



Preparation for the World of Work:
Secondary and Higher Secondary Education in India

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W.P. No.2015-02-03
February 2015

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**PREPARATION FOR THE WORLD OF WORK:
SECONDARY AND HIGHER SECONDARY EDUCATION IN INDIA**

**Charanya Raman¹
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Abstract

Secondary education is, perhaps, the most important part of an individual's education as it is during these years that a student decides what she is going to take up for further education and how she is going to earn her daily bread. The present chapter examines the secondary and higher secondary education system in India and discusses how it prepares the student for the world of work. The chapter focuses on the vocational training that is imparted during the four years of secondary (and higher secondary) education. The changing trend of vocational education at the secondary level of Indian education system is described. A description of the current state of vocational education at secondary level, different institutes/government agencies offering vocational courses, curriculum followed by different agencies, teaching methodology used, assessment methodology and certification pattern is provided. In-depth analysis of the problems faced and recommendations for the future are presented.

Keywords: Vocational education; secondary level; senior secondary level; preparation for work; Indian context.

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1. Introduction

Education is not only an instrument of enhancing efficiency but is also an effective tool of widening and augmenting democratic participation and upgrading the overall quality of individual and societal life. Secondary education is, perhaps, the most important part of an individual's education as it is during these years that a student decides what she is going to take up for further education and how she is going to earn her daily bread. The years a student spends obtaining secondary education are very crucial for her development and are instrumental in deciding the course of her future life. In the Indian system of education, the students continue education on a single academic track until primary education (standard 8). As they enter secondary education phase (standards 9 and 10), they are provided an exposure to work education through pre-vocational courses. When they enter higher secondary education phase (standards 11 and 12), they have an option of either adopting an academic (technical) track of education or a vocational track that prepares them for work immediately. The aim of the academic track is to prepare an individual for a professional career, whereas the vocational track aims to prepare the student for work immediately after she completes her education. Given the focus of this chapter (and the book) is on how education system prepares the student for work, we have limited the scope of this chapter to vocational education made available through the secondary and higher secondary education system existing in India.

The present chapter is structured as follows. The next section provides information on the current scenario of vocational education in India. Section 3 lists out the objectives for vocational education and training in India. Sections 4, 5, 6, and 7 provide details about the agencies offering vocational education in India, details about how vocational education is funded, the curriculum and the teaching methodology followed. Section 8 presents a

summarization of the chapter listing out our reflections on the problems faced by the Indian vocational education system and some recommendations to improve it.

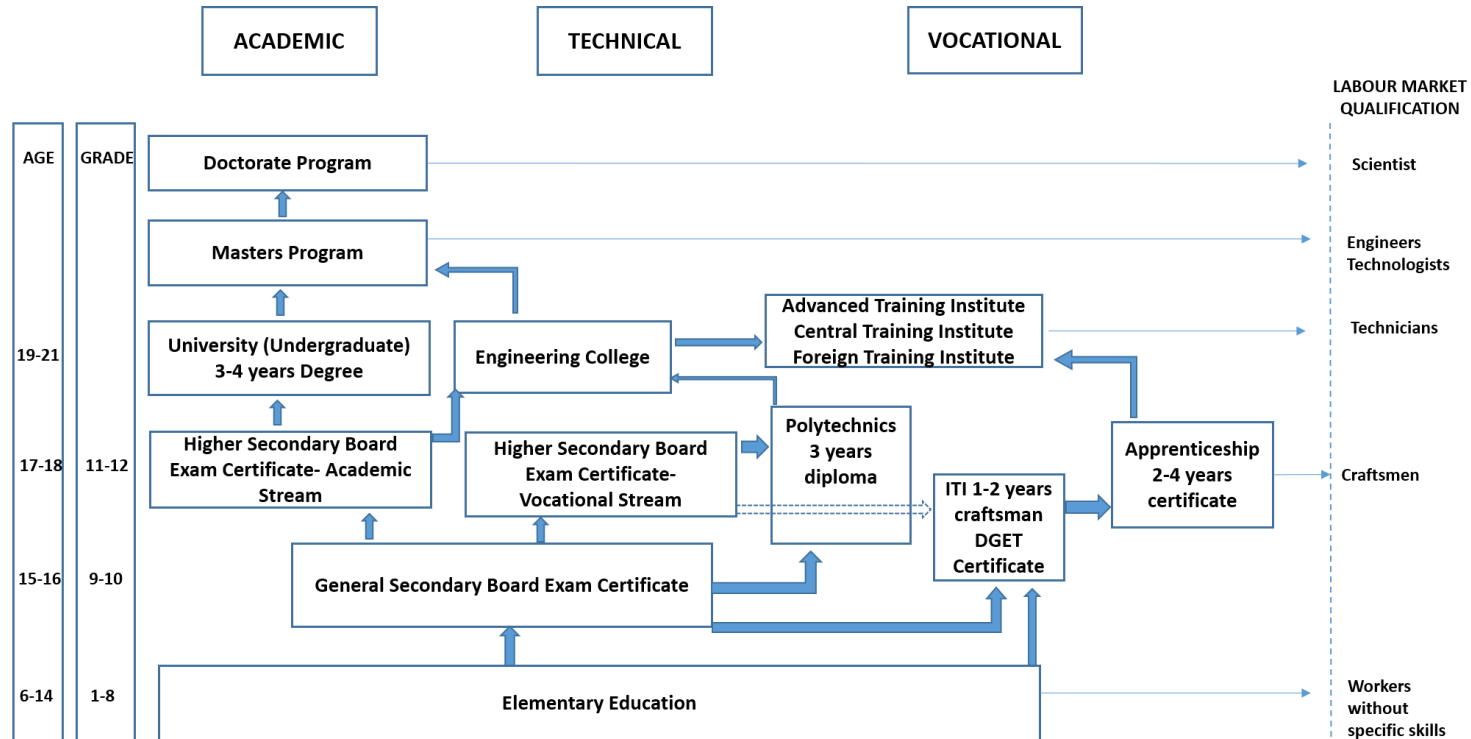
2. Current Scenario of Vocational Education in India

2.1 Education System in India

Figure 1 shows the current education system and different pathways of educational progression in India from elementary education till doctorate.

The present education system in India mainly comprises of primary education, secondary education, higher secondary education and higher education. Elementary education consists of eight years of education. Each of secondary and higher secondary education consists of two years of education. Higher education in India starts after passing the higher secondary education or the 12th standard. Depending on the stream, doing graduation in India can take three to five years. Post graduate courses are generally of two to three years of duration. After completing post-graduation, scope for doing research in various educational institutes also remains open.

Secondary and higher secondary education are important stages in the system of general education because it is at these points that the youth decide on whether to pursue higher education, opt for technical training or join the workforce (Planning Commission, 2002). The secondary stages (secondary; higher secondary) of education consists of grades 9-12 (14-17 Age). India has more than one hundred thousand secondary and higher secondary schools serving more than 30 million students (Cheney, Ruzzy, and Murlidhar, 2005). These schools are affiliated with central or state boards. While secondary education is conducted in schools, higher secondary education is conducted either in schools or junior colleges. The three national level education boards are: Central Board of Secondary Education (CBSE), the Council for the India School Certificate Examinations (CISCE) and the National Institute of Open Schooling (NIOS) for distance education. Each state also has a State Education Board.



Source: Self compiled using information from (World Bank 2008), (Goel 2009) and DGE&T, Ministry of Labour and Employment website

Majority of students in India exit school after 10th (age 15) and join the workforce due to socio-economic conditions and hence it is imperative to offer courses that would help them be better prepared for the world of work and to develop skills they can use to find better job prospects (Planning Commission, 2002). Currently, as a part of the school curriculum, vocational education starts at the higher secondary stage and is run as a distinct stream parallel to the academic stream. In addition to this the Ministry of Labour and Employment (MoLE) runs numerous government and private run Industrial Training Institutes that help youth, women and disadvantaged group acquire employable skills and plays a major role in developing high quality workforce.

2.2 Status of Vocational Education in India

Vocational education and training (VET) has been the blind spot of the central and state governments as well as the MoLE for the past six decades. According to the National Sample Survey Data 66th Round, number per 1000 for age group 15-19 who received vocational training was 44 and even in this only 14 received formal vocational training and the rest fell in the category of non-formal vocational training. Further, it was noticed that 36% in rural areas and 24% in urban areas reported that the training was not helpful in finding a job (Government of India, 2013). According to the eleventh planning commission report, even on an international level, India shows significantly low enrolment rates compared to other countries like China, USA, Russia and Germany and the proportion youth receiving formal vocational training is only about 2 percent as compared to 60 to 96 percent in other industrialized countries (Planning Commission, 2008). A World Bank report on skill development in India mentions that the major problem areas in Indian vocational education and training are: lack of sufficient private sector participation in the management of institutions and curriculum, lack of proper funding model, and a strong mismatch between the

labour market and the courses offered (World Bank, 2008). From a sociological perspective vocational education has been considered only suitable for students whose potential for academic courses are poor (Kumar, 2009). This perception also constitutes a major challenge for planning and progress of VET.

However, in the recent years the government has taken many positive steps in improving the vocational education scenario in India. The 11th planning commission (2007-12) launched a major “skill development mission” that was focused on developing VET programs to improve employment opportunities and impart relevant skills sets to self-employed, especially in the rural and unorganized sector. This drive made provision for development of VET through upgradation of country’s Government-run Industrial Training Institutes (ITI) and private sector ITIs. The centrally sponsored scheme of vocationalisation of secondary education, that provides diversification of educational opportunities, was also thoroughly revised in the 11th five-year plan (Planning Commission, 2008)

3. Objectives of Vocational Education

In the recent years a lot of importance has been given to development and up gradation of vocational education and training in India. The skill development mission started by the government of India is one of the first initiatives focused on creating a pool of skilled personnel with skills in synchronization with the labor market requirement. According to this mission VET would be a major contributor in providing a pool of skilled and trained workforce within the time frame of five to eight years to meet the needs of the rapidly growing economy and also catering to other ageing economy, thereby leveraging India’s competitive advantage (Planning Commission, 2008). For this mission to succeed, bringing about a paradigm change in the architecture of VET was considered a major requirement.

The National Skill Development Policy (NSDP) formulated by MoLE aims to increase the productivity of workforce both in the organized and the unorganized sectors, seeking increased participation of youth, women, disabled and other disadvantaged sections and to synergize efforts of various sectors and reform the present system (Goel, 2009). The government has a target of creating 500 million skilled workers by 2022. The objectives of NSDP (Government of India, 2009) are:

1. Create opportunities for all to acquire skills throughout life, and especially for youth, women and disadvantaged groups;
2. Promote commitment by all stakeholders to own skill development initiatives;
3. Develop a high-quality skilled workforce/ entrepreneur relevant to current and emerging employment market needs;
4. Enable the establishment of flexible delivery mechanisms that respond to the characteristics of a wide range of needs of stakeholders; and
5. Enable effective coordination between different ministries, the centre and the states, and public and private providers.

The scope of this scheme includes:

1. Institution-based skill development including ITIs/ vocational schools/technical schools/polytechnics/professional colleges;
2. Learning initiatives of sectorial skill development organised by different ministries/departments; and
3. Formal and informal apprenticeships and other types of training enterprises.

Another scheme that plays an important role in developing VET in India is the 'Vocationalisation of Secondary Education' initiated by the Ministry of Human Resource Development (MHRD) targeting formal school education in India. It was introduced to equip

students of secondary and higher secondary classes with skills and competencies necessary to be able to enter the world of work. This scheme has proposed to expand vocational education from 9,619 schools covering 1 million students to 20,000 schools and an intake capacity of 2.5 million and to make vocational education available in schools from grade 9th instead of grade 11th (Goel, 2009). The main objectives of this scheme are:

1. Diversification of educational opportunities so as to enhance individual employability;
2. Reduce the mismatch between demand and supply of skilled manpower; and
3. Act as an alternative for those pursuing higher education.

4. Main Agencies Offering Vocational Education & Training

VET programs are targeted at creating employment opportunities and imparting suitable skills for self-employment, particularly in the rural and unorganized sector (Agarwal, 2013). There are numerous agencies providing vocational training at different levels in India. These agencies can be broadly classified under two categories: agencies providing vocational education as a part of school education and agencies providing vocational education outside school education. Given below is a brief description of these agencies.

4.1 Agencies Providing Vocational Education as a Part of School Education

4.1.1 Vocationalisation of Secondary Education

The centrally sponsored scheme of vocationalisation of secondary education was launched in year 1988 by the MHRD. This scheme provides vocational education instruction in secondary schools and is considered an alternative to the general stream of education in schools. It also provides broad guidelines with respect to management structure, curriculum design, infrastructure development, vocational surveys, instructional material, teachers and their training, school-industry linkage, examination and certification, and other aspects. This scheme offers 150 different vocational courses of two year duration at the higher secondary

level i.e. XI and XII . According to the Planning Commission of India there are now about 9583 schools offering courses in the broad areas of agriculture, business and commerce, engineering and technology, health and paramedical, home science and science and technology covering about one million students (Planning Commission, 2008).

This scheme is implemented through education boards at Center, State, and Union Territories (UT). At the national level, the Central Board of Secondary Education (CBSE), is implementing this scheme at the higher secondary level as a distinct vocational stream. Under this scheme, CBSE offers 34 vocational courses consisting of 107 subject in its about 500 government and government aided schools across the country (MHRD, 2014b). CBSE is also making efforts to introduce more such courses in collaboration with relevant industry/organization, and has facilities for joint certification. As per the 12th planning commission (2012-2017), the scheme of Vocationalization of Secondary Education will be subsumed under the Rashtriya Madhyamik Shiksha Abhiyan (RMSA). However, the funding pattern would remain the same and the scheme would be implemented from the secondary stage instead of higher secondary stage (Planning Commission, 2013).

4.2 Agencies Providing Vocational Education Outside School Education

4.2.1 Industrial Training Institutes(ITI) & Industrial Training Centres(ITC)

Vocational training outside school education is the primary responsibility of Director General of Employment & Training (DGET) in the MoLE at the national level. This is the nodal department responsible for formulating policies, laying down standards, and conducting trade testing and certification in the field of vocational training. At the State level, the State level Director Generals of Employment and Training are responsible for vocational training programs. The training is provided through two different schemes- Apprenticeship Training Scheme (ATS) and Craftsmen Training Scheme (CTS).

The ATS under the Apprenticeship Act 1961 provides on the job training in various private and public firms. There are four categories of apprentices, namely, trade apprentice, graduate, technician and technician (vocational) apprentices. Qualifications of trade apprentices vary from class VIII pass to XII pass (10+2) system. Period of training varies from 6 months to 4 years. Currently there are about 28,500 industrial establishments belonging to both engineering and non-engineering trades, providing apprenticeship which is quite low compared to the total number of industrial establishments in India. Also there are only 2.11 lakhs trade apprentices undergoing apprenticeship training against 3.59 lakhs apprenticeship seat (Government of India, 2014).

Craftmen training is provided in ITIs. These ITIs are either government run or managed privately. Till about recently privately run ITIs were known as Industrial Training Centres (ITC), however now both are known as Industrial Training Institutes with a suffix government or private as the case be (Government of India, 2014). As of March 2014, there were about 10,750 ITIs with a seating capacity of 15.23 lakh imparting training in 133 trades (Government of India, 2014). Out of the total ITIs, 2,274 institutes were government run and 8,475 were managed privately. The Director General of Employment & Training (DGET), under MoLE, has taken up scheme for upgrading 500 Existing ITIs. The first 100 ITIs are being upgraded through domestic resources and have been named Centre of Excellence and the remaining 400 ITIs have been partially funded by World Bank. The objective of this scheme is to produce multi-skilled workforce matching world standards (DGET, 2014a)

These courses are open to those who have passed either standard 8 or 10 depending on the trade and are of 1 or 2 years duration (long-term courses) or 2-3 months (short-term courses), which varies from course to course (Planning Commission, 2008) The resource

persons for the program may be drawn from rural engineering departments of state governments, faculty of engineering colleges, polytechnics institutes and ITIs (Goel, 2009).

4.2.2 Other Agencies offering Short Vocation Training Courses

Other than DGET there are a number of other ministries and agencies that offer vocational training in their specific sectors at the at the secondary level. A few of them include Ministry of Health, Rural Development, Agriculture, Textiles etc. and agencies like National Institute of Open Schooling (NIOS) and Jan Shikshan Sansthan (JSS).

In addition, there are 1,244 polytechnics under the aegis of the MHRD with a capacity of over 2.95 lakh offering three-year diploma courses in various branches of engineering with an entry qualification of 10th pass (Planning Commission, 2008). Table 1 presents a summary of various programs and institutions providing vocational education and training programs at secondary level. The unorganized sector that constitutes about 93% of the workforce is not supported by any structural system of acquiring or upgrading skills (Planning Commission, 2008). By and large, skill formation takes place through informal channels like family occupations, on the job training under master craftsmen with no linkages to the formal education training and certification. Training needs in this sector are highly diverse and multi-skill-oriented. Many efforts for imparting training through Swarnjayanti Gram Swarajgar Yojana (SGSY)- (Self-Employment Program), Prime Minister Rozgar Yojna (PMRY)- (Prime Minister Employment Scheme), Khadi and Village Industries Commission (KVIC), Krishi Vigyan Kendra (KVK) – (Agriculture Research Stations) and Jan Shiksha Sansthan (JSS)- (People's Education) are also in place (Planning Commission, 2008).

Table 1. Institutions Providing Vocational Education and Training at Secondary and Higher Secondary Levels

Ministry	Schemes/ Programs/Institutions having provision for Vocational Education and Training Program at secondary level	Eligibility
Human Resource Development	Vocationalisation of Secondary Education	Students having passed 10 th
Human Resource Development	Polytechnics + Institutions for diploma in pharmacy, hotel management, architecture	Students having passed 10 th
Human Resource Development	Community Polytechnic Scheme	Poorer section of society
Human Resource Development	Jan Shikshan Sansthan (Vocational Training Centres run by NGOs)	Disadvantaged groups 15-35 years
Human Resource Development	NIOS – Distance Vocational Education Programs (Practical Training through Accredited Vocational Institutes (AVIs)	5 th , 7 th , 8 th & 10 th pass.
Ministry of Labour(DGET)	Craftment Training Scheme	8th 10th 12th pass
Ministry of Labour(DGET)	Apprenticeship Trainig Scheme	8th, 10th,12th pass
Department of Tourism	Food Craft Institutes under State Government	10th pass
Minstry of Tribal Affairs	Vocational Training Centres in tribal areas	Tribal youth
Department of Woman & Child Development	Kishori Shakit Yojana	Adoloscent Girls

Source: (Goel, 2009), MHRD website, DGE&T website

5. Funding for Vocational Education

5.1 Structure of Funding

The present VET system in India is heavily dependent on public funding. Few places where private funding exists are in-house training or in-kind contributions (Pillay, 2014). Funding for the various vocational training programs are shared by the central and the state governments. The central government provides 100 percent assistance for the following components: apprenticeship training, district vocational surveys, textbook development workshops, instructional material subsidy, resource persons training, workshop/laboratory building, equipment to schools, teacher training courses and curriculum development workshop and 50 percent assistance for the following five components: vocational wings of State Directorates of Education, State Council for Education Research and Training (SCERT), district vocational wings, provision of raw material/contingency funds and field visits by students (Planning Commission, 2002). In addition to this the centre provides 75 percent of the expenditure on vocational school staff while the state governments fund the remaining 25 percent. The states have to completely finance the expenditure on conducting examinations and providing vocational guidance.

5.2 Vehicles of Funding for Vocational Training

The major funding for vocational education comes from union budget allocation to different vocational education and training schemes and very little from private organizations. Two important government agencies that predominantly contribute to vocational education and training at secondary level are DGET under MoLE and the MHRD with its Vocationalisation of Secondary Education. There are also small budget allocations for vocational training to other ministries which conduct training programs in their respective areas. The budget allocation for the scheme of Vocationalisation of Secondary Education for

the year 2013-2014 is Rs 720.9 million (Government of India, 2014a) and that for the training aspect of DGET is Rs 8.2 billion (Government of India, 2014b).

6. Curriculum

Different agencies offering vocational education and training have their own curriculum which is designed by an in-house curriculum development unit. Two important ministries providing vocational education and training in India are MHRD and MoLE. Given below are the curriculum details for both.

6.1 Curriculum under MHRD

Currently vocational education is provided in schools only at the higher secondary stage, and here too it is restricted to a distinct stream parallel to the academic stream. The Pandit Sundarlal Sharma Central Institute of Vocational Education (PSSCIVE), under the National Council of Education Research and Training (NCERT), develops the curriculum for school level vocational education program under the Vocationalisation of Secondary Education Scheme. It also provides research and development, and training support to key stakeholders from states/union territories. The institute draws up the curriculum in the major areas of agriculture, business and commerce, engineering and technology, health and para-medical services, home science etc. for courses of one to two years' duration for adoption by different State Council of Education Research & Training (SCERT) (Planning Commission, 2002).

CBSE, which is implementing the vocationalization of secondary education scheme at the national level, has collaborated with PSSCIVE for developing curriculum for its vocational education stream. A detailed description of vocational curriculum under CBSE is given below:

6.1.1 Higher Secondary Curriculum for Vocational Stream (Class XI and XII)

The main objective of the vocational education program offered by CBSE is to develop skilled manpower through diversified courses that could meet the human resource requirement of various sectors and to prepare youth for the world of work through a large number of self-employment oriented courses. It has integrated academic and vocational education into a single programme to provide the best curricular and pedagogical practices for students so that they may have perfect linkages with world of work. Table 2 and Table 3 respectively give the scheme of studies and examples of courses implemented in the vocational stream of higher secondary schools. Currently, CBSE is offering 40 Vocational courses consisting of 100 subjects in 313 affiliated schools in India and 11 schools in 5 countries, with coverage of approximately 37,095 students (CBSE, 2014).

Table 2. Scheme of Studies for Higher Secondary School (Vocational Stream)

S.No.	Name of the Subject	Period/week	Maximum Marks
1	Language 1 (English)	7	100
2	Two Subjects from Academic Stream (Science/Commerce/ Humanities)	7+7	100 each
3	Two papers from any of the 34 vocational courses	8+8	100
4	One optional additional subject from either academic stream or vocational stream	7	100
5	Work integrated learning	On the job exposure 60 hours for level 1&2 and 120 hours for level 3&4	-
6	Personality Development and Soft Skills	2	-
Total		6	500(compulsary)+100 (Optional)

Source: Scheme of Studies, CBSE Report, 2014-15

Table 3: Vocational Courses available at Higher Secondary Level

<i>Office Secretaryship:</i> Office Procedures and Practices, Secretarial Practice & Accounting, Office Communication
<i>Stenography & Computer Application:</i> Typography & Computer Application (English), Shorthand (English)
<i>Elective III/ Additional Subject Optional:</i> Office Procedures and Practices, Secretarial Practice & Accounting
Accountancy and Auditing: Financial Accounting, Elements of Cost Accountancy & Auditing
<i>Elective III/Additional Subject Optional:</i> Office Procedures and Practices OR Typography & Computer Application (English) OR Typography & Computer Application (Hindi) OR Store Accounting
<i>Marketing and Salesmanship:</i> Marketing, Salesmanship, Consumer Behaviour and Protection
<i>Additional Subject Optional:</i> Secretarial Practice & Accounting
<i>Banking:</i> Cash Management and House Keeping, Lending Operations, Management of Bank Office
<i>Electrical Technology:</i> Engineering, Science, Electrical Machines, Electrical Appliances
<i>Automobile Technology:</i> Auto Engineering, Auto Shop Repair and Practice
<i>Elective III/Additional Subject Optional:</i> Engineering, Science OR Applied Physics OR Civil Engineering
<i>Electronics Technology:</i> Electronic Devices and Circuits, Radio Engineering and Audio System, Television and Video Systems
<i>Additional Subject Optional:</i> Electrical Engineering OR Civil Engineering
<i>Horticulture:</i> Vegetable Culture, Floriculture, Post - Harvest Technology & Preservation, Basic Horticulture
<i>Any one from the following:</i> Olericulture OR Pomology OR Floriculture
<i>Health Care and Beauty Culture:</i> Beauty Therapy and Hair Designing, Cosmetic Chemistry, Yoga Anatomy and Physiology

Source: Scheme of Studies, CBSE, 2013

The 11th Planning Commission has spearheaded the implementation of National Vocational Education Framework in order to standardize the vocational education in India and get them under one umbrella. PSSCIVE, along with State Boards and CBSE, is developing a comprehensive competency-based curriculum with inputs from industry to allow contextualization and localization of content by the States. The competency based curricula will be adopted or adapted by the Central/State Boards of Education. For quality assurance and relevance, the vocational training packages will be reviewed and revised every 2-3 years or earlier as per the need. A component of ‘on-the-job training’ would be an integral part of the curriculum. Besides technical skills, greater emphasis will be given on development of generic skills, which would include (i) basic communication skills; (ii) basic IT skills; (iii) customer care services; (iv) job seeking skills; (v) team building skills, etc. (MHRD, 2014a).

6.2 Curriculum under Directorate General of Employment & Training:

Curriculum development for the CTS and ATS under the DGET is the responsibility of National Council for Vocational Training (NCVT). This is a tripartite body which advises DGET in issues related to skill development such as curriculum development, maintaining quality standards, granting affiliation to institutes etc. Similar to NCVT there are State Council for Vocational Training (SCVT) which advice respective states on skill development issues and are in-turn advised by NCVT (Government of India, 2014). The curriculum drawn by NCVT are for both engineering and non engineering trades and are followed by both ATS and CTS. The duration of these courses last from 6 months to 2 years with minimum eligibility being eight grade passout.

The main difference in curriculum between ATS and CTS is that the former has an added on the job training feature which lasts for an extra six months or one year. The

programs are broadly divided into engineering and non engineering trade subjects and follow a semester system. Table 4 gives examples of a few engineering and non engineering trades under CTS introduced in 2014. (Source: DGET, 2014)

Table 4: Engineering and Non-Engineering Trades under Craftsmen Training Scheme

Engineering Trades
Architectural Assistant, Carpenter, Draughtsman (Civil), Draughtsman (Mechanical), Electrician, Electroplater, Fitter, Information Communication Technology System Maintenance , Interior Decoration and Designing , Laboratory Assistant (Chemical Plant), Marine Engine Fitter, Operator Advanced Machine Tools, Painter General, Plastic Processing Operator, Plumber, Surveyor, Textile Mechatronics, Welder etc.
Non Engineering Trades
Architectural Draughtsman, Sewing Technology, Sewing Technology, Dairying, Dental Laboratory Technician, Digital Photographer, Dress Making, Floriculture Landscaping, Front Office Assistant, Health Sanitary Inspector, Old Age Care, Pre/Preparatory School Management (Assistant) etc.
Source: DGET 2014

To keep up with the changing market trends the DGET has proposed an up-gradation of the curriculum and has suggested the following points (Ministry of Labour and Employment, 2014):

1. Training in basic skill areas for a period of one year;
2. Training in advanced modules for next six months;
3. The testing and certification for the basic skill training during first year & also for advanced training during next six months will be conducted by NCVT; and
4. Training in specialized modules mainly in the industry (course curriculum, duration etc. to be designed in consultation with the Institute Management Committee (IMC)/local industry. The state government and industry will do the trade testing and certification for this component jointly. Said certificate will be recognized by NCVT.

The training programs have multi-entry and multi-exit provisions. This means that the trainee can opt to go to the labour market after completing broad based basic training of one year duration as well as after completing 18 months of training. Alternatively, the trainee can join training after some time for advanced/specialized training in another module of same sector. ITI pass-out trainee of the particular trade(s) from the conventional system can seek admission for advanced/specialized training in relevant sector.

7. Teaching Methodology

According to National Council of Teacher Education the focus of vocational courses is on self-employment or on employment that demand different capabilities, competencies and practical and academic skills from the teachers. The teachers of vocational subjects should not only possess high competency in a trade or vocation but also be able to enthuse their students to undertake it as a career and develop qualities essential for achieving success in this area (National Council for Teacher Education, 2014). The teaching methodology for vocational education, as suggested by the Council, should be able to:

1. Make students understand and appreciate the philosophy, purpose and need of vocational education and its relevance in the Indian context;
2. To impart knowledge and develop necessary competencies;
3. Develop an understanding of the scientific principles involved in a trade or vocation;
4. Develop necessary skills and values for success in a vocation;
5. Foster the desire to achieve high productive skills and competencies;
6. Induce the students for self-employment;
7. Develop the spirit of self-reliance and self-confidence among the students; and
8. Organise on-the-job training and apprenticeship programs for students.

However, according to the Twelfth Planning Commission Reprt there is a need to train and equip teachers in the latest skills and pedagogy for vocational education (Planning Commission, 2013). It has been noted by various authors (e.g. Short, 2008; Goel, 2009) that lack of adequately qualified teaching and training staff is one of the major bottlenecks of the VET sector. There are only a few public VET teacher training institutes like the Advanced Training Institutes which provides teacher training for ITIs and has a limited seating capacity and a few private facilities that generate certified trainers (Falke, 2012). As a consequence, numerous non-certified trainers with irrelevant qualifications operate as trainers. This, in combination with low wages, leads to poor quality teaching staff in the VET system.

7.1 Teacher Qualification

The criteria of selection for vocational teachers/trainers include qualification and minimum competency criteria decided. For standards XI and XII, teachers with post graduation in relevant subject or graduates with minimum two years work experience are appointed who also serve as the vocational coordinator (CBSE, 2013).

For the ITI trainers in engineering trade, an engineering degree in related subject with one to two years experience or National Trade Certificate (NTC) in related subject and four to five years of teaching/work experience is required. For non engineering trades, the trainer needs to hold a degree or diploma in relevant subject with two to three years work experience or a NTC with four to five years work experience (DGET, 2014). Students who enrol for the vocational stream in their higher secondary are certified by the central or state board of vocational education. Similarly, ITI students have to sit for an All India trade test and the qualifying students are issued NTC.

7.3 National Vocational Education Qualification Framework (NVEQF)

On 3rd September 2012, MHRD issued an Executive Order on the National Vocational Education Qualification Framework (NVEQF). NVEQF is a nationally integrated framework based on education and skills. This descriptive framework organises qualification according to series of levels which are defined in terms of learning outcome i.e. competencies a learner must possess regardless of attaining it through formal, non-formal or informal education and training. This framework has multiple pathways both within vocational education and between general and vocational education to link one level of learning to another higher level and enable learners to progress to higher levels from any starting point in the education and/or skill system. Significant elements of NVEQF are:

1. To provide multiple entry and exit between VE, general education and job markets;
2. To provide progression within VE;
3. To enable transfer between VE and general education; and

To build partnership with industry/employers.

8. Reflections

Vocational skills training needs to be integrated into school and college curriculums, and the national mindset which segregates academic education from hands-on skills requires a sea-change. That's the bigger challenge confronting teachers and academics engaged in the task of educating and preparing the world's largest child population for the 21st century. With tangible action items and goals for each department the scope for reforming vocational education in India looks promising. However, there are a lot of challenges. The carefully crafted government industry initiative to establish a national VET infrastructure which will provide upskilling opportunities to India's huge 509 million low-productivity labour force, may bear fruit. But this government industry effort also needs to be supplemented by India's

educators' community and academia (Thakore, 2010). Given below are our own reflections on the problems being faced by the Indian vocational education system and some possible remedies.

8.1 Problems Faced by Indian Vocational Education System

8.1.1 Low Enrollment Rates

The Central Government's initiative in vocational education has not been very uniform and varies from state to state, and the overall status remains unsatisfactory. The proportion of students enrolled in vocational courses has remained extremely small in most states, barring Kerala and Maharashtra. In the CBSE system, this proportion has been particularly small (Kumar, 2009). The ITI system has also failed to grow to any significant proportion, especially in comparison with similar institutions in other industrializing countries, particularly China. The same is true of the clientele of the NIOS which has developed a plan for vocational courses. It is, therefore, important to acknowledge that VET has remained on the margins of the system of education. One of the reasons for low enrollment is the fact that vocational education and training programs are perceived as serving mainly the lower socio-economic strata of society, constitutes a major challenge for future planning and progress. A related perception is that vocational courses are suitable only for those students whose potential for academic courses is poor (Kumar, 2009). Also, the general feeling is that secondary education can attract higher salary than if a person undertakes vocational education after completing secondary education. The lost opportunity cost of about 2-3 years while undergoing vocational training seems to be the major deterrent. Finally, the huge unorganised sector where most people undergo informal vocational training lacks awareness on numerous programs run by the government.

8.1.2 Poor Employability & Skill Mismatch

One of the major problems faced by the Indian system of vocational education is that the students graduating from vocational institutes are not well accepted by the labour market. About 60% of ITI graduates remained unemployed even after completing their course and even those who did find employment did not work in trade for which they were trained (Falke, 2012). In states like Maharashtra, which has a good vocational education set-up, only 35% of the students graduating from ITIs found wage employment or took-up self employment (Government of India, 2009). According to the study done in the states of Andhra Pradesh, Maharashtra and Orissa, employment of ITI graduates in the organized sector is very low. In none of the states did more than 50 percent of the graduates find wage employment, or become self-employed, or work in a family business (World Bank, 2008). One of the reason for this mismatch is that vocational education programs in India are time-based rather than demand-driven and are unable to target a specific sector, or a contemporary skill (Pillay, 2014).

Also, the curriculum development for vocational education has not evolved along with the changing job market scenario. The Planning Commission has held extensive consultations with the industry, various Central ministries running training programs, and the State Governments. The commission found that the curricula are inflexible and outmoded, the duration and delivery of a course at times was not needed, and there was inadequate fitness-testing mechanism of the institutions with a mismatched fee structure and admission criteria (MHRD, 2014a).

The problem is further complicated with lack of industry-faculty interaction on course curricula and other factors. Another, critical reason for this skill mismatch is the marked difference between the formal and the informal sector. There is a serious dearth of

information about the skill requirement in the informal sector. Formal VET offered by higher secondary schools and ITIs does not equip students with skills needed in the informal sectors where the production process is less fragmented and the same person is often engaged in the entire production process and commercialization (Falke, 2012).

8.1.3 Inefficient Regulatory Environment

In India, the Government is deeply involved in the VET. Majority of vocational institutes are public run and even the private institutions are tightly reigned by the government. The management of public VET institutes are currently shared between the central and state government. The central government takes care of the policy making and the state government takes care of smooth running of these institutes. However, this arrangement is uncoordinated and ineffective and is characterized by political power struggle (Nilekani 2008 as cited in Falke, 2012).

The system is shared by DGET, NCVT and SCVTs and MHRD. At the national level, the distinction between the roles of DGET and NCVT are blurred and there is a lack of effective coordination between them. At the state level, the SCVTs are also unclear about their roles and responsibilities, and their relationship to the national level agencies. This results in diverse accountability and makes the delivery of training complex. Furthermore, different agencies emphasis only on delivering training rather than on policy guidance and ensuring quality standard (World Bank ,2008). This system of multiple stakeholders has isolated the training from the market forces.

8.2. Recommendations for the Future of Vocational Education in India

India has tremendous demographic dividend (Government of India, 2000). Projections indicate the emergence of a young India with 800 million in the productive age group by 2015 (Gupta, 2011). In 2020, the average Indian will be only 29 years old,

compared with the average age of 37 years in China and the US, 45 in west Europe and 48 in Japan (Chandrasekhar, Gosh, & Roychowdhury, 2006). To make the best use of the demographic dividend, India has to tackle the challenges that are immense, one of which is substantial expansion of quality vocational education and training for raising employability and productivity. The skills provided have to be attuned to the new business requirements, improving quality of education and trainings at all levels; and making vocational education system more and inclusive for sustainable growth (Goel, 2009).

Some of the recommendations to strengthen the Indian vocational education system are given below:

8.2.1 Providing more information on various vocational courses

Due to its preoccupation with expansion and funding, the successive Indian governments have been neglecting their key role of providing information on availability and effectiveness of various vocational training programs. This significantly hinders the complete analysis of the program. The NCVT and various SCVTs have been set up to provide information on the nature and quality of training, and facilitating regular and independent evaluations on the impacts of training programs. An expansion in their functions to include institutional capacity, enrolment, completion information, and graduate follow-up data from all registered vocational institutions, and annual tracer study/survey of graduates from vocational institutions would help the government develop a relevant and cost-effective VET system. Better information about how VET programs function would help Indian policymakers redesign their VET policies and interventions to ensure that they are responsive to labour market demands (World Bank, 2008).

8.2.2 Collaborative effort by MHRD and MoLE

For a complete and well-defined vocational education plan, it is important that MHRD and MoLE work together. A strong linkage between senior secondary schools with vocational stream and ITIs will allow both the institutions to mutually benefit from their curriculum and pedagogy, which in turn will improve employability and vertical mobility of the students. In addition, a joint effort between NCVT and NCERT in developing the National Curriculum Framework for Vocational Education would be more impactful.

8.2.3 Shifting towards competency based training

Competency Based Trainings (CBT) are more skill-oriented and focus on competencies identified as essential to learn a particular trade. The Australian vocational education and training system is often seen as a successful model of the competency based training framework (NCVER, 2013). A crucial advantage of this framework is that it addresses the key problem of lack of relevance of training to industry demand since the competencies are based on standards defined by the industry. The flexibility of this model makes it applicable to both public and private providers of VET and can potentially undergird the current infrastructure of VET in India. The CBT framework has just been introduced in the Indian VET system through NVEQF and is still in its nascent stages.

8.2.4 Increasing private participation in the current vocational training framework

For the successful reform of Indian vocational education and training system, it is crucial for the government to involve private sector organizations, both in directly providing training and in the management and governance of public training institutions. To lower the skill gap caused by outdated or impractical courses, that are not in-synchronisation with the labour market, it is essential to involve the private players and the potential employers themselves in the training efforts. Also, involving private players will reduce the severe strain

on the government in terms of the public budget allocated for vocational education and training.

8.2.5 Short term vocational courses in high schools

At present, most of the courses available in higher secondary schools focus on employment in organized sector of the economy. Equal importance needs to be given to short-term courses, oriented towards opportunities in the unorganized sector. Certain short-term courses can also aim at self-employment or improving the skills of young people already working in the unorganized sector in the neighbourhood of the school. Such courses can be organized in after-school hours or evenings.

8.2.6 Improving the quality of ITIs:

The ITI system needs to evolve, and the number of trades that are attuned to current market needs should be substantially increased. Residential facilities and scholarships for girls need to be introduced in ITIs in order to promote their participation in technical areas of vocational education.

8.2.7 Training versus education

Vocational Training has always been treated as a distinct and separate entity from the general education. This causes uneven and incomplete preparation for work, and fewer takers for vocational training. Hence, it is important to change people's perception of vocational education and make it a part of mainstream education.

8.2.8 Industry and job linkages

The vocational training institutes, which purport to prepare students for jobs, often do not have close linkages to the employers and understanding of their needs. Hence, they train based upon outdated perceptions of what is needed or on a centralised decision making process. Courses and curricula developed in conjunction with industry should have a local

context and relevance. Also, the curriculum has remained static over years, not reflecting current requirements. Quality and robustness of curriculum varies and often leads to uneven delivery depending upon the teacher's interpretation and capability. Facilities and labs are often behind times, resulting in ill-equipped pass outs.

9. Conclusion

The objective of this chapter was to examine Indian VET system at the secondary and higher secondary school level and understand various schemes, agencies and policies that are preparing the students for the world of work. This chapter describes the challenges faced by the Indian VET system with "low employability of VET graduates due to skill mismatch" being the most critical one. The mismatch between VET graduate's acquired skill-set and the industry requirement is at the core of the failure of Indian VET system. The way forward for its success would be extensive curriculum reform and streamlining of the VET regulatory bodies.

With "Skill Development Mission" as a priority, both public and private agencies are recognizing the importance of vocational education in the nation's development. This is a promising start, however with major issues to be ironed out Indian VET has far to go before it establishes itself as a successful framework.

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