

Impact Assessment of Technical Education and Vocational Training

Final report

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Abbreviations and Acronyms

BIA	: Business, Industries and Association
CTEVT	: Council for Technical Education and Vocational Training
CNI	: Confederation of Nepalese Industries
DAC	: Development Assistance Committee
FGDs	: Focus Group Discussions
FNCCI	: Federation of Nepalese Chambers of Commerce and Industry
GDP	: Gross Domestic Product
GESI	: Gender and Social Inclusion
GoN	: Government of Nepal
HAN	: Hotel Association of Nepal
HSEB	: Higher Secondary Education Board
ICT	: Information, Communication and Technology
ILO	: International Labour Organisation/Office
KIIS	: Key Informant Interviews
MoF	: Ministry of Finance
MoLESS	: Ministry of Labour, Employment and Social Security
NPC	: National Planning Commission
ODK	: Open Data Kit
TEVT	: Technical Education and Vocational Training
TSLC	: Technical School Leaving Certificate

Table of Contents

Acknowledgement.....	
Abbreviations and Acronyms	ii
Table of Contents.....	iii
List of Tables	v
List of Figures.....	vi
CHAPTER 1 INTRODUCTION.....	1
CHAPTER 2 METHODOLOGY	3
2.1 Study design	3
2.2 Study Locations	3
2.3 Study respondents/participants	4
2.5 Survey Tools	5
2.6 Data quality assurance plan.....	5
2.7 Ethics/integrity considerations:	6
CHAPTER 3 RESULTS	7
3.1 Background characteristics	7
3.2 Findings based on DAC criteria.....	8
3.2.1. Context	8
3.2.2. Relevance:	9
3.2.3. Efficiency	10
3.2.4. Effectiveness:	11
3.2.5. Sustainability:.....	22
3.2.6. Challenges:	23
3.2.7. Lessons learned	24
3.3 Perception and suggestions toward TVET.....	24
3.3.1 General Perception towards TVET Program	24
3.3.2 Perception of the contribution of TVET to socio-economic status.....	25
3.3.3 Perceived suggestion by graduates to improve in the implementation of the TEVT	27
CHAPTER 4 CONCLUSION AND RECOMMENDATIONS:	29
4.1. Conclusion:.....	29
4.2. Recommendations:	30
References.....	32
Annex	33
Tables.....	33
Structured questionnaire for graduates.....	38

Key informant interview Guideline..... 44
Key informant interview guideline 46

Qualitative tool: Key informant interview Guideline (Institution head/program coordinator) (English Draft)46

List of Tables

Table 1 List of Study districts	3
Table 2 Sample covered.....	5
Table 3 Background Characteristics of Respondents	7
Table 4 Income before and after TVET graduation.....	14
Table 5 T test one tailed test (current income> before inflated income).....	14
Table 6 Mean estimation of income by sex of the graduates.....	15
Table 7 Comparing previous and current income by provinces	16
Table 8 Comparing previous and current income by caste.....	16
Table 9 Promotion in job after TVET Graduation (Among graduates currently in employment)	18
Table 10 Usefulness of acquired skills in the present job (Among graduates currently in employment)	18
Table 11 Job satisfaction (Among graduates currently in employment)	20
Table 12:Required data from survey to estimate the income from TVET	21
Table 13 Graduates' participation in further training/course (university, short courses, etc.)	22
Table 14 Desire to attend further training/course	23
Table 15 Suggestions to improve in the implementation of the technical education and vocational training	27

List of Figures

Figure 1 Sample covered in the study	4
Figure 2 Relevance of the programme (Yes %).....	10
Figure 3 Employment History	13
Figure 4 Income before and after TVET graduation	14
Figure 5 Current Mean Income by Education.....	17
Figure 6 Current Mean Income by Institutions.....	17
Figure 7 Graduates' satisfaction in the current employment	19
Figure 8 Want to attain further training/courses (Yes%).....	23
Figure 9 Perception of the graduates towards TEVT Program.....	25
Figure 10 Perception of graduates toward the contribution of TVET to socio-economic status (% of Strongly agree/agree).....	26

Executive Summary

Background and objectives: Technical Education and Vocational Training (TVET) is an integral part of the development of a Nation. It enables the youth with necessary employment skills and supports improving their livelihood. Nepal has also implemented TVET programmes with aim of enhancing skills to its citizen since long. Nevertheless, the actual impact it has made on graduates and its contribution in the national economy is unknown. In this context, this study assessed the contribution of TVET on graduate as well as its impact in the national economy. More specifically, the study examined employment rate, effect on income generation, and perception of stakeholders on TVET programs.

Methodology: The study employed concurrent mixed methods which used both quantitative and qualitative approaches. It covered all 7 provinces of Nepal. A total of 21 districts (3 districts from each province) were selected. A survey was conducted with 1231 Diploma and Pre-diploma (TSLC) graduates who studied in the institutions either affiliated or constituent of Council for Technical Education and Vocational Training (CTEVT). Similarly, 42 interviews (2 from each district) were conducted with graduates and other key stakeholders such as school principals, instructors, and employers.

Background Characteristics: Among the respondents who participated in the survey, nearly three-fifths (57%) of respondents were male, around three-fourths (73%) were aged less than 25 years, and more than half were Brahmin/Chhetri (57%). Similarly, 60% of them had completed diploma, followed by a pre-diploma (36%), and only 5% had completed bachelor's or above at the time of interview. Likewise, more than two-fifths (45%) studied in a private institute, followed by the constituent institute (25%).

Findings based on Development Assistance Criteria (DAC) criteria:

Context: Several environmental factors (political, economic, social, and technical) have been influencing Technical education and vocational training (TVET) in either positive or negative ways.

Political: Political influences can have both pros and cons on technical education and vocational training programs. The transition of the country into federalization has augmented the market demand of technical manpower, hence having a favorable effect on the programs. Political support can and has made several tasks like documentation and affiliation convenient for institutions. On the other hand, there is a confusion among the three tiers of the governments on TVET governance in the absence of TVET policy in the federal context.

Economic: CTEVT has some provisions of scholarships that has also contributed making education accessible to poor and rural people. However, due to fewer scholarships, it has been difficult for many poor and ultra-poor to access education. On the other hand, the minimal fee structure has been a hindering factor in maintaining adequate infrastructures/resources in institutes.

Social: There are some social factors that interplay a role in the smooth operation of TVET training and education. The reluctance of the Muslim community to educate and train their children has resulted in the minimal enrollment of Muslim students. In the recent past, COVID-19 also adversely affected the training programs due to which certain changes were made on the program, such as overlapping the semesters. Likewise, some institutions of the far-west reported of having casteism among students, which can have an adverse impact on the education of the students being discriminated.

Technological: The use of new technology can aid in making education/training more effective. In contrast, the use of technology can also make education/training more costly and hence unaffordable for students. The lack of basic technological knowledge among many students has been hampering them in their learning process. It was difficult during COVID to run the online classes when students from the rural areas, did not have enough knowledge about using computers or mobile phones.

Relevance: Technical education and vocational training are relevant as they were designed on the basis of community needs and market demand. It has addressed the needs, issues and priorities of trainees. It has been more relevant and helpful in rural areas where people cannot afford expensive education and are in need of employment opportunities at a very young age to support their households for livelihood. Although most of the programs are relevant in the community, certain areas/subjects should be added up (such as geometrics and hydropower engineering in the engineering field) to address the needs of contemporary society. Similarly, curriculum can be developed to address the need of community by two models. Only practical courses can be offered to those students who want to end their study after training and work. Second modal similar course as formal education can be offered for those students who want this course as bridge course. Quantitative findings are consistent with qualitative findings as most of the graduates (79%) stated that their present/last job was related to their area of specialization. Similarly, almost four-fifth (79 percent) mentioned the program was highly applicable.

Efficiency: Technical education and vocational training produce maximum output with minimal cost. These courses are imparted at a nominal cost yet produce more benefits through employment and self-employment of graduates.

Cost: The training/program had run efficiently in most of the institutions. The fees collected from students are the major income source for all the institutions. Cost-effective measures such as "*learn, earn and pay*" have been implemented in various agriculture related institutions. However, the program has been less cost-effective in certain institutions (health related) which do not have their own hospitals for practical.

Resources: TVET programs has been producing maximum output with minimal resources (including manpower). Most of the TVET institutions had adequate resources to carry out the program smoothly. The trainers in such institutions are skilled, capable and motivated. CTEVT has been providing ToT time and again. However, some institutions lacked adequate human resources including specialized teachers/trainers and other resources. Hiring and remunerating trainers for a short period of time has also been challenging. Some institutions, particularly in

the rural setting, are facing high turn-over of part time instructors/trainer which hinders the efficiency directly.

Time: TVET courses are designed for a shorter period, but consists of more contents to be covered in a limited time. This has mostly resulted in rush and pressure during the study period. In addition, social crisis (natural calamities, pandemics) sometime also has prolonged the total study period of the courses.

Effectiveness:

TVET has been found effective in generating employment for many young people, and ultimately contributing towards uplifting the economic status of the family and their quality of life. Many graduates, especially rural and poor have been able to engage in income-generating activities through the skills they acquired through TVET programmes. There has been an increment in the skilled manpower in the labor market as new graduates enter the market. Many districts have become in-dependent for certain products/items due to increased production. TVET has become a significant basis for self-employment among youths. Based on graduates' monthly income, the contribution of TVET to the GDP is almost 1.01 percent. The contribution of TVET to the GDP is higher than the contribution of administrative and support service activities (almost 0.8 percent) and almost similar to contribution of Professional, scientific and technical activities to GDP (around 1%). Hence, it is confirmed that contribution of TVET to the GDP is significant.

The effectiveness of the programs is well evident from quantitative findings as well. The proportion of employed people has increased notably after obtaining TVET training. Nearly three-fifths (58%) respondents were currently working, as compared to 9% before obtaining TVET training. Similarly, there was an average income difference of NRs.14, 213. Overall 39% respondents were promoted as a result joining TVET. In regards to the job satisfaction of graduates, 84% respondents were satisfied with the present job. However, only 60% respondents were satisfied with the job stability (lowest proportion among hotel management-29%, and highest among engineering stream -66%).

Sustainability: Several factors can promote or impede sustainability of TVET programs. There have been lesser linkages between demand side (business industries) and educational/training institutes, which can hamper the sustainability. Hence, proper linkage and coordination between supply and demand sides can make the program sustainable to a greater extent. Although Nepal's economy is agriculture dominated, institutions are unable to attract students towards agriculture, hence awareness among youth is much needed, especially for sustainable agricultural programs. Appropriate curriculum revision should be done to make the education more relevant and attract youth. Institutional sustainability is mostly affected by leadership and managerial skills of institution head and determination and work performance of other staffs.

Challenges:

The challenges faced by different TVET stakeholders are as follows:

Challenges faced by Schools

- Inadequate and poor infrastructures in some institutions has been challenging, and the situation is further exacerbated by inflation.
- Gap between the institutional capacity and actual enrollment rate (lesser enrollment in many cases) of students.
- Political influences and political instability, and lack of government ownership.
- The system of quarterly payment of remuneration instead of monthly is demotivating teachers.
- Different institutions providing training on the same program in a single district resulted in lesser enrollment in an institution, making it less efficient.

Challenges faced by Employers

- Lack of basic technological knowledge among students and language barrier in some places.

Lessons Learnt:

- Coordination and mutual contract between demand side/employing agency (industries) and supply institutions can be useful for creating more employment opportunities for graduates.
- More focus on quality of education, including emphasis on practical is required.
- Proper coordination with local government can aid to enhance the program through various support including the economic support.
- Imparting education/trainings can be more effective when modern technologies (projectors, audio-visual aids) are used and provided by skilled human resources.

Perception and suggestion of graduates: Overall, graduates had positive perception towards TVET. They viewed TVET also should be joined by brilliant students to increase social value as some of the respondents agree TVET is still perceived designed for students who are academically weak and belongs to poor families. It is encouraging to note that an overwhelming majority respondent strongly agreed/agreed that unlike conventional education, TVET has the prospect of stimulating technology progress for national development. Graduates also provided some suggestions for further improvement in the programmes. Providing relevant occupational skills was major message from the respondents, however, support in employment after graduation was also a concern provided by graduates. Similarly, employers perceived that demand for technical human resource will be increasing in the future. Many of them who participated in interview were satisfied with the skills and capabilities of the graduates currently employed in their organization(s). However, few others were found completely dissatisfied with the TVET graduates. They stated that the graduates who are employed in their organizations had hardly any relevant skills they required to perform task they required.

Conclusion: The impact of TVET programmes on TVET graduates is visible. It has a positive impact on the economy of the society, through increased opportunities for employment among youths. Programmes such as “*learn, earn and pay*” have been observed as sustainable TVET. However, there have been lesser linkages between Business, Industries and Association (BIA) and educational/training institutes, which limit the opportunities for graduates. Likewise, some

demand side stakeholders also showed huge dissatisfaction with the graduates and recommended more practical approaches.

In this regard, there are areas of improvement to make the programs more effective and relevant in the days to come.

Recommendations:

- Qualitative findings revealed that curriculum has not been entirely relevant to the present context. ***Hence, the existing curriculum should be revised (incorporating suggestions from BIAs) to make it more relevant, up to date and effective to address the changing demands of contemporary situation.***
- The quantitative findings from graduates' interview showed that still a sixth graduates were overall unsatisfied with their current job and some employers were dissatisfied with the graduates' performance too. ***Thus, coordination and mutual contract between BIAs and technical schools should be done for creating more satisfying employment opportunities for graduates. Creating internship opportunities in diploma in civil and effectively managing the existing workplace opportunities in other programmes, and post training support for students can also be helpful.***
- Qualitative findings revealed that some of the institutions of different provinces do not have adequate resources including infrastructures in their institutions. Similarly, hiring expert trainers is also challenging due to inadequate fund that has been hindering the quality. ***Therefore, resource pooling should be done through proper coordination with local government or other effective mechanisms.***
- Some stakeholders were quite dissatisfied with the quality of education and skills of TVET graduates. ***So, monitoring visits should be carried out by CTEVT to ensure the quality of the programmes, including strict control over the institutions' approval through guarantee that they are well-equipped.***
- Qualitative findings showed that TVET graduates need to study higher-level theoretical courses in science, English, and Math similar to other formal courses rather than the practical course which made it difficult for the student to pass out and also lower the enrollment for the newcomers. ***Thus, need assessment of the demand side should be done and required programs should be more focused on the practical course rather than the theoretical subjects. Likewise, some of the programs that do not have current market demand should be phased out while other new programs (such as hydropower engineering) should be added up.***
- The overall quality of training program needs upgrading as shown by qualitative and quantitative findings. ***Hence, investment on researches should be increased and new technologies should be given more emphasis.***
- Hiring and sustaining teachers/ trainers has been challenging for many institutions as shown by qualitative information. ***Therefore, fair and timely payment (monthly instead of quarterly) should be made to motivate the instructors to ensure the quality of education.***

CHAPTER 1 INTRODUCTION

Technical education and vocational training (TVET) is an integral part of the development of a Nation. It supports youth enhancing necessary skills required for world of work. Perhaps realizing the strength of TVET, the government of Nepal has an important goal to increase TVET enrolment to 70% from current around 10% and increase the number of people with skills training to 50% from the current 31% (National Planning Commission [NPC], 2019). Large number of labour force in Nepal (about 70%) gain professional skills in the workplace informally (International Labour Organization [ILO], 2017). Likewise, among the youth 59% migrate without any professional skills for foreign employment in different Gulf countries and Malaysia (Ministry of Labour, Employment, and Social Security [MoLESS], 2020) . This grim situation could be changed by a robust TVET system closely tied with economic sectors/ business and industry who could define the type of current and future labor market features.

The studies conducted in Nepal show, TVET helps getting employment and increasing income. Chakravarty et al. (2015) accessed the short-run effects of skills training and employment placement services sponsored by the Employment Fund from 2010 to 2012 in Nepal and found heterogeneous impact of the programs on different sub-population women, age-group, and ethnicity. The skills training had positive impact in getting employment (about 50%) and increasing monthly average earnings (about 72%). The study also revealed that the women benefited more than their counterparts. Similarly, a tracer study of the Diploma and TSLC programs under CTEVT found the monthly average earning of the graduates was Rs 15816 which ranged from Rs 4000 to Rs 87000 per month. Around 75 percent of the graduates in three trades (Engineering, Health, and Agriculture) were either employed or in education during the interview time (AIPL 2016).

The impact of TVET is accessed on both graduates and employers level. On the first level, TVET improves livelihood of the graduates as they are equipped with the necessary skills required for the world of work (SEFPE 2008). On the second level, it fulfills the demand of the employers by supplying competent human resource. A study was carried out in Philippines revealed that about 71 percent of the graduates were active in labour force and those who were not in labour force were mainly due to study-related reasons (currently continuing their study). (TESDA 2020). The study also found there was no statistically significant difference between male and female graduates in terms of employability. The study showed that the TVET programs helped increase the employability of the graduates and they were satisfied with the training they received.

In the context of Nepal, the study on TVET graduates showed that the employers, in general, are more satisfied with the workers who were trained from CTEVT (AIPL 2016). However, the study also showed that 80 percent of employers believe that the workers need additional

training to perform better in the workplace. The graduates also had reported that there was a need for improvement in the TVET education provided by the institutions in several dimensions like content knowledge, opportunities for practical skill, and curriculum or content; laboratory practice, instructional technique, industrial attachment, on the job experience, etc.

The empirical studies show TVET has a positive impact on graduates in particular and contributes to the national economic development in broad. However, in the context of Nepal there are no national-level studies that assess the contribution of TVET. More specifically, the existing situation and contribution of TVET on graduates in the country is unexplored. In this context, this study assessed the contribution of TVET to the national economy with following specific objectives;

- to examine the employment rate of TVET graduates
- to assess the effect on income generation of TVET training
- to explore the perceptions of the graduates and their employers regarding the strengths and weaknesses TVET program
- to examine the perceptions of the graduates regarding job quality, relevance, and effectiveness of their TVET program.

In the dearth of TVET literature in the national context, this study contributes an important knowledge to the relevant stakeholders. TVET program has been implemented in the country for a long time. Nevertheless, the actual impact it had made on the national economy is unknown. In this regard, the study provides a direction for the further planning and implementation of relevant programs for uplifting the status of TVET graduates. Hence, this study is vital to determine the significance of the TVET program including its future implications.

CHAPTER 2 METHODOLOGY

2.1 Study design

The study employed both quantitative and qualitative approach. A retrospective post-then-pre design was used in this study. The survey was conducted with the respondents who have joined diploma or pre-diploma programme of the CTEVT. Similarly, the qualitative component comprised key informant interviews with key TVET stakeholders.

2.2 Study Locations

The study covered all the provinces of Nepal. A total of 21 districts (3 districts from each province). The selected districts also represent three geographical regions; mountain, hill, and terai. These study areas were finalized in consultation of TVET stakeholders considering potential area for employment, having industrial corridors, industrial houses, and prevalence of economic activities. However, an important emphasis was also given to the districts where programmes under CTEVT are implemented.

Table 1 List of Study districts

Provinces	Districts
One	Bhojpur
	Ilam
	Sunsari
Madhesh	Mahottari
	Parsa
	Siraha
Bagmati	Chitwan
	Kathmandu
	Nuwakot
Gandaki	Kaski
	Mustang
	Nawalparasi
Lumbini	Banke
	Palpa
	Rupandehi
Karnali	Jumla
	Salyan
	Surkhet
Sudurpaschim	Kailali
	Dadeldhura
	Doti

2.3 Study respondents/participants

CTEVT Graduates were the respondents in the survey. However, other TVET stakeholders instructors, trainers and employers also were interviewed in the key informants' interview under qualitative approach.

A nationally representative samples were calculated. The following formula was used to find the sample size of all the sectors under study.

$$n = \frac{\{z^2 \times P \times Q + t^2\}}{t^2 + \{z^2 \times P \times Q / N\}}$$

Where,

n - is the required sample that needs to be interviewed using the pre-designed questionnaire.

This sample size is considered sufficient to conclude that the findings derived will represent the whole population. In other words, findings derived by interviewing with this number of respondents can be generalized for the whole target population (all the individuals similar to these respondents).

P - Probability to select (0.5). This probability figure indicates equal chances for each member of the population for picked up as a sample.

'z' - is the value of Z score at 95% confidence level (1.96).

't' - is margin of error (5% or 0.05 is proposed).

'N' - is total industrial houses/ enterprises for which the findings from the sample survey can be generalized.

The survey covered total 1231 graduates from four major sectors, Engineering, Agriculture, Hospitality, and Health. Among them 441 were from the health, 397 from engineering, 357 from agriculture, and 36 were from the hotel management. Similarly, total 42 participants were included in key informants' interview.

Figure 1 Sample covered in the study

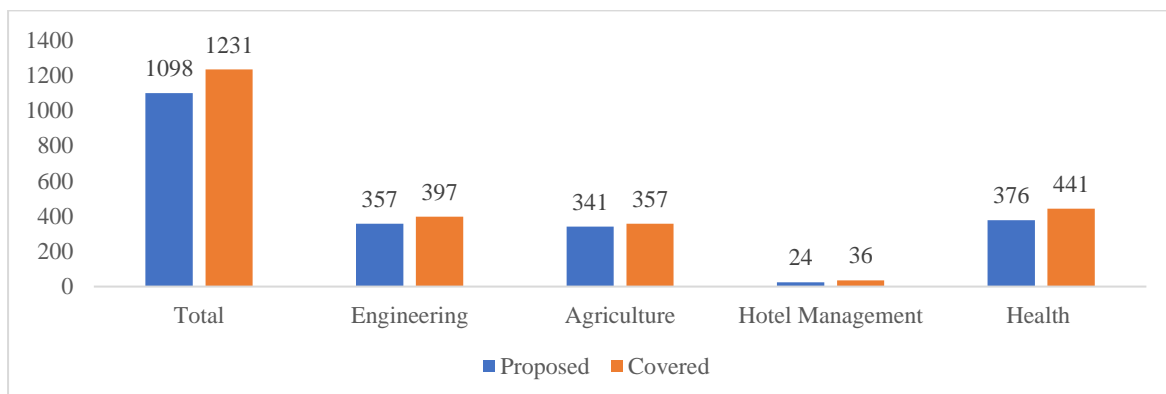


Table 2 Sample covered

	Overall		Study Stream of respondents							
	N	%	Engineering		Agriculture		Hotel Management		Health	
			N	%	N	%	N	%	N	%
Type of study										
Diploma (PCL)	710	57.7	227	57.2	151	42.3	12	33.3	320	72.6
Pre-Diploma (TSLC)	521	42.3	170	42.8	206	57.7	24	66.7	121	27.4
Type of institute										
Constituent institute	301	24.5	130	32.7	80	22.4	18	50.0	73	16.6
Partnership institute	110	8.9	41	10.3	3	.8	2	5.6	64	14.5
Private institute	558	45.3	167	42.1	90	25.2	15	41.7	286	64.9
Community school/institute	262	21.3	59	14.9	184	51.5	1	2.8	18	4.1
Total	1231	100.0	397	100.0	357	100.0	36	100.0	441	100.0

Among the graduates who participated in the survey, around three-fifths (58%) had passed diploma level, and nearly half (45%) studied in private institutes.

2.5 Survey Tools

A structured questionnaire for the survey and a key informant interview checklist were developed. The questionnaire used for measuring the perception of graduates toward TVET and its contribution in their livelihood. Both the study tools, questionnaire and checklist considered criteria of Development Assistance Committee of the Economic Cooperation and Development (relevance, coherence, effectiveness, efficiency, impact, and sustainability) also known as DAC criteria. The questionnaire consisted of six sections (background characteristics, employment history/situation, relevance of training/program, job satisfaction, perception on TVET programme and recommendation).

2.6 Data quality assurance plan

The study used the standard and tested tools and techniques for data collection that minimize the possible error and inadequacy of data. The tools used for data collection was developed based on desk review and in consultation with TVET stakeholders.

A three-days intensive training was organized to train enumerators and the field researchers (supervisors) well on the content, process, techniques, technology, and other protocols of the study that ensure to enhance of the quality of researchers as well as the quality of data. A total of 35 researchers (7 supervisors and 28 enumerators) were recruited for data/information collection. These field researchers were qualification with at least a Bachelor's degree and had prior experience in the similar work. After the training, enumerators conducted a pilot test for pretesting the study tools and necessary modifications were made.

Quantitative data were collected digitally via Open Data Kit (ODK). A digital system was designed to ensure necessary skips and minimize human errors.

Core research team members visited the field to observe and monitor the data collection activities and provided immediate feedback for improvement. Supervision was also made by the Sakchyamata Project Director, Coordinator and officials. Besides, the data quality was also monitored through the system (mostly ODK), where the daily update is uploaded. The regular meeting was organized with field researchers to explore any data collection challenges and sorted out immediately by the study team.

All the data were stored in a password-protected computer. All the personal identifiers were deleted and made accessible only to the study team members.

2.7 Ethics/integrity considerations:

This study adhered to the following ethical considerations:

The study participants and informants were interviewed with verbal consent. The consent process ensured that the respondents were well-informed about the interviewer, the purpose of the study, their voluntary participation, the confidentiality of information, anonymity of the informants, time duration, and risk and benefits of their participation in the study.

Respondents were informed that they could skip any questions they felt uncomfortable with or leave the interview anytime. However, they were informed that their information was valuable for programming and tried to complete the interview with their consent.

All the interviews were conducted in confidential areas where the respondents felt comfortable for the interview. Each respondent was provided with a unique code to ensure the confidentiality of the respondents. No personal identifiers are disclosed anywhere in the study. The enumerators and supervisors were oriented well on the approaches and factors that need to be obeyed during human subject research.

CHAPTER 3 RESULTS

3.1 Background characteristics

In regards to the background characteristics of the respondents, nearly three-fifths (57%) respondents were male, around three-fourths (73%) were aged less than 25 years, and more than half were Brahmin/Chhetri (57%). Similarly, three-fourths (75%) were unmarried/never married. Regarding the level of education, 60% had completed diploma, followed by a pre-diploma (36%), and only 5% had completed a bachelor's or above at the time of interview. Likewise, more than two-fifths (45%) studied in a private institute, followed by a constituent institute (25%). Higher proportions of respondents in the health stream studied in private institutes than in other streams. Similarly, more than a fourth (29%) of respondents belonged to Bagmati Province, followed by Lumbini province (18%).

Table 3 Background Characteristics of Respondents

	Overall		Study Stream of respondents							
	N	%	Engineering		Agriculture		Hotel Management		Health	
			N	%	N	%	N	%	N	%
Sex										
Male	703	57.1	322	81.1	195	54.6	26	72.2	160	36.3
Female	528	42.9	75	18.9	162	45.4	10	27.8	281	63.7
Age group										
Less than 25 years	896	72.8	291	73.3	276	77.3	23	63.9	306	69.4
25-34 years	309	25.1	104	26.2	70	19.6	11	30.6	124	28.1
35-44 years	25	2.0	2	.5	10	2.8	2	5.6	11	2.5
45 and above	1	.1			1	.3				
Caste/Ethnicity										
Dalit	68	5.5	22	5.5	24	6.7	1	2.8	21	4.8
Muslim	9	.7	5	1.3	4	1.1				
Madheshi	177	14.4	54	13.6	40	11.2	2	5.6	81	18.4
Janajati	262	21.3	73	18.4	62	17.4	15	41.7	112	25.4
Brahmin/Chhetri	695	56.5	233	58.7	222	62.2	18	50.0	222	50.3
Others	20	1.6	10	2.5	5	1.4			5	1.1
Marital status										
Never married/Unmarried	917	74.5	326	82.1	255	71.4	32	88.9	304	68.9
Currently married	312	25.3	71	17.9	102	28.6	4	11.1	135	30.6
Separated/divorced	2	.2							2	.5
Level of education										
Pre-diploma	441	35.8	147	37.0	176	49.3	18	50.0	100	22.7
10+2/diploma	735	59.7	224	56.4	172	48.2	17	47.2	322	73.0
Bachelor and above	55	4.5	26	6.5	9	2.5	1	2.8	19	4.3
Type of institute										
Constituent institute	301	24.5	130	32.7	80	22.4	18	50.0	73	16.6
Partnership institute	110	8.9	41	10.3	3	.8	2	5.6	64	14.5

	Overall		Study Stream of respondents							
	N	%	Engineering		Agriculture		Hotel Management		Health	
			N	%	N	%	N	%	N	%
Private institute	558	45.3	167	42.1	90	25.2	15	41.7	286	64.9
Community school/institute	262	21.3	59	14.9	184	51.5	1	2.8	18	4.1
Province										
Province 1	80	6.5	35	8.8	19	5.3			26	5.9
Madhesh Province	160	13.0	57	14.4	38	10.6			65	14.7
Bagmati Province	354	28.8	118	29.7	63	17.6	17	47.2	156	35.4
Gandaki Province	106	8.6	25	6.3	28	7.8	19	52.8	34	7.7
Lumbini Province	215	17.5	80	20.2	45	12.6			90	20.4
Karnali Province	156	12.7	51	12.8	80	22.4			25	5.7
Sudur Paschim Province	160	13.0	31	7.8	84	23.5			45	10.2
Total	1231	100.0	397	100.0	357	100.0	36	100.0	441	100.0

3.2 Findings based on DAC criteria

This section presents the findings based on DAC criteria, consisting of qualitative findings from supply-side stakeholders i.e., instructors, school principals and quantitative findings from graduates.

3.2.1. Context

There are a number of environmental factors (political, economic, social, and technical) that have been influencing Technical education and vocational training (TVET) in either a positive or adverse manner.

Political: Political influences can have both pros and cons on technical education and vocational training programs. The transition of the country into federalization has amplified the market demand for technical manpower, hence having a favorable effect on the programs. Political support can and has made several tasks like documentation and affiliation convenient for institutions. Furthermore, these factors hinder the teaching calendar, and courses are not completed on time and can have a negative impact on the job placement of trainees.

Similarly, some institutions also faced hindrances due to political issues during their establishment phase, such as difficulty in obtaining land for the construction of buildings. Principals of few institutions during our interaction reported that they were bothered by supporters of political parties who occasionally asked for fund support, while the others reported that few students from political backgrounds create disturbances in the school when their demands are not met. Political situation of a country can also influence market demand of various subjects, like tourism industry. Political stability fosters tourism while instability and chaos repel the tourists.

Economic: TVET in Nepal, unlike general education, is not free. Students regularly pay their study cost. CTEVT, however, offers education at a nominal price compared to other private

institutions. It also provides some scholarships to the students from underprivileged groups. The scholarship provided to needy poor students has been a great financial support for them. However, due to few number of scholarships, it has been difficult for ultra-poor to access the education. On the one hand, from the perspective of suppliers, minimal fees structure has been a hindering factor to maintain adequate infrastructures/resources in institutes on the other hand TVET has not been accessible to all as many youth cannot pay the cost for their study.

Social: There are some societal factors that interplay a role in smooth operation of TVET trainings and education. The reluctance of Muslim community to educate and train their children has resulted in minimal enrollment of Muslim students. In the recent past, COVID-19 also adversely affected the training programs due to which certain changes were made on the program, such as overlapping the semesters. Similarly, due to lack of awareness and negative attitude towards technical education, many people are hesitant to enroll in CTEVT programs and do not consider it worthwhile compared to the formal education (HSEB, Bachelors etc.). Likewise, some institutions of far-west reported of having casteism among students, which can have adverse impact on the education of the students being discriminated.

Technological: Use of new technology can aid in making the education/training more effective; For instance, use of projectors can make learning more interesting. In contrast, use of technology can also make education/trainings more costly and hence unaffordable for students. Lack of basic technological knowledge among many students has been hampering them in their learning process. It was difficult during COVID to run the online classes when students from rural area, did not have enough knowledge on using computers or mobile phones.

3.2.2. Relevance:

Relevance assesses the extent to which a program is consistent with community needs and government priorities. Technical education and vocational trainings are quite relevant as they were designed on the basis of community needs and market demand during the time when there was high demand of technical education and trainings related to agriculture, health, hotel management, and engineering etc. after thorough market study. It has addressed the needs, issues and priorities of trainees. CTEVT offers the education and trainings at minimum possible fees, and also provides some scholarships to economically backward people which makes technical education affordable and accessible for poor and middle-income individuals. This makes the program more relevant as it addresses the necessity of most underprivileged people. All stakeholders agreed that TVET has been based on the actual needs of the community. It has been more relevant and helpful in rural areas where people cannot afford expensive education and are in need of employment opportunities at a very young age to support their households for livelihood. TEVT has been fruitful for generating employment at an early age. However, due to limited number of scholarships seats, ultra-poor people cannot be a part of education. TVET trainings related to agriculture, veterinary is more relevant in our country where agriculture is still the major source of income and livelihood for many people. Many

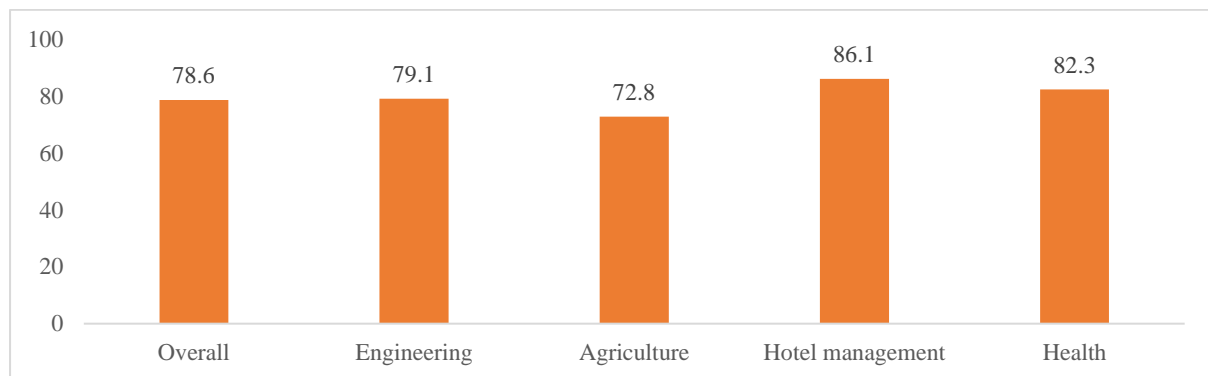
stakeholders predicted that it is most likely that the demand of technical manpower will increase in the near future.

Although, overall most of the programs are relevant in the community, there are certain areas/subjects that should be added up (such as geometrics, hydropower engineering in the engineering field) to address the needs of contemporary society. Similarly, curriculum can be developed to address the need of community by two models. Only practical course can be offered to those students who want to end their study after training and work. Second modal similar course as formal education can be offered for those students who want this course as bridge course for the further education. Hence, it can be concluded that courses are not enough to meet the need/demands of the present-day market.

Relevance of programmes based on graduates' applicability

Relevance of the diploma and pre-diploma level programmes were explored in the study by asking whether present/last job was related to the area of specialization, in which most of them (79%) said that it was relevant. Higher proportion of respondents from hotel management (86%) and health stream (82%) mentioned that the programme was relevant than engineering (79%) and agriculture (73%). Those who mentioned training as relevant, were further asked about the degree of applicability, overall one third stated it was very highly applicable, 44% mentioned it was highly applicable and 22% mentioned it was average. Similarly, those who stated it was not applicable were further asked about the reasons in which nearly a fifth (18%) responded that it was due to lack of job opportunity to their application (Annex table 1).

Figure 2 Relevance of the programme (Yes %)



3.2.3. Efficiency

Technical education and vocational trainings produce maximum output with minimal cost. These courses are imparted at nominal cost, yet produces more benefits, through employment and self-employment of graduates.

Cost: The programs had run efficiently in most of the institutions. The fees collected from students is the major source of income the privately run institutions. However, in the constituents and schools running programme in partnership receive regular government fund.

Cost effective measures such as “*learn, earn and pay*” have been implemented in various agriculture related institutions. But it is still not effective.

“Our students produce seasonal vegetable, flowers and sell them to market to support their education.”

Stakeholder, Bhagawati sec. school, Bagmati Province

However, the program has been less cost-effective in certain institutions (health related) which do not have their own hospitals for practical.

“If we had our own hospital, the program would be more cost effective as we could operate the program with fewer staffs and students could be posted for maximum time as per their demand for practical.”

Manaslu technical college, Province 1

Resources: TVET programs has been producing maximum output with minimal resources (including manpower). Most of the TVET institutions had adequate resources to carry out the program smoothly. The trainers are skilled, capable and motivated. CTEVT has been providing ToT to trainers/educators time and again. However, some institutions of Lumbini province and Province 1 lacked adequate human resources including specialized teachers/trainers and other resources. Hiring and remunerating expert trainers for a short period of time has also been challenging sometimes. Similarly, infrastructures (lab space, equipment etc.) were inadequate in some institutions of Bagmati Province, Province 1 and need upgrading. Local resources were being used in the training process as far as possible, which also contributes for cost-effectiveness.

However, barriers to the new admission for pre diploma has affected the efficiency of institutions due to resource wastages. Likewise, due to minimal fees criteria, it has been difficult for some institutions to sustain and maintain full time trainer/teacher. In the similar manner, certain institutions are facing high turn-over of part time instructors/trainer which hinders the efficiency directly. In this context, a stakeholder from an agriculture related institution of Province 1 stated,

“Mostly we hire instructors on contract basis who leave the job if they find other opportunities. So, we can say that there are no sufficient instructors to run the program.”

Time: TVET courses are designed for a shorter period, but consists of more contents to be covered in a limited time. This has mostly resulted in rush and pressure during the study period. In addition, various political influences and social crisis (natural calamities, pandemics) can further prolong the total study period of the courses.

3.2.4. Effectiveness:

The effectiveness of TVET programs is well evident on both qualitative and quantitative findings.

3.2.4.1. Effectiveness from stakeholder's viewpoint

Technical education and vocational trainings impart technical knowledge, and produces skilled human resources in various sectors like agriculture, engineering, hotel management etc. It has been found effective in generating employment for many young people, and ultimately contributing towards uplifting the economic status of the family and their quality of life. Many people, including rural and poor people have been able to engage in income-generating activities through the skill they acquired through trainings. TEVT programs are directly linked with improvement in creative and practical skills that is required in day to day life and also to obtain the appropriate jobs. In other words, the programs provide relevant skills to fit in labor market. There has been an increment in the skilled manpower in the labor market as new graduates enter the market. Moreover, different other business and industries are advantaged, as TEVT skilled graduates work there and contribute to increased production/output. This ultimately contributes to enhance the financial stability of the society. While describing the effectiveness of TVET programs, a stakeholder of different areas mentioned,

“TEVT programs help to provide an immediate job after completing the vocational trainings. It also motivates the student to become independent at a young age.”

DTS stakeholder, Gandaki Province

“Talking about this area, we can say ‘One house, one technician’. The economic status of the nearby community has uplifted. Most of them are self-employed.”

Universal technical school, Province 1

Many districts have become in-dependent for certain products/items due to increased production. TVET has become a significant basis for self-employment among youths. However, limited opportunity in some courses such as pre-diploma/diploma of hotel management was discouraging for students.

“The pre diploma / diploma graduates of this institution are unable to do intern in foreign hotel industry, which demotivate the students who pursue this course. They choose BHM rather than diploma in hotel management.”

Program coordinator, national employment and training center

Likewise, another demotivating factor that adversely affect the effectiveness of the TVET programs is higher workload paired up with unsatisfactory remuneration in certain professions such as nursing.

Similarly, apart from trainees, other people of the communities are equally benefitted from more number of skilled human resources as they can obtain easy access to better facilities and services like health, agricultural products etc.

On the contrary, demand side stakeholders were quite unsatisfied with the quality of education and training acquired by the graduates as they complained that many graduates lacked basic

skills to actually perform their work including the use of necessary equipment. In this context, a construction side stakeholder stated,

“Some newly passed graduates don’t even have the basic knowledge. They don’t know the cement sand ratio, cannot do layout, and can't read level machine. These are the simple things that we expect them to know.”

Hence, in order to increase the effectiveness of the program, the course and curriculum should be pertinent to the market demand, consider the changes in the environment, and programme should be enhanced to equip the trainees with the necessary skills.

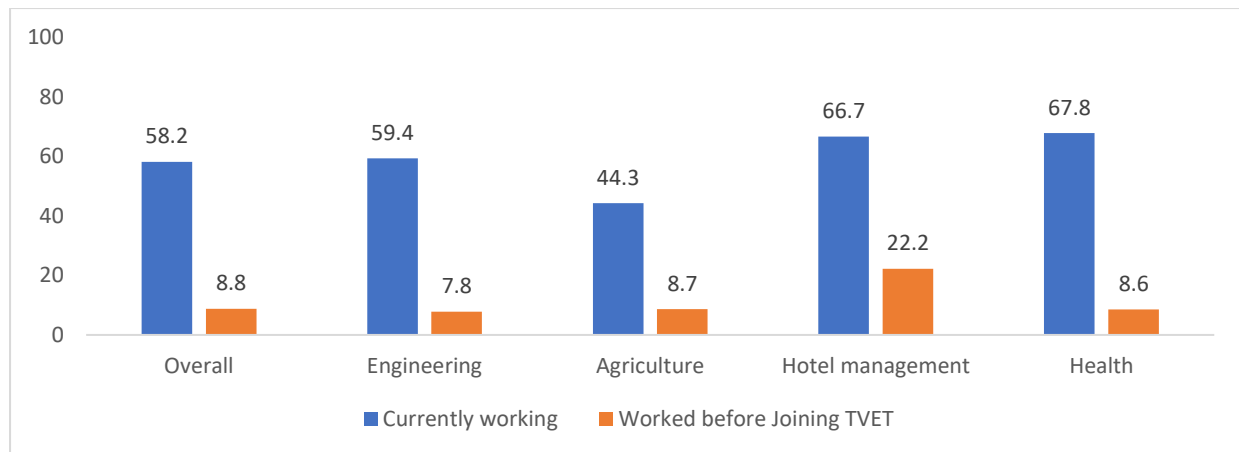
3.2.4.2. Effectiveness from graduates’ findings

Graduates’ experience and exposure related factors such as employment history, changes in income, promotion, job satisfaction etc. can help to determine the effectiveness of the programme.

Employment history/situation

The proportion of employed people has increased notably after obtaining TVET programme. Overall, out of total graduates only 8.8% were working before joining TVET and the remaining 91% did not work while the percentage of graduates who were employed during the time of was 58.2%. Nearly three-fifths (58%) respondents were currently working, which included higher proportion of respondents from health stream (68%) followed by hotel management (67%). On the other hand, only 9% respondents were working before joining diploma and pre-diploma programmes (Annex table 2).

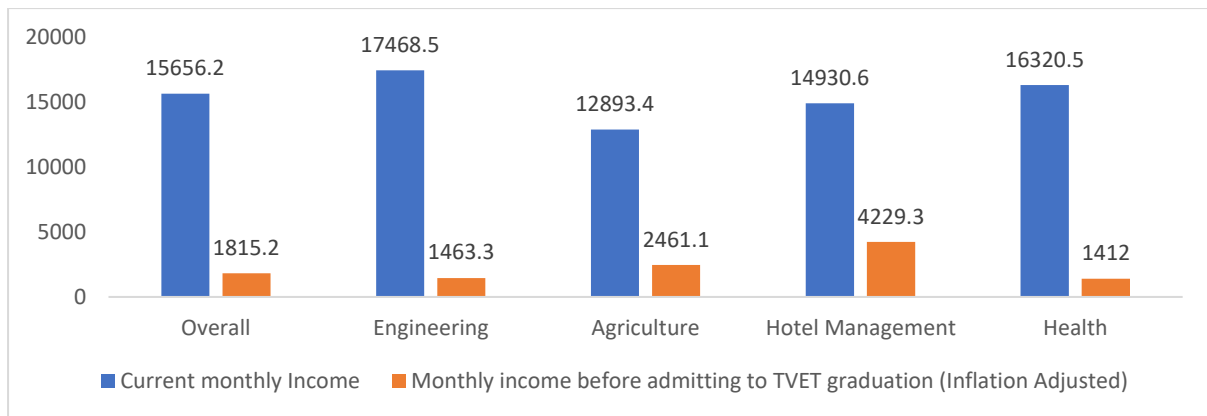
Figure 3 Employment History



Income before and after TVET graduation

Inflation adjusted in the amount of income before joining the training. Inflation 2015/16 to 2020/21 was 24.8% The remarkable difference in average income before and after graduation is evident in the chart.

Figure 4 Income before and after TVET graduation



Overall, there was an average income difference of NRs.13841. The income difference was highest among people who studied engineering (16,005) followed by health (149058).

Table 4 Income before and after TVET graduation

	Overall	Engineering	Agriculture	Hotel Management	Health
Current monthly Income	15656.2	17468.5	12893.4	14930.6	16320.5
Monthly income before admitting to TVET graduation (Inflation Adjusted)	1815.2	1463.3	2461.1	4229.3	1412
Difference in income after TVET Graduations	13841	16005.2	10432.3	10701.3	14908.5

The mean income is significantly higher after the graduation than before ($p < 0.001$).

Table 5 T test one tailed test (current income > before inflated income)

Variable	Obs	Mean	Std. err.
Current income	1,231	15656.18	603.5455
Before income	1,231	1815.249	199.93
Difference	1,231	13840.93	599.0964
mean(diff) = mean (current income, before income)		t = 23.1030	
H0: mean(diff) = 0 Degrees of freedom = 1230			
Ha: mean(diff) != 0		Ha: mean(diff) > 0	
Pr(T > t) = 0.0000		Pr(T > t) = 0.0000	

Mean income (currently and previous) by background Characteristics of Respondents

The variation in mean income and income differences was observed according to socio-demographic characteristics.

Male graduates earned 18742 while female graduates earned 11547 per month after the graduation. Income of male was 1.6 times higher than income of female after graduation. The difference in mean income after TVET graduations was higher among male (163723) than female (10470). Income of male was 2.2 times higher than income of female before starting the TVET. However, income of male was 1.6 times higher than income of female after TVET graduation. Thus, TVET has the capacity not only to increase income but also reduce the inequality between male and female.

Table 6 Mean estimation of income by sex of the graduates

	Mean	Std. err.	Number of obs = 1,231 [95% conf. interval]	
Before graduation				
Male	2369.801	313.4011	1754.941	2984.661
Female	1076.896	203.7053	677.248	1476.545
Times	2.20			
Income of male 2.2 times higher than income of female before graduation				
Current income				
Male	18742.34	887.8182	17000.53	20484.14
Female	11547.14	726.701	10121.43	12972.85
Times	1.64			
Income of male 1.6 times higher than income of female before starting the income				

The income differences can be seen by province. The diagram shows that income has been increased and it has changed regional patterns. Current income is higher among the graduates who were from Lumbini province (21427), followed by Province 1 (20396).

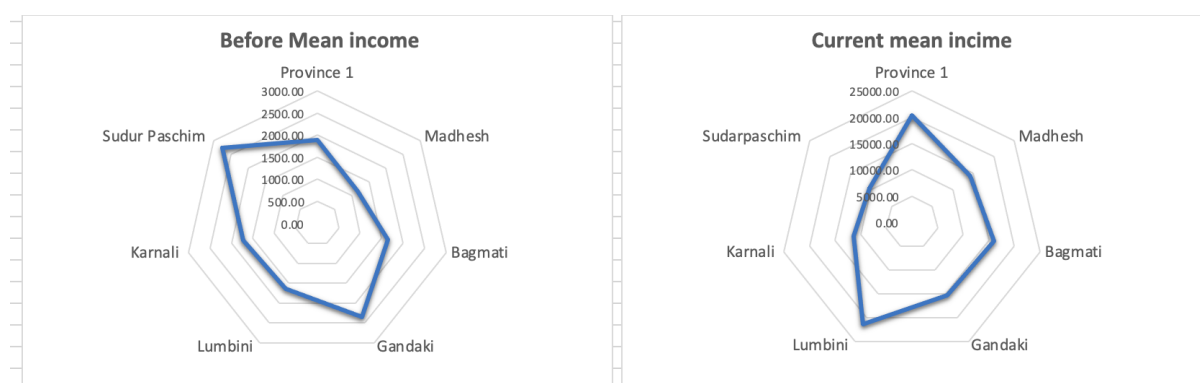


Table 7 Comparing previous and current income by provinces

Before Income	Before Mean income	Std. err.	[95% conf. interval]	
Province 1	1882.92	928.0921	62.10125	3703.739
Madhesh	1170.00	466.813	254.1622	2085.838
Bagmati	1649.94	380.0939	904.2365	2395.645
Gandaki	2354.72	837.0285	712.5553	3996.879
Lumbini	1645.62	355.121	948.9086	2342.329
Karnali	1721.60	521.4558	698.5588	2744.641
Sudur Paschim	2754.26	659.0734	1461.226	4047.29
Current income				
	Current mean income	Std. err.	[95% conf.	interval]
Province 1	20396.85	2823.331	14857.77	25935.93
Madhesh	14155.75	1054.255	12087.41	16224.09
Bagmati	16093.50	1326.259	13491.52	18695.48
Gandaki	15400.94	1467.519	12521.83	18280.06
Lumbini	21427.87	1824.573	17848.26	25007.49
Karnali	11412.88	1119.855	9215.848	13609.92
Sudarpaschim	10369.26	1066.782	8276.35	12462.18

Income has been increased in all caste/ethnicity but no change in patterns.

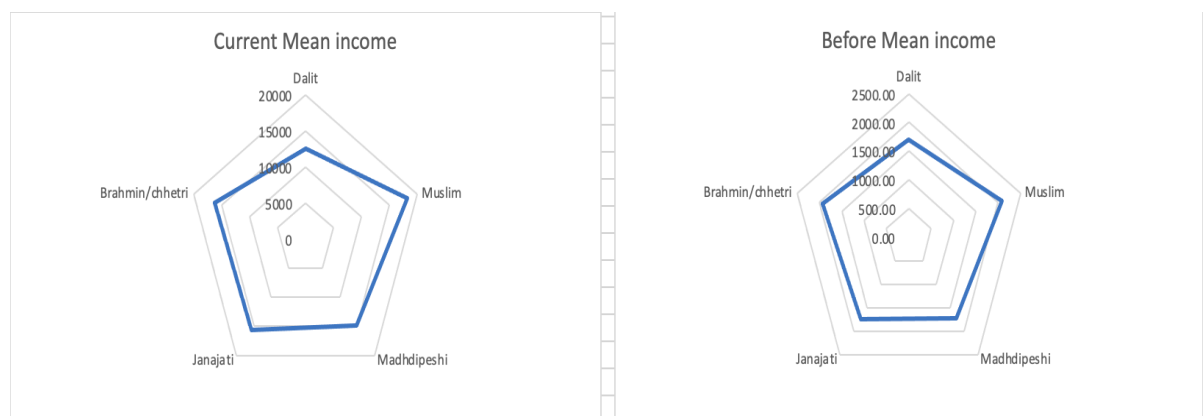
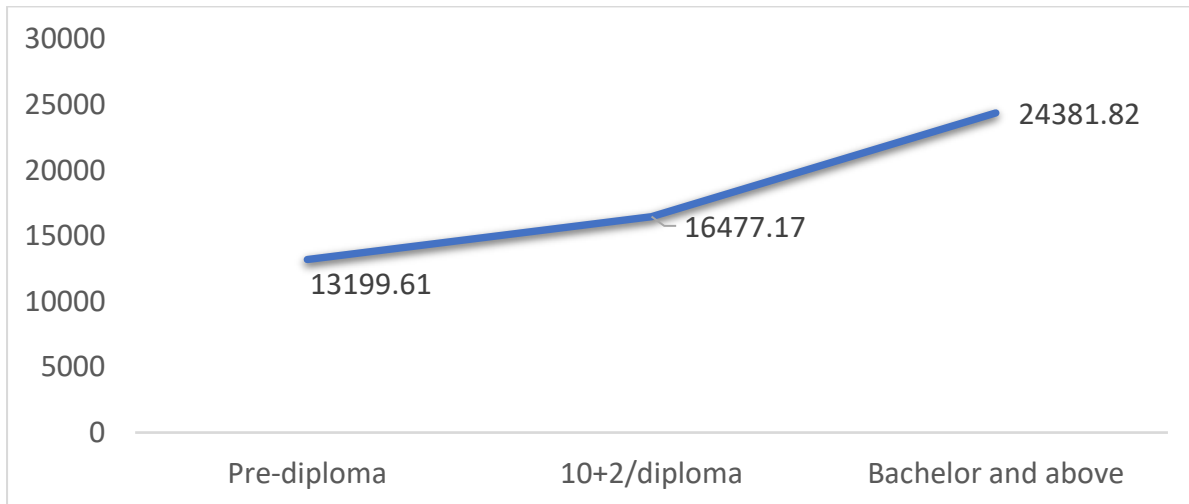


Table 8 Comparing previous and current income by caste

	Previous Mean income	Std. err.	Number of obs = 1,231 [95% conf. interval]	
Dalit	1706.82	852.8822	33.55869	3380.088
Muslim	2080.00	2080	-2000.74	6160.741
Madheshi	1734.51	697.6927	365.709	3103.308
Janajati	1738.63	348.3092	1055.28	2421.972
Brahmin/chhetri	1924.11	262.9866	1408.162	2440.066
	Current Mean income	Std. err.	[95% conf. interval]	
Dalit	12501.47	1680.396	9204.712	15798.23
Muslim	18178.89	5856.246	6689.553	29668.23
Madheshi	14814.69	1651.316	11574.98	18054.4
Janajati	15658.09	972.3187	13750.5	17565.68
Brahmin/chhetri	16309.96	889.1938	14565.46	18054.47

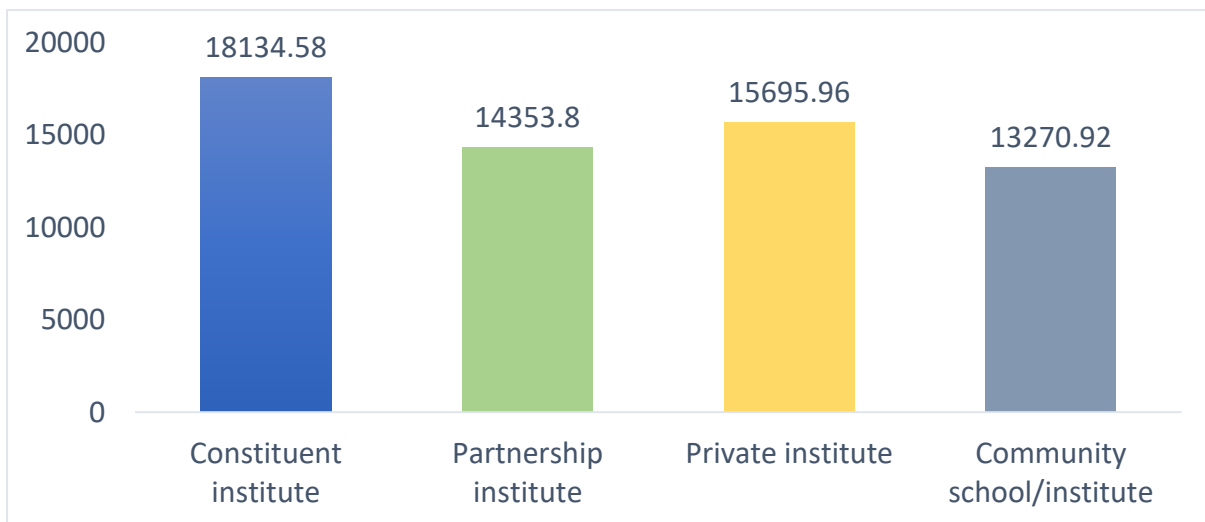
The mean income varied with the education level. Mean monthly income was 13199 among the pre-diploma graduates, 16477 among 10+2/diploma graduates and 24381 among bachelor and above graduates. The current mean income also indicate the quality of education perceived by the market or society.

Figure 5 Current Mean Income by Education



Mean income also varied with type of institutions. Mean income is higher among the graduates who have graduated from constituent institute than other institutes.

Figure 6 Current Mean Income by Institutions



Promotion in Job after Graduation (Among graduates currently in employment)

The study explored whether currently working respondents were promoted after having TVET qualification, and found that overall, 39% respondents were promoted. Analysis on the basis of sector showed that, 50% of respondents from hotel management, 42% respondents from agriculture, 40% respondents from engineering and 37% respondents from health stream were promoted due to TVET training/course.

Table 9 Promotion in job after TVET Graduation (Among graduates currently in employment)

Promotion in job after the graduation	Overall		Study Stream of respondents							
	N	%	Engineering		Agriculture		Hotel Management		Health	
			N	%	N	%	N	%	N	%
Yes	282	39.3	95	40.3	66	41.8	12	50.0	109	36.5
No	435	60.7	141	59.7	92	58.2	12	50.0	190	63.5
Total	717	100.0	236	100.0	158	100.0	24	100.0	299	100.0

Enhanced Skills helped to perform well in the present job

Currently working respondents were asked whether specific skills acquired during their study helped them to perform well in the present job. In this regard, 98% each responded that experimental skills, communication skills (oral and written), ICT and problem-solving skills and work ethics helped them to perform well in the current job. This proportion was somewhat similar among people from different stream (ranging from 96%-99%). Similarly, 97% each stated that knowledge (theoretical and practical) and entrepreneurship skills helped them to perform well in the present job.

Table 10 Usefulness of acquired skills in the present job (Among graduates currently in employment)

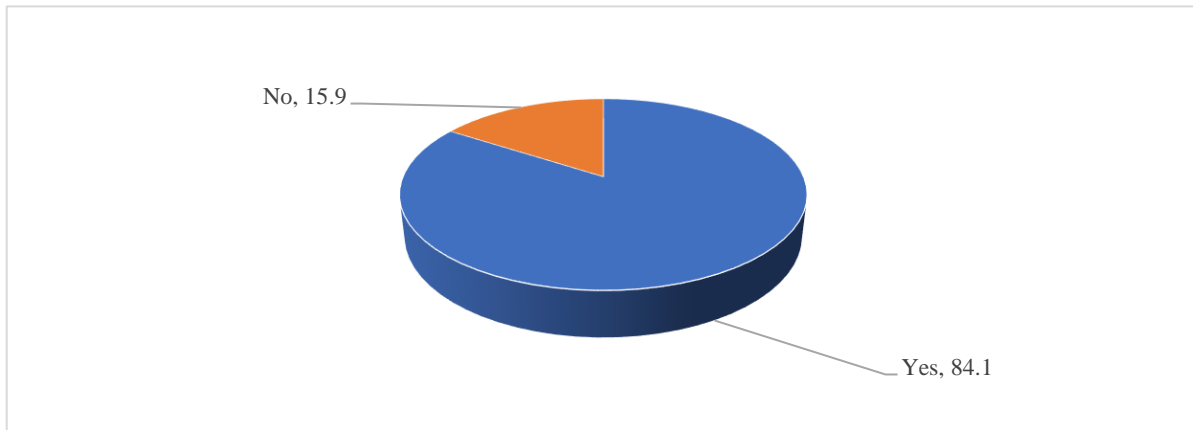
		Overall		Study Stream of Respondents							
		N	%	Engineering		Agriculture		Hotel Management		Health	
				N	%	N	%	N	%	N	%
Skills helped to perform in present job- Experimental skills	Yes	699	97.5	229	97.0	153	96.8	23	95.8	294	98.3
	No	11	1.5	4	1.7	3	1.9			4	1.3
	Don't Know	7	1.0	3	1.3	2	1.3	1	4.2	1	.3
Knowledge (theoretical and practical related to their specialization)	Yes	697	97.2	229	97.0	150	94.9	21	87.5	297	99.3
	No	10	1.4	3	1.3	5	3.2			2	.7
	Don't Know	10	1.4	4	1.7	3	1.9	3	12.5		
Communication Skills (Oral and written)	Yes	705	98.3	231	97.9	155	98.1	23	95.8	296	99.0
	No	4	.6	2	.8	1	.6			1	.3
	Don't Know	8	1.1	3	1.3	2	1.3	1	4.2	2	.7
ICT skills and Problem-solving skills (creativity and initiative)	Yes	703	98.0	228	96.6	156	98.7	23	95.8	296	99.0
	No	3	.4	2	.8					1	.3
	Don't Know	11	1.5	6	2.5	2	1.3	1	4.2	2	.7
Work ethics (teamwork)	Yes	700	97.6	229	97.0	153	96.8	24	100.0	294	98.3
	No	3	.4	1	.4					2	.7
	Don't Know	14	2.0	6	2.5	5	3.2			3	1.0
Entrepreneurship skills (leadership, decision making, time management)	Yes	695	96.9	229	97.0	153	96.8	23	95.8	290	97.0
	No	5	.7					1	4.2	4	1.3
	Don't Know	17	2.4	7	3.0	5	3.2			5	1.7
Total		717	100.0	236	100.0	158	100.0	24	100.0	299	100.0

Job satisfaction (Among graduates currently in employment)

The level of job satisfaction was investigated among the graduates who were currently in employment. Overall, 84% of respondents were satisfied with their present job and the

proportion of those who were satisfied was somewhat similar among respondents of different study streams (health, agriculture, hospitality) (ranging from 83% in health to 88% in hotel management).

Figure 7 Graduates' satisfaction in the current employment



However, only 60% of respondents were satisfied with the job stability (the lowest proportion among hotel management-29%, and the highest among engineering stream -66%). Similarly, 73% and 67% were satisfied with the job security and income and benefits, respectively. The agriculture (72%) and engineering (70%) stream had the highest proportion of satisfaction with income and benefits than other streams. Likewise, 72% of respondents marked they were satisfied with the career prospects (promotion, professional development) of the job. and 86% respondents stated they were satisfied with the possibility of pursuing further studies.

It is encouraging to note that the majority (93%) of respondents were happy with the social recognition and status obtained in the job. The proportion was highest in the health stream (97%) whereas it was comparatively low (79%) in hotel management stream. In a similar manner, nine out of ten or more respondents (96%) believed that their acquired skills is useful, work in a good work setting/environment (91%), and has the chance of doing something useful for society (90%).

Table 11 Job satisfaction (Among graduates currently in employment)

		Overall		Study Stream of respondents							
		N	%	Engineering		Agriculture		Hotel Management		Health	
				N	%	N	%	N	%	N	%
Overall satisfied with the present job	Yes	603	84.1	197	83.5	136	86.1	21	87.5	249	83.3
	No	114	15.9	39	16.5	22	13.9	3	12.5	50	16.7
Job Stability	Yes	428	59.7	156	66.1	91	57.6	7	29.2	174	58.2
	No	248	34.6	64	27.1	54	34.2	16	66.7	114	38.1
	Don't Know	41	5.7	16	6.8	13	8.2	1	4.2	11	3.7
Job Security	Yes	526	73.4	181	76.7	110	69.6	13	54.2	222	74.2
	No	164	22.9	45	19.1	39	24.7	9	37.5	71	23.7
	Don't Know	27	3.8	10	4.2	9	5.7	2	8.3	6	2.0
Income and Benefits	Yes	479	66.8	164	69.5	113	71.5	15	62.5	187	62.5
	No	201	28.0	61	25.8	35	22.2	8	33.3	97	32.4
	Don't Know	37	5.2	11	4.7	10	6.3	1	4.2	15	5.0
Career prospects (e.g. promotion and professional development opportunity)	Yes	518	72.2	177	75.0	113	71.5	20	83.3	208	69.6
	No	149	20.8	46	19.5	25	15.8	3	12.5	75	25.1
	Don't Know	50	7.0	13	5.5	20	12.7	1	4.2	16	5.4
Possibility of pursuing further studies	Yes	617	86.1	198	83.9	136	86.1	20	83.3	263	88.0
	No	82	11.4	32	13.6	15	9.5	2	8.3	33	11.0
	Don't Know	18	2.5	6	2.5	7	4.4	2	8.3	3	1.0
Social recognition and status	Yes	663	92.5	212	89.8	143	90.5	19	79.2	289	96.7
	No	26	3.6	8	3.4	7	4.4	4	16.7	7	2.3
	Don't Know	28	3.9	16	6.8	8	5.1	1	4.2	3	1.0
Possibility of using acquired knowledge and skills	Yes	687	95.8	226	95.8	144	91.1	22	91.7	295	98.7
	No	22	3.1	6	2.5	12	7.6	2	8.3	2	.7
	Don't Know	8	1.1	4	1.7	2	1.3			2	.7
Good work setting/environment	Yes	652	90.9	216	91.5	138	87.3	23	95.8	275	92.0
	No	46	6.4	11	4.7	16	10.1	1	4.2	18	6.0
	Don't Know	19	2.6	9	3.8	4	2.5			6	2.0
Daily tasks	Yes	642	89.5	213	90.3	134	84.8	23	95.8	272	91.0
	No	45	6.3	14	5.9	12	7.6	1	4.2	18	6.0
	Don't Know	30	4.2	9	3.8	12	7.6			9	3.0
Family care and management	Yes	608	84.8	209	88.6	135	85.4	19	79.2	245	81.9
	No	98	13.7	25	10.6	19	12.0	4	16.7	50	16.7
	Don't Know	11	1.5	2	.8	4	2.5	1	4.2	4	1.3
Chance of doing something useful for society	Yes	647	90.2	206	87.3	148	93.7	17	70.8	276	92.3
	No	42	5.9	20	8.5	5	3.2	2	8.3	15	5.0
	Don't Know	28	3.9	10	4.2	5	3.2	5	20.8	8	2.7
Total		717	100.0	236	100.0	158	100.0	24	100.0	299	100.0

Estimation of contribution of TVET to GDP

Contribution of TVET to GDP

Gross Domestic Products (GDP) can be estimated by adding up all of the money spent by consumers, businesses, and the government in a given period, for example one year. On the other hand, it may also be calculated by adding up all of the money received by all the participants in the economy. There are three ways to measure the GDP: value-added approach, income approach and the expenditure approach. We use income approach while estimating the contribution of TVET to GDP. Nominal GDP at basic price data is taken from Economic survey

published by Ministry Finance (MoF, 2022). Income approach is used while estimating the yearly nominal income from TVET. Average monthly income, converted into yearly income and total number of employed graduates are used to estimate total income from TVET.

Altogether 337067 technical manpower has been produce by CTEVT up-to fiscal year 2077/78 (CTEVT Annual Report, 2078). Among them 96227 were diploma level and 240840 were Pre-diploma level graduates. According to survey result, it is estimated that altogether 196173 graduates are currently employed.

Table 12:Required data from survey to estimate the income from TVET

	Total	Engineering	Agriculture	Hotel management	Health
Current employment percent of TVET Graduate	58.2	59.4	44.3	66.7	67.8
Current monthly income after TVET Graduate NRs	15656	17469	12893	14931	16321
Sample (N)	1231	397	357	36	441
Total no of graduates (Pre-diploma & Diploma)	337067				
Total no. of employed (Pre-diploma & Diploma)	196173				
Average yearly income (10 million)	3685.54				
GDP at Basic price (10 million)	366250				
Contribution of TVET to GDP %	1.01				

The result suggests that contribution of TVET to the GDP is almost 1.01%, however, there are many limitations such as indirect contribution, multiplier effects while estimating the income from TVET. It is note that education sector contributes to GDP around 8.1 percent. The contribution of TVET to the GDP is higher than the contribution of administrative and support service activities (almost 0.8 percent) and almost similar to contribution of Professional, scientific and technical activities to GDP (around 1%). The contribution TVET is almost similar to contribution of electricity, gas, steam and air conditioning supply to GDP. It is conformed that contribution of TVET to the GDP is not small.

3.2.5. Sustainability:

Several factors can promote or impede sustainability of TVET programs. There have been lesser linkages between the demand side (business industries) and educational/training institutes, which can hamper the sustainability. Hence, proper linkage and coordination between supply and demand sides can make the program sustainable to a greater extent. Although Nepal's economy is agriculture-dominated, institutions are unable to attract students to agriculture; hence awareness among trainees is much needed, especially for sustainable agricultural programs.

Lesser enrolment of students in different sectors despite of good institutional capacity creates uncertainty on the sustainable operation of these institutions. Moreover, many graduates have the tendency to go abroad as their work is not well-appreciated and paid in the country, which can impede the sustainability if the trend continues. Hence, factors like fair and timely remuneration, adequate infrastructures and sound and dignified working environment can contribute to the sustainability of the programs. Likewise, institutional sustainability is mostly affected by the leadership and managerial skills of the institution head and the determination and work performance of other staff. Appropriate curriculum revision should be done to make the education more relevant and ensure its sustainability. Similarly, regular monitoring and supervision from government authorities and CTEVT can ensure quality and hence sustainability. Grants and subsidies from the government can help offer education and training at a minimal price and be an effective way to guarantee sustainability.

The sustainability of the training can also be assessed by the factors such as graduates' participation/willingness to participate in further training. Although few graduates participated in further training, the majority of them had a desire to attend further trainings which shows that they are willing to continue the work in the field of the trainings they attended.

Graduates' participation/enrollment in further study/training

The study shows that only about a fourth (28%) of respondents participated in further training (university/short courses) after graduation. The graduates who studied agriculture (33%) and engineering (27%) participated in further training/study while health (24%) and hotel management (19%) went for further qualification.

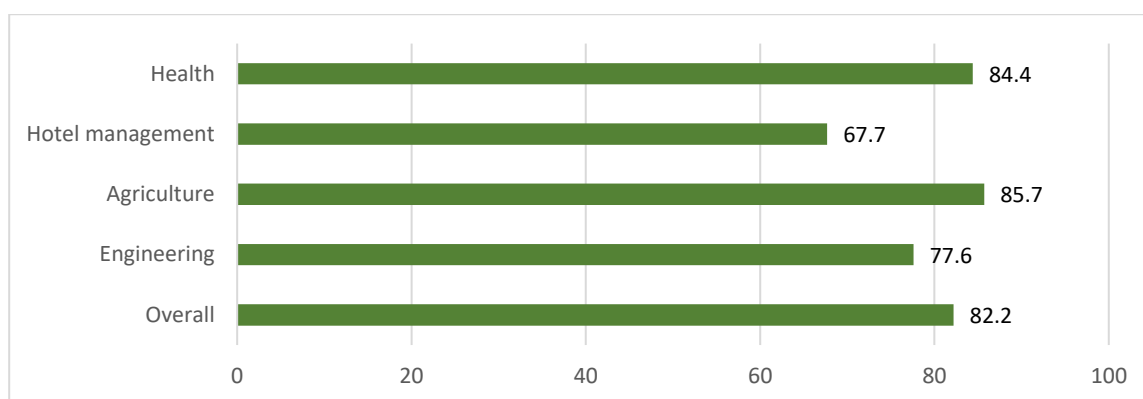
Table 13 Graduates' participation in further training/course (university, short courses, etc.)

Participated in further training (university, short courses, etc.) after graduation	Overall		Study Stream of respondents							
	N	%	Engineering		Agriculture		Hotel Management		Health	
			N	%	N	%	N	%	N	%
Yes	340	27.6	108	27.2	118	33.1	7	19.4	107	24.3
No	891	72.4	289	72.8	239	66.9	29	80.6	334	75.7
Total	1231	100.0	397	100.0	357	100.0	36	100.0	441	100.0

Willingness to attain further training/course

The study also explored the willingness of respondents to attend further training courses in which the majority (82%) of respondents mentioned that they wanted to attend further training courses.

Figure 8 Want to attain further training/courses (Yes%)



The proportion of respondents who mentioned so was higher in agriculture (86%) and health stream (85%) than engineering (78%) and hotel management stream (67%). In a question asked for their interest in the further qualification, 38% of them wanted to join university and 35% mentioned they were looking for short training course.

Table 14 Desire to attend further training/course

		Overall		Study Stream of respondents							
		N	%	Engineering		Agriculture		Hotel Management		Health	
				N	%	N	%	N	%	N	%
Want to attend in further training courses	Yes	1012	82.2	308	77.6	306	85.7	24	66.7	374	84.8
	No	219	17.8	89	22.4	51	14.3	12	33.3	67	15.2
Training course preferred to attend further	Short course training	351	34.7	84	27.3	126	41.2	15	62.5	126	33.7
	Diploma level	258	25.5	90	29.2	88	28.8	3	12.5	77	20.6
	Bachelor level	387	38.2	129	41.9	88	28.8	6	25.0	164	43.9
	Others Specify	16	1.6	5	1.6	4	1.3			7	1.9
Total		1012	100.0	308	100.0	306	100.0	24	100.0	374	100.0

3.2.6. Challenges:

The challenges faced by or predicted by different stakeholders of various institutions are as follows:

- Inadequate and poor infrastructures in some institutions have been challenging, exacerbating the situation by inflation.
- The gap between the institutional capacity and actual enrollment rate (lesser enrollment in many cases) of students.

- Political influences and political instability, and lack of government ownership.
- The education has been based more on theory rather than on practical's.
- Institutes not having their own hospitals face challenges to co-ordinate with other hospitals during the practical session of the trainees.
- There has been difficult to obtain the time and commitment of expert instructors/trainers, which may hamper the quality of education.
- Lack of basic technical knowledge among students and language barrier in some places.
- The system of quarterly payment of remuneration instead of monthly is demotivating teachers.
- Different institutions providing training on the same program in a single district resulted in lesser enrollment in an institution, making it less efficient.
- Job market is highly sensitive to various crises like political changes, natural calamities, pandemics, etc.
- Timely regulation and monitoring by CTEVT to its institutes is lacking.
- Unsatisfactory payment to the graduates on the job, labor market preferences to university graduates over CTEVT graduates.

3.2.7. Lessons learned

- Coordination and the mutual contract between demand-side/employing agencies (industries) and supply institutions can be useful for creating more employment opportunities for graduates.
- More focus on the quality of education, including an emphasis on practical's, is required.
- Proper coordination with the local government can enhance the program through various support, including economic support.
- Imparting education/training can be more effective when modern technologies (projectors, audio-visual aids) are used and provided by skilled human resources.

3.3 Perception and suggestions toward TVET

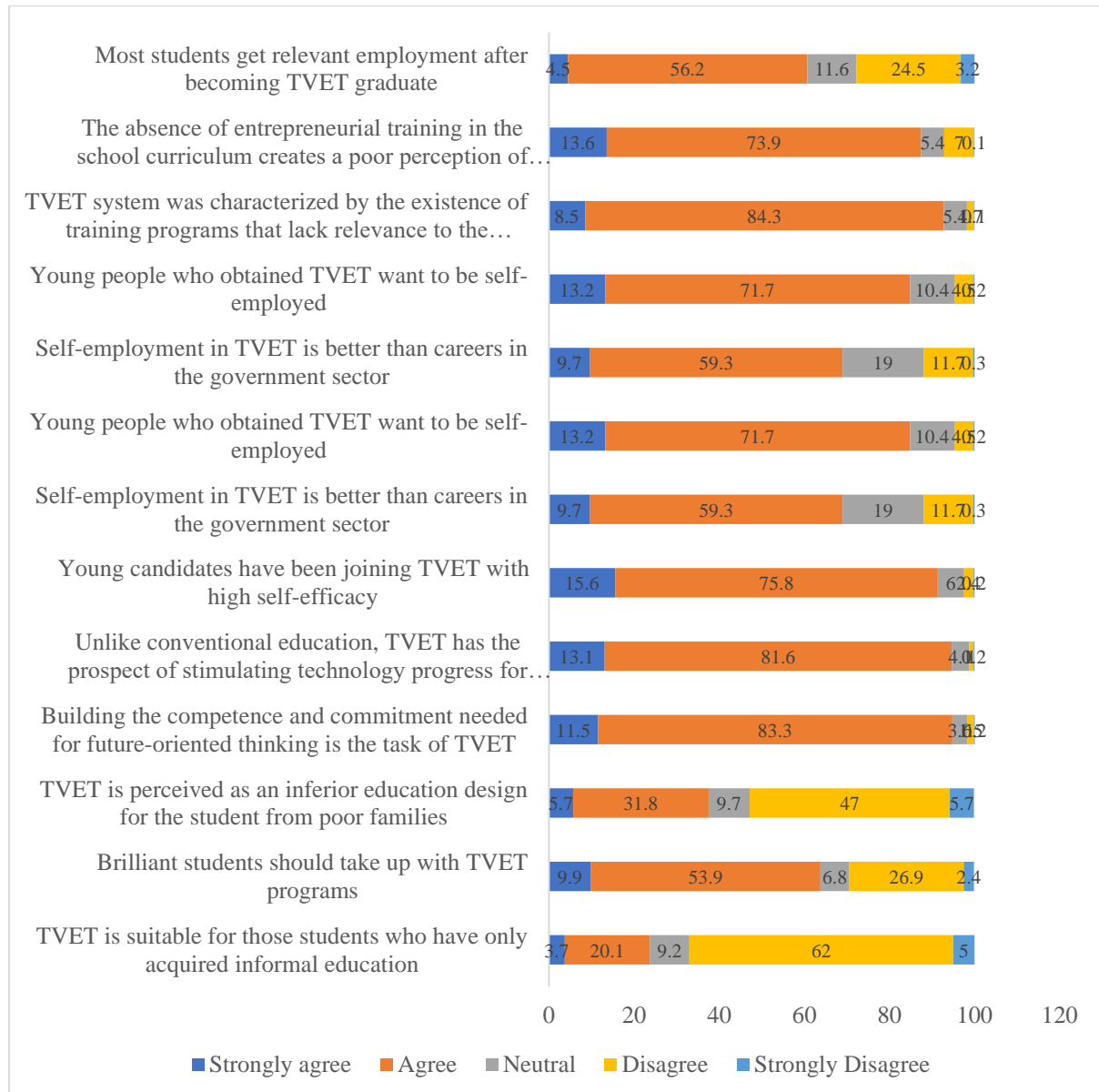
3.3.1 General Perception towards TVET Program

The perceptions of respondents toward the TVET program and their suggestions were also obtained in the study. Overall, only 24% of respondents agreed/strongly agreed that TVET is suitable for those who did not have access to formal education.. Furthermore, nearly two-fifths (38%) of respondents in the study perceived TVET as an inferior education designed for the student from low-income families. In contrast, more than three-fifths (64%) respondents viewed those brilliant students should take up TVET programs. A higher proportion of respondents from the agriculture stream (54%) than other streams either agreed or strongly agreed that people perceive TVET as an inferior education design for students from poor families.

It is encouraging to note that an overwhelming majority of respondents strongly agreed/agreed that, unlike general education, TVET has the prospect of stimulating technology progress for

national development (95%) and young candidates have been joining TVET with high self-efficacy (91%). Likewise, overall, 84% of respondents agreed, and 9% of respondents strongly agreed that the TVET system was characterized by the existence of training programs that possess relevance to the world's work. Likewise, 61% of respondents strongly agreed/agreed that most students get relevant employment after becoming TVET graduates (Annex Table 3).

Figure 9 Perception of the graduates towards TEVT Program



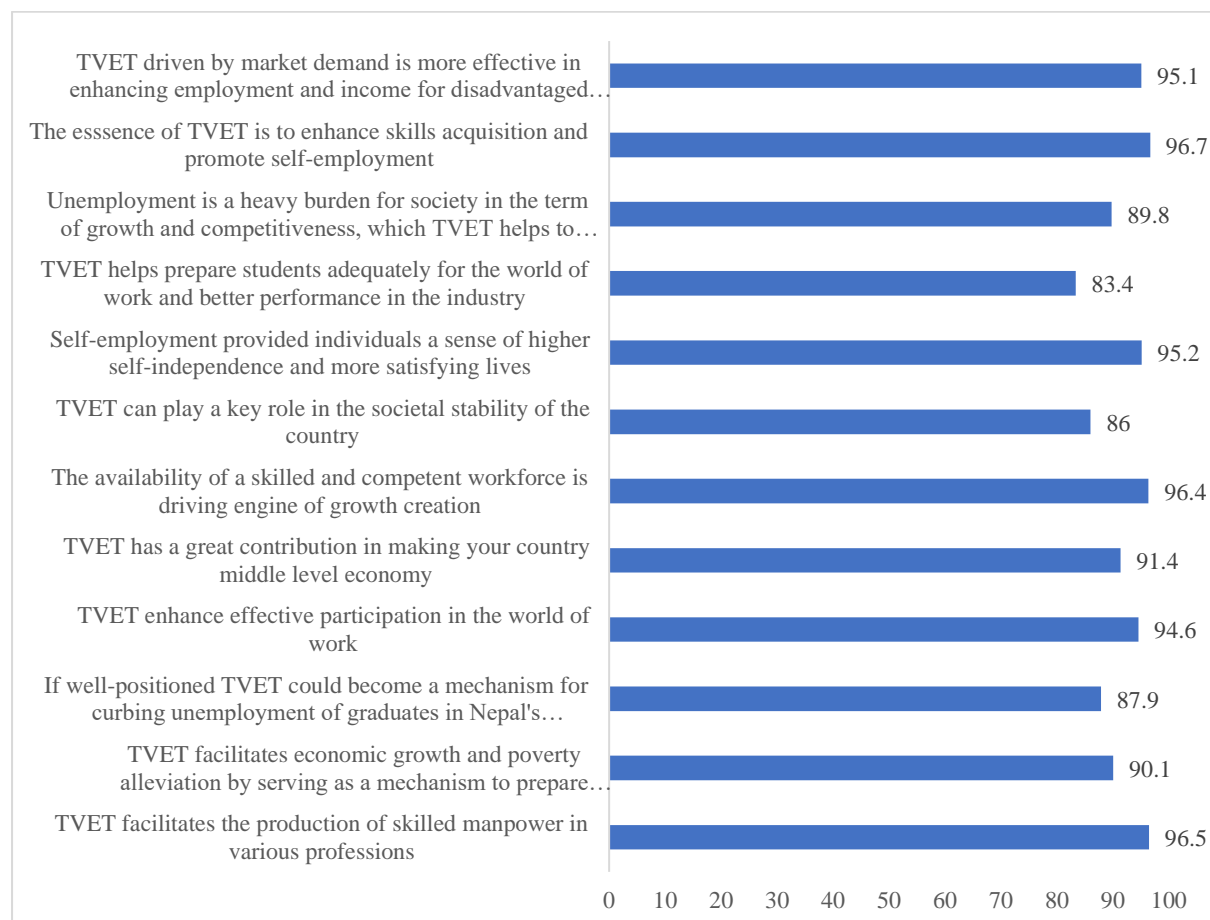
3.3.2 Perception of the contribution of TVET to socio-economic status

The perception of respondents towards the contribution of TVET to socio-economic status was also explored in the study. Overall, an overwhelming majority (97%) of respondents agreed/strongly agreed with the statement that TVET facilitates the production of skilled manpower in various professions, and the proportions were somewhat similar among

respondents from various streams. Similarly, 90% and 88% of respondents respectively agreed/strongly agreed that TVET facilitates economic growth and poverty alleviation and if well-positioned, TVET could become a mechanism for curbing unemployment of graduates. Likewise, it is encouraging to note that more than nine out of ten (91%) respondents agreed/strongly agreed that TVET contributes to making their country a middle-level economy, and the proportions of respondents were alike in different streams.

In a similar manner, 86% and 83% of respondents respectively agreed/strongly agreed that TVET can play a key role in the societal stability of the country and it helps prepare students adequately for the world of work. Likewise, 81% of respondents agreed, and 9% strongly agreed that unemployment is a heavy burden for society and TVET helps to resolve it. Notably, an overwhelming majority (97%) of respondents agreed/strongly agreed with the statement that the essence of TVET is to enhance skills and promote self-employment. Similarly, overall, 95% of respondents strongly agreed/agreed that TVET driven by market demand is more effective in enhancing employment and income for the disadvantaged group (Annex table 4).

Figure 10 Perception of graduates toward the contribution of TVET to socio-economic status (% of Strongly agree/agree)



3.3.3 Perceived suggestion by graduates to improve in the implementation of the TEVT

The study also obtained some suggestions/recommendations from respondents for improvement in the implementation of technical education and vocational training. Overall, the most commonly obtained suggestions were providing theoretical training related to the occupation (70%), providing job after graduation (41%), providing opportunity for practical use of computers (41%), and practical use of working tools (41%). Similarly, some other suggestions were providing better paid work (28%), developing competency-based curriculum to perform high quality work (26%) and enhancing entrepreneurship skills (25%). These proportions are alike among respondents of various study streams.

Table 15 Suggestions to improve in the implementation of the technical education and vocational training

Suggestions	Overall		Study Stream of respondents							
	N	%	Engineering		Agriculture		Hotel Management		Health	
			N	%	N	%	N	%	N	%
Theoretical training related to the occupation	857	69.6	273	68.8	233	65.3	25	69.4	326	73.9
Need to provide Job after graduation	507	41.2	160	40.3	125	35.0	14	38.9	208	47.2
Practical use of computers	500	40.6	203	51.1	136	38.1	4	11.1	157	35.6
Practical use of working tools	499	40.5	165	41.6	140	39.2	17	47.2	177	40.1
Practical use of machines and equipment	376	30.5	144	36.3	98	27.5	8	22.2	126	28.6
Better paid work	346	28.1	129	32.5	65	18.2	10	27.8	142	32.2
Teach ways to do high quality work	315	25.6	91	22.9	92	25.8	10	27.8	122	27.7
Teach ways to start own business	313	25.4	92	23.2	114	31.9	10	27.8	97	22.0
Discipline and quality work	262	21.3	76	19.1	61	17.1	7	19.4	118	26.8
Educate on working in a safe way	208	16.9	68	17.1	53	14.8	5	13.9	82	18.6
Theory and practice of equipment maintenance	157	12.8	47	11.8	65	18.2	3	8.3	42	9.5
Knowledge of national laws	156	12.7	55	13.9	37	10.4	2	5.6	62	14.1
Practical use of materials and parts	151	12.3	65	16.4	46	12.9	1	2.8	39	8.8
Communication and working with other people	147	11.9	38	9.6	47	13.2	7	19.4	55	12.5
Education subjects as formal education	118	9.6	32	8.1	41	11.5	2	5.6	43	9.8
Use of written instructions and working guides	113	9.2	35	8.8	37	10.4	2	5.6	39	8.8
Understanding and producing drawings	107	8.7	81	20.4	11	3.1	1	2.8	14	3.2
Total	1231	100.0	397	100.0	357	100.0	36	100.0	441	100.0

3.3.4. Perception of demand side stakeholders (employers) towards graduates/CTEVT

The interviews were also conducted with different demand-side institutions to understand the current employment situation, future demands, essential skills, and effectiveness of the TVET. Local bodies, district-level government offices, and other district-level professional organizations were interviewed. In regards to the future demands for technical manpower for

the next five to ten years, most of the stakeholders stated that the demand would be increasing in the future. The demands for specific skills such as automobile engineering or electrical engineering is predicted to increase even more. Many stakeholders were satisfied with the skills and capabilities of the manpower currently employed in their organizations.

However, there were some stakeholders who were completely dissatisfied with the TVET graduates. They mentioned that these graduates who are employed in their organizations have hardly any knowledge and skills they require to perform their task correctly. In this context, a stakeholder from Karnali province who is completely dissatisfied with the graduates expressed,

“They don’t even know how to hold the measurement tape, don’t clearly pronounce the name of any equipment in my office.”

-Demand-side stakeholder, Karnali province

Similarly, another stakeholder not only expressed the dissatisfaction but also proposed that CTEVT to co-ordinate to create internship opportunities for students, which could equip the trainees with all the skills they require to perform their job.

“The new graduates do not know anything; some of them even don't know the cement sand ratio, cannot do layout, can't read machine level. It would be better if CTVET or other institution contract with us for internship, and then the student will get more opportunity to learn”.

- Construction sector stakeholder

Likewise, the stakeholders also expressed the view that the demand for the skills related to green technology is increasing. The technologies like recycling, production of the handicraft using locally available raw materials, replacing the use of plastic bags with the jute bags (produced using locally available materials, etc.) are some of the future directions which could generate sustainable employment. In this way, some demand side stakeholders appreciated while others criticized the quality of education of TEVT based on their own experiences and perception.

CHAPTER 4 CONCLUSION AND RECOMMENDATIONS:

4.1. Conclusion:

The impact assessment of TEVT programs is a nationally representative study as it was carried out in 21 districts, covering all the provinces. The study revealed that overall TVET has a positive impact on the economy of the society, through increased opportunities for employment among youths. TEVT programs has made technical education and training opportunities accessible for large number of people. The programs were designed on the basis of community needs and market demand. It has addressed the needs, issues and priorities of trainees. It has been more relevant in rural areas where people cannot afford expensive education and are in need of employment opportunities at a very young age to support their households for livelihood. Nearly four-fifths graduates stated that their present/last job was related to their area of specialization and more than three-fourths among them also mentioned that it was very highly/highly applicable, which further elaborates its relevancy. However, curriculum revision is required in many areas to make it more relevant to the contemporary society. It has been producing maximum output with minimal cost. Cost effective measures such as “*learn, earn and pay*” have been implemented in various agriculture related institutions. But this programme is not still effective. TVET has been found effective in generating employment for many young people, and ultimately contributing towards uplifting the economic status of the family and their quality of life. The proportion of employed people has increased remarkably after obtaining TVET training, and nearly two-fifths were promoted as a result of the training. However, there have been lesser linkages between BIA and educational/training institutes, which limit the opportunities for graduates. Likewise, some demand side stakeholders also showed huge dissatisfaction towards the graduates and recommended more practical approaches like internship. But the good aspect is that majority of the graduates were willing to attend further trainings and many had positive perception towards TVET. However, it is encouraging to note that an overwhelming majority respondent strongly agreed/agreed that unlike conventional education, TVET has the prospect of stimulating technology progress for national development. Hence, TVET has significant positive impact in the life of young people and ultimately to the society. However, there are many areas of improvement to make the programs more effective and relevant.

4.2. Recommendations:

Following recommendations are drawn based on the survey and interviews with stakeholders' suggestions:

- Qualitative findings revealed that curriculum has not been entirely relevant to the present context. Some of the chapter in some courses (like agriculture) were also found irrelevant to Nepali context. ***Hence, the existing curriculum should be revised (incorporating suggestions from BIAs) to make it more relevant, up to date and effective to address the changing demands of contemporary situation.***
- The quantitative findings from graduates' survey showed that still a sixth graduates were overall unsatisfied with their current job, and just three-fifths were satisfied with the job stability. Similarly, more than two-fifths graduates provided the suggestion to make provision of job after graduation. ***Thus, coordination and mutual contract between BIA (Business, industries and its associations) and supply institutions should be done for creating more satisfying employment opportunities for graduates. Creating internship opportunities in diploma in civil engineering and strengthening the existing opportunity in other programmes, and post training support for students can also be helpful, which is also suggested by stakeholders.***
- Qualitative findings revealed that some of the institutions of different provinces did not have adequate resources including infrastructures in their institutions. Similarly, hiring expert trainers was also challenging due to inadequate fund that has been hindering the quality. ***Therefore, resource pooling should be done through proper coordination with local government or other effective mechanisms.***
- Some stakeholders were quite dissatisfied with the quality of education and skills of TVET graduates. ***So, monitoring visits should be carried out by CTEVT to ensure the quality of the provided programmes, including strict control over the institutions' approval through guarantee that they are well-equipped.***
- Quantitative findings shows that only above a fourth respondents participated in further training (university/short courses) since graduation. A lower proportion of respondents who studied health and hotel management than other sectors participated in further trainings. ***Hence, graduates (with special focus on these sectors) should be encouraged and provided with more opportunities to participate in further trainings/education, that may be done through the linkages with universities and other related institutions.***
- Qualitative findings showed that TVET graduates need to study higher-level theoretical courses in science, English, and Math similar to other formal courses rather than the practical course which made it difficult for the student to pass out and also lower the enrollment for the newcomers. ***Thus, need assessment of the demand side should be done and required programs should be more focused on the practical course rather than the theoretical subjects. For those students who want bridge-course for further education, separate curriculum can be developed. Likewise, some of the programs that do not have current market demand should be phased out while other new programs (such as hydropower engineering) should be added up.***

- The overall quality of training program needs upgrading as shown by qualitative and quantitative findings. ***Hence, investment on researches should be increased and new technologies should be given more emphasis.***
- Hiring and sustaining teachers/ trainers has been challenging for many institutions as shown by qualitative information. ***Therefore, Fair and timely payment (monthly instead of quarterly) should be made to motivate the instructors to ensure the quality of education.***

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Annex

Tables

Table 1: Relevance of the training

	Overall		Study Stream of respondents							
	N	%	Engineering		Agriculture		Hotel Management		Health	
			N	%	N	%	N	%	N	%
Present work/if currently unemployed Last job/ since graduation, related to area of specialization										
Yes	968	78.6	314	79.1	260	72.8	31	86.1	363	82.3
No	263	21.4	83	20.9	97	27.2	5	13.9	78	17.7
Total	1231	100.0	397	100.0	357	100.0	36	100.0	441	100.0
If related to specialization, degree of applicability										
Very highly applicable	318	32.9	99	31.5	66	25.4	18	58.1	135	37.2
Highly applicable	428	44.2	135	43.0	139	53.5	5	16.1	149	41.0
Average	211	21.8	71	22.6	54	20.8	8	25.8	78	21.5
Less Applicable	8	.8	7	2.2					1	.3
Very less applicable	3	.3	2	.6	1	.4				
Total	968	100.0	314	100.0	260	100.0	31	100.0	363	100.0
If not, give reason										
No job opportunity to my specification	48	18.3	15	18.1	20	20.6			13	16.7
Studies and job is not related to each other	21	8.0	8	9.6	6	6.2	1	20.0	6	7.7
Work in different sector than studies	39	14.8	12	14.5	17	17.5	4	80.0	6	7.7
Don't know	155	58.9	48	57.8	54	55.7			53	67.9
Total	263	100.0	83	100.0	97	100.0	5	100.0	78	100.0

Table 2: Employment History/Situation

	Overall		Study Stream of respondents							
	N	%	Engineering		Agriculture		Hotel Management		Health	
			N	%	N	%	N	%	N	%
Currently working										
Yes	717	58.2	236	59.4	158	44.3	24	66.7	299	67.8
No	514	41.8	161	40.6	199	55.7	12	33.3	142	32.2
Work before admitting on TVET training										
Yes	108	8.8	31	7.8	31	8.7	8	22.2	38	8.6
No	1123	91.2	366	92.2	326	91.3	28	77.8	403	91.4
Total	1231	100.0	397	100.0	357	100.0	36	100.0	441	100.0

Annex table 3: General Perception towards TEVT Program

		Overall		Study Stream of respondents							
		N	%	Engineering		Agriculture		Hotel Management		Health	
				N	%	N	%	N	%	N	%
TVET is suitable for those students who have only acquired informal education	Strongly agree	46	3.7	10	2.5	12	3.4	2	5.6	22	5.0
	Agree	247	20.1	55	13.9	90	25.2	11	30.6	91	20.6
	Neutral	113	9.2	37	9.3	37	10.4	6	16.7	33	7.5
	Disagree	763	62.0	266	67.0	205	57.4	17	47.2	275	62.4
	Strongly Disagree	62	5.0	29	7.3	13	3.6			20	4.5
Brilliant students should take up with TVET programs	Strongly agree	122	9.9	45	11.3	25	7.0			52	11.8
	Agree	664	53.9	226	56.9	191	53.5	21	58.3	226	51.2
	Neutral	84	6.8	23	5.8	30	8.4	4	11.1	27	6.1
	Disagree	331	26.9	92	23.2	104	29.1	10	27.8	125	28.3
	Strongly Disagree	30	2.4	11	2.8	7	2.0	1	2.8	11	2.5
TVET is perceived as an inferior education design for the student from poor families	Strongly agree	70	5.7	15	3.8	29	8.1	5	13.9	21	4.8
	Agree	392	31.8	87	21.9	165	46.2	13	36.1	127	28.8
	Neutral	120	9.7	47	11.8	24	6.7	3	8.3	46	10.4
	Disagree	579	47.0	224	56.4	119	33.3	14	38.9	222	50.3
	Strongly Disagree	70	5.7	24	6.0	20	5.6	1	2.8	25	5.7
Building the competence and commitment needed for future-oriented thinking is the task of TVET	Strongly agree	141	11.5	44	11.1	45	12.6	3	8.3	49	11.1
	Agree	1025	83.3	336	84.6	285	79.8	32	88.9	372	84.4
	Neutral	44	3.6	12	3.0	21	5.9			11	2.5
	Disagree	19	1.5	4	1.0	6	1.7	1	2.8	8	1.8
	Strongly Disagree	2	.2	1	.3					1	.2
Unlike conventional education, TVET has the prospect of stimulating technology progress for national development	Strongly agree	161	13.1	59	14.9	46	12.9	3	8.3	53	12.0
	Agree	1005	81.6	324	81.6	287	80.4	32	88.9	362	82.1
	Neutral	51	4.1	9	2.3	19	5.3			23	5.2
	Disagree	12	1.0	4	1.0	5	1.4	1	2.8	2	.5
	Strongly Disagree	2	.2	1	.3					1	.2
Young candidates have been joining TVET with high self-efficacy	Strongly agree	192	15.6	55	13.9	60	16.8	6	16.7	71	16.1
	Agree	933	75.8	306	77.1	268	75.1	26	72.2	333	75.5
	Neutral	74	6.0	26	6.5	19	5.3	3	8.3	26	5.9
	Disagree	30	2.4	8	2.0	10	2.8	1	2.8	11	2.5
	Strongly Disagree	2	.2	2	.5						
Self-employment in TVET is better than careers in the government sector	Strongly agree	119	9.7	36	9.1	42	11.8	2	5.6	39	8.8
	Agree	730	59.3	227	57.2	230	64.4	19	52.8	254	57.6
	Neutral	234	19.0	83	20.9	58	16.2	10	27.8	83	18.8

	Disagree	144	11.7	48	12.1	27	7.6	5	13.9	64	14.5
	Strongly Disagree	4	.3	3	.8					1	.2
Young people who obtained TVET want to be self-employed	Strongly agree	162	13.2	39	9.8	52	14.6	11	30.6	60	13.6
	Agree	883	71.7	296	74.6	246	68.9	15	41.7	326	73.9
	Neutral	128	10.4	47	11.8	39	10.9	10	27.8	32	7.3
	Disagree	56	4.5	13	3.3	20	5.6			23	5.2
	Strongly Disagree	2	.2	2	.5						
TVET system was characterized by the existence of training programs that is relevance to the world's work	Strongly agree	105	8.5	28	7.1	43	12.0	2	5.6	32	7.3
	Agree	1038	84.3	340	85.6	291	81.5	30	83.3	377	85.5
	Neutral	66	5.4	22	5.5	20	5.6	3	8.3	21	4.8
	Disagree	21	1.7	7	1.8	3	.8	1	2.8	10	2.3
	Strongly Disagree	1	.1							1	.2
The absence of entrepreneurial training in the school curriculum creates a poor perception of TVET	Strongly agree	167	13.6	47	11.8	55	15.4	5	13.9	60	13.6
	Agree	910	73.9	290	73.0	266	74.5	27	75.0	327	74.1
	Neutral	67	5.4	25	6.3	23	6.4	1	2.8	18	4.1
	Disagree	86	7.0	35	8.8	12	3.4	3	8.3	36	8.2
	Strongly Disagree	1	.1			1	.3				
Most students get relevant employment after becoming TVET graduate	Strongly agree	55	4.5	15	3.8	17	4.8	1	2.8	22	5.0
	Agree	692	56.2	238	59.9	205	57.4	19	52.8	230	52.2
	Neutral	143	11.6	48	12.1	41	11.5	7	19.4	47	10.7
	Disagree	302	24.5	86	21.7	85	23.8	8	22.2	123	27.9
	Strongly Disagree	39	3.2	10	2.5	9	2.5	1	2.8	19	4.3
Total		1231	100.0	397	100.0	357	100.0	36	100.0	441	100.0

Table 4: Perception of the contribution of TVET to socio-economic status

		Overall		Study Stream of respondents							
		N	%	Engineering		Agriculture		Hotel Management		Health	
				N	%	N	%	N	%	N	%
TVET facilitates the production of skilled workforce in various professions	Strongly agree	156	12.7	39	9.8	52	14.6	3	8.3	62	14.1
	Agree	1032	83.8	342	86.1	293	82.1	32	88.9	365	82.8
	Neutral	28	2.3	11	2.8	9	2.5	1	2.8	7	1.6
	Disagree	14	1.1	5	1.3	3	.8			6	1.4
	Strongly Disagree	1	.1							1	.2
TVET facilitates economic growth and poverty alleviation by serving as a mechanism to prepare people for occupations	Strongly agree	125	10.2	34	8.6	33	9.2	3	8.3	55	12.5
	Agree	984	79.9	332	83.6	288	80.7	31	86.1	333	75.5
	Neutral	79	6.4	21	5.3	26	7.3	1	2.8	31	7.0
	Disagree	41	3.3	10	2.5	10	2.8	1	2.8	20	4.5
	Strongly Disagree	2	.2							2	.5
If well-positioned TVET could become a mechanism for curbing unemployment of graduates in Nepal's competitive industry	Strongly agree	131	10.6	38	9.6	39	10.9	3	8.3	51	11.6
	Agree	952	77.3	323	81.4	270	75.6	30	83.3	329	74.6
	Neutral	90	7.3	22	5.5	30	8.4	2	5.6	36	8.2
	Disagree	57	4.6	14	3.5	18	5.0	1	2.8	24	5.4
	Strongly Disagree	1	.1							1	.2
TVET enhances effective participation in the world of work	Strongly agree	89	7.2	32	8.1	30	8.4	1	2.8	26	5.9
	Agree	1076	87.4	346	87.2	308	86.3	31	86.1	391	88.7
	Neutral	48	3.9	13	3.3	13	3.6	4	11.1	18	4.1
	Disagree	16	1.3	6	1.5	6	1.7			4	.9
	Strongly Disagree	2	.2							2	.5
TVET has a great contribution to making your country a middle-level economy	Strongly agree	121	9.8	42	10.6	34	9.5	2	5.6	43	9.8
	Agree	1005	81.6	324	81.6	296	82.9	33	91.7	352	79.8
	Neutral	76	6.2	24	6.0	21	5.9			31	7.0
	Disagree	26	2.1	6	1.5	5	1.4	1	2.8	14	3.2
	Strongly Disagree	3	.2	1	.3	1	.3			1	.2
The availability of a skilled and competent workforce is driving the engine of growth creation	Strongly agree	144	11.7	40	10.1	48	13.4	5	13.9	51	11.6
	Agree	1043	84.7	346	87.2	290	81.2	31	86.1	376	85.3
	Neutral	32	2.6	6	1.5	17	4.8			9	2.0
	Disagree	11	.9	4	1.0	2	.6			5	1.1
	Strongly Disagree	1	.1	1	.3						

TVET can play a key role in the societal stability of the country	Strongly agree	65	5.3	19	4.8	18	5.0	1	2.8	27	6.1
	Agree	993	80.7	327	82.4	298	83.5	28	77.8	340	77.1
	Neutral	141	11.5	42	10.6	35	9.8	6	16.7	58	13.2
	Disagree	29	2.4	8	2.0	6	1.7	1	2.8	14	3.2
	Strongly Disagree	3	.2	1	.3					2	.5
Self-employment provided individuals with a sense of higher self-independence and more satisfying lives	Strongly agree	252	20.5	66	16.6	72	20.2	10	27.8	104	23.6
	Agree	920	74.7	313	78.8	258	72.3	23	63.9	326	73.9
	Neutral	48	3.9	14	3.5	22	6.2	3	8.3	9	2.0
	Disagree	10	.8	3	.8	5	1.4			2	.5
	Strongly Disagree	1	.1	1	.3						
TVET helps prepare students adequately for the world of work and better performance in the industry	Strongly agree	104	8.4	34	8.6	29	8.1	2	5.6	39	8.8
	Agree	923	75.0	286	72.0	278	77.9	26	72.2	333	75.5
	Neutral	142	11.5	57	14.4	37	10.4	6	16.7	42	9.5
	Disagree	57	4.6	19	4.8	11	3.1	2	5.6	25	5.7
	Strongly Disagree	5	.4	1	.3	2	.6			2	.5
Unemployment is a heavy burden for society in terms of growth and competitiveness, which TVET helps resolve.	Strongly agree	113	9.2	33	8.3	38	10.6	2	5.6	40	9.1
	Agree	992	80.6	330	83.1	289	81.0	32	88.9	341	77.3
	Neutral	81	6.6	20	5.0	20	5.6	1	2.8	40	9.1
	Disagree	41	3.3	13	3.3	9	2.5	1	2.8	18	4.1
	Strongly Disagree	4	.3	1	.3	1	.3			2	.5
The essence of TVET is to enhance skills acquisition and promote self-employment	Strongly agree	121	9.8	32	8.1	43	12.0	3	8.3	43	9.8
	Agree	1070	86.9	351	88.4	301	84.3	33	91.7	385	87.3
	Neutral	26	2.1	8	2.0	8	2.2			10	2.3
	Disagree	13	1.1	6	1.5	5	1.4			2	.5
	Strongly Disagree	1	.1							1	.2
TVET driven by market demand, is more effective in enhancing employment and income for disadvantaged group	Strongly agree	141	11.5	44	11.1	56	15.7	1	2.8	40	9.1
	Agree	1029	83.6	326	82.1	285	79.8	33	91.7	385	87.3
	Neutral	38	3.1	18	4.5	11	3.1	1	2.8	8	1.8
	Disagree	21	1.7	8	2.0	5	1.4	1	2.8	7	1.6
	Strongly Disagree	2	.2	1	.3					1	.2
Total		1231	100.0	397	100.0	357	100.0	36	100.0	441	100.0

Structured questionnaire for graduates

SECTION 1: BACKGROUND CHARACTERISTICS

S.N	Questions	Responses	Code	Skip
101	Name of Respondent		
102	Name of District		
103	Name of Municipality/Rural municipality		
104	Sex of Respondents	Male..... Female..... Others.....	1 2 3	
105	Caste/Ethnicity	Dalit..... Muslim..... Madheshi..... Janajati..... Brahmin/ Chhetri..... Other specify	1 2 3 4 5	
106	What is your age?		
107	What is your marital status?	Never married/Unmarried..... Currently married..... Separated/divorced..... Widow/Widower.....	1 2 3 4	
108	What is your level of education?	Prediploma..... 10+2/diploma..... Bachelor and above.....	1 2 3 4	
109	Where did you receive the training? (name of institute)?	Name of institute..... Address.....		
110	Which level of training did you receive?	Pre-diploma level..... Diploma level..... Short duration training..... Others.....	1 2 3	
111	What field of study did you receive the training in?	Construction/Engineering -Diploma in Civil Engineering - Diploma in Civil Engineering with Specialization In Bridge Engineering -Diploma in Mechanical Engineering - Diploma in Electronics Engineering - Diploma in Electrical Engineering - Diploma in Information Technology - Diploma in Geometrics Engineering - Diploma in Computer Engineering - Diploma in Biomedical Engineering - Diploma in Automobile Engineering - Diploma in Architecture Engineering - Diploma in Biomedical Equipment Engineering - Diploma in Electrical & Electronics Engineering - Diploma in Refrigeration & Air Conditioning - Diploma in Hydropower Engineering	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	

	- Diploma in Mechatronics Engineering	16	
	Agriculture		
	- Diploma in Agriculture (Plant Science)	21	
	- Diploma in Agriculture (Animal Science)	22	
	- Diploma in Food And Dairy Technology	23	
	- Diploma in Medicinal And Aromatic Plants	24	
	- Technician Level Course in Plant Science (JT)	25	
	- Technician Level Course in Livestock (JT)	26	
	- Conversion Program (Agriculture+Livestock)	27	
	- TSLC in Livestock Production	28	
	/Animal Health	29	
	- TSLC in Veterinary Science	30	
	- TSLC in Agriculture (Plant Science)	41	
	- Textile and Sericulture (JTA)	51	
	Tourism	52	
		53	
	Health/Nursing	54	
	- PCL/Diploma in Health Science First Year (All Program Except Nursing)	55	
	- PCL in General Medicine	56	
	- Diploma in Pharmacy	57	
	- PCL in Medical Lab Technology	58	
	- PCL in Diagnostic Radiography	59	
	- PCL in Ophthalmic Science		
	- PCL in Amchi Science (Durra-pa/Bum-Zhi Tradition)	60	
	- PCL in Health Science (Ayurveda)	61	
	- PCL in Dental Science (Dental Hygiene)	62	
	- PCL in Acupuncture, Acupressure & Moxibustion	63	
	- PCL in Medical Science (Physiotherapy)	64	
	- PCL in Homeopathy	65	
	- PCL in Nursing	66	
	-Conversion Course for Dental Hygienist to Dental Science	67	
	-Diploma in Dental Laboratory Technology	68	
	- Diploma in Yoga and Naturopathy	69	
	- Diploma in Ayurveda Pharmacy	70	
	- PCL in Midwifery	71	
	- TSLC in Ayurveda	72	
	-TSLC in Auxiliary Nursing Midwifery (ANM)	81	
	- TSLC in Community Medicine Assistant (CMA)		
	- TSLC in Medical Lab Technology		
	- Community Amchi Assistant (Kangjan-pa)		
	-Others specify.....		

112	Which was your batch of the TVET training that you received? Batch Year		
113	When did you graduate?Year of graduation Or, years ago		

SECTION 2: EMPLOYMENT HISTORY/SITUATION

S.N	Questions	Responses	Code	Skip
201	Are you currently working?	Yes..... No.....	1 2	q203
202	What is your current occupation?	Agriculture worker..... Work- related to tourism..... Work-related to construction..... Health related Other specify.....	1 2 3	
203	What is your current income?	NRs.....		
204	Did you work before the TVET training?	Yes..... No.....	1 2	q206
205	What did you work on before the TVET Training?	Agriculture worker..... Work- related to tourism..... Work-related to construction..... Health related Other specify.....	1 2 3 4	
206	What was your income before training to TVET?	NRs.....		
207	Did you go for work outside of country?	Yes..... No.....	1 2	q301
208	What did you work on before the TVET Training?	Was studying..... Was doing a job..... Was unemployed..... Used to do household work..... Others specify.....	1 2 3 4	

SECTION 3. RELEVANCE OF TRAINING

S.N	Questions	Responses	Code	Skip
301	Is your present work, or, in case you are unemployed, the last job you held since graduation, related to your area of specialization?	Yes..... No.....	1 2	q303
302	If yes, to what degree of application?	Very highly applicable Highly applicable Average Low applicable Very low applicable	1 2 3 4 5	q304
303	if not, Why?	No job opportunity related to my specialization Offer better salary and benefits Health-Related Reason The proximity of the workplace to residence Others, please specify_____	1 2 3 4	
304	Which of the following skills helped you perform in your present job? (multiple responses possible)	Knowledge (theoretical and practical related to my specialization) Communication skills (oral and written) ICT skills Problem-solving skills (creativity and initiative) Work ethics (teamwork) Entrepreneurship skills (leadership, decision making, time management).... Other specify.....	1 2 3 4 5	
305	Did you participate in further training (university, short courses, etc) since you graduated?	Yes..... No.....	1 2	
306	Would you like to attend further training courses?	Yes..... No.....	1 2	Sec 4
307	What training course do you like to attend further?	Short course training..... Diploma level..... Bachelor level..... Others specify.....	1 2 3	

SECTION 4 JOB SATISFACTION

401 Are you satisfied with your present job?

Yes.....1

No.....2

402 How satisfied are you with the following aspects?	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
Job security					
Income and benefits					
Career prospects (e.g. promotion and professional development opportunity)					
Possibility of pursuing further studies					
Social recognition and status					
Possibility of using acquired knowledge and skills					
Good work setting					
Tasks					
Management					
Chance of doing something useful for society					

SECTION 5: PERCEPTION ON TVET PROGRAM

General perceptions toward TVET

QN		SA	A	N	D	SD
1	TVET is suitable for those students who have only acquired informal education.					
2	Brilliant students should take up with TVET programs					
3	TVET is perceived as an inferior education design for the student from poor families					
4	Building the competence and commitment needed for future-oriented thinking is the task of TVET					
5	Unlike conventional education, TVET has the prospect of stimulating technology progress for national development					
6	Young candidates have been joining TVET with high self-efficacy					
7	Self-employment is better than careers in the government sector					
8	Young want to be self-employed					
9	TVET system was characterized by the existence of training programs that lack relevance to the world work					
10	The absence of entrepreneurial training in the school curriculum creates a poor perception of TVET					
11	Most TVET graduate students get relevant employment.					

Note: SA=Strongly agree, A=Agree, N=Neutral D= Disagree SD= Strongly disagree

Perception toward the contribution of TVET to socio-economic status

QN		SA	A	N	D	SD
1	TVET facilitates economic growth and poverty alleviation by serving as a mechanism to prepare people for occupations.					
2	If well-positioned TVET could become a mechanism for curbing unemployment of graduates in Nepal competitive industry					
3	TVET enhance effective participation in the world of work					

4	TVET has a great contribution in making my country middle level economy					
5	The availability of a skilled and competent workforce is driving engine of growth creation					
6	TVET can play a key role in the societal stability of the country					
7	Self-employment provided individuals a sense of higher self-independence and more satisfying lives					
8	TVET helps prepare students adequately for the world of work and better performance in the industry					
9	Unemployment is a heavy burden for societal in the term of growth and competitiveness.					
10	The essence of TVET is to enhance skills acquisition and promote self-employments					
11	TVET driven by market demand is more effective in enhancing employment and income for disadvantaged group					

Note: SA=Strongly agree, A=Agree, N=Neutral D= Disagree SD= Strongly disagree

SECTION 6: SUGGESTION/RECOMMENDATIONS

S.N	Questions	Responses	Code	Skip
601	Based on your present work, what do you suggest to improve in the implementation of the Technical Education/Vocational training? (Multiple responses possible)	Theoretical training related to the occupation Practical use of computers Practical use of working tools Practical use of machines and equipment Practical use of materials and parts .. Theory and practice of equipment maintenance Understanding and producing drawings Use of written instructions and working guides Communication and working with other people Knowledge of national laws How to do your work in a safe way. How to do high quality and (better paid) work Discipline and quality work, How to start my own business General education subjects	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	
602	Do you have any other suggestions on it?		

Thank you very much for your valuable comments/suggestion.

Key informant interview Guideline

Guideline for Institution head/program coordinator

Inform consent

.....

Note: Focus on primary objectives of the program,

- Scope, content and relevance of curriculum
- Students admission, class size, attendances and dropout rate
- Workshops/laboratory equipment
- Availability of test book and other learning materials
- Industry linkages

KII Guideline	Main questions
Context	<p>What context affected the operating environment of the training/education positively or negatively?</p> <ul style="list-style-type: none"> - Political - Economic - Social - Technological <p>How did it affect the achievement of its goal/ outcomes positively/ negatively?</p>
Relevance	<p>Do the activities of CTEVT match the problems and priorities of beneficiaries? How do they match?</p> <p>Was the need assessment carried out in the community during program design? Is the program actually the need of the beneficiaries?</p> <p>What kinds of problems were addressed by the intervention? What kinds of problems were not addressed?</p>
Efficiency	<p>What were the approaches or factors that helped in reducing the cost of the program activities/ making the program cost-efficient?</p> <p>How efficient was the program in terms of achieving the goal?</p> <p>Were the available resources (including human resources and other materials) sufficient for the implementation of training/education?</p> <p>Do you think that the people engaged in these activities were competent to manage their works and dedicated enough? Why do you think so? Any example to support your understanding?</p>
Effectiveness	<p>What are the major positive changes resulting from the training/education?</p> <p>What were the major factors influencing the achievement or non-achievement of the objectives of the training/education?</p>
Sustainability	<p>What kinds of results seem to continue for a longer time?</p> <p>What are the influencing factors that supported sustaining the results?</p>

	<p>What kinds of results do not seem to continue for a longer time? Why?</p> <p>What are the efforts made by CTEVT in sustaining the program benefits/impacts?</p>
Challenges:	What were the most common challenges in implementing the training/education?
Lessons Learned:	<p>How did you deal with the challenges you faced during implementation? (Link with each challenge in the previous section)?</p> <p>What were the major lessons learned from the CTEVT program implementation?</p>
Recommendations:	What are your recommendations/suggestions about the interventions of the program?

Thank you very much for your time and valuable response!

Key informant interview guideline

Qualitative tool: Key informant interview Guideline (Institution head/program coordinator) (English Draft)

Inform consent

.....

Note: Focus on primary objectives of the program,

- Scope, content and relevance of curriculum
- Students admission, class size, attendances and dropout rate
- Workshops/laboratory equipment
- Availability of test book and other learning materials
- Industry linkages

KII Guideline	Main questions
Context	<p>What context affected the operating environment of the training/education positively or negatively?</p> <ul style="list-style-type: none"> - Political - Economic - Social - Technological <p>How did it affect the achievement of its goal/ outcomes positively/ negatively?</p>
Relevance	<p>Do the activities of CTEVT match the problems and priorities of beneficiaries? How do they match?</p> <p>Was the need assessment carried out in the community during program design? Is the program actually the need of the beneficiaries?</p> <p>What kinds of problems were addressed by the intervention? What kinds of problems were not addressed?</p>
Efficiency	<p>What were the approaches or factors that helped in reducing the cost of the program activities/ making the program cost-efficient?</p> <p>How efficient was the program in terms of achieving the goal?</p> <p>Were the available resources (including human resources and other materials) sufficient for the implementation of training/education?</p>

	Do you think that the people engaged in these activities were competent to manage their works and dedicated enough? Why do you think so? Any example to support your understanding?
Effectiveness	<p>What are the major positive changes resulting from the training/education?</p> <p>What were the major factors influencing the achievement or non-achievement of the objectives of the training/education?</p>
Sustainability	<p>What kinds of results seem to continue for a longer time?</p> <p>What are the influencing factors that supported sustaining the results?</p> <p>What kinds of results do not seem to continue for a longer time? Why?</p> <p>What are the efforts made by CTEVT in sustaining the program benefits/impacts?</p>
Challenges:	What were the most common challenges in implementing the training/education?
Lessons Learned:	<p>How did you deal with the challenges you faced during implementation? (Link with each challenge in the previous section)?</p> <p>What were the major lessons learned from the CTEVT program implementation?</p>
Recommendations:	What are your recommendations/suggestions about the interventions of the program?

Thank you very much for your time and valuable response!