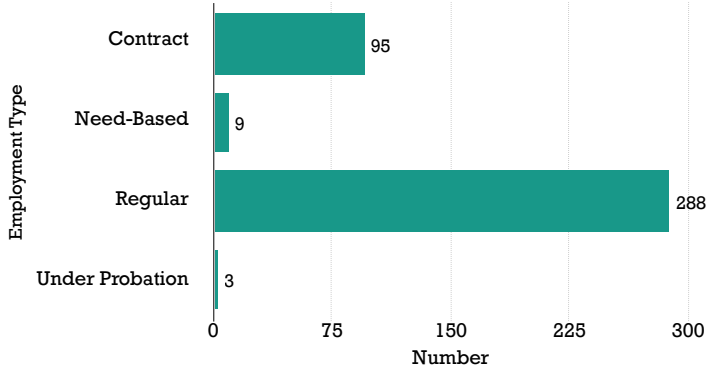


Figure 4.5: Trainers of OPPTPs (2019) by employment type

Table 4.35 reports the TOT status of trainers in OPPTPs in 2019. Only the trainers who had completed four-module TOT of DTE viz. Skills, Knowledge, Visualisation and Evaluation and any other skills-related and pedagogical TOTs were marked as TOT certified. Of 351 trainers in 60 OPPTPs, 158 trainers (45%) had TOT certification. About 55% of trainers had either started or were yet to start four-module ToT.

Table 4.35: ToT certification among TVET trainers of 60 OPPTPs (2019)

SLN	Institute/Training Provider	TOT Availed	TOT Not Availed		Total
			Freq.	%	
1	Advanced Institute for Tourism	2	2	50.0	4
2	Agriculture Machinery Training Centre	9	2	18.2	11
3	Bhutan Institute for Marital Arts	0	1	100.0	1
4	Bhutan Institute for Training and Development	10	1	9.1	11
5	Bhutan Institute of Information Technology and Management	1	1	50.0	2
6	Bhutan Institute of International Language, IT and Management	1	3	75.0	4
7	Bhutan International School of Hospitality & Tourism	2	2	50.0	4
8	Bongde Institute of Hotel and Tourism	1	8	88.9	9
9	Choki Traditional Art School	6	6	50.0	12
10	Computer & Management Institute	3	3	50.0	6

SLN	Institute/Training Provider	TOT Availed	TOT Not Availed		Total
			Freq.	%	
11	Dechen IT & Management Institute	0	1	100.0	1
12	Dorji International Training Institute	2	2	50.0	4
13	Druk Institute of Management Technology	1	5	83.3	6
14	Druk Tshemzo Training Institute	1	15	93.8	16
15	Eastern Computer Training Centre	1	1	50.0	2
16	Eastern Driving Training Institute	0	2	100.0	2
17	Fashion Institute of Technology	1	1	50.0	2
18	Financial Institutions Training Institute Limited	12	1	7.7	13
19	Gangchen Language & Management Institute	1	3	75.0	4
20	Gangjung Driving Centre of Excellence	6	7	53.8	13
21	Ghadyen Driving Training Institute	0	1	100.0	1
22	Global Computer Training Centre	1	2	66.7	3
23	Guide Association of Bhutan	0	2	100.0	2
24	Heruka Security Services	0	1	100.0	1
25	iBEST Institute of Media, Management and Technical Studies	5	5	50.0	10
26	Institute for Excellence and Development	6	1	14.3	7
27	Institute for Management Studies	0	1	100	1
28	Institute for Professional Studies	1	12	92.3	13
29	Jachung Security Services Pvt Ltd	0	7	100	7
30	JCB Operator Training Centre	0	1	100	1
31	Jigyang Driving Training Institute	1	1	50.0	2
32	Karma Driving Training Institute	0	3	100	3
33	Karsel Dawa Driving Training Institute	0	1	100	1
34	Kesang Diving Institute	2	2	50.0	4
35	Kilu Bhutan Music School	2	2	50.0	4
36	Kunjung Institute of Information and Technology	0	1	100	1

SLN	Institute/Training Provider	TOT Availed	TOT Not Availed		Total
			Freq.	%	
37	Learn Zone Institute	1	3	75.0	4
38	Lekdrup Skills Development Institute	1	5	83.3	6
39	Niche Institute	1	1	50.0	2
40	NLD Training Institute	3	3	50.0	6
41	Norbu International Wellness Institute	3	3	50.0	6
42	Pema Driving Training Institute	2	2	50.0	4
43	Phunsum Driving Institute	0	3	100	3
44	Rigsum Institute of Technical Education & Management Studies	2	3	60.0	5
45	Royal Academy of Performing Arts	9	1	10.0	10
46	Royal Institute of Hospitality and Tourism	20	1	4.8	21
47	RTC Training and Professional Services	0	13	100	13
48	Rural Development Training Centre	6	1	14.3	7
49	Sacho Driving Training Institute	1	6	85.7	7
50	Sacho Gaa Driving Institute	2	1	33.3	3
51	Somphel Driving Training Institute	0	1	100	1
52	Sunrise Driving Institute	0	2	100	2
53	Tacho Bala Ha Driving Training Institute	0	4	100	4
54	Tenzin's Hair & Beauty Academy	0	3	100	3
55	Ugyen International Language and culture Training Institute	7	2	22.2	9
56	Ugyen Wangchuck Institute for Conservation and Environmental Research	17	9	34.6	26
57	USD Driving Institute	1	6	85.7	7
58	Wood Craft Centre Ltd	1	1	50.0	2
59	Yarab Institute for Hospitality Management	3	3	50.0	6
60	Youth Development and Rehabilitation Centre	0	6	100	6
		158	193	55.0	351

The variation in the completion of TOT modules by trainers of OPPTPs is evident from Table 4.36. More than 14% of trainers had completed all the four modules as of 2019. Some trainers were undergoing various modules of TOT. Among the TOT certified trainers, some reported having availed TOTs from other sources (see table below).

Table 4.36: TOT modules availed by trainers of 60 OPPTs (2019)

SLN	TOT Modules	Frequency	Percent
1	Skill, Knowledge, Visual and Evaluation	50	14.25
2	Skills, Knowledge and Visual	4	1.14
3	Skill and Knowledge	3	0.85
4	Skill	17	4.84
5	Action Research Module Development	1	0.28
6	Buddhism and Iconography	1	0.28
7	CEFE, NBC	5	1.42
8	Disaster Preparedness for Safer Schools	1	0.28
9	ECCD Parenting Education Curriculum	1	0.28
10	Economics	2	0.57
11	English	1	0.28
12	Entrepreneurship	2	0.57
13	Finance and Accounting	3	0.85
14	First Aid	1	0.28
15	History	1	0.28
16	Information Technology	1	0.28
17	Leadership Learning Program	1	0.28
18	Module Development ECCD	1	0.28
19	RMA TOT	1	0.28
20	RSTA TOT	11	3.13
21	Strengthening FITI Staff Capacity in TOT	10	2.85
22	ToT on Media Literacy	1	0.28
23	ToT on Teaching Methodology	18	5.13
24	Tourism and Hospitality	21	5.98
	Total	351	100

Trainee-Trainer Ratio of OPPTPs

The IAG-Global recommends using Trainee-Trainer ratio as a proxy measure of TVET quality. The logic behind this is that the higher quality of training could be delivered with a lower number of trainees per trainer. DOS's regulation for registration of TPs also requires each TP to maintain a 1:20 trainer-trainee ratio for classroom teaching

and 1:12 for practical training. Rather than calculating the ratio by 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 for one year (2018 or 2019) at the institution level. In general education, the teacher-student ratio is calculated for each level of education and field of study. Similar calculation in TVET was difficult due to a huge number of courses with varying duration.

Table 4.37 presents the aggregated trainer-trainees ratio for 66 TPs. The aggregated ratios for all courses for one particular TP in one year may indicate the across-the-board allocation of trainers to trainees rather than course-wise allocation. It is not a good indicator as aggregated data may hide the differences between courses within a particular training institution. Hence, ratios that are presented below should be interpreted with caution.

Table 4.37: Trainee-Trainer Ratios of 66 OPPTPs (2018)

SLN	Institute/Training Provider	Trainer	Trainees	Trainee-Trainer Ratio
1	Advanced Institute for Tourism	4	120	30:1
2	Agriculture Machinery Training Centre	15	125	8:1
3	Athang Training Academy	10	90	9:1
4	Bhutan Institute for Training and Development	10	123	12:1
5	Bhutan Institute of Information Technology and Management	4		
6	Bhutan Institute of International Language, IT and Management	1	63	63:1
7	Bhutan Institute of Martial Arts	1	299	299:1
8	Bhutan International School of Hospitality & Tourism	7	119	17:1
9	Bhutan Media & Communications Institute	27	89	3:1
10	Bongde Institute of Hotel and Tourism	9	104	12:1
11	Choki Traditional Art School	11	90	8:1
12	Computer & Management Institute	6	477	80:1
13	Dechen IT & Management Institute	1	87	87:1
14	Dorji International Training Institute	5	175	35:1
15	Druk Institute of Management Technology	6	187	31:1
16	Druk Tshemzo Training Institute	16	250	16:1
17	Eastern Computer Training Centre	2	49	25:1
18	Eastern Driving Training Institute	2	65	33:1
19	Fashion Institute of Technology	1	11	11:1

SLN	Institute/Training Provider	Trainer	Trainees	Trainee-Trainer Ratio
20	Financial Institutions Training Institute Limited	7	268	38:1
21	Gangchen Language & Management Institute	3	41	14:1
22	Gangjung Driving Centre of Excellence	12	2611	218:1
23	Ghadyen Driving Training Institute	1		
24	Global Computer Training Centre	4		
25	GPY Computer Training Institute	2	107	54:1
26	Guide Association of Bhutan	2	310	155:1
27	Heruka Security Services		85	
28	iBEST Institute of Media, Management and Technical Studies	13	127	10:1
29	Institute for Excellence and Development	3	345	115:1
30	Institute for Management Studies	8		
31	Institute for Professional Studies (IPS)	12	125	10:1
32	Institute of Information Technology Management	6	27	5:1
33	Jachung Security Services Pvt Ltd	7	217	31:1
34	JCB Operator Training Centre	5	20	4:1
35	Jigyang Driving Training Institute	2	46	23:1
36	Karma Driving Training Institute, Gedu	3	102	34:1
37	Karsel Dawa Driving Training Institute	2	157	79:1
38	Kesang Diving Institute	4	56	14:1
39	Kilu Bhutan Music School	4	58	15:1
40	Kunjung Institute of Technology and Innovation	3		
41	Learn Zone Institute	5	19	4:1
42	Lekdrup Skills Development Institute	5	30	6:1
43	Niche Institute	3	6	2:1
44	NLD Training Institute	8	231	29:1
45	Norbu International Wellness Institute	6	39	7:1
46	Pema Driving Training Institute	2	539	270:1
47	Phunsum Driving Institute	4	98	25:1
48	Professional Skills Institute	2	25	13:1
49	Rigsum Institute of Technical Education & Management Studies	5	536	107:1
50	Royal Academy of Performing Arts	9	31	3:1

SLN	Institute/Training Provider	Trainer	Trainees	Trainee-Trainer Ratio
51	Royal Institute of Hospitality and Tourism	18	50	3:1
52	RTC Training and Professional Services	15	92	6:1
53	Rural Development Training Centre	7	477	68:1
54	Sacho Driving Training Institute (Phuentsholing)	3	35	12:1
55	Sacho Gaa Driving Institute (Phuentsholing)	5	403	81:1
56	Sachog Driving Institute (Samtse)	2	220	110:1
57	Sompal Driving Training Institute*(2019)		118	
58	Sunrise Driving Institute	2	161	81:1
59	Tacho Bala Ha Driving Training Institute	4	145	36:1
60	Tenzin's Hair & Beauty Academy	4	11	3:1
61	Ugyen International Language and culture Training Institute	3	198	66:1
62	Ugyen Wangchuck Institute for Conservation and Environmental Research	26	25	1:1
63	USD Driving Institute (Thimphu)	7	702	100:1
64	USD Driving School (Phuentsholing)		580	
65	Wood Craft Centre Ltd	2	23	12:1
66	Yarab Institute for Hospitality Management	7	339	48:1
67	Youth Development and Rehabilitation Centre	5	22	4:1

Institutional Linkages among OPPTPs

The UNESCO recommends forging closer links between TPs and industries for improvement of TVET quality. The effective linkages and collaborations between TPs and similar overseas institutions and industries are crucial for the growth of TVET in line with the major global technological and economic advancement. The extent of such linkages and collaborations were far better among OPPTPs than among TTIs and IZCs. Table 4.38 reports linkages and networks between 12 OPPTPs and institutions and industries abroad as of 2019.

Table 4.38: The overseas institutional linkages and collaborations (12 OPPTPs)-2019

Oversea Institute/Agency	Country	Year of linkage
(I) Bhutan Institute for Training and Development		
King Boen Tan MSc Economics	Netherlands	2014
Alexander Rodger Institute of Business Consultants	UK	2014
MichalyaSchonwald Moss MA International Development	South Africa	2014

Oversea Institute/Agency	Country	Year of linkage
Punyapat Institute of Management	Thailand	2015
Jaipura Institute	India	2016
(II) Bhutan International School of Hospitality & Tourism		
VET by Ecole hôtelière de Lausanne (EHL)	Switzerland	2019
Jaipura Institute	India	2016
(III) Bhutan Media & Communications Institute		
Asian Institute for Journalism and Communications	Philippines	2013
Asian Institute for Broadcasting Development	Malaysia	2013
ICDL Asia		2015
(IV) Choki Traditional Art School		
BERNINA	Switzerland	2014
(V) Financial Institutions Training Institute Limited		
Indian Institute of Banking and Finance (IIBF)	India	2017
RIPPLES		2018
Asian Banking School	Malaysia	2018
Insurance Institute of India	India	2018
(VI) Global Computer Training Centre		
National Institute of Technical Teachers Training & Research	India	2018
(VII) Institute for Management Studies		
Jaipuria Institute of Management	India	2018
Asian Institute of Management	Thailand	2019
(VIII) Institute of Information Technology Management		
Itrain Asia Pte Ltd	Singapore	2018
(IX) NLD Training Institute		
Management Development and Consultancy	Singapore	2018
Prime University	Bangladesh	2019
HR Business Management and Consultancy	Malaysia	2018
(X) Professional Skills Institute		
EURASIA Institute	Germany	2018
(XI) Royal Institute of Tourism and Hospitality		
Tourism schools Salzburg	Austria	2010

Oversea Institute/Agency	Country	Year of linkage
(XII) Ugyen Wangchuck Institute of Conservation and Environmental Research		
School for Field Studies (SFS)	US	
Charles Sturt University (CSU)	Australia	
University of New England	Australia	
Kasetsart University	Thailand	
Tata Institute of Social Sciences (TISS)	India	


TRAINING VEHICLE

SECTION 05

TVET Relevance Indicators

Special Note

The results in this section and the final tracer report launched on July 27, 2020 will vary because: (1) the results in this section were preliminary published due to the data gap. The online survey was going on when this report was being published and (2) the final tracer report was based on the sampled graduates of TTIs and IZCs of 2013-2018 while this section presents some selected results based on [the data of] sampled graduates of TTIs, VTIs and IZCs from 2003 to 2018. The readers/users are recommended to refer the final tracer report available on MoLHR's website for the final tracer survey's results focusing on TTI and IZC graduates of 2013-2018.

The TVET Relevance domain expounds on TVET's responsiveness to labour market demand (IAG-2014) and reflects both the process and outcomes. TVET reforms on the supply side alone may not bring about significant success without concurrent reforms in the areas where TVET demand utilisation take place. In essence, TVET has to impart skills and qualifications that match the demand in dynamic labour markets by bridging TVET providers and employers. Currently, policymakers in the country do not have access to a well-developed TVET's labour market information. This has constrained developing effective mechanisms for ensuring a smooth transition of TVET graduates to the labour market. This section focusses on demand-side statistics, mainly the following broad indicators:

(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

The data for this domain were sourced mainly from the on-going multi-cohort online TVET tracer survey. The scope of results was confined to the representatively sampled graduates of TTIs and IZCs. These preliminary results may not vary significantly with the final results of the tracer survey. The tracer survey is continuing with graduates of OPPTPs. A separate tracer report is expected to cover a wide range of indicators. TVET graduates here refer to 'TTI/VTI and IZC graduates of 2003-2018'.

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. The data on employment outcomes of training can inform policies and programmes intended to improve TVET programmes and increase the marketability and employability of TVET graduates.

Figure 5.1 presents the employment profile of TTIs and IZCs graduates. Out of 2,356 TTI and IZC graduates who responded to the tracer's question on the status of their employment, 76% (1791) of them had reported they were employed and the rest as unemployed. Among the employed graduates, about 67.88% were males and 32.12% females. Out of the unemployed,53.60% were females and 46.40% males. In all, male graduates were doing relatively well in terms of employability than female graduates.

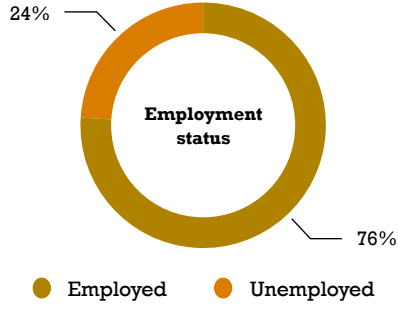


Figure 5.1: Employment status of TTIs and IZCs graduates (2003-2018)

The 76% employability of TVET graduates (of 2003-2018) is a good TVET outcome. It is relatively higher than the employability of academic graduates. Nevertheless, on further analysis of the data (reported in Table 5.1), it was observed that, of the employed graduates, more than 60.02% were permanent workers and the rest were temporary (34.67%)—17.70% were on a fixed-term contract and about 17% were casual workers. More than 5% of the employed graduates were self-employed (not necessarily in the self-business).

Table 5.1 TTI and IZC graduates by their employment type (2003-2018)

Employment Type	Frequency	Percent
Regular/permanent	1075	60.02
Fixed-Term Contract	*317*	*17.70*
Casual	*304*	*16.97*
Temporary	621	34.67
Self-Employed	95	5.30
Total	1907	100

According to ILO, temporary workers are those workers engaged only for some "specific period of time, including fixed-term, project-or task-based contracts as well as seasonal or casual work, including day work." Temporary employment may provide flexibility to enterprises or firms to adjust with the changes in demand, including seasonal fluctuation or for replacement of those employees who are temporarily absent, but this is not a preferred choice for most workers, especially if temporary works are involuntary.

Ease of Getting Jobs

Up to now, the results are good. One of the main issues that call for policy attention is the relevance of training to employment. In the present context, the ease of getting jobs in areas where the responders were trained for is used to measure the relevance of TVET programmes. As shown in figure 5.2, close to half of the total respondents of 1995 (48.7%) respondents stated they had found it difficult to get jobs related to their training. Many factors and co-founding factors could be influencing this demand-supply equilibrium. Nevertheless, this finding suggests either the problem of skills mismatch or lack of demand for TVET graduates in the labour market. This calls for a very urgent study to identify and address factors that impact the TVET graduates' transition to decent works.

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 'lack of job opportunity'(27.93%), 'lack of work experience (15.70%) and low wage/income (15.04%).

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

Rank	Reason	Freq.	Percent
I	No job opportunity for TVET graduate	169	27.93
II	Lack of work experience	95	15.70
III	I can get a job, but the salary/wage is very low	91	15.04
IV	Undergoing further study/training	74	12.23
V	Family problems	70	11.57
VI	Did not look for a job	65	10.74
VII	Personal health problem	30	4.96
VIII	Plan to do a business	9	1.49
IX	I don't want to work in a blue collar job	2	0.33
		605	100.00

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%).

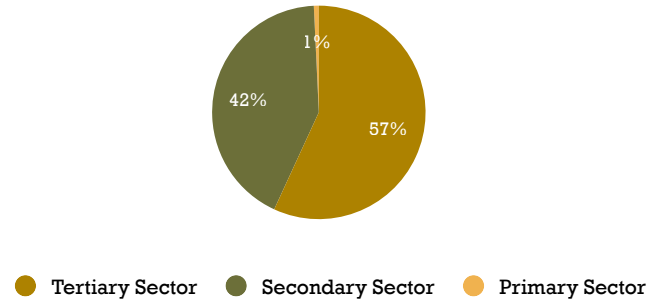


Figure 5.3: Employment of TTIs and IZCs graduates by economic sector

The private sector was the largest sector to employ graduates of TTIs and IZCs when all the private economic activities were combined. The public (government) and

corporate sectors were at the close heel with the private sector (as shown in Figure 5.4). NGOs employ a low percentage of TTI and IZC graduates. Graduates who were self-employed through their private enterprises were included under the private sector.

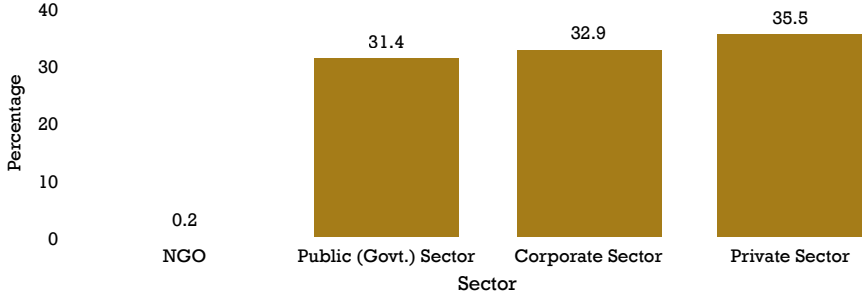


Figure 5.4: Employment distribution of graduates by economic sector

Distribution of TTI and IZC Graduates across Economic Activities

Table 5.3 presents the distribution of TTI and IZC graduates by fields of employment/ economic activities. The NSB's economic activity classification system applied in the Economic Census (2018) was used as the basis for classifying the economic activities. Out of 1,829 respondents who reported about their places of work/economic activities, the top three economic activities/occupational fields (where the largest number of TVET graduates, mainly TTI graduates) were working includes (1) Electricity, Gas and Air-Conditioning (22.46%); (2) Professional, Scientific and Technical Activities (18.85%) and (3) Manufacturing (9.32%). Under the Professional, Scientific and Technical Activities were mostly the technicians working in Dzongkhag/ Thromde/Gewog Engineering Cell and Dzong renovations.

Table 5.3: Distribution of TTI and IZC graduates by occupation/economic fields

SLN	Sector	Frequency	%
1	Electricity, Gas and Air-Conditioning	417	22.46
2	Professional, Scientific and Technical Activities	350	18.85
3	Manufacturing: Private Company	173	9.32
4	Other Service Activities: Private	111	5.98
5	Education: Institution/School	93	5.01
6	Repair of Motor Vehicles and Motor Cycles	84	4.52

SLN	Sector	Frequency	%
7	Other Service Activities: Tailoring	78	4.20
8	Construction: Private	67	3.61
9	Information and Communication: Corporate Media, ICT and Mobile	62	3.34
10	Professional, Scientific and Technical Activities: Public Hospital	52	2.80
11	Construction: Corporate	45	2.42
12	Real Estate Activities: Corporate	33	1.78
13	Professional, Scientific and Technical: Farm Machineries	33	1.78
14	Accommodation and Food Service Activities: Hotels and Resorts	32	1.72
15	Financial and Insurance Activities (Engineering)	27	1.45
16	International Companies: Construction and Others	25	1.35
17	Royal Academy Construction Project	25	1.35
18	Other Service Activities: Furniture and Woodworks	23	1.24
19	Wholesale and Retail Trade: Corporate	19	1.02
20	Other Service Activities: Motors, Heavy Machines and Hiring	19	1.02
21	Other Service Activities: Armed Force	14	0.75
22	Transportation and Storage: Airport Services	11	0.59
23	Wholesale and Retail Trade: Private	9	0.48
24	Other Service Activities: Arts, Crafts and Handicraft	8	0.43
25	Other Service Activities: Tourism	7	0.38
26	Manufacturing: Corporate	5	0.27
27	Mining and Quarrying: Private	5	0.27
28	Other Service Activities: Private Company	4	0.22
29	Other Service Activities: NGO	3	0.16
30	Other Service Activities: Sports	3	0.16
31	Mining and Quarrying: Corporate	2	0.11
32	Other Service Activities: Project	2	0.11
33	Other Service Activities: Corporate	1	0.05
34	Water Supply, Sewerage, Waste Management: Private	1	0.05
35	Agriculture, Forestry and Fishing	14	0.75
	Total	1857	100.00

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

The largest employers of TTI and IZCs graduates were Bhutan Power Corporation (BPC), Druk Green Corporation (DGPC), Hydropower Projects, Bhutan Hydropower Service Limited (BHSL), and others. The second-largest employers of TTI graduates were the government sectors, mainly the Department of Roads (DoR), District and Thromde Engineering units, public hospitals, Dzong renovation projects, etc. Close to the government sectors, the third-largest employers were the private companies in the manufacturing sector. At a higher level of aggregation, the private sector constituted the largest sector of employment for TVET graduates. The private sector came as the third-largest employer only due to disaggregation within the private sector into the large and smaller enterprises. The large private companies employing TVET graduates were Bhutan Board Private Ltd (BBPL), Bhutan Brewery Private Ltd, Bhutan Carbide and Chemicals Ltd (BCCL), Bhutan Polythene Company Ltd (BPLC), Bhutan Silicon Metal, Bhutan Spirit Sanctuary, Druk Ferro Alloys, Druk Wang Alloys, Dungsam Cement, Dungsam Polymers, Kinjore Beverages, Tashi Beverages, Druk Wang and other companies.

Occupations of TTI and IZCs Graduates

Table 5.4 reports the occupations of TTI and IZC graduates. 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. Technicians made up 31.16% of the total graduates employed in 96 different occupations. A huge proportion of graduates were employed as electricians (12.08%) who could also be classified under technician. For the present purpose, they were retained as electrician (as reported by the respondents). Less than 1% of them were engaged in their own businesses. About 1.6% of the respondents were working as TVET trainers in various TTIs, IZCs and other institutes. Among Zorig Chusum graduates, many of them had reported they were employed as tailors.

Table 5.4: Occupations of TTI and IZC Graduates (2019)

SLN	Occupation	Freq.	%
1	Technician	570	31.16
2	Electrician	221	12.08
3	Tailor	89	4.87
4	Machine Operator	73	3.99
5	Plumber	71	3.88
6	Mechanic	59	3.23
7	Site Supervisor	52	2.84
8	Welder	51	2.79
9	Carpenter	49	2.68

SLN	Occupation	Freq.	%
10	Driver	37	2.02
11	Carver	35	1.91
12	Auto Mechanic	32	1.75
13	TVET Instructor	31	1.69
14	IT Technician	25	1.37
15	Painter (Lhadri)	25	1.37
16	Work Supervisor	25	1.37
17	Store In-Charge	20	1.09
18	Supervisor	19	1.04
19	Embroidery	18	0.98
20	Self-Business	18	0.98
21	Lineman	16	0.87
22	Motor Vehicle Inspector (MVI)	15	0.82
23	Manager	14	0.77
24	Sale Executive	13	0.71
25	Work Assistant	12	0.66
26	Auto Technician	11	0.60
27	Fitter	9	0.49
28	Mechanical Supervisor	9	0.49
29	Furniture Maker	8	0.44
30	Heavy Vehicle Driver	8	0.44
31	Hydromet Technician	8	0.44
32	Office Assistant	8	0.44
33	Technical Officer	8	0.44
34	Cable Technician	7	0.38
35	Engineering Supervisor	7	0.38
36	Sculptor	7	0.38
37	Accountant	6	0.33
38	Maintenance In-Charge	6	0.33
39	Section Officer	6	0.33
40	Assistant Technical Officer	5	0.27
41	Auto Electrician	5	0.27
42	Debri and Thangka	5	0.27
43	Muster Roll In-Charge	5	0.27
44	Spare Parts In-Charge	5	0.27

SLN	Occupation	Freq.	%
45	Technical Supervisor	5	0.27
46	Caregiver	4	0.22
47	Engraver	4	0.22
48	Fabricator	4	0.22
49	Field Assistant	4	0.22
50	Foreman	4	0.22
51	Gold and Silver Smith	4	0.22
52	Lab Asst	4	0.22
53	Multi-Task	4	0.22
54	Wood Turner	4	0.22
55	Asst. Transport Manager	3	0.16
56	Housekeeping Supervisor	3	0.16
57	Land Record Asst.	3	0.16
58	Lead Associated Controller	3	0.16
59	Penal Beater	3	0.16
60	Tour Executive	3	0.16
61	Upholster	3	0.16
62	Auto Denting	2	0.11
63	Auto Painter	2	0.11
64	Bio-Medical Technician	2	0.11
65	Coach/Referee	2	0.11
66	Dispatcher	2	0.11
67	Farm Worker	2	0.11
68	Front Desk	2	0.11
69	Safety Steward	2	0.11
70	Sound Technician	2	0.11
71	Ward Boy	1	0.05
72	Air Ticket Counter	1	0.05
73	Air Traffic Controller	1	0.05
74	Artisan	1	0.05
75	Asst. Chef	1	0.05
76	Barista	1	0.05
77	Boot making	1	0.05
78	Car washer	1	0.05
79	Caretaker	1	0.05

SLN	Occupation	Freq.	%
80	Cleaner	1	0.05
81	Delivery Person	1	0.05
82	Designer	1	0.05
83	Grinder	1	0.05
84	ICT Associate	1	0.05
85	ICT Officer	1	0.05
86	Instrumentation Assistant	1	0.05
87	Mess In-Charge	1	0.05
88	Messenger	1	0.05
89	Motor Winder	1	0.05
90	Royal Bhutan Police	1	0.05
91	School Counsellor	1	0.05
92	Security Guard	1	0.05
93	Service Engineer	1	0.05
94	Shift In-Charge	1	0.05
95	Solar Technician	1	0.05
96	Trezop	1	0.05
		1829	100

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

Time-Lag to Get the First Job

Table 5.5 provides data on the duration taken by graduates of TTIs and IZCs in securing the first job after TVET training. More than 45% of the respondents stated they got their first jobs three months after the training. About 47% of males reported getting their first jobs within three months while 43.48% of females reported the same. More than 11% of them had a time-lag of one to two years before getting their first jobs while 6.28% of the graduates/respondents reported they got their first jobs only after two years. If six months is considered a reasonable time-lag, about 68% got their first jobs within this time frame.

Table 5.5: Time-lag to get present jobs after TVET training by gender

Duration	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Three months and less	519	46.67	230	43.48	749	45.64
Four months	94	8.45	38	7.18	132	8.04
Five months	54	4.86	17	3.21	71	4.33

Six months	108	9.71	56	10.59	164	9.99
More than six months and less than nine months	86	7.73	36	6.81	122	7.43
More than nine months and less than one year	72	6.47	47	8.88	119	7.25
Between one year and two years	114	10.25	67	12.67	181	11.03
More than two years	65	5.85	38	7.18	103	6.28
	1112	100.00	529	100.00	1641	100.00

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

The TVET Sector and Profile Assessment (2016) had identified low wage/income associated with TVET occupations as a deterrent for TVET graduates to seek employment in the fields they were trained for. This was also partly contributing to a low TVET image and attractiveness. The same report mentions 77.7% of graduates had reported earning Nu. 15,000 or less per month.

Table 5.6 presents the wage/income distribution among TTI and IZCs graduates who were employed in different economic sectors. More than 67% of the respondents reported they earn less than Nu. 15,000 per month while 12.8% of them reported they earn more than Nu, 15,000 and less than Nu. 17,000 per month. Among many ranges of the monthly wages/income, the highest proportion (24%) reported they earned between (more than) Nu. 13,000 and 17,000 per month.

Table 5.6: Wage distribution among employed TTI and IZC graduates

Monthly Income	Frequency	Valid Percent	Cumulative Percent
Under Nu. 5,000	49	2.6	2.6
Between Nu. 5001-Nu. 7,000	76	4.0	6.6
Between Nu.7,001 - Nu. 9,000	151	8.0	14.6
Between Nu. 9,001-Nu. 11,000	231	12.2	26.8
Between Nu.11,001 – Nu. 13,000	316	16.7	43.5
Between Nu. 13,001-Nu. 15,000	454	24.0	67.5
Between Nu. 15,001-Nu. 17,000	243	12.8	80.3
Between Nu. 17,001-Nu. 19,000	125	6.6	86.9
Between Nu. 19,001-Nu.21,000	78	4.1	91.0
Between Nu. 21,001-Nu. 23,000	41	2.2	93.2
Between Nu. 23,001-Nu. 25,000	29	1.5	94.7

Monthly Income	Frequency	Valid Percent	Cumulative Percent
Between Nu. 25,001-Nu. 25,000	6	0.3	95.0
Between Nu. 25,001-Nu. 27,000	24	1.3	96.3
Between Nu. 27,001-Nu. 30,000	42	2.2	98.5
Between Nu. 30.001-Nu. 35,000	14	0.7	99.2
Between Nu. 35,001-Nu. 45,000	11	0.6	99.8
Above Nu. 55,000	3	0.2	100.0
Total	1893	100.0	

Employment Stability of TTI and IZC Graduates

The general perception is that TTI and IZC graduates change their jobs frequently. The National Council's TVET Committee (2019) had earlier reported about frequent job change among TTI and IZC graduates, causing loss of productivity and discontentment among the employers. The data shows 28% of the respondents had changed their jobs after their first employment while 72% did not change their jobs (Figure 5.5). Those graduates who changed their jobs did mainly due to low wages in their current jobs and lack of training incentives. The detailed report will be presented in a separate tracer report.

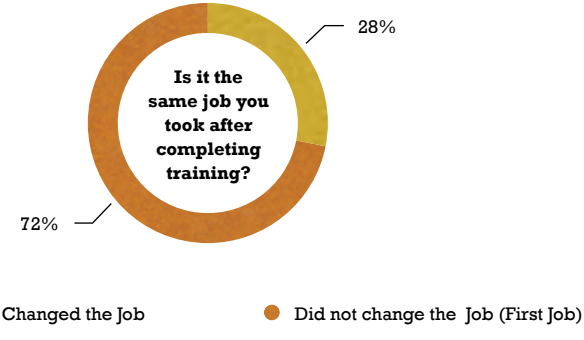


Figure 5.5: Job stability among employed TTI and IZC graduates

Relevance of Theoretical and Practical Learning in TTIs and IZCs

The TVET tracer survey's respondents were asked about the relevance of their theoretical and practical learnings [at institutes] to their actual works. More than 75% had stated their theoretical lessons were relevant to their works while close to 79% reported their practical learning was relevant (Figure 5.6).

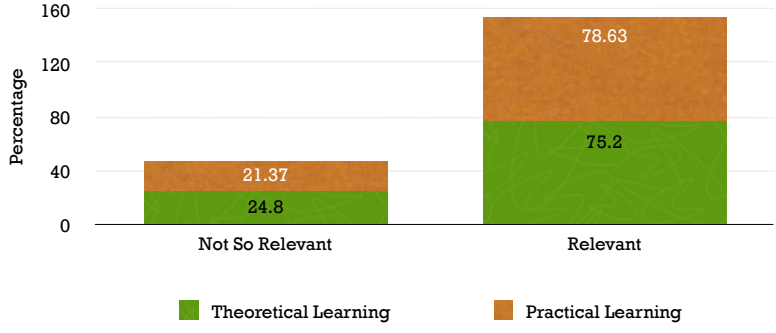


Figure 5.6: Relevance of theoretical and practical learning

Critical Skills Shortage

Skills mismatch has been identified as one of the causes of employment in the country. There exist a controversial scenario of youth unemployment on one hand and critical skills shortage on the other. The unfilled vacancies in industries had been reported in both the National Workforce Development Plan (NWFP), 2016-2022 and Establishment Census (2018).

The NWFP of 2016 was an effort to bridge the gap between demand and supply. It identified critical skills shortage and critical capabilities/gap within tourism, construction and production sectors for 2016-18 (short-term) and 2019-22 (medium-term). The data for the NWFP had been generated through surveys of 840 tourism industries, 790 construction, and 841 production establishments in the country. The key finding of the National Workforce Assessment was that more than 33% of industries in three sectors faced skills shortage (the NWFP Report, 2016). The results of the NFWP were used to assess the relevance of TVET programmes on the assumption that market demand for various skills does not change within a short duration.

In the NWFP, a high critical gap was notable in the construction sector followed by the production sector. Three types of skills shortage were identified: (1) hard-to-fill jobs (2) critical jobs and (3) mission-critical jobs. Mission-critical jobs are ones whose failure or disruption would cause an entire operation or business to grind to a halt.

These three types of skills shortage along with specific occupations are presented in Table 5.7.

Table 5.7: Critical skills shortage by three categories

Type	Tourism	Construction	Production
Hard-to-fill jobs	Food & beverage, cook, marketing officer, facility care taker, manager, housekeeper, tour operator, helper, reservation & ticket officer, specialised guide, Chef	Electrician, manual labourer, plumber, mason, construction machine operator, site supervisor, construction carpenter, civil engineer, heavy vehicle driver, welder	Carpenter, farm caretaker, food processor, livestock caretaker, manager, manual worker, marketing officer, mechanic operators, mining engineering, product designer
Critical jobs	Cook, manager, food & beverage, chef, language guide, guide, housekeeper, customer care officer, marketing officer, reservation & ticket officer	Mason, carpenter, welder, manual worker, construction machine operators, solid waste plumber, civil engineer, site supervisor, construction manager, electrician, traditional structure/house builders/experts	Chemical engineer, metallurgist, chemist, fabricator, mining engineer, product designer, sawyer, marketing expert, carpenter, plant & machine operators, Zorig artisan
Mission-critical jobs	Manager, cook, food & beverage, chef, housekeeper, customer care officer, ticketing & reservation officer, front desk, helper, guide	Mason, construction manager, site supervisor, plumber, manual worker, carpenter, electrician, civil engineer, welder, construction machine operator, traditional structure/house builders/experts	

Extracted from NWFP Report (2016, MoLHR

The NWFP had determined the highest employment potential in the construction sector. Through appropriate skilling programmes, promotion of the attractiveness of jobs and re-orientation of youth towards blue-collar professions, certain demand in the construction sector are expected to be met, otherwise this sector may have to largely depend on foreign workers. The demands for various occupation skills in three sectors, both in short-term (2016-18) and medium-term range (2019-22) are presented in Table 5.8.

Table 5.8: Short-term and medium-term critical job demand in three sectors

SLN	Jobs	Demand	
		2016-18	2019-22
I	**Construction Sector**		
1	Mason/Concrete Workers	18254	20079
2	Carpenter	2953	3248
3	Belter	2550	2805
4	Rod Binder	1089	1198
5	Rigger	1004	1104
6	Manual Labour	821	903
7	Construction Machine Operator	650	715
8	Site Supervisor	531	584
9	Welder	487	536
10	Fitter	398	438
11	Heavy Vehicle Driver	398	438
12	Civil Engineer	300	330
13	Structural Metal Worker	253	278
14	Sheet Metal Worker	136	150
15	Electrician	73	80
16	Plumber	73	80
17	Construction Supervisor	62	68
18	Turner	51	56
19	Fabricator	38	42
20	Metal Moulder	38	42
21	Electrical Engineer	36	40
22	Assembly Worker	35	39
23	Manager	32	35
24	Painter	32	35
25	Mechanical Engineer	30	33
26	Motor Winder	27	30
27	Surveyor	27	30
28	Building Carpenter	25	28
29	Account Officer	24	26
30	Fibre Machine Operator	20	22
31	Geologist	18	20
32	General Manager	12	13

SLN	Jobs	Demand	
		2016-18	2019-22
33	Nozzle Man	12	13
34	Electronic Mechanic	11	12
35	Gas Welder	11	12
36	Tile Layer	10	11
	Total	30521	33573
II	**Production Sector**		
1	Manual Workers	292	350
2	Electrical Engineer (Diploma)	256	307
3	Carpenter/Wood Worker	207	248
4	Mechanical Engineer	205	246
5	Marketing Officer	116	139
6	Electrical Engineer	114	137
7	Packer	101	121
8	Plant/Machine Operator	99	119
9	Baker	69	83
10	Weaver	65	78
11	Manager	59	71
12	Food Processor	54	65
13	Mechanical Engineer (Diploma)	50	60
14	Store In-Charge	46	55
15	Sawyer	45	54
16	Civill Engineer	34	40
17	Product Designer	34	41
18	Carver	25	30
19	Civil Engineer (Diploma)	24	29
20	Accountant	23	28
21	Zorig Artisan	23	28
22	Driver	19	23
23	ICT Technician	17	20
24	Cabinet Maker	16	19
25	Finance Manager	16	19
26	HR Officer	14	17
27	Tailor	14	17
28	Caretaker	13	16

SLN	Jobs	Demand	
		2016-18	2019-22
29	Farm/Livestock Caretaker	13	16
30	Fabricators	12	14
31	Loader	12	14
32	Clerks	10	12
33	Mining Engineer	10	12
34	Farm/Livestock Manager	8	10
35	Upholster	8	10
36	Inspection In-Charge	7	8
37	CG Expert	6	7
38	Pastry Chef	5	6
39	Cable Operator	4	5
40	Food Safety Officer	4	5
41	PLC Operator	4	5
42	Security Guard	3	4
43	Geologist	2	2
44	Researcher	2	2
	Total	2160	2592
III	**Tourism Sector**		
1	Food and Beverages	823	1424
2	Specialised Guide	532	997
3	House Keeper	441	931
4	Cook	521	774
5	Front Desk	230	357
6	Helper	323	314
7	Chef	197	295
8	Ticketing and Reservation Officer	100	171
9	Driver	96	148
10	Accountant	67	109
11	IT Officer	30	52
12	Human Resource Officer	18	38
13	Finance Officer	18	33
14	Spa Therapist	7	26
15	Customer Care Officer	9	24
16	Guard	5	17

SLN	Jobs	Demand	
		2016-18	2019-22
17	Tour Operator	4	5
	Total	3421	5715

Source: NWFP, 2016, MoLHR

Institute-Industry Linkages

Building bridges between the world of work and training providers to match skills provision is crucial for promoting TVET quality and relevance. There is not much information on this, which otherwise could be crucial for identifying and addressing issues related to the transition from training institutions to workplaces. In view of this, the attempt was made to collect information on institute-industry linkages. More data needs to be collected in this area in the future.

Table 5.9 presents the list of TTIs and IZCs with their corresponding industrial partners by Dzongkhag, year of the initiation of linkage, type of linkage and focus areas. Thimphu NIZC had not reported any institute-industry linkages but this does not imply that NIZC has no industrial linkage. Most of the linkages were formal and initiated by TTIs and IZCs themselves. This is one area that needs to be looked at in the immediate future.

Table 5.9: Industrial linkages by TTI and IZC

Firm/industry	Dzongkha	Year Estd.	Type of linkage	Area
(I) TTI Chumey				
Walo Company	Switzerland	2013	Training	Construction
AMC, MoA	Paro	2018	Training	Construction
CDCL	Thimphu	2017	DTP	Construction
NHDCL	Thimphu	2018	DTP	Construction
Vajra Builders Private Ltd.	Thimphu	2018	DTP	Construction
Ongdi Timber Industry	Thimphu	2019	DTP	Furniture
BJTF	Thimphu	2019	Training	Multi-Skill
DES, MoWHS	Thimphu	2019	Training	Earth Equip
Karma Jigme Staples & Jattu Wood Industry	Chukha	2019	Training	Furniture
Udee Manufacturing & Furniture Unit	Bumthang	2019	Training	Furniture
Tshering Wangchuk, Wangchuk Wood Tech Unit	Paro	2019	Training	Furniture
(II) JWPTI Dekiling				

Firm/industry	Dzongkha	Year Estd.	Type of linkage	Area
Gyeltshen Furniture House	Sarpang	2012	OJT	Furniture
Gyeltshen Furniture House	Sarpang	2012	OJT	Furniture
Bhutan Hydropower Service Ltd (BHSL)	Sarpang	2014	OJT	Hydropower
Bhutan Hydropower Service Ltd (BHSL)	Sarpang	2014	OJT	Furniture
Pema Lhamo Furniture House	Sarpang	2014	OJT	Furniture
NHDCL	Thimphu	2019	DTP	Construction
CDCL	Thimphu	2019	DTP	Construction
(III) TTI Khuruthang				
Dungsam Cement Corporation Ltd (DCCL)	Pemagatshel	2018	OJT	Welding and Fabrication
Khaling Bhukhari Fabrication	Trashigang	2018	OJT	Welding and Fabrication
Bhutan Hydropower Service Ltd (BHSL)	Sarpang	2018	OJT	Welding and Fabrication
BPCL	Punakha	2018	G.Lecture	Electrical
BPCL	Punakha	2018	G.Lecture	Electrical
BPCL	Punakha	2018	G. Lecture	Electrical
(IV) TTI Samthang				
Ajang Jari Auto Workshop	Pemagatshel	2017	OJT	Automobile
Sonam Yaarphel Automobile Workshop	Pemagatshel	2017	OJT	Automobile
Kuendey Engineering Workshop	Sarpang	2017	OJT	Automobile
Brothers Engineering Workshop	Paro	2017	OJT	Automobile
Zamlha Workshop	Tsirang	2017	OJT	Automobile
RSTA	Thimphu	2018	OJT	Traffic Rules
RBP	Wangdue	2018	OJT	Traffic Rules e
BNCA	Thimphu	2018	G. Lecture	Narcotics
Bhutan Insurance	Thimphu	2018	G. Lecture	Insurance
Bajo Hospital	Wangdue	2018	G. Lecture	Health
(V) TTI Thimphu				
Paro Automobile	Wangdue	2016	OJT	Automobile
Dungkar Ugyen Automobile	Thimphu	2016	OJT	Automobile
Jorden Automobile	Thimphu	2016	OJT	Automobile
Sonam Automobile	Thimphu	2016	OJT	Automobile

Firm/industry	Dzongkha	Year Estd.	Type of linkage	Area
SP Automobile	Thimphu	2016	OJT	Automobile
Khamsa Automobile	Thimphu	2016	OJT	Automobile
Tara Automobile	Thimphu	2016	OJT	Automobile
Khuenphen Auto Parts	Thimphu	2016	OJT	Automobile
Zimdra Automobile	Thimphu	2016	OJT	Automobile
Namgay Automobile	Thimphu	2016	OJT	Automobile
Kitab Automobile	Thimphu	2016	OJT	Automobile
BMW	Thimphu	2016	OJT	Automobile
AMW	Thimphu	2016	OJT	Automobile
Tandin Automobile	Thimphu	2016	OJT	Automobile
Brothers Automobile	Thimphu	2016	OJT	Automobile
(VI) TTI Rangjung				
Bhutan Broadcasting Service Corporation Ltd.	Thimphu	2003	OJT	
Bhutan Carbide and Chemicals Ltd	Pasakha	2003	OJT	Staff attachment
Bhutan Ferro Alloys Ltd. Pasakha	Pasakha	2003	OJT	Staff attachment
Bhutan Kubera Furniture Wood Work	Paro	2016	OJT	
Bhutan Power Corporation Ltd.	Thimphu	2003	OJT	Industrial training
Bhutan Telecom Ltd.		2003	OJT	
Coca Cola Company	Pasakha	2010	OJT	
Computer and Management Institute	Phuentsholing	2006	OJT	
Druk Com Ltd.	Paro	2017	OJT	
Druk Green Power Corporation Ltd.	Thimphu	2009	OJT	
Dungsam Cement Corporation Ltd.	Nganglam	2013	OJT	
GPY Computer Training Institute	Phuentsholing	2011	OJT	
Gyeltshen Furniture House	Gelephu	2015	OJT	
Gyelyong Enterprise	Thimphu	2013	OJT	
J K Furniture	Samtse	2016	OJT	
Komputer Palace	Thimphu	2014	OJT	
Kuensel Corporation Ltd.	Thimphu	2008	OJT	
Kuenjung Institute of Information Technology	Gelephu	2015	OJT	
Lamla Sales and Service	Thimphu	2007	OJT	

Firm/industry	Dzongkha	Year Estd.	Type of linkage	Area
Penden Cement Corporation Ltd.	Gomtu	2003	OJT	
(VII) CZC Trashiyangtse				
Thongshing Lhakhang	Bhutan	2017	OJT	Lhadi
Jangchub Chophel Traditional Painting	Thimphu	2017	OJT	Lhadi
Bhutan Home Arts	Thimphu	2017	OJT	Lhadi
Takhambi Lhakhang	Mongar	2017	OJT	Lhadi
Kuendrup Thsemkhang	Sarpang	2018	OJT	Lhadi
Dorji Phuntsho Tailoring	Bumthang	2018	OJT	Tshemzo
Ugyen Thongdrel & Thanka Tshemkhang	Thimphu	2018	OJT	Tshemzo
Dolma Lhamnam Bronze Casting Unit	Thimphu	2018	OJT	Casting
Dorjichoeling Nyingmapa Monastery	Yangtse	2018	OJT	Lhadi
Threchu Gonpa	Yangtse	2018	OJT	Lhadi
Baylling CS	Yangtse	2019	OJT	Tshemzo
Wongmenang PS	Yangtse	2019	OJT	Tshemzo
Yoeto Gonpa	Paro	2019	OJT	Tshemzo
Rinchen Zangmo Tshemkhang	Pemagatshel	2019	OJT	Tshemzo
Sherab Nima Tshamang Bangar Tailoring Shop	Mongar	2019	OJT	Tshemzo
Sonam Penjor Tailoring Shop	Trashigang	2019	OJT	Tshemzo
Sangay Tenzin Tailoring Shop	Wangdue	2019	OJT	Tshemzo
Kelzang Tshomo Tailoring Shop	Yangtse	2019	OJT	Tshemzo
Thinley Wangmo Tailoring Shop	Thimphu	2019	OJT	Tshemzo
Jurmi Thsemkhang	Yangtse	2019	OJT	Tshemzo
Namsay Norla Tailoring Shop	Yangtse	2019	OJT	Tshemzo
Yarab Tailoring Shop	Punakha	2019	OJT	Tshemzo
Kinga W Tailoring Shop	Wangdue	2019	OJT	Tshemzo
Sonam Choden Tailoring Shop	Yangtse	2019	OJT	Tshemzo
Nima Tshering	Yangtse	2019	G. Lecture	Counselling
Pema	Yangtse	2019	G. Lecture	
Rabsel Furniture House, Chukha		2016	OJT	
Rigsum Institute of Technical Education and Management Studies, Thimphu		2006	OJT	

Firm/industry	Dzongkha	Year Estd.	Type of linkage	Area
STCBL		2003	OJT	Staff attachment
Taag Sing Grad Network, Thimphu		2016	OJT	
Tashi Engineering Workshop, Phuentsholing		2006	OJT	
U Dee Wood Manufacturing and Furniture Unit, Bumthang		2015	OJT	
Urban Furniture House, Paro		2016	OJT	
Wangchuk Woodtech, Paro		2016	OJT	
Webtech, Phuentsholing		2015	OJT	
Wood Craft Centre, Thimphu		2003	OJT	
Yeshi Engineering Workshop, Lobeysa		2011	OJT	
Zimdra Automobile Workshop, Phuentsholing		2006	OJT	Staff attachment

On-Campus-Recruitment of TTI and IZC Graduates

To a certain extent, the training quality affects not only the competencies of TVET graduates but also their prospects for being recruited by industries/employers. Some TTIs and IZCs have initiated the On-the-Campus-Recruitment (OCR) by inviting the employers to institutes as part of an institute-industry linkage programme. The OCR involves employers seeking, engaging and hiring graduates of TTIs and IZCs upon completion of training. In 2017, the combined OCRs of seven TTIs and IZCs constituted 28.23% of the total graduation while it was roughly 26.97% in 2018 (Table 5.10). The ORC data for Thimphu TTI could not be ascertained.

Table 5.10: The OCR in TTIs and IZCs as % of total graduates (2017 & 2018)

Institute	On-Campus-Recruitment				Total Graduates	
	2017	% of total Graduate	2018	% of total Graduated	2017	2018
TTI Chumey	87	76.32	39	35.14	114	111
JWPTI Dekiling	53	21.12	18	10.65	251	169
TTI Khuruthang	11	6.55	3	2.14	168	140
TTI Rangjung	3	2.36	32	29.91	127	107
TTI Samthang	12	8.16	19	14.62	147	130
NIZC Thimphu	58	87.88	30	24.00	66	125
TTI Thimphu	-	-	-	-	33	39
CZC Yangtse	49	80.33	44	55.00	61	80
	273	28.23	243	26.97	967	901

As reported in Table 5.11, the highest OCRs in 2017 and 2018 were among graduates of masonry, carpentry and furniture making. Altogether, 74.5% of the OCR recruits were male graduates and the rest were female graduates.

Table 5.11: OCRs in TTIs and IZCs by course and sex (2017 & 2018)

Course	Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%
Masonry	54	90.0	6	10.0	60	13.51
Carpentry	48	82.8	10	17.2	58	13.06
Furniture Making	44	86.3	7	13.7	51	11.49
Auto Mechanic	31	88.6	4	11.4	35	7.88
Tshemzo (Tailoring)	2	5.9	32	94.1	34	7.66
Plumbing	19	76.0	6	24.0	25	5.63
Welder	23	100	0	0	23	5.18
Automobile	15	83.3	3	16.7	18	4.05
Panel Beater	16	100	0	0	16	3.60
Heavy Vehicle Driving	12	100	0	0	12	2.70
Electrical	8	80.0	2	20.0	10	2.25
Shingtshon (Painting)	9	90.0	1	10.0	10	2.25
Fitter	9	100	0	0	9	2.03
Tailoring	0	0.0	9	100.0	9	2.03
Patra (Wood Carving)	9	100	0	0	9	2.03
Dralham (Traditional Boot Making)	1	12.5	7	87.5	8	1.80
Auto Painting	4	57.1	3	42.9	7	1.58
Machine Embroidery	0	0.0	7	100.0	7	1.58
Shazo (Wood Turning)	5	71.4	2	28.6	7	1.58
Computer Hardware	1	16.7	5	83.3	6	1.35
Babzo (Mask Carving)	6	100	0	0	6	1.35
Embroidery	0	0	5	100	5	1.13
Mechanical	4	80.0	1	20.0	5	1.13
Patra (Wood Carving)	3	60.0	2	40.0	5	1.13
Trezo (Gold and Silver Smith)	4	100	0	0	4	0.90
Painting	3	100	0	0	3	0.68
Heavy Machine Operation	1	100	0	0	1	0.23
Tshemdru (Embroidery)	0	0.0	1	100.0	1	0.23
Total	331	74.5	113	25.5	444	100.00

The data in Table 5.12 shows that the largest on-the-campus-recruiters in 2017 and 2018 were private construction firms (17.1%) followed by furniture houses and automobile workshops (16% each). The tailoring shops and private handicraft businesses were the main OCR recruiters for Zorig Chusum graduates.

Table 5.12: The OCR of TTI and IZC graduates by sector (2017 & 2018)

Sector	2017	2018	Total	%
Private Construction Firm	73	2	76	17.1
Furniture House	27	44	71	16.0
Private Auto Workshop	7	64	71	16.0
Tailoring Shop	35	21	56	12.6
Private Handicraft Business	29	16	45	10.1
Royal Academy Project	20	6	26	5.9
Corporation	17	4	21	4.7
Dzong Renovation Project	0	21	21	4.7
Cabinet Production	0	13	13	2.9
Driving Institute	12	0	12	2.7
Home Maintenance	1	8	9	2.0
Auto Workshop	0	6	6	1.4
Company Ltd.	6	0	6	1.4
Private IT Firm	0	6	6	1.4
Sawmill	3	0	3	0.7
Car Dealer	0	1	1	0.2
Self-Employed	0	1	1	0.2
Total	230	213	443	99.8

Training-Cum-Production Activities

The success in the labour market depends on skills that trainees acquire through training. In addition to OJT programmes, institutes have initiated a few training-cum-production activities to serve the dual purpose of practical learning and earning. Table 5.13 presents training-cum-production activities initiated by four TTIs and an IZC. The information was segregated by trainers and trainees involved in those activities and revenues. 60-70% of revenue generated from production are usually paid to trainee-workers while the rest are deposited into the Institute Development Fund (IDF).

Table 5.13: Training-Cum-Production activities in TTIs and IZC (2017 & 2018)

Activity	Trainer	Trainee	Total Participant	Institute Revenue (in Nu).
NIZC-Thimphu				
Choe Long Truel Sum Thangka (8 Feet)	6	4	10	
Nublang and Yak Model	1	4	5	
TTI-Khuruthang				
Mass Hand Washing Station	2	1	3	95,266
Fabrication	1	25	25	47,619
Fabrication	1	25	25	3,500
JWPTI-Dekiling				
Wooden Dewan	2	7	9	10,800
Window Frame	2	7	9	14,400
Podium	2	7	9	2,700
Corner Rack	2	7	9	960
Chodrom	2	7	9	2,880
Wooden Cupboard	2	7	9	4,500
TV Stand	2	7	9	1,500
Butter Lamp Stand	1	4	5	702
Rod Ring Flower Pot Stand	1	4	5	354
TTI-Rangjung				
Installation of CCTV	1	5	6	3,500
Repair and maintenance of Roof	1	20	21	5,000
House Wiring	1	12	13	6,000
House Wiring	1	12	13	10,000
Chumey-TTI				
Quarter Maintenance Sheep Shed	4	79	83	73,766
Chain Link Fencing	1	10	11	46,134
Construction of Showroom at Horse Farm	6	102	108	103626
	42	356	396	433,207

TVET Programme Preference

TVET programmes in the general education system are limited to the provision of some vocational subjects. The school vocation subjects are so basic and insufficient to prepare students for their entry into advance courses in TTIs (Bhutan Education Blueprint 2014-2024). The Vocational Skill Development Curriculum (VSDC) was

piloted in five schools. Inadequate financial resources, shortage of professional trainers, lack of assessment methods and low takers were some constraints faced by school TVET programmes.

The Nationwide Consultations for Education Blueprint (2014) was conducted by MOE with 1095 (teachers and principals) and 1134 students (grade VI-XII) and 5438 public members. The result of the survey with 1134 grade VI-XII students on choice of TVET subjects in their school curriculum is presented in Table 5.14. The top five preferred TVET courses were health care and nutrition, media-related (film and music production), tourism-related courses, IT application and photography.

Table 5.14: Survey results (2014) with students on the choice of TVET subjects

Rank	Vocational subject	Frequency	Percent
I	Health Care and Nutrition	500	14.72
II	Media (Music/Movie production)	493	14.51
III	Tourism	452	13.31
IV	IT Application	361	10.63
V	Photography	323	9.51
VI	Child Care	265	7.80
VII	Fashion Design	196	5.77
VIII	Accounting and Book Keeping	195	5.74
IX	Home Sciences	133	3.92
X	Hotel Management	126	3.71
XI	Nursing	113	3.33
XII	Home Appliance Repair	90	2.65
XIII	Other	87	2.56
IV	Beauty Care	63	1.85
		3397	100.00

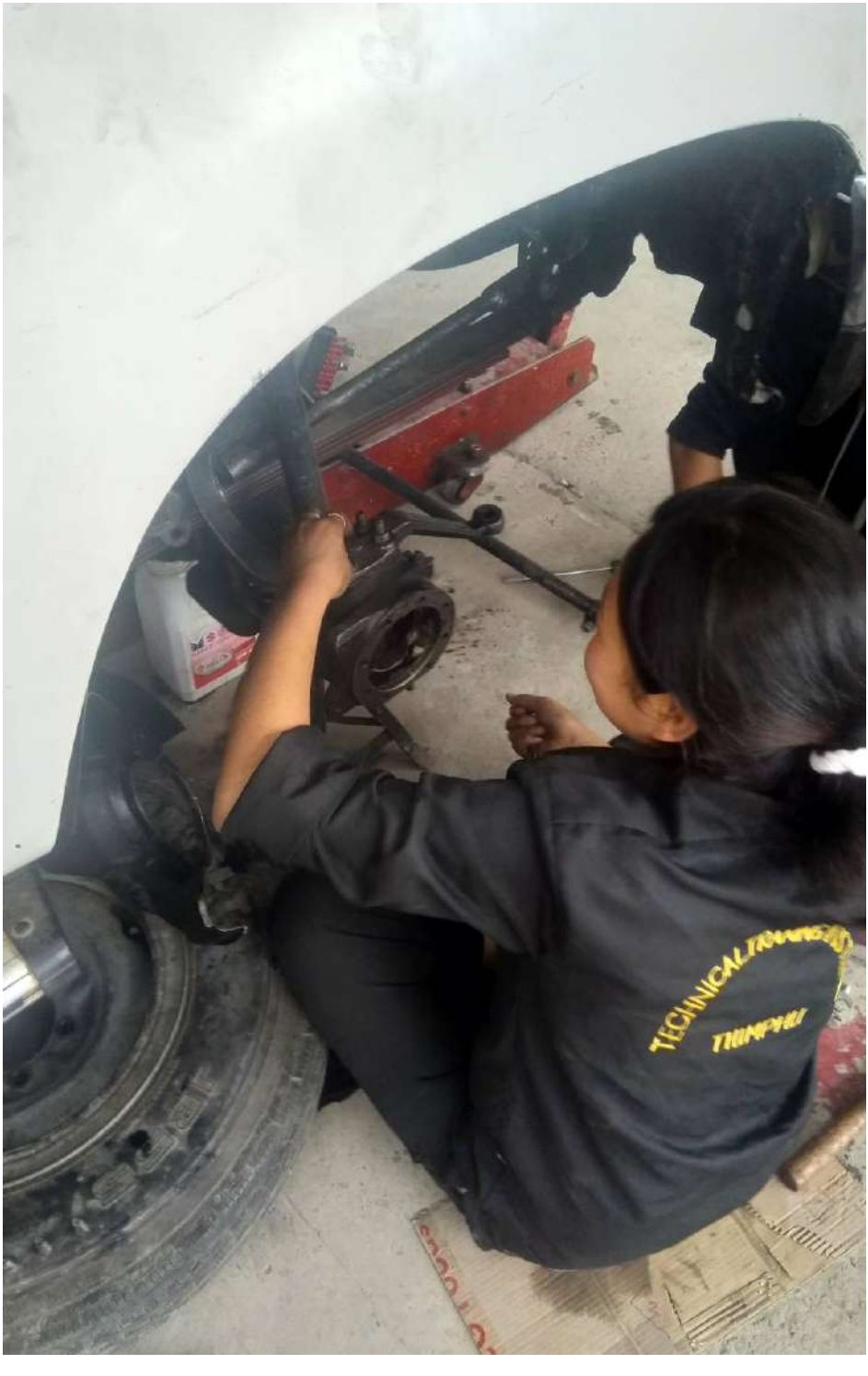
Source: Education Blueprint National Consultation (2014)

Table 5.15 shows the result of a survey with 5438 respondents (2014) belonging to various public members on the choice of TVET subjects. It is obvious from the table that the public's top five preferred TVET programmes in 2014 were courses related to IT applications, health care and nutrition, tourism, accounting and management and media. There was certain convergence of TVET course preference between school children and the public.

Table 5.15: Survey results (2014) with public on the choice of TVET subjects

Rank	Vocational subject	Frequency	Percent
I	IT Application	2888	17.73
II	Health Care and Nutrition	2578	15.83
III	Child Care	2400	14.74
IV	Tourism	1419	8.71
V	Accounting and Book Keeping	1407	8.64
VI	Nursing	1203	7.39
VII	Hotel Management	1028	6.31
VIII	Media (Music/Movie production)	902	5.54
IX	Home Sciences	775	4.76
X	Home Appliance Repair	614	3.77
XI	Fashion Design	369	2.27
XII	Photography	354	2.17
XIII	Beauty Care	252	1.55
XIV	Other	97	0.60
		16286	100

Source: Education Blueprint National Consultation (2014)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SECTION 06

TVET Governance and Financing Indicators

Effective and efficient TVET governance is crucial for delivering quality education and training. TVET governance at a macro level encompasses TVET policies, legal provisions, national institutions and availability of the national resources for TVET, among others. At the institutional level, it could comprise institutional autonomy, resource utilisation, 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, development of infrastructure, and a host of other areas.

The data to develop governance and financing indicators are not readily available even at the international level. Ideally, this domain could best be assessed by using a combination of quantitative and qualitative data. This is beyond the scope of the present report. This section is confined to reporting the statistics on TVET management staff, staff turnover, training, organisational APA rating and OHS. The most important part of this section is TVET financing. It includes the budget and expenditure of MoLHR-administered TVET programmes. The financing data from OPPTPs were fragmented and could not be included in this issue.

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 highly dependent on the management staff to drive these reform processes.

Profiling of non-teaching personnel by their occupation, qualification and quantity was done to get some understanding of the TVET governance and management system. The information can be used for personnel management and HRD planning at a higher systemic level. Currently, even though TTIs and IZCs had long initiated the process of recruiting some management staff, the recruitment approvals and training

(no structured training programme) still needs to be sought from the Ministry's HR Committee and RCSC.

Table 6.1 reports the statistics of the management personnel/non-teaching staff by TTIs and IZCs as of 2019. It shows that the number of management staff ranges between 7 and 15 among six TTIs and two IZCs. In total, there were 90 management staff. Chumey TTI had the highest number of management personnel. Thimphu TTI and NIZC have more female staff than males in the management while other institutes had more males.

Table 6.1: Management personnel of TTIs and IZCs by sex (2019)

Institutes	Male		Female		Total
	Freq.	%	Freq.	%	
TTI-Chumey	10	66.67	5	33.33	15
TTI-Khuruthang	8	57.14	6	42.86	14
TTI-Rangjung	10	71.43	4	28.57	14
CZC-Trashiyangtse	8	61.54	5	38.46	13
TTI-Samthang	10	83.33	2	16.67	12
TTI-Thimphu	3	37.50	5	62.50	8
NIZC-Thimphu	2	28.57	5	71.43	7
JWPTI-Dekiling	5	71.43	2	28.57	7
Total	56	62.22	34	37.78	90

Table 6.2 shows the management personnel of TTIs and IZCs by occupation in 2019. The occupations of all 90 management staff were not reported.

Table 6.2: Management personnel of TTI and IZCs by occupation and sex (2019)

Designation	Male	Female	Total
Account Assistant	3	4	7
Accountant	1	0	1
Adm. Assistant	4	4	8
Caretaker	0	1	1
Cook	12	1	13
Driver	9	0	9
Lab Assistant	1	3	4
Library Assistant	0	6	6
Messenger	1	5	6
Principal	5	2	6
Security Guard	3	0	3

Designation	Male	Female	Total
Training Director	1	0	1
Sr. Dispatcher	0	2	2
Store Assistant	7	0	7
Sweeper	0	2	2
Technician I	0	1	1
Vice Principal	4	0	4
Wet Sweeper	1	2	3
Total	53	33	86

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 class X. The staff without any academic qualification are mostly the support staff.

Table 6.3: Qualification of management staff of TTI and IZCs

Qualification	Male	Female	Total
Class XII	12	16	28
None	18	5	23
Class X	9	7	16
Master	6	2	8
Diploma	4	2	6
Bachelor	1	0	1
Class VIII	2	0	2
Class VII	1	0	1
Class I	0	1	1
Total	53	33	86

Staff Turnover in TTIs and IZCs

Table 6.4 presents the statistics of staff members (both teaching and non-teaching) leaving TTIs and IZCs between 2008 and 2019. The data did not allow the calculation of attrition rate. Doing so requires not only the information about staff leaving institutes but also replacing them. Such data may need to be improved in the future for calculation of the attrition rate in the TVET system. Between 2008 and 2019, 12 staff members had superannuated from TTIs and IZCs. Fifty-two staff members had resigned. Khuruthang TTI had the highest number of staff leaving the institute. Thirteen of Khuruthang TTI's staff had resigned during the same period.

Table 6.4: Staff leaving TTIs and IZCs (2008-2019)

Institute	Resigned	Superannuated	Transferred	Expired	Total
TTI-Khuruthang	13	6	8	0	27
TTI-Chumey	10	0	13	1	24
JWPTI-Dekiling	6	0	8	0	15
NIZC-Thimphu	9	4	2	0	16
TTI-Samthang	5	1	7	1	14
TTI-Rangjung	4	0	3	1	8
CZC-Yangtse	1	1	7	0	8
TTI-Thimphu	3	0	3	0	6
Total	51	12	51	3	117

Table 6.5 shows the number of management staff leaving TTIs and IZCs by year. The highest number of staff had resigned in 2018 followed by in 2014.

Table 6.5: Staff leaving TTIs and IZCs by year (2008-2019)

Year	Resigned	Superannuated	Transferred	Expired	Total
2008	2	0	1	0	3
2009	0	0	1	0	1
2010	4	0	11	0	15
2011	3	2	4	0	9
2012	7	2	5	0	14
2013	5	0	7	0	12
2014	9	0	5	0	14
2015	1	2	4	2	9
2016	3	1	3	0	7
2017	5	3	7	0	15
2018	10	2	2	0	14
2019	2	0	1	1	4
Total	51	12	51	3	117

Among the staff who had left TTIs and IZCs either on transfer, superannuation or resignation, junior instructors made up the majority. As reported in Table 6.6, 20 junior instructors (trainers) and eight instructors had resigned between 2008 and 2019.

Table 6.6: Staff turnover in TTIs and IZCs by designation (2008-2019)

Designation	Resigned	Superannuated	Transferred	Expired	Total
Junior Instructor	20	0	24	0	44
Instructor	8	4	4	1	17
Senior Instructor	4	6	0	0	10
Driver	4	0	2	1	7
Vice Principal	0	0	5	0	5
Accounts Assistant	0	1	2	1	4
Cook	4	0	0	0	4
Junior Instructor IV	0	0	3	0	3
ICT Technical Associate I	0	0	2	0	2
Junior Instructor III	0	0	2	0	2
Library Assistant	1	0	1	0	2
Office Assistant	1	0	2	0	2
Principal	0	0	2	0	2
Security Guard	2	0	0	0	2
Zhungkha Teacher	1	0	1	0	2
Assistant Lecturer	1	0	0	0	1
Assistant Lecturer I	1	0	0	0	1
Lab Technician	1	0	0	0	1
Librarian	1	0	0	0	1
Master Instructor	0	1	0	0	1
Night Guard	1	0	0	0	1
Security Guard	1	0	0	0	1
Store In-charge	0	0	1	0	1
	51	12	51	3	117

Annual Performance Agreement (APA) Rating of TTIs and ZICs

The Government Performance Management System (GPMS) was operationalised on a pilot basis in 2014. 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, Thimphu TTI recorded the consecutive highest scores at 99.70 and 98.80 in FY 2017-18 and 2018-19 respectively (see Table 6.7).

Table 6.7: APA Score of TTIs and IZCs for FY 2017-18 and 2018-19

SLN	Institute	2017-2018	Institute	2018-2019
1	TTI-Thimphu	99.70	TTI Thimphu	98.80
2	CZC-Yangtse	99.70	TTI Rangjung	98.00
3	TTI-Samthang	99.40	CZC Yangtse	97.80
4	TTI-Khuruthang	99.20	JWPTI Dekiling	96.70
5	NIZC-Thimphu	98.40	TTI Khuruthang	96.45
6	TTI-Rangjung	97.80	NIZC Thimphu	96.30
7	JWPTI-Dekiling	97.80	TTI Chumey	96.28
8	TTI-Chumey	95.20	TTI Samthang	95.70

Financing of MoLHR's TVET Component

TVET Financing includes resource mobilisation, allocation and resource utilisation for the TVET programmes. It remains the key issue in the context of the national budgetary constraints and other priorities. Limited public and private resources have to be spread over many levels and programmes. Striking a balance between the use of resources and ensuring sustainable budget remains the biggest challenge. TVET financing is affected by the availability of resources, rules and regulations and priorities accorded to the TVET sector (IAG-TVET).

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 almost all funding from the government budgetary allocations. These institutions generate insignificant amounts of money for the Institute Development Fund (IDF) through training cum production or other activities. The IDFs are used for productive purposes that are not covered under government funding. The donor funding or ODA disbursements and technical support represent a significant share of public funding. These funds are routed through the government financial channel. Government funding continues to remain the most significant source of funds for public TVET providers. The budget from other sources such as through enterprises, individuals, other innovative funding and Public-Private Partnerships (PPPs) remains negligible.

There is the need to establish and implement a unit cost per trainee and the Resource Allocation Formula (RAF) for the effective and equitable allocation of resources to TVET. Such estimations are beyond the scope of the present report. There is a long way to obtain a comprehensive measure of total investment in TVET due to the fragmented nature of TVET programmes. The present statistics do not cover the whole

TVET system because OPPTPs have not submitted adequate financial information even when the data templates required them to submit.

The annual budgets and expenditures of DTE (known as Department of Human Resources prior to 2017) for the financial year 2010-2019 are shown in Table 6.8. DTE commands a large share of the total public TVET 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 FY 2016-17 and 2018-19. The expenditure in FY 2018-2019 had dropped substantially. The major share of the budget was allocated for capital activities. Rescheduling several infrastructure development activities (capital) in the FY due to the ongoing TVET reforms could be attributed to the drop in expenditure in 2018-19 FY.

Table 6.8: Annual budget and expenditure of DTE (2010-2019) in Million Nu.

Year	Budget			Expenditure			
	Current	Capital	Total	Current	Capital	Total	Balance
2010-2011	24.57	137.55	162.12	17.02	60.25	77.27	84.85
2011-2012			224.48			180.84	43.64
2012-2013	18.43	175.37	193.81	15.71	163.96	179.67	14.14
2013-2014	14.53	223.89	238.42	12.76	161.18	173.94	64.48
2014-2015	19.39	148.96	168.35	17.95	129.46	147.40	20.95
2015-2016			167.08			152.95	14.13
2016-2017			317.00			243.86	73.14
2017-2018	10.68	248.71	259.39	10.50	210.50	221.00	38.40
2018-2019	15.56	97.63	113.19	15.08	67.18	82.26	30.93

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 6.9).

Table 6.9: 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

Year	Budget	Expenditure	Balance
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	21.10	0.16
2017-2018	24.69	24.47	0.22
2018-2019	19.06	18.69	0.38
2010-2020	178.62	163.09	15.53

The annual budgets and expenditures of TTIs and IZCS for the FY 2010-2019 are reported in Table 6.10. On average, each institute was allocated the budget of Nu. 20.94 per FY (between 2010-2019). The reported expenditure on average was about Nu. 19.65 per institute per FY. Between 2010-2019, the total expenditure of all TTIs and IZCs was Nu. 1373.07 against the budget allocation of Nu. 1479.02 million.

Table 6.10: Annual budgets and expenditures of TTIs and IZCs (2010-2019)

Year	Budget (Mn. Nu)	Expenditure (Mn.Nu)	Balance (Mn.Nu)
(I) TTI Chumey			
2010-2011	21.93	16.81	5.12
2011-2012	27.83	22.21	5.62
2012-2013	19.54	18.81	0.73
2013-2014	17.64	15.42	2.22
2014-2015	17.30	16.95	0.35
2015-2016	18.06	17.81	0.25
2016-2017	19.25	18.75	0.50
2017-2018	24.91	24.70	0.21
2018-2019	21.29	21.15	0.14
Total (A)	187.75	172.61	15.14
Average (A)	20.86	19.18	1.68
(II) TTI-Khuruthang			
2010-2011	43.61	39.10	4.51
2011-2012	35.60	34.40	1.20
2012-2013	16.92	15.16	1.77
2013-2014	19.20	18.50	0.70
2014-2015	25.99	24.00	1.99
2015-2016	27.18	25.43	1.76
2016-2017	25.95	25.17	0.79

Year	Budget (Mn. Nu)	Expenditure (Mn.Nu)	Balance (Mn.Nu)
2017-2018	32.93	32.23	0.70
2018-2019	23.27	22.79	0.48
Total (A)	250.66	236.77	13.90
Average (A)	27.85	26.31	1.54
(III) JWPTI Dekiling			
2010-2011	15.63	14.18	1.44
2011-2012	16.05	13.95	2.10
2012-2013	15.20	13.48	1.73
2013-2014	16.09	14.47	1.62
2014-2015	17.98	16.02	1.96
2015-2016	20.44	19.72	0.72
2016-2017	21.49	21.30	0.19
2017-2018	25.48	25.21	0.27
2018-2019	28.61	28.13	0.48
Total (A)	176.96	166.46	10.51
Average (A)	19.66	18.50	1.17
(IV) TTI Rangjung			
2010-2011	28.07	25.39	2.69
2011-2012	20.16	19.05	1.11
2012-2013	16.17	15.00	1.16
2013-2014	18.17	17.85	0.33
2014-2015	19.97	18.70	1.27
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
Total (A)	190.04	182.57	7.48
Average (A)	21.12	20.29	0.83
(V) TTI Samthang			
2010-2011	28.83	24.88	3.96
2011-2012	24.53	19.26	5.26
2012-2013	14.59	12.08	2.51
2013-2014	15.85	14.12	1.73
2014-2015	17.39	15.26	2.14
2015-2016	17.96	16.80	1.16

Year	Budget (Mn. Nu)	Expenditure (Mn.Nu)	Balance (Mn.Nu)
2016-2017	20.85	20.04	0.81
2017-2018	23.40	21.43	1.96
2018-2019	22.46	22.30	0.17
Total (A)	185.86	166.17	19.70
Average (A)	20.65	18.46	2.19
(VI) TTI Thimphu			
2010-2011	9.65	6.66	2.99
2011-2012	9.10	6.16	2.95
2012-2013	6.65	5.98	0.66
2013-2014	11.84	10.87	0.97
2014-2015	10.18	9.23	0.94
2015-2016	10.33	9.86	0.47
2016-2017	13.71	13.11	0.60
2017-2018	14.01	13.47	0.54
2018-2019	13.59	13.40	0.18
Total (A)	99.04	88.74	10.30
Average (A)	11.00	9.86	1.14
(VII) NIZC Thimphu			
2010-2011	23.55	19.60	3.95
2011-2012	26.61	20.88	5.72
2012-2013	21.82	20.34	1.47
2013-2014	21.88	21.12	0.76
2014-2015	24.77	23.68	1.09
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
Total (A)	225.67	211.09	14.56
Average (A)	25.07	23.45	1.62
(VIII) CZC Trashiyangtse			
2010-2011	19.18	11.03	8.15
2011-2012	12.45	11.57	0.88
2012-2013	12.45	11.57	0.88
2013-2014	16.14	13.56	2.58
2014-2015	15.77	15.30	0.47

Year	Budget (Mn. Nu)	Expenditure (Mn.Nu)	Balance (Mn.Nu)
2015-2016	18.50	18.27	0.23
2016-2017	22.12	21.28	0.85
2017-2018	25.11	24.90	0.21
2018-2019	21.34	21.18	0.16
Total (A)	163.05	148.65	14.41
Average (A)	18.12	16.52	1.60
Total (B)	1479.02	1373.07	105.99
Average (B)	20.94	19.65	1.29

As shown in Table 6.11, eight TTIs and IZCs were allocated the combined annual budget of Nu. 164.34 million (average). The combined annual expenditure was about Nu. 152.56 million on average. Some portion of DTE's budgets would have been spent on various activities implemented in TTIs and IZCs mainly for the infrastructure development through technical assistance and project-tied activities.

Table 6.11: 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	10.90
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	196.00	191.65	4.35
2018-2019	180.68	178.69	1.99
Total	1479.02	1373.07	105.99
Average	164.34	152.56	11.78

Table 6.12 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 different ministries and agencies were not accounted for. Due to this exclusion, the total public spending on the TVET programmes was slightly under-reported. Between 2010 and 2019, TVET under MoLHR had received the total budget of Nu 3,501.50 million with the reported expenditure of Nu. 2995.35 million. The MoLHR's TVET sector was allocated on

average Nu. 389.06 million per FY with the reported annual expenditure of Nu. 332.82 million.

Table 6.12: Annual budgets/expenditures (DTE, DOS and Institutes) in Million Nu.

Year	Budget	Expenditure	Balance
2010-2011	371.88	247.20	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
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	33.30
Total (2010-2019)	3501.5	2995.35	506.20
Average FY	389.06	332.82	56.24

As the responsibility for TVET programmes is spread across a few other ministries and agencies, the spending on the TVET programmes in terms of percentage share of GDP, government's total financial outlay and MOE's spending were slightly underestimated. Even within MoLHR, the budgets allocated to DOEHR for various School-To-Work Transition (STWT) skills training programmes were omitted.

Furthermore, TVET resources are mobilised differently between private and public TVET providers. The majority of funding for private TVET providers comes from student fees and some funding from the public agencies through STWTs or government training contracts. These budgets/expenditures were not accounted resulting in the underestimation.

Nevertheless, since the MoLHR's TVET constitutes the major share of the national TVET, financial reporting can be closely representative of the national public spending on the TVET sector. Table 6.13 presents the annual combined budget allocated to MoLHR's TVET programmes, budget for the Education Sector, GDP and annual total budget outlay of the government. Between 2010 and 2019, the MoLHR's TVET was allocated the budget of about Nu. 3.50 billion against Nu. 76.69 billion to the education sector.

Table 6.13: 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	72.50	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	58.61
Total	3.50	76.69	121.52	386.60
Average	0.39	8.52	121.52	42.96

Table 6.14 represents the most important budget presentation. It presents the budget allocated to MoLHR's TVET component as the percentage shares of the budget allocated to formal education (MoE), total government budget and GDP. The MoLHR's TVET budget as a percentage share of MOE's budget averaged 4.72% per year. The education sector received on average 20.13% of the total government's total annual budget while the MoLHR's TVET sector received on average just 0.94% of the total government's budget annually. The annual budget of the MoLHR's TVET on average constituted about 0.34% of the country's annual GDP. Palmer, Robert's work (2015) on the estimation of TVET spending in some selected East Asia and Pacific (EAP) countries conducted for Korea-World Bank Partnership Facility concludes that overall EAP countries spend about 1-2% of the GDP on TVET. Bhutan's investment in public TVET so far was not even half percent of the GDP. Of course, the exclusion of private and other public spendings on TVET might have led to the underreporting.

Table 6.14: 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	17.70	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

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
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	3.62	14.77	0.534	0.19
Average	4.72	20.13	0.94	0.34

The results (presented in the table above) are worth noting because the budgetary allocations seem to reflect less importance the TVET sector had received until now compared to general education though the conventional wisdom says that unit cost in TVET is much higher than in general education. Some may justify that the formal education sector is by volume much bigger than the TVET sector but still then there is the need to work out certain minimum threshold budgetary allocation to the TVET sector.

Occupational Health and Safety (OHS)

As much as with the acquisition of knowledge and skills for the world of work, TVET must emphasise on the occupational safety and health (OSH) programmes. A TVET trainee must develop a responsible attitude and behaviour towards a healthy and safe working practice to prevent work-related injuries and diseases. It is important to integrate the OHS with the TVET programmes because behaviour and practices acquired at a younger age of a trainee are going to last for the entire life. Both UNESCO-UNEVOC and ILO considers OHS as an important component of the inclusive TVET. Table 6.15 shows various OHS programmes initiated by TTIs and IZCs.

Table 6.15: Occupational Health Safety Measures in TTIs and IZCS

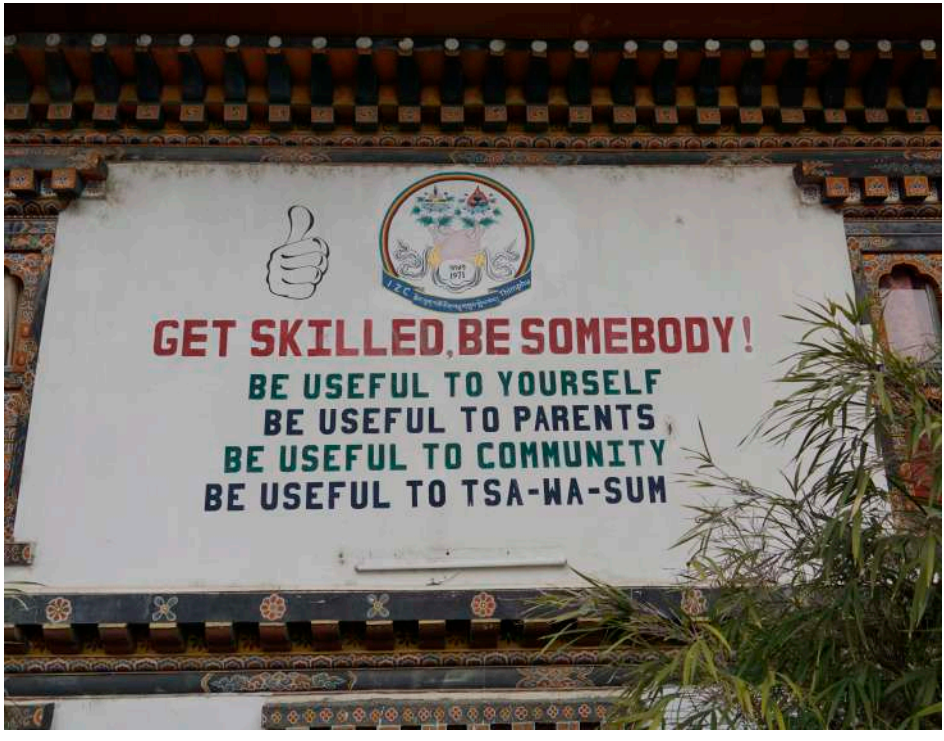
OHS Measures Initiated	Year of Introduction of OHS measure
TTI-Khuruthang	
Displayed safety signs and symbol in every practical workshops	2014
Safety tools put in place	2014
Painted safety lines in all workshops	2017
JWPTI Dekiling	
OHS awareness at work site being conducted regularly	2006
Developed the OHS chart	2014

OHS Measures Initiated	Year of Introduction of OHS measure
Erected safety models in the office	2017
TTI-Rangjung	
OHS measure implemented as per QMS Manual, Process No. QAP 2.3.1	2013
CZC-Trashiyangtse	
Fire extinguishers installed in the institute	2018
Disaster management board placed	2018
Fire buckets installed	2018
First Aid Box installed	2018
Fire Safety information board in place	2018
Safety information board	2018
Safety equipments	2018
TTI Samthang	
Provide OHS mock drill to trainees & staff	2008
First aid facilities for minor accidents	2008
OHS signboards are installed	2008
Safety gears are in place	2008
Fire extinguishers installed in every hostel and workshop	2008
Monitoring of OHS in every day activities	2008
First aid box installed	2008
TTI Thimphu	
Fire extinguishers installed	2017
Awareness programmes on Labour and Employment Act, 2007	2017
Introduction to occupational health and safety	2017
TTI Chumey	
Fire Extinguishers installed	2018
OHS Day	2018
OHS Advocacy Program	2005
NIZC Thimphu	
Fire extinguishers installed	2018
Use of safety gears encouraged during the practical classes (glasses, face masks, boot, gloves and apron, ear plug, and belt)	2018
First aid facilities	2018

OHS Measures Initiated	Year of Introduction of OHS measure
OHS messages displayed in classrooms and workshops	2018
OHS survey	2019

TTIs and IZCs have put in place the OHS measures as per QMS's Quality Assurance Procedure (QAP) 2.3.1: Procedure for maintaining Occupational Health and Safety (OHS). This QAP requires the registered training institute to conduct OHS awareness as per the OHS rules & regulations/ISR, display OHS information & safety signs and install fire safety equipment. However, no independent assessment of how far the implementation of QAP 2.3.1 is done so far though DOS monitors the implementation of OHS measures.


HINDUSTAN


GET SKILLED, BE SOMEBODY!
BE USEFUL TO YOURSELF
BE USEFUL TO PARENTS
BE USEFUL TO COMMUNITY
BE USEFUL TO TSA-WA-SUM

SECTION 07

Conclusion and Way Forward

This chapter concludes the report. It briefly mentions some way forward to achieve the ultimate output. The ultimate aim is to achieve a comprehensive online and sustainable TVET MIS. The concluding notes are based on the TWG's experience with the data collection, analysis and compilation. It recommends a few steps towards broadening and improving existing TVET-QAMIS.

TVET statistics were presented under five domains. This statistical report was detailed for the reason that this report is first of its kind. The subsequent issues of TVET statistics would be concise, more reliable and timely. This first issue of TVET statistics is expected to address the existing data gap and serve as the baseline information.

The TWG acknowledges some inconsistency and inaccuracy in the present TVET statistics. It was not at all possible to rectify the shortcomings in certain cases. The data problem can be addressed only through a persistent effort in the long run. It is for this reason that developing TVET data system and MIS should always be a dynamic process and must be managed by a dedicated team.

The data were collected from TTIs and IZCs until now in an inconsistent manner. This has led to unreliable data, duplication, gap and data fatigue among the data providers. No effort was made to collect data from OPPTPs in the past. Most private TPs had a weak data system. Some OPPTPs failed to submit the enrolment and graduation data even though it is the requirement of QMS. About 20 OPPTPs did not even take part in the ongoing exercise, leading to the missing data issue.

TVET MIS is important to empower and improve TVET processes and improve its outcomes. MoLHR's TVET-QAMIS had started many years ago, but it is still in its formative stage and is confined to the quality assurance component of TVET. It needs to be expanded and enhanced. There are several reasons why the existing TVET-QAMIS needs revamping. The most important reasons are: it contains fewer data and lacks proper cataloguing. It is high time for the TVET system in Bhutan to embrace the latest technology in its data management. There are several Database Management System Softwares like MySQL, SQL Server, Oracle or dBASE.

The TWG proposes the following actions for modernising and overhauling existing data system:

(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) There had been several cases of non-response and non-cooperation. Such problems will affect data quality, completeness and timeliness in the future. It is important to strengthen and enforce data regulatory provision for data compliance through QMS compliance system. The data policy for data collection, compliance, and protection might be essential. There should also be a range of incentives for data compliance. Adequate consultations and cooperative development with data providers should complement data compliance regulation. The advocacy on the significance of data for strategic TVET development needs to be prioritised.

(3) Building institutional capacity for data collection and analysis needs to be prioritised. The institutional capacity could encompass technical expertise, facilities and financial resources. The statistical collections and process of building the data system come with huge costs. The returns from investment in data expertise and infrastructure would be higher in the long run than the initial costs. Allocating a regular budget to cover the cost associated with data collection, processing and management may be crucial to sustaining the effort.

(4) The sustainability of this effort is crucial. Unless a sustained effort is made, the probability of the effort dying down is high. Therefore, it is important to recruit people with sufficient statistical knowledge and skills for managing the TVET data system.

(5) Decentralisation of the data collection system could enhance data accuracy. Currently, data providers often count the same trainee twice when he or she leaves one course to join another programme within the same institute. This is due to the course-based counting. The most appropriate one is the individual-based counting system. If the online data system is developed, it will be better to explore the possibility of decentralising data entry to an individual trainee/trainer through online log-in credentials. This would save time for the institutional data

managers. Such a system would allow tracking of the trainee after graduation.

(6) Dropout and repetition data were not consistent and complete in both TTIs & IZCs and OPPTPs. These two indicators are important to measure the training effectiveness. All TPs are suggested to maintain both dropout and repetition records.

(7) Unlike in school education, calculation of GER and GPI in TVET is complicated due to the varying age of trainees. It is hard to determine the official TVET age as TVET is a lifelong learning process. There can be overaged individuals taking up TVET. It is suggested that TPs be obliged to maintain the age records of their trainees so that official TVET age can be determined in the future for accurate estimation of Gross Enrolment/ Net Enrolment Ratios and Gender Parity Index.

(8) Frequent consultations and open discussions among data providers and collectors are crucial to sort out data gap and issues related to data collection. Moreover, such consultations could reinforce the ownership of data.

(9) Since the TVET data have to be sourced from various other ministries and agencies like NSB, DoEHR, MOE and RUB, a frequent consultation is suggested for developing TVET data policy as well as sharing of data. As the online TVET MIS takes shape, the provision of sharing data APIs (Application Programming Interface) among different MIS should be worked out. APIs in general terms is a software to software interface that allows for the sharing of content and data.

(10) Besides those general suggestions, the TWG will have to work closely with the TVET MIS team on certain statistical components of the proposed TVET MIS, mainly on the data input and output elements.

Publishing the statistical reports does not serve the ultimate purpose of developing the TVET statistical system, more analysis and research should follow including use of data for decision-making, evaluations of training institutions and TVET programmes, and transparency and accountability for results. The progress in the data system should pave ways towards deepening of the knowledge base for TVET through sustained research and analysis.

Reference

Department of Employment and Human Resources. (2019). Fifth National HRD Advisory, 2018.

Department of Employment and Human Resources. (2019). Labour Market Information Guide for Job Seekers, 2019.

Department of Employment and Human Resources. (2018). Labour Market Information Guide for Job Seekers, 2018.

Department of Employment and Human Resources. (2018). Fourth National HRD Advisory 2017.

Department of Employment and Human Resources. (2017). Labour Market Information Guide for Job Seekers, 2017.

Department of Human Resources. (2017). Labour Force Survey Report, 2017.

Department of Human Resources. (2017). Beyond Graduation Survey Report, 2017.

Department of Employment and Human Resources. (2018). 12th FYP HRD Masterplan for the Economic Sectors (2018-2023).

Department of Employment and Human Resources. (2013). 11th FYP HRD Masterplan for the Economic sector (2013-2018).

Department of Human Resources. (2016). National Workforce Plan 2016-2022.

Department of Human Resources. (2016). TVET Blueprint 2016-2026.

Department of Human Resources. (2016). Bhutan TVET Sector Assessment.

Department of Human Resources. (2016). National Workforce Plan (2016-22):Tourism, Construction & Production Sector.

Department of Human Resources. (2015). National Workforce Plan Concept Paper 2015.

Department of Human Resources. (2015). Masterplan Mid-Term Implementation Review.

Department of Human Resources. (2014). Unemployed Youth Perception Survey 2014 Report.

Department of Human Resources. (2010). National HRD Policy 2010.

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

Department of Occupational Standards. (2020). Enclosed QMS 2020 Manual.

Department of Occupational Standards. (2017). MOLHR TVET-Quality Assurance Framework (QAF).Accessed from https://www.molhr.gov.bt/molhr/wp-content/uploads/2017/07/TVET-Quality-Framework.pdf.

Department of Occupational Standards.(2017). Courses Accredited by the Department of Occupational Standards. Accessed from https://www.molhr.gov.bt/molhr/wp-content/uploads/2017/07/Microsoft-Word-Update-list-of-courses-accredited.pdf.

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

Department of Occupational Standards. (2014). Registration Regulation for Training Providers, 2014.

Department of Occupational Standards. (2011). Guidelines for Accreditation of Courses 2011.

Department of Occupational Standards. (n.d). Bhutan Vocational Qualifications Framework.

Department of Occupational Standards. (n.d). List of Assessors Registered with Department.

Department of Occupational Standards. (n.d). TVET Quality Framework.

Department of Occupational Standards. (n.d). Courses Accredited by the Department of Occupational Standards.

Department of Occupational Standards. (n.d). Training Providers Registered with the Department.

Department of Occupational Standards. (n.d). Term of References for Monitoring and Supervision of Training Provider.

Department of Occupational Standards. (n.d). Guidelines for competency based Assessment and certification System.

Department of Occupational Standards. (n.d). Directory of Registered Training Providers.

Department of Occupational Standards.(n.d). Directory of Registered Training Providers.

Department of Occupational Standards.(n.d). Training Providers Registered with the Department.https://www.molhr.gov.bt/molhr/wp-content/uploads/2017/07/new-training.pdf.

Department of Technical Education. (2018). Guidelines for Training of Trainers.

Ellis, S. (2005). Current international data for TVET and their limitation, trends, cases. Prospects, 35(3), 367-380.

International Labour Organisation. (2019, September 12). International Standard Classification of Occupations. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf.

Inter-agency Group on Technical and Vocational Education and Training. (2014).Proposed indicators for assessing technical and vocational education and training: working document.

Lauglo, J. (2009). Research for TVET Policy Development. In International Handbook of Education for the Changing World of Work. Available from: https:// www.researchgate.net/publication 226729813. Accessed Oct 31 2018.

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

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

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

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

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

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

Ministry of Labour and Human Resources (2013). Technical and Vocational Education and Training Policy (Final Draft). Retrieved December 3, 2015 from: <http://www.gnhc.gov.bt/wp– content/uploads/2011/05/TVET_ Policy_draft_FINAL.pdf.

Ministry of Labour and Human Resources (2014). Thimphu. Labour Force Survey Report 2014. Retrieved January 15, 2016 from: <http://www.molhr.gov.bt/ molhr/wp–content/uploads/2014/09/ Labour–Force–Survey–Report–2014.pdf.

Ministry of Labour and Human Resources. (2015). Thimphu. National HRD Advisory Series 2015: A Focus on TVET and Labour Market Dynamics. Retrieved September1 3, 2015 from: <http://www. molhr.gov.bt/molhr/wp–content/uploads/2015/04/3rd–Advisory.pdf.

Ministry of Labour and Human Resources. (2019). Annual Report for the Fiscal Year 2018-19.

Ministry of Labour and Human Resources. (2018). Annual Report for the Fiscal Year 2017-18.

Ministry of Labour and Human Resources. (2017)Annual Report for the Fiscal Year 2016-17.

National Assembly of Bhutan. (2008). Constitution of the Kingdom of BhutanArticle 9 (15) Principles of State Policy p. 19. Retrieved October 8, 2015 from: <http:// www.nab.gov.bt/assets/templates/images/ constitution–of–bhutan–2008.pdf.

National Statistics Bureau. (2019). Economic Census of Bhutan 2018 Report.

National Statistics Bureau. (2019). Economic Census of Bhutan 2018.

National Statistics Bureau. (2019). Labour Force Survey Report 2018.

National Statistics Bureau. (2019). Population Projection 2017-47 (National Report).

National Statistics Bureau. (2019). Economic Census of Bhutan, 2018.

National Statistics Bureau. (2018). 2017 Population and Housing. Census of Bhutan (PHCB).

National Statistics Bureau. (2018). National Accounts statistics 2018.

National Statistics Bureau. (2017). National Accounts statistics 2017.

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

National Statistics Bureau. (2016). National Accounts statistics 2016.

National Statistics Bureau. (2015). National Accounts statistics 2015.

National Statistics Bureau. (2014). National Accounts statistics 2014.

National Statistics Bureau. (2013). National Accounts statistics 2013.

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. Available from https://unevoc.unesco.org/up/Link_Voc_End.pdf. Accessed on 23 November, 2019.

Robert, Palmer. (2015). Financing TVET in the East Asia and Pacific Region: Current Status, Challenges and Opportunities. Korea-World Bank Partnership Facility. Available from http://documents.worldbank.org/curated/en/108011508751832618/ pdf/120597-REPLACEMENT-PUBLIC-Financing-TVET-in-EAP-Summary-Final.pdf. Accessed on 19 January 2020.

Santoro, F.M. & Baiao, F. A (2018). Knowledge-intensive Process: A Research Framework. In Business Process Management Workshops. Available from: https:// www.researchgate.net/publication/. Accessed Oct 31 2018.

Sinha , V. C. Gupta, Alok & Saxena , J.K. (2016). Business Statistics. SBPD Publications.

UNESCO-UNEVOC (2020, February 10). TVETipedia. https://unevoc.unesco.org/.

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 (as of June 2019)

SLN	Name	Legal Status	Registration number	Dzongkha/ Thromde	Grade
1	Advanced Institute for Tourism	Private (Sole Proprietorship)	2016050036	Thimphu	C
2	Agriculture Machinery Training Centre	Corporate	2017050353	Paro	B
3	Athang Training Academy	Private (Sole Proprietorship)	2017090366	Thimphu	B
4	Bhutan Centre for Japanese Studies	Private (Sole Proprietorship)	2015050073	Thimphu	C
5	Bhutan Elite Security Services	Private (Sole Proprietorship)	2015070158	Paro	C
6	Bhutan Institute for Training and Development	Private (Partnership)	2016070126	Thimphu	B
7	Bhutan Institute of Himalayan Studies	Private (Sole Proprietorship)	2016120325	Thimphu	C
8	Bhutan Institute of Information Technology and Management	Private (Sole Proprietorship)	2015040067	Paro	B
9	Bhutan Institute of International Language, IT and Management	Private (Sole Proprietorship)	2016070121	Thimphu	C
10	Bhutan Institute of Martial Arts	Private (Sole Proprietorship)	2018050444	Thimphu	C
11	Bhutan International school of hospitality & Tourism	Private (Sole Proprietorship)	2015060128	Thimphu	B
12	Bhutan Media & Communications Institute	Private (Sole Proprietorship)	2015010051	Thimphu	B
13	Bhutan School of Management and Technology	Private (Sole Proprietorship)	2016060060	Thimphu	B
14	Bhutan Training Institute	Private (Sole Proprietorship)	2017120373	Chukha	C
15	Bongde Institute of Hotel and Tourism	Private (Partnership)	2016060118	Paro	B
16	Choki Traditional Art School	Private (Partnership)	2015040066	Thimphu	B
17	College of Zorig Chusum	Public (Govt.)-MoLHR	2015080167	Trashiyangtse	B
18	Computer & Management Institute	Private (Sole Proprietorship)	2015010049	Chukha	B

SLN	Name	Legal Status	Registration number	Dzongkha/ Thromde	Grade
19	Dechen IT & Management Institute	Private (Sole Proprietorship)	2016050055	Thimphu	C
20	Dickie Training Institute	Private (Sole Proprietorship)	2017080360	Thimphu	C
21	Dorji International Training Institute	Private (Sole Proprietorship)	2018030423	Thimphu	B
22	Druk Institute of Management and Technology	Private (Sole Proprietorship)	2015060127	Chukha	C
23	Druk Tshemzo Training Institute	Private (Sole Proprietorship)	2015060130	Thimphu	B
24	Drukwings Aviation Training Institute	Corporate	2018100476	Paro	C
25	Dzongkha Learning Centre	Private (Sole Proprietorship)	2015060126	Thimphu	C
26	Eastern Computer Training Centre	Private (Sole Proprietorship)	2016010173	Samdrupjongkhar	C
27	Eastern Driving Training Institute	Private (Sole Proprietorship)	2017080361	Mongar	C
28	Fablab Bhutan Training Institute	Private (Sole Proprietorship)	2017040337	Thimphu	C
29	Fashion Institute of Technology	Corporate	2018050445	Thimphu	C
30	Film & Television Institute of Bhutan	Private (Partnership)	2017010326	Thimphu	C
31	Financial Institutions Training Institute Limited	Corporate	2018030422	Thimphu	B
32	Gangchen Language and Management Institute	Private (Sole Proprietorship)	2017110372	Thimphu	C
33	Gangjung Driving Centre of Excellence	Private (Sole Proprietorship)	2016050030	Thimphu	B
34	Ghadyen Driving Training Institute	Private (Sole Proprietorship)	2015070159	Wangduephodrang	C
35	Global Computer Training Centre	Private (Sole Proprietorship)	2016060116	Wangduephodrang	C
36	Global Retail Academy	Public (Govt.)	2015050070	Thimphu	C
37	GPY Computer Training Institute	Private (Sole Proprietorship)	2015070156	Chukha	C
38	Guide Association of Bhutan	NGO	2016030176	Thimphu	C

SLN	Name	Legal Status	Registration number	Dzongkha/ Thromde	Grade
39	Heurka Security Services	Corporate	2018030424	Wangduephodrang	C
40	Himalayan Institute of Technology & Management	Private (Sole Proprietorship)	2015020060	Sarpang	C
41	Himalayan School of Music	Private (Sole Proprietorship)	2015020058	Thimphu	C
42	iBEST Institute of Media, Management and Technical Studies	Private (Partnership)	2015050075	Thimphu	B
43	Institute for Excellence and Development (I-ED)-Thimphu	Private (Partnership)	2015010043	Thimphu	C
44	Institute for Excellence and Development (IED)-Phuentsholing	Private (Sole Proprietorship)	2016030179	Chukha	C
45	Institute for Learning Solutions	Private (Sole Proprietorship)	2018120485	Thimphu	C
46	Institute for Management Studies (IMS)	Private (Partnership)	2015050074	Thimphu	B
47	Institute for Professional Studies	Private (Sole Proprietorship)	2016050031	Thimphu	B
48	Institute of Happiness	Corporate	2018110482	Thimphu	C
49	Institute of Information Technology and Management	Private (Sole Proprietorship)	2016050057	Thimphu	C
50	Institute of Zorig Chusum	Public (Govt.)-MoLHR	2015060145	Thimphu	B
51	Jachung Security Services Pvt Ltd	Private (Partnership)	2016120174	Thimphu	B
52	JCB Operators Training Centre	Private (Partnership)	2017110371	Thimphu	C
53	Jigme Wangchuck Power Training Institute (JWPTI)	Public (Govt.)-MoLHR	2016040028	Sarpang	B
54	Jigyang Driving Training Institute	Private (Sole Proprietorship)	2017080362	Chukha	C
55	Karma Driving Training Institute-Gedu	Private (Sole Proprietorship)	2015050115	Chukha	C
56	Karma Driving Training Institute-Thimphu	Private (Sole Proprietorship)	2015050116	Thimphu	C
57	Karsel Dawa Driving Training Institute	Private (Sole Proprietorship)	2018010376	Thimphu	C

SLN	Name	Legal Status	Registration number	Dzongkha/ Thromde	Grade
58	Kesang Driving School	Private (Sole Proprietorship)	2015060148	Thimphu	C
59	Kilu Bhutan Music School	Private (Partnership)	2017070355	Thimphu	C
60	Kinley Yergay Tailoring Training Institute	Private (Sole Proprietorship)	2017090364	Thimphu	C
61	Kinzang Driving Training Institute	Private (Sole Proprietorship)	2017060354	Bumthang	C
62	Kuenphen Computer and Tailoring Training Institute	Private (Sole Proprietorship)	2016070123	Haa	C
63	Kuenphen Language and Culture Training Institute	Private (Sole Proprietorship)	2016070122	Haa	C
64	Kunjung Institute of Technology & Innovation	Private (Partnership)	2016060117	Sarpang	B
65	Language and Culture Institute	Private (Sole Proprietorship)	2016030175	Thimphu	C
66	Language and Management Institute	Private (Partnership)	2017040338	Thimphu	C
67	Learn Zone Institute	Private (Sole Proprietorship)	2016040180	Thimphu	C
68	Lekdrup Skill Development Institute	Private (Sole Proprietorship)	2016080167	Thimphu	C
69	Manju Shiri International	Private (Sole Proprietorship)	2015050072	Thimphu	C
70	Niche Institute of Management & Technology	Private (Sole Proprietorship)	2016010172	Thimphu	C
71	NLD Training Institute	Private (Partnership)	2018010377	Thimphu	C
72	Norbu Academy of Spa and Massage Therapy	Private (Partnership)	2016080168	Thimphu	C
73	NorChuk Institute of Technology	Private (Sole Proprietorship)	2015050111	Samtse	C
74	Norter Training Institute	Private (Sole Proprietorship)	2016070124	Thimphu	C
75	Padmakara Training Institute	Private (Sole Proprietorship)	2015040064	Chukha	C
76	Pema Driving Training Institute	Private (Sole Proprietorship)	2018010374	Trashigang	C
77	Professional Development Institute	Private (Partnership)	2017040339	Thimphu	C

SLN	Name	Legal Status	Registration number	Dzongkha/ Thromde	Grade
78	Professional Skills Institute	Private (Partnership)	2018050443	Thimphu	C
79	Puensum Driving Institute	Private (Sole Proprietorship)	2015070161	Punakha	C
80	ReWang Driving Training School	Private (Sole Proprietorship)	2015070151	Paro	C
81	Rigsum Institute of Technical Education & Management Studies	Private (Sole Proprietorship)	2015010047	Thimphu	B
82	Royal Academy of Performing Arts	Public (Govt.)	2017020330	Thimphu	C
83	Royal Institute for Tourism and Hospitality	Public (Govt.)	2015080166	Thimphu	B
84	RTC Training and Professional Services	Private (Sole Proprietorship)	2016060119	Thimphu	B
85	Rural Development Training Centre	Public (Govt.)	2017100370	Zhemgang	C
86	Sacho Driving Training Institute	Private (Sole Proprietorship)	2015070152	Samtse	C
87	Sacho Driving Training Institute	Private (Sole Proprietorship)	2015070154	Dagana	C
88	Sacho Ga Driving Training Institute	Private (Sole Proprietorship)	2017070359	Chukha	C
89	Shacho Driving Training Institute	Private (Sole Proprietorship)	2015070155	Chukha	C
90	Sompal Driving Training Institute	Private (Sole Proprietorship)	2017100368	Paro	C
91	Spark Training Centre	Private (Partnership)	2016100170	Thimphu	C
92	Sunrise Driving Institute	Private (Sole Proprietorship)	2018100478	Wangduephodrang	C
93	Tacho Bala Ha	Private (Partnership)	2017070358	Samdrupjongkhar	C
94	Tacho Bala Ha Driving Training Institute	Private (Sole Proprietorship)	2015070153	Pemagatshel	C
95	Technical Training Institute-Samthang	Public (Govt.)-MoLHR	2015050068	Wangduephodrang	A
96	Technical Training Institute- Khuruthang	Public (Govt.)-MoLHR	2014110004	Punakha	B
97	Technical Training Institute-Chumey	Public (Govt.)-MoLHR	2015060129	Bumthang	B

SLN	Name	Legal Status	Registration number	Dzongkha/ Thromde	Grade
98	Technical Training Institute-Ranjung	Public (Govt.)-MoLHR	2015050085	Trashigang	B
99	Technical Training Institute-Thimphu	Public (Govt.)-MoLHR	2014110003	Thimphu	B
100	Tenzin's Hair and Beauty Academy	Private (Sole Proprietorship)	2015060144	Thimphu	C
101	Thimphu Institute of Management	Private (Partnership)	2017020329	Thimphu	C
102	Thimphu TechPark Ltd	Corporate	2015080168	Thimphu	C
103	Ugyen International Language and culture Training Institute	Private (Sole Proprietorship)	2016050035	Thimphu	C
104	Ugyen Wangchuck Institute for Conservation and Environment	Public (Govt.)	2015020057	Bumthang	B
105	USD Driving School, Phuentsholing	Private (Sole Proprietorship)	2015050084	Chukha	C
106	USD Driving Training Institute	Private (Sole Proprietorship)	2015050083	Thimphu	C
107	USD Driving Training Institute-Gelephu	Private (Sole Proprietorship)	2015050082	Sarpang	C
108	WhyDee Driving Training Institute	Private (Partnership)	2016050053	Paro	C
109	Wood Craft Centre Ltd.	Corporate	2016050059	Thimphu	C
110	Yarab Institute for Hospitality Management	Private (Sole Proprietorship)	2016060062	Thimphu	C
111	Youth Development and Rehabilitation Centre	Public (Govt.)	2018040435	Chukha	C

Note:

1. *The list of Training Providers is as of June 2019. The list will be updated in the second 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 (as of June 2019)

Institute	Course	Level	Duration (in months)	Accreditation	ACRED Year	Type	Target Group
Technical Training Institute-Chumey	Carpentry	NC II	24	Accredited	2013	Long-Term	Pre-Service
	Carpentry	NC III	4	Accredited	2017	Long-Term	Pre-Service
	Carpentry (DTP)	NC II	18	Not Accredited		Long-Term	Pre-Service
	Masonry	NC II	24	Accredited	2013	Long-Term	Pre-Service
	Masonry	NC III	5	Accredited	2015	Long-Term	Pre-Service
	Masonry (DTP)	NC II	18	Not Accredited		Long-Term	Pre-Service
	Plumbing	NC II	18	Accredited	2013	Long-Term	Pre-Service
	Plumbing	NC III	5	Accredited	2015	Long-Term	Pre-Service
	Welding	NC II	18	Accredited	2016	Long-Term	In-Service
	Furniture-Making	NC II	6	Accredited	2014	Long-Term	Pre-Service
	Basic Masonry	Certificate	1	Not Accredited		Short Course	In-Service
	Furniture-Making	Certificate	1	Not Accredited		Short Course	In-Service
	Basic Plumbing	Certificate	0	Not Accredited		Short Course	In-Service
	Basic Carpentry	Certificate	1	Not Accredited		Short Course	In-Service
	Tile laying and Benching	Certificate	1	Not Accredited		Short Course	In-Service
	Basic Welding	Certificate	0	Not Accredited		Short Course	In-Service
	Masonry	ATP	3	Not Accredited		ATP	Pre-Service
	Carpentry	ATP	3	Not Accredited		ATP	Pre-Service
	Plumbing	ATP	3	Not Accredited		ATP	Pre-Service
	Tourism	ATP	3	Not Accredited		ATP	Pre-Service

Institute	Course	Level	Duration (in months)	Accreditation	ACRED Year	Type	Target Group
Technical Training Institute-Khuruthang	Electrician	NC II	18	Accredited	2019	Long-Term	Pre-Service
	Mechanical Welder	NC II	18	Accredited	2017	Long-Term	Pre-Service
	Mechanical Fitter	NC II	24	Accredited	2017	Long-Term	Pre-Service
	Mechanical Welder	NC III	12	Not Accredited		Long-Term	In-Service
	Mechanical Fitter	NC III	12	Not Accredited		Long-Term	In-Service
	Electrician	NC III	8	Accredited	2018	Long-Term	In-Service
Jigmi Wangchuck Power Training Institute-Dekiling	Hydro Power Mechanical	NC II	8	Not Accredited	2017	Long-Term	Pre-Service
	Hydro Power Transmission and Distribution Line men	NC II	14	Accredited	2016	Long-Term	Pre-Service
	Masonry	NC II	16	Accredited	2012	Long-Term	Pre-Service
	Plumbing	NC II	14	Accredited	2012	Long-Term	Pre-Service
	Carpentry	NC II	16	Accredited	2012	Long-Term	Pre-Service
	Furniture-Making	NC II	8	Accredited	2017	Long-Term	Pre-Service
	Welding	NC II	14	Accredited	2014	Long-Term	Pre-Service
	Fitter	NC II	19	Accredited	2015	Long-Term	Pre-Service
	Masonry (DTP)	NC II	24	Not Accredited	2019	DTP	Pre-Service
	Carpentry (DTP)	NC II	24	Not Accredited	2019	DTP	Pre-Service
	Masonry	NC III	6	Accredited	2015	Long-Term	Pre-Service
	Plumbing	NC III	6	Accredited	2015	Long-Term	Pre-Service
	Carpentry	NC III	6	Accredited	2015	Long-Term	Pre-Service
	Masonry	ATP	3	Not Accredited	2014	ATP	Mix
	Carpentry	ATP	3	Not Accredited	2014	ATP	Mix

Institute	Course	Level	Duration (in months)	Accreditation	ACRED Year	Type	Target Group
Jigmi Wangchuck Power Training Institute-Dekiling	Plumbing	ATP	3	Not Accredited	2015	ATP	Mix
	Welding	ATP	3	Not Accredited	2015	ATP	Mix
	Electrician	ATP	3	Not Accredited	2015	ATP	Mix
	Electrical House Wiring	ATP	3	Not Accredited		ATP	Mix
	Tiles Laying	Certificate	0.4	Not Accredited	2019	Short Course	Mix
Technical Training Institute-Rangjung	Electrician	NC II	7.0	Accredited	2019	Long-Term	Pre-Service
	Electrician	NC III	9.0	Accredited	2019	Long-Term	Pre-Service
	Automotive Mechanic	NC II	10.2	Accredited	2019	Long-Term	Pre-Service
	Furniture-Making	NC II	8.6	Accredited	2019	Long-Term	Pre-Service
	Computer Hardware and Networking	NC II	10.4	Accredited	2019	Long-Term	Pre-Service
	Cable TV Technician	Certificate	6.0	Not Accredited		Short Course	Pre-Service
	House Wiring	Certificate	0.5	Not Accredited		Short Course	In-Service
	Single Phase Motor Winding	Certificate	0.5	Not Accredited		Short Course	In-Service
	Three Phase Motor Winding	Certificate	0.5	Not Accredited		Short Course	In-Service
	Motor Control System	Certificate	0.5	Not Accredited		Short Course	In-Service
	Basic PLC	Certificate	0.5	Not Accredited		Short Course	In-Service
	Solar Photovoltaic System	Certificate	0.5	Not Accredited		Short Course	In-Service
	Troubleshooting and Maintenance of PC	Certificate	0.5	Not Accredited		Short Course	In-Service

Institute	Course	Level	Duration (in months)	Accreditation	ACRED Year	Type	Target Group
Technical Training Institute-Samthang	Auto Mechanic	NC II	24	Accredited	2019	Long-Term	Pre-Service
	Auto Mechanic	NC III	8	Accredited	2019	Long-Term	Pre-Service
	Auto Electrician	NC II	24	Accredited	2016	Long-Term	Pre-Service
	Heavy Earth Mover	NC II	6	Accredited	2019	Long-Term	Pre-Service
	Heavy Vehicle Driving	NC III	6	Accredited	2019	Long-Term	Pre-Service
	Heavy Earth Mover	NC II	6	Accredited	2019	Long-Term	Pre-Service
	Motor Vehicle Mechanical Maintenance for In-Service Drivers	Certificate	0.93	Not Accredited		Long-Term	In-Service
Technical Training Institute-Thimphu	Auto Mechanic	NC II	24	Accredited	2018	Long-Term	Pre-Service
	Auto Painting	NC II	12	Accredited	2018	Long-Term	Pre-Service
	Auto Mechanic	NC III	6	Accredited	2018	Long-Term	Pre-Service
National Institute of Zorig Chusum-Thimphu	Lhadi (Painting)	NC II	15	Accredited	2017	Long-Term	Pre-Service
	Patra (Wood Carving)	NC II	16	Accredited	2017	Long-Term	Pre-Service
	Jimzo (Sculpture)	NC II	12	Accredited	2018	Long-Term	Pre-Service
	Tshemzo (Tailoring)	NC II	12	Accredited	2017	Long-Term	Pre-Service
	Tshemdru (Embroidery)	NC II	17	Accredited	2019	Long-Term	Pre-Service
	Trezo (Gold & Silver Smith)	NC II	13	Accredited	2018	Long-Term	Pre-Service
	Lhadri (Painting)	NC III	24	Accredited	2019	Long-Term	Pre-Service
	Patra (Wood Carving)	NC III	14	Accredited	2019	Long-Term	Pre-Service
	Jimzo (Sculpture)	NC III	17	Accredited	2019	Long-Term	Pre-Service
	Tshemdrup (Embroidery)	NC III	15	Accredited	2018	Long-Term	Pre-Service
	Weaving (Thagzo)	Certificate	6	Not Accredited		Short Course	Mix
	Tshemzo (Tailoring)	NC III	6	Accredited	2019	Long-Term	Pre-Service

Institute	Course	Level	Duration (in months)	Accreditation	ACRED Year	Type	Target Group
College of Zorig Chusum-Trashiyangtse	Trezo (Gold & Silver Smith)	NC II	6	Accredited	2018	Long-Term	Pre-Service
	Trezo (Gold & Silver Smith)	NC III	10	Accredited	2018	Long-Term	Pre-Service
	Jimzo (Sculpture)	NC II	7	Accredited	2018	Long-Term	Pre-Service
	Jimzo (Sculpture)	NC III	10	Accredited	2018	Long-Term	Pre-Service
	Jimzo (Sculpture)	ND	14	Accredited	2018	Long-Term	Pre-Service
	Lhadri (Painting)	NC II	6	Accredited	2018	Long-Term	Pre-Service
	Lhadri (Painting)	NC III	10	Accredited	2018	Long-Term	Pre-Service
	Patra (Wood Carving)	NC II	10	Accredited	2018	Long-Term	Pre-Service
	Patra (Wood Carving)	NC III	8	Accredited	2018	Long-Term	Pre-Service
	Shazo (Wood Turning)	NC II	13	Accredited	2018	Long-Term	Pre-Service
	Tshemzo (Tailoring)	NC II	4	Accredited	2018	Long-Term	Pre-Service
	Tshemzo (Tailoring)	NC III	7	Accredited	2018	Long-Term	Pre-Service
	Tshemdru (Embroidery)	NC II	11	Accredited	2018	Long-Term	Pre-Service
	Tshemdru (Embroidery)	NC III	10	Accredited	2018	Long-Term	Pre-Service

Note:

1. *Courses listed are up to June 2019. New courses would have been accredited since then which can be updated only in the next issue.*

Annex 3: Courses and Learning Competencies

Course	Level	Guideline Year	Competencies
Auto Electrician	NC II	2010, 2016, 2019	Service lighting and charging system (7412-U1-L2)
			Service starting, ignition and preheating system (7412-U2-L2)
			Install/service audio visual system and meters & gauges (7412-U3-L2)
			Service power operated components (7412-U4-L2)
	NC III		Service heating and ventilation system (7412-U5-L3)
			Carryout installation/servicing of vehicle safety & security system (7412-U6-L3)
			Service electronic fuel injection system NC3 (7412-U7-L3)
Auto Air Conditioning Mechanic	NC III	2010	Carry out preliminary inspection of the automobile air conditioners for installation and repair work (7127-M1-01-L3)
			Prepare estimates and costing (7127-M2-01-L3)
			Perform refrigerant recovery and re-cycling (7127-M3-01-L3)
			Service automobile air conditioning systems (7127-M4-01-L3)
			Re-tall automobile air conditioning system (7127-M5-01-L3)
Auto Mechanic (Heavy)	NC II	2011	Service suspension system (7231-U1-L2)
			Service steering system (7231-U2-L2)
			Service brake system (7231-U3-L2)
			Service engine auxiliary system (7231-U4-L2)
			Service clutch system (7231-U5-L2)
			Overhaul power or drive train (7231-U6-L2)
	NC III		Perform basic auto electrical works (7231-U7-L3)
			Perform compression ignition (CI) engine tune up (7231-U8-L3)
			Overhaul engine (7231-U9-L3)

Course	Level	Guideline Year	Competencies
Automobile upholster	NC II	2011	Carryout measurement and calculation (7534-U1-L2)
			Prepare pattern (7534-U2-L2)
			Perform stitching and tailoring works (7534-U3-L2)
			Perform fitting works (7534-U4-L2)
	NC III		Repair and replace Upholstery work (7534-U5-L3)
			Design Upholstery (7534-U6-L3)
Auto Mechanic (Light)	NC I	2009, 2011	Service suspension system (7231-U1-L1)
			Service steering system (7231-U2-L1)
			Service brake system (7231-U3-L1)
			Service clutch system (7231-U4-L1)
	NC II		Perform basic auto electrical works (7231-U9-L2)
			Perform diesel engine tune-up (7231-U8-L2)
			Perform spark ignition (SI) engine tune-up (7231-U7-L2)
			Service engine auxiliary system (7231-U6-L2)
			Overhaul power or drive train (7231-U5-L2)
	NC III		Overhaul engine (7231-U10-L3)
Earthmoving Equipment Mechanic	NC II	2016	Perform servicing of basic electrical system (7233-U1-L2)
			Perform servicing of wheel/tyres, undercarriage & attachments (7233-U2-L2)
			Perform servicing of lubrication, cooling & fuel system (7233-U3-L2)
			Perform servicing of steering and brake system (7233-U4-L2)
	NC III		Perform servicing of hydraulic and control system (7233-U5-L3)
			Perform servicing of transmission system (7233-U6-L3)
			Perform engine overhaul (7233-U7-L3)

Course	Level	Guideline Year	Competencies
Auto Mechanic	NC II	2009, 2012, 2016	Service suspension system (7231-U1-L2)
			Service Brake system (7231-U2-L2)
			Service Steering system (7231-U3-L2)
			Service power train (7231-U4-L2)
			Perform basic auto electrical works (7231-U5-L2)
			Service Engine Auxiliary System (7231-U6-L2)
	NC III		Perform Engine Tune-up (7231-U7-L3)
			Overhaul Engine (7231-U8-L3)
Penal Beater	NC II	2017	Repair Plastic Bumpers (7213-U1-L2)
			Repair Automobile Body (7213-U2-L2)
	NC III		Repair Chassis (7213-U3-L3)
			Service Glass components (7213-U4-L3)
Automobile Painter	NC II	2017	Prepare surface for painting (7132-U1-L2)
			Carry out Painting (7132-U2-L2)
Auto Electrician	NC II	2010,2016, 2019	Service lighting and charging system (7412-U1-L2)
			Service starting, ignition and preheating system (7412-U2-L2)
			Install/service audio visual system and meters & gauges (7412-U3-L2)
			Service power operated components (7412-U4-L2)
	NC III		Service heating and ventilation system (7412-U5-L3)
			Carryout installation/servicing of vehicle safety & security system (7412-U6-L3)
			Service electronic fuel injection system NC3 (7412-U7-L3)

Course	Level	Guideline Year	Competencies
Agriculturist (Mushroom)	NC II	2013	Construct shed. (6113-U1-L2)
			Cultivate log mushroom (6113-U2-L2)
			Cultivate straw mushroom (6113-U3-L2)
			Carryout harvest and post harvest activities (6113-U4-L2)
Agriculturist (Poultry)	NC II	2013	Construct of poultry Sheds (6123-U2-L2)
			Produce poultry product (6123-U3-L2)
			Collect poultry products (6123-U4-L2)
Agriculturist (Vegetable)	NC II	2013	Perform nursery raising. (6112-U1-L2)
			Perform transplantation. (6112-U2-L2)
			Perform plant care and management practices (6112-U3-L2)
			Carryout harvest and post harvest activities. (6112-U4-L2)
			Prepare Organic Fertilisers (6112-U5-L2)
Farm Machinery Technician	NC II	2014	Service steering system (7233-U1-L2)
			Service brake system (7233-U2-L2)
			Service clutch system (7233-U3-L2)
			Service fuel system (7233-U4-L2)
			Service basic electrical components (7233-U5-L2)
			Service engines (7233-U6-L2)
			Service transmission system (7233-U7-L2)
	NC III		Service implements (7233-U8-L3)
			Service / install post harvest machine(s) (7233-U9-L3)
Power Tiller Operator	NC II	2016	Drive Power Tiller (7412-U1-L2)
			Carryout minor maintenance of power tiller (7412-U2-L2)
			Carryout field operation (7412-U3-L2)

Course	Level	Guideline Year	Competencies
Power Tiller Mechanic	NC II	2016	Carryout servicing of brake system (7412-U1-L2)
			Carryout servicing of clutch system (7412-U2-L2)
			Carryout servicing of basic electrical components (7412-U3-L2)
			Carryout servicing of implements (7412-U4-L2)
	NC III		Carryout servicing of gear systems (7412-U5-L3)
			Carryout servicing of engine auxiliary system (7412-U6-L3)
			Carryout servicing of engine (7412-U7-L3)
Forester	NC II	2017, 2019	Perform forestry plantation (6210-U1-L2)
			Carryout forest management (6210-U2-L2)
	NC III		Carryout wildlife management (6210-U3-L3)
			Monitor transport and trade of forest produce (6210-U4-L3)
Commercial Accountant (Diploma)	ND I	2013	Manage human resource of accounts and finance (3313-U1-ND1)
			Carryout verification of financial transaction (3313-U2-ND1)
			Carryout budgeting (3313-U3-ND1)
			Carry out cost determination and control (3313-U4-ND1)
	ND II		Carry out Investment and Fund Management (3313-U5-ND2)
			Carry out analysis of assets and liabilities (3313-U6-ND2)
			Carryout preparation of fund/cash flow statement (3313-U7-ND2)
			Carryout preparation & interpretation of financial report (3313-U8-ND2)
Sales person	NC II	2015	Maintain workplace (5211-U1-L2)
			Provide customer care (5211-U2-L2)
			Maintain inventory of goods (5211-U3-L2)
			Perform daily sell of goods (5211-U4-L2)

Course	Level	Guideline Year	Competencies
Commercial Accountant	NC II	2011, 2014, 2017	Prepare journal entries (3313-U1-L2)
			Maintain bills payable and receivable books (3313-U2-L2)
			Prepare trial balance (3313-U3-L2)
			Prepare payroll (3313-U4-L2)
			Prepare bank reconciliation statements (BRS) (3313-U5-L2)
	NC III		Prepare profit and loss accounts (3313-U6-L3)
			Prepare balance sheet (3313-U7-L3)
Asphalt Plant Operator	NC II	2012	Maintain tools and equipment (8342-U1-L2)
			Perform pre-operation procedures (8342-U2-L2)
			Perform operation checks (8342-U3-L3)
			Perform post-operation procedures (8342-U4-L2)
	NC III		Perform loading and unloading (8342-U5-L3)
Blaster	NC II	2011	Maintain inventory of explosives (7542-U1-L2)
Building Painter	NC II	2010	Prepare tools, painting materials and equipment (7131-M1-01-L2)
			Prepare surface for painting. (7131-M2-01-L2)
			Perform mixing / tinting of paints. (7131-M3-01-L2)
	NC III		Estimate painting requirements. (7131-M4-01-L3)
			Perform painting work. (7131-M5-01-L3)
			Perform re-painting and /or re-touching works. (7131-M6-01-L3)
Bulldozer Operator	NC II	2011	Maintain tools and equipment (8342-U1-L2)
			Perform basic preventive maintenance (8342-U2-L2)
			Perform pre-operation procedures (8342-U3-L2)
			Perform post-operation procedures (8342-U4-L2)
	NC III		Perform loading and unloading (8342-U5-L3)

Course	Level	Guideline Year	Competencies
Excavator Operator	NC II	2011	Maintain tools and equipment (8342-U1-L2)
			Perform basic preventive maintenance (8342-U2-L2)
			Perform pre-operation procedures (8342-U3-L2)
			Perform post-operation procedures (8342-U4-L2)
	NC III		Perform loading and unloading (8342-U5-L3)
			Perform operation procedures (8342-U6-L3)
			Perform productive operations (8342-U7-L3)
Road Roller Operator	NC II	2011	Maintain tools and equipment (8342-U1-L2)
			Perform pre-operation procedures (8342-U2-L2)
			Perform operation checks (8342-U3-L3)
			Perform post-operation procedures (8342-U4-L2)
	NC III		Perform loading and unloading (8342-U5-L3)
			Perform productive operations (8342-U6-L3)
Surveyor	NC II	2010	Carry out levelling. (2165-M1-01-L2)
	NC III		Carry out road survey. (2165-M2-01-L3)
			Carry out topographical survey. (2165-M3-01-L3)
			Carry out cadastral survey. (2165-M4-01-L3)
Construction Supervisor	ND I	2014	Prepare work Plan (3123-U1-ND1)
			Implement and Supervise construction works (3123-U2-ND1)
			Implement quality control measures (3123-U3-ND1)
			Maintain Work Records (3123-U4-ND1)
	ND II		Carry out basic estimation and costing (3123-U5-ND2)
			Manage Resources (3123-U6-ND2)

Course	Level	Guideline Year	Competencies
Road Maintenance Worker	NC1	2016	Maintain drainage system (9312-U1-L1)
			Maintain motor roads (9312-U2-L1)
			Perform road stabilisation works (9312-U3-L1)
Construction Assistant	NC1	2016	Load and unload construction materials (9313-U1-L1)
			Maintain work areas (9313-U2-L1)
			Provide assistance to construction workers (9313-U3-L1)
Pay Loader Operator	NC II	2015	Perform Pre & Post Operation Checks (8342-U1-L2)
			Perform Preventive Maintenance (8342-U2-L2)
	NC III		Load/unload Pay Loader on the trailer (8342-U3-L3)
			Perform Loader Operations (8342-U4-L3)
Mason	NC II	2009,2012 & 2016	Carryout reinforced concrete work (7112-U1-L2)
			Perform brick/block and stone masonry work (7112-U2-L2)
			Perform concrete, tiles and mosaic flooring (7112-U3-L2)
			Perform plastering work (7112-U4-L2)
	NC III		Perform marbles/granite flooring (7112-U5-L3)
Plumber	NC II	2016	Carryout basic preventive / routine maintenance of tools, equipment & machine (8342-U1-L2)
			Carryout daily machine checks (8342-U2-L2)
	NC III		Carryout loading and unloading of backhoe (8342-U3-L3)
			Carryout productive operations (8342-U4-L3)
Backhoe Operator	NC II	2016	Carryout basic preventive / routine maintenance of tools, equipment & machine (8342-U1-L2)
			Carryout daily machine checks (8342-U2-L2)
	NC III		Carryout loading and unloading of backhoe (8342-U3-L3)
			Carryout productive operations (8342-U4-L3)

Course	Level	Guideline Year	Competencies
Construction Carpenter	NC II	2010,12,14, 2017	Construct formwork and scaffolds (7115-U1-L2)
			Construct wooden staircase and railings (7115-U2-L2)
			Construct wooden floor, panel, ceiling & partitions (7115-U3-L2)
			Construct doors and windows (7115-U4-L2)
	NC III		Construct roof with wooden roof truss (7115-U5-L3)
Electrician (Hydropower Plant)	NC II	2014	Maintain Ventilation System (3113-U1-L2)
			Maintain Back-up system (3113-U2-L2)
			Maintain Lighting & communication system (3113-U3-L2)
			Maintain Auxiliary System (3113-U4-L2)
			Maintain Switch Yard (3113-U5-L2)
	NC III		Maintain Transformer (3113-U6-L3)
			Maintain Generator (3113-U7-L3)
			Maintain Excitation System (3113-U8-L3)
			Maintain Breakers (3113-U9-L3)
			Maintain Protection System (3113-U10-L3)
			Maintain EOT crane (3113-U11-L3)
Mechanic(Hydropower Plant)	NC II	2014	Maintain Turbine and its Components (3115-U1-L2)
			Maintain Diesel Generator (3115-U2-L2)
			Maintain Inlet valve (3115-U3-L2)
	NC III		Maintain Gates (3115-U4-L2)
			Maintain Governor (3115-U5-L3)
			Maintain Auxiliary System (3115-U6-L3)
			Maintain Generator (3115-U7-L3)

Course	Level	Guideline Year	Competencies
Operator (Hydropower Plant)	NC II	2014	Operate power back-up system set (3131-U1-L2)
			Operate Compressor (3131-U2-L2)
			Operate Dam (3131-U3-L2)
			Operate Feeder (3131-U4-L2)
			Operate Transformer (3131-U5-L2)
			Operate Cooling System (3131-U6-L2)
	NC III		Operate Generator (3131-U7-L3)
Hydropower Mechanical Technician	NC II	2017	Maintain auxiliary system (3115-U1-L2)
			Maintain gates (3115- U2 –L2)
	NC III		Maintain turbine and its components (3115-U3-L3)
			Maintain generator (3115-U4-L3)
Hydropower Instrumentation Technician	NC III	2017	Calibrate Instruments and control devices (3113-U1-L3)
			Install Instruments and control devices (3113-U2-L3)
			Maintain Instruments and control devices (3113-U3-L2)
Computer Hardware & Network Technician	NC II	2012, 2015	Perform Installation and configuration computer system and devices (3511-U1-L2)
			Perform trouble shooting of computer system and devices (3511-U2-L2)
			Perform installation and configuration of network (3511-U3-L2)
			Perform maintenance of computer system and network (3511-U4-L2)
			Perform installation and configuration of physical security devices (3511-U5-L2)
	NC III		Perform installation and configuration of server (3511-U6-L3)
			Perform monitoring and administration of network security (3511-U7-L3)

Course	Level	Guideline Year	Competencies
Cable TV Technician	NC II	2015	Perform Installation and configuration computer system and devices (3511-U1-L2)
			Perform installation of dish antenna (3531-U2-L2)
	NC III		Perform installation of fibre optic cables (3531-U3-L3)
Animator	NC II	2017	Create Storyboard (7412-U1-L2)
			Develop character, background and props (7412-U2-L2)
			Create 2D Animation (7412-U3-L2)
	NC III		Create 3D Animation (7412-U4-L3)
Computer Application Assistant	NC II	2010, 2014, 2017	Operate and maintain personal computer (3512-U1-L2)
			Manage files and folders (3512-U2-L2)
			Perform word processing (3512-U3-L2)
			Prepare spreadsheets (3512-U4-L2)
			Prepare presentation (3512-U5-L2)
			Perform internet and electronic mail operations (3512-U6-L2)
	NC III		Operate and manage database application software (7213-U7-L3)
Visual Effects Artist	NC III	2018	Prepare for VFX work (2651-U1-L3)
			Carryout composition (2651-U2-L3)
			Finalise visual effects (2651-U3- L3)
Mobile Application Developer	NC III	2019	Design Architecture Framework and application (2519-U1-L3)
			Design Database and user Interface (2519-U2-L3)
			Test and deploy the apps (2519-U3-L3)
Polymer Loom Operator	NC II	2013	Carry out Pre-Operation Procedures (8152-U1-L2)
			Perform Loom Operation (8152-U2-L2)

Course	Level	Guideline Year	Competencies
Polymer Tape Plant Operator	NC II	2013	Perform pre-operation Procedures (8151-U1-L2)
			Perform Tape Plant Operation (8151-U2-L2)
			Perform Winding Works (8151-U3-L2)
Refrigeration & Air Conditioning Technician	NC II	2015	Perform servicing of domestic refrigerator (7127-U1-L2)
			Perform installation of split type air conditioner (7127-U2-L2)
			Perform servicing of split type air conditioner (7127-U3-L2)
	NC III		Perform servicing of commercial refrigeration plant (7127-U4-L3)
			Perform servicing of central air condition plant (7127-U5-L3)
			Perform servicing of package type air condition units (7127-U6-L3)
Store Keeper	NC II	2016	Receive and issue goods (4321-U2-L2)
			Maintain stock inventory
Control Room Operator	NC II	2016	Control lime stone/coal crusher plant (313-U1-L2)
			Control Vertical Raw mill system (313-U2-L2)
			Control Pyro processing system (313-U1-L2)
			Control Ball mill system (313-U4-L2)
Cement Plant Attendant	NC II	2016	Attend to coal / raw and cement mill system (8114-U1-L2)
			Attend to pyro processing system (8114-U2-L2)
Lab Technician	NC II	2016	Conduct raw material test (3111-U1-L2)
			Conduct product test (3111-U2-L2)
Boiler Operator	NC II	2018	Operate Fuel handling System (8182-U1-L2)
			Operate Ash handling System (8182-U2-L2)
			Operate Boiler System (8182-U3-L2)

Course	Level	Guideline Year	Competencies
Metal Worker	NC II	2016	Produce basic hand tools (7221-U1-L2)
			Produce Basic Kitchen Utensils (7221-U2-L2)
			Set up Work Shed (7221-U3-L2)
Home Appliances Repair Technician	NC II	2017	Service rice cooker (7412-U1-L2)
			Service curry cooker (7412-U2-L2)
			Service water boiler (7412-U3-L2)
	NC III		Service Geyser (7412-U4-L3)
			Service washing machine (7412-U5-L3)
			Service mixer machine (7412-U6-L3)
Mobile Phone Technician	NC II	2017	Service mobile phone hardware / accessories (3532-U1-L2)
			Service mobile phone software (3532-U2-L2)
Fashion Designer	NC III	2019	Produce Fashion Accessories (2163-U1-L3)
			Construct Garments (2163-U2-L3)
Mechanical Fitter	NC II	2010, 2014, 2019	Produce Mechanical Parts (7233-U1-L2)
			Carry out preventive and breakdown maintenance works (7233-U2-L2)
	NC III		Maintain Hydraulic and Pneumatic system (7233-U3-L3)
			Install simple Machines (7233-U4-L3)
Welder	NC II	2010, 2014, 2019	Carryout Shielded Metal Arc Welding (SMAW) (7212-U1-L2)
			Carryout gas welding (7212-U2-L2)
			Carryout spot and seam welding (7212-U3-L2)
	NC III		Carryout plasma cutting (7212-U4-L3)
			Carryout Gas Metal Arc Welding (GMAW) (7212-U5-L3)
			Carryout Gas Tungsten Arc Welding (GTAW) (7212-U6-L3)

Course	Level	Guideline Year	Competencies
Electrician (Cement Industries)	NC II	2014	Carry out wiring works (7412-U1-L2)
			Carry out monitoring and maintenance of substation (7412-U2-L2)
			Carry out maintenance of motors (7412-U3-L2)
			Carry out monitoring and maintenance of transformer (7412-U4-L2)
			Carry out maintenance of Motor Control Centre (MCC) (7412-U5-L2)
Instrumentation Technician	NC II	2014	Carry out maintenance of field and measuring instrument (8212-U1-L2)
			Carry out maintenance of dampers (8212-U2-L2)
			Carry out maintenance of weigh and solid flow feeders (8212-U3-L2)
			Carry out maintenance of roto packer and loader machine (8212-U4-L2)
			Carry out maintenance of drives and motors (8212-U5-L2)
			Carry out maintenance of gas analysers (8212-U6-L2)
			Carry out maintenance of Programmable Logic Control (PLC) system (8212-U7-L2)
Electrician	NC II	2010, 2012, 2016	Carry out installation & maintenance of security & communication system wirings (7411-U1-L2)
			Carryout installation & maintenance of domestic building wiring (7411-U2-L2)
	NC III		Carry out installation and maintenance of industrial building wirings (7411-U3-L3)
			Carry out maintenance of electric motors and generators (7411-U4-L3)
			Carry out maintenance of transformer and its accessories (7411-U5-L3)
			Carry out maintenance of control system and protective switchgear(s) (7411-U6-L3)
Transmission & Distribution Lineman	NC II	2009, 2016	Provide Service Connections to domestic households (7413-U1-L2)
			Carry out maintenance of Distribution lines (7413-U2-L2)
			Carry out maintenance of distribution transformer (7413-U3-L2)
			Carry out installation of Distribution lines (7413-U4-L2)
	NC III		Carry out installation of transmission lines (7413-U5-L3)
			Carry out maintenance of transmission Lines (7413-U6-L3)

Course	Level	Guideline Year	Competencies
Substation Operator	NC II	2017	Operate substation equipment (7413-U1-L2)
			Carry out monitoring and maintenance of substation equipment (7413-U2-L2)
			Maintain records of substation parameter readings (7413-U3-L2)
			Operate Air Conditioning (AC) plant and Diesel Generator (DG) set (7413-U4-L2)
			Perform emergency restoration of power supply (7413-U5-L2)
Power Cable Technician	NC II	2018	Carryout Power Cable Laying (7413-U1-L2)
			Carryout Power Cable Jointing (7413-U2-L2)
			Carryout Power Cable Termination (7413-U3-L2)
House Keeper	NC II	2010, 2015	Provide Concierge Services (5121-U1-L2)
			Provide Laundry Services (5121-U2-L2)
	NC III		Provide Cleaning Services (5121-U3-L3)
			Prepare the room for Guest (5121-U4-L3)
Nature Guide	NC III	2014	Carry out Nature Tour (5113-U1-L3)
Trekking Guide	NC III	2014	Carry Out Trek (5113-U1-L3)
			Manage Camp Site (5113-U2-L3)
			Handle Emergencies (5113-U3-L3)
Food Production Associate	NC II	2012, 2016	Prepare stock and sauces (5172-U1-L2)
			Prepare appetisers (5172-U2-L2)
			Prepare vegetable items (5172-U3-L2)
			Prepare porridge and eggs items (5172-U5-L2)
	NC III		Provide desserts (5172-U6-L3)
			Prepare meat and fish items (5172-U7-L3)

Course	Level	Guideline Year	Competencies
Cultural Tourist Guide	NC II	2013, 2016	Provide arrival services (5113-U1-L2)
			Carry out sightseeing (5113-U2-L2)
			Provide departure services (5113-U3-L2)
Trekking Cook	NC II	2017	Prepare for Trek (5172-U1-L2)
			Prepare camp (5172-U2-L2)
			Prepare appetisers (5172-U3-L2)
			Prepare porridge and egg items (5172-U4-L2)
			Prepare rice, pasta and flour items (5172-U5-L2)
			Prepare vegetable items (5172-U6-L2)
			Prepare meat and fish items (5172-U7-L2)
			Prepare meat and fish items (5172-U7-L2)
Tour Operation Supervisor	ND II	2014, 2017	Manage Human Resources (1439-U1-L5)
			Carryout basic auditing and inventory management (1439-U2-L5)
			Supervise tourism services (1439-U3-L5)
			Carry out sales and marketing (1439-U4-L5)
			Develop and promote tourism products and services (1439-U5-L5)
Hotel Operation Supervisor	ND II	2014, 2017	Manage Human Resources (1411-U1-L5)
			Carryout basic auditing and inventory management (1411-U2-L5)
			Supervise health, safety (OHS) and security procedures (1411-U3-L5)
			Supervise hospitality services (1411-U4-L5)
			Carry out sales and marketing of hospitality services (1411-U5-L5)
			Develop and promote hospitality products and services (1411-U6-L5)

Course	Level	Guideline Year	Competencies
Baker	NC II	2011, 2019	Produce cookies and biscotti (7512-U1-L2)
			Produce Breads, Pizza, Burger and Donuts (7512-U2-L2)
			Produce Pastries (7512-U3-L2)
	NC III		Produce cakes and muffins (7512-U4-L3)
Bhutanese Food Production Associate	NC II	2019	Prepare Bhutanese beverages and ceremonial food items (5172-U1-L2)
			Prepare Bhutanese appetisers and Jajus (5172-U2-L2)
			Prepare Bhutanese starch and cereal food items (5172-U3-L2)
	NC III		Prepare Bhutanese vegetable items (5172-U4-L3)
			Prepare Bhutanese meat and egg items (5172-U5-L3)
Food & Beverage Associate	NC II	2010, 2015, 2019	Provide Food services (5123-U1-L2)
			Provide in-room dining services (5123-U2-L2)
	NC III		Prepare Beverages (5123-U3-L3)
			Serve Beverages (5123-U4-L3)
Front Office Associate	NC II	2011, 2019	Provide information on recreational facilities and services (4224-U1-L2)
			Provide reception and accommodation services (4224-U2-L2)
	NC III		Operate reservation system (4224-U3-L3)
			Conduct night audit (4224-U4-L3)
Massage Therapist	NC II	2019	Carryout consultation with clients (3255-U1-L2)
			Provide Swedish Therapy (3255-U2-L2)
			Provide Aroma Therapy (3255-U3-L2)
			Provide Balinese Therapy (3255-U4-L2)
	NC III		Provide Deep Tissue Therapy (3255-U5-L3)
			Provide Foot Reflexology (3255-U6-L3)

Course	Level	Guideline Year	Competencies
Hair & Beauty Therapist	NC II	2012, 2019	Perform waxing and threading (5142-U1-L2)
			Perform manicure and pedicure (5142-U2-L2)
			Perform hair care services (5142-U3-L2)
			Perform skin care & makeup services (5142-U4-L2)
			Perform hair chemical services (5142-U5-L2)
Driver (Light Vehicle)	NC II	2010, 2015	Perform minor maintenance and servicing on vehicles (8322-U1-L2)
			Perform pre and post operation procedure checks of vehicle (8322-U2-L2)
			Manage accident emergency procedures (8322-U3-L2)
			Drive Light Vehicle (8322-U4-L2)
Driver (Heavy Vehicle)	NC II	2010, 2015	Perform minor maintenance and servicing on Vehicles (8332-U1-L2)
			Perform pre and post operation procedures checks of Vehicle (8332-U2-L2)
			Manage Accident Emergency procedures (8332-U3-L2)
			Drive Heavy Vehicle (8332-U4-L2)
Professional Driver	NC II	2016	Adhere with Traffic Rules and Regulations (8322-U1-L2)
			Provide Passenger Care and Services (8322-U2-L2)
			Handle Emergency Situations (8322-U3-L2)
			Perform Minor Maintenance and Servicing on Vehicles (8322-U4-L2)
Trainer (TVET)	ND I	2014	Plan Training Activities (2320-U1-L4)
			Conduct Theory Class (2320-U2-L4)
			Conduct Practical Class (2320-U3-L4)
			Conduct Assessment (2320-U4-L4)
			Develop Instructional Materials (2320-U5-L4)
			Plan and Organise industrial OJT/Tour (2320-U6-L4)
			Carry out extra/related responsibility (2320-U7-L4)
	ND II		Carry out research and development (2320-U8-L5)
			Carry out training design and development (2320-U9-L5)

Course	Level	Guideline Year	Competencies
Wooden Furniture Maker	NC II	2010, 2014	Make Tables and Chairs (7115-U1-L2)
			Make Beds and Sofa Frames (7115-U2-L2)
			Make Storage Cabinet (7115-U3-L2)
	NC III		Make Simple Traditional furniture (7115-U4-L3)
			Make Choe-Sham (7115-U5-L3)
Upholsterer	NC II	2018	Produce simple furniture (7534-U1-L2)
			Produce simple cushion (7534-U2-L2)
	NC III		Produce design upholstery products (7534-U3-L3)
Dozop	NC1, NC2 & NC3	2013	
Shingzop	NC1, NC2 & NC3	2011	
Tshemzop	NC2 & NC3	2011	
Shagzop	NC2 & NC3	2011	
Shingzop	NC1, NC2 & NC3	2011	
Trezop	NC 2 & NC 3	2011	
Jimzop (Sculptor)	ND1, ND2	2018	
Tsemdrup	NC 2 & NC 3	2010, 2018	
Jimzop	NC 2 & NC 3	2011, 2018	
Tshemdrup	NC 2 & NC 3	2010, 2018	
Patrap	NC2 & NC 3	2010, 2015	
Lhadi	NC3	2011, 2019	
Lhadi	ND2	2019	
Shingtshen	NC2	2011, 2017, 2019	
Thagzop	NC2 & NC3	2011, 2019	

Course	Level	Guideline Year	Competencies
Wind Power	Short Course	2018	Carryout operation and maintenance of wind power plant
			Perform maintenance of mechanical component of wind power plant
			Perform maintenance of electrical component of wind power plant
UG Power Cable Trenching, Laying and Termination	Short Course	2017	Demonstrate professionalism and safety
			Prepare for UG cable laying and installation
			Perform UG cable laying
			Perform cable jointing
			Perform cable termination
			Perform troubleshooting and repairing of UG cable
Repair, Maintenance and Commissioning of Transformer	Short Course	2017	Monitor Transformer
			Maintain and service Transformer
			Rewind Transformer winding
			Perform transformer test and commissioning
Installation, Testing and Maintenance of Diesel Generator	Short Course	2018	Install DG set
			Test DG set
			Perform preventive maintenance
			Perform breakdown maintenance
Power System Operation, Control &Protection	Short Course	2018	Familiarise power system network and scenario
			Comply codes and regulation
			Carry out operation and monitoring of generating system
			Carry out operation and monitoring of transmission & distribution system
			Apply power system control and protection system

Course	Level	Guideline Year	Competencies
Power Plant Management	Short Course	2018	Develop Professionalism
			Carryout planning and budgeting
			Manage human resources
Occupational Health and Safety in Power System	Short Course	2018	Introductory knowledge
			Performing housekeeping (5s)
			Displaying safety signs and symbols knowledge
			Performing cordon off knowledge
			Using PPE
Advanced Welding	Short Course		Apply safety and welding attributes
			Carry out heat treatment
			Carry out advanced arc welding
			Carry out TIG and MIG welding
			Carry out NDT test

Source:

1. Extracted from the individual curriculum published by TVET Professional Service Division, Department of Technical Education.

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