Systematic Evaluation of Existing Policies and Practices in Technical and Vocational Education and Training (TVET) and their Implications for Employment and Industrial Growth in Pakistan

Hina Altaf
Tsinghua University, Beijing.
Email: hinaaltafjarral@gmail.com

Qurat Al Ain Shabir
Punjab University, Lahore.
Email: quratain.pid@gmail.com

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Abstract
A country's industrial progress and economic development are ultimately influenced by the skilled and marketable workforce that is shaped by Technical and Vocational Education and Training (TVET). This research critically assesses the current TVET policies and practices in Pakistan, illuminating their efficacy and industrial and employment implications. In order to provide a thorough review, the research uses a multimodal approach that includes policy analysis, stakeholder interviews, and empirical data. There are advantages and disadvantages to the TVET policies that are now in place. Even though steps have been taken to improve skill development and match training programs to business demands, issues with infrastructure, industry participation, and curriculum relevance still exist. These fault lines in Pakistan's TVET sector hinder the effectiveness of training programs, leading to a mismatch between the skills acquired by graduates and the demands of the labor market. The study evaluates the degree to which TVET policies are resulting in concrete consequences for employment and industrial advancement and investigates implementation shortcomings. Through an examination of job market changes, unemployment rates, and the skill gap, the effect of TVET on employment is closely examined. The study looks into whether the skills graduates of TVET programs are able to use to fill the gaps in a rapidly changing labor market. Moreover, it delves into how TVET promotes self-employment and entrepreneurship, adding to a comprehensive comprehension of its influence on the labor market. The research looks at how responsive TVET graduates are to the demands of various industries in order to evaluate the impact of TVET on industry. It looks into how much industry involvement there is in the planning and implementation of TVET programs, assessing how well partnerships work to guarantee that graduates have the skills that employers demand. The study also takes into account how flexible TVET graduates are in response to changing business requirements and technological breakthroughs. Furthermore, this research draws lessons from the TVET sector in the Philippines, where strong industry partnerships, innovative curriculum design, and robust quality assurance mechanisms have significantly enhanced the alignment of TVET with labor market needs. These insights are crucial for informing the development of more effective TVET policies

in Pakistan. In the end, the goal of this critical evaluation is to offer insights and suggestions to industry stakeholders, educators, and policymakers to improve how well TVET practices and regulations are aligned with the changing needs of the Pakistani labor market. The aim is to maximize TVET's contribution to industrial growth and job creation by leveraging effective tactics and resolving the obstacles that have been identified using the Logical Framework Matrix.

Keywords: Gender inclusivity, Public-private partnerships, Labour market demands, Curriculum development, Youth employment

INTRODUCTION

Technical and Vocational Education and Training (TVET) is basically the skill development of workforce in the industry and economically relevant education for people, according to the United Nations Educational, Scientific, and Cultural Organization (UNESCO), while vocational education refers to lower-level education and training for the preparation of skilled and semi-skilled workers in various trades. TVET develops human potential through market-oriented skills and expands employment opportunities in the labour market. It has both a positive externality and a spillover impact in the labour market, in that the more people with demand-driven skills there are, the more investment and job creation there will be. As a result, it is thought vital to invest in individuals' talents in order to reduce unemployment, increase access to economic-generating possibilities, and contribute to economic growth. Technology and skills have a significant relationship, just like industrialization, economic development, capital, and skills. According to World Bank (2002) rapid technological advancement has created a high demand for higher-level talents in the work market. Because new technologies require greater ability and knowledge, there is a significant demand for skilled and trained employees in the job market.

(Khan, Q. ,2016) in his study on "The Long run impact of technical and vocational education and training in Pakistan" reasoned that due to fast technological progress, globalization, and economic liberalization, human capital has emerged as one of the most important factors of economic growth in recent years. Because of these rapid developments, the government of Pakistan, like that of other emerging countries, has prioritized skill development as a crucial strategy for economic success. Using an autoregressive distributed lag (ARDL) paradigm, this study investigated the long-term association between technical and vocational education and economic growth in Pakistan. The computed coefficient indicates that technical and vocational education has a positive and large long-run impact on economic growth and can play a vital role in strengthening the economy by producing skilled and demand-driven workers in the labour market. It was also proposed that the government should spend more in technical and vocational education in order to develop a strong human basis that can further enhance the labour market with productive workers and transform the status of the development goals.

In Pakistan, TVET (technical and vocational education and training) has long been considered a way to close the skills gap between the labour force and industry. However, there are a number of issues with the current TVET policies and practices in Pakistan, including a lack of funding, subpar facilities, out-of-date curricula, and insufficient instructor training. These difficulties have had a detrimental effect on Pakistan's economy and industry. The lack of funding is one of the main concerns affecting TVET in Pakistan. The lack of funding for TVET colleges in Pakistan makes it difficult for them to purchase cutting-edge tools and technology.

As a result, graduates are not fully prepared with the abilities required in the sector and receive insufficient training. The obsolete curricula in TVET institutes are another issue. Graduating students lack the necessary skills to compete on the job market because the curriculum is out of step with the changing needs of the industry. The curriculum needs to be evaluated and revised frequently to reflect the changing demands of the sector. Moreover, TVET institutions' training teachers' quality is a cause for worry. In order to effectively teach students, the practical skills needed in the workplace, instructors must have relevant industry experience. Nevertheless, many teachers lack the required knowledge and expertise, which results in subpar training results. There is also a lack of collaboration between TVET universities and industry. To guarantee that TVET programmes fulfil the demands of the workforce, industry must be involved in the design of the curricula, and there must be regular industry-academia exchanges.

Many of these issues have resulted in a mismatch between graduates' abilities and the needs of the sector, resulting in high rates of unemployment in Pakistan. To overcome these difficulties and increase the quality of TVET in Pakistan, current TVET policies and practices must be re-evaluated. Therefore, TVET policies and practices in Pakistan must be critically assessed in order to improve training quality, better align TVET programmes with industry demands, and expand employment possibilities for graduates. To address these difficulties, a considerable investment in TVET is required, including finance, infrastructure, curriculum, instructor training, and tighter partnership with industry.

1.1 Statement of the Problem

Despite the emphasis on Technical and Vocational Education and Training (TVET) in Pakistan, the country continues to face high levels of youth unemployment and a skills gap in the labor market. This suggests that current policies and practices in TVET may not be adequately addressing the needs of the industry or adequately preparing students for employment. Therefore, there is a need for a critical evaluation of the effectiveness of current TVET policies and practices in Pakistan and their impact on employment and industry. Such an evaluation can help identify the strengths and weaknesses of current TVET systems and inform the development of evidence- based policies and practices that can better meet the needs of both industry and students.

1.2 Scope of Study

The present study shall provide an overview of the current TVET system in Pakistan, including its structure, funding, and governance. It shall also provide an analysis of the policies and practices that are currently in place to support TVET in Pakistan, including curriculum development, teacher training, and student assessment along with an assessment of the effectiveness of the current TVET policies and practices in preparing students for employment in the industry. A discussion of the challenges and opportunities facing the TVET system in Pakistan, including the need for greater collaboration between industry and education, the importance of promoting entrepreneurship, and the need for more investment in TVET will be held. Consequently, a set of recommendations for policymakers, educators, and industry stakeholders on how to improve the TVET system in Pakistan and promote economic development is given.

1.3 Literature Review

In the human capital discourse, the term 'TVET' is defined in different ways. According to UNESCO, TVET sector comprises of education, training and acquisition of practical skills that are required for economic and social life. It empowers individuals and communities for lifelong learning, employment and decent work that results into inclusive and sustainable growth (UNESCO, 2016). Its main emphasis is that a TVET sector in a country must provide "control ability" to the individual that means that the participants of TVET sector have all the requisite tools to sharpen their own lives. Secondly, it promotes equity and aims to provide equal opportunities of access at multiple levels of TVET so that all trainees can participate in the labor market. Thirdly and importantly, TVET sector results in a good quality and quantity of human capital to support a country's economic development that yields gainful employment for its citizens (Renold & Caves, 2017). Globally, TVET sector is a mixture of formal, informal and non-formal learning that it is primarily designed to impart the required skill that allows them to secure and successfully retain their jobs (Paryono, 2017). Today, TVET is a rising agenda at global level and is considered as a driving force to attain SDG-4 of Sustainable Development Goals, 2015. Therefore, it has become a strategic and operational priority for the G20, OECD, OIC, ILO, UNESCO, ASEAN and Shanghai Consensus (Ahmad, 2016).

The role and importance of TVET sector for a country's socio-economic development is undeniable and there is enough empirical evidence to support the fact. Multiple examples across the globe that includes both developed and developing countries validate the fact that Technical and Vocational Education and Training (TVET) offers the shortest and swiftest path for employability to an economy. It is estimated that at least 52 percent of the total workforce in the USA, 68 percent in United Kingdom, 75 percent in Germany, 80 percent in Japan and 96 percent in South Korea has undergone some formal skill training. (Khan, 2021). However, Pakistan has only 6 percent of skilled labor/work force. Pakistan has one of the biggest dropout rates after primary level of formal education as only 48 percent of the youth completes secondary level of formal education (World Bank data, 2019). These dropouts often do not find any other learning opportunity and end up either joining informal economy or get indulged in non-productive activities.

Pakistan is also faced by the challenge of youth bulge and its young work force is projected to be double by 2050 as there will be 236 million Pakistanis in the working age group as per records of Industrial Classification (ISIC) and International Standard Classification of Occupations (ISCO). Being cognizant of these different institutional arrangements at TVET sector and multitude of organizational approaches and different government policies, strategies and regulations IAG- TVET established a Working Group on TVET Indicators (WGI) in 2010 to identify indicators that can be helpful to assess TVET sector across the globe with a special focus on low-income countries. They remained successful by developing a framework that can build and strengthen governments in developing countries to design, monitor and overall evaluate their TVET sectors.

Initially, the WGI mapped the indicators commonly collected and used by various International organizations and after detailed deliberations on the subject, they identified four key policy areas to assess TVET sector that includes Access, Quality, Relevance and finance/governance. After the identification, a conceptual framework was developed where

these four components can add substance to a policy dialogue by any government to improve overall performance of TVET sector (IAWG, 2012). This is a rare demographic opportunity that can be turned into dividend by establishing a sustainable and efficient TVET ecosystem for Pakistan as it can bring economic prosperity to the country with enhanced human capital (Alam , 2015).

During recent years, TVET has gained greater importance at international level and TVET sectors across the globe are going through transformative reforms to provide trainees an enabling environment (such as partnerships with private sector and linkages with industries) to learn and upgrade their skill sets that are compliant with changing national, regional and global economic needs (Nomura, 2019). However, there is a difference between the approach of developed and less developed countries. Where developed countries are shifting to green TVET and sustainable TVET from its earlier emphasize on quality improvement, monitoring and evaluation of TVET and the availability of national development plans there, the under developed countries are still only focusing on cost of enrolment and implementation of TVET (Pavlova , 2014). Pakistan's Government has been reforming its technical and vocational education and training (TVET) system since 2000.This may be divided into two phases where phase-1 mainly revolves around National Skills Strategy 2009 ended in the year 2016 and achieved some major milestones such as National TVET Policy, National Vocational Qualifications Framework (NVQF) and introduction of Competency Based Training & Assessment (Ansari & Wu, 2013). The second phase of reforms includes TVET Sector Support Programme that was launched in January 2017 for five years till 2022. It was carried out with the support of international organizations such as European Union, the Federal Republic of Germany and the Royal Norwegian Embassy with a focus to improve governance and private sector participation in the TVET sector to increase quality skill development that meets the demand of the labour market.

Internationally, TVET is a diverse sector as it comprises of formal, non-formal and informal learning. It takes place in multiple settings that includes schools, vocational centers (public and private) and vocational institutes, higher education institutions and different workplaces in both the formal as well as informal economies (Tan et al, 2016). International labour organization (ILO) ascertains that TVET systems and skill development are standardized and are aligned with the requirements of labour markets across the globe (ILO, 2018). For the purpose it emphasizes on using international standards by a TVET sector such as International Standard. With the passage of time, TVET sector is evolving and growing in different ways. This includes international recognition of TVET's involvement for development of life long skills and sustainable economic systems. New policies and strategies are formulated to grow and enhance the status of TVET, bring in more resilience and to improve its impression as a second and unpopular choice when compared with formal education system (UNESCO Strategy for TVET, 2022-29).

Governments through these policies and strategies are working in areas such as aligning curriculum with industry needs; developing articulation procedures, recognizing earlier skill learning; designing an educational framework for the workforce of the country and acknowledging the critical role of teachers in delivering high-quality TVET programs (Maina, 2019 & Tikly, 2013). A recent and emerging trend is sustainable TVET and Green TVET in the world that strives for development of holistic and comprehensive plans that are critical for

productive workplace and community practices (Kaliappan & Hamid, 2021). Green TVET is expected to make young people active members of the green economy that will result into increased wellbeing of individuals by reducing environmental risks and ecological scarcity. United Nations has developed several guidelines and framework for green and sustainable TVET that are beneficial for TVET institutions as well for relevant economies (Mustapha, 2015). The Clean Development Mechanism (CDM) is a market-based mechanism under the Kyoto Protocol used by member countries to meet their commitments and to reduce greenhouse gas emissions. All these measures suggest that is critical for governments to meet the demand of green economy and green TVET and ensure a smooth transition to a green and sustainable TVET ecosystem (Maclean, 2013).

1.4 Research Methodology

Mixed research methodology is used for this individual research paper. A list of questions (Annex-A) was prepared to obtain data (numerical figures) on the performance of key four areas of TVETthat is "Financing", "Access", "Quality" and "Relevance" of TVET sector to critically analyze these areas. A perception survey was also held (Annexure-B) to understand the issue at hand deliberately. Secondary sources were also studied and examined for this research such as scholarly articles written on the subject. Similarly reports of reputable International Organizations such as UNESCO, UNEVOC, ADB, ILO, World Bank, ASEAN, and SAARC were accessed to establish an understanding of the global perspective of TVET sector that is later used for the critical and comparative analysis. Policies, strategies and initiatives for TVET sector reforms and uplift in Pakistan were thoroughly examined along with a comparison with China, India and Bangladesh.

SECTION I

2 CRITICAL ANALYSIS OF TVET SECTOR IN PAKISTAN

TVET is a diverse sector in Pakistan and has many key policy areas. However, in this chapter four main areas of TVET sector will be examined and critically analyzed with the help of data.

2.1 Financing:

One of the key challenges facing the TVET sector in Pakistan is inadequate funding. According to a report by the National Vocational and Technical Training Commission (NAVTTC), the government's budget allocation for TVET has remained consistently low, at less than 1-1.5% of the country's education budget. This low funding has resulted in inadequate infrastructure, outdated equipment, and inadequate training of teachers, which ultimately affects the quality of TVET programs and limits their effectiveness in preparing students for employment. Another challenge is the lack of coordination between different stakeholders involved in financing TVET. Currently, funding for TVET is fragmented across multiple government departments and agencies, resulting in duplication of efforts and inefficiencies. This fragmentation also makes it challenging to track and monitor the effectiveness of funding in achieving its intended outcomes.

Moreover, the private sector's role in financing TVET is limited, despite its critical role in providing employment opportunities for skilled workers. Private sector funding is mostly limited to corporate social responsibility initiatives, which are often small in scale and short-

term. This limited private sector funding makes it difficult to sustainably finance TVET programs.

2.1.1 Budget for TVET

The budget allocation for technical and vocational education and training (TVET) in Pakistan has been consistently low, which has affected the quality of TVET programs and the country's capacity to produce skilled workers. According to the National Vocational and Technical Training Commission (NAVTTC), the budget allocation for TVET in Pakistan has remained less than 1% of the country's education budget in recent years. In year 2020-2021 the original budget for NAVTEC has been 394,591,000 and expenditure up to December was 167,698,166. 3However, this budget allocation is still considered insufficient to meet the demand for skilled workers and improve the quality of TVET programs in the country.

2.1.2 TVET Training cost per trainee

The cost of technical and vocational education and training (TVET) per trainee in Pakistan varies depending on the program's duration, level of qualification, and the institution providing the training. However, in general, the cost of TVET training per trainee in Pakistan is relatively low compared to other countries. According to a report by the National Vocational and Technical Training Commission (NAVTTC), the average cost of TVET training per trainee in Pakistan is estimated to be around PKR 25,000 to PKR 30,000 (approximately USD 160 to USD 190) for a six-month training program. This cost includes tuition fees, books, and other related expenses. The cost of training may vary depending on the field of study and the level of qualification. For example, the cost of a two-year diploma in a technical field such as electrical or mechanical engineering may be higher than a six-month certificate course in a vocational trade such as welding or carpentry.

2.2 Access:

The component of “Access” explains the extent to which a particular TVET sector promotes equity and inclusion in its TVET ecosystem. Its main indicators examine “access of TVET sector to all genders” and “Enrolment by type of TVET programme” that leads to improved labor market outcomes. In the proceeding paras, data obtained for these indicators will be examined to analyze access of TVET institutions and enrolment in preferred skills for the country.

2.2.1 Access of TVET sector to all genders:

Table 1.1 shows gender-based classification of TVET Institutions. Results show that country has Male only, Female only and co-education TVET institutions all over the country. Out of total 4076 TVET institutions, half of them cater to a single gender (male) that is followed by female specific TVET training centers and then co-education institutes. Following inferences can be drawn.

PROVINCE	INSTITUTES			
	MALE	FEMALE	CO-ED	TOTAL
Punjab	803	527	276	1606
Sindh	349	158	178	685
KPK	517	203	239	959
Baluchistan	117	54	36	207
GB	61	91	33	185
AJK	73	53	28	154
ICT	32	173	75	280
Total	**1952**	**1259**	**865**	**4076**

Table 1 1 Access of TVET sector to all genders

TVET institutes exist all across the country instead of being concentrated at the economic zones/Industrialized cities where on job training can be readily available to trainees. Need analysis is not conducted before opening a TVET institute. For a city like Islamabad that has one of the highest literacy rates (96%) and inclination towards formal and higher education (Rehman, Jingdong & Hussain ,2015) has 280 TVET institutions. Since TVET sector is mostly opted by individuals with low inclination for higher studies or for NEET therefore, they must be prioritized for areas with higher school dropout rate, facing multi- sectoral poverty so that economic growth in such areas can be accelerated and the beneficiaries are made part of active economy.

2.2.2 Enrolment by type of TVET programme:

Table 1.2 explains enrolment by type of TVET program. Among the top five TVET courses, two are from basic ICT whereas the remaining three are from the conventional traits. Following inferences can be drawn

i. Skill mapping for each region is not done separately by taking into account demands of a particular district especially in terms of its economic profile.
ii. Due to non-availability of district and regional profiling, all students are offered same courses across the country that further reduces their employability and majority of them resort to entrepreneurship/self-employment.

ENROLLMENT BY TYPE OF TVET PROGRAM	RESULTS
Basic Computer	**34,372**
Tailoring	**25,469**
Computer Application and Office professional	**24,858**
Beautician	**22,499**
Dress making and fashion designing	**20,274**

Table 1 2 Enrolment by type of TVET program

2.3 Quality

AREA	INDICATOR	RESULTS
1	Student teacher ratio in TVET sector	25:1
2	Completion rate in TVET programs	86%
3	Proportion of qualified teacher in TVET sector	1) DAE/B.Tech: 38% 2) BE / ME: 52% 3) PhD: 1% 4) Others: 9%
4	Number of Capacity building for trainer and teachers	Seven Capacity Building Programs GIZ (Donor Agency): 03 NAVTTC: 01 Provincial TEVTAs: 03
5	ICT training modules	Over 30 Programs in ICT Sector being executed by NAVTTC and Provinces
6	Number of conventional programs that are continued for last 30 years	Over 300

Table 1 3 Quality of TEVT and Indicators

This component addresses policy options for effective teaching and learning processes in a TVET sector. It measures quality of TVET sector to meet required skill set for a competent and competitive workforce. In preceding paras, Indicators for Quality in TVET sector will be analyzed to critically examine Quality in TVET sector of Pakistan.
Table 1.3 shows following six indicators to assess quality in TVET sector of Pakistan.

2.3.1 Student teacher ratio in TVET sector:

Results show 25:1 that is considered a good student teacher ratio. However, it is an average percentage for the whole country and does not show a breakup of student teacher ratio in different provinces. Literature suggests that Teacher student ratio in public sector TVET institutes in Sindh and Khyber Pakhtunkhwa is 1:45 and 1:49 respectively (Shah & Khan, 2017).

2.3.2 Completion rate in TVET programs:

Results show that 86% of the students complete their TVET courses. It is higher than many countries in the region such as Sri Lanka with 70% completion rate (ADB, 2015)

2.3.3 Proportion of qualified teacher in TVET sector

Results show that 52% of the teachers in TVET sector hold qualification of Bachelors of Engineering and Masters of Engineering followed by 38% teachers having degree in TVET stream of DAE/B.Tech. Only 1% holds a PHD degree whereas 9% holds general education not specific to TVET streams. 90% of these teachers have background of engineering therefore; it is hard to prepare skilled labour force in the streams of IT, digital literacy and E-commerce that are emerging trends in TVET sector.

2.3.4 Number of Capacity building for trainer and teachers

Results show that during 2021-22, seven capacity building programs for teachers training were conducted. Out of which GIZ, Germany sponsored 03 programs whereas provincial TEVTAs conducted 03 while NAVTEC conducted 1 program. TVET sector is considered as an unpredictable stream of education where frequent change in labour skill sets make it imperative to invest more in teachers training as they are the are main knowledge transmitters. Although there are eleven Staff Training Institutes (STIs) across the country (Ansari & Wu, 2013) but only 04 training programs were conducted by NAVTEC and provincial TEVTAs that shows that it varies in priority from TEVTA to TEVTA across the country for instance TEVTA. Punjab TEVTA has upgraded its existing 05 teacher training institutes into Centre of Excellence.

2.3.5 ICT training modules

Results show that only 30 programs of ICT are offered in TEVT sector of Pakistan. This shows that NAVTEC and provincial TEVTAs approach for curriculum design is supply-driven instead of demand –driven and is not well cognizant of emerging trends in TVET sector such as resilience for Industry 4.0 and Green TVET.

2.3.6 Number of conventional programs that are continued for last 30 years:

Results show that over 300 courses taught at TEVET institutions are conventional. During the last three decades, world has seen digital transformation but TVET sector is still focusing on those skills that were taught three decades back. This identifies another gap that curriculum is not reviewed regularly which is a common practice even in middle income and developing countries such as Malaysia (Azmi & Salleh, 2021) and Ghana.

2.4 Relevance:

Relevance in TVET sector examines the extent to which a particular TVET sector is responsive to labor market needs, requirements and employability rate. In the proceeding paras, data for indicators "employment status" and "unemployment rate" will be critically analyzed to assess relevance of TVET sector in Pakistan.

2.4.1 Employment Status

Results for the first indicator "employment rate" shows that overall employment rate of graduates after taking training from TVET institutes remained 63%. Provincial breakup of the employment rate shows that the highest number of employments was observed at 84% for the province of Baluchistan while AJK showed lowest result at 49%. The employment rate is expected to get further improved with NAVTEC's initiatives like PMYSDP, Saudi Takamol and an MoU signing with Qatar for creating job opportunities in for graduates of Pakistan's TVET

sector.

2.4.2 Employment Status by Gender

PROVINCE	EMPLOYMENT RATE (%)
Punjab	62
Sindh	82
Khyber Pakhtunkhwa	52
Baluchistan	84
AJK	49
ICT	82
AVERAGE	63

PROVINCE	MALE	FEMALE	TOTAL
Punjab	69	51	62
Sindh	84	70	82
Khyber Pakhtunkhwa	57	38	52
Baluchistan	92	60	84
AJK	67	42	49
ICT	82	78	82

Table 1.4 Employment Statuses

In order to explore gender wise employment data is compiled in Table-7. Results for "employment status by gender" show that overall employment rate for male graduates remained higher than female graduates. Provincial breakup for gender wise employment rate shows that in ICT, female employment rate remained highest at 78% and it remained lowest in KPK at 38%. For Males, it remained highest in Baluchistan at 92% and lowest in KPK at 57%. It suggests that employment rate for female graduates is lower as compared to male graduates. An enabling environment such as lack of access to safe transport, soft loans, household responsibilities and social norms are some major social barriers due to which female labour force participation (Isran & Isran , 2012) remains low even after getting a TVET specific training.

PROVINCE	GOVERNMENT	PRIVATE	ENTREPRENEURE/SELF EMPLOYMENT	OVERSEAS EMPLOYMENT	OTHERS
Punjab	5.5	39.2	49.5	1.4	4.4
Sindh	3.0	61.0	32.3	0.1	3.6
Khyber Pakhtunkhwa	7.4	40.0	49.9	1.1	1.6
Baluchistan	4.0	41.8	52.1	0.1	2.0
AJK	5.5	41.7	47.4	1.8	3.5
ICT	3.5	50.5	44.4	0.9	0.7
GB	7.5	7.9	84.2	0.4	0.0
AVERAGE	5.4	41.9	48.2	1.1	3.4

Table 1 5 Type of employment attained by graduates (in percentage)

2.4.3 Type of Employment Attained by Graduates

Results for "type of employment attained by graduates" show that highest number of highest numbers of employment was attained in "entrepreneur/self-employment" at 48% followed by private sector at 41.9 % and government sector stood at 5.4%. Among all provinces this trend remains uniform other than a few exceptions where in Sindh Private sector remained highest employment provider at 61% and in ICT where private sector provided 50.5% of employment. Following inferences can be drawn

i. Overall, TVET-Industry linkages are weak in the country but are weakest in far flung areas of Pakistan such as Gilgit Baltistan.

ii. Although Entrepreneurship/self-employment remained highest employment providing sector for TVET graduates but according to the Global Entrepreneurship and Development Institute, GEDI Pakistan is ranked at 120th out of 137 countries in 2018 Global entrepreneur Index ranking(GEDI,2018) as it performed poor on all entrepreneur indicators especially on pillar 2 "start-up skills" that raises another question on the performance of TEVT sector as it could not impart relevant skills for successful entrepreneurship

iii. Results show weaker linkages of TVET authorities in Pakistan with main labor migrant destinations of the world. The lowest sector is "Overseas employment" that provides lowest employment to TEVT graduates at 1.1%. Many countries in the world such as Philippines are earning a good remittance due to their skilled labor force especially in overseas hospitality sector. However, in Pakistan there is a constant rise in unskilled migrant workers from Pakistan especially in gulf. Bureau of immigration states an increase of 21%in unskilled labor migration and employment in Gulf in 2021 (Mian, 2022).

2.4.4 Unemployment

From the data shared by NAVTEC the unemployment rate among the TVET graduates is 37% but considering the growing population and unemployment in the country, TVET sector's capacity to provide professional skills is insufficient. According to the latest Labor Force Survey 2020-21, unemployment rate in the country is 37% (LFS 2020-21). It further suggests that labor force in Pakistan is 71.76 m out of which 67.25 are employed whereas 4.51 are unemployed (GoP, 2022).This creates ample room for TVET sector to come and bridge the gap in terms of productivity and competitiveness. However, data from TVET sector shows that there are 4,259 TVET institutes available in the country for estimated 2 million new entrants in the labour market of the country that is clearly insufficient to cater to the demand and may result into increased rate of unemployment.

PROVINCE	TVET SECTOR UN EMPLOYMENT RATE (%)
Punjab	38
Sindh	18
Khyber Pakhtunkhwa	48
Baluchistan	16
AJK	51
ICT	18
GB	19
AVERAGE	37

Table 16 Unemployment in TVET Sector

SECTION II

SITUATIONAL ANALYSIS OF TVET IN PAKISTAN

The technical and vocational education and training (TVET) system in Pakistan has the potential to significantly contribute to the country's economic development. Unfortunately, its current preparedness and position are inadequate, and its contribution to the economy has been limited. To understand the existing dynamics of technical and vocational training and education system in Pakistan it is important to understand potential, preparedness, current status and contribution.

Pakistan has a substantial youth population that holds significant potential for benefiting from technical and vocational education and training (TVET). With proper training and education, these young individuals can become skilled employees in various industries such as manufacturing, construction, and agriculture. The country's expanding economy further enhances opportunities for these skilled workers to contribute to the workforce and drive economic progress.

However, the preparedness of Pakistan's TVET system to meet labor market demands is lacking. There is a shortage of trained trainers and assessors, and the curriculum is outdated, leading to a skills gap between what is taught and what is required by businesses. Moreover, the education system in Pakistan predominantly focuses on traditional academic education, often neglecting the importance of technical and vocational training.

The current state of Pakistan's TVET system is concerning. Enrollment in vocational education and training programs is low, and the quality of training does not meet international standards. According to the National Vocational and Technical Training Commission (NAVTTC), only 3% of Pakistan's labor force receives formal vocational training. This lack of investment in the TVET sector, coupled with low enrollment, has hindered the system's potential economic impact.

Despite these challenges, Pakistan's TVET system has made notable contributions to the economy. Graduates from the TVET system have played crucial roles in industries such as construction, manufacturing, and agriculture, contributing to increased productivity and competitiveness. However, the economic benefits of TVET remain limited due to the system's low enrollment rates and inadequate training quality.

POLICY, LEGAL AND INSTITUTIONAL FRAME-WORK

Pakistan's National TVET Policy is designed to create a demand-driven and quality-assured technical and vocational education and training (TVET) system that aligns with the country's labor market needs. The policy emphasizes providing access to quality vocational education and training programs for all individuals, including marginalized communities, and underscores the importance of collaboration between industry and training providers to ensure the relevance of training programs to industry demands. Key initiatives under this policy include the National Skills Strategy (2009-2013), the National "Skills for All" Strategy (2019), and the TVET Policy for Pakistan (2018).

The legal framework for the TVET system in Pakistan is established under the National Vocational and Technical Training Commission (NAVTTC) Act of 2011. This Act mandates the creation of NAVTTC, which is tasked with regulating and coordinating the TVET sector. Additionally, each province has its own TVET law and regulatory body to oversee TVET programs within their jurisdictions. For instance, the Khyber Pakhtunkhwa Technical Education and Vocational Training Authority (KP TEVTA) Act was enacted in 2015 and amended in 2018, with corresponding regulations implemented in 2015 and 2018, and revised in 2021.

At the national level, the NAVTTC serves as the apex body responsible for the overall coordination and regulation of the TVET sector in Pakistan. NAVTTC's duties include developing national occupational skills standards and assessing and certifying skilled workers. In the provinces, the Technical Education and Vocational Training Authority (TEVTA) play a crucial role in promoting and implementing TVET programs. Various provincial TEVTAs, including those in Khyber Pakhtunkhwa, Punjab, Sindh, Azad Jammu and Kashmir, Baluchistan, and Gilgit-Baltistan, are instrumental in advancing TVET initiatives across Pakistan.

LOGICAL FRAMEWORK MATRIX

Goal: To establish a demand-driven and quality-assured TVET system in Pakistan that meets the needs of industry and learners.

Purpose	Outputs	KPIs	Indicators of Achievement	Executing Agency	Financing

To enhance the quality and relevance of TVET programs and services in Pakistan by adopting a demand-driven and quality-assured approach.	**Output 1.1:** Needs assessment report on skills required by industry in Pakistan **Output 1.2:** Industry-led training programs and courses in Pakistan **Output 1.3:** Industry-based apprenticeship programs in Pakistan	1. Placement rate of graduates 2. Employer satisfaction rate 3. Accreditation and certification rates 4. Gender and social inclusion 5. Industry partnership	1. Number of surveys and interviews conducted in Pakistan 2. Number of industry-led training programs and courses developed in Pakistan 3. Number of apprenticeships established in Pakistan	NAVTTC, under Ministry of Federal Education and Professional Training, Provincial TEVTA, Provincial Industries departments	**Infrastructure:(**PKR 10 to 20 billion (approximately USD 65 to 130 million) **Curriculum and Teaching Materials:** PKR 2 to 5 billion (approximately USD 13 to 33 million) **Industry Partnerships:** PKR 1 to 3 billion (approximately USD 6.5 to 20 million) **Training and Capacity Building**: PKR 2 to 5 billion (approximately USD 13 to 33 million).
Activities		**Sources and means of verification**			**Assumptions**
Activity 1.1: Conduct surveys and interviews with employers and industry representatives in Pakistan **Activity 1.2**: Develop training programs and courses based on industry needs in Pakistan **Activity 1.3:** Establish apprenticeship programs in collaboration with industry partners in Pakistan		**Industry surveys and feedback:** Surveys and feedback from industry partners can help to ensure that TVET programs are aligned with industry needs and those learners are acquiring the necessary skills and knowledge. **Curriculum and program evaluations:** These can be used to assess the quality and relevance of TVET programs and ensure that they are meeting the necessary quality standards. **Learner outcomes and employment data:** These can be used to track the success of TVET graduates in the labor market and assess the impact of TVET programs on employment outcomes. **Stakeholder feedback and satisfaction surveys:** These can be used to gather feedback from learners, industry partners, and other stakeholders to assess their satisfaction with TVET programs and services.			**Demand for TVET**: Sufficient demand for TVET programs from learners and industry partners to justify the investment in demand-driven and quality-assured TVET programs. **Strong partnerships:** Strong partnerships between TVET providers, industry partners, and government agencies to ensure that TVET programs are aligned with industry needs and meet the necessary

		quality Standards.

Timelines	**Means**	**Costs**
Infrastructure: 3 to 5 years for smaller-scale projects to up to 10 years for larger-scale projects. **Curriculum and Teaching Materials:** 2 to 3 years for initial development and updates and regular revisions as per industry needs and Technological Advancements.	**Conducting a comprehensive skill needs assessment:** This will help to identify the skills gaps and shortages in the labor market and inform the development of TVET programs and courses that are in line with the needs of the industry. **Developing industry-led training programs:** These programs should be designed based on the needs identified in the skills needs assessment and should be delivered by industry experts to ensure that learners acquire the necessary skills and knowledge to meet industry needs. **Establishing apprenticeship programs:** These Programs provide learners with the opportunity to gain practical, on-the-job training while also providing industry with a pipeline of skilled workers.	**Outreach and promotion:** This involves promoting the benefits of TVET to potential learners and industry partners to increase participation in TVET programs and to ensure that the programs meet industry needs. **Investment in human resources:**
Training and **Capacity Building:** 3 to 5 years for initial training and capacity building and regular Updates. **Industry Partnerships**: 2 to 3 years to establish effective partnerships With industries.	**Developing quality standards and accreditation** **criteria:** This will ensure that TVET programs and services meet the necessary quality standards and that providers are held accountable for the quality of their Programs.	This includes the recruitment and training of qualified TVET instructors, industry experts, and Support staff. **Curriculum development:** This involves the development of relevant and up-to-date TVET curricula that meet industry needs and are aligned with national and international

		Standards.

GAP ANALYIS OF TVET SECTOR IN PAKISTAN

The Technical and Vocational Education and Training (TVET) sector in Pakistan faces several challenges that require urgent attention. The current infrastructure of TVET facilities is outdated, lacking modern equipment and technology, which limits the quality of training, provided and, in turn, affects the employability of graduates. To remedy this, Pakistan's TVET infrastructure should be modernized, with well-equipped facilities that are accessible to all, including in remote and rural areas. This modernization would involve investing in state-of-the-art training equipment, tools, and technology, as well as expanding the availability of practical training spaces.

The curricula and teaching materials used in Pakistan's TVET institutes are often outdated and do not reflect the current needs of the labor market. There is a significant gap in the relevance of these curricula, partly due to a lack of industry input in their development. As a result, the training provided may not effectively prepare students for the demands of the workforce. To bridge this gap, the curricula should be regularly evaluated and updated to ensure alignment with industry requirements. This process could be supported by forming industry-led curriculum development committees and incorporating entrepreneurship and innovation into the curriculum to foster job creation and business development among graduates.

Another critical issue is the limited collaboration between TVET institutions and industry in Pakistan. This lack of partnership reduces opportunities for students to gain practical experience and diminishes the relevance of TVET training to labor market needs. Strengthening these partnerships is essential to ensure that training programs are tailored to meet industry demands. This could be achieved by establishing industry advisory boards to provide guidance on skill requirements, designing work-based learning programs, and involving industry representatives in the design and delivery of TVET programs.

In terms of training and capacity building, while the National Vocational and Technical Training Commission (NAVTTC) has implemented various programs, such as Competency-Based Training and Assessment (CBT&A) and the Teachers' Training Program, the overall quality of TVET training remains suboptimal. Many instructors lack the necessary qualifications and training to deliver high-quality education, and opportunities for their professional development are scarce. To address these gaps, there is a need to develop comprehensive training and capacity-building initiatives for TVET instructors and staff. This could include the establishment of certification programs for TVET instructors, providing access to international training opportunities, and offering regular workshops and training sessions to enhance their skills and knowledge.

Addressing the gaps in Pakistan's TVET sector requires a multifaceted approach that includes modernizing infrastructure, updating curricula to meet labor market needs, strengthening industry partnerships, and enhancing the capacity of instructors. By implementing these remedies, Pakistan can improve the quality and relevance of its TVET programs, ultimately leading to better employment outcomes for graduates and greater alignment with the needs of the economy.

COMPARATIVE ANALYSIS

The Technical and Vocational Education and Training (TVET) sectors in Pakistan, China, India, and Bangladesh share similarities in their institutional frameworks, accreditation and quality assurance mechanisms, and funding strategies, though there are notable differences in scale and emphasis.

In Pakistan, the TVET sector is primarily overseen by the National Vocational and Technical Training Commission (NAVTTC), supported by various public and private institutions. NAVTTC is responsible for accreditation and quality assurance, ensuring that the courses offered meet the required standards. Funding for the sector has seen a substantial increase, with the federal government allocating PKR 8.7 billion for vocational education and training in the 2021-22 budget—a 42% increase from the previous year. Additionally, the government promotes private investment through initiatives like the Prime Minister's Kamyab Jawan Youth Entrepreneurship Scheme.

Similarly, in China, the Ministry of Education administers the TVET sector, with other institutions playing significant roles. The Ministry of Education is also tasked with accreditation and quality assurance. China's funding for TVET is considerably higher, with the 2021 allocation reaching CNY 128.7 billion (approximately USD 20 billion), reflecting an 18.5% increase from the previous year. The Chinese government also supports private sector involvement through programs such as the "Internet Plus" Vocational Education initiative, emphasizing the integration of technology in vocational training.

In India, the Ministry of Skill Development and Entrepreneurship (MSDE) leads the TVET sector, with various other institutions contributing. The National Skill Development Corporation (NSDC) handles accreditation and quality assurance, ensuring that the training provided aligns with industry standards. The Indian government allocated Rs 3,000 crore to the MSDE in the 2021-22 Union Budget, marking a 24% increase from the previous year. Private investment is also encouraged through schemes like the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), which focuses on skill development and employment.

Bangladesh's TVET sector is managed by the Directorate of Technical Education (DTE) under the Ministry of Education, with support from public and private institutions. The Bangladesh Technical Education Board (BTEB) is responsible for accreditation and quality assurance. While government funding is the primary source for TVET in Bangladesh, international organizations such as the World Bank and the Asian Development Bank provide additional support. Private institutions also contribute through their own funding.

While all four countries emphasize the importance of TVET in their national development strategies, China allocates significantly more resources to the sector compared to its South Asian counterparts. Accreditation and quality assurance are centralized in each country, though the scope and impact of private sector involvement vary, with China and India having more structured programs to encourage private investment.

SECTION III

FAULT LINES IN TVET SECTOR IN PAKISTAN AND LESSONS TO BE LEARNT FROM TVET SECTOR IN PHILLIPINES

Republic of the Philippines is located in South East Asia, covers an area of 299.7 thousand Kilometers and has a population of 104.9 million. Philippines is an emerging international

market with a GDP of USD 394.086 (World Bank, 2021). As per a survey on labour market of Philippines, its service industry formulates 57.5% followed by agriculture at 23.1 % and Industry at 19.4%. Since 2010, Philippines saw a robust economic growth of 6.6 % per anum coupled with growth of TVET sector with a major focus on reskilling, up skilling and development of strong technical and soft skills to produce work ready and globally competitive workers. In this chapter a comparative analysis of TVET Sectors of Pakistan with Philippines will be made to identify similarities and differences.

Governing Authority:

Both Philippines and Pakistan have national level governing authorities that have their regional offices in all regions of the country and works primarily to develop skills for employability.

The central Authority for TVET in Philippines is Technical Education and Skills Development Authority, TESDA. It came into being in1994 through enactment of Republic Act No. 7796 with a mandate to formulate manpower and skill plans, to set standards for skills and tests, monitor and coordinate policies related to human capital and to issue guidelines and directions to TVET institutes within Philippines (www.Tesda.com). It is also responsible to encourage active participation of different sectors especially private enterprises who are direct beneficiaries of globally competitive skilled workforce. It is governed by a board that is the highest TVET Policy making body in Philippines. It has 13 members from public and Private sector and is Co-chaired by Secretary of Labour & Employment and Secretary Trade and Industry. The Secretariat is headed by the Director General that works as implementation arm of TESDA.

In Pakistan, National Vocational and Technical Education Commission, NAVTEC was established in 2005 to regulate and manage TVET sector in Pakistan. This apex body is mandated to promote, facilitate, regulate, to approve curriculum, build capacity of trainers and to provide policy guidelines and directions to TVET sector of the country. It also has a 13 members board of governors as a main policy/decision making body with a Chairman appointed by federal government, six members from Private sector and six members from public sector. Secretariat is headed by Executive Director and works as an implementation arm as well.

Financing at TVET:

Pakistan literacy rate is 63% and it spent 1.77 pc of its GDP on education (GoP, 2022). Majority of the spending goes to Higher education sector that is 109 billion out of the total allocated amount of 135 bn. The share of TVET varies around 1.5pc of the total allocated budget of education sector. NAVTEC receives its budget from federal government. Other sources are international donor agencies that provide support to TVET sector in the country. In Philippines literacy rate is 99.27% and it spent 3.9 % of its GDP on education in 2020 (World Bank, 2022) out of which it spends around 1.5% on TVET sector. After 2019 a decline of almost 3% has been observed in budget allocation of TESDA but it is managing its resources by efficient spending in the form of scholarship for trainees while majority of the training expenses are borne by the trainee himself. Other than government's funding, major sources of finance for TESDA are international donor agencies and "company finance" by the companies and industries providing on-job training those accounts to 15.5% of the total TVET spending (AFD ,2019).

Vocational Qualification Framework:

National Vocational Qualification Framework, NVQF provides a national system for classifications of qualifications and about various progression pathways within the TVET System. It also provides guidelines to recognize prior learning. In Pakistan, it has one pre-vocational level for people with little or no schooling but possess skills that need to be credited for a qualification. It has 08 levels where level 1 to 4 provides a certificate whereas level-5 provides diploma. Level 6 provides B-Tech qualification while levels 7 and 8 provides qualification of higher TVET system that is Masters and PHD degrees. The "Ladderized Education Program Act of 2014 in Philippines provides a ladderized interface between TVET and Higher Education in the country. Universities in Philippines are providing TVET programs along with formal programs to the students. All such programs are in a ladderized training mode where TVET is integrated in a course with a bifurcation of course timelines between course work and vocational and technical training. A test is also conducted by TESDA for national certification and upon graduation, student receive a Bachelors/ Master's degree as well. Philippines Qualification Framework empowers students and workers to choose when to enter or when to exit the ladder with job opportunities at each level. Both the systems of Pakistan and Philippines are flexible and have clear guidelines on qualification progression and on accreditation for each level through which trainees/students can earn.

Increased Public Awareness:

Globally, the major challenge posed to TVET sector is lack of awareness and understanding of the real worth vis a vis formal and higher education. The perception that TVET is inferior to formal education is deep rooted in both Pakistan and Philippines. Faced with this challenge, TESDA embarked several initiatives to improve public image and acceptance for TVET. Since this perception prevailed equally among all segments- including parents and closed family members, therefore, TESDA carried out an intensive nationwide advocacy program by the name of SMAP in 2009 with the aim to present TVET as a viable education stream for socio economic development (Moses, 2019). After that such programs remained a constant part of all TVET plans/strategies that remained instrumental in improving TVET's image as education pathway. Pro-TVET slogans were created and awards were given to notable TVET players and partners to improve its image and ownership (Paryono, 2017). Unfortunately, In Pakistan no such drive has been carried out by NAVTEC and respective TEVTAs in the provinces. Their major initiatives are announced in newspaper or in social media that mainly restricts to providing information about the concerned initiative and its expected outcome.

Role of Government in Establishing Linkages:

Government of Philippines has a central role to connect its skill development policies to its National Economic Development plan that results in reducing supply and demand gap and has promoted economic transformation that is evident from its robust growth rate since 2010. When government of Philippines designed and implemented its economic development plan, it aligned its technical and vocational strategies accordingly with a special focus on smooth supply of skilled workforce to execute its economic development plan. HRD and Skill development is an important vertical measure reflected in its industrial policy that puts emphasis on effective coordination with TESDA (Llanto , Ortiz & Kristina , 2015). Similarly, National Technical Education and Skill Development Plan 2018-2022 is the latest strategy in the area that takes into considerations several directives emerging from

Philippines Development Plan 2017-2022, Industry and Regional roadmaps in Philippines to produce an expansive, public-oriented, and sector-based plan (TESDA, 2018). Whereas in Pakistan there is an obvious gap between Nation Skills Strategy for All and Industrial and development policies/plans in the country. No correlations have been drawn that leads to an inference that TVET policy making is done in isolation. The latest strategy primarily focuses on the international assessment areas such as governance/financing, Access, Quality and Relevance and suggests an action plan for these specific areas without stating or linking it with any of the national development and Industrial plans that forms a gap and puts a question mark on NAVTEC being the central TVET Authority in the country for its role in nation building and economic development.

Resilience in TVET:

Comparison between TVET sectors in Philippines and Pakistan can be drawn in terms of their progressive and forward looking TVET policies and strategies. The NTESDP 2018-2022 is indeed timely document and reference that responds not only to the challenges pertaining to work ready and globally competitive Filipino work force as a catalyst for development but it also responds by forecasting and anticipating to the impact of the fourth Industrial Revolution and Globalization to Industries and jobs. Emerging industrial technologies referred to as Industry 4.0 is changing the nature of work and required skills in industrial sector therefore it is significant challenge for developing countries that rely on industries for their economic growth and prosperity. Recently in 2021, with the help of Asian Development Bank, ADB TESDA has prepared policy recommendations as a comprehensive response to Industry 4.0. This includes improved coordination among the three education agencies in Philippines, strengthening governance, enhance enrolment in TVET priority sectors, intensifying linkages with industries, and improve R& D, Collaborations with international partners and national stakeholders (Zhongming et al, 2021). Agility is the concept that is not incorporated in policy formulation of TVET sector in Pakistan.

As discussed in the earlier chapter, outdated and traditional skills are still part of the courses offered and opted mostly in TVET sector in Pakistan. National Skill strategy for all 2018 does not address this issue. Although National Skill strategy was a paradigm shift to shift from the conventional learning to practical learning but does not incorporate guidelines for combating challenges emerging from industry 4.0.

Sustainable and Green TVET:

Another distinguished feature of Philippines TVET sector is its preparedness of future challenges such as Climate change and to prepare strategies to cater to the upcoming demand of green job in green TVET sector. As a part of its strategy, Philippines is doing capacity building programs for its Technical Directors and assistant technical directors to help them understand the importance of green TVET for sustainable development. Although Pakistan is a signatory to sustainable development goals but ecology, climate change, green technology for a sustainable TVET sector are some major missing links in the policy arena of TVET sector. Pakistan is one among the top seven countries that are mostly affected by climate change therefore it requires diversification and improvement in green manpower within the country. The use of green technology in Pakistan is very moderate where a good number of TVET professionals do not have a clear understanding of green technology (Rajput, Akhtar & Akram, 2021). This creates a gap and need for incorporating these ideas in TVET policies and

strategies.

SECTION IV

ISSUES & CHALLENGES

1. The world of work is changing on a daily basis, and as a result, the world is witnessing the Fourth Industrial Revolution (IR 4.0), which has given new impetus to the education and training sectors. Unfortunately, Pakistan is lagging behind in synchronizing it TVET sector with emerging needs of industrial revolution 4.0.
2. There has been failure to implement Green TVET in Pakistan which has resulted into lack of opportunities for individuals to acquire the skills and knowledge needed for green jobs, such as renewable energy, energy efficiency, and sustainable agriculture.
3. Despite being part of TVET policy, there have been issues of access and inclusivity in Pakistan. Especially, in terms of gender disparities, women in Pakistan suffer severe challenges to obtaining technical and education and training. This limits their job and economic empowerment options.
4. One of the most significant difficulties confronting Pakistan's TVET sector is a lack of finance. Because the government only devotes a small percentage of its budget to TVET, there is a scarcity of resources, equipment, and qualified instructors.
5. In Pakistan, the TVET curriculum is frequently obsolete and does not represent current industrial needs. This makes it difficult for graduates to find work and adjust to a changing labour market.
6. TVET education in Pakistan is frequently of poor quality, with insufficient hands-on training and low levels of student participation. As a result, there is a misalignment between the capabilities gained by graduates and those required by industry.
7. There is significant lapse in policies and their alignment with economic, development and industrial plans, an area which has been emphasized heavily by other countries with successful TVET models such as Philippines.
8. In Pakistan, there is lack of market intelligence; TVET colleges frequently lack access to current information on industry demands and employment trends. This makes designing and delivering training programmes that suit the needs of the job market difficult.

CONCLUSIONS

Being cognizant of the importance of TVET, most countries across the world seem keen and passionate to establish a TVET ecosystem to ensure “lifelong skills” and “decent work opportunities” as envisioned in Sustainable development Goals,4 & 8. In Pakistan, TVET sector has been primarily a neglected sector of the country despite all the potential it holds to turn around country’s economic fate. National Vocational and Technical Commission formulated first National Skill Strategy 2009-13 that proved a major shift from curriculum based TVET to skilled-based TVET. Although, it could not attain the benefits to its fullest as they were projected in this strategy yet it remained successful in achieving some great milestones such as NVQF and CBT&A.

In 2019, Pakistan formulated its “National Skills for all strategy” that provides an Action Plan in four major areas of Governance such as TVET Governance (financing), Access of TVET, Quality in TVET and Relevance of TVET. Critical analysis of these areas shows that TVET sector

in the country is not a priority of the government as only 1.5% education sector's budget is spent on TVET; per trainee spending on TVET in Pakistan is low when compared with other countries in the region. Planning is not done before opening a TVET institute therefore; they are saturated even in areas with low demand for TVET as they have higher literacy rates and inclination towards Higher Education. In terms of Quality, Teacher's training is the weakest area and despite having dedicated training institutes, trainings are not frequently conducted. Teachers' qualification is mostly engineering related with no or less knowledge for new skillset such as digital, e-commerce etc. Curriculum is obsolete and consistent for last three decades. Although rate for trainees is almost 70% but it is mostly concentrated in self-employment or entrepreneurship that shows that TVET sector in Pakistan does not have established linkages with industries in the country and overseas market for its skilled labor force

Pakistan's TVET sector is clearly lagging behind such as effective TVET awareness drives, Role of government to develop linkages of TVET sector with central development plans and with industries, reskilling and up skilling its workforce to mitigate the impacts of fourth industrial revolution and incorporating green and sustainable TVET policies. This creates a gap in research and suggests future research to study its possible reasons and to suggest to policy recommendations on how to incorporate them in TVET ecosystem of Pakistan.

RECOMMENDATIONS

From the research conducted above, following recommendations are suggested in policy domain for an efficient and sustainable TVET system.

- Curriculum development in TVET is recommended to be done in isolation as closer collaboration among business/industrial sector, Academia and TVET authorities can help to better understand and incorporate latest global trends and demands in curriculum and to enhance ownership of TVET sector by all stakeholders.
- NAVTEC to conduct regular demand and supply gap analysis and analysis of latest trends in the job market for informed decision making by government and by its Board of governors
- NAVTEC in collaboration with relevant TEVTA must establish job centers in all industrial zones to establish a link among Industry, job seekers and NAVTEC/TEVTA.
- A policy shift from "skills system approach" to "lifelong learning" as per the requirement of Sustainable development goals in the policy arena of TVET in Pakistan is recommended for a sustainable TVET sector in Pakistan
- Local businesses/industries can help government to mitigate impacts of fourth industrial revolution by designing response programs and by up skilling of their employees as a part of their Corporate Social Responsibility.
- Government needs to commit to labor market outcomes instead of supply of training. This can be achieved by conducting Skill mapping of individuals as well as of regions to offer right courses to the individuals and regions, devising soft loans plans in collaboration with Banking sector to ensure employability of all sectors
- NAVTEC to initiate dedicated awareness programs to uplift image of TVET in the country.

- A National Skills Development Fund be established and to collect human resource development levy from certain sectors of the economy to enhance the pool of skills development.

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