Final Research Report

on

Standard of Technical and Vocational Education and Training: An Evaluative Study of the Technical Training Centres (TTCs) in Bangladesh

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Declaration of Originality

On behalf of the research team, I, undersigned, would like to declare that this is an original report of our research and has been written by us and has not been submitted for any previous degree or project. Due references have been provided on all supporting literature and resources.

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We are not above error. Therefore, I beg pardon on behalf of my team for any error that may be happened unconsciously in this report.

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Acronym

APACC	Asia Pacific Accreditation and Certification Commission
BMET	Bureau of Manpower, Employment and Training
BTEB	Bangladesh Technical Education Board
BUET	Bangladesh University of Engineering and Technology
CS	Course and Syllabus
DCCI	Dhaka Chambers of Commerce and Industry
DPED	Deputy Executive Project Director
DTE	Directorate of Technical Education
DUET	Dhaka Univerity of Engineering and Technology
FBCCI	Federation of Bangladesh Chambers of Commerce and Industry
FD	Finance Division
GoB	Government of Bangladesh
HSC	Higher Secondary Certificate
ICT	Information and Communication Technology
KII	Key Informant Interviewee
KPA	Knowledge, Perception and Attitudes
KUET	Khulna University of Engineering and Technology
MCCI	Metropolitan Chambers of Commerce and Industry
M and E	Monitoring and Evaluation
R and D	Research and Development
RUET	Rajshahi University of Engineering and Technology
SHED	Secondary and Higher Education Division
SSC	Secondary School Certificate
STEP	Skills and Training Enhancement Project
TTC	Technical Training Centre
TVET	Technical and Vocational Education and Training
QS	Questionnaire survey
SEIP	Skills for Employment Investment Programme

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Abstract

Maintaining standard of technical and vocational education and training (TVET) institutions is very important to compete and survive in the job markets locally, regionally and globally. Graduates of the TVET institutions accredited by regional and global accrediting bodies get privileged in the job markets. They are also provided compensation following regional and global standard. Bangladesh has the ample opportunities to maintain standards following the regional and global standard-criteria.

The study was conducted to know the level of standard of TVET institutions in Bangladesh. Specifically, the study evaluates the standards of TVET institutions in comparison to regional standards. The study also explored how TVET education can contribute to achieving the relevant goals of the global development agenda better-known as SDG in the country.

A mixed-method approach was followed to conduct this study. Technical Training Centres (TTCs) were purposively selected as unit of analysis. A comprehensive survey was made following the standard criteria set by the Asia Pacific Accreditation and Certification Commission (APACC). A total of ten TTCs were selected for the survey. Eight TTCs were selected from eight divisions to make this study representative. Besides, two more TTCs were chosen from the Dhaka division. Moreover, 15 respondents were purposively selected for key informant interviews (KIIs). Both primary and secondary sources were used to collect the necessary data.

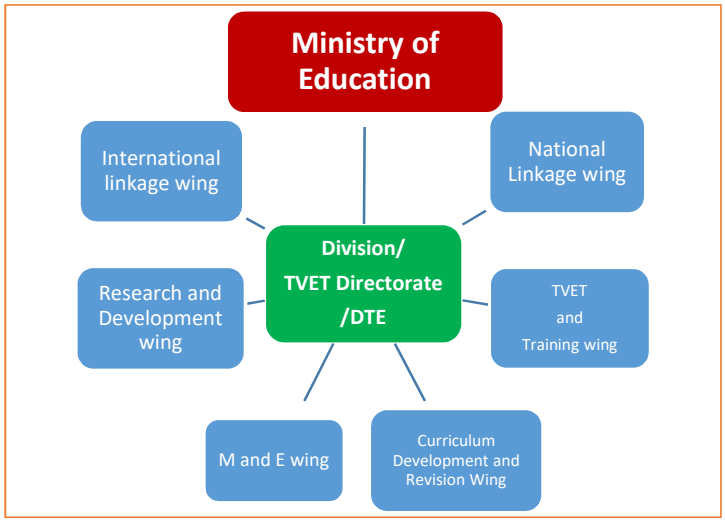
The study, however, reveals that the overall standard of TTCs in the country is not up to the mark in comparison to regional standards. But there are a lot scopes to improve the standard-criteria. Specifically, the study reveals that the TTCs, in most of the cases, could not maintain the standard in terms of governance and management, teaching-learning activities, faculty and staff development, research and development, outreach programmes, support to students. Although physical facilities have seemed fair enough, the non-physical facilities such as research activities, collaboration between institution-industry, modern pedagogical practices and curriculum, and so on, are evident lack of the standards. Research and development activities in the surveyed TTCs are almost absent. Institutional and individual level, as well as joint research activities, are found almost nothing. Pedagogical practices are traditional. Training for professional development is also found not up to the mark. Except for a few, collaboration and linkage programmes of the TTCs are not satisfactory level. Support to students especially scholarships and study loans is also dissatisfactory level. The residential facilities for students are very limited.

So, the overall evaluation of TVET institutions is that this technical stream of education in the country has not been given due importance earlier at the policy level as now given. Although the government puts emphasis now, the potential employers still ignore the TVET graduates. Consequently, still there exists a mismatch between education and job market in the country. On the other hand, the TVET institutions could not maintain the standards set by the APACC for regional accreditation and certification, resulting a lag far behind of regional standard in getting employment opportunities and compensation in the regional and global job markets.

Based on the findings, the researchers have proposed some policy interventions to improve the standard of TVET institution in the light of local and global requirement.

The researchers underline that some radical policy interventions are needed for maintaining the standards of TVET institutions in the country. One of the major interventions may be that the multiple authorities engaged in governance and management of the TVET education and institutions could be merged into a single regulatory authority or should be brought under a single regulatory leadership, ignoring all egoistic problems for the sake of the national interest. However, the study proposes some short-term interventions and a long-term policy intervention to improve the standards of the TVET institutions and education in the country. The major interventions of short-term include: (i) modernization of faculty development policy (ii) maintaining strict governance and management system (iii) establishing an effective monitoring and evaluation system (iv) networking and collaboration (v) providing incentives for best performers (vi) practical focused curriculum (vii) allowing diploma engineering in mainstream universities.

The proposed long-term policy level intervention is to set up a single regulatory authority. The single authority should be a separate division or TVET Directorate or the existing DTE (upgrading its regulatory status) under the Ministry of Education. The division should be headed by a State Minister or a Deputy Minister. The single authority should be consisted of multiple wings such as (1) National Linkage



Wing, (2) International Linkage Wing, (3) Curriculum Development and Revision Wing (4) Research and Development Wing, (5) Training Wing for professional development, (6) TVET wing, and (7) Monitoring and Evaluation wing. These wings should be entrusted with some specific responsibilities and must be coordinated among them.

CHAPTER ONE

Introduction

- Background of the study
- Statement of Problem
- The rationale of the research
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Chapter One

Introduction

1.0 Background of the study

Bangladesh has been moving forward to a new development phase by introducing many innovative approaches, resulting sound scenario in socio-economic indicators. The impressive scenario such as GDP growth, the rate of poverty reduction, female participation in education, and predominantly young labor force has placed Bangladesh as an emerging economy in South Asia (CEBR, 2020). The government has emphasized on demographic dividend to bag its maximum advantages. Consequently, the government has also emphasized on scaling up the skills of the young population through many initiatives (GoB, 2016). Skilled human resources would greatly contribute to sustainable economic growth, improving the socio-economic development of people, resulting overall national development.

Therefore, among many other initiatives, the Seventh Five Year Plan (SFYP) aims at accelerating the growth which is inclusive in the sense that the benefits of growth are both sustainable and broad-based in terms of employment opportunities (GoB, 2016). An emphasis has also been given to create a wide-ranging employment opportunities and entrepreneurship development by vocational and technical education (GoB, 2010). On the other hand, the global development agenda 2030 has also emphasized on vocational and technical education in its goal-4, ensuring quality education and making people skilled human resources.

So, apart from many reform-initiatives, technical and vocational education and training (TVET) is believed as one of the key vehicles to develop skilled and productive human resources. The Government has already undertaken many initiatives in this sector. Yet, how far the TVET is maintaining quality education to produce skilled human resources that meet the market requirements and demands as well as contribute to generating employability in the country?

Therefore, this research study investigated the standard of TVET institutions in the light of local and global market-responsive standards which ultimately contribute to generating employability in-home and abroad to gradual and steady growth of remittance in the economy.

1.1 Statement of Problem

It is observed that for long technical and vocational education has been ignored in the policy agenda in Bangladesh compared to general education. Moreover, the emphasis had also been put on increasing enrollment rate at the primary level to achieve millennium development goals

and education for all targets. Bangladesh shows its remarkable achievement in this sector, leaving still lag of the other side of the education—technical and vocational education which is very much essential for overall development of a country like Bangladesh. According to official statistics, the enrollment rate at different technical and vocation institutions under Technical Education Board is 16.05% in Bangladesh (BTEB, 2019). Moreover, female students face various barriers to access to TVET education and employment. However, the government has taken many initiatives to make TVET education popular among people. Directorate of Technical Education (DTE) under the Ministry of Education, Bureau of Manpower, Employment and Training (BMET) under the Ministry of Expatriates' Welfare and Overseas Employment, Department of Women Affairs under the Ministry of Women and Children Affairs, and Department of Youth Development (DYD) under the Ministry of Youth and Sports are the major government agencies to deliver training programmes through Vocational Schools and Colleges and Training Centers in the country. It is revealed that there are as many as 24 ministries and 22 government agencies engaged in providing and managing TVET in the country (Siddiky and Uh, 2020). It creates a huge coordination problem. Bangladesh Technical Education Board (BTEB) regulates admission, curriculum, and examination. The Board is also responsible to ensure quality education through the accreditation of courses. Apart from the public institutions, TVET is also offered by private institutions in the country. In addition, some NGOs also offer various short courses on skill development-oriented training programmes. On the other hand, some recruiting agencies also provide some trainings for overseas employment aspirants. Consequently, there is a debate about the standard of the TVET institution and quality of education in the country.

Therefore, it is imperative to conduct research for finding out the reasons: despite enormous opportunities in generating self-employment and entrepreneurship development, why people prefer traditional general education to technical and vocational education? To what extend do the TVET institutions maintain standard?

1.2 The rationale of the research

The government of Bangladesh is going to set up 100 economic zones in different parts of the country by 2030 with a view to rapid economic development, resulting more employment creation, production, and export (BEZA, 2020). The government has already approved 88 economic zones, comprising 59 Government and 29 private economic zones. Therefore, it is believed that a diversified of industries will be set up, creating a huge employment opportunity at the economic zones. But still, so far it is observed that there is little information or statistics

either from the government side or the private entrepreneur's side about the nature of job opportunities at the economic zones. On the other hand, referring to a BBS survey report, Shah states that as many as 15 lakh 45 thousand 93 youths of rural areas of Bangladesh have not got works although they tried to get jobs. Moreover, 62 lakh 15 thousand people, most of them are youth, are out of works. These people are neither job seekers nor in education, even they have no training. It means as many as 77 lakh youths are out of work (Shah, 2019). It also means that the labor forces could not be utilized due to the imbalanced development pace in the country. According to the BBS report, about 4.2% of the total eligible workforce is unemployed (BBS, 2017), and, most of the unemployed people have their traditional bachelor's degrees from different institutions on different non-technical subjects. The Business Standard reveals that as many as 2.5 lakh foreign nationals from 44 different countries are working in Bangladesh in legal and illegal ways (Raman and Anwar, 2020). Islam reveals that 62 percent of expatriates' laborers of Bangladesh are unskilled (Islam, 2019). According to a BIDS report, 34.4 percent of first-class master's degree holders are unemployed. It happens due to a mismatch between education system and current job markets (Prothom Alo, 2019, p. 15).

Against the bleak situation, the TVET can play a pivotal role to develop skilled human resources. Therefore, it is very important to analyze the current scenario of TVET education in the country. It needs to focus its importance, find the challenges facing the track, and explore standards in the light of local and global demand. Moreover, the present local and global job markets have already created enormous demand for technical and vocational education or hands-on education for the virtual workplace due to COVID-19.

So, keeping in mind these issues, the researchers believe that it was very rationale to conduct a research study for evaluating the standard of TVET institution in the light of local, regional and global standards. It would also contribute to achieving the targets set by the government to be a developed one country on the global map by 2041.

1.3 Objectives of the research

The general objective of the study was to know the present standard of TVET institution in Bangladesh. To achieve the general objective, it covered the following specific objectives also. The specific objectives were:

- to evaluate the level of standard of TVET of Bangladesh in comparison to regional as well as global standard;
- to investigate the extent of contribution of TVET in achieving the relevant goals of SDGs 2030 of the country; and

• to propose policy interventions for standard TVET institutions in the light of local and global demands.

1.4 Research questions

To address the above-mentioned research objectives, this study also specified the following research questions. It includes:

• Are the existing TVET institutions maintaining regional/global standards in academic activities?

• What is the level of capacity of TVET institutions for delivering teaching-learning and trainings in comparison to regional/global standards?

• What are the limitations/weaknesses prevailing in TVET institutions in Bangladesh?

• How far the TVET system can generate employability and entrepreneurship development in the country?

• What are the ways to develop the TVET interventions to meet the regional standard?

1.5 Scope of the study

The study covered the TVET institutions in the country. The TVET system is a very wide and comprehensive tracks. Several ministries are involved in providing and managing TVET in the country. The leading regulatory body of the TVET institutions is Technical and Madrasha Education Division under the Ministry of Education. Other than, Ministry of Education, the Ministry of Labour and Manpower, the Ministry of Women and Children Affairs, Ministry of Sports and Youth Development are also involved in technical and vocational trainings mainly for the unemployed people.

However, the study delimited the study area within the TVET interventions under the Ministry of Labour and Manpower. The TVET network of the Ministry of Labour and Manpower is rationally distributed all over the country. There are 70 TTCs under BMET to impart trainings in dozens of trades. The study confined its study areas within the TTCs. Since the TTCs are in leading position to deliver technical and vocational trainings in the country, the observations and findings are considered as sufficiently reliable and valid to generalize for the whole TVET institutions and education in the country.

1.6 Ethical issue

Some common ethical principles are followed in research works. These include: (a) obtain consent from potential research participants; (b) minimize the risk of harm to participants; (c) protect participants' anonymity and confidentiality; (d) avoid using deceptive practices; and

(e) give participants the right to refrain any time from participation. These common principles have been followed in this study.

1.7 Limitations/Challenges of the study

To conduct this type of research would be needed more time but it was not possible in this research as it was supposed to be completed within four months after the approval. In the meantime, the pandemic COVID-19 situation hampered the normal activities in the country, causing serious problems for data collection. So, the pandemic situation emerged as one of the biggest challenges to conduct the research works. Hence, the collection of data during the pandemic COVID-19 was challenging. However, it is believed that the selection of study areas would represent the country due to its nature of the educational phenomenon in the country.

1.8 Chapter plan

As per NAEM guidelines, the report has been divided into five chapters. The background of the study has been discussed in the introductory chapter. Besides, statements of the problem, the rationale of the study, objectives, and research questions have also been included in this chapter. In chapter two, literature review and conceptualization and operational definition of key terms have been di scussed. In chapter three, the research methodology has been presented. In chapter four, data have been presented and analysed, and finally, in the last, chapter five, findings, recommendations, and conclusion have been presented.

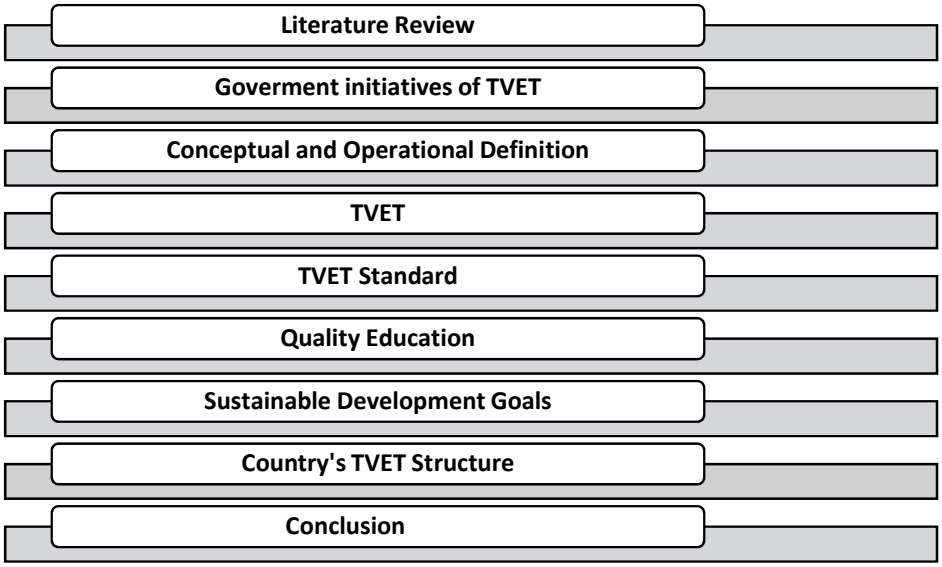
Moreover, references and appendixes have also been added in the last part of this study report.

1.9 Conclusion

TVET education is very important for our national development. Alongside general education, due importance should be given to improve the quality of TVET education for the national interest. For this, it is needed to improve standard of TVET institutions in the country.

CHAPTER TWO

Literature Review



Chapter Two

Literature Review

2.0 Literature Review

Academics, entrepreneurs, and employers observe that education system should be designed as needed and should be reformed time to time to produce a high-skilled workforce required in the changing context. Providing an applied knowledge to the students is a continuous process. In this regard, generally technical education is more applied than general education. It is observed that among the unemployed people, most of them are graduated from the traditional general educational track. So, it is comparatively easy for a job-seeker to manage jobs if he or she is a skilled with technical knowledge.

Quality technical and vocational education and training is needed not only for preparing skilled manpower for employment but also it is needed to contribute to boosting up the economic productivity, leading to achieving sustainable development goals (SDG) which are related to SGD's 4.3,4.4,4.5 indicators (UNDP, 2015). The government would provide acts, policies, and guidelines to ensure quality and standard effectively at all levels and it would be followed by the management of the educational institutions. So, it is expected that initiatives would be taken to provide quality education through the best practices of ICT and technical knowledge, and modern pedagogy in teaching-learning activities. Standard curriculum, modern instructional methods, recruiting qualified faculty and so on would contribute to achieving the targets. However, there is a bunch of works on this education system in the country as well as abroad. Among these, a few have been discussed below.

Islam observed that although TVET is very important in making people skilled human resources, there are few comprehensive studies to assess TVET education. He also observed that the TVET institution could not maintain standard due to a weak monitoring system, lack of performance evaluation, and governance problems. Besides, in most cases, the privately run technical institutions do not have adequate workshops, lab equipment, and other physical and non-physical facilities. As a result, they become unable to provide skilled graduates to meet the industry requirements, (Islam, 2020).

Some findings have come out in a work by the expert from UNESCO (UNESCO, 2016). It reveals that investments in career guidance systems by TVET institutions seem to have produced a convergence between employers and youth as to what skills and characteristics are

valued and required in the labour market. Wheelahan, and Moodie discuss the global trends in TVET education. They describe that vocational education contributes to increased production capabilities (Wheelahan and Moodie, 2016). Edokpolorand and Owenvbiugie conduct a study on technical and vocational education and training skills. They provide descriptive data on the important role of TVET education for required skills for employment and sustainable development (Edokpolor and Owenvbiugie, 2017). TVET education is considered as an integral part of secondary and post-secondary education to educate individuals for careers (Rojewski, Asunda, and Kim, 2008). According to National Association of State Directors of Career Technical Education Consortium (NASDCTEC), *TVET offers students and adults the technical skills, knowledge, and training required for specific occupations and careers* (NASDCTEC, 2003). The United Nation's International Center for TVET (UNEVOC) focuses on the role of TVET education for employment opportunities in the *changing nature of works* (UNESCO-UNEVOC, 2009). Haolader, Cicioglu, and Kassim observe that the curriculum of TVET education always needs to be updated and fine-tuned to respond to local and global demands and requirements (Haolader, Cicioglu, and Kassim, 2017). According to Asian Development Bank (ADB), initiatives need for a massive expansion of TVET education, incorporating *`pre-vocational and vocational education in general and secondary education.'* It is needed more TVET institutions (ADB, 2015). Mia and Karim disclose the mismatch between the output of TVET and the needs of the market. They observe that there is a lack of a standard curriculum or trade, a lack of competencies required for the job market or self-employment, and a lack of practical opportunities for graduates in the country (Mia and Karim, 2015). Siddiky and Uh reveal that there is a lack of linkage between TVET institutions and industries in the country. They also identify gaps between the supply side of TVET and the demand side of the industry. The TVET graduates cannot meet the employability requirements of the industries in the country due to a mismatch of course curriculum and demand of the job market. Therefore, they reveal there is a lack of skills required for the job market. Although they proposed partnership between TVET institutions and industries. But they have not discussed the standard for evaluation of course curriculum that is very important to meet the demands of the job market (Siddiky and Uh, 2020).

The foregoing discussion reveals that there are a lot of literatures on TVET. But a few literature is so far found on the standard of TVET institutions.

2.1 Government Initiatives for TVET in the country

On the other hand, the Government of Bangladesh has taken various policies, strategies and projects for human resource development through TVET education in the country. Most of the projects are implemented through BMET, TTCs, IMT, and DTE. Among the policies, strategies and projects, some are discussed in brief in the following passages.

National Education Policy 2010

National Education Policy 2010 is the latest policy for the development of the education sector in the country. It covers all sub-sectors of education and puts guidelines for quality improvement. About TVET, the policy denotes three specific objectives to ensure high skills standards at different areas and levels of education so that learners can successfully compete in the global context. The objectives include: *"(i) to build up skilled manpower at a fast pace to create opportunities of economic development and to increase the dignity of labour; (ii) to create wide-ranging employment opportunities through the export of skilled manpower and to enhance foreign currency earnings; and, (iii) to increase competent manpower in diverse sectors including Information and Communication Technology (ICT) at a fast pace keeping in mind the national and international demands".*

The Education Policy also describes vocational education as:

> *"All the students have to complete an 8-year cycle with pre-vocational and ICT courses as their primary education. After completing class VIII, those who will take a 6 months vocational training programme will get a national standard of skills-1. A student will get the national standard of skills 2,3 and 4 after completing class IX, X, and XII respectively, a student can also get the same standard level if she or he takes a vocational training of 1, 2, and 4 years coordinated by mills, factories, and government as well non-government technical institution. In a technical and vocational educational institution, the ratio of teacher and student will be 1:12 (GoB, 2010, p.15-16)".*

National Skills Development Authority (NSDA) 2018

The government of Bangladesh established a National Skills Development Council (NSDC) in 2008 under the Ministry of Labour and Employment. Abolishing the NSDC, later the government established a National Skills Development Authority (NSDA) in 2019 under the National Skills Development Authority Act 2018 under the Prime Minister's Office (PMO). The authority is responsible for *(i) formulation of national skills development policy, strategy, and plan of actions; (ii) fixation of key performance indicators (KPIs) for government and non-government training institutes; (iii) publication of the forecast of national and international labour market demand and establish sector-wise skill data bank; (iv) monitoring and coordinating all projects related to skill development in the country* (National Skills Development Authority Act, 2018).

National Skills Development Policy 2011

Ministry of Education adopted the National Skills Development Policy 2011 which was approved at the Executive Committee Meeting of the NSDC in April 2011. Recognizing the problems of TVET education, the Policy stresses more flexible and demand-driven programmes and training. It emphasizes the skills development system, consisting of the *National Technical and Vocational Qualifications Framework (NTVQF); Competency-based Industry Sector Standards and Qualifications; and Skills Quality Assurance System.* The NTVQF would design the quality and nationally recognized qualifications while Competency-based Training and Assessment (CTBandA) would measure *`each learner's achievement against job-related competency standards rather than against the achievement of other learners'*. On the other hand, Skills Quality Assurance System would develop *`national quality standards to ensure nationally consistent and high-quality training and assessment services for learners'* (National Skills Development Policy, 2011).

National Technical and Vocational Qualification Framework (NTVQF) 2013

As the responsible authority, BTEB has been implementing the NTVQF through the CBTandA system. The NTVQF was adopted to develop and design competency standards for trainees/employees and employers in the country. The NTVQF *`consists of 6 skill levels and 2 Pre-vocational levels for defining labour forces on the basis of their knowledge, skills, and attitude (KSA).*' However, only 25 institutions out of 43 registered training organizations and assessment centers have produced 9,554 NTVQF standard qualification classified graduates. BTEB has approved 51 occupations tuned to the NTVQF with 141 standards covering from Pre-vocational to Skill level 5 (BTEB, 2019).

National Human Resource Development Fund 2016

The government established a National Human Resource Development Fund to ensure funds for the development of a skilled workforce in the country. This would meet the domestic and international demand for skilled manpower in the growing sectors/ industries. The enhanced productivity due to skills development training activity will contribute to higher economic growth, enhanced per capita income, and rapid poverty reduction in Bangladesh. However, the Fund will be operated under the administrative purview of the Finance Division, Ministry of Finance (GoB, 2016).

Industry Skills Councils (ISCs)

One of the key initiatives of the TVET reform project is the formation of Industry Skills Councils (ISCs) which are being implemented by the government with the support of the ILO

and funded by the European Union. The project is working towards reforming technical and vocational education and training in Bangladesh. ISCs is working to bring the employers, workers, and government representative together to ensure a continuous improvement of the skills development system (GoB; ILO, 2012).

Bureau of Manpower, Employment and Training (BMET)

BMET is engaged in the overall planning and implementation of the strategies for regulating the migration process, promoting migrant workers' rights, and skill development of migrant workers of the country. Through its 64 TTCs and 6 Institute of Marine Technology (IMT), BMET is providing various kinds of trainings to job seekers abroad. According to BMET, it has provided training as many as 839,727 people through its existing different training programmes (BMET, 2019).

Directorate of Technical Education (DTE)

The vision of the Directorate of Technical Education (DTE) is to ensure human resource development, economic development, and improved livelihood through Technical and Vocational Education and Training (TVET). For this, DTE is working for implementing different programmes and projects through its Technical School and Colleges (TSCs). However, it is devoted to (i) improve access to quality TVET; (ii) establish equality and equality policies in all fields of TVET; (iii) develop skilled human resources for domestic and international labor markets (DTE, 2019).

Skills for Employment Investment Programme (SEIP)

Skills for Employment Investment Programme (SEIP) is being implemented under Finance Division, Ministry of Finance. The government of Bangladesh in association with the different organizations such as the Asian Development Bank, the Swiss Agency for Development and Cooperation, is implementing the project activities for skills development. The major targets of the SEIP project are to improve job-focused skills and to take the existing workforce to a higher skill level. SEIP is also providing market-responsive inclusive skills training, strengthening TVET institutions and quality assurance systems (SEIP, 2019).

8th Five Year Plan

The government has also undertaken plans to improve the quality of TVET education in the country. The national five-year development plan, 8th Five Year Plan, denotes that the teacher-student ratio would be 1:12 by 2025. Standard Teacher-Student ratio in technical education is very important for maintaining quality education, scaling up the practical experiences of the trainees. More TTCs will be set up to expand TVET education in the country, targeting to

export more skilled human resource abroad that would contribute to earning more remittance (GoB, 2020).

After reviewing the pieces of literature, now it can be said that there are several pieces of literature about different issues of TVET education. But few studies are found about the standards of TVET education and institutions. So, it is revealed there is a gap. To minimize that gap and contribute to academia, there is immense scope to conduct research in this significant field.

2.2 Conceptual and Operational Definitions of the Key Terms

2.2.1 Technical Vocational Education and Training (TVET)

According to Cedefop, vocational education and training can be seen from three perspectives such as *`pedagogical perspective, labour market perspective and education system perspective'* (Cedefop, 2017). According to the All India Council for Technical Education (AICTE), TVET is *`preparing learners for jobs that are based in manual or practical activities, traditionally non-academic and totally related to a specific trade and occupation'* (AIETE, 2020). According to Legal Information Institute (LII) of Cornell Law School, USA, technical vocational education is a *`competency-based, work-based, or other applied to learn that supports the development of academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, employability skills, technical skills, and occupation-specific skills'* (LII, 2020). Ogbazi and Osinem describe TVET as *`broad knowledge and generic skills applicable to several occupations within a given field. It is also a specialized preparation for paid or self-employment'* (Ogbazi and Osinem, 2014). Butterfield (2000) asserts TVET as *`any educational programme organized to orient people into skills acquisition, and as well as teach them the attitude and knowledge necessary for the appropriate utilization of such skills. It is education designed to develop specific occupational skills'* (Butterfield, 2000).

In practice, the TVET puts emphasis, in many instances, on providing mid and lower-level skills to the youth who have been pushed from or have dropped out of the formal academic stream.

However, in the report, TVET is considered both as an alternative academic stream and labour market perspective and it is followed accordingly in this research.

2.2.2 TVET Standard

There are no universally accepted standards for TVET but some common standards are followed in different countries such as Sri Lanka, China, India, Australia, and other western countries. It varies depending on the context of the country. However, the APACC's set standards are followed in the study. The APACC sets 27 indicators, covering 88 sub-indicators under seven standard criteria for TVET. The standard criteria include: (i) Governance and Management; (ii) Teaching and Learning; (iii) Human Resources (Faculty and Staff); (iv) Research and Development; (v) Extension, Consultancy and Linkage; (vi) Resources and Facilities; and (vii) Support to Students.

2.2.3 Quality Education

Only education cannot meet the needs of sustainable development all over the world. For sustainable development, academics, experts, development partners are now emphasizing on quality education at all levels. Quality has been defined as, *"services that meet customer preferences and expectations"* (Haywood-Farmer, 1988). However, Masum Billah has said that *"Quality education means teaching not just facts, but how to determine those facts. It involves critical thinking, learning to work with others, and work independently"* (Billah, 2017).

2.2.4 Sustainable Development Goal (SDG)

Sustainable Development Goals (SDGs), also well known as the Global Development Agenda, were adopted by all United Nations Member States in 2015 as a universal call to end poverty, protect the planet, and ensure peace and prosperity for all people by 2030. However, SDG-4 refers to quality education from primary to tertiary level. This study is connected to SDG-4.3 indicator where TVET education is described as important for sustainable development.

2.3. Country's TVET Structure

Technical and vocational education and training (TVET) plays an important role in human resource development in the country. So, the TVET enables its graduates for pursuing higher education in the technical stream on one hand, and, it makes capable them for self-employment creation on the other hand. Duration of the TVET education covers 2-year [SSC (voc) and HSC (voc)] to 4-year Diploma Engineers and the short courses cover three-month to one-year certificate courses. TVET education is offered under different ministries such as the Ministry of Education, Ministry of Expatriates' Welfare and Overseas Employment, Ministry of Youth and Sports, Ministry of Child and Women Affairs, Ministry of Agriculture, and so on. However, the Ministry of Education and Ministry of Expatriates' Welfare and Overseas

Employment are the leading agencies in terms of governance and management of TVET education in the country. Directorate of Technical Education (DTE) and Bangladesh Technical Education Board (BTEB) under the Ministry of Education manage, control, develop curriculum, and provide certificates of most the TVET education. BMET under the Ministry of Expatriates' Welfare and Overseas Employment manages and controls the TTCs and IMT/BIMT and also develops curriculum of short courses/trades for TTCs. Curriculum for SSC (voc), HSC (voc), and Polytechnic Institutes are developed by the BTEB, and the Board awards certificates for these degrees.

However, the SSC (voc) begins from class IX and it needs two years (Class IX and X) for completion and getting the certificate. Any student has the option to get admission into class IX and can continue up to HSC (voc), leading to higher education in the country. But the students passed in SSC under general education boards are not eligible to get admission into HSC (voc) level although they are eligible to get admission into Polytechnic Institutes in the country. Annexure-II shows the country's TVET education structure at a glance.

2.4 Conclusion

Standard TVET education can play a vital role to make skilled manpower utilizing ICT resources. It would meet the demand of the local market as well as global job markets. It would also contribute to achieving the related goals of the global development agenda SDG 2030. So, it needs a proper and strong policy intervention for maintaining standard of TVET institution and education that would match regional and global standards.

CHAPTER THREE

Research Methodology

- Methodology of the study
- Unit of analysis
- Sampling
- Sources of Data and Methods of Data Collection
- Tools of Data Collection
- Reliability and Validation of the Study
- Methods of Data Analysis and Presentation
- Conceptual Framework
- Conclusion

Chapter Three

Research Methodology

3.0 Methodology of the study

This section of the study presents an overview of the methods to be used in the study. However, a mixed-method approach was followed in this study. Consequently, both qualitative and quantitative data were used to interpret the findings. For a systematic empirical investigation of observable phenomena via statistical, mathematical, or computational techniques (Given, 2008), the quantitative method is useful, and while the nature of the investigation is explanatory and exploratory, the qualitative approach is appropriate. This study followed both approaches. Therefore, the mixed-method approach is deemed appropriate to fulfill the objectives of this study.

3.1 Unit of analysis

There are 10452 technical and vocational institutions under the Directorate of Technical Education (DTE) under the Ministry of Education in the country. Among them, a total of 288 are public and the rest are running by private management (DTE, 2019, p. 25). Moreover, there are 70 technical training centers (TTCs) under Bureau of Manpower Employment and Training (BMET), Ministry of Expatriates' Welfare, and Overseas Employment (BMET, 2020).

As the proposed study is going to investigate the standards of the TVET institutions in the country, therefore, TTCs were taken as unit of analysis.

3.2 Sampling

All the TTCs under the BMET were covered under this study. However, it would not be possible to visit all TTCs across the country due to time limitations and budget constraints. Consequently, as many as eight TCCs were selected purposively from eight divisions. It is deemed that the selection of eight TTCs from eight divisions will represent the country. Moreover, two more TTCs were selected from Dhaka city as specialized institutions.

However, after selecting the TTCs, they were surveyed following the standards set by the Asia Pacific Accreditation and Certification Commission[1] (APACC). In order to conduct the survey, a self-administered survey questionnaire containing 88 indicators under seven criteria was used (APACC, 2020).

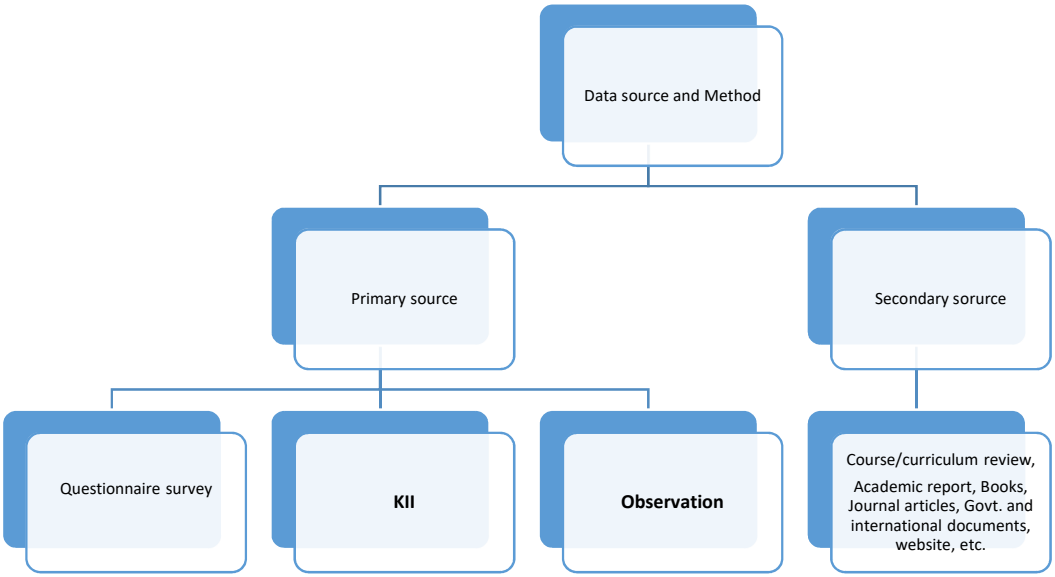
[1] APACC established under the Colombo Plan Staff College (CPSC) in 2004 in Seoul, Republic of Korea, is a regional body for accreditation and certification of TVET institutions. Its accreditation and certification is globally recognized and widely accepted.

On the other hand, the key informants were also selected purposively to get in-depth data about the standard of academic activities of TVET institutions of the country. Ten principals of 10 TTCs were selected as the KIs and they were selected among the TTCs which were not brought under questionnaire survey Moreover, three TVET experts and two officials involved in governance and management of TVET institutions were also selected purposively for KIIs. It was done purposively as the researchers want to get in-depth information about the TVET institutions, the nature, and standard of academic activities, demands of skills as well as future requirements for the local and global market, even in the virtual workplace. For this, the researchers want to determine the experts purposively for KII. However, a total of 15 Key Informant Interviews (KIIs) were conducted following a checklist of questions.

3.4 Source of Data and Methods of Data Collection

Data were collected from both primary and secondary sources. To collect primary data from the field level, the selected TTCs were surveyed administering a structured questionnaire. Academic reports, books, articles, course curriculums, journals, documents, website documents, and dailies were treated as the sources of secondary data. The following figure 2 shows at a glance of sources of data and methods of data collection.

Figure 2: Data sources and Data collection methods



3.5 Tools of Data collection

The following data collection tools were used to collect the primary data. These include:

(i) questionnaire survey[2] ,

(ii) key informant interview (KII), and

(iii) direct observation.

For the survey, a questionnaire has been developed following the 88 indicators designed under the seven standards/criterion of the APACC. The selected TTCs have been surveyed to get data from the field level. For KII, 10 principals of TTCs, three TVET experts, and two officils of management authority were interviewed in-depth to understand deeply the level of standard of existing academic activities, management of the TVET system and its standard in the country. The selected TTCs have been visited to observe their lab, hostel, classrooms, and other facilities. Observation is not just seeing the events/incidents. It provides insights into the phenomenon of the observed issues. Therefore, it was done as one of the important tools of data collection from the field level.

3.6 Reliability and Validation of the Study

Maintaining validity and reliability are two key aspects of every research. In the current study, the validity and reliability were maintained in a professional way.

In order to maintain validity, the APACC standard of TVET quality was consulted. The APACC standard was a highly acceptable TVET quality standard of the world. The Colombo Plan Staff College (CPSC) initiated to establish the APACC for Asia and Pacific region aiming to improve the quality of the TVET education that would contribute to be eligible in the global arena in this sector. However, APACC has identified 27 indicators under seven standard criteria for maintaining the standard quality of TVET education at an institutional level. This study followed the APACC standard and made a comprehensive survey using a structured questionnaire that contains 93 questions. It covers all the sub-indicators under the indicators of the seven standard criteria. Moreover, before going to collect survey data, the research team made a questionnaire validation consultation meeting with the national TVET experts and five more questions were added to the APACC's questions in order to customize to Bangladesh context. The draft survey questionnaire was also presented before a panel of experts at NAEM for obtaining final validation and after adjusting the opinion of the expert panel, the questionnaire and other data collection tools were finally validated.

[2] The questionnaire survey is a category of collecting diverse views of a group of community from a particular population.

Using reliable measurement tools is imperative for every research. The concept 'reliability' basically means to use reliable and suitable tools and measurement scales for evaluating opinions or phenomena. In the case of social research, a highly acceptable measurement tool for measuring opinion is the Likert Scale. In the current study, the opinion-based questions measured using a 5-point Likert Scale that was '1' for strongly dissatisfactory, '2' for dissatisfactory, '3' for neutral (neither agree nor disagree), '4' for satisfactory, and '5' for strongly satisfactory. However, in few cases, some questions are denoted as `yes' or `no' answers.

3.7 Methods of data analysis and presentation

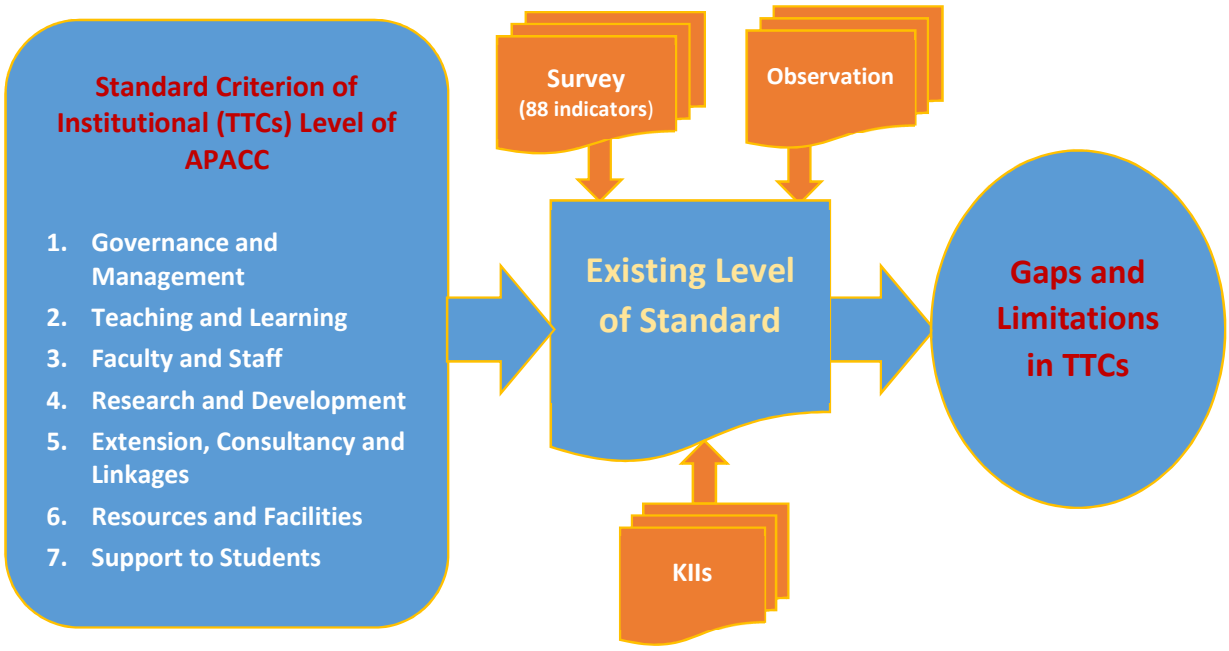
Three types of data were collected and analysed to obtain the findings empirically for in-depth analysis. First, the secondary data and information were used to make an exhaustive literature review for obtaining validity and reliability of the study as well as set authentic criteria for making a survey on selected training institutes. Second, the primary data was obtained through a survey and analysed using quantitative tools like descriptive statistics. However, the collected data was Analysed using different software like MS Excel and SPSS, and so on. Various forms of pictorial presentation such as a table, bar diagram, pie chart, column, line graphs were used in presenting results and inferences of the analysis. Third, the quantitative inferences were compared, validated, complemented, and even quashed after comparing with qualitative findings (Bhuiyan, 2017). The observations and opinions of qualitative data were checked to whether the findings were seen as consistent enough with the research problem and context. Basically, the qualitative data was analysed in a thematic manner. The major and important opinions were group into several thematic areas and then before taking any conclusive findings, the issue of corroboration, cross-examination, and repeated arguments were considered carefully.

3.8 Conceptual Frame-work

It is thought that research without a conceptual framework makes it complicated for readers in discovering the scholastic point and the underlying aspects of the researcher's proposition. So, Therefore, a conceptual framework is a configuration which the investigator believes can explain the natural progression of the occurrence to be studied (Camp, 2001).

However, as the study investigated the standard of the TVET institutions of Bangladesh in the light of international or regional standards, the following phenomenon shown in the below figure-1 were taken into account in the study.

Figure 1 Conceptual Framework of the Study



Source: Developed by researchers based on APACC standard

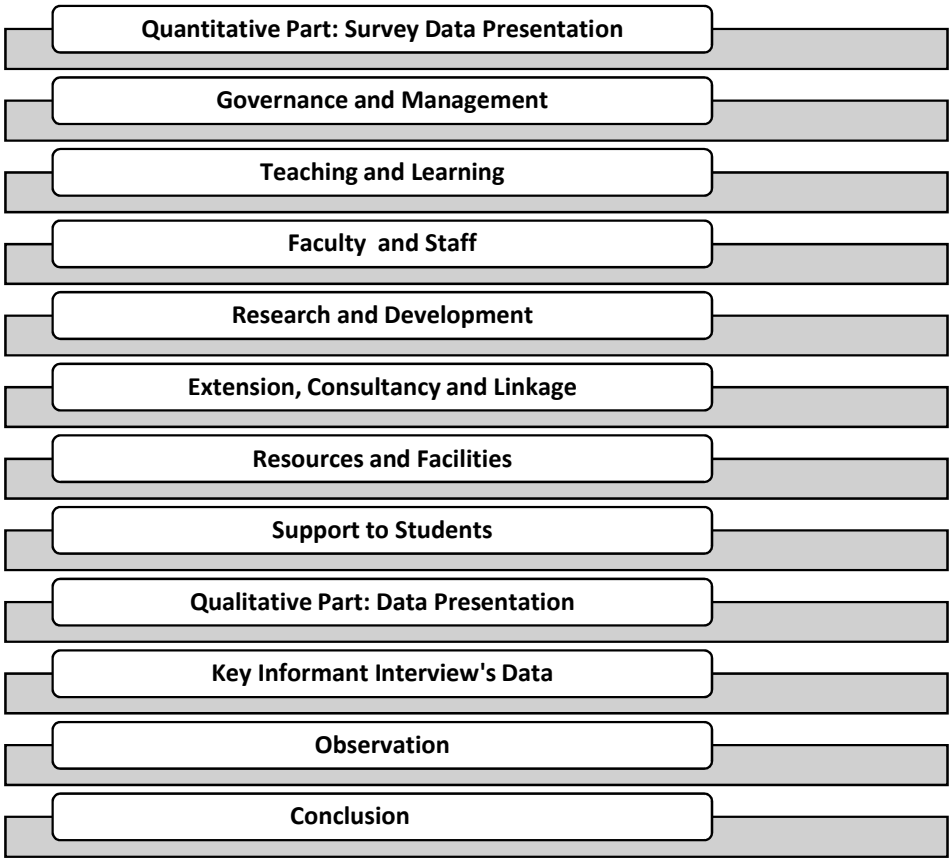
In the conceptual framework, the 7 criteria developed by APACC were taken as the standard level of TVET at an institutional level. The research instruments like questionnaire survey, key informant's interview, and direct observations were applied to assess the baseline quality level of TTCs. The collected qualitative and quantitative data were analysed to explore existing quality gaps and limitations of the TTCs.

3.9 Conclusion

Conducting research methodology is a very important part. This study is mainly conducted following the mixed-method approach, considering the nature of the research inquiry.

CHAPTER FOUR

Data Presentation and Analysis



Chapter Four

Data Presentation and Analysis

This section is dedicated to data analysis and the presentation of thereof in different ways. The whole discussion is divided into two sub-sections: the quantitative and qualitative parts.

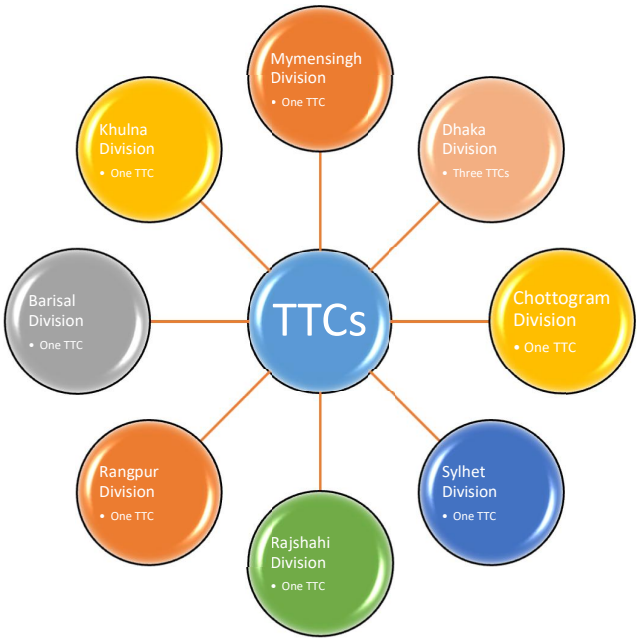
4.1 Quantitative Part: Survey data presentation and discussion

Data have been categorized into different groups such as survey data, KII's data, and observation data. In the first section, survey data have been presented followed by KII, and observation. The quantitative data were collected using a structured questionnaire following the APACC's standard criteria. Colombo Plan Staff College (CPSC) initiated to establish the APACC for Asia and Pacific region aiming to improve the quality of the TVET education that would contribute to be eligible in the global arena in this sector.

4.1.0 Basic information about the selected TTCs

A total of ten technical training centers (TTCs) under the Bureau of Manpower Employment and Training (BMET) were selected purposively for this study. But the selection was represented each division in the country. Eight TTCs were selected from eight divisions and two more TTCs were selected from the Dhaka division for this study. It is believed that the findings of the survey can be generalized for the rest of the TTCs and other TVET institutions in the country. A total of 70 TTCs including IMT/BIMT under the BMET are providing TVET education all over the country (BMET, 2020). It is worthy to mention that there are more than 10,500 TVET related educational institutions including both public and private arrangements of the country (DTE, 2019, p. 25). However, the following figure-2 shows at a glance the TTCs selected from each division for this study. The TTC's management have been considered as respondents in the report. The selected TTCs were surveyed comprehensively following the APACC standard criteria.

Figure 2 The selected TTCs represents all divisions in the country



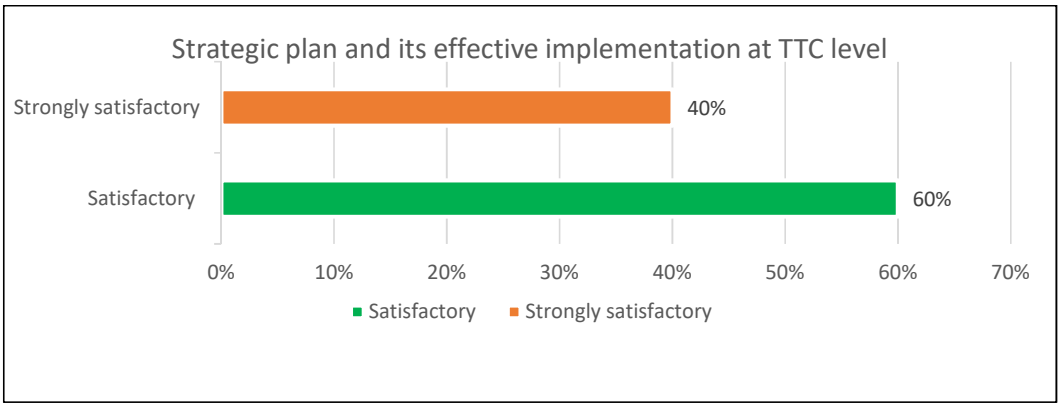
However, the forthcoming section presents the survey data under the seven standard criteria.

4.1.1 Governance and Management

Effective governance is very important to run an institution efficiently. So, governance and management is considered an important standard criterion for quality TVET education all over the world. APACC also sets the issue of governance and management as the initial standard criteria for TVET institutions. This study surveyed the selected TTCs following the indicators set by the APACC to explore the status of governance and management in the TTCs in the country. The study reveals that all the surveyed TTCs take strategic plan for their institution and implement it accordingly.

The TTC authorities take strategic plans for their institutions. However, the implementation of these strategic plans is not so harmonious, the survey reveals. As many as 60 percent of the respondents claim that their implementation rate is satisfactory while the rest of the respondents claim that their performance rate is strongly satisfactory (fig-3). The study reveals that there is scope to increase the implementation rate of their strategic plans. Because it leads an institution towards excellence, gaining regional as well as international reputation.

Figure 3 Strategic plan and its effective implementation at the TTCs level



Alongside the strategic plans, yearly plans for an institution are also a very important issue. All the authorities of the surveyed TTCs take yearly plans for their respective institutes and implement those plans accordingly. The survey results show that the satisfactory rate of implementation of yearly plans dominate over strongly satisfactory assumption (fig-4). It also reveals that some respondents were kept in a neutral position about the implementation of yearly plans. Yes, it is observed that all plans cannot be implemented due to various reasons. For example, the current pandemic COVID-19 brings disruption in many cases in terms of the implementation of many plans in every sector. The TTCs are not out of this purview.

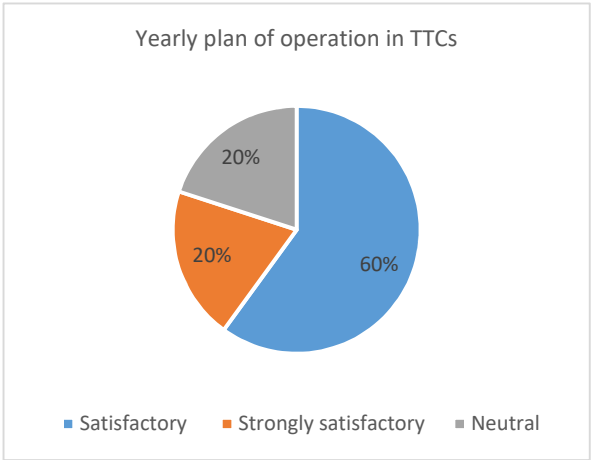


Figure 4 Satisfactory level of yearly plan implementation of TTCs

Proper policy formulation is a very crucial issue to run an institution. For this, it needs the participation of different stakeholders. That means the participation of stakeholders matters to take proper policy formulation and policy decision. The survey results show that participation

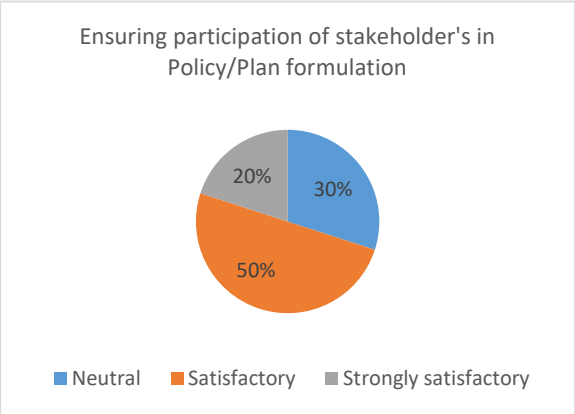
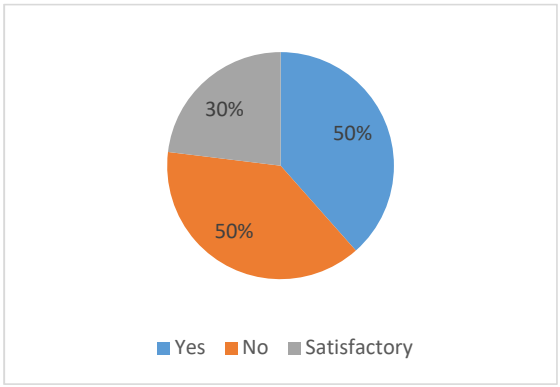


Figure 5 Participation of stakeholder's in policy/plan formulation at TTCs

of stakeholders in policy formulation of the TTCs prevailed more satisfactory than strongly satisfactory level (fig-5). It also reveals that some respondents remained far to make comments over proper participation of stakeholders in policy formulation. It means the TTCs are not very effective in ensuring the fruitful participation of stakeholders.

With regard to the management board and its meetings, there was a knowledge gap or confusion about it. Some of the respondents thought that the committees headed by or under the leadership of the Principal were considered management board of TTCs while other respondents whose position was in favour of `No', observed that there was no management board of the TTCs as these institutions are run by the BMET. Moreover, the respondents, who were in favour of `yes', observed that holding the meeting of the management board was not so effectively arranged (fig-6). However, all the activities from budget allocation to faculty recruitment of the TTCs in the country are managed by the Bureau of Manpower Employment and Training (BMET) under the Ministry of Expatriates' Welfare and Overseas Employment.

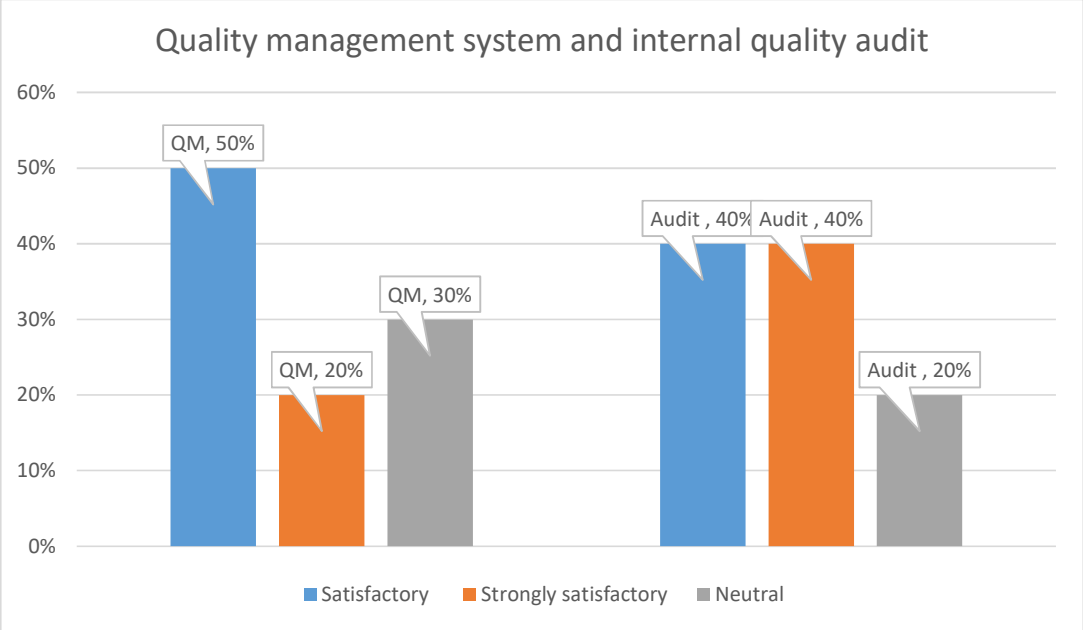
Figure 6 Existing of management board and its holding meeting of TTCs



Maintaining a quality management system such as plan, implementation, monitoring, and evaluation as well as feedback, is an important part of effective governance and management. Regular internal quality audit is considered another important indicator for effective governance and management. The survey results show that maintaining quality management (QM) is a more satisfactory than strongly satisfactory statement while some respondents kept themselves refrain from making any comments in this regard. On the other hand, the regular internal quality audit is the same as strongly satisfactory as moderate satisfactory (fig-7). So, there are rooms to increase the quality management as well as quality internal audit.

Improvement of these indicators leads an institution towards better ranking in the regional and global index.

Figure 7 Maintaining quality management system and internal quality audit of TTCs



In an academic institution, a strong and effective academic body/committee alongside the administrative body is very important to lead the institution in a better position in terms of standard and quality education in the academic arena. The survey results show that authorities of the TTCs formed academic committees for their respective institutions (fig-8). Whether it is effective or not, most of the respondents claimed that their performance of academic committees was strongly satisfactory while some respondents observed that their performance was satisfactory. It reveals that there is scope to improve the performance more. However, it is mandatory to form an academic committee to run academic programmes.

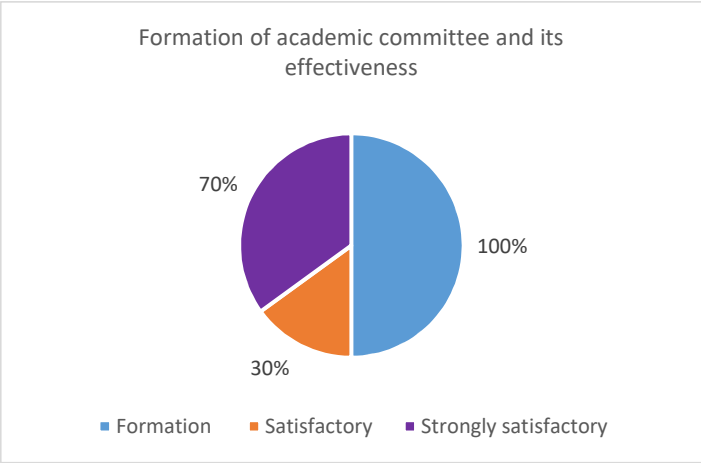


Figure 8 Formation of academic committee and its effectiveness at TTCs

Financial planning and budgeting are two important factors for sound governance and management. Formulating a yearly budget, obtaining sufficient allocation, generating own income, maintaining accounting and finance-related information in a professional way are some important indicators for sound governance and effective management.

In this regard, the survey results show that both the status of the planning of programmes and budget management is seen dominated supposition of the `satisfactory' level. But some respondents remained to refrain from making comments and were in favour of a `neutral' line about programme planning and its budget allocation. It indicates that there is an opportunity to improve the governance indicator. On the other hand, some respondents claimed that, in terms of programmes and budgeting, their performance was strongly satisfactory level (fig-9). It also indicates that there is also an opportunity to improve the strongly satisfactory line.

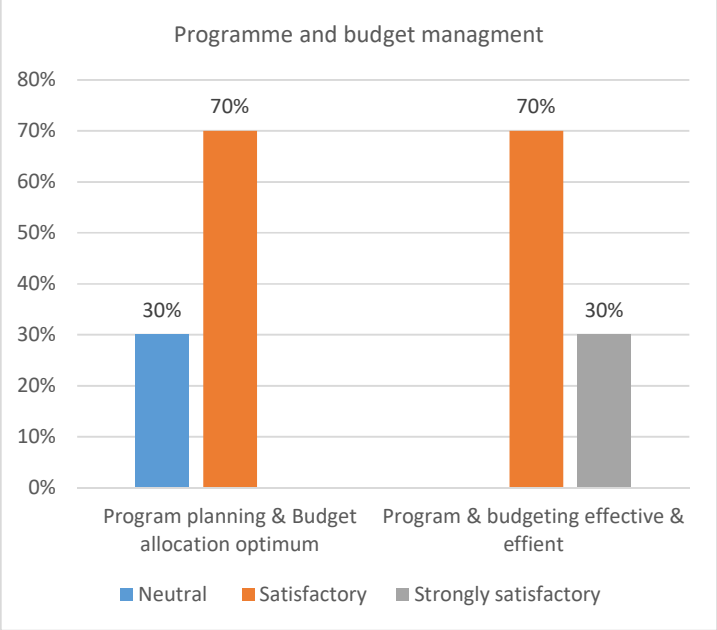


Figure 9 Status of programme and budget management of TTCs

The financial solvency and its inventory audit are also considered important elements of effective governance and management. In this regard, the status of the surveyed TTCs is not so pleasant up to the mark. More than 50 percent of the respondent were in the `neutral' line in making comments about programme planning and level of income-generating activities for their institution. Only 30 percent of the respondents claimed that their income-generating funds was satisfactory while only 10 percent of the respondents were in favour of the `strongly satisfactory' line (fig-10). It is revealed that the

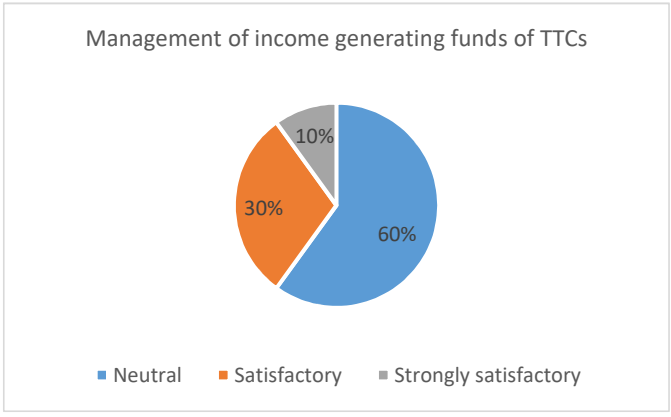
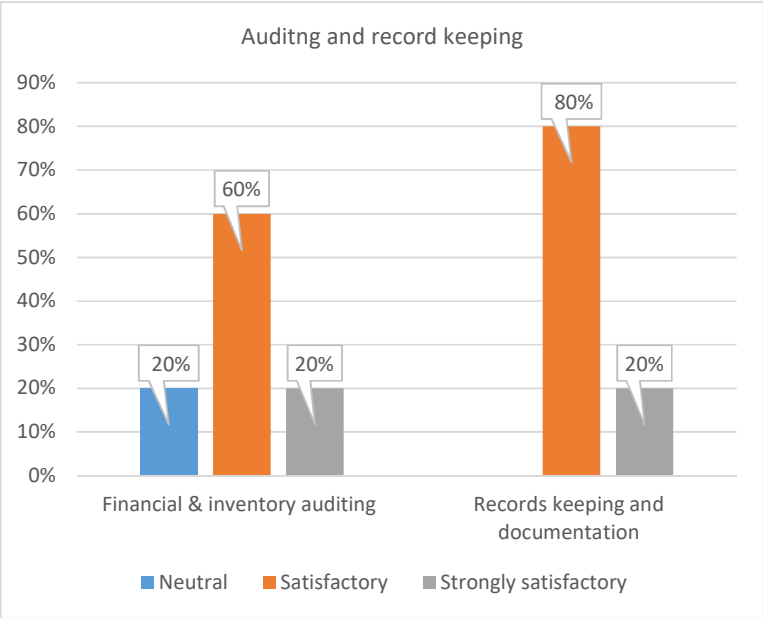


Figure 10 Management status of income generating funds of TTCs

TTCs located in the periphery are weak and ineffective in internal income-generating activities. Besides, there is a lack of collaboration between educational institutions and enterprises in the country.

Figure 11 Satisfactory status of auditing and record keeping at the TTCs



Financial and inventory auditing and record-keeping of documents are required for ensuring transparency and accountability. Transparency is one of the core elements of good governance. The study looked into the issues and revealed that the overall status of financial and inventory auditing performance is `satisfactory' while 20 percent of the respondents claimed that their performance is `strongly satisfactory' and the same number of the respondents refrained from making any comments in this regard. On the other hand, the overall status of record keeping such as archiving, filing, e-database, etc. is more satisfactory than that of auditing. As many as 20 percent of the respondents maintained `strongly satisfactory' in terms of recording keeping (fig-11). However, the survey results show that there is the possibility to improve the satisfactory level in terms of financial and inventory auditing as well as record keeping.

The standards in terms of governance and management of the surveyed TTCs' in most cases are `satisfactory' and in many cases like formulating and implementing the strategic plan, formulating the yearly plan, effective management board, income-generating activities, and internal audit, the TTCs demonstrate very limited success in maintaining TVET standard.

4.1.2 Teaching and Learning

Teaching and learning is the vital operation of the academic institutions. Good governance and management contribute a lot to maintain the quality standard of teaching-learning activities. The study surveyed teaching-learning activities, covering strategic linkage of learning objectives, curriculum, instructional guides, materials, and methods as well as monitoring and evaluation (M and E) management, of the selected TTCs'.

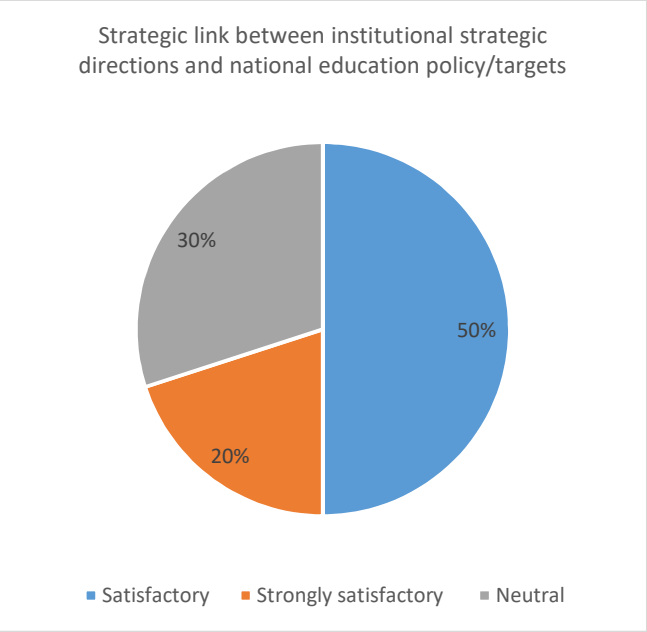


Figure 12 Strategic link between institutional strategic directions and national education policy/targets of TTCs

In terms of strategic linkage of learning objectives between institutional strategic and national education policy, the overall status of the selected TTCs' is at a satisfactory level. Figure-12 shows that only twenty percent of the respondents claimed that their standard in this regard is `strongly satisfactory'. On the other hand, 30 percent of the respondents were in a `neutral' position in this issue. Therefore, the study reveals that the location of the institutions, in most cases, is matters for quality standards in the country. Quality standard depends on many factors such as quality instructors/faculty, pupils, physical and non-physical facilities, previous perception about the institution, and so on. It is also revealed that institutions located at the periphery in many cases, could not maintain the quality standard for such limitations.

On the other hand, curriculum and instructional guidance are also very important for maintaining a quality standard of academic programmes. From Figure13 it is clearly revealed that the TTCs are not used to involve themselves in curriculum development as well as curriculum revision. Even they are not effectively involved in the review of competency standards which is the key document of the curriculum. Since, the TTCs are not effectively involved in course and syllabus (CS) development and review, in the same way, the involvement of stakeholders in curriculum review is also not significantly happened. However, in terms of the use of CS and Lesson Plan by the instructor. From Figure-13, it is revealed that

the level of practice is moderately acceptable. Therefore, from the foregoing analysis, it is clearly evident that the level of engagement of TTCs in curriculum development, review, and utilization is not satisfactory. However, it is revealed that it needs more attention in curriculum development, revision, stakeholders' participation, professionals' intervention, and use of lesson plan in the classroom.

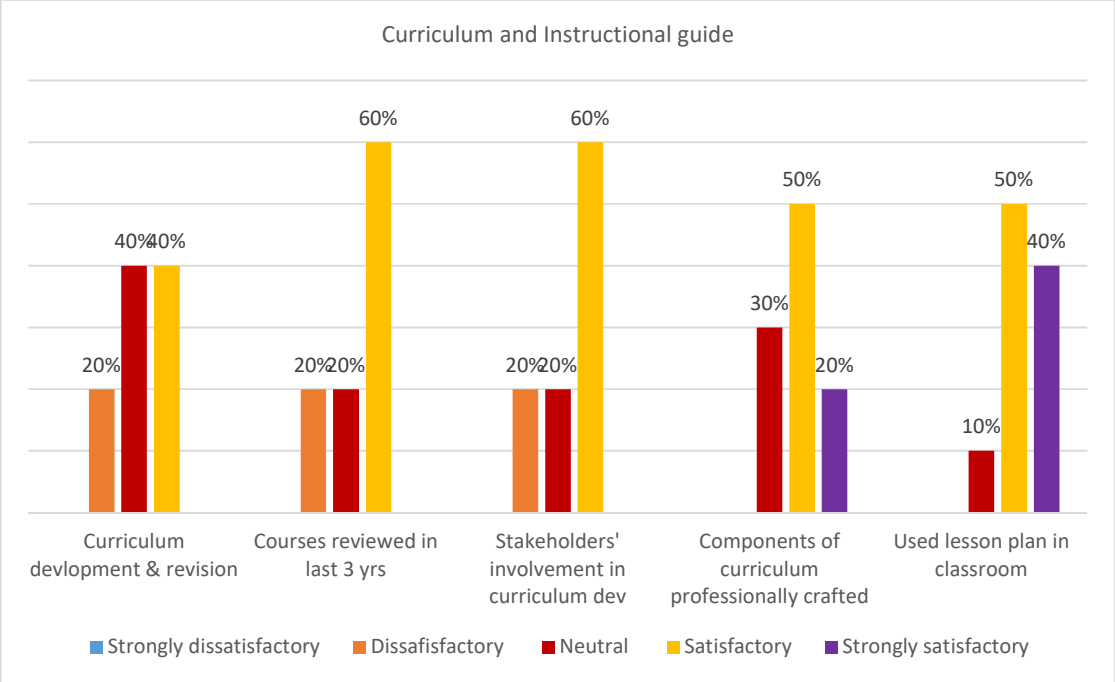
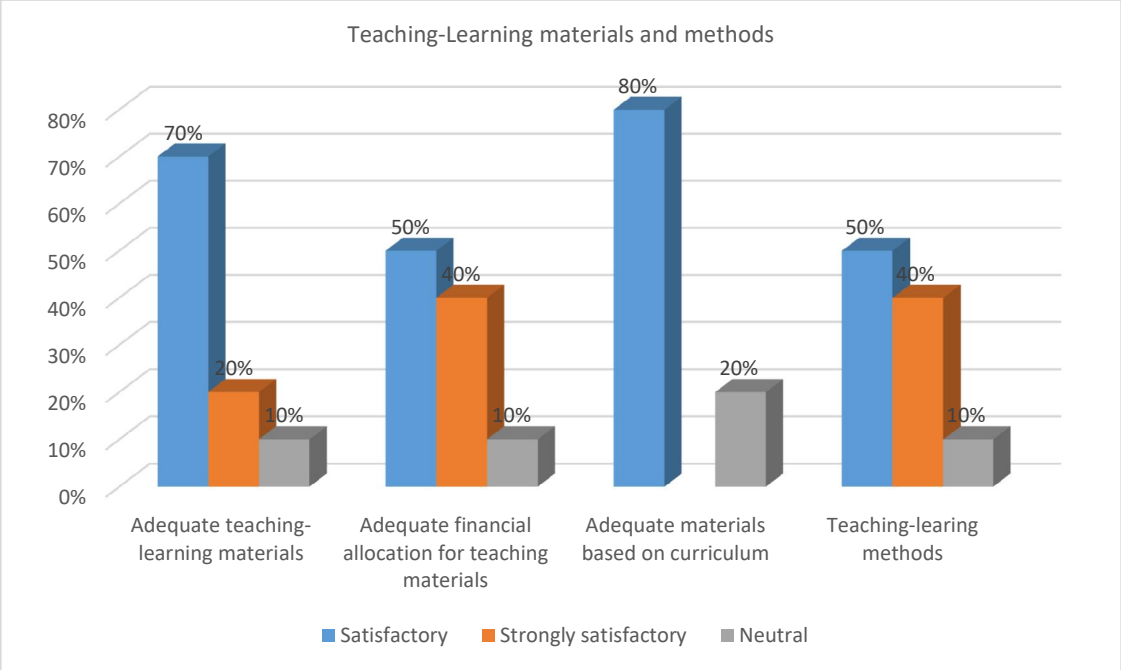


Figure 13 Status of teaching-learning materials and adoption of teaching-learning pedagogies at TTCs

Practices of proper pedagogical methods using appropriate teaching-learning materials contribute a lot to quality education. The majority of respondents are seen satisfied with the availability of teaching-learning materials at the surveyed institutions. However, 20 percent of the respondents claimed that they are strongly satisfied with their teaching-learning materials. On the other hand, 50 percent of the respondents are satisfied with the financial allocation for teaching-learning materials while 40 percent of the respondents are strongly satisfied with this allocation. However, the majority of the respondents are satisfied with the curriculum-based teaching-learning materials. Only 20 percent of the respondents have shown a `neutral position' regarding curriculum-based teaching-learning materials, which that means, curriculum-based materials are not sufficiently available. Proper pedagogical practices are very important for quality delivery in teaching-learning activities. The survey results show that half of the respondents use proper teaching-learning methods while 40 percent of the respondents are

strongly satisfied with using the teaching-learning methods in their academic presentation (figure-14).

Figure 14 Status of teaching-learning materials and adoption of teaching-learning pedagogies at TTCs



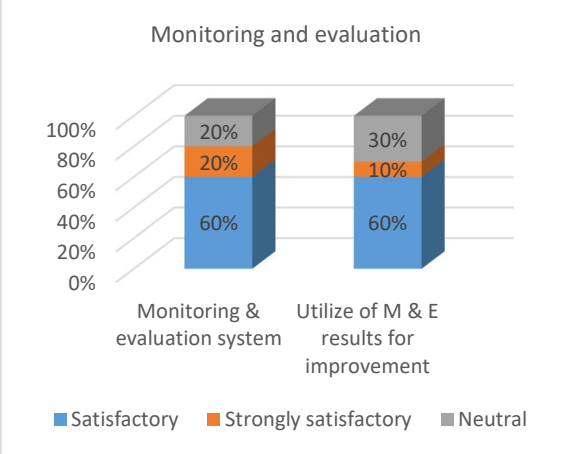


Figure 15 Monitoring and Evaluation system for effective teaching learning and instructional performance of TTCs

Effective monitoring and evaluation system is very important for the improvement of the quality of services of any institution. Utilization of the results of monitoring and evaluation contributes to enhancing the quality standard. The survey results show that the majority of respondents are satisfied with the monitoring and evaluation system while 20 percent of the respondents are strongly satisfied with their system. However, 20 percent of the respondents were in a `neutral' position with the monitoring and evaluation system of academic activities. On the other hand, utilization of the results of monitoring and evaluation stands on the `satisfactory' line while 30 percent of the respondents stand on the `neutral' position (fig-15). The survey reveals that there is ample scope to improve the monitoring and evaluation system as well as utilization of its feedback observations.

4.1.3 Faculty and Staff (Human resources) Development

The qualified faculty member is very important for quality education either in technical or general education from primary level to tertiary level. Therefore, a competent faculty member is a must for maintaining the quality standard for TTCs'. Not only faculty members but also non-academic personnel are also important to maintain and deliver quality services to the service recipients.

From the survey data, it is revealed that the major portion of the authorities of the selected TTCs is strongly satisfied with the qualification of faculty members for their respective institutions. Yet, some respondents are found moderated satisfied with the qualification of their faculty members. With regard to the industrial background of the faculty members, the majority of the respondents are found satisfied while 20 percent of the respondents are found strongly satisfied and 20 percent of the respondents refrained from making any comments, standing on a neutral line of the measurement scale. It indicates that there are enough opportunities to draw attention in this regard to improve the standard that would lead the institutions towards achieving higher ranking regionally and globally (figure-16).

On the other hand, 60 percent of the respondents are strongly satisfied with the qualification of their non-teaching staff while 30 percent of respondents are satisfied. As many as 10 percent of respondents stand in neutral position. It means that it also needs more attention for quality non-teaching staff.

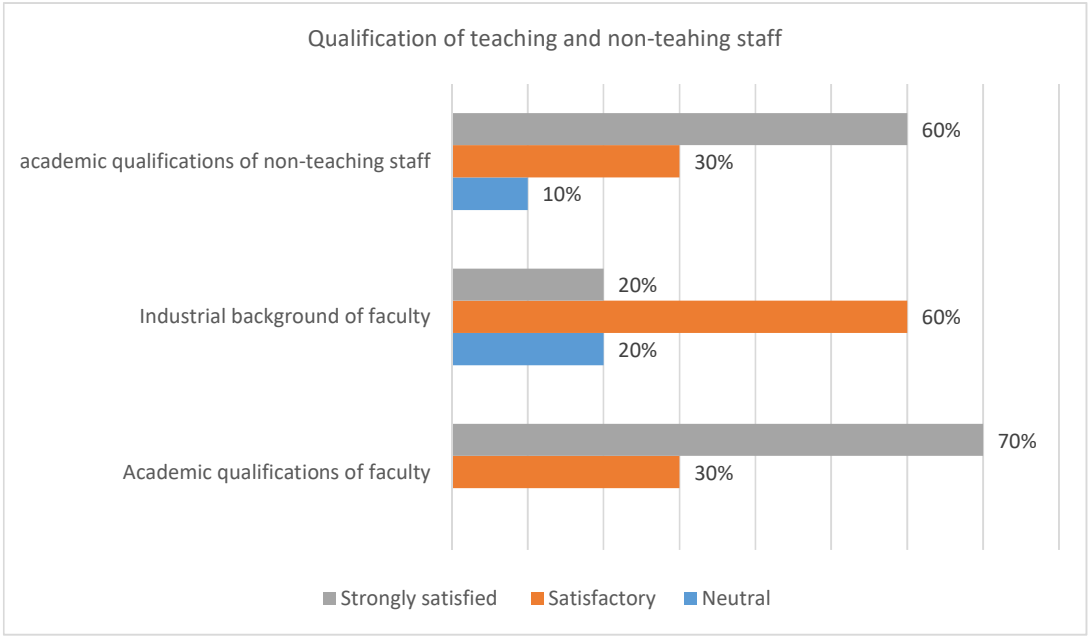


Figure 16 Academic qualifications of teaching and non-teaching staff of TTCs

The survey results show that as many as 70 percent of the respondents are satisfied with teaching load and preparation time and only 10 percent of the respondents are strongly satisfied in this regard. But 20 percent of the respondents stand on the `neutral' point line. On the other hand, 50 percent of the respondents are satisfied with the teacher-student ratio in their respective institutions. It is learnt that on an average 30 to 40 students are got admission on the basis of trade. But as many as 30 percent of the respondents refrained from making any comments about the teacher-student ratio (fig-17) whereas 20 percent of the respondents are strongly satisfied with the teacher-student ratio.

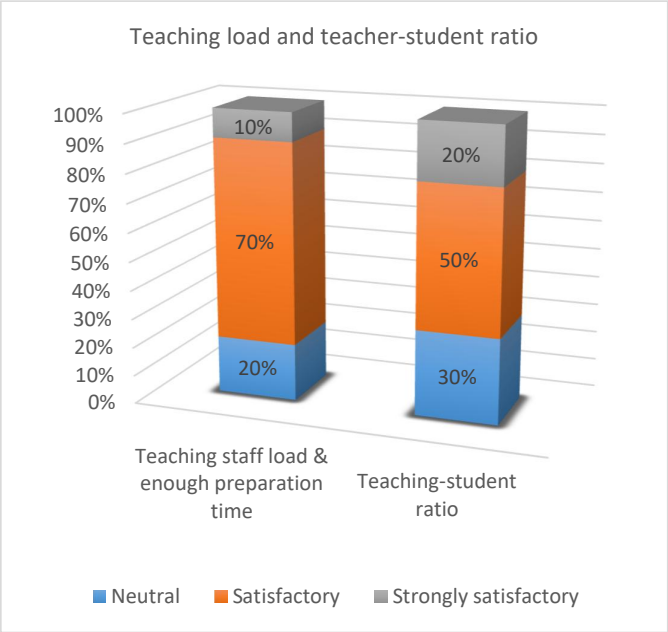
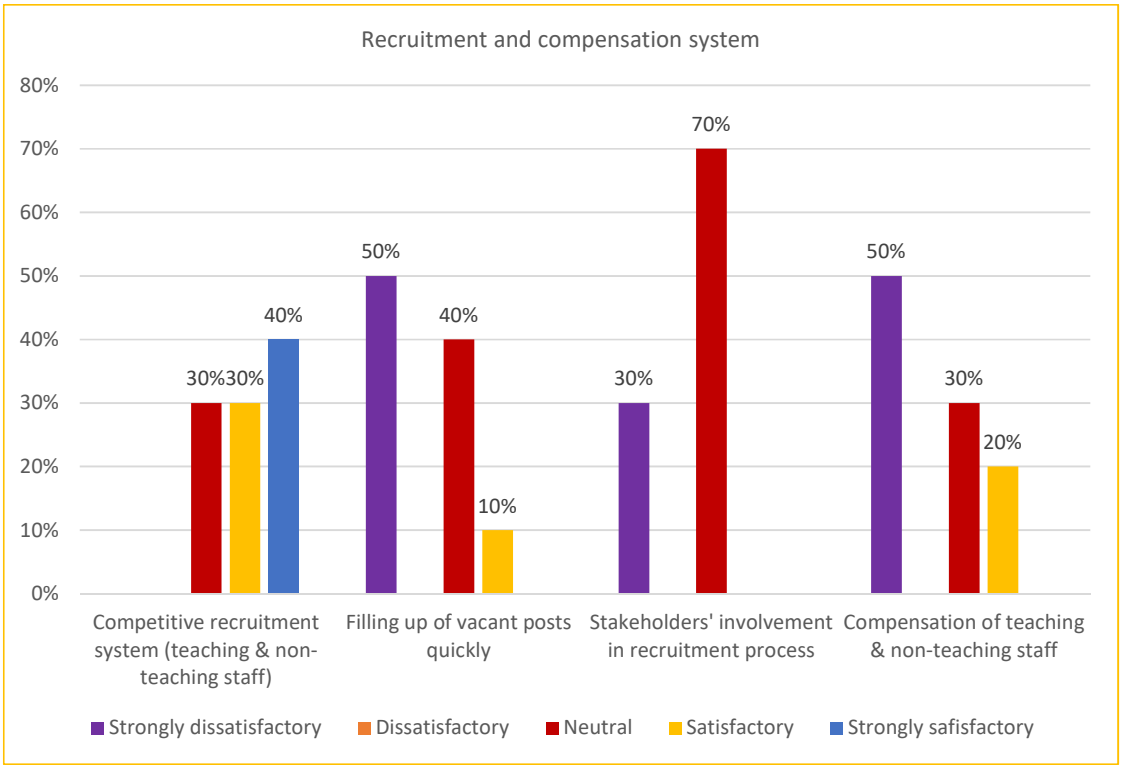


Figure 17 Teaching load and teacher-student ratio at TTCs

For quality faculty members, the recruitment and compensation system must be competitive following the standard criteria. The study reveals that the respondents believe the recruitment process of teaching and non-teaching staff is strongly competitive. It is the opinion of as many as 40 percent of the respondents. But the recruitment process is very complex, the respondents observed. The survey results show that the process of filling up the vacant post is not so easy. As many as 50 percent of the respondents claimed that the performance rate in this regard is `strongly dissatisfactory' and 40 percent of the respondents' stand-in `neutral' position, which means they are in the category of 'no comments' and only 10 percent of the respondents claimed that they are satisfied with the recruitment performance. On the other hand, involvement of stakeholders in the recruitment process is also not at an acceptable level. Figure-18 shows that as many as 30 of the respondents are strongly dissatisfied in this regard while 70 percent of the respondents stand in a `neutral' position. Again, the performance rate in terms of compensation of teaching and non-teaching staff is not also satisfactory for the faculty members. Only 30 percent of the respondents are satisfied with the compensation system.

Figure 18 Status of recruitment process and compensation system at TTCs



Therefore, the survey results (fig-18) show that the recruitment process and compensation system at the surveyed TTCs' are deemed below the standard.

Rewards for best performance motivate the personnel towards the greater achievement of any institution. The survey finds that performance evaluation based on academic performance is not found satisfactory at the surveyed TTCs. Only 30 percent of the respondents are found satisfied with the performance evaluation system. The rest of the respondents stands either in the neutral position or dissatisfactory point in this regard. The faculty development system stands in the same position as like performance evaluation

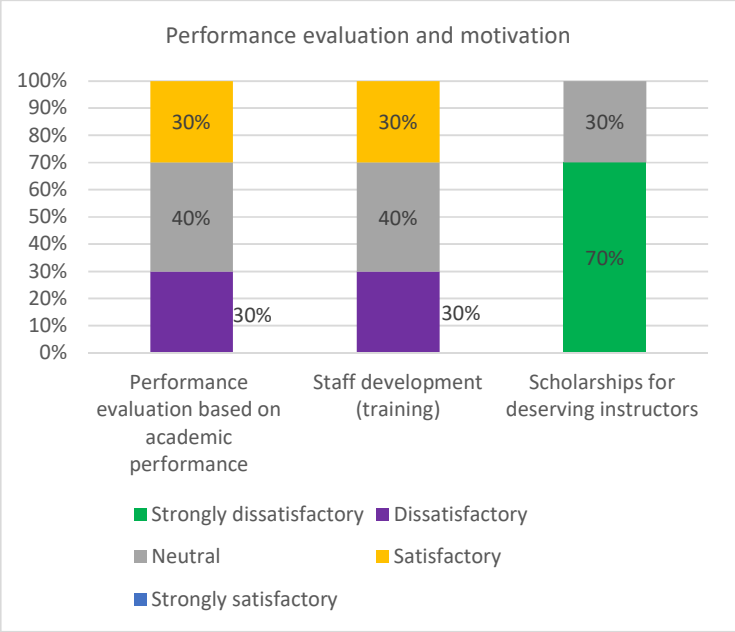


Figure 19 Status of performance evaluation and motivation system at TTCs

system. The system of scholarships for deserving instructors is frustrating as well. As many as 70 percent of the respondents are found strongly dissatisfied with the scholarships, so far, been awarded. On the other hand, the rest, 30 percent, of the respondents refrained from making any comments, standing on neutral points of the Likert Scale measurement (fig-19).

It indicates that there is sufficient scope to improve the performance evaluation and motivational system to get better performance from the faculty members.

4.1.4 Research and Development

Research brings innovations and proper usage of innovative tools moves towards better performance, leading to expected development. Therefore, research is very important for any institution or organization. The study explores the status of research and development activities of the surveyed TTCs'. The study reveals that the institutional (TTCs') involvement in research and development activities is strongly dissatisfactory as most of the respondents observe it while 40 percent of the respondents do not make any comments, keeping them in `neutral point' of the measurement scale (Fig-20). On the other hand, involvement of individual (faculty member) level in research activities is also found `strongly dissatisfactory' status in the survey. As many as 70 percent of the respondents observed that engagement of teaching staff in research activities is strongly dissatisfactory while the rest of the respondents refrained from answering the query. However, the engagement of teaching staff in the development activities of the TTCs' is also at the dissatisfactory level. Only 30 percent of the respondents satisfied in this regard. As many as 50 percent of the respondents do not make any comments, putting themselves in `neutral point' while 30 percent of the respondents are strongly dissatisfied in this regard.

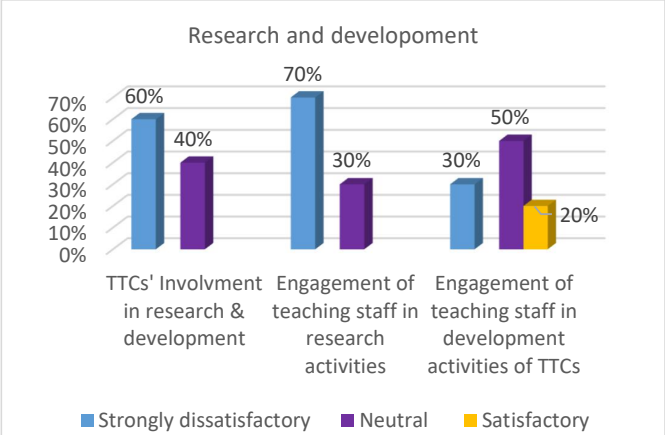


Figure 20 Status of research and development activities at TTCs

As the research and development activities of the TTCs are not satisfactory (fig-20), the dissemination of the outputs of the research and development is also deemed at the dissatisfactory line. The survey results show that as many as 50 percent of the respondents are strongly dissatisfied with the dissemination, publication, and utilization of research and

development activities for their respective institutions. However, 20 percent of the respondents are satisfied with the allocation of budget for research and development activities and 10 percent of the respondents are also satisfied with the dissemination, publication, and utilization of research and development outputs.

On the other hand, institutional linkage for joint research and development activities, a system for monitoring and evaluation of research and incentives to motivate for research activities and development activities are either on the points of strongly dissatisfactory or on neutral line (fig-21). It indicates that sincere attention is needed to improve research and development activities as well as dissemination of the research findings as a follow-up step for maintaining the quality TVET for obtaining regional and global recognition.

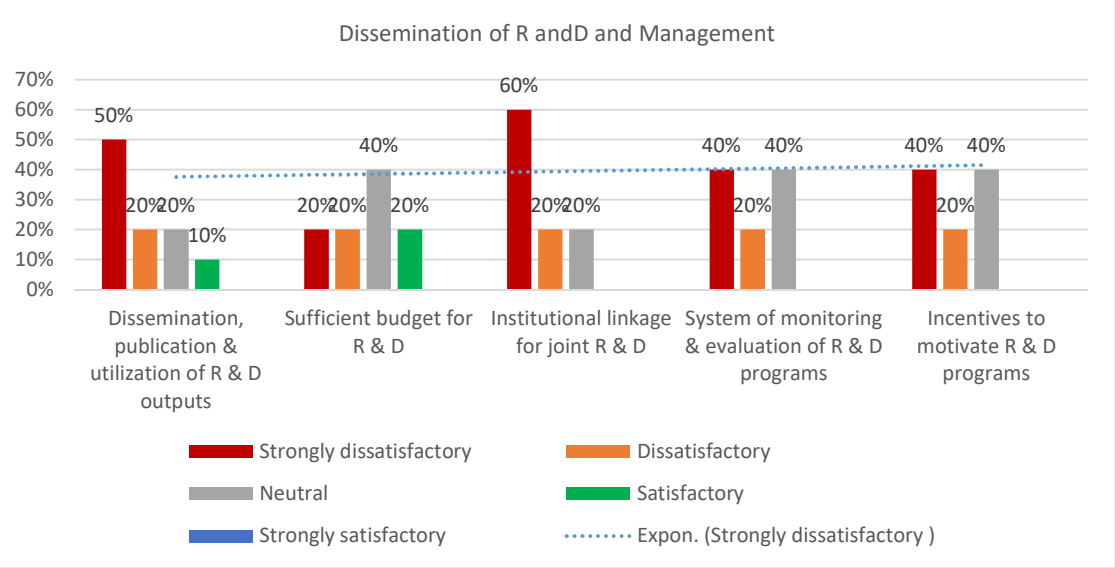


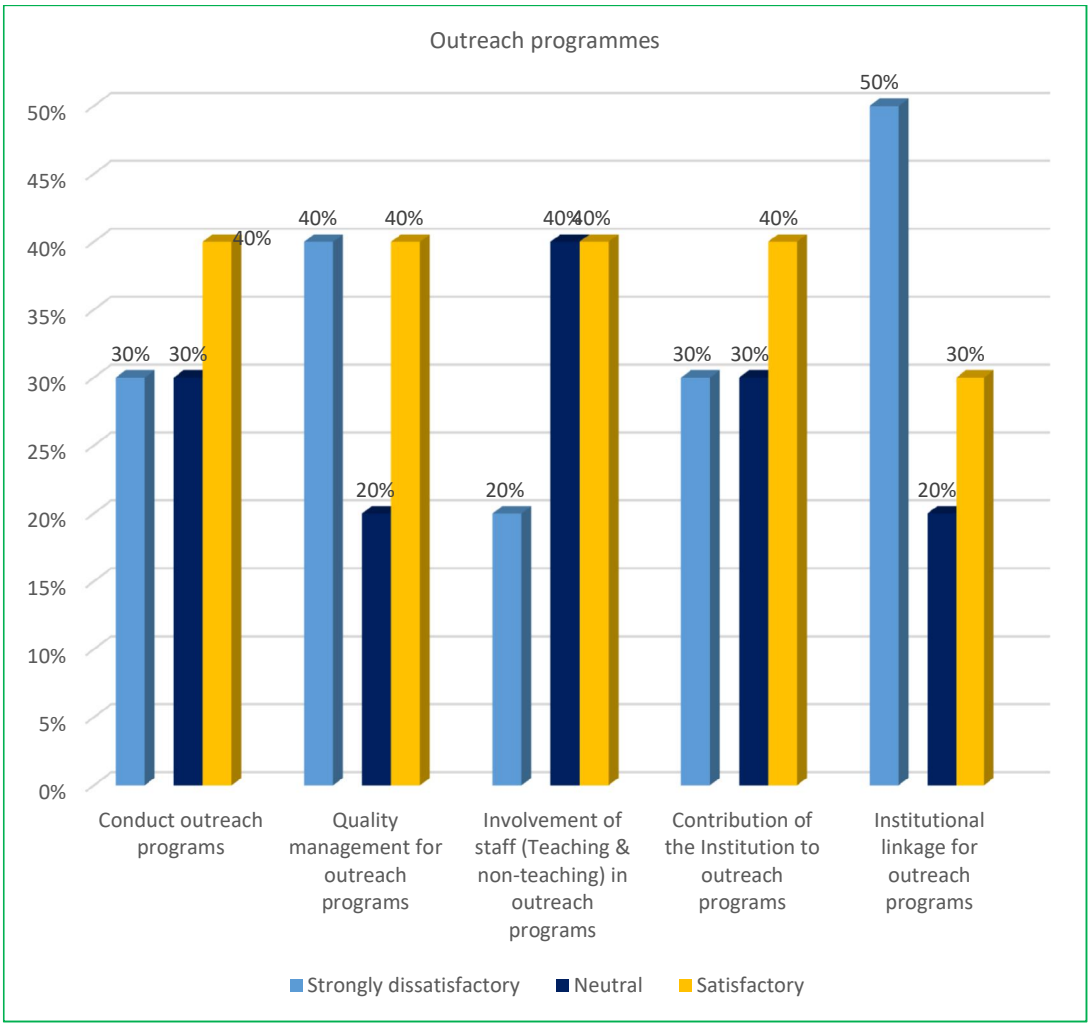
Figure 21 Dissemination of Research and Development (R and D) output and its management system at TTCs

4.1.5 Extension, Consultancy and Linkage

The respondents have been asked to answer freely and have not been insisted by any means to fill up the questionnaire tools. They have been briefed before filling up the questionnaire. However, it is revealed that they were confused about this question. The survey data show that as many as 30 percent of the respondents claimed that they are strongly dissatisfied with the outreach programmes while the same number of the respondents kept themselves in `neutral' point in this query. Therefore, 40 percent of the respondents are found satisfied with the

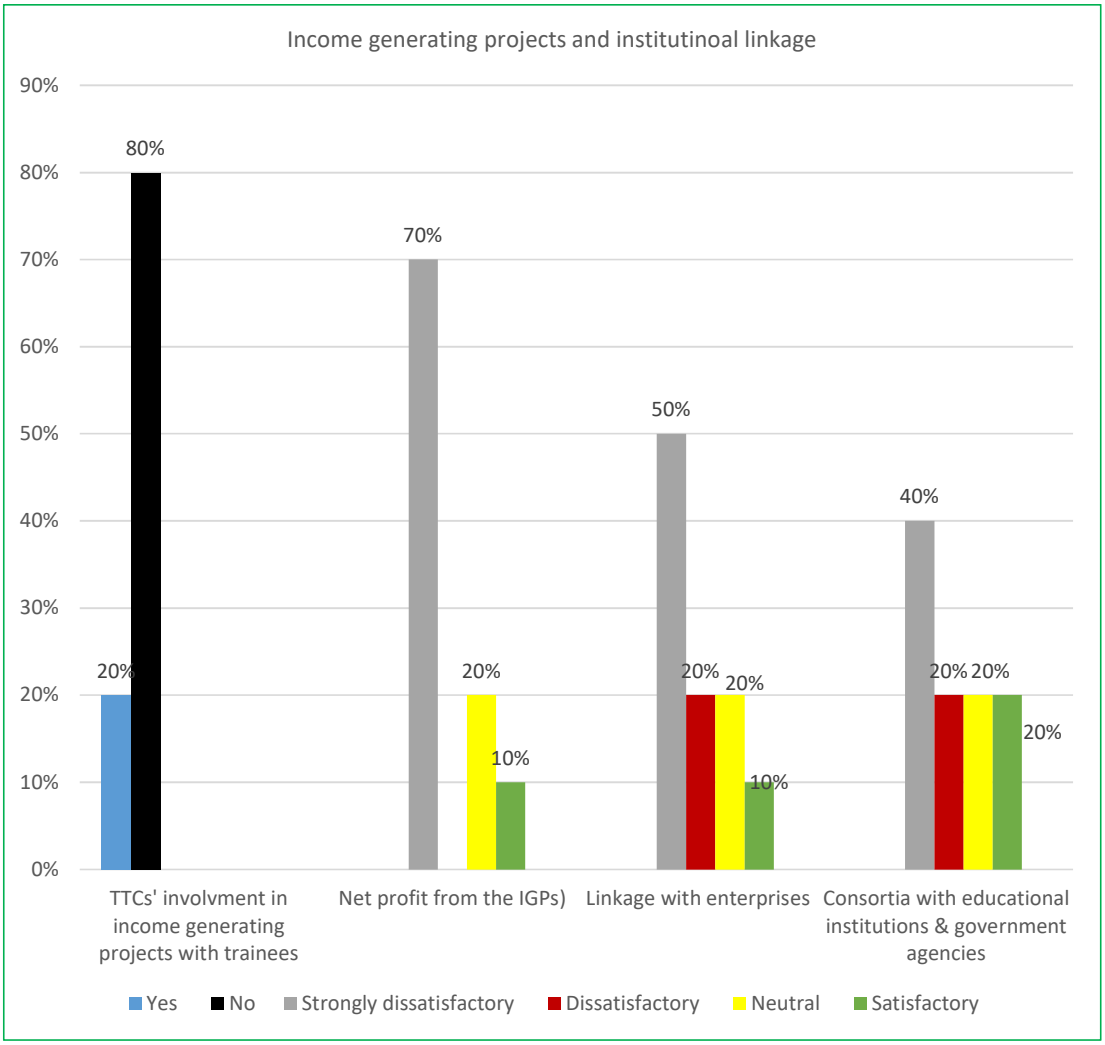
outreach programmes. However, a gloomy scenario has been revealed in the survey data about the outreach programmes of the selected TTCs (fig-22).

Figure 22 Status of outreach programmes of TTCs



Location matters for income-generating activities. The study reveals that most of the institutions do not have the opportunities for income-generating activities locally. Institutions located in the central and adjacent industrial areas have better opportunities for income-generating activities. The survey results reveal that the status of net profit from income-generating projects, linkage with enterprises, and consortia with educational institutions and government agencies is not at a satisfactory level (fig-23). Therefore, these sectors are needed utmost attention for internal financial solvency.

Figure 23 Status of income generation and institutional linkage of TTCs



The overall status of the extension, consultancy, and linkage standard criteria is not satisfying.

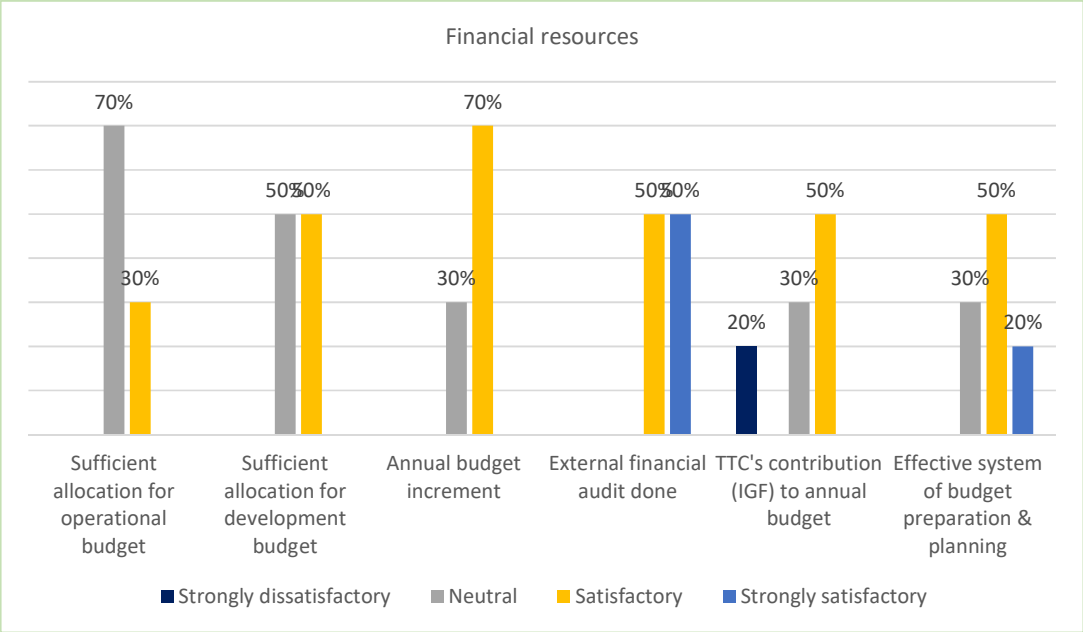
4.1.6 Resources and Facilities

Resources and facilities are included financial resources, physical resources, library resources, tools and equipment, ICT resources, and repair and maintenance management. The study looks at the status of these resources. The overall status of these indicators is comparatively better than that of the others.

Despite some limitations, the yearly financial allocation by the government for the TTCs is found somewhat satisfied. However, the institutional contribution to the annual budget is not

satisfied as the income generation activities are also very limited. Figure-24 shows a poor performance scenario of the financial resources and its management status.

Figure 24 TTC's status of financial resources



The physical facilities of the surveyed TTCs are found fairly impressive. The survey results show that areas and accessibility of the TTCs are very convenient for the trainees. The majority of the respondents claimed that there are sufficient and well-furnished classrooms as well as office rooms. The respondents were also satisfied with the labs, workshops, and other facilities (fig-25). It indicates that physical facilities are fairly satisfied and it needs to improve the other facilities, including proper maintenance and upgrading of labs and classrooms.

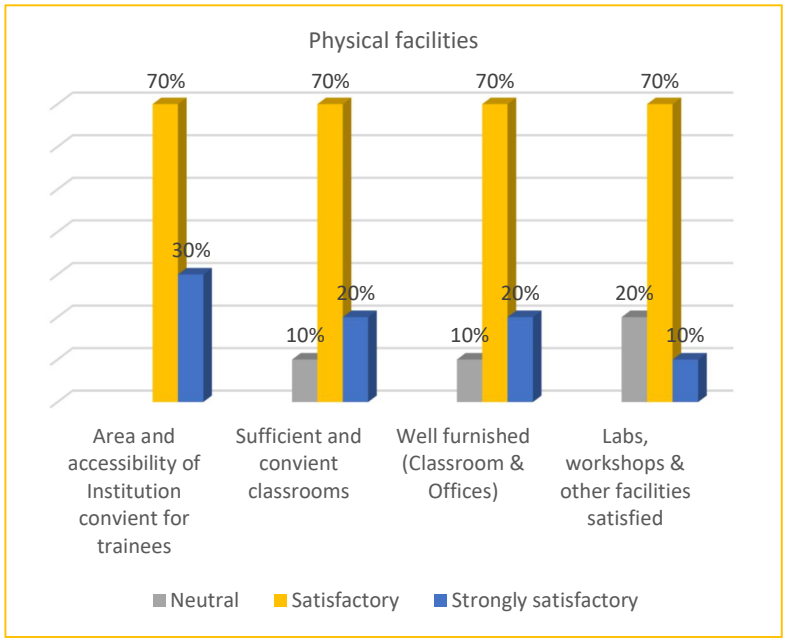
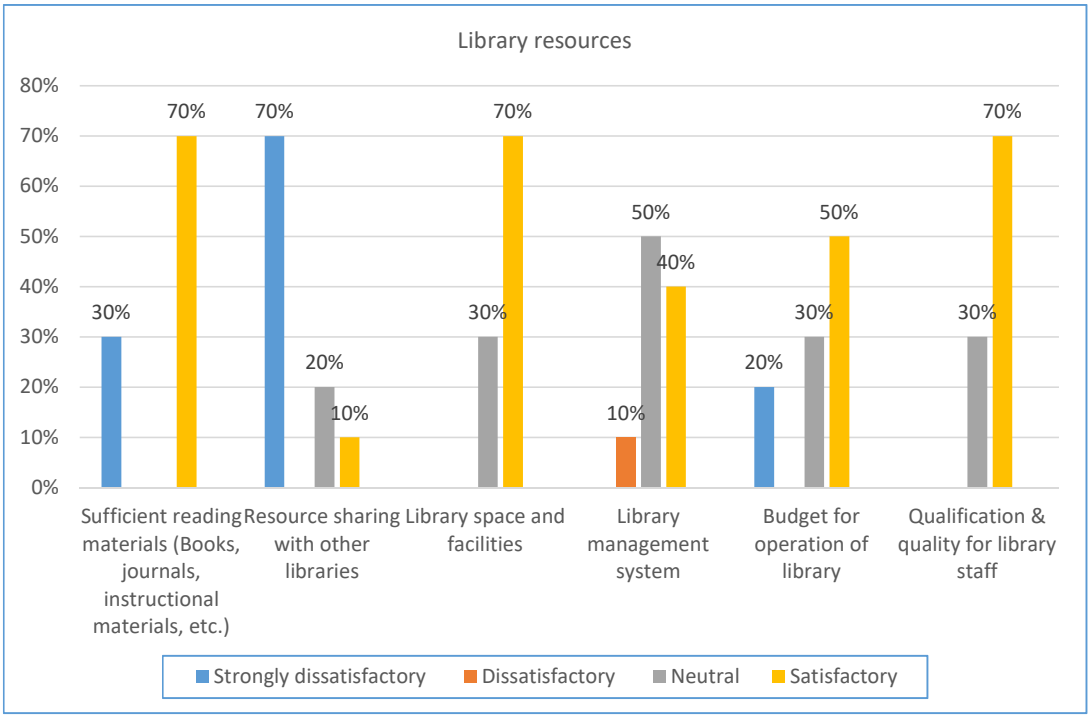


Figure 25 Status of physical facilities of the TTCs

Despite some managerial limitations, the overall status in terms of library resources is also moderately better. Only the library resource sharing with other libraries stands on the strongly dissatisfactory level. Apart from this site, other indicators such as library space and facilities, budget for library operation, quality staff for library management, and reading materials are found on an average at the satisfactory level. Figure-26 represents the overall status of library and academic resource management.

Figure 26 Status of library resources of the TTCs



On the other hand, the status of tools and their maintenance is also fairly satisfactory. The majority of the respondents claimed that they have enough tools and equipment, and other accessories for practical instructions. They are moderately satisfied with the availability of those types of resources. The

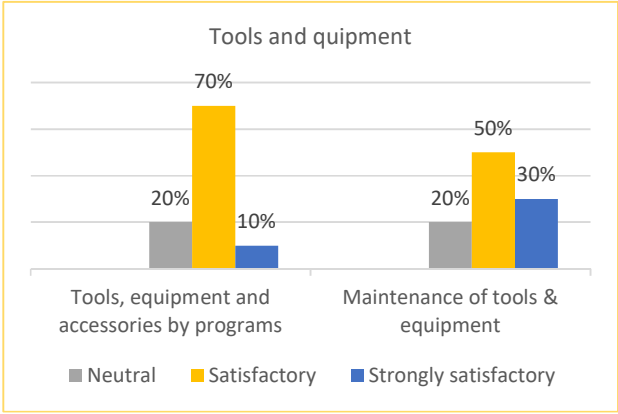


Figure 27 Status of TTCs about tools and maintenance

majority of respondents are found moderately satisfied with the maintenance of those tools and types of equipment (fig.-27).

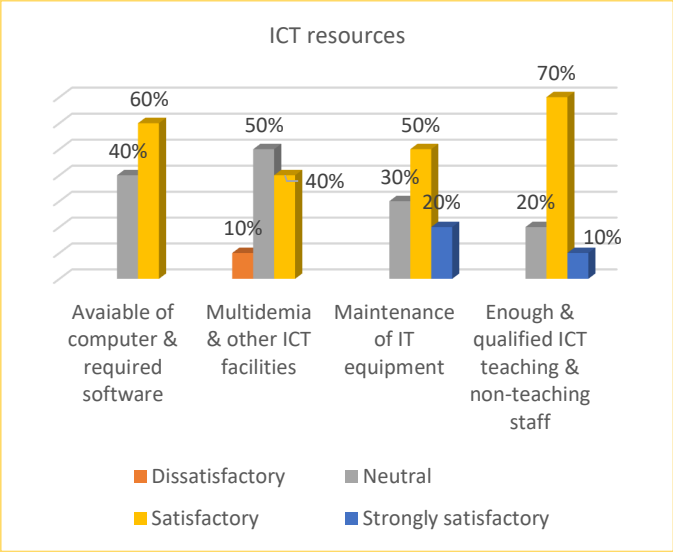


Figure 28 Status of ICT related resources

The study reveals that most of the respondents are moderately satisfied with the availability of computers and other required software for their institutions. Yet, in terms of multi-media facilities, the majority of the respondents are found not satisfied. On the other hand, the majority of the respondents are seemed to be satisfied with the maintenance of IT equipment. The number, qualification, and experience on ICT of non-teaching staff at their institutions are found moderately sufficient. However, the overall status of ICT resources is shown in the figure-28.

The survey results show that majority of the respondents are also moderately satisfied with the maintenance of workshops and laboratories (fig-29). Only 30 percent of the respondents refrained from making any comments in this query. On the other hand, the majority of respondents claimed that they have installed safety measures and displayed them properly. They are found satisfied with their services. Only 20 percent of the respondents do not make any comments about safety measures and their display.

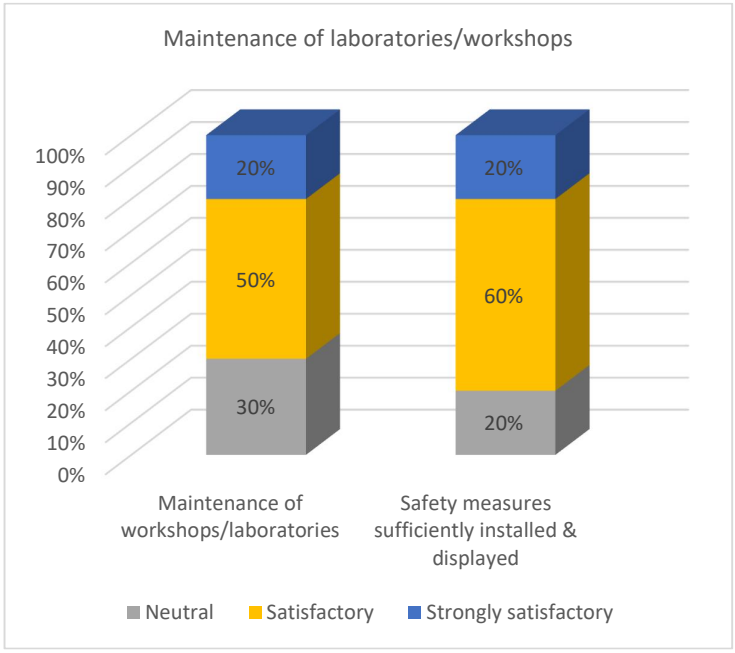


Figure 29 Maintenance of workshops and laboratories of TTCs

4.1.7 Support to Students

Support to students includes student admission, career counseling, co-curricular and extra-curricular activities, scholarships and financial aids, study loans, health, sports, and other social welfare services.

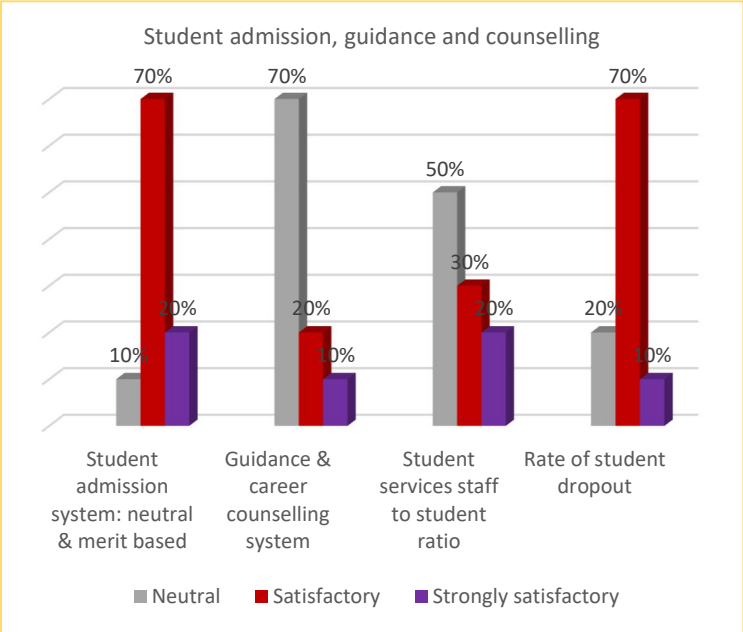


Figure 30 Student admission, career counselling and other support services at TTCs

The study reveals that the admission system is fairly enough competitive and merit-based. Some respondents claimed that they are strongly satisfied with the existing student admission system. The majority of respondents also claimed that they are satisfied with the drop-out rate of students. Yet, the majority of the respondents kept away them from making any comment about guidance and careering counseling system (fig.-30). About ratio between staff-student for services, as many as 50 percent of the respondents put themselves on `neutral point'. A small number of the respondents is found satisfied and strongly satisfied with the staff-student service ratio.

Co-curricular and extra-curricular activities are an important part of academic life. The survey results show positive findings in this regard. It is revealed that as many as 70 percent of the respondents claimed that they have sufficient resources for co-curricular and extra -curricular activities whereas 30 percent of the respondents put themselves in the neutral position. However, on the other hand, as many as 80 percent of the respondents claimed that they encourage and practiced co-curricular and extra-curricular activities. Moreover, the rate of satisfaction is only 30 percent in terms of involvement of students in decision making related to students' welfare. Yet, 70 percent of the respondents are satisfied with the available health, sports, and other services for students (fig.-31).

Figure 31 Status of co-curricular and extra-curricular activities of TTCs

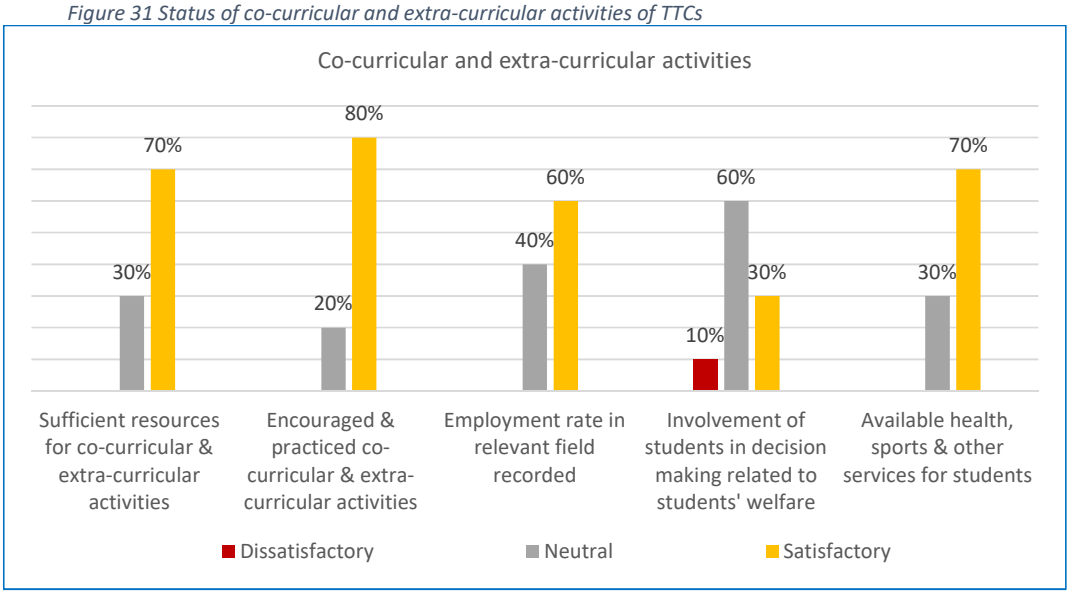
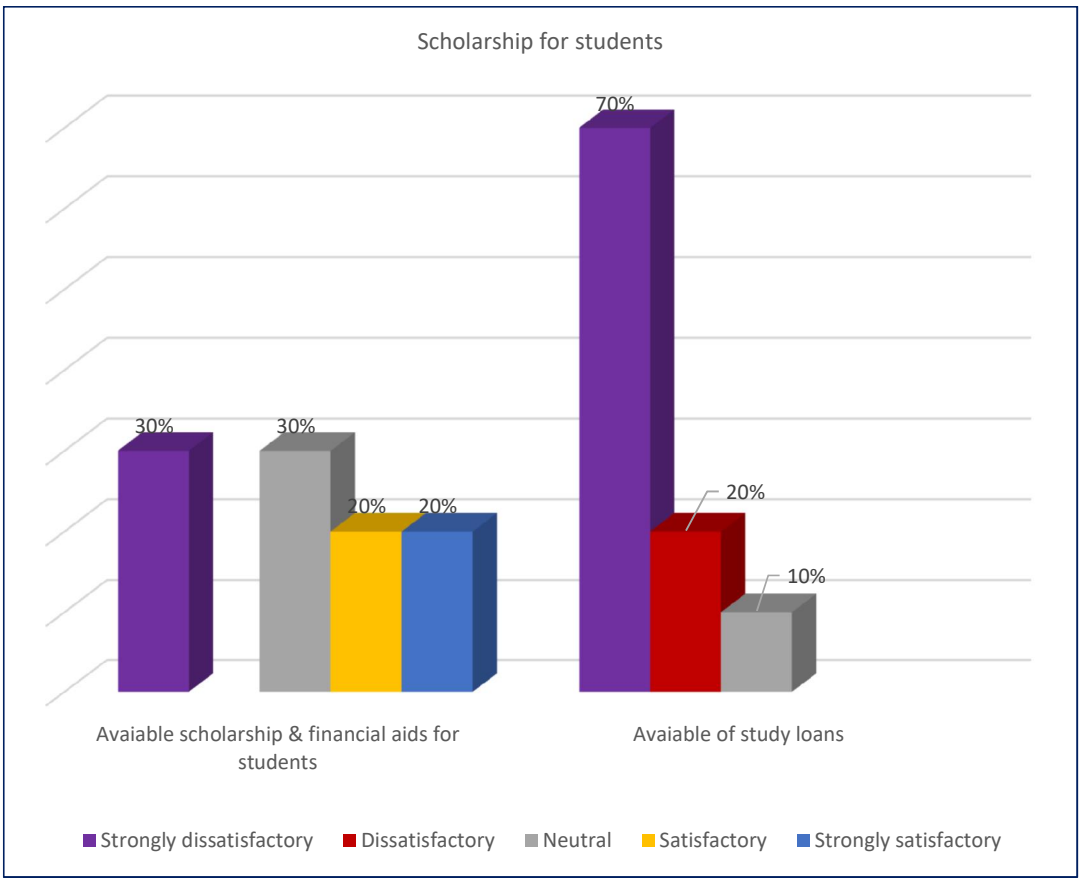


Figure 32 Available scholarship, financial aids and study loan at TTCs



Scholarship and other financial aids for students are also considered important indicators for support to students. The study reveals less impressive results in this regard. A 60% (30% +30%) of respondents expressed either dissatisfaction or non-existence of the financial assistance and

scholarship programmes for the student. A 100% respondent recognized the non-existence of study loans in the TVET educational system (Fig-32).

Therefore, it is revealed from the foregoing discussion that the facilities like scholarships, study-loan, and other financial aids for students of the TTCs in the country are not existing at all.

4. 2 Qualitative Data Presentation

The forthcoming section is dedicated to the presentation and discussion of qualitative data collected through KIIs, in-depth interviews, and direct observations.

4.2.1 Data from Key Informant Interviews

The qualitative data was collected through conducting KIIs, in-depth interviews with the principals and teachers of the selected TTCs, TVET experts, and officials of the monitoring authority. The key points of the interviews and KIIs were checked through direct observations of the TTCs while visiting practically. The qualitative data were categorized into seven thematic areas and discussed accordingly. The gist of the theme-wise data in accordance with the standard criteria of the APACC is presented below.

4.2.1.1 Governance and Management

From the qualitative data, it is revealed that there is a gap in proper monitoring systems regarding different issues of the TTCs. The key informants (KIs) shared that BMET is the monitoring authority of the TTC. The BMET is run under the Ministry of Expatriates' Welfare and Overseas Employment. The TTCs are operated under the guidelines of the BMET. The courses offered at the TTCs are developed by the BMET. The TTCs are not autonomous enough to formulate and review of curriculum, even they are not instructed to formulate a strategic plan for institutional development. Yet, the KIs informed that they plan for one year in the form of a training calendar.

4.2.1.1.a Monitoring

There are multiple governing authorities. Such the TTCs are managed by the BMET while DTE also controls a number of TVET institutions. The BMET is running under the Ministry of Expatriates' Welfare and Overseas Employment whereas DTE is running under the Technical and Madrasah Wing of the Ministry of Education. On the other hand, Bangladesh Technical Education Board (BTEB) provides certificates. The KIs observe that due to multiple monitoring authorities, there is a lack of proper monitoring in terms of quality standards.

4.2.1.1.b Coordination

Most of the KIs observe that there is a lack of effective coordination among the coordinating and implementing entities. For example, trades under the Skills and Training Enhancement Project (STEP) of DTE and SEIP of the Ministry of Expatriates and Overseas Employment, are offered at the TTCs and other TVET institutions. Interestingly, in most cases, the same trades are offered at the TTCs as their regular trades. Consequently, most of the KIs see it as a lack of coordination among the supervisory and policy level in the country.

4.2.1.2 Teaching and Learning

Regarding about quality of teaching-learning activities, the KIs shared that quality teaching-learning activities depend on many factors. It needs quality teachers on one side and quality students are also important on the other side. Moreover, the usage of proper pedagogical methods, time-befitting and need-based curriculum, and enough time to prepare session plans are also very important for quality teaching-learning. In many cases, the TTCs in the country cannot meet these essential factors and, consequently, the graduates cannot get the expected level of competency after completion of their degrees. Some KIs observed that the existing curriculum can meet, in limited cases, the local and regional requirements of the job markets. *`But this is not enough. The curriculum should be materialized through proper pedagogical practices and the trainees must be able to acquire proper knowledge about their specific trades. Then, it can be said the existing curriculum is enough to meet the local, regional, and requirements of TVET standards,*' one of the KIs opined.

4.2.1.3 Faculty and Staff

Officials of the monitoring authorities claimed that the present qualification and recruitment system is fair enough for the quality standard education of the TTCs. The industrial background of teachers, of course, can contribute to improving the quality education of the TTCs. On the other hand, KIs from principal categories of the TTCs, differ with the opinion of the officials, saying that the recruitment process should be more flexible so that the vacant post can be fulfilled as soon as possible. However, they expressed a positive opinion about an industrial background in faculty recruitment. The TVET experts observed that quality faculty is a must for quality education. For this, the recruitment criteria should be maintained following regional and international standards. However, they emphasized on experiences, industry orientation of

faculty members as well as fair compensation system of them compared to regional and international standard.

In the interview of TVET experts, they opined that the TTCs should strictly follow the CS, CBLM, and Assessment Guide in the certification process of short-term trade courses. They also opined that the BMET should arrange regular ToT for the teaching staff with a view to updating their knowledge and skills converging with the technological changes.

4.2.1.4 Research and Development

One of the most important areas is research and development activity which is much neglected at the institutional level of TVET education in the country. The TVET institutions have never given the emphasis on research and development, the TVET experts observed. They observed that research is very important for standard quality education. It is also important for the institution itself. *`But in Bangladesh, unfortunately, it has not been given emphasis,*' one TVET expert expressed it with sorrow. The principals of the TTCs claimed that it is very difficult to conduct research activities at the institutional level in the country, especially for the TTCs. Primarily, they opined, it is not a research institution like BPATC and NAEM. *`It is a training and practical-oriented educational institution. The TTC has no research unit/wing. Moreover, the faculty members are not oriented with research activities,*' one of the Principals asserts. Besides, the faculty members have no much time to give attention to research after performing his/her daily assignments. Another principal says, *`there is no budget allocation for research activities in the TTCs'*. To some extent, the officials of the monitoring authority also echoed with the Principals. However, they also observed that diploma passed faculty members are not enough capable to conduct research. Rather, they (faculty members) can be part of or included in research groups to gain research knowledge and share his/her practical experiences, one of the officials mentioned.

4.2.1.5 Institutional Linkage

Most of the KIs also observe that there is a missing link between policy and implementation in line with the national and global development agenda. Although there are a number of national policies at the national level to improve TVET education, yet, failure is evident because of dis-integrated intervention between and among the ministry, division, directorate, education board, and TTCs. There is a lack of strategic linkage between TVET institutions and mainstream engineering and technical universities, some of the KIs assert. For example, the mainstream universities in the country may offer a summer programme, winter programme, and so on for

the students of the TVET institutions. If it is done, the quality standard of TVET education in the country would be enhanced, one of the KIs observed.

4.2.1.6 Unity of Direction

Unity of command in administration is very important to perform activities smoothly and efficiently. It is revealed that the country's TVET educational institutions are run by multiple authorities. Therefore, there is a lack of proper direction to run different activities of the educational institutions in the country. For example, the authority of the SEIP wants to fulfil their targets within their stipulated timeframe and they monitor their programmes and activities accordingly. On the other hand, the authority of the STEP project also puts emphasis to realize their targets and monitor their activities accordingly. Therefore, in implementing programmes, the TTCs become, in many cases, puzzled considering which activities they should put on the priority list, some of the principals opined.

4.2.1.7 Policy Coherence

Some KIs (Principal) observed that there is an absence of policy coherence in TVET education in the country. They describe that only SSC (vocational) students are allowed to get admission to HSC (voc) level courses. Consequently, many students who passed from SSC (voc) refrained from getting admission to HSC (voc) level and go for general education in general colleges under general education boards and, also go for Polytechnic institutes for diploma degree. On the other hand, SSC passed students from general education boards have also the opportunity to get admission into Polytechnic institutes for a diploma engineering degree but have not opportunity to get admission into HSC (voc) level. Again, Diploma passed engineers (diploma engineers) do not have enough opportunity to get admission into different Engineering Universities such as BUET, RUET, CUET, KUET. The only DUET is their last option to get admission for a BSc engineering degree. So, these limitations should be removed to attract TVET education in the country. *`If the diploma graduates are allowed to get admission into Science and Technology Universities (related universities), students will be encouraged to study at the TVET institutions,'* one of the KIs strongly believed.

4.2.1.8 Resources and Facilities

The TVET institutions are running with limited facilities and resources. Many of the KIs, for example, describes that *`no remarkable initiatives is undertaken for increase facilities for the students of TVET institutions. There is a huge shortage of modern equipment and instruments. There are no transport facilities for students of the TVET institutions whereas transports*

facilities, in many cases, are provided for students of general education, they express with grief. A stipend programme with a very limited amount is operating by Government for the TTCs students, yet, there is no system of a student loan under the banking system, the TVET experts opined.

4.2.1.9 Running on ad-hoc basis

Some of the KIs, especially the Principals, consider that the programmes and activities for the improvement of the TVET education in the country are seemed running on an ad-hoc basis. They feel that there is a lack of a long-term strategic plan. Consequently, different ministries take different projects and programmes and in many cases, these programmes and project activities are implemented through the TTCs and other TVET educational institutions. They also feel that all programmes and projects either it is national or international should be implemented by a single authority. If it is done, inconsistency and overlapping can be avoided, they expressed.

4.3 Direct Observation

During the study, it is observed that the physical resources such as infrastructure of the academic, administrative building are good enough to provide technical education. Most of the institutions have enough spaces. Lab, workshops, classrooms are found, in many cases, fair enough. Yet, usage of multimedia in classrooms is limited, it is also observed. The courses offered at the selected institutions are deemed time befitting. But, in some cases, it is observed that there is a lack of enough trade-related skilled faculty members. For example, it is found that one faculty member, whose academic qualification Diploma in Electronics, offers computer office application. He/she has internal training on CBT for 5-day which was offered by BMET. On the other hand, although the TTCs offered computer-related different courses such as graphics, CAD, web development, etc., it is observed that the Institutional websites have been developed by outsourcing. Consequently, it incurs public money. It should be developed by the own resources or department of the respective TTCs.

Therefore, there is ample scope to improve the quality of education through recruiting trade-related skilled and experienced faculty members and the internal resources can be used for the development of the respective institution.

4.4 Analysis in light with the objectives

The general objective of the study was to know the present standard of TVET institution in the country. One of the specific objective was to evaluate the standard of TVET institution in comparison to regional and global standard.

To know the present standard of TVET institution, TTCs were taken as unit of analysis. For this, the standards designed by the APACC, a regional accreditation and certification body, which is also accepted globally, were explored in the selected TTCs to evaluate the level of standard of the country's TVET institution. A comprehensive survey was conducted in the selected TTCs following the seven standard criteria of the APACC. The survey results reveal that the TTCs could not maintain the regional standards at the institutional level. It is also revealed in the qualitative data discussed above. The nature of teaching-learning activities in all TTCs and such other TVET institutions in the county are almost same. Similar trades and almost same trainings are offered in the TVET institutions, maintaining same duration, in the country. It is, therefore, believed that the findings revealed in the study are generally applicable to all TVET institutions, except a few, in the country.

Another objective was to investigate the extent of contribution of TVET in achieving the relevant goals of SDGs 2030 of the country. The study reveals that TVET institutions provide hands-on training and education to its trainees and students. Through proper training and education by TVET institutions, the trainees are prepared with trade-specific or job-specific necessary skills, enabling them `can do' aptitude rather than `I know' attitude. Apart from formal job opportunities, hands-on training and education also creates self-employment opportunities. Therefore, TVET education contributes to get decent work, enabling to uplift better living style. Better earning also brings impacts on other spheres of life. Decent work is related to SDG-8. TVET education is also related to SDG-4. So, it is revealed that TVET education contributes to achieving different goals of the global development agenda. It is shown at a glance in the figure-35 in the forthcoming chapter.

Based on the findings, the study has also proposed policy interventions to improve the standard of the country's TVET institutions that would meet the regional and global standards. It is also discussed in the next chapter.

4.5 Conclusion

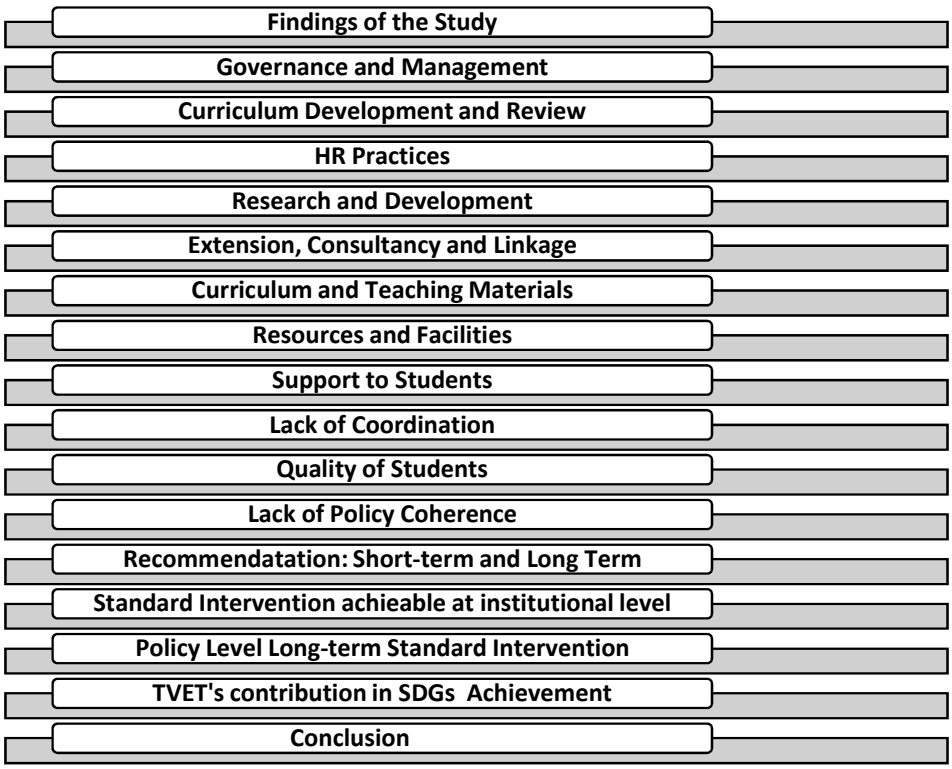
The overall quality standard of TVET education and institutions, except few, is not so pleasant. If it is compared to regional standard, the KIs disclosed that a handful institution maintains

some standards such as infrastructural facilities, ICT facilities, and practical pedagogies in teaching-learning activities. Most of the TTCs all over the country could not maintain quality standards due to various limitations such as lack of proper attention of the authority concerned. The Government of Bangladesh is trying to modernize TVET education with the need of local and global demands. But the pre-determined perception of people about TVET education has not been changed yet. However, the Government has undertaken many policy decisions to improve the quality of TVET education. Among many initiatives, SEIP operates some trades through the TTCs. They monitor their programmes regularly. They have development standard criteria for a specific trade and the trainees must be met the criteria for getting certification. They maintain it strictly.

However, the following chapter presents the study findings, recommendations, and conclusion.

CHAPTER FIVE

Findings, Recommendations and Conclusion



Chapter Five

Findings, Recommendations and Conclusion

This section presents the findings based on the study results revealed from surveys, KIIs, and observations as well as from literature reviews.

The study explored the level of standard of TVET institutions in the country. To explore the standard, 27 indicators were evaluated under seven standard criteria which were designed by the APACC. There were 88 sub-indicators under the 27 indicators. APACC accredits and certifies as standard TVET institution if the indicators are maintained properly. The accreditation and certification issued by the APACC is regionally and globally accepted. Considering the TTCs as TVET institution, a comprehensive survey was conducted, following the indicators to evaluate the country's TVET standard which have been presented in the earlier chapter. Based on the survey data, KII data and observation, the forthcoming sections presents the findings and conclusion. It also puts forward some policy recommendations for short-term and long-term interventions.

However, the findings have been presented focusing the standard criteria of the study.

5.0 Findings of the study

The study reveals several limitations and the strategic gap in the quality management of TVET education and training. The forthcoming paragraphs are dedicated to present findings obtained from forgoing chapters. However, the findings have been presented focusing the major standards which were explored to evaluate the level of standard of TVET institutions in the country.

5.0.1 Governance and Management

A serious weaknesses and limitations were explored in the governance and management of TTCs. They are not instructed to formulate strategic plans, even they are reluctant to formulate yearly training plans for the TTCs. In most cases, the TTC has no management board or academic committee for ensuring participatory decision-making and quality control. The internal control system, quality inspection, and inventory audit are found weak at the center level.

5.0.2 Curriculum Development and Review

There is a centralized system for curriculum development and revision for TVET education in the country. It is like the system of SSC and HSC level curriculum development and revision

process. Bangladesh Technical Education Board (BTEB) develops the curriculum of the diploma courses whereas BMET develops short courses/certificate courses. Therefore, there is no scope to participate of faculty members of the TTCs in the curriculum development process. They just comply or execute the courses.

5.0.3.HR Practices

Recruitment: There is complexity in the recruitment process for the TTCs in the country. Diploma graduates with the required relevant experiences are eligible for faculty. On the other hand, graduates with general degrees such as Bachelor's (BSc) with a trade course certificate or relevant experience are also eligible and potential candidates for faculty members. Consequently, there is a possibility to get less qualified faculty members. Nevertheless, the recruitment process is very lengthy and the Ministry concerned enjoys the final authority for an appointment. Consequently, shortage of or lack of skilled and qualified faculty members, the teaching-learning activities become hampered.

Faculty Development: Faculty development training is very important which is found to be lacking in the surveyed institutions. Not only training but also compensation system should be standard, considering specialization and the regional standard.

5.0.4 Research and development

Research and development activities at the Center level are found very neglected. There is no research wing in TTCs and even no provision for allocation for research is found at the center level. Moreover, it is also revealed that the faculty members are not that qualified to conduct research professionally.

5.0.5. Extension, Consultancy and Linkage

The overall status of the extension, consultancy, and industry linkage is not found satisfactory. The TTCs are maintaining very little collaboration with reputed institutions of home and abroad. It is found that the Dhaka-based TTCs getting more opportunities to make network and implement joint programmes of different projects of government and non-government organizations.

5.0.6 Curriculum and Teaching Materials

No involvement of TTCs is found in curriculum development as well as curriculum review. Traditionally, the TTCs are following the competency standard for short courses which is developed and validated by either NSDA or BTEB. The faculty members of TTCs are not involved in CS, CBLM, and assessment guide for certificate courses.

5.0.7 Resources and Facilities

Physical facilities more or less are fair enough at the surveyed TTCs. Since all TTCs are established by the government, that is why the campus area, classroom facility, hostel facility, lab facility, and ICT facility are fair enough to run the academic as well extra-curricular activities. Now, it is needed to pay attention to improving the quality standard of non-physical resources and facilities.

5.0.8 Support to students

The overall status of support to students is not satisfactory. There is a lack of enough residential facilities for the students. Even, they have no transport facilities. Scholarships for students are not enough although there are some trade-based training programmes which are mainly project-based programmes and limited per diem is allocated for them.

5.0.9 Lack of coordination

The study finds that there are multiple authorities engaged in the management of TVET education in the country. Among them, the Bureau of Manpower, Employment and Training (BMET) under the Ministry of Expatriates' Welfare and Overseas Employment is responsible for training and supervising the TTCs whereas the Bangladesh Technical Education Board (BTEB) under the Ministry of Education is responsible for monitoring and developing technical and vocational education in the SSC and HSC levels as well as a 4-year diploma in engineering degree in the country. The BTEB develops curriculum and learning materials, governs admission and conducts the examination, and finally awards certificates. On the other hand, the Directorate of Technical Education (DTE) is devoted to development, expansion, and research in the field of technical education in the country. It is responsible for overseeing technical schools and colleges (TSC), Polytechnic institutes, and technical teacher training colleges as well as some engineering colleges. Besides, the Department of Women Affairs under the Ministry of Women and Children and the Department of Youth Development (DYD) under the Ministry of Youth and Sports also deliver training programmes through Centers in the country. On the other hand, Siddiky and his associate find that as many as 24 ministries and 22 government agencies provide and manage TVET in the country (Siddiky and Uh, 2020). Therefore, it is revealed that there is a huge coordination problem among these government agencies in terms of governance and management, regulation, monitoring and evaluation, and so on.

5.0.10 Quality of students

The study explored that students studying at the TTCs have come from the disadvantaged section of the society belonging to low socio-economic conditions. Moreover, the quality of students also poor in terms of merit. On the other hand, parents also send their sons and daughters who are less meritorious. The meritorious are sent to the general stream of education, it is observed.

5.0.11 Lack of policy coherence

The study reveals that there is a lack of policy coherence between TVET education and general education. Integrated and consistent policy intervention is not found in the TVET sector. Uniform and consistent steps for the quality development of TVET are imperative. There should have a mechanism for coordination and monitoring of TVET quality from a single point. Moreover, there should be a linkage between technical and general education as it is described in the KIs section.

Finally, it is revealed that the standard TVET system at TTCs of our country failed to maintain the standards set by the APACC. However, the APACC provides accreditation and certification if any TVET institution maintains its seven standard criteria. The students/graduates from the APACC accredited institutions are recognized in the regional and global job markets. And accordingly, their compensation package is also enhanced up to global standards. It also creates wide employment opportunities in home and abroad.

5.1 Concluding Remarks on Findings

The general purpose of the study was to evaluate the standard of TVET institutions in the country. For this, TTCs were taken as a unit of analysis. Upon reviewing the literature, survey findings, KIIs data, and direct observation, it is evident that there is a huge standard gap in TVET institutions in the country in comparison to regional standards. For example, there are multiple authorities for managing TVET institutions in the country, resulting lack of quality standards in governance and management of the institutions. It can be said there is a lack of `unity of directions' in TVET policy management. A clear weakness is found in the recruitment and faculty development policy. Consequently, it brings negative impacts on teaching-learning activities. On the other hand, there is no sufficient budget allocation for either institutional or individual research and development activities at the TTCs. It results that there is no joint research activities or collaboration that could make a linkage between institutions and industries. Although there are enough physical facilities such as academic buildings and other

infrastructures, yet, non-physical facilities such as scholarships for faculty members and students/trainees are found insufficient.

The overall evaluation of TVET institutions and education is that the technical and vocation education in the country has not been given due importance a decade ago compared to general education. Although, recently the government has emphasized TVET education. But the potential employers (public sector also) still ignore the TVET graduates in the country. Therefore, there is a mismatch between TVET education and the local job market in the country. On the other hand, the TVET institutions could not maintain the standards set by the APACC for regional accreditation and certification, resulting less importance in getting employment opportunities and compensation in the regional and global job markets.

5.2 Recommendations

The study explored the standard gaps of the TVET institutions in the country which was the main purpose of the study. For this, TTCs were selected as the unit of analysis. Based on the findings, the study proposes some policy interventions needed for improving the standard of TVET institutions and education in the country that would contribute to getting regional recognition, opening new horizons, and creating wide opportunities for employment with standard compensation. However, recommendations have been put under two headings—short-term interventions and long-term interventions.

5.2.1 Recommendations for short-term interventions:

The study proposes some short-term policy interventions to improve the standard of TVET institutions and quality education. For this, no major changes will be needed in the existing policies. It is needed sincere efforts. However, the proposed interventions are stated below.

5.2.1.a Faculty Development:

Qualifications for faculty members should be upgraded, considering regional and global standards. The existing faculty members should be given the necessary opportunities and facilities to upgrade their academic qualifications. If anyone fails to upgrade his/her academic qualification, then the faculty members can be categories into different layers based on their academic qualification. Moreover, BCS Education (TVET cadre) should be introduced for quality faculty members. On the other hand, the promotion system should be developed on different criteria such as research degree (M, Phil, Ph.D.), the number of quality publications, research works, joint-research works, collaboration works, academic performance, and so on. For this, a standard guideline, taking into consideration the regional and global standards,

should be formulated. However, there should be flexibility in the recruitment process so that experts from different disciplines can be accommodated or hired at different levels.

5.2.1.b Governance and Quality Management

At the institutional level, there should be a strong mechanism for sound governance and quality assurance. No management council comprising different key stakeholders is found at the center level, even there is no academic council to oversee the academic activities of the centre. These two types of bodies are essential to monitoring, quality assurance, and oversee academic as well as administrative actions. A system of inclusion of key stakeholders in those two bodies must be ensured for better accountability and participation.

5.2.1.c Establish Effective Monitoring and Evaluation System

A strong monitoring and evaluation system should be in place for maintaining strict quality standards as per regional criteria. Other than the center-level monitoring and supervising mechanism, there must have an upstream mechanism for overseeing and ensuring the standard of TVET institutions in the country.

5.2.1.d Promote Research and Development Activities

Though, it is not possible to conduct research and development professionally, yet, the center could take research assignments like TNA, post-training utilization, cohort study for assessing employability, etc. Since, it is an important criterion for a global standard for every TVET providing entity, therefore, setting up a research wing equipped with the manpower and financial allocation at every TVET institutes is a demand of time.

5.2.1.e Networking and Collaboration

An effective and strategic collaboration may enhance institutional capacity and international exposure for the institution. To develop international exposure and institutional capacity, the TVET institute should make networking and collaboration with reputed TVET institutions of home and abroad are essential. This can be made effective with joint research, faculty exchange, and resource sharing.

5.2.1.f Incentives for Best Performance

Performance awards should be introduced and practiced regularly. The best performance awards may be institutional, individual, trade-basis, specific target achievement basis, and so on. The awards may be financial incentives, crest, recognition certificate, medal, domestic and foreign tours, and so on.

5.2.1.g Develop model TTC at divisional level

Development of model TTC/TVET should be established at the divisional level or the best performer should be declared as model TTC/TVET wherever it is located.

5.2.1.h Enhance Students' Facilities

Transport facilities for TVET students should be available. For this, public-private partnership programmes should be established. Moreover, the private enterprises should be encouraged and motivated to provide transports for the TVET students in the country as a part of CSR. The provision of study loans, increase the amount of stipend, placement and internship allowance, and accommodation should be created to attract quality students for TVET training.

5.2.1.i Flexibility in allow diploma engineers to mainstream

The authority concerned can consider allowing the diploma engineers for BSc Engineering degree under different Engineering as well as Science and Technology Universities. Even, it may be in the general universities where the related engineering courses are offered. For example, there are several disciplines under the Faculty of Engineering in Dhaka University and Rajshahi University. The competent diploma engineers can be allowed to get admission in these universities at their respective disciplines following their previous diploma degrees for higher education. This would encourage the students to study at the TVET institutions in the country.

5.2.1.j Location matters

More TTCs and TVET institutions should be set up near Export Processing Zones (EPZs) and Economic Zones areas and these institutions must have collaboration with different related industries. It would create opportunities for practical knowledge through internship programmes. It is needed because there is a mandatory provision for `industry attachment' for the students of SSC (Voc) and HSC (Voc) levels as well as Polytechnic Institutes. So, if TTCs are set up where there is no such industrial availability, the purposes of TVET would not be fulfilled.

5.2.1.k Practically focused curriculum

The TVET curriculum should be more practical oriented. Presently, there is a provision only `one and half month' for `industry attachment' for SSC (Voc) students. The duration of SSC (Voc) is two years and the industrial attachment period is not enough. The industrial attachment period should be at least six-month under two supervisors—one from Institution and another from Industry. For example, in Sri Lanka, a one-year duration of formal TVET education is

divided into 6 months of institutional and 6 months of on-the-job training (UNESCO-UNEVOC, 2018). Such provision should be introduced in Bangladesh.

5.2.1.l Enhancement of income generating activities

The authorities should come forward and take proper initiatives for income-generating activities. Dependency on the Government's fund would not bring so much incredible tribute to any institution. The authorities should establish linkage with the alumni and plan for income-generating activities that would be a win-win situation for both parties.

5.2.1.m Training for policy knowledge update

While discussing with the faculty members, it is revealed that there is a knowledge gap among the faculty members about the national policy or targets. Some faculty members frankly shared that they do not know national policy about TVET education in the country. They offer their respective courses at their level of best. So, it is needed training and orientation programmes for them about national policy or targets related to TVET.

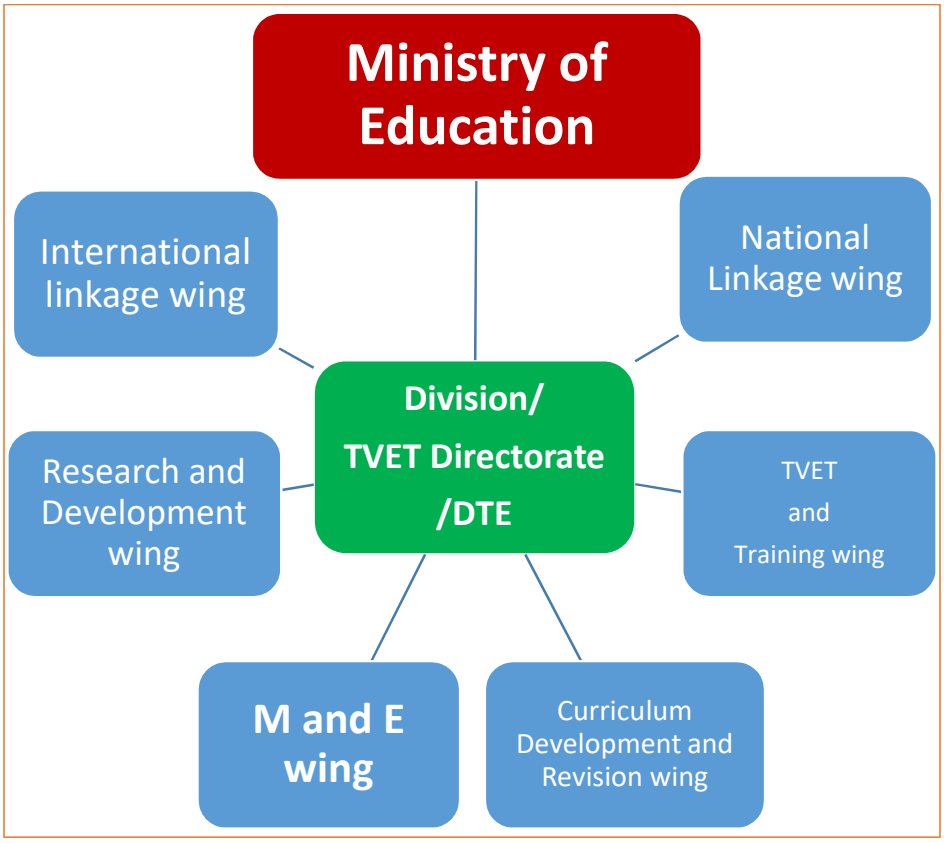
5.2.2 Policy Level Long-term Interventions: Institutional Mechanism for Ensuring TVET Standard

The study reveals many limitations for not maintaining the standard of TVET institutions and education in the country. But there are ample opportunities to improve and maintain the standards of TVET institutions and education with the existing resources. It is needed proper policy guidance and its implementation. For this, we propose the following standard interventions for maintaining standard TVET institutions and education in the country.

Firstly, the governance system of the TVET institutions should be explicit and all the TVET institutions should be brought under a singular monitoring authority. There may be different trades for different reasons and requirements of job markets, but the governing authority should be brought under a single entity/an umbrella. It may be a separate division such as Secondary and Higher Education (SHED), Technical and Madrasah Education Division (TMED) of the Ministry of Education. Or it may be created a `New Department/Directorate' named after `Directorate of TVET' abolishing/merging the existing DTE. Or all existing departments/agencies should be brought under the DTE, enhancing/upgrading its authority. However, this Division/Directorate should be run under the Ministry of Education. There may be different layers for an effective governance system. Moreover, the Division/Directorate of TVET should be given as important as the ICT division of the Ministry of Post, Telecommunication and Information Technology and it should be run under a State/Deputy

Minister. The figure-33 presents an overview of the proposed long-term policy intervention to improve the standard of TVET institutions in the country. The government can consider the proposed framework and take necessary initiatives to materialize it gradually.

Figure 33 Proposed policy intervention for quality standard for TVET education in Bangladesh



Source: Developed by researchers

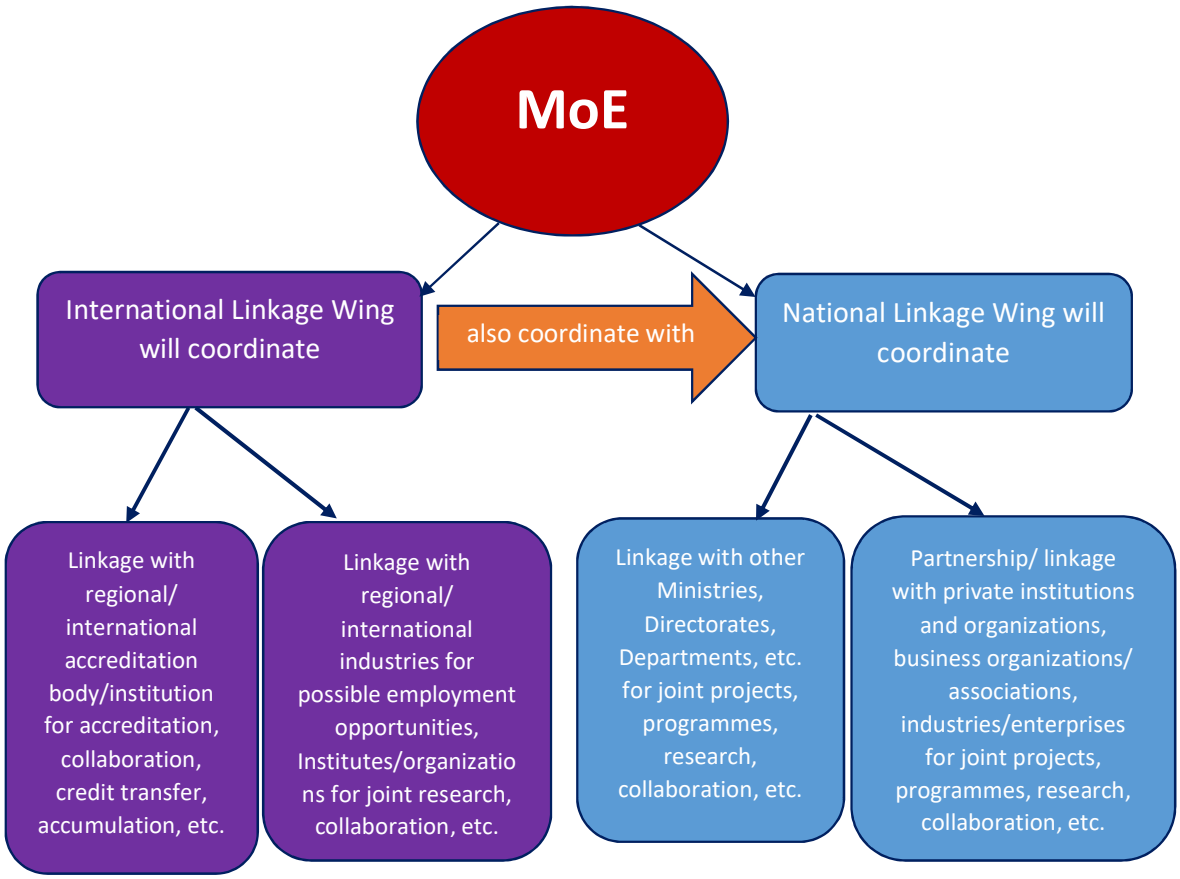
Secondly, the Division/Directorate should be consisted of multiple wings/units such as (1) National Linkage Wing, (2) International Linkage Wing, (3) Curriculum Development and Revision Wing (4) Research and Development Wing, (5) Training Wing for professional development, (6) TVET wing, and (7) Monitoring and Evaluation wing. These wings should be entrusted with some specific responsibilities. The figure-33 shows it at a glance. However, a brief description about these wings has been stated below.

(1) **National Linkage Wing**: This wing should be assigned to maintain linkage with different government agencies/departments/divisions and non-government institutions/organizations such as Bangladesh Garment Manufacturers and Exporters Association (BGMEA), Bangladesh Knitwear Manufacturers and

Exporters Association (BKMEA), FBCCI, DCCI, MCCI, etc. All projects either national or international and joint-venture projects, collaboration, etc., (such as SEIP, STEP) should be implemented under this wing. Consequently, similarities and duplication of different projects/programmes can be overcome that would contribute to save public money. This wing will also be entrusted to maintain strategic linkage with the mainstream Engineers and Science and Technology Universities for making collaboration between TVET institutions and related mainstream universities. The mainstream relevant universities should be offered summer and winter programmes for the students of TVET institutions and it should be mandatory for them. For this, strategic plan should be formulated following the national and regional standard. Such linkage programme between mainstream universities and TVET institutions would be very effective intervention for quality standard of the vocational education in the country. It is shown in the figure-34.

(2) International Linkage Wing: The international linkage wing should be delegated to maintain linkage programmes for international training exchange programmes both for faculty and students, to obtain institutional accreditation/trade or programme-based accreditation, certification or recognition. This wing would also be responsible to contact with different international institutions/organizations for joint-venture projects, collaboration and employment opportunities. All activities of this wing should be performed with the coordination and consultation of the National Linkage Wing. It is shown in the figure-34 at a glance.

Figure 34 Proposed functions of international and national Linkage wings and their coordination



Source: Developed by researchers

(3) Curriculum Development and Revision Wing: This is a very important wing. Development of curriculum and its regular revision, maintaining regional and international standards, is very crucial for getting regional and global recognition. The quality standard curriculum would create opportunities for faculty-students to exchange programmes with other regional and international institutions. Through this intervention, it is expected that quality standards would be enhanced tremendously.

(4) Research and Development Wing: Research is very important for the quality development of any organization. Research brings innovation, modification, modernization, and so on, in systems. The findings or results of research works pave guidelines for the quality improvement of an institution. Moreover, research makes us updated about related fields and motivates/encourages us to adopt the latest

strategy for maintaining the quality standard, considering regional and global phenomenon.

(5) **Training Wing for Professional Development:** Training makes personnel towards excellence. Through training, knowledge, perception, and attitudes (KPA) are enhanced and changed and motivated to accept a new system, overcoming confusion. Besides, professional development training is a must for quality development. Professional development training makes the personnel to be updated about their professional phenomenon and changes. And, accordingly, they are trained to maintain quality standards. It is also applicable for the personnel of TVET institutions in the country.

(6) **TVET Wing:** This wing should be responsible for assessing the need for new TVET institutions in the country. This wing would explore the feasibility of establishing new TTCs as well. Declaration or establishment of Model TTC or TVET institutions should be proposed by this wing. Infrastructural facilities along with other facilities should be provided and monitored under this wing.

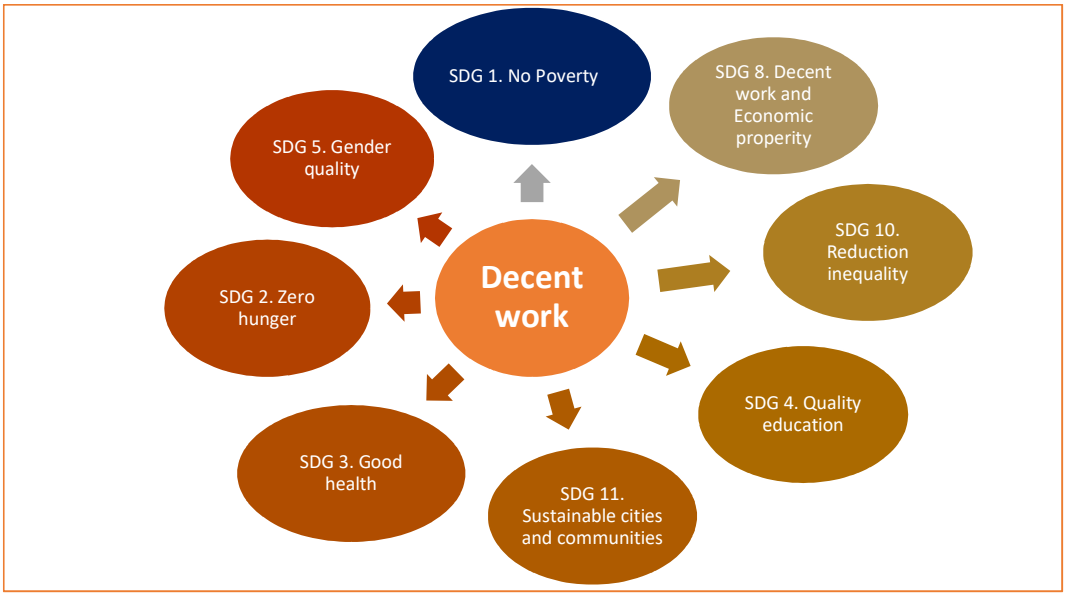
(7) **Monitoring and Evaluation Wing:** There must be a strong monitoring and evaluation wing. For monitoring and evaluation, a standard format should be developed based on regional and global requirements and the criteria to be set should be maintained strictly. This wing should be responsible for monitoring and evaluation of institutional and individual performance. Based on monitoring and evaluation report, the best performers should be awarded, providing certificate, (like Public Administration Award-PAA), medal, crest, financial incentives, foreign tour, and so on.

It is believed that the above-mentioned proposed standard interventions would contribute a lot to maintaining the standard of TVET institutions and education in Bangladesh.

5.3 TVET's contribution in SDGs achievement

TVET education can contribute a lot to achieving the targets of the SDGs. Attaining TVET education, the graduates will have better opportunities to get decent work which is one of the important goals of the global development agenda. Decent work, SDG-8, would contribute to achieving several SDGs. It is shown in the following figure-35 at a glance.

Figure 35 Contribution of decent work in achieving different SDGs



Source: Developed by researchers

The Government of Bangladesh can also achieve global recognition in different arenas through realizing the SDG-4, particularly by improving and maintaining standard TVET institutions and education in the country.

5.4 Conclusion

The country is leading towards achieving an upper-middle-income country by 2031 and the government has also set the target to be a developed country by 2041 on the global map. To achieve the targets, among many factors, quality education can contribute a lot and technical and vocational education can also play a vital role to realize the dream trajectory. Therefore, there is no alternative to improve the standard of TVET institutions and education in the country.

However, all research work certainly leads to additional research questions. It arises, especially when, it is undertaken with limited financial resources and under a limited timeframe. It is indeed true for this study. It does not develop to be exhaustive or to offer conclusive findings on all questions. It does, however, contribute fresh realistic suggestion that should notify policy debate at the national level in the country.

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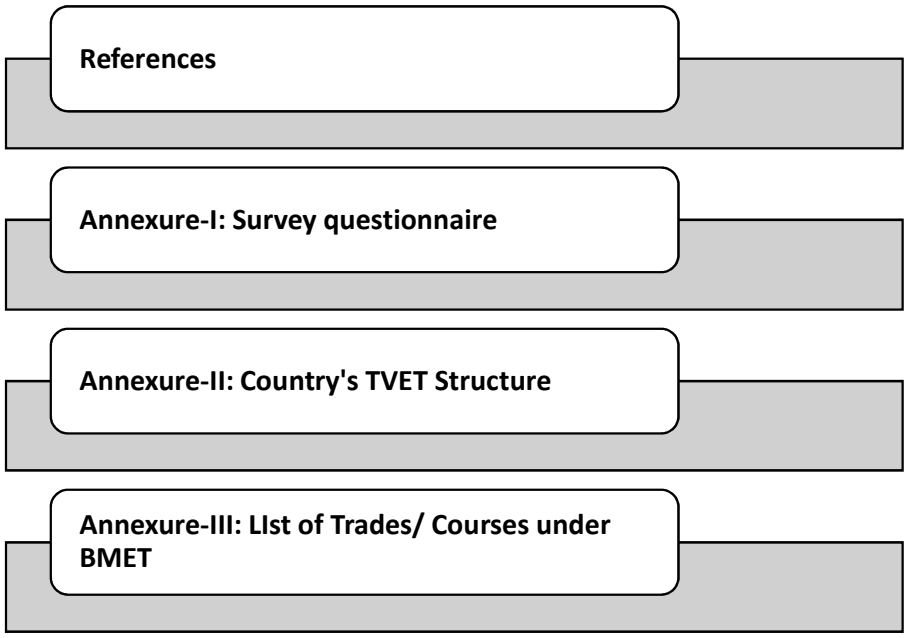

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Annexure-I

Survey Questionnaire

Standard of Technical and Vocational Education and Training (TVET): An Evaluative Study of the Technical Training Centres (TTCs) in Bangladesh

(All data will be used in research work and identity of respondents' will not be disclosed)

1. Background Information

Code of the respondent:

Name of the Institute (TTC): Year of establishment:

Land area:

Numbers of trade approved: Numbers of trade offered:

Numbers of teachers (permanent): Numbers of teachers (part-time):

Number of total (available) teachers: Numbers of teachers approved post:

Number of students: Male:..... Female:..... Total:.....

Capacity of Hostel: Male-..... Female-..... Total:

District:.....

Date:

Module 2: Standard/Criteria for TVET Institutes/TTCs

2.1 Governance and Management

[N.B. 1=Strongly dissatisfactory, 2=Dissatisfactory, 3=Neutral, 4= Satisfactory, 5= Strongly satisfactory]

Indicators	Measurement indicators/sub-indicators	1	2	3	4	5
2.1.1 Decision making and management system						
Is there any **Strategic plan** in your organization?		Yes ☐ No ☐				
➢ If yes, to what extent is it found effective in implementation						
Is there any Yearly Plan of operation in your organization?		Yes ☐ No ☐				
➢ If yes, to what extent is it found effective in implementation						
To what extent the TTC's authority ensures participation of stakeholder's in Policy/Plan formulation						
There exists a Management Board in our TTC		Yes ☐ No ☐				
➢ If yes, TTC Conducts of Management Board Meeting regularly						
TTC maintains Quality Management System (Plan, Implement, Monitoring and Evaluation and Feedback)						
TTC conducts internal quality audit regularly						
TTC formed an Academic Committee/board		Yes ☐ No ☐				
➢ If yes, TTC has an effective Academic Committee/board						
2.1.2 Programme and Budgeting						
Programme Planning and Budget Allocation of Last fiscal year was optimum						
Programme and Budgeting of last fiscal year was effective and efficient						
Management of income generating fund of TTC is quite satisfactory						
Financial and Inventory auditing						
Records keeping and documentation (Archiving, Filing, e-database)						

2.2 Teaching and Learning

2.2.1 Strategic link of learning objectives					
There is a strategic link between institutional strategic directions and national education policy/targets					
2.2.2 Curriculum and 2.2.3 Instructional Guide					
There is a Curriculum development and revision system in TTC					
Percentage of competency standards/courses reviewed in the last 3 years.					
Involvement of stakeholders in curriculum development and revision					
Components of the curriculum professionally crafted					
The instructors are used to apply lesson/session plan in classroom					
2.2.4 Teaching and Learning materials/2.2.5Teaching and Learning Methods and Techniques					
Our TTC makes available adequacy of teaching and learning materials					
TTC gets sufficient financial allocation for arranging instructional materials					
Compliance of student-instructional materials based curriculum (Relevance and adequacy)					
Adoption of teaching and learning pedagogies (teaching learning methods and techniques)					
2.2.6 Monitoring and Evaluation Management					
In our TTC, there is a Monitoring and Evaluation (MandE) system which is quite effective					
Our TTC utilizes of MandE results regularly for further improvement of instructional performance					

2.3 Faculty and Staff (Human resources)

2.3.1Qualifications of Teaching Staff and 2.3.2Qualification of Non-teaching staff					
Academic qualifications and experiences of teaching staff is sufficient					
Industrial background of teaching staff (at least 2 years) is adequate					
Academic qualifications and experiences of non-teaching staff is sufficient					
2.3.3 Teaching Staff Assignments and Load					
Teaching staff load/assignments and preparation time is sufficient for instructors					
In our TTC, the Teacher-student ratio is as per standard					
2.3.4 Systems of recruitment, evaluation, development and motivation					
System of teaching and non-teaching staff recruitment is competitive					
Filling up of vacant posts is done very quickly					
Stakeholders' involvement in the selection and recruitment process of teaching and non-teaching staff is ensured					
Compensation of teaching and non-teaching staff is satisfactory					
Performance evaluation is based on objective and academic performance					
Staff development (training) is satisfactory					
Scholarships/ Grants is available for the deserving instructors					
There is a system of best performance awards for the teaching staff					

2.4 Research and Development

2.4.1 Programme of research and development (R & D) and 2.4.2 Teaching staff engagement in R & D					
The TTC is involved in research and development on skills eco-system of the country					
Teaching staff engagement in research activities (e.g. joint research, action research in the institution and/or industry, identification of projects in industry, technology packages)					

Teaching staff engagement in development activities based on institution's needs (e.g. modules preparation, workbooks and laboratory manuals development, fabrication and prototyping, innovation and improvisation)					
2.4.3 Dissemination and utilization of R & D output and 2.4.4 Management of R & D					
Reporting, dissemination, publication, and utilization of R & D outputs is done regularly					
Sufficient amount of Budget/resource is allocated for R & D programmes					
There is an institutional linkages for joint research and development projects					
There is a system of monitoring and evaluation of R & D programmes					
There is a policy on providing incentives to motivate the teaching and non-teaching staff to conduct R & D programmes/projects					

2.5 Extension, Consultancy and Linkage

2.5.1 Outreach programmes					
Conduct and utilization of outreach programmes					
Implementation of quality management cycle for outreach programmes (Planning, implementing, monitoring and evaluation, reporting)					
Involvement of teaching and non-teaching staff in outreach programmes					
Contribution of the Institution to outreach or extension programmes					
Institutional linkages for conduct of outreach programmes					
2.5.2 Income generating projects (IGPs) and 2.5.3 Linkages and networking					
Does TTC involve in income generating projects (IGPs) with trainees	Yes ☐ No ☐				
➢ If yes, to what extent the Net profit from IGPs (average of the last 3 years) is satisfactory					
The level of making linkages with enterprises (industries, SMEs, other business associations) in TVET programmes					
Consortia/arrangements with educational institutions and government agencies					

2.6 Resources and Facilities

2.6.1 Financial Resources					
TTC allocates sufficient amount of Operational budget (working capital/recurrent cost/operational budget)					
TTC gets sufficient amount of Development budget (infrastructure, tools and equipment, HRD)					
The amount of Annual budget increment (average of last 3 years) is significant					
TTC faces External financial audit every year					
TTCs contribution of income generating fund to the annual budget for institutional development is significant					
TTC has a effective system of budget preparation and planning					
2.6.2 Physical Facilities					
Area and accessibility of Institution is convenient for the trainees					
TTC's classrooms facility is convenient and sufficient for trainees					
The TTC's classrooms and office rooms are well furnished					
Labs, workshops, and other facilities including maintenance is satisfactory					
2.6.3 Library					
Library resources including learning resource centers (Books, print and non-print, journals, magazines, newspapers, instructional materials, etc.)					
Resource sharing with other libraries					
Library space and facilities					
Library management system					
Budget for the operation of library					
Library staff quality and educational qualifications					

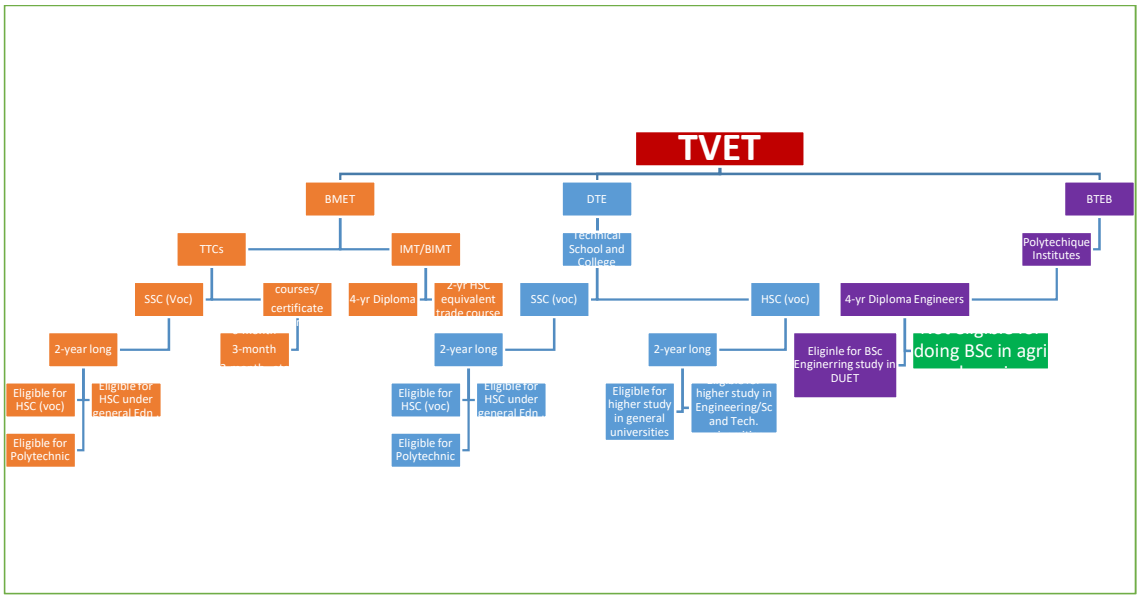
2.6.4 Tools and Equipment					
Tools, equipment and accessories by programmes					
Maintenance of tools and equipment					
2.6.5 Information and Communication Technology (ICT)					
Computer and required software					
Multimedia center or other information technology facilities					
Maintenance of information technology equipment					
ICT teaching and non-teaching staff (number, qualifications and experience)					
2.6.6 Repair and Maintenance Management					
Maintenance of workshops/laboratories is satisfactory					
Safety measures and signage is sufficiently installed and displayed					

2.7 Support to students

2.7.1 Guidance and Career Counselling and 2.7.2 Student services					
Guidance and career counselling system (Office, Staff to student ratio, feedback system) is working well					
Student services staff to student ratio is satisfactory					
Student admission system/ Student recruitment system is neutral and merit-based					
Dropout rate is acceptable					
Scholarship and financial aids is available					
Resources for co-curricular and extra-curricular activities are sufficient					
Co-curricular and extra-curricular activities are encouraged and practiced					
Employment rate in relevant field (one year after graduation) is evident					
Involvement of student in decision making related to students' welfare					
Study loans are available					
Health, sports, and other social services for students are available					

Annexure-II

Country's TVET Education Structure



Source: Developed by researchers based on BMET and DTE data

Annexure-III

List of trades/courses offered under BMET

(a) Diploma in Eng. and Certificate Courses

4 Years Diploma Courses
1. Diploma in Marine Engineering.
2. Diploma in Shipbuilding Engineering
2 Years Certificate Courses
3. Marine Diesel Engine Artificer
4. Ship Fabrication
5. Shipbuilding Welding
6. Shipbuilding and Mechanical Drafting
2 Years SSC (Vocational) Courses
7. Refrigeration and Air-conditioning
8. Machine Tools Operation
9. Automotive
10. General Electrical Works
11. Civil Drafting with Auto CAD
12. Civil Construction
13. Mechanical Drafting with Auto CAD
14. General Electronics
15. General Mechanics
16. Plumbing and Pipe Fitting.
17. Welding and Fabrication
18. Wood Working
19. Electrical Maintenance Works
20. Farm Machinery
21. Dress Making
22. Food Processing and Preservation
1 Year Skill Certificate Courses
23. Automotive
24. Construction
25. Mechanical
26. Industrial Facility
27. Electrical
28. Electronics

(Source: C:\Users\User\Desktop\BMET_WEB_PORTAL\TRAINING_WING\Courses in IMT and TTC.doc)

(b) Modular Courses

Marine	Electrical
1. Ship Safety and fire fighting	26. Electrical Machine Maintenance
2. Ship fabrication and welding	27. Electrical House Wiring
3. Marine pipe fitting	**IT**
4. Marine engine and mechanical fitter	28. Computer Operation
5. Shipbuilding drawing and Auto CAD	29. Graphics Design
Automobile	**Electronics**
6. Auto mechanics	30. Consumer Electronics
7. Auto Mechanics with Auto Electrician	**Refrigeration and Air-conditioning**
8. Auto Mechanics with Driving.	31. Refrigeration and Air-Conditioning
Civil	32. Duct Fabrication
9. Carpentry	**RMG**
10. Plumbing and Pipe Fitting	33. Dress Making
11. Civil Construction	34. Pattern Making, Marker Making and Cutting
12. Architectural Drafting with Auto CAD	35. Boutique/Block Batik
13. Shuttering (Steel/wood)	36. Sewing Machine Operator
14. Rod Binder	37. Mid-Level Garments Supervisor
15. Tiles Fixture	38. Sewing Machinery Maintenance
16. Mason	39. Quality Control Management
17. Auto CAD 2D and 3D	40. Sweater and Linking Machine Operator.
Mechanical	**Others**
18. Welding and Fabrication	41. Fruit and Food Processing
19. Arc and Gas Welding	42. Plastic Technology
20. TIG and MIG Welding	43. Catering
21. Welding (6G)	44. House Keeping
22. Machine Tools Operation	45. Care Giver
23. Mechanical Fitter	46. Korean Language
24. Drafting Mechanical	47. EPS-TOPIK
25. General Mechanics	48. Orientation Training

(Source: C:\Users\User\Desktop\BMET_WEB_PORTAL\TRAINING_WING\Courses in IMT and TTC.doc)