





# FROM HUMAN RESOURCE TO HUMAN CAPITAL

**VOCATIONAL EDUCATION IN INDIAN SCHOOLS** 

# **A White Paper**

By The RASICH Group and LabourNet

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**Vocational Education In Indian Schools** 



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### FOREWORD



DR GAYATHRI VASUDEVAN

Chairperson, LabourNet

Vocational Education may have taken its time to enter the common parlance, but it has been around for many years, in the form of apprenticeship, trade schools and community colleges. It was not until late 1980s that governments around the globe started stressing on the need for education to prepare the individuals to obtain and retain jobs and contribute to the workforce. To prepare students effectively, schools needed to offer specialised training, practical-based learning and hands-on experience, some of which could not be fulfilled by the mainstream curriculum.

The gap between theoretical learning and practical training ushered in a need to structure and formalise vocational education. Vocational education programmes were designed to skill, upskill and reskill the workforce in line with industry needs, making it more closely linked to economic outcomes than mainstream education and therefore, more effective in increasing workforce participation.

Gradually, from the development and implementation of vocational education programmes at post-secondary and higher education levels, to the recognition of vocational education as a part of Sustainable

Development Goal 4 by the United Nations, vocational education became a key economic and social objective for governments world over. Over the years, India has also succeeded in emphasising on the importance of vocational education in policy, however, we have not seen similar success in practice. Despite the policy push to vocationalise education, vocational choices are still seen as sub-par to mainstream courses. Additionally, due to lack of awareness and discomfort in mobility, most students either do not opt for vocational training, or if they do, they receive the training outside the system. The lower level of engagement in vocational education programmes is one of the primary factors in the gap between skill demand by the industry and skill availability in the workforce.

To reduce this skill gap, we need to reduce the gap between "learning spaces" and "work spaces". We need a system where skill-based training is integrated within the mainstream curriculum, from high school to graduation. By giving students access and exposure to vocational subjects at an early stage, we create a system that offers higher levels of practical-based learning, deeper specialisation and greater freedom of choice over career trajectories. Such a system not only aligns with the needs of the industry, but also increases the alternatives available to students. Vocational programmes also create a space of continuous learning and upskilling opportunities available to the students and have had great success in accommodating socio-economic diversity, by increasing flexibility in learning through tailor-made curricula and instruction, which suits the varied regional contexts and employment trends.

Therefore, the goal extends beyond integrating vocational education in mainstream curriculum, to learning from its successes in increasing workforce participation outcomes, inclusively and sustainably.

The ongoing pandemic, along with testing our resilience as human beings, has also tested the agility of our systems. Within a year, the conventional classroom had to adapt and evolve into an online and remote one, and students, teachers and trainers had to adjust to newer ways of teaching and learning. Furthermore, numerous schools have recognised the need to broaden their curriculum, and have started offering courses on "new age skills" to prepare the students for the next generation of jobs.

The trend indicates an increased emphasis is being given to relevant, practical and objective-oriented learning which aligns with the skill demands of the industry. To capitalise on this dividend, we need a strong vocational education system, which can be both, the tipping point and the way forward.

### PREFACE



**RAMIT SINGH CHIMNI** Founder, The RASICH Group (TRG) Education has been both, a subject of economic policy and socio-economic growth discussed by world leaders and governments, as well as a subject of personal introspection by all of us individually. At some point of time, each one of us has conducted a deep inquiry into the purpose and utility of the education we have received or are receiving, and it was seen as the greatest challenge for the stakeholders in education to provide clarity in that direction.

However, the actual challenge was not to come up with a universally applicable purpose statement for education, but rather the need for stakeholders, such as schools, teachers, students and parents, to sit down together at their school or community level and try to find consensus in the value that learning is supposed to provide. This rarely happens, leading to a massive gap in the perspective and clarity on the purpose of education among students, teachers and even schools themselves.

In India, vocational education faces the same challenge. There is a lack of consensus between stakeholders on the direction vocational education should take and a large part of the young population has very limited awareness on the purpose of vocational education. In India, vocational

education is seen as an off-the-beat, alternative, sub-par or supplementary stream of education, suitable for people who have a lesser socio-economic standing and are willing to settle for a less appealing career. Surprisingly, the trend in developed countries such as Germany, Japan and the US is polar-opposite, and these countries have seen an increasing number of students build fulfilling careers through vocational training. It seems that the primary difference between developed and developing countries is the lens through which the schools, students, teachers, governments and private sector organisations view vocational education and its place in the education system.

The idea behind this white paper is to at least challenge the current lens and provide a rationale to change it to one that can view vocational education as a broader, more relevant and integrated part of the overall education system.

Much has been written on the social, cultural and economic transformation that education can bring with effective policy and implementation, but the inclusion of vocational education in these plans has been relatively recent. Current policies have given higher weightage to the development of access and infrastructure for vocational education, yet the interventions required to bring about a change in perspective towards vocational education is missing.

At present, the first step we need to take is to build conversations and literature around vocational education to change its positioning in the minds of students and to help them see the relevance, as well as the potential of specialised education in building stable and fulfilling careers. To do so, it is imperative for all stakeholders to communicate and build consensus, and through it, reposition vocational education as the most effective solution to reduce the skill gap that exists in the economy.

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## **EXECUTIVE SUMMARY**

#### 1.1. THE NEED FOR VOCATIONAL EDUCATION

As early as the industrial revolution, a clear and potent relationship has been established between the economic output of a country and its education system. The span and standard of education and training infrastructure of a country has a direct impact on the levels and quality of its workforce participation. In a country such as India, which has the largest workforce in the world, the importance of this relationship is further amplified to the extent that it becomes the delta between economic success or opportunity loss.

In simpler words, the gap between the skills required by the industry and the skills available in the workforce is the "missing middle" that hampers overall economic growth. The responsibility of bridging this divide falls on the education and training infrastructure and more specifically, on the contribution of the Technical and Vocational Education and Training (TVET) system. TVET broadly refers to the methodology of imparting skills and knowledge that are linked to a specific profession or occupation. While it exists in tandem with the conventional educational curriculum, itis also closely related to the skill demands of the industry sector. TVET, as a curriculum, is implemented in schools and colleges with the key objective of helping students attract and retain employment.

#### **1.2. VOCATIONAL EDUCATION IN THE INDIAN CONTEXT**

At present, India struggles with finding solutions to capitalise on its demographic dividend. Despite adopting a progressive policy outlook and an aggressive expansion of the industry sector, the production, employment and economic growth levels are lower than the benchmarks set by the government over the years.

A comparison with the developed and developing countries of the world along with insights shared by experts and a comprehensive literature review, identifies the missing link as the inability to adequately transform the abundance of human resource to productive human capital, which makes the success of vocational education a crucial factor in economic growth.

#### 1.2.1. Current State of TVET

In the Indian context, the importance of a robust and inclusive TVET has been evident to the government even before the demographic dividend. TVET has been a key intervention area, at least from a policy perspective. From as early as independence, vocational education has been a separate component in the central education policy, which subsequently led to the establishment of the National Council of Skill Development and the National Skills Qualification Framework (NSQF). More recently, the National Education Policy (NEP) has addressed the infrastructure, as well as the socio-cultural interventions required in the TVET system, which is a significant step towards strengthening the vocational training environment.

While TVET has climbed up in the priority list of policies, the implementation has not yielded required results in the past decade. In addition to this, the current TVET infrastructure in India has limited access.

Furthermore, there seems to be a dearth of an indepth review, analysis and documentation focused on TVET, which leads to bounded rationality in policy development and implementation. This bounded rationality has translated into lower levels of enrolment, training quality and workforce absorption.

#### 1.2.2. Evidence in Policy

This white paper begins by exploring TVET as a theoretical construct in the Indian context and proceeds to empirically review the government policies on the subject. The review includes policies on education from the First National Policy on Education (1968) to the recent National Education Policy (2020), with emphasis on the treatment of vocational education in these policies.

While the trend suggests that the government has increasingly recognised the importance of TVET, the first evidence of significant implementation was seen only during the Eleventh Five-Year Plan (2007-2012) in the establishment of the National Skill Development Council (NSDC) in 2008, followed by the National Skill Qualifications Framework (NSQF) in 2013. Subsequently, the founding of the Ministry

**2008** Formation of the National Skill Development Council of Skill Development and Entrepreneurship in 2014, paved the way for 'Skill India', 'Make in India' and 'National Policy on Skill Development and Entrepreneurship' in 2015.

The NEP (2020) has further increased emphasis on TVET capacity building and proposed systems such as early exposure to vocational education options, integrating the vocational education curriculum with the regular curriculum, setting up collaborative learning with ITIs and schools, increasing mobility through the Academic Bank of Credits (ABC) and including new age skills such as AI and Robotics as choices of specialisation. Additionally, increased infrastructural support provided to vocational programmes in higher education, such as the Bachelors of Vocational Education (B.Voc) degree and diploma programmes has increased choice and mobility available to students interested in pursuing a career in their vocation.

However, various changes proposed in the previous policies are still pending implementation. This includes

the provision for setting up a national institution for training vocational education trainers, along with a specialised fund for the same. In addition to this, the present systems in place are not being utilised optimally.

# **1.3. CHALLENGES IN THE TVET SYSTEM**

Through interviews with stakeholders and review of secondary data, it was found that the TVET environment is replete with challenges. It is imperative to not only identify these challenges, but to comprehensively understand and document them to guide policy and implementation.

The white paper lists these challenges, broadly dividing them into three categories, namely, systemic challenges, socio-economic challenges, and private sector involvement.

The systemic challenges pertain largely to the availability, mobility, utilisation and development of resources, which requires a change in the policy ecosystem, creating greater efficiencies in capital investment. These challenges include inefficient management of resources, inadequate financing and lack of human resource development.

The socio-economic challenges include the demand and supply mismatch, gender disparity, a widening digital divide and regional imbalances in development. These challenges are inherent in the inequitable distribution of benefits in society and require micro-level interventions customised to the regional or demographic diversity. While policies can guide efforts on the ground, socio-economic challenges require the government to adopt a decentralise-and-delegate approach to allow schools the freedom to develop their own solutions.

Private sector involvement is a standalone challenge, which despite being side-lined in lieu of emphasis on policy, is crucial for the success of TVET outcomes. The private sector serves as both, a source of capital for the TVET system as well as the primary employer for students. Furthermore, the private sector contributes significantly to the national skill demand, which in turn influences the objectives of the TVET system. The lack of private sector involvement shrinks the capital influx in TVET and increases the skill gap in the workforce, thereby necessitating the need to involve the private sector in all key activities of vocational programmes. This can include but is not limited to, curriculum development, training delivery and assessment, as well as infrastructure building, outreach and awareness.

Each of the listed challenges have been studied to identify the root cause and to assess solutions. While the challenges have been studied individually, the solutions framework proposed in the white paper takes a holistic and gestalt approach. The framework is based on the maxim that an improved synergy between the identified stakeholders is key in improving the outcomes of the TVET system.

#### **1.4. SOLUTIONS FRAMEWORK**

To address the challenges identified, the paper proposes two frameworks that are based on collaboration between stakeholders and clear calls-toaction in key intervention areas, respectively.

#### 1.4.1 Stakeholder Framework

The white paper establishes a stakeholder framework by identifying three key stakeholders, namely, the government, the schools and the private sector, and mapping the challenges that they need to address by leveraging the synergy between them.



#### 1.4.1.1. Government and Private Sector

In large part, the role of the government (whether state or central) and the private sector is to build capacity in the TVET system, and more importantly, to build such capacity in the right direction. The government and the private sector, on one hand, are the source of inputs required by the education sector, especially for capital, infrastructure and skill-demand. On the other hand, they also collectively need to absorb students in the workforce as employers. In the intersection between them in the TVET ecosystem, the government and the private sector are faced with the challenges of mobilising capital, identifying skills needed by the economy and balancing regional growth.

#### 1.4.1.2. Government and Schools

The synergy between government and schools is crucial in determining tangible success of TVET planning and policy. Their role is to ensure effective and efficient implementation of policy provisions, capacity building plans and capital utilisation strategies. In that regard, government and schools need to identify and focus on bridging the skill demand and supply gap and find ways to utilise the existing capacity optimally, as well as to increase the access to a diverse set of students.

#### 1.4.1.3. Schools and Private Sector

The intersection between schools and the private sector is as important as it is ignored or dormant. An active involvement of the private sector in curriculum development, training methodology and creating awareness towards vocational and softskills education allows the overall efforts exerted by schools in vocational education to be aligned with industry needs, leading to higher levels of workforce absorption. Additionally, regular interactions between schools and the private sector opens up a space for the students to test the practicality of the knowledge they receive early on, which leads to creating a more engaging learning experience and in turn, increases enrolment and retention in schools.

#### 1.4.2. TVET Value Chain

In order to make recommendations to policymakers and stakeholders, the paper proposes a value chain view of the TVET system to identify key intervention areas, including primary activities such as curriculum design, training delivery, assessments, measurement of learning outcomes and placement, and support activities including governance, access and infrastructure, human resource management and research and innovation.



Based on these models, the white paper enumerates clear calls-to-action for each activity and the role of each stakeholder in the same.

## 1.4.2.1. Key Primary Activities: Curriculum, Delivery and Assessment

The paper calls for developing a broader curriculum that offers more choices and is independent of, and equivalent to, regular curriculum offered by schools. The interventions required in curriculum include the involvement of the private sector, teachers and alumni of vocational programmes, in the development of the curriculum, while leaving space for flexibility to make the curriculum relevant across regional diversity during implementation. To do so, it is necessary to regularly review and revise the curriculum at the school level, as well as at the state level. The paper proposes setting up a committee including representations from all stakeholders to develop, monitor and update the curriculum annually based on quidelines set by the National Curriculum Framework (NCF).

On the subject of training delivery, the paper proposes increasing the use of technology to improve access to a larger group of students in tandem with creating provisions for classroom delivery at hyperlocal levels where digital penetration is lesser. The latter should be done by converting smaller institutes and training centres into affiliated centres governed by larger schools in the catchment areas who can share infrastructure and resources with the former. Furthermore, the schools should regularly invite industry professionals to deliver practical lessons or arrange for visits to industry to provide a broader exposure to students.

Trainers should also incorporate field-based or laboratory-based delivery for their lessons, for which schools should aim to build or share the capacity available in their catchment areas.

With regards to assessments, the paper posits the need for changing the perspective towards assessments in the vocational education model from retention and accuracy in theory, as is seen in the regular curriculum, to a comprehensive and practical test of employability of the students. The assessments should include practical skills and should involve peer-based evaluation of soft skills. Additionally, students and the private sector should also be involved in the development and evaluation of these tests.

In addition to this, the recommendations for primary activities also propose changing the parameters used for measuring learning outcomes to include engagement and employability and creating regionalised employment opportunities, promoting part-time work, internships and credit-based field work to improve workforce absorption. Reiterating the suggestions made above, it is recommended that to increase workforce absorption, the private sector should be involved in development of the curriculum, creating awareness and providing early exposure to students and generating regional employment.

## 1.4.2.2. Key Support Activities: Governance, Access and HRM

For support activities, the paper has identified the need to establish a more rigorous training and appraisal system for trainers, setting up of training centres and benchmarking training methodology, regular assessment and incentivisation of trainer performance to increase the number and quality of trainers in the system. Furthermore, the government should look at converting non-performing assets into revenue positive centres by involving the private sector and hyper-localising training providers by providing affiliations and creating a hierarchical support system with schools and training centres.

The overall objective of the support ecosystem should be to attract talent and capital by creating a more lucrative investment opportunity in TVET, which is only possible if the government incentivises schools to promote vocational education programmes which involves the private sector for developing human capital in terms of both, students as well as trainers. The incentives for schools can be in the form of subsidies in infrastructure development, increased access through shared resources and regular appraisal of schools and trainers. Incentives for the private sector are inherent in the increase in availability of skilled workforce regionally, which will come as a result of the above intervention itself.

# 1.5. INTEGRATING SKILL AND KNOWLEDGE

The overall prerogative posited by the study is to eliminate the difference between a conventional knowledge-based education system and predominantly skill-focused vocational programmes, by integrating the two and rationalising the need for both theoretical knowledge and practical application in developing human capital.

Improving the outcome of vocational education inasmuch the overall education system, it is imperative to transition from a solely knowledgebased training and assessment model towards a framework that allows opportunities within the training years to apply said knowledge. More often than not, such opportunities are only available to students when they are absorbed in the workforce, making it too late to intervene and bridge the skill gap, if any. To do so, it is necessary to bring about a paradigm shift in the manner vocational programmes are positioned in the economy as well as in comparison to regular school education.

The paper provides a snapshot of the suggestions made throughout the study and during interactions with representatives of stakeholders, to provide a checklist for developing action plans in the future.

To summarise, the white paper addresses the lack of comprehensive literature on the status of TVET in India, by documenting both descriptive and prescriptive insights on the subject. It identifies the evolution of TVET policy and implementation over the years, past success and present challenges, case studies from within the countries and across the globe and recommendations to address the problem areas.

The core purpose of developing literature on TVET is to further enhance and expand policy perspectives in tandem with supporting the development of a pathway for implementation guidelines and control mechanisms. The white paper serves as the starting point for assessing where the TVET system stands today, where it needs to go and how it can get there.



----- – Mahatma Gandhi

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## **INTRODUCTION**

#### **2.1. TVET DEFINED**

#### 2.1.1. TVET in the Indian Context

Education plays a prominent role in the social and economic progress of any country. It improves functional and analytical abilities of individuals, and consequently, provides them with opportunities to achieve greater access to labour markets and different sources of livelihoods. Higher levels of knowledge and skills in a country translates to effective and prompt responses to global challenges.

India has been following a system of vocational education that dates to the ancient Vedic culture. Traditional apprenticeship relations were prevalent between gurus and students, as well as fathers and sons. For example, in the Gurukul system of education, disciples were required to perform different types of manual labour for living, as well as for learning.

However, as time passed the practicality of education started being neglected, resulting in it becoming more textual. There was no provision for practical exposure or hands-on training in the curriculum. Even at present, India struggles with an education system wherein rote learning is being promoted more than the practical application of knowledge.

According to the 12th Five-Year Plan (2012–2017), less than 5% of the Indian workforce in the age group of 19–24 years received formal vocational education. In contrast, in countries such as the USA, Germany and South Korea, the percentage of individuals in the same age bracket who received formal vocational education were 52%, 75% and 96%, respectively. These numbers only underline the urgency with which the country needs to hasten the spread of vocational education in India. The Indian education system has traditionally been focused on obtaining degrees and certifications. For those who complete their higher secondary education, obtaining a bachelor's degree, usually becomes their next focus. This trajectory is owed to the curricula for these programmes which often does not match the desires of how students want to learn, nor to the requirements of the job market.

The Economic Survey for the financial year 2020-21 stated that merely 2.4% of India's workforce in the age group of 15-59 years had received formal vocational education or technical training, while another 8.9% received this training through informal sources. This points to the lack of attention given to vocational education and the consequent languish.

Eric Falt, Director and UNESCO Representative for the UNESCO New Delhi Cluster Office, observed the following in the State of Education Report for India 2020: Technical and Vocational Education and Training (TVET): "Yet, while vocational education is steadily rising to the top of policy agendas, the capacity of systems to respond to multiple demands and to shape the future, is often limited. Much more needs to be done to address challenges related to quality, relevance, acceptability, inclusion, and the ever-increasing digital divide. This year has also been unlike any other in recent memory. The COVID-19 pandemic has stressed healthcare infrastructure, labour markets and employment to a degree never seen before. In a sense, this has exposed not only the major fault lines in the vocational education and training systems but also their raison d'etre. Skills are increasingly becoming the global currency of 21stcentury economies."

While the practice of vocational training in India has been at a nascent stage for decades, with the

introduction of the National Education Policy (NEP) in 2020, exciting developments can be expected in the future. India has made considerable progress towards its goal of creating a skilled workforce of 110 million by 2022 as stated in the National Policy of Skill Development and Entrepreneurship (NPSDE) released in 2015 (NPSDE, 2015). Therefore, despite a slow start, vocational education is drawing attention from stakeholders and is being repositioned as an integral part of the overall education policy.

#### 2.1.2. Definitions

Vocational education consists of practical courses through which an individual can gain the necessary skills and experiences that are directly linked to a specific career pathway in future. It refers to instructional programmes or courses that focus on the skills required for a particular job function or trade. In vocational training, education prepares students for specific careers, disregarding traditional and unrelated academic subjects.

According to UNESCO, Technical and Vocational Education and Training (TVET) is a comprehensive term referring to those aspects of the educational process that involves, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. It also refers to deliberate interventions to bring about learning that would make students adequately productive in designated areas of economic activity.

As per the All India Council for Technical Education (AICTE)<sup>1</sup>, Vocational Education or Vocational Education and Training (VET), also referred to as Career and Technical Education (CTE), prepares learners for jobs that are based on manual or practical activities, traditionally non-academic and related to a specific trade, occupation or vocation in which the learner participates. It is also sometimes referred to as technical education, as the learner directly develops expertise in a particular group of techniques or technology.

# 2.1.3. Importance of School-based TVET

Various examples can be cited to emphasise the importance of vocational training programmes in schools. For instance, Vigyan Ashram (VA), a centre for the Indian Institute of Education (IIE), believes that a child learns a language on their own by the time they turn 2-3 years old. However, they are unable to master another language even in the next 10 years of schooling because the child learns their mother tongue by the 'natural system of learning', that is, through 'learning through real-life experiences'. Vigyan Ashram imparts learning through activitybased thinking and focuses on providing diverse experiences to the students, while leveraging technology to increase the pace of rural development.

Udhyam Learning Foundation aims to co-create social interventions that build entrepreneurial mindsets in people so they can have the intrinsic abilities to respond to unpredictable challenges in the future. They apply their vision through Udhyam Shiksha which believes that education needs to look beyond academics and that, it needs to build

mindsets to adapt and thrive in an ever-changing world. These entrepreneurial mindsets are not only about starting a business, but also, about how one approaches life. Udhyam Shiksha creates innovative

110 million skilled workforce by 2022

educational interventions that are rooted in the real world for the youth to equip themselves with an entrepreneurial mindset. The training is also linked to credible credentialing. This helps the workforce attract a premium wage in the markets for their skills and provides an opportunity to qualified works with competence in technical fields to potentially secure middle-class income.<sup>2</sup>

The National Skill Development Corporation (NSDC), in collaboration with the Central Board of Secondary Education (CBSE) has recently announced the launch of the first edition of the JuniorSkills Championship in 2021.

<sup>1</sup> https://www.aicte-india.org/education/vocational-education

<sup>2</sup> https://econweb.ucsd.edu/~kamurali/papers/Published\_Book\_Chapters/Muralidharan%20-%20School%20Education%20Reforms%20India%20 (February%202019).pdf

This championship aims to achieve the objectives laid down by the Skill India Mission, which emphasises on TVET for creating a productive and self-reliant workforce as part of nation building. The championship will be promoted through 21,000+ CBSE-affiliated schools across India. It is targeted at students from 6th grade to 12th grade across the country and will provide a platform for talented students to showcase their skills. Such steps, if taken routinely, could prove to be effective in increasing the role of skill development at the school level. According to the Ministry of Skill Development and Entrepreneurship, the introduction of skill training at the school level will certainly play a pivotal role in providing lifelong learning opportunities to students and enhance their prospects of sustainable livelihood opportunities in<sup>3</sup>

Some of the leading education systems in the world, including those in Singapore, Germany, and Switzerland, have been giving students exposure to vocational streams during middle-school. This helps in the holistic development of students as opposed to when students are only subjected to rote learning.

A comprehensive approach towards education is the need of the hour and should include the youth who need to be skilled for jobs in the future. Imparting of vocational education from a young age would be crucial to achieve this.

#### 2.2. METHODS

The State of the Education Report for India 2020 by UNESCO analyses three methods which are used to impart vocational education/training.

#### 2.2.1. Formal Training

This method pertains to imparting training through institutions and organisations which are recognised by national certifying bodies and provide diplomas, certificates, and qualifications. This form of training follows a formal and structured programme which entails qualification outcomes, standardised assessments, and pre-determined curricula.

#### 2.2.2. Non-Formal Training

This entails a more flexible approach and is provided through community-based settings, in an individual's working environment, or through organisations outside of the formal training system such as civil society organisations or non-profit organisations. It is not as structured as formal training programmes but does have a set syllabus and curricula.

#### 2.2.3. Informal Training

Informal training entails through the learnings from one's daily life through their interactions with individuals, as well as through the interests one develops for themselves.

#### 2.3. INSTITUTIONAL FRAMEWORK

In India, organisations which are affiliated to government ministries, such as the Ministry of Skill Development and Entrepreneurship (MSDE) and the Ministry of Education (MoE), provide vocational education. Organisations also work alongside the industry to impart TVET.

In India, vocational education and training is imparted primarily by institutions set up by the government or affiliated to the ministries, such as the Ministry of Skill Development and Entrepreneurship and the Ministry of Education. However, companies also provide inhouse training as well as apprenticeship to a selective set of individuals specific to the stream or role they have been assigned.

The organisations include:

- a) Industrial training institutes (ITIs), Industrial Training Centres (ITCs) and polytechnics.
- b) Secondary and higher secondary schools, colleges, and universities.
- c) Private vocational training partners affiliated to the National Skills Development Corporation (NSDC).
- d) Companies that provide in-house training, but also offer apprenticeships separately.

3 https://www.businesswireindia.com/nsdc-in-collaboration-with-cbse-launches-first-edition-of-juniorskills-championship-to-encourage-vocationaleducation-at-school-level-71413.html



- e) Ministry of Labour and Employment (MoLE) and the Ministry of Human Resource Development (MHRD) are the two ministries formulating policies for the Vocational Education and Training (VET) sector in India. Organisations under these ministries include:
- AICTE: Prepares curriculum and imparts vocational higher education through polytechnics; and
- NCERT: Prepares curriculum and imparts vocational education at the school level via open schools.

MoLE is assisted by the Directorate General of Employment and Training (DGE&T), which imparts vocational training through the Craftsmen Training Scheme (CTS) and the Skills Development Initiative Scheme (SDIS).

#### 2.4. NEED FOR TVET

#### 2.4.1. Why TVET?

Pursuing higher education in the conventional way is not an option for many individuals. This includes students from low-income groups, as well as those who do not have the requisite resources to pursue academically straining courses. Such individuals prefer to drop out of the education system and undertake low productivity jobs instead.

Additionally, organisations today need skilled employees. Practical skills are given more importance in the current job market, and an individual who is specialised in a technical trade or vocation is better positioned in comparison to an individual who only has an academic degree.

Taking this into consideration,

vocational training cannot be viewed only as an education initiative but also as a vehicle to generate employment and sustain an efficient labour-force in a country.

TVET exposes students to real-world perspectives and helps them make identifying and choosing from a broader range of employment opportunities, thus increasing their prospects of building a fulfilling career.

#### 2.4.1.1. Productivity

TVET helps individuals to be more productive in their jobs and helps them use their skills efficiently. This contributes to the overall productivity of an

**₹93,224 Cr.** Education budget for FY2021-22 organisation by increasing its cost-effectiveness in tandem with improving the quality of work.

#### 2.4.1.2. Supply of Skilled Resources

Institutions have a ready pool of talent with the required skills. This not only makes the recruitment process easier, but also ensures selection of professionally skilled employees.

#### 2.4.1.3. Employment Opportunities

Trained individuals have better employment opportunities to look forward to, and in some cases, may also help in self-employment.

#### 2.4.1.4. Broader Horizons

Skill development in areas other than academic interests helps exposing students to different ideas and ways of thinking. This in turn, leads to a broader perspective and introduces them to practical scenarios.

# 2.4.2. Drawing a Parallel with Developed Countries

Economies tend to grow when they shift from an agriculture-based setup to a predominantly manufacturing and services-based setup. This shift calls for an increase in skilled labour, the demand for which should be met through TVET. Empirical data indicates that technical and vocational training institutions contribute more to the development of a skilled workforce in comparison to other educational institutions.

The gap between the supply and demand of skills is a key factor in the increasing unemployment rates, especially in developing countries. The premise is that TVET results in a faster transition in the workplace. Therefore, countries which have taken care of this premise have been successful in maintaining low youth unemployment rates. Working on the advancement of the TVET system is what propelled European countries like Germany, Switzerland, Austria and the Netherlands to achieve higher economic growth rates leading to growth in output and labour productivity, also witnessed in countries such as Japan, South Korea and the United States of America. In contrast, insufficient funding in TVET in developing countries is a determinant of higher unemployment rates and consequently lower economic growth.

The Indian education sector received a budget of INR 93,224 crores for FY 2021-22 which is 6.13% lower than budget estimates for 2020-21.

Amongst South Asian countries, India has the second-lowest score in quality of education, ahead only of Afghanistan. Despite India being one of the largest economies in the world, the country's public education spending does not even come close to the average of the amount spent on education by developed countries.

For instance, the limited natural resources and threats from globalisation is what steered Finland to focus more on TVET. Finland started harnessing its human capital by implementing TVET centred policies, which in turn, played an important role in lowering youth unemployment rates contributing towards economic development.

A persisting issue associated with implementing TVET in developing countries is the stigma that is usually attached to these skills. The low regard for technical and vocational training programmes can be understood as being rooted in the developing countries' colonial past, where TVET was associated with skills being given to the group of individuals considered 'inferior'. Those groups that were considered 'superior' usually opted for white-collar jobs.

Investing in the skills development of a nation through vocational training is a critical component of human capital development. The investment in human capital development has played a critical role in helping South Korea achieve rapid economic growth. When the Korean government implemented industrialization policies in the 1960s and the late 1970 to match the demand and supply skill gap, Korea experienced two large growth spurts in the respective years. TVET helped supply industrial workforce in South Korea.

Taking this into consideration, many empirical studies, set in both, developing and developed countries, show that vocational education increases participation of individuals in the workforce, employability, probability of employment, as well as wages of the workers.

#### 2.4.3. Opportunities Due to COVID-19

The COVID-19 pandemic drastically impacted the employment of many individuals, wherein many skilled as well as unskilled workers either lost their jobs or were forced to migrate due to lockdowns imposed in areas where work was available. The largescale displacement of workforce and migration of workers to rural areas is indicative of the disbalanced regional growth specifically in terms of employment opportunities. Additionally, the pandemic also revealed the lack of access to skill-development infrastructure in rural areas, which was evident in the inability of the workforce to find alternative means of livelihood during the pandemic. The brunt faced by the workforce across the country was in part due to the deficits in the TVET system, further stressing on the importance of vocational training in ensuring job security and economic stability.

However, in responding to the pandemic, the government and the education system have discovered ways to not only mitigate the damage caused by the pandemic but also improve the effectiveness and efficiencies of the TVET system. For instance, the use of technology to facilitate remote learning and development of supplementary programmes to support the workforce have led to identification of avenues where learning can be customised and scaled for a larger set of individuals. Similarly, the pandemic has led to the expansion of the curriculum to include short-term focused courses, beyond the regular school curriculum, aimed at increasing the employability in tandem with upcoming trends in the job market.

In spite of the losses caused by the pandemic, there are numerous opportunities that can be leveraged by the stakeholders to build a better and more robust TVET system.

#### 2.4.3.1. Hybrid Learning

- a) Nearly all industries were affected by the pandemic and a majority of them suffered adversely. A few organisations, however, were able to turn the threat posed by the pandemic into an opportunity which highlights the ways in which such sudden changes can be tackled.
- b) Usually, vocational training requires the physical presence of both, students and teachers, especially in apprenticeships where the practical aspects are extremely important. Theoretical learning over online classrooms does not cover the curricula of vocational education and hence, this requires a change in approach towards TVET.
- c) An ILO-UNESCO-World Bank survey revealed that the majority of TVET providers (35 out of 92 countries) reported not using distance learning at all prior to the crisis. But during the pandemic, alternative approaches were introduced to provide

practical skills training and conduct assessments. This was made possible by using both, online and offline platforms. For instance, many respondents reported the use of existing online platforms such as Massive Online Open Courses (MOOCs) and the Modular-Object-Oriented Dynamic Learning Environment (MOODLE), video tutorials, live video conferences and simulators where possible.

d) In countries such as Australia and the United States of America, teachers are initially trained online. In some countries, students shot videos and photos of practical tasks that were being carried out at their homes and uploaded them onto virtual platforms. This model has the potential to be replicated elsewhere as well.

#### 2.4.3.2. Short Term Courses

- a) In an interview, the principal of Khalsa College of Education for Women stated that the pandemic has provided a paradigm shift in education. Students are now opting for short-term, vocational courses such as retail management, diet and nutrition and styling, amongst others. This increased demand might be due to the easy exit options available under vocational courses. Students have the flexibility to choose from a diploma, degree or a certificate course.
- b) While vocational training requires practical experience and work-based learning, the ILO-UNESCO-World Bank survey revealed that since the COVID-19 outbreak, the uptake of distance learning approaches in TVET has accelerated worldwide.

#### 2.4.3.3. New-age Skills

a) During the pandemic, the number of websites created in the first three months of the lockdown was almost equal to the number of websites otherwise created in a year. This indicates the latent potential, specifically in the IT sector, that can be tapped for by providing adequate training and project opportunities. The pandemic has



opened up a number of opportunities and has increased the demand for new-age skills like digital marketing and data analytics.

- b) Vocational teachers also need high quality digital delivery skills and confidence in using web conferencing solutions. The pandemic has pushed trainers to become not only proficient in the use of technology but also find innovative ways to integrate technology in training delivery.
- c) The existing digital skills gap has increased due to the pandemic, especially in developing countries. TVET can play a significant role in bridging this gap and helping people earn while they learn. It can provide young learners the initial skills they need for a fulfilling career.

#### 2.5. REVIEW OF GOVERNMENT POLICIES

#### 2.5.1. Independence

At the time of independence, technical education in India was available through 38 engineering colleges, with an intake capacity of nearly 3,000 students that offered degree courses, and 53 polytechnics – with an intake capacity of 3,700 students that offered diplomas.

In the consequent years, the government focused on imparting technical education to students in Grade 10. In 1949, Dr S. Radhakrishnan emphasised the need for new types of engineering and technical institutes in India. The Ministry of Labour and Employment (MoLE) initiated the Craftsmen Training Scheme (CTS) for students passing out of Grade 8, as early as in 1950.

By 1966, the number of polytechnics in India grew to 284, with an intake capacity of about 49,000. However, even after almost 50 years of independence, Industrial Training Institutes (ITIs), which are government run centres for imparting vocational training in India were only able to cater to 6,60,000 youth by 2002.

# 2.5.2. First National Policy on Education (NPE, 1968)

The first National Policy on Education 1968 (NPE, 1968) stated that practical industry training should be an integral part of technical education. On paper, while the Indian government had focused greatly on TVET, the decisions taken were not implemented efficiently. Soon after, education at the polytechnics became very theoretical, and unemployment amongst diploma holders became rampant.

Taking this into consideration, The Damodaran Committee suggested several reforms which included quality improvement programmes, increasing autonomy of state boards, assessing examination reforms and entrepreneurship programmes. However, the government faltered on the implementation of these reforms. This was perhaps because education was then the responsibility of the state governments, as per the Indian Constitution, and several states did not agree to follow these recommendations.

# 2.5.3. Second National Policy on Education (NPE 1986)

India's second National Policy on Education (NPE 1986) consisted of the implementation plan titled, 'The Programme of Action (POA) 1992' ('The POA 1992'). It assessed that the intake in vocational streams. at the time, was about 72,000 students, and that only about 2.5% of the students entering the higher secondary level were receiving vocational education.

Several factors were pinned down for this, which included the absence of a well-coordinated management system, unemployability within students completing vocational courses, skill demand and supply mismatches and the lack of widespread acceptance of vocationalisation as a concept.

These factors still are important, as is detailed in the following report. The POA 1992 aimed at covering 10% of higher secondary students by 1995, and 25% by 2000. Additionally, it also aimed at setting up the Central Institute of Vocational Education (CIVE, now known as the PSSCIVE) as a constituent unit of the NCERT.

The POA 1992 observed that nationally, vocationalisation at the higher secondary level and vocational education for out-of-school students came under numerous organisations under different ministries of the government without proper coordination and linkages. This mismanagement is still prevalent.

#### 2.5.4. Eleventh Five-Year Plan (2007-2012)

Based on the 61st round of NSSO survey (2004–2005), only 4% of the population between 15 and 29 years of age had received (or was receiving at the time of the survey) formal vocational training. 8% of that age group had received non-formal VET. Consequently, The Eleventh Five-Year Plan (2007–2012) was aimed at strengthening the TVET system.

The National Skills Development Corporation (NSDC) was set up in 2008 as a public-private partnership, and the first National Skill Development Policy announced in 2009 aimed to train as many as 500 million youth by 2022. It is a not-for-profit public limited company incorporated on July 31, 2008 under Section 25 of the Companies Act, 1956 and was set up by the Ministry of Finance as a Public Private Partnership (PPP) model.

NSDC provides support to build scalable and profitable vocational training institutions across the country. It also acts as a catalyst in skill development by providing funding or technical assistance to enterprises, companies and organisations associated with skill development. NSDC aims to promote skill development by catalysing the creation of large, quality and for-profit vocational institutions. Furthermore, the organisation provides funding to build scalable and profitable vocational training initiatives.

The sector skill councils (SSCs) were set up by the NSDC to assist industries by streamlining the process of skill-gap analysis, training as well as assessment.

The National Skills Qualifications Framework (NSQF) was adopted in 2013 to improve the credibility of vocational courses, increase the trust in the system, gain international recognition for skills and improve access routes. It was,

**2013**Adoption of the

National Skills Qualification Framework

therefore, to be a nationally integrated education system and a competency-based skill framework for multiple pathways. This framework organises qualifications according to levels of knowledge, skills and aptitude. These levels are defined in terms of learning outcomes which are acquired through formal, non-formal or informal learning and designed to enable a student to acquire desired competency levels and transit to the job market.

#### 2.5.5. Ministry of Skill Development and Entrepreneurship (2014)

In 2014, the Narendra Modi Government created a Ministry of Skill Development and Entrepreneurship in order to centralise and manage training processes, assessments, certification and outcomes, and to develop Industrial Training Institutions (ITIs). The council announced the setting up of 1,500 new ITIs, as well as 50,000 Skill Development Centres. This was covered under the government's 'Skill India' initiative.

'Skill India' was to complement another flagship scheme which was launched in 2014,'Make in India', a policy promoting domestic industrial development and thereby inviting foreign capital investment in the Indian market. This also paved the way for training local entrepreneurs. Pradhan Mantri Kaushal Vikas Yojana was one of the most crucial parts of the Skill India initiative. The PMKVY's budget was approximately INR 12,000 crore for four years (2016-2020). Its main tool was short-term training, which could last between



Source: NSDC

150 and 300 hours, and included some placement assistance as well. The training fee was to be paid by the government.

#### 2.5.6. National Policy on Skill Development and Entrepreneurship (NPSDE)

The National Policy on Skill Development and Entrepreneurship (NPSDE), 2015 was another major step taken by the Narendra Modi government. Its core objective was to empower individuals by enabling them to realise their full potential by providing access to capital, skill development, incubation and market capitalisation support. In order to integrate vocational education with formal education, the NPSDE recommends that 25% of schools and colleges offer vocational education courses.

# 2.5.7. National Education Policy (NEP) (2020)

The NEP 2020 has introduced much-needed educational reforms and has also focused greatly on TVET. It aims to introduce vocational courses from Grade 6 to expose children to vocational training from a younger age and consequently, change the manner in which society looks at TVET. The policy's objective is to solve the current day mismatch between labour demand and supply since job-seeking youth are unable to find work even as industries and businesses are falling short of the requisite trained labour (NCAER, 2018). It is important to note that the rate of unemployment among the country's youth is at a 45year high.

#### 2.5.7.1. De-stigmatisation

The policy has also paid considerable attention towards the issue of stigmatisation of TVET. There are provisions for awareness programmes, which will be organised to change the general attitude towards vocational education.

The policy also aims to generate public awareness to de-stigmatise vocational education through social media. Furthermore, the separation between vocational education and academic streams will be eliminated and students will be given increased flexibility and choice of subjects to study. Subjects such as vocational skills, in addition to science, humanities and mathematics, will be incorporated throughout the school curricula.

#### 2.5.7.2. Improved Integration

This new approach to holistic education will expose middle school students (Grade 6 to Grade 8) to multiple vocations and support each secondary school student (Grade 9 to Grade 12) to take up at least one vocation at a higher level of proficiency.

Beginning with vocational exposure at early ages in middle and secondary school, quality vocational education will be integrated smoothly into higher education. It takes every student into consideration, beginning from middle school (Grades 6–8), who receive exposure to multiple vocations in different sectors of the economy such as arts and crafts, agriculture and food processing, computing hardware and software, electronics, healthcare, IT and ITeS, amongst others.

The content and practical aspects of these multiskilling courses will be woven into the regular school curriculum as part of the proposed new National Curriculum Framework for School Education (NCFSE), which is already being implemented.

In secondary school (Grades 9–12), the NEP anticipates that most students will continue to take up vocational subjects as a matter of interest and exposure, as well as to supplement their skills. Some students might also be interested in a specific vocation from the choices available to them and may seek to be trained comprehensively in it, with the intention of either moving into specialised TVET institutions such as, ITIs and polytechnics after completing Grade 10, or entering the workforce after completing Grade 12. Even if 25% to 40% of secondary school students choose to be trained comprehensively, similar to the TVET environment of South Korea and Australia, it will give rise to a large workforce that is suitably trained in multiple vocations.

Implementing this would require careful planning, keeping in mind the requirements for infrastructure for the practical training component of each vocation. The NEP 2020 sets a much more ambitious target than any of the previous policies by suggesting that at least 50% of all learners receive vocational education by 2025. It aims to ensure that every student learns at least one vocational skill and at the same time is exposed to many others.

#### 2.5.7.3. Collaboration

The NEP 2020 has laid down some steps to encourage collaborations between secondary schools and ITIs, polytechnics, local industries, etc. Skill labs or ITIs will also be set up and created in schools and the infrastructure would be shared with other schools in the vicinity. In a hub and spoke model, where the ITIs would serve as the hubs and the schools were serve as the spokes within the catchment area. Teachers from ITIs will be allowed to visit the schools for theoretical learning and students will be sent to ITIs to gain practical training.

Additionally, higher education institutions will offer vocational education either on their own, or in partnership with industries and NGOs. This model makes use of the physical training infrastructure and trainers available with the training providers so that schools do not need to set up infrastructures or hire teachers from scratch. Vocational education will be integrated in the process of knowledge dissemination of all secondary schools in a phased manner over the next decade. In this regard, secondary schools will also collaborate with ITIs, polytechnics, local industry, etc.

#### 2.5.7.4. Parallel Systems

The National Skills Qualifications Framework will also be further detailed for each discipline, vocation and profession. This framework will also focus on Recognition of Prior Learning (RPL) which aims at reintegrating dropouts from the formal system.

The National Council of Educational Research and Training (NCERT) is set to develop the National Curriculum Framework (NCF). One of the working papers to be developed will be on "Pre-vocational Education and Vocational Education". The NCERT will also prepare guidelines, textbooks and teacher handbooks for vocational subjects. Furthermore, all the universities are also set to have an Academic Bank of Credits (ABC) which will hold students' academic accounts or credits. The ABC concept will allow students to leave a course and then join it back after a certain period of time and resume the course from where they left off. Through ABC, the movement of students within a university, from one course to another and from one institute to another, will also be possible. This movement will be based on the 'credits' the students earn. Academic credit is calculated as one hour of theory or one hour of tutorial or two hours of laboratory work per week for a duration of a semester (13-15 weeks long).

#### 2.5.7.5. New Age Skills

NEP 2020 has also paid considerable attention to the demand of new-age skills. Courses related to Industry 4.0, Artificial Intelligence, Robotics and the Internet of Things (IoT) are set to be developed under the NSQF. Integration of these courses in the school curriculums have already started taking place indicating the smooth implementation of this policy, an area in which nearly all the previous educational policies of the government have faltered.

Additionally, existing e-learning platforms including DIKSHA, SWAYAM and SWAYAM PRABHA will be leveraged for creating virtual labs. This will ensure equal accessibility to quality practical and hands-on experiment-based learning experiences.

#### 2.5.7.6. Efficiency

The policy also aims to utilise the excess capacity and potential of schools by starting evening/night classes. Part-time apprenticeships and skills trainings will also be imparted in those extra classes. This will further help in bridging the gap of the transition from Grade 12 to the labour market.

#### 2.5.7.7. Bagless Days

The policy includes the idea of students participating in a 10-day 'bagless' period sometime during Grades 6-8 where they intern with local vocational experts such as carpenters, gardeners, potters, artists, etc. These would include internship opportunities to gain practical experience on the vocational subjects that are being taught in schools. These 'bagless days' will be encouraged throughout the year for various types of enrichment activities involving arts, quizzes, sports, and vocational crafts. Internship opportunities will also be extended to students from classes 9 to 12, including during the holiday period.

#### 2.5.7.7. Vocational Education in HEI

To further promote vocationalisation of education, the NEP has reaffirmed and recognised the Bachelor's Degree in Vocational Education to be treated at par with other degrees and diplomas offered under the University Grants Commission (UGC).

In 2013, UGC had launched a scheme on skill development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF.

The B.Voc programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles and their National Occupational Standards (NOSs) along with broad general education. This would enable the graduates completing B.Voc to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

Furthermore, the NEP has proposed mapping of vocational job roles offered in schools to the B.Voc and other vocational courses offered at higher educational institutions and encouraging more HEIs to offer vocational degrees and skill-based courses to bolster B.Voc programmes.



-- Dr. APJ Abdul Kalam



**PROBLEM AREAS** 

#### **3.1. MISMATCH OF DEMAND AND SUPPLY - A PARADOX**

#### 3.1.1. Issues

There is a mismatch in the demand and supply of labour in India. Vocationally trained individuals are not able to find jobs which match their skills, causing supply side deficiency in jobs. In contrast, employers experience problems finding employees with the right skills causing a demand side mismatch. This gives rise to a paradoxical situation.

According to a 2019 survey, 48% of Indian employers reported difficulties filling job vacancies due to a shortage of talent. On the other hand, the Periodic Labour Force Survey for 2018 revealed that 33% of the formally trained 15–29-year-olds were unemployed.

## 3.1.1.1. Lesser Enrolment and a High Dropout Rate

It is estimated that only 5% of the youth in India are vocationally trained. The Twelfth Five Year Plan estimated that only 4.8% of higher secondary students were enrolled for vocational education against a target of 25% by the year 2005.<sup>4</sup>

Schools have been engaged in the provision of vocational education at the higher secondary level since the early 1990s, but the number of students being given the exposure to this so far is still well below 10%.<sup>5</sup>

In secondary education, India's performance is dismal as compared to countries with similar income levels. A large number of individuals falling in the age bracket of 18-24 years in India have never been able to reach college indicating a high dropout rate at the secondary level.  $^{\rm 6}$ 

There are 25,000+ students in Grades 11 and 12 in the 2019-2020 batch, out of which approximately only 6454 students interned for a period of 10-15 days during the 2019-2020 summer/winter vacations and beyond.

#### 3.1.1.2. Opt for White-collar Jobs

More than 5 decades ago, Philip Foster came up with the Vocational School Fallacy. It is a situation when vocationally trained students do not opt for blue-collar jobs but instead, prefer to pursue higher education to access white-collar professions.<sup>7</sup>

Besides aiming for white collar jobs, students prefer entering the higher education stream rather than joining the workforce. This choice is usually amplified by the need of securing a white-collar job.

The reason for this is relatively weak labour market outcomes in the case of vocational graduates.

#### 3.1.1.3. No vertical mobility

There is an absence of smooth vertical mobility in the present TVET system in India. As students progress through their school years, they start opting for academic degrees. Enrolment in 11th & 12th grades of vocational education are only 3% of students at the upper secondary level.<sup>8</sup>

Hence, skills which are obtained in the initial years are lost. Moreover, the students who do want to opt for vocational courses after Grade 12 do not have well-defined pathways to continue with their chosen

<sup>4</sup> https://unesdoc.unesco.org/ark:/48223/pf0000374969

<sup>5</sup> https://www.orfonline.org/expert-speak/putting-vocational-education-centre-stage-implementation-nep-2020

<sup>6</sup> https://www.researchgate.net/publication/269932850\_Factors\_Leading\_to\_School\_Dropouts\_in\_India\_An\_Analysis\_of\_National\_Family\_Health\_ Survey-3\_Data

<sup>7</sup> https://www.sprf.in/post/vocational-education-in-the-nep-2020-opportunities-and-challenges

<sup>8</sup> http://www.scdl.net/downloads/vocationaluniversityconceptnote.pdf

vocations in higher education. The admission criteria for higher education is also not designed to integrate students with vocational qualifications.

The B.Voc programme is one of the primary pathways available to students who wish to pursue higher studies in their choice of vocation. However, on one hand, there is limited awareness about B.Voc programmes at school level and on the other, the students who pursue B.Voc courses are not treated at par with other graduates. They do not get similar opportunities in higher education or in jobs and they are also not eligible for appearing for civil services exams.

This issue was addressed by the government through National Skills Qualifications Framework (NSQF) in 2013. The NEP 2020 aims to strengthen vertical mobility as well. Additionally, it is proposed to give weightage to students who have cleared NSQF Level 3 or 4 Courses at the school level to enter higher level vocational courses to ensure their vertical mobility.

#### 3.1.1.4. Social Stigma

Up to the end of the twentieth century, quite a few countries considered technical and vocational training as only appropriate for lower social classes and professions that include plumbers, electricians and mechanics. However, with increased globalisation, there has been an increased demand for specialised labour markets that require a higher level of skills and diversified technical and vocational training.

TVET in countries such as India is perceived poorly in the eyes of the public, due to which, a vocational qualification is considered sub-par in comparison to mainstream degrees and certifications. A person pursuing a vocational course is considered inferior to those students opting for mainstream higher education avenues. According to the 75th round (2017-18) of National Sample Survey Office (NSSO), 24% of students from rural areas are enrolled in Industrial Training Institutes (ITIs) or any other vocational training institutes, however, only 8.3% of urban students are enrolled in any vocational training institutes. This data provides evidence of a rural-urban divide. TVET is not considered as an academic choice, both by the students as well as parents in urban areas. The prevalent stigma is that TVET is for school dropouts rather than career-oriented individuals. Even the provision of vocational education through higher secondary schools during the past decade has not succeeded in overcoming this stigma.

A complete re-imagination and an attractive marketing strategy of TVET is the need of the hour.

#### 3.1.2. Suggestions

#### 3.1.2.1. For the Government

It is high time that the government starts mapping out the linkages between the demands of the industry and the supply of vocational courses so that skills can align to the jobs available. The training courses lack focus on the changing job market.

The NEP 2020 focuses on this aspect by introducing courses that have a higher demand in the job market from Grade 6 itself, which is an example of reform that can help bridge the demand-supply gap as well.

A strong curriculum to engage students and develop their interest in vocational education is a prerequisite for successful learning. Improving the existing curricula to incorporate experiential learning into vocational education courses will attract more students towards vocational education in secondary school. This can be achieved by creating awareness around B.Voc programmes. B.Voc programmes offer a structured curriculum for vocational training, which in turn offers a structured pathway for students who are interested in building a career in the choice of their vocation.

Parallelly, the need to overcome the social status hierarchy associated with vocational education is important as well. Exposing students to quality vocational education at early ages will help in emphasising the dignity of labour and the importance of various vocations involving Indian arts and artisanship. To achieve this, there needs to be a concerted and combined effort from the governments at the state levels and the centre to spread awareness. Using vernacular language through electronic and print medium can be one of the ways to reach a greater audience. NGOs with their grass-root level outreach can be engaged in mobilising awareness in remote areas as well.

For the change in the mindset of the students as well as the parents, counselling sessions can be beneficial to alter perceptions.

#### 3.1.2.2. For the Private Players

Increased collaborations between industries and governments would be useful to link training with job prospects. Specialised technical skills and a high degree of coordination of the government, the public sector and other stakeholders will be required going forward.

Awareness campaigns should be carried out to sensitise the public about the importance of TVET. This is necessary to dispel the myth created around vocational education. It is clear that TVET is closely linked to jobs and wages. Therefore, when students are able to find decent work and livelihoods as a result of their training, it will not be considered as an inferior option anymore. Leading by example would be a good start for such a campaign. This can be done by retelling personal success stories of individuals by taking up vocational courses as a career choice.<sup>9</sup>

#### 3.1.2.3. For Schools

Even if there are a good number of candidates with considerable theoretical education, enterprises seek people who can make a difference, provide a comparative advantage especially in an economic downturn, possess business acumen and have innovative and novel ideas. They improve the efficiency of workers; influence how they feel about their jobs and enable them to build constructive working relationships.

#### 3.1.2.4. For State Governments

Increasing vertical mobility to avoid losing skills which have been taught is a critical part of making vocational education aspirational for students. Making the system more vertically integrated will increase its attractiveness for students as well. Some states in India have already taken steps to combat this issue:

- a) Haryana: Vocational students can get direct admission into the second year of diploma courses.
- b) Maharashtra: Reservations are instated in ITIs and Polytechnics for vocational students passing Grade 10.
- c) Himachal Pradesh: Extra weightage is given to vocational education students passing Grade 12 for admission into the higher education in the same stream, such as Bachelor's of Vocational Education.<sup>10</sup>

To provide a smooth transition from higher secondary to undergraduate school, vocational aptitude tests coupled with career counselling should be conducted.

#### 3.2. PRIVATE SECTOR INVOLVEMENT

#### 3.2.1. Issues

Increased private sector involvement in the TVET system would not only make vocational education choices more attractive but will also provide better financial resources to support the development of infrastructure and access for a larger population. The 'Skill India' initiative particularly focused on the need for Public Private Partnerships (PPPs). Companies were requested to earmark 2 percent of their payroll

bill (including for contract labour) for skill development initiatives. Parallelly, the ITIs were supposed to 'tie' up with industry in the relevant trades to improve placement opportunities for candidates.<sup>11</sup>

2% of company payroll for skill development

<sup>9</sup> https://unesdoc.unesco.org/ark:/48223/pf0000374969

<sup>10</sup> https://unesdoc.unesco.org/ark:/48223/pf0000374969

As mentioned earlier, the mismatch of demand and supply arises due to the differences in the expectations of the stakeholders. Without substantial input from industry in the design and curricula of TVET courses, the skills that are taught are often out of line with the needs of the employers.<sup>12</sup>

The Sharda Prasad Committee report identified 'inadequate industry interface' as one of the major issues facing the vocational education and training system in India. The was further supported by the World Bank in a 2008 report. Industry's role in TVET cannot be overlooked. However, on the other hand, private payers also face regulatory barriers for entry into the training market.<sup>13</sup>

#### 3.2.2. Suggestions

Involving the private sector in management is critical if institutions are to be responsive to the needs of the labour market. India has been slowly progressing in terms of taking a PPP centred approach when it comes to TVET. Some of the examples include:

- a) Federation of Indian Chamber of Commerce and Industries (FICCI) has taken over many Industrial Training Institutes (ITIs) in India and has expressed an interest in running many more.
- b) Industries have been advised to take over ITIs, redesign curricula and update the teaching materials in light of their skill needs. Such PPPs should be encouraged more since they not only bridge the demand-supply gap but also can provide innovative perspectives to common challenges.
- c) Industry-focused programmes such as B.Voc offer scope of specialised curriculum delivery, apprenticeship programmes and early workforce absorption opportunities where the private sector can collaborate with HEIs.
- d) Keeping legislation clear and registration procedures simple will ensure a vigorous private sector response in areas where it has a comparative advantage.<sup>14</sup>

#### **3.3. GENDER DISPARITIES**

#### 3.3.1. Issues

The widely accepted understanding is that vocational education equates to difficult, and physically demanding labour and should therefore, be reserved for men. The issues plaguing vocational education are in many ways similar to those facing girls' education.

The Indian education system has faltered on bridging the gender divide. In an orthodox Indian household, preference used to be given to the boys' education. There was also a higher probability of sending a girl child to a government school rather than a public one. This might have been because government schools are a cheaper choice. The patriarchal prevalence subsumes and even neglects the interests of women. According to the 2011 Census of India, the workforce participation rate for women was 25.51% as opposed to the 53.26% for men. This further validates the existence of a lopsided ratio of women who are perhaps bound by household duties and other traditional gender roles.

These gender disparities are even more visible in the vocational education system in India. The empirical data relating to women in rural areas is quite dismal, further magnifying the gender divide and providing evidence of rural-urban disparities. Only 0.2% of rural women are

currently receiving formal vocational training, 0.5% have already received some formal vocational training, and 1.4% have received non-formal vocational training, leaving as much as 97.9% of women with no training at all.

0.2% Rural women in formal TVET

However, these numbers improve very slightly in urban areas to 96.3%, with 2.5% either receiving or having received formal training, and 1.2% having received training other than formal training. Given that 41.2% women are not literate and another 20.4% only have primary education, the provision of vocational training to these women should be given

<sup>11</sup> https://indianexpress.com/article/opinion/columns/the-problem-of-skilling-india-unemployment-joblessness-modi-government-5973808

<sup>12</sup> https://www.orfonline.org/expert-speak/india-needs-innovative-ways-of-skilling-and-educating

<sup>13</sup> https://www.orfonline.org/expert-speak/india-needs-innovative-ways-of-skilling-and-educating

<sup>14</sup> https://openknowledge.worldbank.org/bitstream/handle/10986/17937/423150IndiaOVETOno02201PUBLIC1.pdf

much more importance to utilise the full potential of the Indian population.<sup>15</sup>

More than 100 million people could be lifted out of poverty if women had the same access to productive resources as men.<sup>16</sup> In countries such as India, Indonesia, and Malaysia, the gross domestic product would increase by up to 2%–4% annually, if women's employment rates were raised to 70%, from 30% at present.

These disparities can be eradicated if measures are taken at the systemic level. Inclusive vocationalisation of schools will improve prospects of the students and further erase the gender disparities by providing equal opportunities to all the students through inclusive vocational education.

#### 3.3.2. Suggestions

#### 3.3.2.1. For the Government

TVET programmes and modules should be able to transcend cultural differences. Making the system demographically independent makes it far-reaching and helps skill a larger proportion of people, especially the marginalised.

Under the NEP 2020, the government has proposed a 'Gender-Inclusion Fund' to build the country's capacity to provide equitable quality education for

2020 Gender-Inclusion Fund in NEP all girls as well as transgender students. States will be able to access this fund to assist female and transgender children in gaining access to education (including vocational education). It is important to ensure smooth

implementation of this step to create an inclusive system of learning.

#### 3.3.2.2. For NGOs and Private Players

Women have direct immediate financial motivation when it comes to vocational training. Awareness programmes and counselling sessions to educate girls and their parents about the benefits of TVET can be conducted. The incentive for increased household income also needs to be supplemented with pacifying the stigma against women's education and employment.

#### **3.4. DIGITAL DIVIDE**

#### 3.4.1. Issues

The COVID-19 pandemic has magnified the digital divide which already existed in the country. Although, as mentioned previously, the pandemic provided an opportunity to bridge this gap and make TVET more digital friendly. Digitalization must become a key focus area going forward. Moreover, upskilling school students by befriending them with digital technologies can further provide high-quality skilled workforce in the years to come.

Only a few countries had the resources to adapt to remote learning when it came to TVET. To avoid such disruptions in the education stream, the systems need to be prepared with better digital infrastructure.

During the pandemic, a lot of digital content was generated and transmitted to help children to continue to learn while being at home. However, there is not enough evidence on the extent to which this content actually reached children, especially the marginalised, and whether they engaged with it.

The annual survey conducted by Pratham shed some light on the resources available to teachers for remote teaching. Most teachers reported having the phone numbers of at least half of their students. However, the necessary training was perhaps inadequate, with half the respondents never having received any training. Out of those who did receive this training, the majority reported only receiving brief instructions, either online or in person, on what they should do and how they should do it.

Several factors make it difficult for people to have access to the internet, these include the relatively high

<sup>15</sup> https://unesdoc.unesco.org/ark:/48223/pf0000374969

<sup>16</sup> https://www.undp.org/content/undp/en/home/news-centre/news/2020/\_COVID-19\_will\_widen\_poverty\_gap\_between\_women\_and\_ men\_.html

cost of devices and data, lack of digital literacy, as well as operational barriers. It is therefore pertinent to look for ways to decrease the cost of telecommunications and improve network efficiency. Enabling affordable services can help in eradicating the digital divide.

With the rise of the Internet of Things (IoT), individuals will be required to adapt to several new skills at the workplace. Students who are exposed to these new-age skills will be at a greater advantage. Vocational education institutes need to be equipped with the right facilities to make way for these advancements and maintain consistent growth.

#### 3.4.2. Suggestions

#### 3.4.2.1. For the Government

- a) Massive expansion of digitalisation of vocational education and training is necessary to drive competition, make learning more flexible and enhance the quality and attractiveness of TVET.
- b) One of the ways to make digital services more accessible is by providing subsidies to the marginalised.
- c) NSDC, in November 2017, had initiated a pilot with Kunskapsskolan, a leading educational Swedish company known for its Kunskapsskolan Educational Methodology (KED) programmes – a concept for personalised education focused on providing employability skills to school dropouts through varied skill development projects. Under the project, over 200 teachers were trained in 100 schools in Haryana, and similar models can be replicated in other schools in the country as well.

#### 3.4.2.2. For Schools

TVET systems should collaborate with other stakeholders, primarily with the private sector, to develop high-tech and low-tech distance learning platforms. Hybrid learning should be adopted as a precautionary measure and as a tool to break down digital barriers.

#### 3.4.2.3. For Private Players

- a) By collaborating with experts in the area of digitalisation, the TVET system can come up with customised solutions for better programmes. Examples of such collaborations have been listed under the PPP section of this report.
- b) Another suggestion is the integration of Gamification in TVET. Application of augmented reality and virtual reality will make the process of knowledge dissemination easier and interesting. It would also lead to higher retention and increased attractiveness in the sector. Although, this will require considerable investment in equipment, bandwidth, content development and the training of trainers and mentors. It is important to reiterate that to enable this new blended learning environment, collaborative work and pooling of resources of both the public and private sectors should be encouraged.

#### **3.5. RURAL DEVELOPMENT**

#### 3.5.1. Issues

Even though a majority of Indians are reliant on agriculture for their livelihood, the facilities and services in areas that are predominantly dependent on agriculture in the local economy are generally less developed than the areas where either secondary or tertiary activities are predominant. The lack of amenities and lower standards of living leads to city trained engineers, technicians and doctors to not settle and serve in rural areas.

This rural and urban gap results in the lack of opportunities for today's youth. Even though physical connectivity through the development of road networks and virtual connectivity through internet penetration has improved, the rural-urban divide still exists due to a severe shortage of regional employment opportunities. Hence, the youth based in rural areas often migrate to urban cities in search for jobs. This leads to the accumulation of talent and services only in urban areas.

During the COVID-19 pandemic the phenomenon of

migration received a lot of media attention. Hundreds of migrants started to return to their villages by foot. This further magnifies the disproportion of the number of opportunities available in villages, as compared to the cities.

Schools in rural areas differ from schools in urban cities. Inadequate infrastructure, unqualified teachers and outdated curricula are some of these differential factors. The government has laid down several policies to combat these issues. One such example is the setting up of Rural Development and Self-Employment Training Institutes (RUDSETI), the first of which was set up in Karnataka as early as in 1982. RUDSETI's philosophy is to motivate unemployed rural youth to take up self-employment through a combination of short-term training and long-term support and guidance.

Several other initiatives by NGOs and start-ups have also taken place in the past few years such as The Neev Foundation, which aims to address poverty and illiteracy, giving marginalised individuals, especially rural women, an opportunity to lead a better life.

However, if more attention is paid to the quality of education and vocational training the students receive in rural areas, a larger workforce can be skilled for the future. This will also decrease the proportion of unskilled youth who are left unemployed after the completion of their higher secondary education.

#### 3.5.2. Suggestions

#### 3.5.2.1. For the Government

a) Special attention needs to be given to raising the quality of life of individuals living in rural areas. This can be done by focusing on developing vocations which have the potential for better utilisation of rural agricultural resources. These can include the servicing of tractors, tube wells or other machinery, training for horticulture or the medical plant industry, etc., TVET has the potential to bridge the gap and move towards equitable sharing of benefits of economic development, social justice and socialism.

- b) One of the key components of PMKVY II (2016-20) was the Recognition of Prior Learning (RPL). Under the RPL, individuals with prior learning experience or skills are assessed and certified with a focus on individuals engaged in the informal sector. This mechanism should be implemented locally, at the Gram Panchayat level. A survey by NSDC revealed that a majority of people employed under RPL agreed that the programme improved their confidence towards getting better employment. The respondents also reported an increase in monthly income. This indicates that much more attention needs to be paid to RPL to ensure that its benefits become uniformly available. The importance of RPL is amplified due to imbalances in regional growth, as skills recognition is an important element of social inclusion, especially migrant workers.
- c) The states can utilise the geographically differentiated resources as their comparative advantage. For example, Sikkim has a comparative advantage in organic farming and therefore, the state started imparting vocational training in organic farming in schools.

#### 3.5.2.2. For Private Players

- a) As mentioned previously, Vigyan Ashram, a centre of Indian Institute of Education (IIE) Pune, focuses on the 'learning while doing' methodology. Under its programmes of 'Rural Development through Education System (RDES)' spelled out by its founder Dr. S.S. Kalbag, students gain experience and confidence to start their own enterprises. Education based on the 'learning while doing' philosophy gives meaningful education to students and helps them develop a scientific temper and work culture. Such initiatives provide exemplary solutions for the issues related to rural development.<sup>17</sup>
- b) It is possible to eradicate regional imbalances of trained workforce if job creation is done regionally.

17 http://vigyanashram.com/InnerPages/RDES.aspx



#### 3.5.2.3. For Schools

Most of the migrant workers who seek entry level jobs are often unskilled and the cost of living in urban areas and new environments deter them from taking up training. An integrated effort by stakeholders such as the Panchayats and the rural schools can help train individuals and students at the source. As a result, employers get a larger pool of trained and skilled individuals, whereas employees are able to gain skills in a familiar environment and are able to secure premium salaries.

#### 3.6. INEFFICIENT MANAGEMENT

#### 3.6.1. Issues

The management of TVET in India is fragmented and lacks proper structure. The responsibilities are shared between the National and State Authorities for vocational training (NCVT and SCVTs). Though on paper, these authorities have specifically different functions, however, lack of coordination makes the system inefficient. TVET comes under numerous organisations and under different ministries of the government, such as agriculture, health, rural development, etc., without proper coordination and linkages. Close to 21 ministries are engaged in the provision of vocational programmes. There is often duplication of effort with different agencies often performing the same functions which leads to diverse accountability.

Although, the lack of organisational structure was identified by the Programme of Action (POA), 1992 of the second education policy (NPE 1986). While it did set up some formal structures for the provision of vocational education, a better framework for creating infrastructure was only established after 2008.<sup>18</sup>

Strong political will and leadership is needed to ensure that these agencies begin working in a coordinated and collaborative manner.

#### 3.6.2. Suggestions

#### 3.6.2.1. For the Government:

- a) Creating a central vocational training standardisation system, that is accredited nationally and globally and is aimed at maintaining the quality of the vocational education, can enhance the credibility of vocationally trained individuals in the industry.
- b) Establish a robust coordinating mechanism for inter-ministerial cooperation. For instance, educational institutions affiliated to the Ministry of Education (MoE) can better deliver on their mandate from the NEP if they are able to collaborate with institutions of the Ministry of Skill Development and Entrepreneurship (MSDE) as well as other ministries to utilise the available expertise and infrastructure.<sup>19</sup>
- c) Allow institutions to have greater autonomy on decisions related to training programmes, hiring, or firing of teachers, and generating revenues by selling goods and services. This can include the development of short courses on demand and the greater use of public sector resources (equipment and materials) for use by employers, NGOs and the private sector for training.<sup>20</sup>

<sup>18</sup> https://unesdoc.unesco.org/ark:/48223/pf0000374969

<sup>19</sup> https://unesdoc.unesco.org/ark:/48223/pf0000374969

 $<sup>20 \</sup> https://openknowledge.worldbank.org/bitstream/handle/10986/17937/423150IndiaOVETOno02201PUBLIC1.pdf$ 

#### **3.7. IMPLEMENTATION AND FINANCIAL CHALLENGES**

#### 3.7.1. Issues

The crux of all issues related to TVET is the implementation of policies. The Indian government has taken a wide variety of steps to make the TVET system a success. Every consequent education policy has paid considerable attention to vocational training but has lacked in implementation.

Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and Skill India Mission in the past did not have the desired impact. The roll-out of the Skill India Mission is aimed at impacting 300 million youths by 2022. However, at the end of 2018, only 25 million youths had been reached and trained under this scheme. Even under PMKVY, only 15% of the enrolled students were able to get a job. This inefficiency is owed to the lack of awareness which relates to ineffective implementation. Funds allocated to 'Skill India' were not spent sufficiently due to less enrolments.<sup>21</sup>

Many private providers have identified the lack of access to credit and financing of initial investments in private training centres as the key constraints to setting up training centres with adequate facilities, and subsequently upgrading the already existing centres. Private companies also complain about the excessive government bureaucracy in the registration of training institutions and in the certification of the provided courses.<sup>22</sup>

The possible challenge in implementation lies mainly in the budgetary allocation and capacity of vocational institutes and administrators. Approximately INR 3,000 crores have been allotted for skill development in the Union Budget of 2020-21, which is a significant increase over the last five years from INR 1,007 crore in 2015-16. However, given India's demographic dividend, it can be argued that the allocation is still not enough.<sup>23</sup>

If this seed of implementation is grown with attention, then it can prove fruitful for the government, as well as the vocational education system.

#### 3.7.2. Suggestions

#### 3.7.2.1. For the Government:

- 1. Innovative models for financing TVET need to be adopted. These can include development impact bonds, skill vouchers, etc. Development Impact Bonds (DIBs) are result-based contracts in which one or more private investors provide working capital for social programmes implemented by service providers (e.g., NGOs), and one or more outcome funders (e.g., public sector agencies, donors, etc.) pays back the investors their principal plus a return if, these programmes succeed in delivering results. Such models can strengthen many aspects of the TVET system including the creation of shared infrastructure supporting socially and economically disadvantaged groups.
- 2. A National Training Fund (NTF) for skills training was suggested in the 12th Five-Year Plan of the Planning Commission (2013). National training funds across the world are becoming an instrument for financing training by providing an institutional framework for collecting and allocating finances to training providers.
- 3. In the Indian context, the NTF is proposed to be a consolidated fund that may derive its resources from the budget allotted to various central ministries. The consolidated fund would be instrumental in addressing multiple objectives of pre-employment training, quality training and enterprise training through fresh skilling, reskilling, up-skilling, Recognition of Prior Learning (RPL), apprenticeship training, etc.<sup>24</sup> Establishing an NTF is seen as a way to generate funds from private players for vocational training.

<sup>21</sup> https://indianexpress.com/article/opinion/columns/the-problem-of-skilling-india-unemployment-joblessness-modi-government-5973808

<sup>22</sup> https://openknowledge.worldbank.org/bitstream/handle/10986/17937/423150India0VET0no02201PUBLIC1.pdf

<sup>23</sup> https://www.sprf.in/post/vocational-education-in-the-nep-2020-opportunities-and-challenges 24

https://www.nationalskillsnetwork.in/national-training-fund-ntf-a-vehicle-for-convergence

#### **3.8. TEACHER TRAINING**

#### 3.8.1. Issues

The primary function of a vocational teacher is to impart knowledge about a subject. Although most vocational teachers provide classroom instruction, most of TVET teaching involves demonstrating skills to students.

The continuous professional development of trainers and assessors is one of the most challenging aspects of the TVET provision in India today. There is a paucity of adequately capable and trained teachers, trainers and assessors.

A study conducted by the British Council - 'Trainer Effectiveness in the Indian Skills Ecosystem', shed light on the widely held perception regarding vocational teaching. It is believed that a career as a trainer is unattractive due to the lack of career progression and the relatively lower salaries that accompany the job. This, in turn, does not help attract the best talent in the profession.

The study explored whether earnings made from jobs is the sole motivator for trainers to 'come for teaching / training every-day'. Almost half of the respondents (47%) affirmed that they were motivated to be in the training profession for earnings only. The remaining respondents (53%) stated that earnings as well as other reasons such as social recognition associated with teaching /training (48%), their own love for teaching / training (27%), self-learning as a part of the teaching / training process (17%) motivated them to continue in the training profession.

Additionally, the pandemic highlighted the deficiencies in the training system as well. In India, teachers have received little or no training in online education, but even then, most teachers took up the challenge to teach remotely after the country-wide lockdown.

Trainers are also marginalised within the training system. The individuals who train the trainers (TPs -Training Providers) also have bleak careers and hence the trainees (to be vocational teachers) are hired on contract for short durations. Most TPs, especially the smaller ones, do not have provisions for continuous professional development of their trainers. Trainers also have limited prospects for career growth. They can at best, aim to become master trainers.

All these factors make the job unattractive and lead to a considerable degree of attrition. Paying attention to this problem is extremely important. Only if teachers or trainers are well-trained and motivated, will students be able to benefit from the education being imparted.

#### 3.8.2. Suggestions

#### 3.8.2.1. For the Government

- a) As suggested by the NEP 2020, schools will be collaborating with ITIs to expand the TVET stream. With such integration, one can hope that many more long-term opportunities in the form of tenured jobs could open up for teachers/ trainers as well. This could help draw talent into the profession.<sup>25</sup>
- b) Focus should be on making the career choice of vocational training more appealing and aspirational. This could be done by instituting a National System to Recognise Trainers' Excellence. Annual awards recognising training excellence in each sector, could be conducted at the national level. The process could be managed by the respective SSCs.
- c) The hub and spoke model included in the NEP 2020 also talks about theoretical training vocational teachers of ITIs in schools. Such a model, if implemented, will successfully and efficiently utilise the scarce infrastructure and resources.

25 https://unesdoc.unesco.org/ark:/48223/pf0000374969

<sup>26</sup> https://unesdoc.unesco.org/ark:/48223/pf0000374969

- d) State governments also need to look into improving the working conditions of teachers/ trainers through specifying minimum wages and providing them with benefits and social security.<sup>26</sup>
- e) The vocationalisation effort in Haryana has shown that vocational teachers/trainers are versatile and contribute in diverse ways to their schools, such as by teaching additional subjects, managing the laboratories and the ICT infrastructure, and so on.

#### 3.8.2.2. For Schools

Given that online education has become a part of the 'new normal', post the pandemic, all teachers and trainers need to be provided with high-quality training in online education that includes training in content creation and making efficient use of the technological resources available.



# CASE STUDIES

#### **4.1. GERMANY**

A study commissioned by the Bertelsmann Stiftung has useful insights on the German dual education system and also explains how other countries can adopt such a model without complications. The following data has been taken from the same report.

Vocational Education in Germany is an integral part of its national education system where students choose their training course in school after 9th grade. The courses last up to 2 to 3.5 years. More than 50% of those in upper general education opt for such vocational training.

The two major forms of trainings that are at the vanguard of skill-development in many countries is in the field training provided by the company in conjunction with the classroom training provided by vocational schools. While the company provides practical training, the vocational school supplements on-the-job learning with theoretical instruction. There are about 350 different occupations in the technical, agricultural, commercial, and industrial areas.

Students must spend 8-12 hours at school with the remaining time being spent at the actual worksite. To become an apprentice in the dual system, a young person has to apply to a company for an apprenticeship and sign a training contract. The right to attend the corresponding classes at the parttime vocational school is given automatically. The vocational course ends with an assessment held by an appropriate authority.

The dual system approach has long been praised in international discussions and has gained a lot of attention for its positive consequences on the economic growth of the country. Countries with dual VET systems have the lowest youth unemployment rates. It also ensures supply of a skilled workforce and makes the transition from school to the labour market easier, thereby reducing the demand-supply gap.

As mentioned above, a lot of countries have "imported" this vocational training system from Germany. However, the objective for these countries has not been to adopt the German vocational training system in its entirety. Germany's dual system is suitable as a model but not as a blueprint. Hence, any country which imports a foreign system of TVET must take existing framework conditions into consideration and implement the dual vocational training in line with the country's own educational, social and economic objectives.

The broad objective of the German dual system is three-fold: economic productivity of the workforce, social integration and individual development of the apprentices, which forms the central reference point for the VET. It also integrates the interests of three major stakeholders, the state, the business community, students and parents, thereby balancing their different goals.

Teacher training is a strong component of the German dual system which should be adopted in India. India's VET faces a serious shortage of teachers. The problem that teachers themselves have had little or no practical industry experience is even more serious.

In Germany, apprenticeships and vocational training are provided by vocational schools and companies according to the framework curricula (established by the Conference of Education Ministers) and training directives which provide an effective combination of theory and practice. Although occupational skills are aligned with the labour market, they are not "narrowly focused" on the requirements of business interests. In India, within the formal structure of skills development, graduates from ITIs/ITCs have difficulties in finding a job because their skills do not meet the demands of the industry. The pillars of the German dual system, practical training in the workplace combined with theoretical learning in vocational schools, should be incorporated into the Indian VET system.

This implies co-determination of the employers' associations and trade unions in a consensual manner for the formulation of occupational profiles, conducting examinations, finding placements, etc. All of this contributes to raising the profile of VET and making it more acceptable to the public.

The most desirable element of the German dual system is the partnership between the government and the private sector in sharing the vocational training cost. In Germany, the government and the business community contribute in different ways to financing vocational training. As practical training takes place on private work sites, it is simultaneously a cost-sharing and curriculum-design mechanism. The private sector also contributes to codifying skills processes, standardisations and curriculum design. Furthermore, private companies have self-governing bodies to take care of the organisation, inspection and supervision of vocational training in private enterprises. Private enterprises also directly benefit from providing vocational training.

Standards of training are to be flexible according to size, sector and other requirements based on diverse structural models. This helps meet the diverse requirements of business while maintaining minimum standards of skill, capacity and overall employability.

#### **4.2. RAJASTHAN**

The education system of Rajasthan has posed an exemplary model for the states of India. Rajasthan has achieved impressive results in enhancing the reachability and quality of education by improvement in delivery and management of education services in the state. Focused efforts have been made to increase access to schools for all children, fill teacher vacancies, and to raise the public expenditure on education. Education for girls has been of prime significance in the state as well. Ranked at second position in School Education Quality Index, 2019, the state of Rajasthan has pulled itself from the 26th position to the second spot. Factors such as the merging of schools, increasing the teachers-students average in classrooms, and increasing the availability of subject teachers in schools, amongst others are the key drivers of quality education in the state. Quality education is the aim and with this objective, the state has revamped the education structure with new innovations, programmes and schemes in response to the aspirations of its young population. This indicates that an approach oriented towards skill development for bridging the gap in unemployment is beneficial for greater economic and social mobility.

Rajasthan has emerged as a model for good governance, even in the challenging times of the pandemic. The education landscape of Rajasthan is fast expanding these days. The state, long known for its royal and cultural lifestyle and scenic deserts, is steadfastly turning into a hub for education. The job-oriented approach of the state administration is laying a solid foundation for Rajasthan's youth. This vocational approach will benefit the young population in the state for decades to come.

A new scheme was launched recently in Rajasthan for the rehabilitation of beggars through vocational training. This has enabled them to lead their life with dignity. Beggars are being equipped with the necessary life skills at a special training centre established in Jaipur by the Rajasthan Skill and Livelihoods Development Corporation (RSLDC).

Over 40 beggars hailing from states such as Uttarakhand, West Bengal, Uttar Pradesh and Odisha, who migrated to Jaipur in search of livelihood but were unable to do so, have been provided with shelter, where they learn yoga, meditation, sports and computer operations. The first batch is primarily being trained in catering skills.

While there is no doubt that such initiatives are welcome in a country battling poverty, to fight the stigma associated with TVET, the government should focus more on the integration of vocational education across all income classes.

# SKILL DEVELOPMENT WILL SCRIPT THE FUTURE OF A DEVELOPED INDIA.

- Pranab Mukherjee



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## **THE WAY FORWARD**

A cursory glance at the report is sufficient to realise that the current status of vocational education and training in India is inadequate in supporting the economic objectives of the country, which are incrementally expanding with the increase in domestic production capacity, as well as increased foreign investments. While the demographic dividend ensures an adequate supply of human resources, the transformation of human resources into human capital is the key factor that determines whether India can successfully harness its current socio-economic standing in the world.

Furthermore, it is evident that a productive TVET infrastructure is the bridge between skilling needs of the workforce and the workforce participation levels required by the economy. As mentioned previously, only 2.4% of the workforce received formal vocational training in the previous financial year (2020-21), despite the acknowledgement of the importance of TVET in schools and colleges by national and international bodies and its rising priority in policymaking. Given that the current training infrastructure for the workforce is largely unorganised and informal, the need to bolster the TVET system is as critical as it is urgent. This rationale is strengthened multi-fold by comparing India's TVET infrastructure with those of countries such as Germany, the Netherlands and South Korea. Additionally, given the radical transformation of the education system due to COVID-19, the opportunities and challenges to TVET have changed, requiring an updated perspective towards designing interventions required by the TVET system.

To that effect, the first step is to conduct a detailed review of the existing TVET structure, which is necessary to identify the lacunae, as well as the ways to address them, which served as the key objective of this report. Through a comprehensive study of the current standing and a clear understanding of the benchmarks that need to be achieved, the report outlines the pivotal areas that require attention.

#### **5.1. KEY CHALLENGES**

The TVET system in India currently faces issues across three broad areas, namely, systemic issues, socio-economic issues and private sector involvement.

SYSTEMIC	<ul> <li>Teacher Training</li> <li>Implementation and Adequate Financing</li> <li>Inefficient Management</li> </ul>
SOCIO-ECONOMIC	• Demand and Supply Mismatch • Gender Disparity • Digital Divide • Rural Development
PRIVATE SECTOR INVOLVEMENT	

#### 5.1.1. Systemic Challenges

The first systemic challenge is the lack of adequate teacher training. At present, there is a shortage of trained teachers and assessors. A career as a trainer is often perceived to be unattractive due to the lack of career progression opportunities, which is coupled with low salary levels. Apart from a lack of incentive for teachers to take up this profession, there is also the issue of little or no training for these teachers.

The second key challenge is the implementation and access to financing. There is a lack of access to credit, coupled with the preference towards financing in the private sector, making it tough for the TVET centres set up by the government to attract capital. In terms of implementation, the budgetary allocation for skill development in the Union Budget of 2020-21 is still not enough if India is to fully maximise its demographic dividend. The problem of inefficient disbursement and management of existing capital exacerbates this challenge, which is mainly due to TVET coming under numerous organisations and ministries with no proper linkages or coordination.

#### 5.1.2. Socio-economic Challenges

The socio-economic problems faced by the TVET system in India includes the mismatch between the demand and supply of resources. The sectors that require labour are not seeing the necessary levels of supply needed to match the demand. Similarly, the sectors where there is supply of labour, demand levels are lower, creating a perpetual deficit of the workforce.

The second socio-economic problem relates to the gender disparity in vocational education. While vocational education is inaccessible to most individuals at the moment, the situation is even worse for women since vocational education is usually equated to hard, manual labour, considered to be suitable only for men, thus discouraging women from opting for vocational training.

Additionally, there exists a digital divide which has magnified due to the COVID-19 pandemic making the content and material further inaccessible to individuals and institutions that lack adequate resources. Furthermore, there is a lack of incentive for city trained engineers, technicians and doctors to settle and serve in rural areas. More emphasis is needed on the quality of education and training in rural areas to ensure that they are not being neglected in terms of their development.

#### 5.1.3. Private Sector Involvement

Finally, the report addressed the relatively side-lined issue of the low level of support of the private sector. If the private sector stressed on the importance of vocational education and training in India, it could result in diverting better resources and management to TVET institutions and making participation more attractive, not just to students, but also to teachers. Their involvement will also result in substantially improving the implementation and accessibility of these courses.

#### 5.2. STAKEHOLDER FRAMEWORK

One of the objectives of this report is to propose a solutions framework to improve the TVET infrastructure and capacity. For this purpose, the report has identified government, private sector and schools as the three direct stakeholders in vocational education.

The conduciveness of the vocational education environment is dependent as much on the contribution of the stakeholders towards building capacity as it is on the outcomes desired by everyone from the TVET system and the challenges faced by them. Therefore, while each stakeholder has a vested interest in developing the TVET infrastructure, the effectiveness of the system rides on their contribution, as well as their interactions with each other within the system.

In TVET, as is in most developmental avenues, the whole is greater than the sum of its parts. The following framework, thus, identifies not just the individual intervention areas for each of the identified stakeholders, but also the shared responsibilities and opportunities that require synergy between them. In that regard, the overall objective is to integrate efforts from all stakeholders and create an education system wherein knowledge is supplemented by skill-building.



The operational definition of government in the framework would include both state and central government, and of schools would pertain to both private and public schools.

#### 5.2.1. Government and Private Sector

#### 5.2.1.1. Skill Demand Mapping

The government and the private sector need to work together to identify the present skill shortage in the economy, which in turn could be the starting point for focused effort on policy and implementation in vocational education. Countries such as Australia and New Zealand run this exercise regularly and share the data of skill shortage publicly. It is recommended that an annual skill shortage list is created, and students are incentivised to obtain training and employment in the occupations listed under skill shortage. These incentives can range from assistance in migration, subsidised accommodation, amenities and/or healthcare, centralised recruitment process and job security.

#### 5.2.1.2. Rural Development

To increase participation of the rural population in vocational education, the government and the private sector need to focus on regional job creation. Creating jobs regionally provides mutual benefits to both, the stakeholders allowing for greater availability of skilled labour and reduction in regional imbalances in growth. Smaller regionalised TVET ecosystems not only address the problem of rural development but also provide a model for scalability and sustainability stemming from decentralisation.

#### 5.2.1.3. Capital Financing

Both the government and the private sector are the key sources of capital in TVET in India. While the government has been steadily increasing the budget allotted to TVET, there is a consistent deficit in the financing of the education sector. With partnership models between the private sector and the government, or through incentivisation of CSR in TVET, the synergy between private and public sectors can prove fruitful in building the financial capacity for improving access and quality of vocational education in the country.

#### 5.2.2. Government and Schools

#### 5.2.2.1. Skill Gap Mapping

Assessments should be designed and administered on a regular basis to ascertain the skill level of students and identify the gap between present levels and expected levels of skills.

#### 5.2.2.2. Diversity Inclusion

Schools and governments should identify the participation of marginalised communities in training, as it directly translates to the participation of marginalised communities in the workforce. The latter, in turn governs not only the financial security of marginalised groups, but also the individual motivation of the members of the group to make an effort to upskill themselves.

Individuals belonging to lower income households, women and rural youth are often bereaved of access to quality education and training, despite their high intent to be trained. In such situations, while regular school programmes fail to provide access, short-term, skillfocused hyper-local vocational training programmes can accommodate larger diversity more effectively.

#### 5.2.2.3. Capacity Building

Digitisation of schools should be a priority in order to provide universal access to vocational education and to ensure quality education. As the process unfolds, hybrid learning models should be adopted to avoid remote schools, with limited technological capacity, from being left behind. For digitalisation, a suggestion would include the integration of Gamification in TVET. Application of augmented reality and virtual reality will make the process of knowledge dissemination easier and interesting. It would also lead to higher retention and increased attractiveness towards the sector. Although, this will require considerable investment in equipment, bandwidth, content development and the training of trainers and mentors. Again, to enable this new blended learning environment, collaborative work and the pooling of resources of both, the public and private sectors, should be encouraged.

Given that online education is here to stay post the pandemic as well, all teachers and trainers need to be provided with high-quality training in online education, which includes training in content creation and making efficient use of the technological resources available.

#### 5.2.2.4. Implementation Efficiency

Schools can adopt a similar vocational training structure to that of Udhyam Shiksha. Udhyam Shiksha is a programme developed with NCERT and SER boards - Entrepreneurial Mindset Curriculum (EMC). The curriculum focuses on students engaging in different activity-based learning to help them develop an entrepreneurial mindset. The Udhyam team began a pilot with 24 government schools in Delhi in April 2019 and is currently working with over 1,024 schools. Once the curriculum is set by the NCERT, the teachers are trained in the programme. The course is conducted for students from grades 9 to 12, and it is the first period of the day.

These separate periods would have no reading or writing assignments. Instead, students would be given on-the-ground problems and tasks to solve. The course has over 11 units that involve decision making, critical thinking, self-awareness, handling failure, and identifying opportunities. These include discussions, activities, story sessions, all of which have been included to help develop and cultivate each of these characteristics in students.

#### 5.2.3. Private Sector and Schools

#### 5.2.3.1. Awareness Campaign

Schools and the private sector are potentially the input and output points of the human resource in a system. It is imperative that they take into account the quality of resource that is coming into education, as well as the skill output required by employers, and as an addition, to share these insights with all stakeholders within the system to create awareness and acceptance towards the success of TVET programmes.

#### 5.2.3.2. Curriculum and Training

Training partners and industry can closely collaborate on delivering practical training. While industry experts can be a part of the practical sessions, there can also be a provision for common spaces for conducting practical sessions. Corporations can use this as an augmented business model. It will directly benefit the students who will be provided with hands-on learning.

To promote higher enrolment in vocational education, private players can spread awareness and promote B.Voc programmes, which can help in creating a hyper-specialised workforce in line with industry needs. Since B.Voc courses are closely linked with the skill-demands of the industry, private sector organisations can easily mould the curriculum to their benefit by working with HEIs offering the B.Voc programmes.

Inspiration can be taken from the Delhi Metro Rail Academy (DMRA), a premier training institute under the Delhi Metro Rail Corporation. It is equipped with all modern facilities to impart customized training on every aspect of project planning, implementation and operations & maintenance of MRTS.

With a similar venture, VLCC is a "skill knowledge provider" with the CBSE, a key body that holds standardised tests in schools. Since 2001, VLLC has been instrumental in contributing towards skill development. It operates more than 85 academies and trains more than 15,000 students annually. It is a leader in the Beauty and Wellness Training programme. BRIDGE (Bosch's Response to India's Development and Growth through Employability Enhancement) is a CSR programme by Bosch which is focused on employability and life skills. It aims to fulfil the growing need for skilled workforce across sectors in India. Bosch reaches out to young school dropouts from marginalised backgrounds who are between the ages of 18 and 25 years for a 3-month short-term programme.

The objective of this job-oriented programme is to utilise Bosch's already established skills development competence to deliver a unique vocational training model for making underprivileged children employable. Bosch has developed a successful PPP model through the BRIDGE Programme. Three State Governments have joined hands with Bosch to support the BRIDGE Programme, namely the Governments of Karnataka, Maharashtra and Rajasthan.

#### 5.2.3.3. Soft Skills Development

The choice of streams among science, commerce and humanities offered at the senior secondary level does not prepare students for a larger spectrum of jobs. It leads to the accumulation of cutthroat competition in certain sectors. The theoretical, textual and knowledge-based curriculum hardly gives students any job skills to be able to enter the job market. As believed by Jack Ma, the founder of Alibaba, "The knowledge-based approach of '200 years ago', would 'fail our kids", who would never be able to compete with machines." Children should be taught soft skills such as independent thinking, values, and teamwork, he says.

EtonX is an example of a learning innovator helping schools to rethink their skills learning options. It offers secondary schools and colleges live online soft skills courses such as making an impact, verbal communications and interview skills, based on interactive content and unique insights through virtual classrooms. This sympathetic learning environment allows friendly class interactions guided by expert online tutors. Students learn to debate and practice challenging real-world skills. In India, such courses can complement the vocational education being imparted and can also be integrated in the conventional education system.



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## **RECOMMENDATIONS**

#### 6.1. VOCATIONAL EDUCATION VALUE CHAIN

Before moving to recommendations, it is necessary to understand the Vocational Education value chain. The following model has been translated from Porter's Generic Value Chain to suit the TVET system to highlight the operational pillars of the system, as well as the support infrastructure needed by the system for achieving its growth objectives.

To summarise, the following activities are at the centre of the TVET System:

- a) Designing an adaptive curriculum to include foundational skills, as well as specialisations in line with skill demands.
- b) Delivering training effectively and inclusively.
- c) Continuously assessing performance and learning.
- d) Measuring learning outcomes against benchmarks and providing remedial support.

e) Paving the way for students to be absorbed in the workforce.

The support infrastructure constitutes:

- a) Effective governance and administration that provides support and guidance, as well as holds the units in the system accountable.
- b) Infrastructure that provides for equitable access and facilitates the teaching-learning exchange.
- c) Effective and efficient process for attracting, retaining and developing trainers.
- d) Technological innovations that increase the reach, quality and cost-effectiveness of the TVET system and its units.

The next section contains recommendations and calls to action which are derived from interviews with various representatives of the identified stakeholders and are in line with the activities described in the value chain.



#### **6.2. CALL TO ACTION**

The rationale for springing to action has been evident to all stakeholders for the last two decades, which is visible in the policies of state and central government, increase in share of the budget for TVET and active involvement of the private sector in improving learning outcomes. However, various gaps still exist in the policy framework and its subsequent implementation, primarily due to the lack of a seamless transfer of benefits and the absence of focus from crucial micro-activities.

Based on the value chain identified, the following areas require attention and intervention:

#### 6.2.1. Curriculum Design

#### 6.2.1.1. Holistic and Self-sufficient Curricula

The current vocational education curricula are designed to be an off shoot of the mainstream educational curricula. To bring vocational education curricula at par with mainstream educational curricula, it is necessary to include both foundational skills and specialisations which provide a holistic developmental experience to the students.

Broadly, the curriculum can be expanded and divided as follows:

- a) Generic curriculum, to include those foundational work readiness skills which are common to all students, irrespective of the stream or occupation they choose. These include verbal and written communication, IT skills (including basics of coding, MS Office etc.) fundamentals of business management, work ethic, financial literacy, emotional education and developing an entrepreneurial mindset.
- b) Specialised curriculum, focused on facilitating choices of careers made by the students, such as engineering, accountancy, nursing, medicine, architecture, or law.

The generic curriculum should occupy close to eighty percent of the foundational semester and should seamlessly integrate with the specialised curriculum which should be the primary focus as the students move closer to graduation.

Furthermore, students should be given access to career development counselling with emphasis on clearing the air around pursuing a higher education in vocational education and giving them exposure to the curriculum and opportunities provided by degree programmes such as Bachelor of Vocational Education (B. Voc). Many students are unaware of the possibility of pursuing a masters such as an MBA after an undergraduate degree in vocational education and are unable to see it integrate into scalable careers.

Additionally, credit-based optional courses should be created for interdisciplinary skill development, including courses on artificial intelligence, digital marketing, filmmaking, sports management, humanities, etc. These disciplines can be clubbed with or derived from the general curriculum in schools or can be offered as certificate courses outside the curriculum to help students build their professional profiles.

The objective of the curriculum should be to sufficiently inculcate the skills needed by graduates to secure employment in their field of choice.

#### 6.2.1.2. Collaborative and Adaptive Design

The development of curriculum should not be limited to the state or central government. The centre and the state can set the objectives and guidelines for the curriculum and act as regulators, but enough space should be allowed for the curriculum to be relevant across regional and demographic differences.

Furthermore, since the curriculum is the foremost input in the TVET process, stakeholders should be engaged right from the start in curriculum design. Recruiter, teacher and student representatives should have access to curriculum development and should be able to provide feedback on the curriculum and the pedagogy.

Based on discussions with various stakeholders, the following recommendations were offered to improve the curriculum design process:

- a) A state level committee involving teachers and principals, representatives from student bodies, alumni from vocational education programmes, recruiters and HR Professionals who collectively look at the draft curriculum and provide recommendations. The committee should be selected by invitations to relevant representatives who can contribute to the curriculum design and nominate a replacement at the end of their term. The term for participants in the committee should be no longer than 1 year for students and teachers, and a maximum of 3 years for recruiters and HR professionals.
- b) Annual feedback survey on the effectiveness of the curriculum by trainers and teachers on the ground using questionnaire-based data collection in randomly selected classrooms across the state.
- c) Mandatory revision of references and reading material annually in the curriculum to make the curriculum adaptive to change.
- d) Ensure that at least 20% of the topics or subjects should be flexible or open for schools to make changes, in order to make them more relevant to the students on the ground.

# 6.2.1.3. Setting Benchmarks for Learning Outcomes

The centre and state government should set up learning objectives relevant to their population and use it to guide the curriculum design. In order to do so, each state should conduct a skill gap assessment and provide an exhaustive list of skill shortages and objectives that serve as the basis for designing and reviewing the curriculum.

20% of the topics flexible in curriculum The skill shortages and desired learning outcomes should be used in creating a Vocational Education Curriculum Framework as a part of the existing National Vocational Educational Qualification

Framework at the national and state level, which can serve as the guideline for developing the curriculum.

## 6.2.1.4. Including Practical Learning and Fieldwork

To help students improve their work readiness significantly, it is important to provide opportunities to help them implement learning in real life situations.

The following steps can be taken to ensure this:

- a) Credit-based field work should be included in the curriculum from the second semester onwards, with a separate evaluation and assessment which has adequate weightage in the overall assessment of the student.
- b) Collaborating with the private sector to set up laboratories and on-site training as a part of the curriculum.
- c) Providing credits to students who wish to work part-time while learning, to provide greater accessibility, as well as workforce absorption.

#### 6.2.2. Training Delivery

#### 6.2.2.1. Use of Technology

While it is necessary to be sensitive to the digital divide, it is equally important to integrate technology in the classroom, given its significant impact on learning outcomes.

The following suggestions can be implemented to ensure this:

- a) Setting up shared resources between schools in a catchment area, such as laboratories, communication labs and audio-visual halls, by state governments or through private sector collaborations.
- b) Creating mobile e-learning centres in remodelled buses, trucks and vans with portable computers and WiFi, that can easily cover a catchment area and provide students access to video-based learning material.
- c) Creating mobile applications for trainers and students to stay connected, view syllabus, submit assignments, track progress, communicate in real-time and even conduct examinations can be

especially effective as we reel from the effects of the pandemic.

#### 6.2.2.2. Involving the Private Sector

An effective technique to increase delivery effectiveness and to motivate students and trainers is to involve private sector professionals to interact with students regularly. Allowing space in the curriculum for students to visit industries and offices will greatly improve their understanding of the job they are seeking.

In that regard, trainers should network and host sessions with industry professionals for students, as a part of classroom learning. A good resource to tap into is the alumni of schools, who are poised to provide feedback on the overall training delivery as well.

#### 6.2.3. Assessment

## 6.2.3.1. Continuous and Comprehensive Assessment

The evaluation of student performance is not just a measure of learning outcomes, but also an effective feedback data point for the TVET system as a whole. Stop-gap assessments are usually an inaccurate metric of either. Therefore, it is important to implement a continuous and comprehensive assessment of learning outcomes throughout the session.

The following steps are crucial in implementing the same:

- a) Assessments should be broken down based on units in the curriculum, and the completion of each unit or topic should be followed by a quiz based on the learning objectives.
- b) A comprehensive assessment should be conducted every time 25% of the curriculum is completed, which should be cumulative of every topic taught in the preceding sessions.
- c) Assessments should be a mix of theory and practice, with assignments and practical exercises taking up at least 40% of the total score, as opposed to 20% currently.

d) At least one practical evaluation in every session should be conducted and evaluated by professionals from the industry to ensure alignment of learning outcomes with industry demands.

#### 6.2.3.2. Collaborative and Peer Assessment

To increase classroom engagement through assessments and to evaluate students' behaviour in tandem with their skills, a system of peer assessment should be implemented, which allows students to partake in designing their evaluation, as well as in giving feedback to their peers.

This can be done as follows:

- a) At least one evaluation every semester should be designed by students. To do so, students should be asked to collectively create questionnaires and design practical exercises, which should be entered into a lottery for deciding the final set of questions and practicals on which students will be evaluated. This practice would allow students to critically think about possible learning outcomes and the competencies that they need, as well as sincerely challenge themselves to perform better.
- b) Students should formally and anonymously give feedback to their peers and mentors at the end of each session, which should include constructive criticism on behaviour.
- c) Trainers should host feedback sessions with individual students after assessments to identity challenges to learning and provide remedial support.

# 6.2.4. Learning Outcome and Remedial Support

A regular measurement of learning outcomes is key in ensuring that the TVET system is effective and successful. Assessment results are a significant indicator of learning outcomes and should be used to identify students with learning challenges and in need of support outside the classroom.

The following suggestions can help in improving measurement of learning outcomes:

- a) The assessment results from each session should be compiled and shared by all schools to the governing board in the state government, to track progress in real-time, instead of stop-gap assessments after every 3-4 years.
- b) Third-party evaluation by developmental sector organisations is a crucial tool in ensuring that learning outcomes are in line with the overall objectives set by the state and the centre, as well as comparative progress in relation to TVET models and best practices across the country.
- c) Schools which have a conducive infrastructure and trainer availability should be earmarked for providing remedial support to other schools in the area, through summer schools, night schools and e-learning.
- d) It is crucial to change the mindset of learning outcome measurement from "pass" or "fail" evaluations, and towards a descriptive comment on student abilities and areas of improvement. To do so, especially in a TVET setting, the evaluation should be aimed towards measuring employability and not the retention of theoretical knowledge. Similarly, the learning outcomes should be designed to measure work readiness and skill, rather than accumulation of knowledge.
- e) State government bodies should aim for assessing at least 30% of the schools every year through surprise visits and online evaluations. This can be done by the representative committee in charge of reviewing the curriculum, or through third-party organisations.

#### 6.2.5. Workforce Absorption

The current practice for providing placement to students is to focus on networking with organisations and recruiters as the students reach the final year of their graduation in college or university. Schools, as such, do not share the responsibility of providing employment opportunities to students.

30% of schools evaluated by the government every year While schools are primarily responsible for inculcating fundamental skills, if recruiter involvement in schools is increased, the overall workforce absorption of students is also positively impacted. This will not only result in increasing the Gross Enrolment Ratio (GER) in higher education, but also in providing a boost to the TVET system and make it more aligned with industry demands.

This can be done by allowing students to intern with organisations while in school, participate in simulation exercises, visit industries and interact with professionals.

Furthermore, students who perform exceptionally well and have clarity on their career should be encouraged to network with industry mentors and curate their learning according to the profession of their choice.

#### 6.2.6. Access and Infrastructure

While on one hand, the accessibility to TVET learning is a challenge in itself, on the other hand there is a significant lack of infrastructure where such programmes are available.

To fill these gaps, the following elements that need to be addressed:

- a) A large chunk of buildings used as training centres for vocational education are owned by the state government. These assets can be leased out to the private sector or put in a common asset bank and listed at market rent rates to revive nonperforming assets and increase access.
- b) Overall, the per capita access to formal education is much higher than vocational education, which means very few schools offer vocational education programmes. By incentivising vocational education programmes, schools can be encouraged to share their facilities with the state government or enter in a PPP model for running a TVET curriculum.
- c) Hyperlocal centres for e-learning can be created by providing TVET licenses or affiliations to local institutes and schools which have a threshold of resources and can accommodate a few batches of students to run courses on specific subjects under the supervision of larger institutions in the area.
- d) State governments should regularly monitor the deficit of schools and earmarked funds to address the same.

#### 6.2.7. Human Resource Management

#### 6.2.7.1. Training and Appraisal

It is critical that trainers in the TVET system are trained both, in their areas of expertise, as well as in delivery of training. While availability of trainers in itself is a challenge, the quality of trainers is also not at part with the desired benchmarks.

The following actions can be taken in this regard:

- a) A National Training Centre for Vocational Trainers should be set up, with affiliated institutions in major cities for trainers. The centre can offer training programmes on various areas of expertise and offer certification and diplomas to attract trainers to standardise training quality.
- b) Trainers at school levels should be provided with fellowships to research and understand industry requirements by networking with professionals and industry experts.
- c) Trainer remuneration should include a variable component linked to student performance on external practical evaluation and internships.

#### 6.2.7.2. Recruitment and Retention

- a) In large part, the TVET training as a career choice is not as attractive and rewarding as teaching in mainstream schools. The first step to change that, is to include trainers at par with teachers in the upcoming Pay Commissions.
- b) State governments should set up training institutes for TVET trainers, which can be done in collaboration with private sector organisations. These institutes should conduct regular workshops and conferences to allow trainers to network and learn.
- c) Provisions should be made for working professionals to serve as part-time trainers or guest trainers in their areas of expertise to increase the number of trainers available to a school.
- d) Trainer exchange programmes should be instituted to increase trainer engagement and peer-learning.
- e) The State government should create programmes for young professionals, who are currently NEETs, to work with skill development centres and

schools to promote vocational education, creating awareness, delivering training and providing placement support.

f) A National Assessment for Vocational Trainers should be established to filter quality trainers and create a centralised talent pool.

#### 6.2.8. Research and Innovation

Citing the example of the Global Teacher Prize Winner Ranjitsinh Disale who increased access to textbooks to a million students by including a QR code in each of his reading materials, the scope for innovation in education is limitless.

Therefore, while trying to build capacity in the current TVET system, the stakeholders should not neglect the effort and investment that needs to go in research and development of innovative solutions which can not only boost current productivity, but also provide longterm, cost-effective sustainability.

#### **6.3. TIMELINE**

To achieve the TVET system that the students in the country require, it is imperative to tie the objectives to time-bound reviews to check deviations along the way and set up a robust control mechanism.

Based on the recommendations provided above, a broad timeline of implementation is outlined as under:

#### 6.3.1. PHASE Zero: November 2021

- a) **Provide Digital Resources:** It is important to focus on building digital capacity to support the transition to the new normal. Many schools may choose to continue providing remote learning and a large part of the curriculum for the next batch might include e-learning material. To stay afloat, many schools and students will require IT infrastructure which can be built with the help of PPP models.
- b) Recruit Trainers: Given the shrinking of the job market during the pandemic, a large number of young professionals will be open to exploring alternative career opportunities. By opening up

Phase	Objectives	November 2021	July 2022	March 2024
Zero	Provide Digital Resources			
	Recruit Trainers			
	Set Up Evaluation Committees			
	Implement Socio-Emotional Learning			
	Organise Awareness Campaigns			
Ι	Build Infrastructure			
	Conduct Comprehensive Assessment			
	Review Curriculum			
	Set up Trainer Training Institute			
II	Standardise Learning Outcomes			
	Expand Curriculum			
	Change Assessment Patterns			
	Increase Digital Penetration			
	Implement National Assessment for trainers			
	Revise Remuneration and Appraisal			
	Budget for Research and Innovation			

recruitment TVET trainer positions, their talent can be utilised and the gap in trainer availability can be bridged.

- c) Set Up Evaluation Committees: Given that the landscape post-pandemic has changed, the situation on the ground may pose new challenges to implementation. Therefore, the state governments should set up research committees to understand the changes in demand and supply. These committees can collect real-time data from schools and training centres throughout the next academic session and comment on learning outcomes and job readiness of students to facilitate future policymaking.
- d) **Implement Socio-Emotional Learning:** It is important to address the distress caused by the

pandemic to students and to help them cope with changes in their personal and professional life. Therefore, TVET programmes should include courses on emotional education, stress management, and overall personality development along with providing counselling support to students.

e) **Organise Awareness Campaigns:** To help students understand the availability of alternative career options, such as vocational courses at postsecondary level as well as higher education programmes such as B.Voc.

#### 6.3.2. PHASE One: July 2022

a) **Build Infrastructure:** The next year should be spent in increasing the number of schools offering

vocational education to support economic recovery and increasing demand of the private sector.

- b) Comprehensive Assessment: At the beginning of next academic year, state governments should conduct a comprehensive assessment of learning outcomes in at least 30% of schools, to ascertain the loss of learning in the previous year and provide remedial measures to schools to ensure that any such losses are plugged by the end of the next academic year.
- c) **Review Curriculum:** The state government should review the curriculum to compare its relevance with the changes in the professional environment and skills post the pandemic. For this, a committee should be set up with representatives from all stakeholders. The objective of the committee should be to implement a National Curriculum Framework specific to TVET.
- d) **Trainer Training:** The central government should set up a training institution for TVET trainers and create affiliated centres in all states to increase the quality of trainers.

#### 6.3.3. PHASE Two: March 2024

- a) **Standardise Learning Outcomes:** A standard curriculum, with scope for flexibility, should be instituted in the next three years and should be revised every 3 years based on feedback from stakeholders.
- b) Expand Curriculum: By the next academic session, students will require training in a plethora of new skills, largely in technology. Since

technological innovation has travelled leaps and bounds during the pandemic, it is essential for TVET programmes to provide the skills necessary to be able to function in the new work setting.

- c) **Change Assessment Patterns:** Over the course of the next three years, continuous assessment models should be tested and implemented, including a channel for feedback on curriculum and peer-evaluation.
- d) **Increase Digital Penetration**: Increasing access to e-learning, setting up shared resources between schools, creating mobile learning centres and providing IT infrastructure in remote areas will be an ongoing investment for state governments. Private sector involvement in the same should be encouraged and incentivised.
- e) National Assessment for Trainers: Under the NTA, a separate national assessment for skill trainers should be conducted which provides certification, as well as fellowships (akin to NET for higher education) and is mandatory for being employed in a TVET centre.
- f) Revise Remuneration and Appraisal: To attract and retain talent, gradual change in the remuneration and appraisal system should be implemented to increase the percentage of young trainers in TVET and to motivate them with incentives and target-based deliverables.
- g) **Research and Innovation**: Innovative solutions that improve learning outcomes or access to TVET should be recognised, supported and implemented at grassroots level.



## **SNAPSHOT OF ACTION ITEMS**

While it is necessary for stakeholders to recognise the synergy needed for implementing the above recommendations and to integrate efforts with other stakeholders in the ecosystem, it is equally important for each stakeholder to build capacity internally, and in parallel. Each stakeholder should design and put systems in place before aligning resources to collaborate with their counterparts. Throughout the paper, suggestions have been made on standalone action items relevant to each stakeholder. The same has been summarised in the snapshot below:

#### 7.1. SUGGESTIONS FOR THE STATE GOVERNMENT

- Map out demand and supply, quantify skill shortages regularly and share the data with relevant stakeholders.
- Plan early-age interventions and exposure to vocational training from middle-school itself.
- Increase vertical and lateral mobility through schemes such as the Academic Bank of Credit and Gender-Inclusion Fund.
- Focus on massive expansion of digitalisation of TVET centres as the first step to establish an infrastructure for quality training delivery and increase in access.
- Extend subsidies to underprivileged students to promote participation in training programmes before employment.
- Increase attention towards Recognition of Prior Learning (RPL) for greater social inclusion and identification of training opportunities, which can be done by setting up state-level third party evaluations of students and young professionals in vocational learning programmes.
- Allow flexibility to institutions to regionalise training curriculum and manage manpower.
- Develop innovative financing models, such as impact bonds and skill vouchers. PPP models can also be developed at state level to boost private capital influx.
- Promote the establishment of the National Training Fund proposed in the 12th Five-Year Plan, and subsequent state funds for regular upskilling of training providers.
- Incentivise teaching jobs in public sector schools to attract talent through better remuneration, better work environment, career development opportunities and recognition of performance.
- Identify the scope of customisation in state curriculum in tandem with guidelines provided by the national curriculum framework.

#### 7.2. SUGGESTIONS FOR THE PRIVATE SECTOR

Increase collaboration with institutes and government to share skill requirements and quality expectations from the recruitment pool.

Increase awareness among the working population about the importance of vocational training through campaigns attracting and incentivising students to take up vocational education.

Capitalise on collaboration opportunities provided by industry-focused programmes such as B.Voc to increase student enrolment in vocational education.

Encourage regional job creation and recruitment, wherever possible, to contribute to reduction of regional imbalances and increase regional workforce absorption.

Find avenues for backward integration of recruitment channels by investing in specialised training centres.

#### 7.3. SUGGESTIONS FOR SCHOOLS

Rethink conventional choices of streams and allow students freedom to explore and customise their higher education.

Redefine vocational education as an integral part of the mainstream curriculum, instead of offering it as an add-on to conventional courses.

Increase focus on soft skills training and employability training from as early as middle school, by providing students opportunities to interact with industry professionals.

Involve parents in the conversation to create societal acceptance towards vocational education as a career alternative.

Encourage vocational training for female students to reduce gender disparity.

Reach out to the private sector for developing high-tech low-cost solutions for TVET programmes.

Collaborate with local administrative bodies to run special education programmes for migrants.

Conduct formal teacher training programmes frequently to help all teachers and trainers be proficient in delivering the curriculum.

Increase awareness towards B.Voc programmes early on and promote higher studies in vocational education at part with mainstream subjects.

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