Skill Development in India

2015

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1. Introduction

"Education, vocational training and lifelong learning are central pillars of employability, employment of workers and sustainable enterprise development"

- International Labour Organisation

Skill development is critical for economic growth and social development. The demographic transition of India makes it imperative to ensure employment opportunities for more than 12 million youths entering working age annually. It is estimated that during the seven-year period of 2005-2012, only 2.7 million net additional jobs were created in the country. To enable employment ready workforce in the future, the youth need to be equipped with necessary skills and education.

The country presently faces a dual challenge of severe paucity of highly-trained, quality labour, as well as non-employability of large sections of the educated workforce that possess little or no job skills. The skill development issue in India is thus pertinent both at the demand and supply level. To meet the demand side challenge, consistent efforts are being made towards expansion of economic activities and creation of large employment opportunities. On the supply side, a simple look at the projected youth population provides a fair reason to believe that India has the strength to cater to this demand. However, the employability quotient is questionable and remains a major area of concern. Already huge gaps exist between the industry requirements and the level of skills of workers due to varied reasons including inadequate training infrastructures, inappropriate mix of skills and education, outdated curricula, limited industry interfaces, limited standards, etc.

The skill development ecosystem in India is skewed towards a formal education system with limited vocational training. While the vocational training is in a dismal state both qualitatively and quantitatively, the higher education system itself is grappling with issues related to scale and quality.

Moreover, there is a disconnect between the formal education system and work requirements, compounding the challenges related to the skill gap. A concerted action is thus required on the supply side to ensure sustained employability of the Indian youth. Extensive efforts to skill the workforce are required, both in quantity and quality. Transforming the skill development ecosystem and making it responsive to needs of both industry and citizens

requires a scalable, efficient and comprehensive vocational training ecosystem to meet future requirements.

There is a need to assess the traditional approach of skill development delivery in India in light of the successful models and best practices in other economies. The learnings can be imbibed and custom adopted to address the skill development challenges of India. This is one of the key objectives of the study presented.

In Chapter 2, we present an overview of the skill development ecosystem in India encompassing the broad policy and structural framework that governs the skill development activities in the country. In Chapter 3, we assess the skill need and gap by understanding the demand and supply scenario related to skill development in India. As a part of the study, we also undertook primary survey in two industrial clusters (Pune food processing and Coimbatore capital goods) to gauge the skill development challenges faced by small and medium enterprises (SMEs) in India. The major findings of these surveys are presented in Chapter 4.

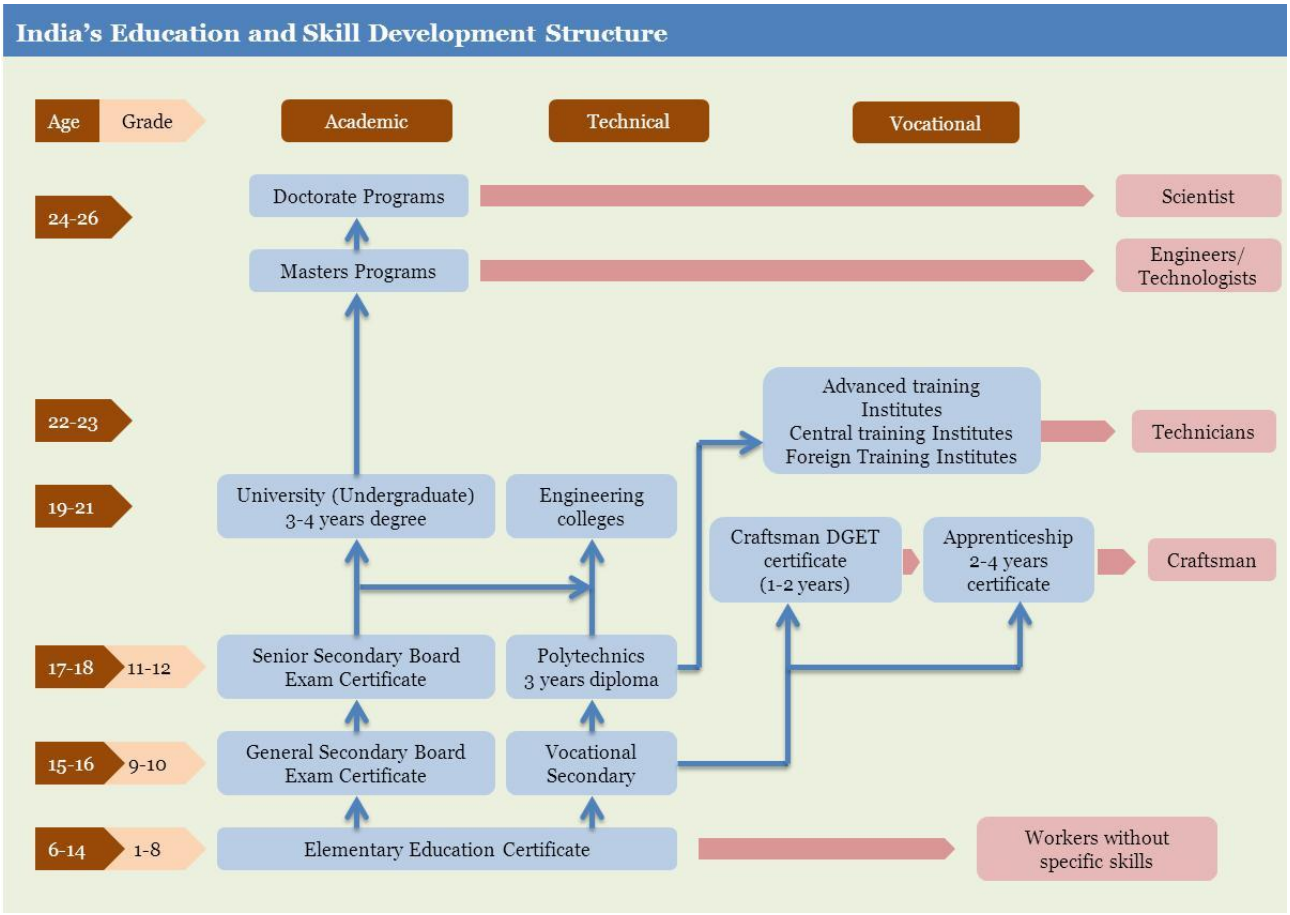
Given the current state of affairs and the future requirements, the challenges related to skill development in India are enormous. These are highlighted in Chapter 5 of the study.

Since the key objective of the study is to identify some best practices in skill development that can be adopted in India, skill development models in three key economies, namely Germany, Australia and China have been studied. An analysis of the skill eco-system in these countries is done in Chapter 6. Based on the key learnings from these successful skill development models and taking into account India's specific requirements and policy changes recently brought forth, recommendations for addressing the skill development challenges in India are provided in Chapter 7 of this study.

2. Skill Development Ecosystem in India

The skill development ecosystem in India is complex, large and diverse, providing varied levels of skills across an extremely heterogeneous population. Skill development in India can be broadly segmented into **Education** and **Vocational Training.** The exhibit below presents the broad framework of Skill Development in India.

Figure 1: India's Education and Skill Development Structure



Source: World Bank

Elementary, secondary and higher education is governed by the Ministry of Human Resource Development. University and Higher Education caters to all college education (Arts, Science, Commerce, etc.), while engineering education, polytechnics, etc. fall under Technical Education. University Grants Commission (UGC) is the nodal body governing funds, grants and setting standards for teaching, examination and research in Universities, and the All India Council for Technical Education (AICTE) is the regulatory body for Technical Education in India.

Skills in India are acquired through both formal and informal channels. Formal vocational training is imparted in both public and private sector. Some of the major channels of formal vocation training include the government-run Industrial Training Institutes (ITIs), privately operated Industrial Training Centres (ITCs), vocational schools, specialized institutes for technical training, and apprenticeship training by the industry. The private sector participation has been on a rise lately, but the sector continues to be dominated by the public sector. Informal training on the other hand refers to experiential skills acquired on the job.

At the central level, the nodal institution for vocational training is the Director General of Employment & Training (DGET) under the Ministry of Labour and Employment. The DGET is responsible for formulating policies, establishing standards, granting affiliation, trade testing and certification, and matters connected to vocational training and providing employment services. The National Skill Development Council (NSDC) - now a part of the newly created Ministry of Skill Development and Entrepreneurship - was initially set up under the Ministry of Finance to provide viability gap funding and promote private skill initiatives.

Policy framework

The government has listed skill development as one of its priorities and aims to enhance participation of youth, seek greater inclusion of women, disabled and other disadvantaged sections into the workforce, and improve the capability of the present system, making it flexible to adapt to technological changes and demands emanating from the labour market.

Currently, skill development efforts in India are spread across approximately 20 separate ministries, 35 State Governments and Union Territories and the private sector. A Ministry of Skills Development, Entrepreneurship, Youth and Sports was created when the Modi government took charge in mid-2014. The Ministry has been entrusted with the coordination of all stakeholders during the evolution of an appropriate skills development framework, removal of disconnect between demand and supply of skilled manpower, skills upgradation, building new skills, innovative thinking and assuring availability of talents.

The policy framework governing the skill development ecosystem in India includes the Apprentices Act, 1961, the National Skill Policy and the National Skills Qualification Framework (NSQF).

The Apprenticeship Act of 1961

Apprenticeship programmes in India are governed by The Apprentice Act of 1961 and the Apprenticeship Rules of 1992. The organizational structure and rules and regulations overseeing it are complex and burdensome. The Apprentice Training Scheme is implemented by the ministries of Labour and Employment and Human Resource Development. The Ministry of Labour and Employment oversees 'trade apprentices' through six regional offices. The Ministry of Human Resource Development oversees 'graduate, technician, and technician (vocational) apprentices' through four boards located in different cities.

The Act regulates programmes of training of apprentices and makes it obligatory for employers in both public and private sector establishments to have training infrastructure as detailed in the Act. This has been primarily to ensure trainees get optimum access to real work environment and on-the-job training. One of the objectives of apprenticeship was also to ensure that employers get skilled workforce having adequate exposure to real work environment. About 254 groups of industries are covered under the Act and about 27,000 establishments engage apprentices.

However, there has not been much success in implementation of this Act. Although Apprenticeship Training Scheme has been running for over four decades, there has not been any significant improvement in respect of seat location as well utilization, as detailed in the table below. The key issues with the apprentices system in India relate to low participation of workers and employers, low rates of stipend, strict regulatory requirements for employers including penalties for non-compliance, less coverage of trades in services sector and lack of progression into higher qualifications.

Table 1: Seat Utilisation under Apprentices Training Scheme

Year	Seats located	Seats utilized
2004-05	253,541	170,848
2005-06	234,388	167,554
2006-07	255,990	186,122
2007-08	258,163	185,224
2008-09	261,236	187,339
2009-10	274,741	197,994
2010-11	294,171	204,213
2011-12	321,937	218,032
2012-13	337,087	203,970
2013-14	359,356	211,632

Source: Ministry of Labour

The Apprentice Act of 1961 was recently amended in December 2014 to make it more responsive to industry and youth. The Apprentice Protsahan Yojana was also launched to

support MSMEs in the manufacturing sector in engaging apprentices. As per the amended Act, work hours and leave benefits of Apprentices will be at par with the regular workers from the organised sector. Industries will be allowed to take more non-engineer graduates and diploma holders as apprentices, depending on the nature of the job, and new trades for apprenticeship training will be introduced. A portal is also being setup to make all approvals transparent and time bound.

The National Skill Policy

The National Policy on Skill Development was first formulated in 2009 to create a skills ecosystem in India. It acts as a guide to formulate strategies by addressing the different challenges in skill development. The objective is to empower the workforce with the required skills, knowledge and qualifications to make the Indian workforce globally competitive.

The government has introduced a National Policy on Skill Development and Entrepreneurship, 2015. The policy aims to provide an umbrella framework to all skill related activities carried out within the country, to align them to common standards and link skill activities with demand centres. In addition to laying down the objectives and expected outcomes, it aims at identifying various institutional frameworks which can act as the vehicle to reach the expected outcomes. The new skills policy also provides details on how skill development efforts across the country can be aligned within the existing institutional arrangements.

The National Skills Qualification Framework

The National Skills Qualifications Framework (NSQF), notified on 27th December 2013, is a competency-based framework that organizes all qualifications according to a series of levels of knowledge, skills and aptitude. Presently, more than 100 countries have, or are in the process of developing national qualification frameworks.

Under NSQF, the learner can acquire the certification for competency needed at any level through formal, non-formal or informal learning. The NSQF is anchored at the National Skill Development Agency (NSDA) and is being implemented through the National Skills Qualifications Committee (NSQC) which comprises of all key stakeholders.

Specific outcomes expected from implementation of NSQF are:

- Mobility between vocational and general education by harmonization of degrees with NSQF;

- Recognition of Prior Learning (RPL), allowing transition from non-formal to organized job market;
- Standardised, consistent, nationally acceptable outcomes of training across the country through a national quality assurance framework;
- Global mobility of skilled workforce from India, through international equivalence of NSQF;
- Mapping of progression pathways within sectors and cross-sectorally;
- Approval of National Occupational Standards (NOS)/ Qualification Packs (QPs) as national standards for skill training.

As of 31st March 2015, across 28 sectors, standards for 1319 job roles pegged at NSQF levels 1 to 8 have been defined by the Sector Skill Councils (SSCs). Fourteen SSCs have covered development of 80% of entry level workforce QPs.

The NSQF provides for a five year implementation schedule and at the end of the fifth year (2018), it shall be mandatory for all training/educational programmes/courses to be NSQF-compliant, and all training and educational institutions shall define eligibility criteria for admission to various courses in terms of NSQF levels.

The system of multi-entry and multi-exit will enable students to acquire some skills after finishing compulsory general schooling, then enter the labour market and gain some work experience and return to the vocational education and training system to continue their vocational education/training. It would be particularly beneficial for relatively poor students, since it would enable them to continue in either the vocational education stream of the secondary system or the ITI system, rather than dropping out from the educational or vocational training space altogether.

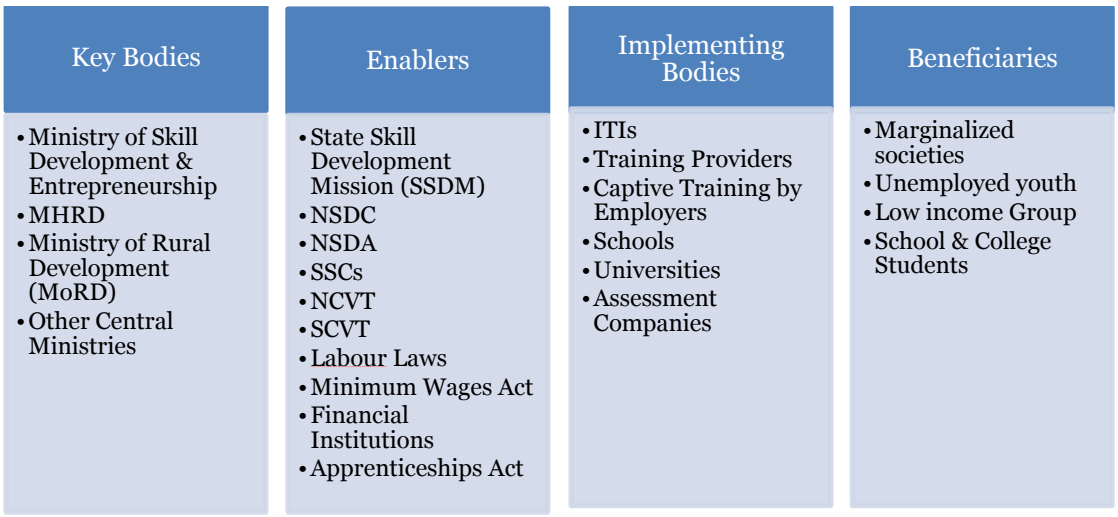
Nodal bodies for Skill Development in India

Ministry of Skill Development and Entrepreneurship

The creation of the first-ever separate Ministry of Skill Development and Entrepreneurship was announced by Prime Minister Narendra Modi in June 2014. It is conceived to encompass all other ministries to work in a unified way, set common standards, as well as coordinate and streamline the functioning of different organisations working for skill development.

The Ministry of Skill Development and Entrepreneurship is entrusted to make broad policies for all other ministries' skill development initiatives and National Skill Development Corporation (NSDC). Mapping and certifying skills, market research and designing curriculum, encouraging education in entrepreneurship, make policies for boosting soft skills and computer education to bridge the demand and supply gaps are among the other goals.

Figure 2: Skill Development Eco-System in India



Source: FICCI-KPMG report "Skilling India"

MHRD

The Ministry of Human Resource and Development (MHRD) governs the polytechnic institutions offering diploma level courses under various disciplines such as engineering and technology, pharmacy, architecture, applied arts and crafts and hotel management. MHRD is also involved in the scheme of Apprenticeship Training. Apart from this, MHRD has also introduced vocational education from class IX onwards, and provides financial assistance for engaging with industry/SSCs for assessment, certification and training.

Central Ministries

There are 21 Ministries under the central government who are also working for the purpose of skill development. There are two approaches that these Ministries have: one approach is setting up training centres of their own for specific sectors like (adopted by Ministry of Labour & Employment, Ministry of Agriculture, Ministry of Health & Family Welfare, etc.). The second approach is in the form of Public Private Partnership (as adopted by Ministry of Rural Development, Ministry of Women and Child Development, etc.).

Enabling agencies

NSDC

The National Skill Development Corporation India (NSDC) is a public private partnership organisation (now under the Ministry of Skill Development and Entrepreneurship) that was incorporated in 2009 under the National Skill Policy. Its main aim is to provide viability gap funding to private sector in order to scale up training capacity.

The NSDC has tied up with more than 187 training providers, many of whom have started scaling up their operations.

The NSDC has also been entrusted to set up SSCs ensuring right representation of employers and to extend financial support to operationalise them. It also undertakes research initiatives, pilot projects, and skill gap studies to create a knowledge base for the sector. They have supported and incubated 31 SSCs that is intended to facilitate the much needed participation and ownership of the industry to ensure needs-based training programmes.

The National Skills Development Agency (NSDA) is working with the State governments to rejuvenate and synergise skilling efforts in the State. The National Skills Qualification Framework (NSQF) has been anchored at NSDA and efforts have been initiated to align all skilling and education outcomes with the competency based NSQF levels.

The NSDC's mandate also involves capacity building by working with different stakeholders and identifying best practices to create an excellence model. The NSDC has also been working to create awareness about the skill ecosystem and has rolled out electronic and print campaigns.

Sector Skill Councils

The National Skill Development Policy of 2009 mandated the NSDC to setup SSCs to bring together key stakeholders i.e. industry, work force and academia. As on date, 29 SSCs are operational and 4 more SSCs have been approved by NSDC[1]. They are funded by NSDC for the initial few years and are expected to become financially self-sustaining as they grow.

These SSCs are expected to lay down the National Occupational Standards for different levels of jobs in their respective sectors, formulate certification and accreditation norms, strive to

[1] *List of SSCs in India is provided in Annexure*

create knowledge repository on current requirement of skill development in the industry, assess the supply of skilled workers, identify the demand and supply gap in each sector, and identify trends and future requirements. With availability of trainers being a major challenge in scaling up the capacity, SSCs are also expected to play a crucial role in getting right industry support to facilitate training of trainers for their respective sectors.

NCVT, SCVT and Quality Council of India

Established under Ministry of Labour and Employment with a view to ensure and maintain uniformity in the standards of training all over the country, the National Council for Vocational Training (NCVT) was set up in 1956. This certifying body conducts All India Trade Tests for those who complete training in ITIs and awards National Trade Certificates to successful candidates. The Council has representation from central and state government departments, employers' and workers' organisations, professional and learned bodies, All India Council for Technical Education, scheduled castes and scheduled tribes, All India Women's Organisation, among others. The State Council for Vocational Training (SCVT) at the state levels and the sub committees have been established to assist the National Council.

The Quality Council of India (QCI) was set up jointly by Government of India and the Indian industry as an autonomous body to establish a national accreditation structure in the field of education, healthcare, environment protection, governance, social sectors, infrastructure, vocational training and other areas that have significant bearing in improving the quality of life. All institutions (Government and private ITIs) seeking formal affiliation from NCVT have to first get accreditation from the Quality Council of India.

Implementing agencies

Industrial Training Institutes

The DGET which governs Industrial Training Institutions (ITIs) has recently been aligned with Ministry of Skill Development and Entrepreneurship. There are more than 10,000 ITIs with a capacity of approximately 1.5 million seats. The DGET also governs RVTIs (Regional Vocational Training Institutions) and ATIs (Advance Training Institutions) focusing on specialized and high-end skill sets and trainers courses.

Three major skill development schemes of the DGET that are being implemented through government ITIs and private ITCs include the Craftsmen Training Scheme, the Apprenticeship Training Scheme, and the Modular Employability Scheme.

- *Craftsmen Training Scheme*: The scheme is being run in over 10,000 institutes with a seating capacity of about 1.3 million. The training is available for about 116 trades and the course generally has duration of 2 years. The courses generally require a minimum educational qualification of having passed the 10th or 12th grade (some trades accept students who have passed the 8th grade). Under these schemes, emphasis is largely on the practical aspects, with practical to theory teaching ratio being 70:30.
- *Apprenticeship Training Scheme*: As mentioned earlier, around 27,000 establishments are providing apprenticeship training to 211,632 youths (for 2013-14). The training usually varies between 6 months to 4 years. The minimum educational qualification is different for different trades. For some trades, educational qualification is SSC passed or equivalent, whereas for some it is two classes below SSC. There is provision of Apprenticeship Training for ex-ITI students based on a bi-annual national level test.
- *Modular Employable Skills*: The programme was initiated in 2007 with the objective of expanding the outreach of the training facilities to school dropouts and in recognition of need for prior learning of workers in the unorganized sector. The target workers include those who have left school after 5th or 6th grade or have acquired on-job-training but do not have formal certification. Under this scheme, short duration courses are provided to prospective trainees using both government and private infrastructure. 1,402 modules covering more than 60 sectors have been developed, 36 Assessing Bodies empanelled for conducting assessment, 6,951 Vocational Training Providers (VTPs) registered and more than 1.35 million persons have been trained/tested up to 31.3.2012.

Private Training Service Providers

The private sector has been taking various initiatives on its own and in collaboration with the government and international entities, to upgrade in-house training facilities and also to provide training to potential employees to make them job-ready.

Many large corporations like Larsen & Toubro, Bharti Group, Hero Group, Maruti, ITC, Infrastructure Leasing & Finance Services Ltd. etc., have established training facilities that offer world-class training programmes. The government provides partial support in funding by way of sponsoring the tuition fee of the students.

NSDC has 203 training partners under its PPP module, which include for-profit as well as non-profit entities. In the last four years, these training partners have trained over 2 million

people in more than 25 sectors, at 2500+ fixed and mobile centres, in over 350 districts across the country.

3. Demand and Supply dynamics

The average age of India's population by 2020 is projected to be the lowest in the world—around 29 years compared to 37 years in China and the United States of America, 45 years in West Europe, and 48 years in Japan. While the global economy is expected to witness a shortage of young population of around 56 million by 2020, India will be the only country with a youth surplus of 47 million. India's demographic transition makes it imperative to ensure employment opportunities for millions of youth each year. Alongside employment, skill development is equally important as over the years jobs have become more skill-intensive with changes in technology as well as increased inter-linkages across economic activities.

The skill development issue in India is pertinent both at the demand and supply level. Generating employment is definitely a challenge given the enormity of population entering workforce each year. From the supply side, the issue is primarily related to employability of the workforce due to varying reasons ranging from poor education, lack of training facilities, inadequate skilling, quality issues leading to mismatch of skill requirements, and poor perception of vocational skilling vis-à-vis formal education. These have inadvertently created skill shortages and also contributed to higher unemployment. Hence, both employment and employability are key factors of concern today. The magnitude of the problem can be gauged from some of the statistics detailed below.

Literacy levels in India are extremely low

As per the twelfth plan document 55 percent of workforce has education only up to primary level. School dropout rate is also high, with 19.8% dropping out after class V, additional 16.5% dropping out after class VIII and further 11.1% dropping out after class X.

Table 2: School dropout rate in India

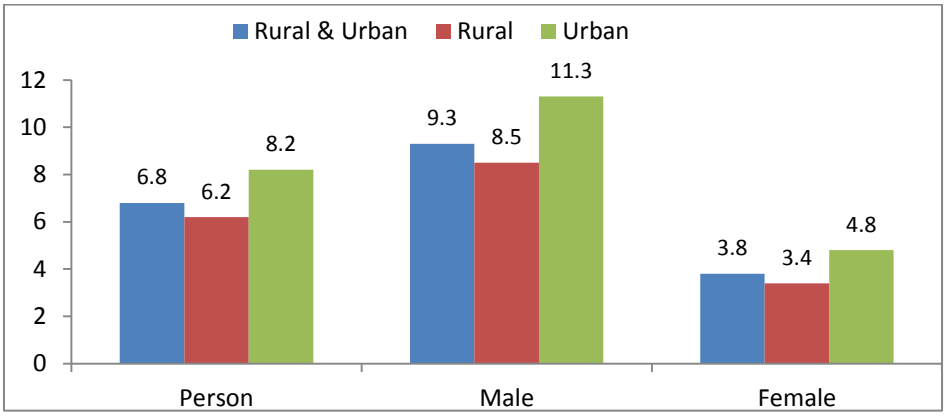
Class	Dropout rate
I-V	19.8
I-VIII	36.3
I-X	47.4

Source: Ministry of HRD

Formally skilled workforce is less than 3 percent of total workforce

Unfortunately, the current size of India's formally skilled workforce is very small. As per the latest survey by the Labour Bureau for 2013-14, only 6.8 percent of persons aged 15 years and above have received or were receiving vocational training, of which only 2.8 percent was through formal channels while 4 percent was through the informal system. In contrast, skilled workforce in other countries is much higher – Korea (96%), Germany (75%), Japan (80%) and United Kingdom (68%).

Figure 3: Share of population (15 yrs & above) receiving vocational training (in %)



Source: Labour Bureau, Ministry of Labour and Employment

Poor literacy levels impede skilling through formal channels

Amongst the formally skilled labour force, 74% have higher secondary or higher education levels, and amongst the labour force with informal skills, 78% of the workforce has completed only middle or lower education. Such skewed nature of skilling can be attributed to two factors – a) the education level entry requirements in the current skill set-up makes it difficult for workers with minimal education to access formal skills training; and b) lack of education also impedes the ability to absorb higher level of skills.

Inadequate training capacities

The number of people who enter the work force age group every year is estimated to be 26 million. With average labour participation rate of 90% for male and 30% for female, at least 16.16 million will enter the workforce and would need to acquire skills. However, current annual skilling capacity, including training for the farm sector, in India is estimated at only 7 million. The table below highlights the dismal state of training capacities at the ITIs, which are a key source of skill training in India. Enrolments in vocational training are way below the enrolments in formal education. As against the enrolment of 23.76 million students in higher education, the skill training capacities in ITIs is mere 1.69 million. Training partners of NSDC have collectively trained 3.4 million youths in 2015-16.

Table 3: No. of ITIs with total Seating Capacity (as of 8 Sep 2014)

Region	No. of Govt. ITIs	Seating capacity (Govt.)	Number of private ITIs	Seating capacity (private)	Total ITIs	Total seating capacity at ITIs
North India	813	130818	3757	458837	4570	589655
South India	437	100828	3056	347926	3493	448754
East India	209	58250	1569	250301	1778	308551
West India	825	208474	1298	137402	2123	345876
GRAND TOTAL	**2284**	**498370**	**9680**	**1194466**	**11964**	**1692836**

Source: Labour Bureau, Ministry of Labour and Employment

Table 4: Enrollment in Higher Education in India

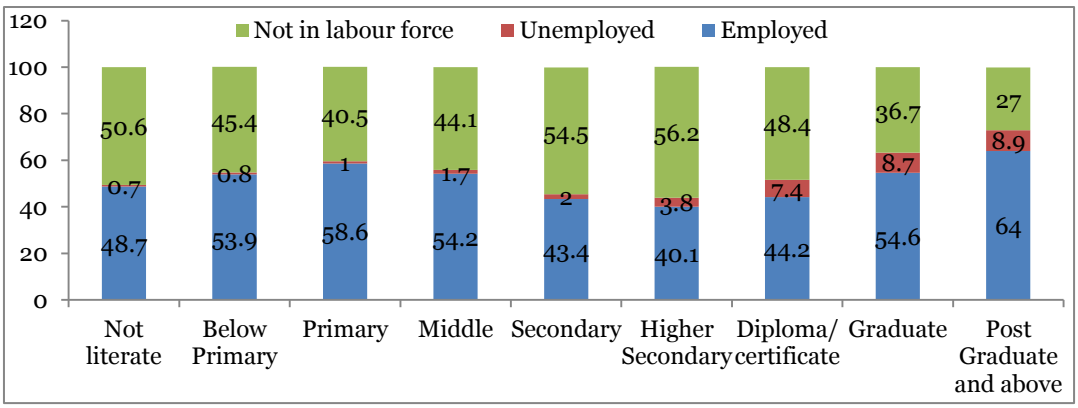
Level	Enrollment in University Departments/Colleges	Enrollment in affiliated colleges	Total	% share
Graduate	2,125,559	18,104,033	20,229,592	85.12
Post Graduate	774,557	2,160,432	2,934,989	12.35
Research	156,845	43,885	200,730	0.85
Diploma/ Certificate	156,909	242,740	399,649	1.68
Grand Total	**3,213,870**	**20,551,090**	**23,764,960**	**100**

Source: University Grants Commission, Annual Report 2013-14

Unemployment amongst higher educated is also high

The Labour Bureau's survey report for 2013-14 reveals that the proportion of unemployment in labour force[2] with higher education levels is also high. Almost 9% of the graduates and post graduates labour force is currently unemployed as against less than 1% in case of illiterates and semi-literate labour force. Besides the issue of unemployment, this data also points towards the issue of employability due to mismatch of skills with the work requirements.

Figure 4: Composition of population (15 yrs & above) by activity and education (%)

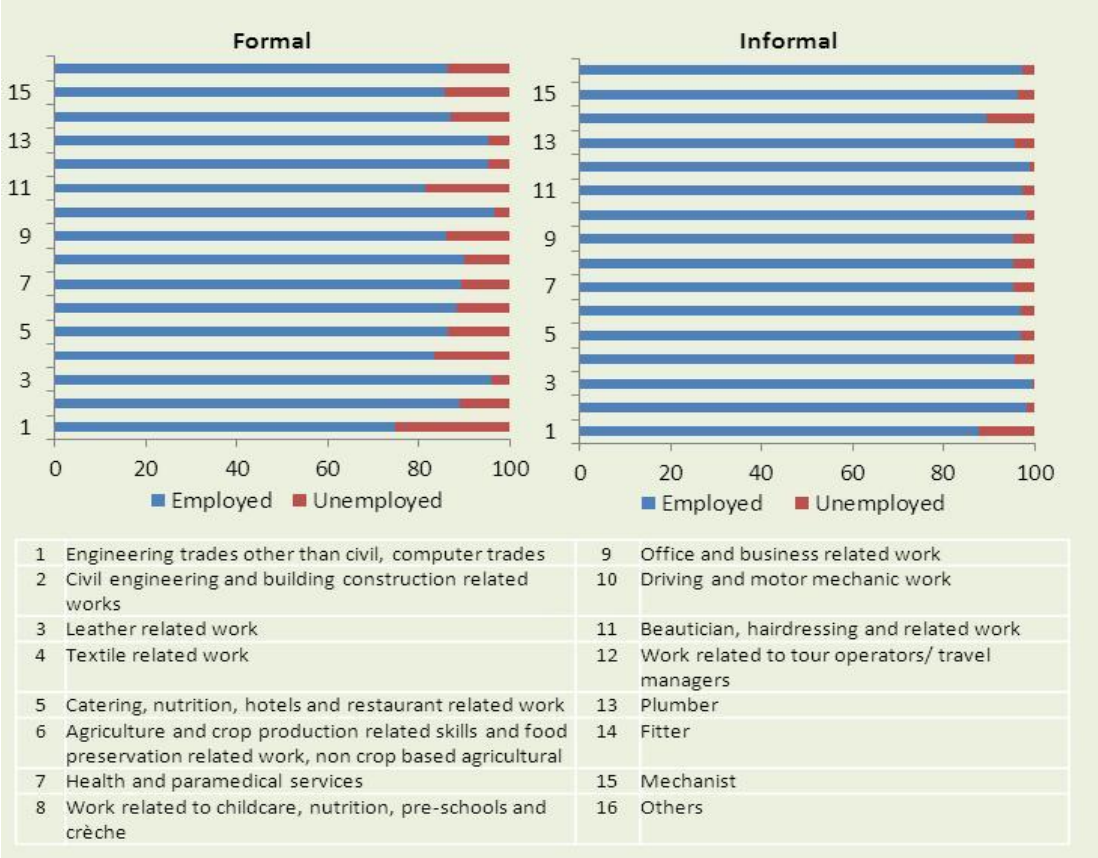


Source: Labour Bureau, Ministry of Labour and Employment

[2] *Persons who are either 'working' (employed) or 'seeking or available for work' (unemployed) or both during a major part of the reference period, constitute the labour force.*

Amongst the formally trained labour force, the unemployment rate is above 10% for several trades and is significantly high in case of 'engineering trades other than civil and computer trades' (25.2%) and 'textile related work' (16.7%). Amongst the informally trained workforce, the percentage of unemployed is mostly low (below 5%) for most of the trades except for certain trades like fitter (10.7%) and 'engineering trades other than civil and computer trades' (12.2%).

Figure 5: Workforce receiving formal/ informal skill training across sectors (%)



1	Engineering trades other than civil, computer trades	9	Office and business related work
2	Civil engineering and building construction related works	10	Driving and motor mechanic work
3	Leather related work	11	Beautician, hairdressing and related work
4	Textile related work	12	Work related to tour operators/ travel managers
5	Catering, nutrition, hotels and restaurant related work	13	Plumber
6	Agriculture and crop production related skills and food preservation related work, non crop based agricultural	14	Fitter
7	Health and paramedical services	15	Mechanist
8	Work related to childcare, nutrition, pre-schools and crèche	16	Others

Source: Labour Bureau, Ministry of Labour and Employment

Employability levels are very low

The extent of employability gap can also be gauged from the 2014 survey report (National Employability Report 2014) by Aspiring Minds, which shows that out of the six hundred thousand engineers that graduate annually, only 18.43% are employable for the Software Engineer-IT services role, while a dismal 3.95% are appropriately trained to be directly deployed on projects. For core jobs in mechanical, electronics/electrical and civil engineering only a mere 7.49% are employable. As per the report, the key reason behind such poor employability statistics is inadequate preparation in the domain area, i.e. the ability to apply basic principles of say, computer engineering or mechanical engineering to real world

problems. While the concepts and principles are present in the college curriculum, there exists a gap in teaching and learning pedagogy being followed in majority of colleges.

Skill requirements by 2022

The quantitative as well as qualitative skill gaps can further widen going forward if there are no or limited efforts towards addressing the key supply related issues. As per the skill gap study conducted by the National Skill Development Cooperation over 2010 - 2014, there is an additional net requirement of 109.73 million skilled manpower by 2022 across twenty four key sectors.

As India strengthens its base as a knowledge economy, there would be additional requirements to the highly skilled workforce in sectors like financial services, IT/ITeS, Bio-technology, Healthcare and Pharmaceuticals. Further, with value added industries being given a policy push under the 'Make in India' initiative, highly skilled workforce would also be required in high-end industries.

Table 5: Incremental Human Resource Requirement across Sectors by 2022

S.No	Sector	Employment in 2013 (million)	Projected employment by 2022 (million)	Incremental requirement from 2013-2022 (million)
1	Auto and Auto Components	10.98	14.88	3.9
2	Beauty and Wellness	4.21	14.27	10.06
3	Food Processing	6.98	11.38	4.4
4	Media and Entertainment	0.4	1.3	0.9
5	Handlooms and Handicrafts	11.65	17.79	6.14
6	Leather and Leather Goods	3.09	6.81	3.72
7	Domestic Help	6	10.88	4.88
8	Gems & Jewellery	4.64	8.23	3.59
9	Telecommunication	2.08	4.16	2.08
10	Tourism, Hospitality and Travel	6.96	13.44	6.48
11	Furniture and Furnishing	4.11	11.29	7.18
12	Building, Construction and Real Estate	45.42	76.55	31.13
13	IT and ITES	2.96	5.12	2.16
14	Construction Material and Building Hardware	8.3	11	2.7
15	Textile and Clothing	15.23	21.54	6.31
16	Healthcare	3.59	7.39	3.8
17	Security	7	11.83	4.83
18	Agriculture	240.4	215.6	(24.8)
19	Education/ skill development	13.02	17.31	4.29
20	Transportation and Logistics	16.74	28.4	11.66
21	Electronic and IT Hardware	4.33	8.94	4.61
22	Pharma and Life Sciences	1.86	3.58	1.72
23	BFSI	2.55	4.25	1.7
24	Retail	38.6	55.95	17.35
	Total	461.1	581.89	120.79
	Removal of Duplication in Retail Sector	(10.37)	(21.43)	(11.06)
	Total Requirement	**450.73**	**560.46**	**109.73**

Source: Ministry of Skill Development & Entrepreneurship

4. Cluster Analysis: Key Findings

As a part of the study, we assessed two SME clusters in India with respect to their skill requirements and the key issues and challenges faced therein. For the food processing sector, a field survey was conducted for SME players in Pune, Maharashtra and for the capital goods sector, a field survey was conducted in Coimbatore, Tamil Nadu.

The food processing industry is largely labour intensive while the capital goods industry is relatively capital intensive and hence we expected some varying skill dynamics in the two cases. Nevertheless, since both are SME clusters, some common traits were also identified. For instance, employees in core functional roles in both industries are largely recruited from local ITIs. They are usually re-trained for a short period on-the-job, to equip them to handle requisite machinery. The specific findings of the two surveys are elaborated below.

Findings from Survey of Coimbatore Capital Goods Cluster

Tamil Nadu is a well-developed industrial State of India, with Coimbatore being an important Industrial centre. The Coimbatore capital goods cluster caters to these industries and hence comprises equipment and machinery manufacturers for various sectors including power, textiles, plastics, rubber, construction, agriculture, etc.

The majority workforce in this sector comprises of machinists/assemblers, welders, electricians. Other job roles include quality testers/inspectors, painters, managerial and administrative staff, etc. For machinists, welders, electricians, quality testers and maintenance staff, the enterprises largely depend upon the local ITIs, while most of the supervisors/managers usually have an engineering degree from a College/University. In terms of total workforce with formal training, more than 80% of the workforce had vocational training while remaining comprised graduates from educational institutes. The firms also employ semi-skilled/ unskilled workforce as helpers, who are usually school drop-outs.

Majority of enterprises surveyed did not experience any shortage of manpower for machinists, welders or electricians as these are easily available through local training institutes. However, some of the enterprises reported that they frequently faced issues in finding assemblers since most engineering/ science graduates aspire to work in other sectors

like IT due to better pay and work environment. The survey also revealed that firms which hired semi-skilled/unskilled helpers on contractual terms often faced shortage of such manpower as most of these workers go back to their farmlands during agriculture season.

On an average, most of the firms provide on-job training to their employees for a period of one to three months. It was revealed that the new employees (especially machinists, electricians, and designers) hired from vocational institutes like ITIs have inadequate practical knowledge and experience and thus need to be appropriately re-trained. This is generally done on-the-job.

Though there was no major concern about shortage of skilled manpower in the cluster, it was felt that more needs to be done to further enhance the availability and quality of skilled manpower in the region. It was suggested that more vocational training institutes could be established in the cluster. The government could also consider provision of vocational training at schools. Additionally, the quality of training could be improved further by making it more practical, upgrading the training equipment and labs, involving industry experts as trainers and taking industry's support in designing the training course curricula. It was further suggested that students of vocational training institutes must be engaged with the industry through some apprenticeship/internship with companies.

It was felt that more awareness should be created about vocational training to enhance its acceptability. To mobilise students for vocational training, the government should also consider lowering the course fees as very often youth from low income families do not have adequate funds to undertake special vocational courses. Additionally, the government could provide concessional loans/subsidies for the prospective students.

Findings from Survey of Pune Food Processing Cluster

The food processing industry of Pune comprises of various sectors and subsectors including fruits and vegetables, dairy products, beverages, food grains milling, meat and poultry processing etc.

The majority workforce in this industry comprises packaging workers, food technologists, quality controllers, supervisors/managers, and procurement staff. Other job roles include operators, assemblers, supervisors/managers, sales/marketing executives, maintenance staff and helpers. Most of the food technologists, quality controllers, and procurement staff are graduates; sales/marketing executives and supervisors/managers are usually graduates or

post-graduates with MBA degree. For operators, assemblers, packaging workers and maintenance staff, the enterprises depend mainly on the ITIs. In the food processing industry, almost 45% of the workforce comprises of graduates/MBAs while about 30% had vocational training. Helpers in the firm are mostly school drop-outs and are usually hired locally on contract basis as per the requirement.

On an average, most of the firms provide on-job training to their employees for a period of 10 to 45 days. Retraining is primarily done for those candidates who take the responsibility of production, quality controlling/testing and procurement. Lack of practical knowledge and practice on required machinery were cited as reasons for retraining.

The SMEs participating in the survey did not report any major shortage of manpower. However, some of the firms have faced shortage of workers in the past, especially of contract workers who returned back to their farmlands during agriculture season.

Although there was no major concern about shortage of skilled manpower in the industry, some improvements in the skill eco system were suggested. These included starting vocational training at school, creating more awareness on skilling, having more industry experience and improving the training infrastructure (by having better labs and proper machines).

Some of the respondents (28%) acknowledged that paucity of funds is one of the major hindrances for the youth to in enrolling for vocational training. It was suggested that the government should introduce interest subvention schemes to provide concessional loans to prospective students.

It was further suggested that skill development of agriculturists/farmers should be increased since a large number of workforce in the food processing industry comes from villages. Educational counselling in villages and small towns should also be given to the youth to make them aware about potential opportunities in the food processing sector. Also, the government should open new institutes and the course fees of existing ones should be lowered.

The importance of industry linkage in designing the curriculum was also highlighted so that there could be a proper mix of theory and practice in the training. It was suggested that industry representatives should be involved as trainers. Further, the youth should be

provided with some technical and industrial knowledge during their study. As a part of their training, they should be involved in some real time projects.

5. Skill Development Challenges in India

Alongside the daunting challenge of skilling millions of youth entering workforce each month, India also faces a huge challenge of evolving a skill development system that can equip the workforce adequately to meet the requirements of the industry. The workforce needs to be trained across four levels, from the high end specialised skills for 'White Collar' jobs to the low-level skills of the 'Rust Collar' jobs. Moreover, these skills have to be adequately linked to the available job opportunities.

Several factors have inhibited the skill development eco-system in India to scale up to the desired levels. The skill development system in India is plagued with multiple issues related to awareness, perception, cost, quality and scale.

Inadequate scale, limited capacity

The existing infrastructure, both physical and human, is grossly inadequate considering the projected demand for skilled labour. While there is a need to create additional capacity in existing institutes, at the same time there is a need to create an adequate infrastructure even in small towns and villages.

In terms of faculty, too, the training infrastructure is inadequate. For instance, corresponding to the current seating capacity of about 1.7 million trainees at ITIs, there is a need of almost 85,000 trainers (considering 20:1 student/faculty ratio). As against this, the seating capacity for various trainers' programme of DGET is just 4,438, which is far from adequate to meet the requirement.

Awareness, mindset and perception issues

Skill development in India is way below the requirements due to a lack of awareness on the type of courses as well as information on the ensuing career prospects. More importantly, there is limited acceptance of skill development courses as a viable alternative to formal education. Skilling is often viewed as the last resort meant for those who have not been able to progress in the formal academic system. This is partly to do with the lack of integration between the two options and also due to rising aspirations for white collar jobs which necessitate higher qualifications. Moreover, skill development is often associated with blue collar jobs, which is largely perceived to be of low dignity and provides low wages/salaries.

The perceived 'stigma' associated with skill development has resulted in low enrolments in vocational education courses. The aspirational mismatch that exists in India can be gauged from the example of the construction sector, which has a huge requirement of workforce with low level skills. For instance, the construction sector in Punjab faces a shortage of workers locally, and depends on the migrant workforce from Uttar Pradesh, Bihar and Jharkhand.

Cost concerns

Skill development initiatives in India continue to be largely dependent upon the government funds or public-private ventures. Owing to high capital requirements and low return on investments, skill development is often looked at as a non-scalable model and remains underinvested. Additionally, a fee-based model also faces challenges as prospective students are often unwilling or unable to pay high fees for training. Even the bank's willingness to lend for skill development activities is low as educational loans are perceived as high risk products due to uncertainty with respect to future employment.

Quality concerns

There is a serious mismatch between the industry's requirements and the skills imparted in educational and training institutes, especially for the mid-level skills requiring some expertise on handling of machinery. To tackle this problem, considerable improvement of the quality of training is needed.

The issue relates to the quality of infrastructure, trainers, as well as curricula and pedagogy. In terms of infrastructure, the institutes often lack appropriate machinery to give students hands-on training. Even the course curricula often are outdated, redundant and non-standardised. Additionally, the lack of industry-faculty interaction on course curriculae leads to irrelevant training modules.

The availability of good quality trainers is also a key concern. The quality of trainers is affected due to limited efforts towards re-training and skill improvement of trainers. There is a lack of focus on development of trainers with a clear career path which can make this an aspirational career choice and can ensure regular adequate supply of good-quality trainers in every sector.

While there is a need to constantly upgrade the training infrastructure and pedagogy, it is very expensive. This restricts the pace of modernisation and upgradation. Likewise, the process of standardisation is challenging in India. A significant portion of total employment

falls under the unorganised segment, where it is extremely difficult to sensitise the employers on the importance of occupational standards, job roles and qualification packs.

Mobility concerns

In India, educational qualification is generally preferred over vocational training as former is associated with better employment opportunities, in terms of pay as well as quality of work. Additionally, there is limited mobility between formal education and vocational training in India due to lack of equivalent recognition for the latter; a student enrolled in vocational training often cannot migrate to institutes of higher education due to eligibility restrictions.

However, under the on-going National Skills Qualification Framework (NSQF), attempts are being made to address the mobility issue by recognition of prior learning and establishing a credit system for skills, knowledge and experience gained by an individual either formally or informally. NSQF is expected to enable multiple-entry and exit between vocational education, skills training, general education, technical education and job markets.

6. International Context: Best Practices

In this Chapter, we look at some of the international experiences and best practices in skill development field that could be suitably adopted in the Indian context. We have analysed the skill development eco-system in three countries, namely Germany, Australia, and China, as these are known for efficient training systems and have been largely successful. The key objective is to have a better understanding of the training environment in these countries that have succeeded in developing an efficient skills system.

Germany

Germany largely follows a dual-system of vocational education and training (VET). The system is called "dual" because training, under this system, is conducted in two places of learning: in the enterprise and in the vocational school. The company provides practical training, and vocational school supplements this on-the-job-learning with theoretical instruction and basic economical background.

The dual system is especially well-developed in Germany, integrating work-based and school-based learning to prepare apprentices for a successful transition to full-time employment. The dual-system is the largest provider of education and training at the upper secondary level. Around 75 per cent of young people enrolled in VET take part in the dual system of vocational training.

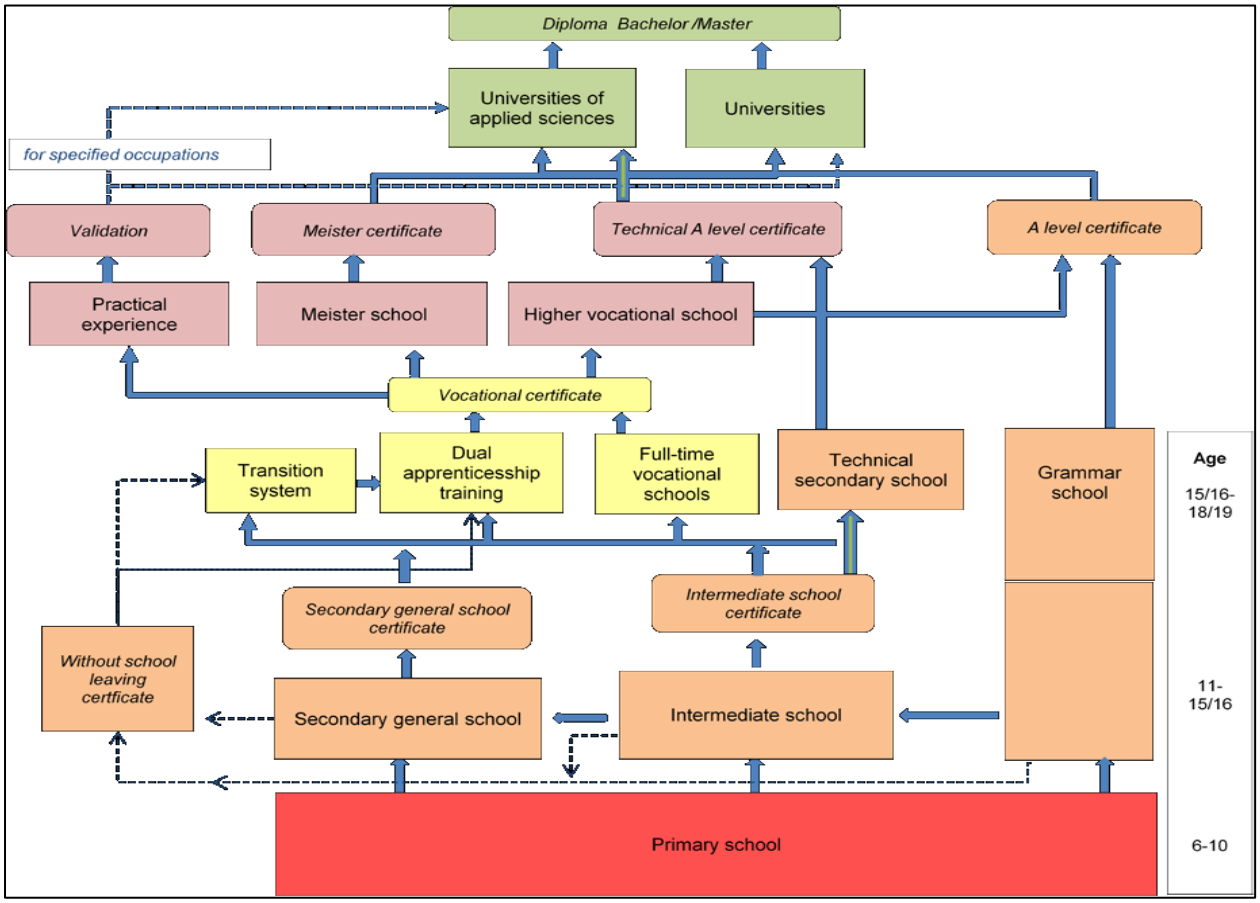
The dual system has been a major factor in Germany's economic success and inventiveness over the past six decades. Many countries have looked at Germany's dual education system when reforming their own VET/ Skill education system.

Education and VET in Germany

Germany's education and VET structure requires compulsory education upto primary school and lower secondary school (typically around age of 15 or 16 years), after which there is an option of entering into vocational education & training or formal education.

Under vocational training, students have a choice between dual apprenticeship training and training in full-time vocational schools. Most young people in Germany begin their initial vocational education and training by enrolling for apprenticeship.

Figure 6: Education system in Germany



Source: Economix

The Dual VET Model

Dual VET programmes are currently offered in 349 trades and can take between two and three-and-a-half years. Germany's dual system of vocational education and training (VET) is a very simple and cost-efficient model.

- The practical training (approx. 70 percent of training duration) takes place in companies. This training is based on a compulsory curriculum, which is adapted to the conditions of the training company and is monitored and controlled by the respective chambers, who also arrange for the interim and final examinations (comparable to Sectoral Skill Councils). This in-house training is guided and imparted by certified corporate trainers. The 'apprentices' undergoing training sign a vocational training contract with the company and are paid a training salary by them.

- The theoretical part of the training (approx. 20 percent of training duration) is taught in vocational schools, run by the State governments.

Salient features of Germany's Skill development eco-system

- ***Mobility***

Dual-systems like the Germany one integrate work-based and school-based learning and thus impart more practical skills. This offers greater flexibility to students in terms of the choice of courses and career options.

- ***Flexibility***

Flexibility is a key characteristic of successful skill-development initiatives. VET in Germany imparts practical training and thus ensures that the curriculum and training is abreast with changes in technology or other changes in the industry.

- ***Industry linkage***

Companies engaged in VET are also constantly involved in the process of upgrading and modernisation of curricula. Industries play a crucial role in identifying future requirement of skills and update training regulations to meet that demand. Under the guidance of the Federal Institute for Vocational Training and Education, experts from companies, industrial chambers and trade unions develop the training regulation for the apprenticeship program.

- ***Funding/ Financing mechanism***

The VET system as a whole is well-resourced, combining public and private funding. Enterprises bear the costs of in-company training and pay the trainee remuneration as regulated by collective agreement.

Under the dual VET, the responsibility for funding vocational schools lies with the "Länder" i.e. the provincial/ state government (for teacher salaries) and local authorities (equipment, infrastructure).

- ***Incentives/ Benefits for Stakeholders***

The system proves advantageous for all stakeholders.

– The government does not need to equip the vocational schools with expensive machinery necessary for practical training suited to industrial needs. It has to only guarantee theoretical training in vocational schools with well-trained teachers. This saves the cost of investing into equipment and machinery.

- Companies train students in real working processes and with well-equipped state-of-the-art machinery. Since companies already have expensive equipment for their operational requirements, there is no separate cost incurred for arranging expensive equipment only for training. All costs incurred by companies engaged in VET are considered an investment.

- While the students are trained on-the-job, they also become more productive. Additionally, if the companies can retain apprentices as employees, they benefit from lower recruitment costs, reduced costs of on-the-job training and benefit of having skilled workers suited to company requirements. Yet there is no regulation that binds the company to take over students once they complete their VET.

Standards/ Quality

The VET system of Germany is known for imparting quality training of high standards. Training regulations in the country require adherence to a uniform national standard which corresponds to the requirements in the relevant occupation. Only those training enterprises can carry out training exercises whose training personnel are appropriately qualified to impart the skills as required by the training regulation. Under the dual system, companies also have to train and employ certified corporate trainers within the company.

Social Integration (for disadvantageous)

To provide education to those students who do not manage the transition from lower secondary education to the VET system directly through normal routes, a 'transition system' was developed. It strives to help young people to achieve apprenticeship readiness, to enable them to obtain some form of school-leaving qualification and to act as a bridging measure until they are able to enter regular vocational training. Under the 'transition system', students who do not have school-leaving-certificates are enrolled in one or two-year programmes in full-time VET schools, which do not lead to a VET diploma but offer the opportunity to obtain the intermediate secondary school-leaving-certificate. After obtaining the required education, students can enter into vocational training through Dual Apprenticeship Training.

Australia

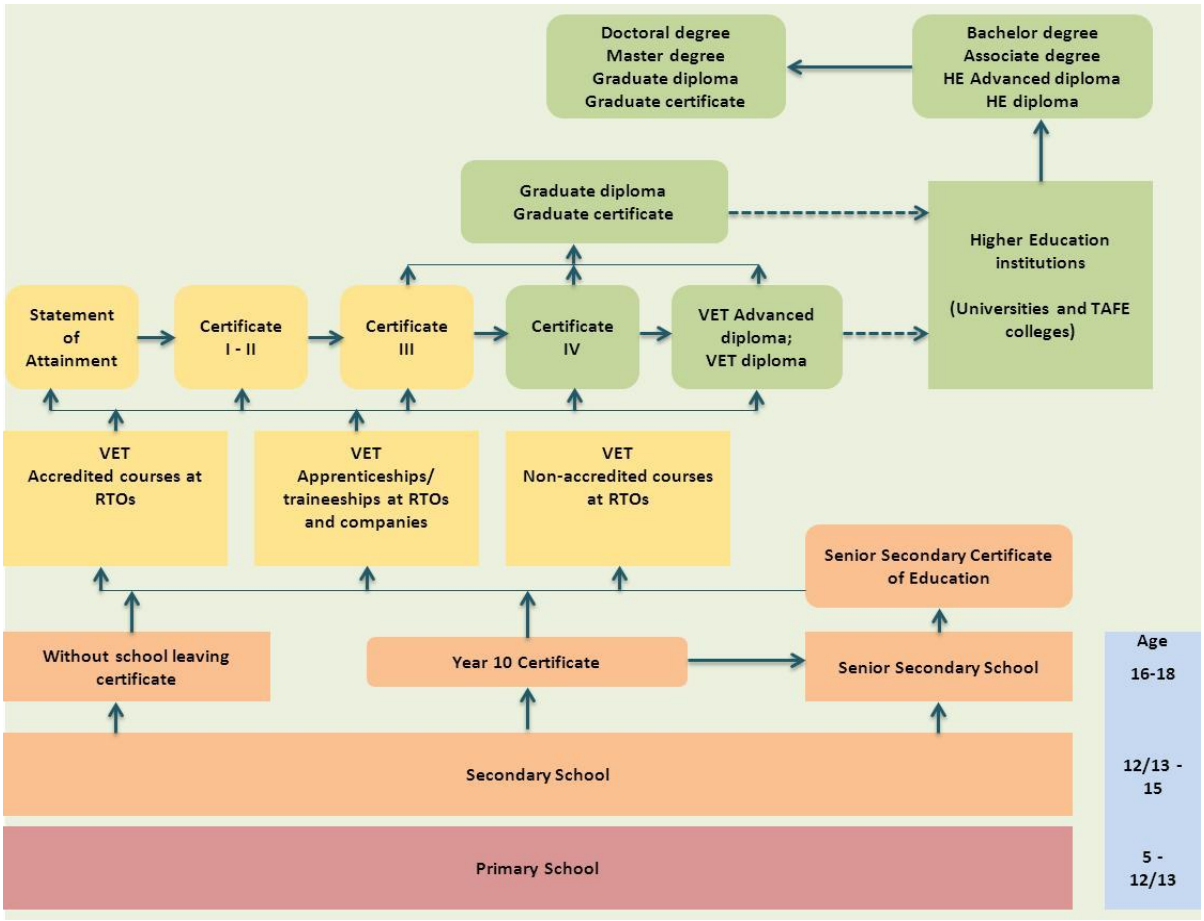
Australia's Vocational Education and Training is an integral part of the overall education system in the country designed to deliver workplace specific skills. The system has been very successful, reflected in high participation rate of adults in vocational training.

Australia's VET system is characterised by competency based training, which is concerned with capability based outcomes rather than duration of course/training. Additionally, the system allows a person to gain formal qualifications regardless of how or where the training was delivered.

Education structure

The Australian VET system is characterized by focus on lifelong learning and a modular structure. Education in Australia is compulsory for children between five and fifteen years of age. Anyone over fifteen years of age can access VET.

Figure 7: Education system in Australia



Source: *Australian Government website (2011a); Economix*

The general education and training system starts with primary education which is delivered in primary schools, followed by secondary education which comprises secondary schools and senior secondary schools. The last two years of secondary education (senior secondary school) are usually not compulsory. Young people can achieve a Year 10 Certificate or

continue at Senior Secondary School to achieve a Senior Secondary Certificate of Education after Year 12.

Year 10 certificate holders can either opt for vocational training or enter a senior secondary school to pursue further education. Students who obtain a senior secondary certificate can choose to enter vocational training or enter higher/tertiary education, which is provided by Universities and Technical and Further Education (TAFE) Colleges.

VET structure

VET is a sophisticated system governed by interconnected government and independent bodies functioning within a National Skills Framework of Qualifications defined by Industry Training Packages and the Australian Quality Training Framework (AQTF).

VET is delivered by registered training organisations (RTOs). Training providers who want to provide accredited courses have to apply to become an RTO and can be either government or private providers. Government registered training organisations include Technical and Further Education (TAFE) institutions, secondary schools and colleges, universities, agricultural and technical colleges and community organisation providers.

Apprenticeship under VET

In Australia, apprenticeships and traineeships are available to everyone as no formal entry qualification is required. Apprenticeships are available at different certificate levels and for more than 500 occupations in most sectors of business and industry.

Apprenticeships can be delivered through following alternative ways:

- Australian school-based apprenticeships, which allow students from year 10 to combine completing school and starting an Australian apprenticeship;
- Full-time Australian apprenticeships wherein apprentice spends the whole week with on-the-job training (about 80 percent of time) in the company and off-the job training with a chosen training provider;
- Part-time Australian apprenticeships which are often used by small and medium sized enterprises. A minimum number of hours of on-the-job and off-the-job training per week are provided to the apprentice (e.g. 15 hours per week).

Under the apprenticeship system, a legal contract between an employer and an apprentice is necessary, which determines the training wage and conditions. Apprenticeship wages differ according to the level of qualification, training year, industry and the type of apprenticeship

(school-based, part-time or full-time). In addition, the employer has to determine a training plan with details about on-the-job and off-the-job training, which has to be endorsed by the chosen training provider.

Salient features of Australia's Skill development eco-system

- ***Mobility***

The Australian VET system allows easy movement in and out of vocational training. This offers greater flexibility to students in terms of the choice of courses and career options. Students enrolled in the VET programme can also opt to enter into tertiary education provided they have the necessary qualifications required to do so. The transition between VET programmes and higher education is possible due to 'articulation' agreements which allow credit transfers between these two parts of the education system.

Accredited courses lead to different AQF qualifications: Certificates I and II (which take between 1-2 years); Certificates III and IV (2-4 years); VET Diplomas (2 years); and VET Advanced Diplomas (2-3 years). After completing certificate III, IV, VET Diploma and VET Advanced Diploma, students can obtain Graduate Diploma and Graduate Certificates by undertaking education and training for 6 months and 12 months respectively. These two qualifications and VET Diplomas/Advanced Diplomas can be accredited towards higher education degrees.

- ***Flexibility***

Australia's VET system is flexible as it allows learners to achieve completed formal qualifications, single certified modules or courses without formal qualification. By allowing a selective approach to training, it does not force participants to complete qualifications.

Additionally, the system allows recognition of prior learning. Registered Training Organisations (RTOs) are required to recognize AQF qualifications and statements of attainment which have been issued by other RTOs. Also, if one already has competencies achieved from prior learning, these can be assessed and certified directly, reducing the training period and facilitating the switch between qualifications.

Due to its flexibility, Australia's VET is suited for nearly all types of people - those who enter the workforce for the first time, those who wish to re-enter the workforce after a period of absence or those who want to update or upgrade their skills. Furthermore, the VET system provides a wide range of programmes which address specific learner groups (such as

culturally appropriate training for indigenous Australians; courses for people with disabilities; English courses for immigrants, etc.)

- ***Industry linkage***

Another efficient characteristic of Australia's VET system is the strong influence of industrial bodies on VET policies and priorities, which enables matching of skills training to the industry requirements.

The National Industry Skills Council is the nodal organization which gives advice on training matters including training needs, future training priorities and workforce planning. In order to guarantee strong industry leadership in the VET system, 11 Industry Skills Councils exist which collect information about industry training needs from employers, unions and professional industry associations. They develop training packages and give advice in training matters.

- ***Funding/ Financing mechanism***

On the whole, the VET system in Australia is funded by the federal and regional governments, employers and individuals. All three parties involved in intermediate VET have costs and benefits of intermediate training. Companies which provide on-job training are also eligible for Australian Government funding.

- ***Standards/ Quality***

The AQF is a comprehensive and nationally consistent framework which regulates post compulsory education. The AQTF is a national set of standards which help to ensure there are nationally consistent, high-quality training and assessment services in the VET system. The national sets of standards give assurance to the industry that particular quality standards are met when training takes place under this framework.

- ***Social Integration (for disadvantageous)***

A transition system known as the Intermediate VET system contributes to social integration and allows attaining VET qualifications for participating in the labour market. The system provides opportunities for catching up on missed training and providing lifelong learning for an ageing workforce. It is applicable for 'second-chance students' who previously failed at primary or secondary education. Besides, the intermediate VET system also addresses the inclusion of disadvantaged groups such as people with disabilities, and people coming from weak socio-economic background.

China

The Chinese Technical Vocational Education and Training (TVET) is a comprehensive system which is systematically planned to meet the needs of vocational education and training at different levels. To meet the challenges of China's industrialization drive, the government has repeatedly taken initiatives to reform China's TVET system. The Vocational Education Law of 1996 provides the legal framework for the implementation/functioning of the vocational education and training system in the country.

Through its vocational education law, China ensured cooperation between vocational institutes/schools and society, enterprises and villages, and became market-oriented through methods such as learning and practice, learning while working, emphasizing on practical and vocational competence skills.

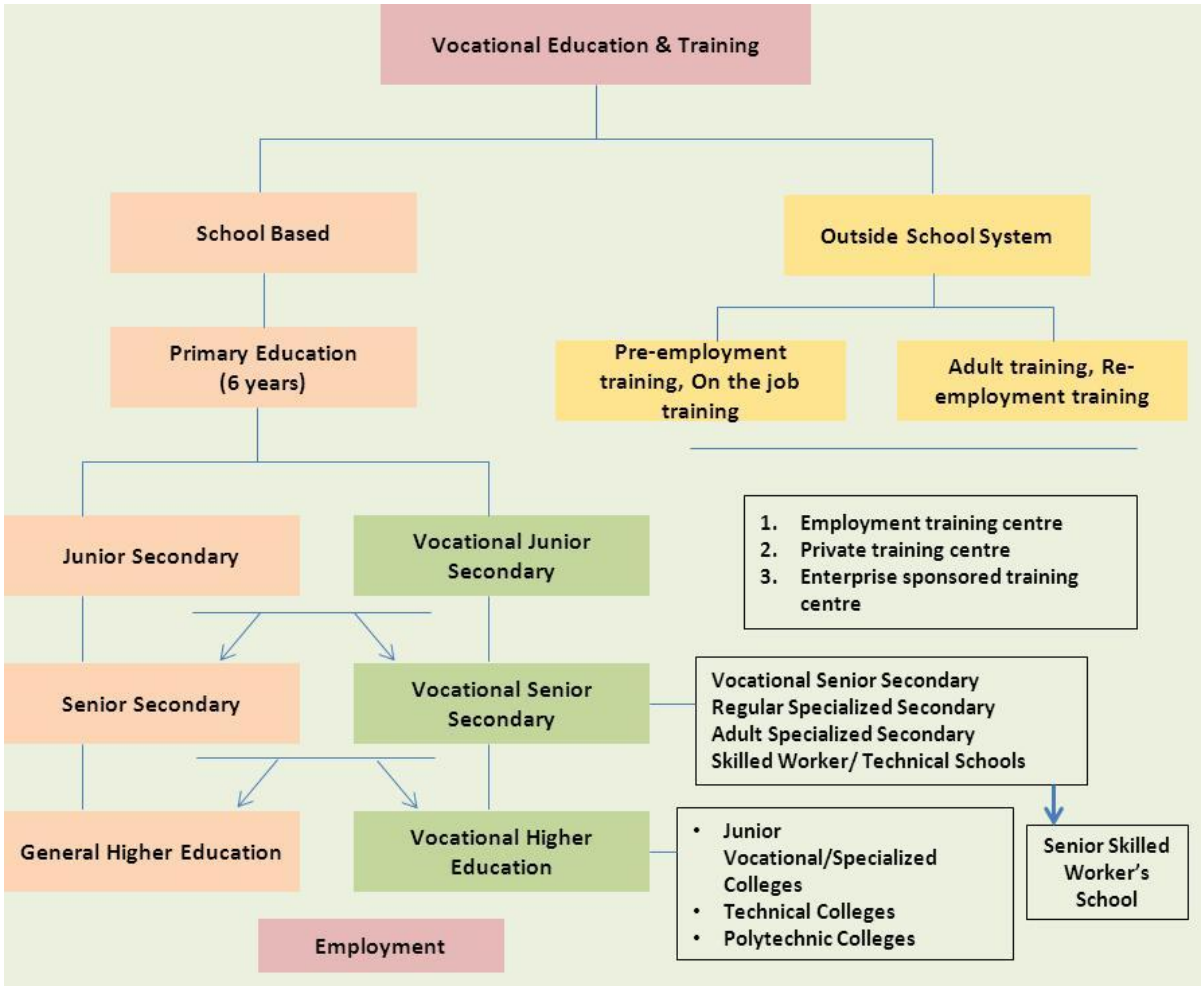
China's skill development model has been highly successful and developed at a rapid pace. In China, 59 per cent of those entering the workforce are skilled, of which 39 per cent are vocationally trained. China's skill development model has enabled transforming many of its high schools into skill-training centers, and successfully promoted internships for the vocationally-trained. Around one third of young people in China today enter vocational upper secondary schools.

Structure

The system of vocational education consists of (a) education in vocational schools and (b) vocational training. The formal school based vocational education is under the Ministry of Education (MOE) and has a slight emphasis on theory based training; while vocational training is under Ministry of Human Resources and Social Security (MOHRSS) and focuses on post-school, pre-employment, and on-the-job practical training, as well as training and re-training for those out-of-school or out of work.

The education law of China mandates nine years of compulsory education including three years of vocational training. Vocational education and training in the school system is provided at three levels: junior secondary, senior secondary and tertiary while VET outside the schooling system is provided through adult learning and enterprise training.

Figure 8: Education and TVET in China



Source: Planning Commission "*Understanding Skill Development and Training in China: Lessons for India*"

- The first six years consists of primary education.
- After primary education, students enter the junior secondary level (or junior middle school) wherein vocational education is introduced. This is for 3 years.
- Thereafter students can proceed with either general academic or vocational education schools, determined by the scores received by them in Senior High School Entrance Examination called Zhongkao. Typically, middle school graduates with lower marks end up in the senior secondary vocational stream and those with higher scores enter the general academic stream.
- In the vocational track, students apply for different vocational schools and programmes in their province, and are selected according to their results. They can also apply to enter good vocational schools in other provinces.

– Once senior secondary vocational education is completed, most graduates join the workforce while some progress to higher vocational colleges.

Salient features of China's Skill development eco-system

- ***Industry linkage***

In China, school-education as well as vocational training offer practical training to the students/trainees. Industry participation in vocational education and training is ensured through the 1996 Vocational Education Law. As per the policy directive, each student should spend one year on workplace training during their upper secondary programme. Industry participation is thus a built-in characteristic of the entire TVET system.

The enterprises also participate in curriculum design, teacher training, provision of training equipment in the schools, and placing students for internship etc.

Industry is also given various incentives to encourage industry participation in vocational training, for instance allotment of land at subsidized prices, and preferential treatment in case of award of government projects.

- ***Decentralised and locally driven skill development initiatives***

Most of the skill development programmes in China are highly decentralised, run by the local government and village collectives. The local governments are given a say in deciding a part of the curriculum in accordance with the local needs. The curricula of senior secondary vocational schools are designed such that, one-third includes general academic skills defined nationally by the Ministry of Education, another third are nationally defined content associated with the particular occupation, and the remaining third are determined locally at the school level with the help of local enterprises. For instance, in Chongqing, the shares of primary, secondary and tertiary sectors are 8, 55 and 37 per cent respectively. Accordingly, the focus of trades in the curriculum for the respective sectors is 7, 52 and 41 per cent respectively.

- ***Funding/ Financing mechanism***

The 1996 Vocational Education Law requires that 20 per cent of the annual education budget should be allocated to vocational education and training. Due to a fiscally decentralized economy, education in China is subject of the local governments. As much as 89 per cent of the funds for education are raised by the local governments.

Additionally, all enterprises are required to utilize 1.5 per cent of their payroll towards in-service training. If they fail to do so, equivalent amount should be contributed to the government for adult training.

- ***Mobility***

The link between secondary and tertiary vocational education and various training programmes has been planned such that vocational education is not perceived as a 'dead-end'. Under the VET system, horizontal and vertical mobility of VET graduates is allowed because of the National Level College Entrance Examination. Consequently, a large proportion of graduates from secondary vocational schools continue with higher education.

- ***Standards/ Quality***

The government has made huge investments in providing quality infrastructure for VET, which includes buildings and teacher tools for programmes. China has strong arrangements to ensure that teachers in vocational schools remain abreast of the requirements of modern industry. Teachers in vocational schools are required to spend one month in the industry each year, or two months every two years.

- ***Social Integration (for disadvantageous)***

The government provides subsidies to groups of workers who have trouble finding employment to attend training programmes. Targeted populations include registered unemployed people, rural migrants, and rural labourers.

- To overcome the financial burden and to ensure that the poor students continue in VET schools, a national scheme was introduced to offer a subsidy of 1500 Yuan per year per student, for their first two years at secondary vocational schools to cover their fees.
- Since 2009, an initiative has been taken to make senior secondary vocational schools free of cost for all students. As per law, students with financial difficulties or disability are to be provided with tuition fee waivers for vocational education and training.

Additionally, Chinese education policy is based on life-long learning and thus gives due recognition to adult literacy and training. For rural workers engaged in agriculture, government provides applied technical training in agriculture which includes green certification training and entrepreneurship training. In 2011, there were 103,420 technical training schools for adult farmers with around 35 million registered participants. Of these, the majority of schools were run by education departments and collectives of the villages. The strong extension system, coupled with training for rural agricultural workers not only

improves agricultural production, but also provides an incentive for the rural workers to stay back rather than migrate to cities thus restricting rural and urban migration of untrained workers.

7. Recommendations and Way Forward

The Indian Government has laid a special focus on expanding and improving the skill education and training in the country. The New Policy on Skill Development and Entrepreneurship contains several initiatives which, if implemented earnestly, will go a long way in minimizing the demand-supply gap and challenges related to skill mismatch with industry requirements.

With increased thrust on manufacturing under the 'Make in India' programme, the need for revisiting and improving India's skill development mechanism becomes all the more critical. It has been globally recognised that an efficient vocational education and training plays a critical role in the industrial development and manufacturing success, as in the case of economies like Germany and China. The study of skill development models of three countries done in this report highlights some best practices that can be utilised in India's skill development eco-system.

Integration of skill development with formal education system, mobilisation of students for skill development by removing misapprehensions and perceptions about vocational trades, investing in creation of new training capacities for students as well as teachers, utilisation of idle public infrastructure to provide skill training in remote corners of the country, encouraging industry to actively participate in training through provision of apprenticeship as well as through direct involvement in curriculum design and teachers training, adopting innovative skill development delivery mechanisms are the much-needed steps to meet the skill related challenges today.

There is a scope of international collaboration and assistance in India's skill development initiatives at almost all levels, including for creating awareness and capacities, setting standards, improving quality, as well as providing placement opportunities.

Some specific measures that can be taken by various stakeholders including the government, industry bodies, corporates, educational institutes as well as foreign investors and international agencies have been detailed in the below table.

Table 6: Way Forward for Skill Development in India

Addressing Issues: What is required?	Proposals under National Skills Policy and recent Govt. initiatives	Policy suggestions: What (more) needs to be done and how?	How can other countries assist?
Creating awareness and mobilisation			
Spreading awareness on the need for skilling is critical. Awareness is required for all stakeholders including students, parents, industry, teachers as well as trainers. – A perception change with respect to skilling is required in society. Parents and students need to look beyond traditionally preferred jobs and traditional delivery mechanisms of education and training. – Industry, especially SMEs, need to be informed about the benefits of engaging skilled vis-à-vis unskilled people. They also need to be informed about various institutes/ centers that supply skilled students for particular trade. – Industry should recognise the training/skill development offered as per national occupational standards and offer skilled workers premium in pay.	– National campaign to be launched to create awareness and promote skilling. The delivery mechanisms will include dedicated television channel, community radio as well as social media. – A National Portal for skilling will be created, which will also include a Labour Market Information System (LMIS). This system will provide information on sectors, modules, training opportunities, etc. to enable students to make informed choices. It will also aggregate data on all persons mobilized and seeking skill development training. – Skill India Logo to be used to promote value of skilled workforce and encourage certified skilling. Industry will be encouraged to move towards employing certified skilled people and to rationalize compensation by awarding skill premium for increased productivity due to higher skills. – Prime Minister's Skill Development Fellow Scheme to be introduced wherein selected candidates will work with State and District administration to spread awareness related to skill development. – IT and Mobile technology to be utilized to develop platforms for connecting demand and supply of skilled workers. – Special mechanisms in delivery of training such as mobile training units, flexible afternoon batches,	– Awareness on need for skilling should be taken up in mission mode and activated at the local level, including states, districts and villages. – Different communication mechanisms should be adopted for each level. For example, SSDMs can organize advertisement campaigns in vernacular language through electronic as well as print medium. – Schools can be engaged effectively for counselling students at early stages (e.g. class 5) about vocational education, apprenticeship and associated career paths. – School staff and teachers to be sensitized about vocational training and apprenticeships as potential career paths for students. – Encourage students to opt for vocational stream in schools by providing incentives like stipend for rural students for boarding and lodging, lowering or making tuition fee free for students from economically weaker sections (Such incentives	– International agencies can participate in awareness campaigns and workshops and make presentations on international case studies. They can highlight the contribution of vocational training in improving livelihoods and providing alternate career opportunities.

Addressing Issues: What is required?	Proposals under National Skills Policy and recent Govt. initiatives	Policy suggestions: What (more) needs to be done and how?	How can other countries assist?
	training based on local area needs, etc. will be introduced to ensure participation and mobilization of women.	are provided in China due to which enrolment in vocational education is very high there) – Counselling sessions should also be organized for parents, highlighting some national and international case studies. – Introduce financial incentives for employers for employing apprentices, retaining apprentices as permanent employees and for employing the disadvantaged. Such financial incentives may be linked to performance.	
Creating capacities/ infrastructure			
– Significant new capacities need to be created for training for different trades across the country. Hence, novel ideas would have to be developed to utilize the existing infrastructure with government for skill development purpose. – To address the issue of migration, training infrastructure needs to be created close to the catchment areas including sourcing cluster.	– Government plans to incentivise use of existing infrastructure for adding training capacity; the infrastructure that can be made available includes 1.55 million schools, 25,000 colleges, 3,500 polytechnics, 1,50,000 post offices, 100,000 kiosks, and 65000 km of railway network with 8000 stations. – New ITIs in PPP mode to be set up as Multi Skilling Institutes (MSIs). – Massive Open Online Courses (MOOC) and virtual classrooms to be developed for delivery of vocational education.	– The Rajasthan SLDC has been implementing an innovative model of movable training institutions (mobile vans/ buses) for some of its remote geographical pockets. A similar model can be used across India to provide training at village levels and thereby encourage rural population, especially women, to take up training for specific skills and earn a living. – Use of information technology through e-education and training should be widely adopted to create virtual	– Foreign governments, corporates and multilateral agencies can make significant investments in skill development initiatives in India. They can also participate in setting up skill centres and Universities. – Exchange and Twinning programmes can be introduced at schools and colleges to

Addressing Issues: What is required?	Proposals under National Skills Policy and recent Govt. initiatives	Policy suggestions: What (more) needs to be done and how?	How can other countries assist?
		capacities.	facilitate exchange and capacity building programmes for students, administrators as well as teachers.
Integration, Mobility and Transition			
– Vocational education needs to be integrated with general education in schools and colleges. – Additionally, the course curriculum should be made practical, in line with industry's requirements, and constantly upgraded through feedback from the industry – There has to be a seamless facilitation from secondary to higher education if a student chooses to study vocational courses. This would also encourage more students to opt for vocational training as the fear of not being able to pursue higher education in the future will not be there. The Australian VET system allows easy movement in and out of vocational	– National Universities for Skill Development will be institutionalized which will include a network of state level institutions affiliated to it. – Vocational training to be integrated into formal education by introducing vocational education for four years from class 9, in at least 25% of schools. Skill courses will be independent subjects that will also carry qualifying marks for admission to higher levels. Pilot projects have already been running in a few states (e.g. Haryana, Karnataka). – Special focus will be laid on youth who do not wish to continue with school or higher education. Special programmes will be initiated for providing skill training to those who have eight years or more of schooling. NSQF as a means to integrate and provide multiple pathways between general and vocational education will help school drop-outs make choices about vocational courses. – The National Skills Qualification Framework (NSQF) includes recognition of prior learning and establishing a credit system for skills, knowledge, and experience	– NSQF is a step in the right direction and it has to be ensured that all institutions make a collective effort in aligning their qualifications as per the set standards.	– Foreign countries can assist India in aligning various standards to internationally acceptable standards. This will enable recognition of India's skilled workforce and provide international opportunities for Indian workforce.

Addressing Issues: What is required?	Proposals under National Skills Policy and recent Govt. initiatives	Policy suggestions: What (more) needs to be done and how?	How can other countries assist?
training, which offers flexibility to students.	gained by an individual either formally or informally. NSQF is expected to enable multiple entry and exit between vocational education, skill training, general education, technical education and job markets. – All formal and vocational education including skills training will have to be aligned with the NSQF by December 2018. – Multi Skilling Institutes (MSIs) will be affiliated to Skill Universities, and provide a bridge into general higher education through diplomas/ certificates based on a credit framework aligned to the appropriate NSQF level. – Polytechnics will be converted into community colleges, which will provide NSQF-aligned vocational courses along with Bachelor's degrees in vocational studies. – At least 25% of all existing higher education institutions would offer additional career oriented courses with specialized skills at an appropriate level of NSQF. – Kaushal Vardhan Kendras (KVKs) to be set up at village level to mobilise and impart skills to school drop-outs, adolescent girls, housewives and rural youth to enable them to secure a sustainable livelihood.		
Greater Industry linkage			
– Dual systems like that in Germany integrate work-based and school-based learning and impart more practical skills. The	– Training curricula will be developed in consultation with industry representatives, experts and academia. – Industry houses including MSMEs will be incentivized to	– The Higher Education policy needs to be in line with present and projected employment opportunities, and hence there should be a focus on	– Indian subsidiaries/ Indian units of foreign companies can adopt some ITIs

Addressing Issues: What is required?	Proposals under National Skills Policy and recent Govt. initiatives	Policy suggestions: What (more) needs to be done and how?	How can other countries assist?
system of apprenticeship needs to be encouraged and could be made mandatory for specific vocational courses. – Industry exposure to student will help in acquiring relevant skills and improve the prospects of placements. – Industry linkage is also important for faculty training to keep them abreast of latest changes.	institutionalize paid apprenticeship. – Training providers should tie-up with industry in relevant trades for improving placement opportunities for students. Government support to training providers will be linked to the placement performance and tie-ups with industry.	revising the curriculum and offering relevant new courses. – Incentives can be devised to encourage firms (including MSMEs) to undertake regular apprenticeship programmes. This may include provision of tax incentives, grants for part funding, etc.	for upgrading their skillsets (Eg. Bosch India has agreed to take over 25 ITIs in Maharashtra)
Financing mechanism			
– Skill development requires at least partial state funding. The problem of under-investment by different stakeholders is often addressed by creating infrastructure and providing financial assistance for skill development. A combination of public and private funding is demonstrated to yield the best results. – Since it is not feasible for the state to undertake the entire cost of skill development, incentive mechanisms that induce private players and	– Government to support creation of training infrastructure in public and private domain through equity, grant and loan support. – It is proposed that the industry should earmark at least 2% of its payroll bill (including for contract labour) for skill development initiatives in their respective sector. – Government to promote grant of scholarships, rewards and skill vouchers for funding of training costs for those with an inability to pay the training fees. Skill Vouchers can be redeemed by the training providers based on a performance linked payment schedule subject to successful completion of training.	– Innovative funding mechanisms need to be evolved to encourage greater enrolments in skill-development initiatives. – Government may consider setting up a training fund to facilitate financing of poor students for pursuing vocational training. – Students are willing to take huge loans for their higher education but not so for skilling. Innovative ideas need to be evolved to encourage students to take out loans for skill training too. First of all, skill courses need to be made more attractive by	– Multinationals in foreign countries like UK, Germany, Australia, etc. can enter into third country collaborations with training providers in India, wherein they can sponsor the skilling of Indian youth customised to specific requirements of their units across the world. The training costs in India would be much lower and

Addressing Issues: What is required?	Proposals under National Skills Policy and recent Govt. initiatives	Policy suggestions: What (more) needs to be done and how?	How can other countries assist?
students to invest must be instituted. The funding framework of China can serve as a good example.		ensuring placements and attaching a premium to the pay for higher skill capabilities. Costs of funds for willing students can be lowered by introducing interest subvention schemes for skill related loans, providing tax exemptions towards repayment of such loans, etc.	will provide a win-win proposition for all countries involved.
Quality improvement			
– The standardisation process to improve the quality of vocational education and training is already in process but needs to be expedited. National Standards for each occupation should have national as well as international recognition. – The ITIs need to be upgraded in terms of equipment, course content, as well as faculty.	– All the National Occupational Standards (NOS) and Qualification Packs (QPs) developed by Sector Skill Councils for various trades will be examined and reviewed by the National Skills Qualification Committee (NSQC) before being conferred 'National Standards'. Thereafter, all vocational training in the country will have to align to these 'National Standards'. – NSQF will be aligned to globally recognized standards. Transnational standards will be created for specific trades having the potential opportunity to international workforce mobility. – National Universities for Skill Development and Entrepreneurship to be promoted as an institute of excellence for skill development and for training of trainers. – Industry representatives will be encouraged to become guest faculty at Multi-Skilling Institutes. Industry professionals will also be empaneled as adjunct faculty in relevant areas for teaching during off-hours.	– More ITIs need to be upgraded with respect to course content, equipment and technology. ITIs adoption by private enterprises should be encouraged.	– Foreign corporates can enter into tie-ups with training providers in India, wherein quality skills can be imparted to candidates who can later be absorbed for overseas placement in their companies. This will serve the dual objective of enhancing skill quality in India and also assure supply of skill labour for foreign countries facing skill-shortage due to an ageing population. – International

Addressing Issues: What is required?	Proposals under National Skills Policy and recent Govt. initiatives	Policy suggestions: What (more) needs to be done and how?	How can other countries assist?
	– Standard certifications for trainers will be institutionalized.		trainers and experts can be invited for training of trainers in India.

Annexure

Annexure 1: List of Sector Skill Councils in India

S. No	Sector Skill Council	Status	Lead Organisations	Year of operation	Key deliverables in 10 years		
					No. of job roles for NOS	Training Institutes	Certifications
1	Automotive Skill Development Council	Operational	SIAM, ACMA, FADA & DHI	Aug-10	50		12,27,537
2	Security Sector Skill Development Council	Operational	CAPSI	Feb-11	7	30	53,50,000
3	Retailers Association's Skill Council of India	Operational	RAI	May-11	100% of industry	1325	80,82,956
4	Media and Entertainment Skill Council	Operational	FICCI	May-11	100% of Job roles	–	11,74,000
5	IT-ITeS Sector Skill Council	Operational	NASSCOM	May-11	100% at entry level	–	3,60,000
6	Healthcare Sector Skill Council	Operational	CII	Sep-11	100	515	47,38,641
7	Rubber Sector Skill Council	Operational	AIRIA & ATMA	Feb-12	100	160	6,65,480
8	Gems & Jewellery Skill Council of India	Operational	GJEPC	Jan-12	40	89	18,10,000
9	BFSI Sector Skill Council of India	Approved by NSDC Board	BTIL	Sep-11	125	1000	45,00,000
10	Leather Sector Skill Council	Operational	CLE	Feb-12	50	410	19,53,583
11	Electronics Sector Skills Council	Operational	CEAMA, ELCINA, IESA, IPCA & MAIT	Mar-12	28	15	19,89,063
12	Food Industry Capacity and Skill Initiative	Operational	FICCI	Jul-12	800	641	93,92,359
13	Telecom Sector Skill Council	Operational	COAI, ICA & TCOE	Jul-12	150	500	44,93,440
14	Agriculture Skill Council of India	Operational	NSFI & FICCI	Aug-12	105	8848	5,65,03,757
15	Logistics Sector Skill Council	Operational	CII	Sep-12	64	1425	41,87,038
16	Indian Plumbing Sector Skill Council	Operational	INCOSAMA	Sep-12	50	220	12,11,768
17	Capital Goods Skill Council	Operational	FICCI & DHA	Oct-12	210	575	50,00,000
18	Construction Skill Development Council of India	Operational	CFI, BAI, CREDAI & NHBA	Oct-12	100	200	1,13,77,500
19	Life Sciences Sector Skill Council	Operational	CII	May-13	100	339	34,76,723
20	Indian Iron & Steel Sector Skill Council	Operational	BCCI & INSDAG	Jun-13	100	80	12,66,500
21	Aerospace & Aviation Sector Skill Council	Operational	SIATI & BCIC	Jun-13	90	176	4,04,841
22	Skill Council for Mining Sector	Operational	FIMI	Aug-13	100 (23 trades)	44	4,50,000
23	Power Sector Skill Council	Operational	CEA, MNRE & IEEMA	Jun-13	100	960	46,29,600
24	Apparel, Made-ups and Home Furnishings Secotr Skill Council	Operational	AEPC	Oct-13	45	164	19,80,000

S. No	Sector Skill Council	Status	Lead Organisations	Year of operation	Key deliverables in 10 years		
					No. of job roles for NOS	Training Institutes	Certifications
25	Beauty and Wellness Sector Skill Council	Operational	CII	Oct-13	100	390	16,57,500
26	Textile & Handloom Sector Skill Council	Operational	CITI	Oct-13	357	577	11,60,502
27	Handicrafts & Carpets Sector Skill Council	Operational	EPCH	Nov-13	125	140	20,11,000
28	Tourism & Hospitality Sector Skill Council	Operational	CII	Dec-13	150	565	31,98,703
29	Infrastructure Equipment Skill Council	Operational	ICEMA	Feb-14	35	400	20,24,020
30	Sports, Physical Education, Fitness and Leisure Skill Council	Approved by NSDC Board	FICCI	May-14	47	780	21,93,750
31	Hydro Carbon Sector Skill Council	Approved by NSDC Board	OIDB & Petrofed	May-14	200	500	19,27,625
32	Chemicals & Petrochemicals Sector Skill Council	Approved by NSDC Board	FICCI	Feb-14	100	820	19,27,625
33	Coatings Sector Skill Council	Approved by NSDC Board	IPA	Feb-15	20	900	10,30,000
34	Management and Management Services Skill Council	Under diligence in NSDC	AIMA	Not yet approved	47	202	7,91,500

Annexure 2 (a): Questionaire Industry Survey – Coimbatore's Capital Goods

1. In which of the following sub-sectors your company operates?

☐ Machine Tools	☐ Process Plant machinery	☐ Power & Electrical equipment	☐ Textile machinery	☐ Plastic, paper, rubber machinery	☐ Construction machinery	☐ Material handling/ lifting equipment	☐ Agricultural machinery	☐ Other (specify)

2. Please provide details on company's labour, capital and turnover to gauge labour intensity.

Indicator	Value
Total workforce (number)	
Total capital invested(Rs)	
Annual revenue/ turnover (Rs)	

3. Please indicate the nature of employment in your company.

Employee Type/ Role	No. employed currently		Expected % increase or decrease in next 2-3 years (+/ -)
	Absolute	% of total	
Machinist			
Welder			
Electrician			
IT engineer			
Assembler/ Machine builder			
Designer			
Supervisors/ Managers			
Maintenance staff			
Helpers			
Other 1 (specify)			
Other 2 (specify)			
Total		100%	

4. Please indicate the source of labour supply across various levels (approximate % of total employees).

Employee Type/ Role	From schools	From degree colleges	From ITIs	From private vocational training institutes	On-the-jobtraining	Others (please specify)
Machinist						
Welder						
Electrician						
IT engineer						
Assembler/ Machine builder						
Designer						
Supervisors/ Managers						
Maintenance staff						
Helpers						
Other 1 (specify)						
Other 2 (specify)						

5. Please indicate the key factors considered by you while recruiting from a particular institute. (Please rank from 1 to 6, with 1 being most important).

Factor	Rank
Course curriculum	
Quality of faculty/ trainers	
Institutes' infrastructure – Building/ classrooms	
Quality of tools, equipment	
Extent of practical training provided	
Students' technical knowledge	
Any other (please specify)	

6. Please indicate the in-house training details for employees.

Approx. No. of training hours per employee (per year)	
Average amount spent in training (annually) in Rs	
Average amount spent in training (annually) (% of total cost)	
Mode of training (Classroom/ on-the job)	

7. a)Are you required to re-train the employees recruited from vocational institutes (public or private)?

□ Yes □ No

b)If yes, please indicate the period of training at various levels.

Employee Type/ Role	1-6 months	7-12 months	13-18 months	19-24 months	More than 24 months/ 2 years
Machinist					
Welder					
Electrician					
IT engineer					
Assembler/ Machine builder					
Designer					
Supervisors/ Managers					
Maintenance staff					
Helpers					
Other 1 (specify)					
Other 2 (specify)					

c)If yes, what are the key reasons for retraining?

□Inadequate theoretical knowledge

□Inadequate practical experience - lack of knowledge and practice on requisite machinery

□Inappropriate course curriculum in training institutes

□ Weak communication skills

□ Any other, please specify.....

8. a) Are good training institutes available in your region (around cluster)?

□ ..... □ □

Yes, please specify No Can't say

b) If not, which are the good training institutes in your State for your sector specific skills? Please indicate.

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9. Please indicate the qualification and experience level of employees in your company/ sector.

Employee Type/ Role	Education qualification*		Min. Experience (1-10 years)	
	Present (for majority employees)	Desired	Present (for majority employees)	Desired
Machinist				
Welder				
Electrician				
IT engineer				
Assembler/ Machine builder				
Designer				
Supervisors/ Managers				
Maintenance staff				
Helpers				
Other 1 (specify)				
Other 2 (specify)				

** Qualifications: Primary (P), Secondary (S), Degree (DG), Diploma (DP), ITI/ Vocational (V), PG or higher (PG)*

Q10 a. Has your company ever experienced problems in finding employees with desired skills? (Please tick appropriate)

Never	.....
Occasionally (further probe: When was the last time you experienced such problem?)*	..... (Mention period/ year)
Frequently	.....

** response can be put as a comment*

Q10 b. In which areas have you experienced major skill shortage (Identify top 3)

Employment type/ Role	
Machinist	
Welder	
Electrician	
IT engineer	
Assembler/ Machine builder	
Designer	
Supervisors/ Managers	
Maintenance staff	
Helpers	
Other 1 (specify)	
Other 2 (specify)	

 # Skill gap in terms of desired and actual qualifications/ experience

Q 11. Please indicate the reasons for skill gap and what can be done to address those? (Please indicate if Food processing sector faces the below mentioned skill related challenges and suggest possible action(s) that can be taken for addressing those.)

Reasons for skill gap	Tick all appropriate	Actions that can be taken (tick all appropriate)

Inadequate availability of training institutes	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Cluster level institutes	□ More ITIs in cluster	□ Vocational training at schools	□ Others (specify)
Lack of skilled personnel	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Create awareness for skilling	□ Need for low-cost training	□ Certification of vocational courses to be recognised	□ Others (specify)
Poor quality of training infrastructure	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Increase in-take capacity	□ Better labs, modern machines	□ Use cluster's common facilities centre for training	□ Others (specify)
Poor Quality of teachers/ faculty	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Involve industry people as trainers	□ Training for teachers/ trainers	□ Hire technically qualified trainers	□ Others (specify)
Inadequatecourse/ curriculum in training	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Industry linkage in designing curriculum	□ Appropriate mix of theory and practical	□ Others (specify)	
Others (specify)					

12. Do you believe that the rural employment scheme of the Govt. of India i.e. MNREGA has contributed to skill shortage in your industry?

□ Strongly Agree □ Somewhat Agree □ Can't say □ Somewhat Disagree □ Strongly Disagree

13. Do you agree that many youth do not go in for vocational training because of non-availability of funds?

□ Agree □ Disagree □ Can't say

b) If you agree, what can be done to address the issue? (Tick all appropriate)

□Govt. should introduce interest subvention schemes to provide concessional loans to prospective students
□Training institutes should lower the course fees
□Any other, please specify.....

14. In your opinion, what other measures should the government taketo address skill related issues and challenges?

Annexure 2 (b): Questionaire Industry Survey – Pune's Food Processing

1. In which of the following sub-sectors your company operates?

☐	☐	☐	☐	☐	☐	☐	☐
Fruits & Vegetables processing	Food grains milling	Dairy products	Meat & poultry processing	Fish processing	Bread & bakery	Beverages	Other (specify)

2. Please provide details on company's labour, capital and turnover to gauge labour intensity.

Indicator	Value
Total workforce (number)	
Total capital invested(Rs)	
Annual revenue/ turnover (Rs)	

3. Please indicate the nature of employment in your company.

Employee Type/ Role	No. employed currently		Expected % increase or decrease in next 2-3 years (+/ -)
	Absolute	% of total	
Food technologist			
Quality controller			
Operators			
Assemblers			
Packaging workers			
Supervisors/ Managers			
Maintenance staff			
Helpers			
Procurement staff			
Sales/ marketing executives			
Other 1 (specify)			
Other 2 (specify)			
Total		100%	

4. Please indicate the source of labour supply across various levels (approximate % of total employees).

Employee Type/ Role	From schools	From degree colleges	From ITIs	From private vocational training institutes	On-the-job training	Others (please specify)
Food technologist						
Quality controller						
Operators						
Assemblers						
Packaging workers						
Supervisors/ Managers						
Maintenance staff						
Helpers						
Procurement staff						

Sales/ marketing executives						
Other 1 (specify)						
Other 2 (specify)						

5. Please indicate the key factors considered by you while recruiting from a particular institute. (Please rank from 1 to 6, with 1 being most important).

Factor	Rank
Course curriculum	
Quality of faculty/ trainers	
Institutes' infrastructure – Building/ classrooms	
Quality of tools, equipment	
Extent of practical training provided	
Students' technical knowledge	
Any other (please specify)	

6. Please indicate the in-house training details for employees.

Approx. No. of training hours per employee (per year)	
Average amount spent in training (annually) in Rs	
Average amount spent in training (annually) (% of total cost)	
Mode of training (Classroom/ on-the job)	

7. a) Are you required to re-train the employees recruited from vocational institutes (public or private)?

□ Yes □ No

b) If yes, please indicate the period of training at various levels.

Employee Type/ Role	1-6 months	7-12 months	13-18 months	19-24 months	More than 24 months/ 2 years
Food technologist					
Quality controller					
Operators					
Assemblers					
Packaging workers					
Supervisors/ Managers					
Maintenance staff					
Helpers					
Procurement staff					
Sales/ marketing executives					
Other 1 (specify)					
Other 2 (specify)					

c) If yes, what are the key reasons for retraining?

□Inadequate theoretical knowledge

□Inadequate practical experience - lack of knowledge and practice on requisite machinery

□Inappropriate course curriculum in training institutes

□ Weak communication skills

□ Any other, please specify.....

8. a) Are good training institutes available in your region (around cluster)?

□ ..... Yes, please specify □ No □ Can't say

b) If not, which are the good training institutes in your State for your sector specific skills? Please indicate.

_____

9. Please indicate the qualification and experience level of employees in your company/ sector.

Employee Type/ Role	Education qualification*		Min. Experience (1-10 years)	
	Present (for majority employees)	Desired	Present (for majority employees)	Desired
Food technologist				
Quality controller				
Operators				
Assemblers				
Packaging workers				
Supervisors/ Managers				
Maintenance staff				
Helpers				
Procurement staff				
Sales/ marketing executives				
Other 1 (specify)				
Other 2 (specify)				

** Qualifications: Primary (P), Secondary (S), Degree (DG), Diploma (DP), ITI/ Vocational (V), PG or higher (PG)*

Q10 a. Has your company ever experienced problems in finding employees with desired skills? (Please tick appropriate)

Never	.....
Occasionally (further probe: When was the last time you experienced such problem?)*	..... (Mention period/ year)
Frequently	.....

** response can be put as a comment*

Q10 b. In which areas have you experienced major skill shortage (Identify top 3)

Food technologist	
Quality controller	
Operators	
Assemblers	
Packaging workers	
Supervisors/ Managers	
Maintenance staff	
Helpers	
Procurement staff	
Sales/ marketing executives	

Other 1 (specify)	
Other 2 (specify)	

Q 11. Please indicate the reasons for skill gap and what can be done to address those? (Please indicate if Food processing sector faces the below mentioned skill related challenges and suggest possible action(s) that can be taken for addressing those.)

Skill related challenges	Tick appropriate	Actions that can be taken (tick all appropriate)			
Inadequate availability of training institutes	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Cluster level institutes	□ More ITIs in cluster	□ Vocational training at schools	□ Others (specify)
Lack of skilled personnel	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Create awareness for skilling	□ Need for low-cost training	□ Certification of vocational courses to be recognised	□ Others (specify)
Poor quality of training infrastructure	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Increase in-take capacity	□ Better labs, modern machines	□ Use cluster's common facilities centre for training	□ Others (specify)
Poor Quality of teachers/ faculty	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Involve industry people as trainers	□ Training for teachers/ trainers	□ Hire technically qualified trainers	□ Others (specify)
Inadequate course/ curriculum in training	○ Yes, this is a major concern ○ Yes, to some extent ○ Not a problem	□ Industry linkage in designing curriculum	□ Appropriate mix of theory and practical	□ Others (specify)	
Others (specify)					

10. Do you believe that the rural employment scheme of the Govt. of India i.e. MNREGA has contributed to skill shortage in your industry?

Strongly Agree	Somewhat Agree	Can't say	Somewhat Disagree	Strongly Disagree
☐	☐	☐	☐	☐

11. a) Do you agree that many youth do not go in for vocational training because of non-availability of funds?

Agree	Disagree	Can't say
☐	☐	☐

b) If you agree, what can be done to address the issue? (Tick all appropriate)

☐Govt. should introduce interest subvention schemes to provide concessional loans to prospective students

☐Training institutes should lower the course fees

☐Any other, please specify.....

12. In your opinion, what other measures should the government take to address skill related issues and challenges?

_____

_____

Annexure 3 (a): Questionaire Industry Association – Capital Goods

1. **What is the functional composition of workforce in Capital Goods sector?**

Function/ Role	% of Total workforce (approx.)
Machinist	
Welder	
Electrician	
IT engineer	
Assembler/ Machine builder	
Designer	
Quality Testers/ Inspectors	
Supervisors/ Managers	
Maintenance staff	
Helpers	
Sales/ Marketing	
Administration/ HR/ Finance	
Other 1 (specify)	
Total	**100%**

2. **a) Over the last 5 years, has there been an increase in technology adoption in the sector?**

☐ Yes ☐ No

b) If yes, how does this impact the skill requirements in the sector? (*e.g. if there is increasing trend towards greater capital intensity/ technology adoption, do companies need to hire specially trained people or existing manpower is trained for same and is that a challenge?)*

3. **What is the education/ skill composition of workforce in capital goods sector? Are these in surplus / shortage for industry?**

Function/ Role	Basic educational qualification required #	Skill Gap (Shortage/ Surplus/ Adequate)
Machinist		
Welder		
Electrician		
IT engineer		
Assembler/ Machine builder		
Designer		
Supervisors/ Managers		
Maintenance staff		
Helpers		
Other 1 (specify)		
Other 2 (specify)		

 # No education qualification/ 10th std or below / ITI or ITC certification / Diploma / Graduates/ Post Graduates/ MBA/ PHD

4. **a) What is the proportion of workforce with formal and informal skills in capital goods sector?**

Type of skilling	Percentage
Formal – through higher education colleges	
Formal – through vocational training institutes	
Formal – through apprenticeship training scheme	

Informal	
Total	**100%**

b) What are the reasons for low levels of formal skilling through vocational training / apprenticeship (if applicable)?

5. **Amongst the various sources of formal skilling in capital goods sector, please indicate the source from which workforce with higher level of skills (requiring highly technical expertise/ research) is usually hired?** (Rank 1 for Source having highest demand and so on)

Skilling Source type	Rank	Reasons / Remarks
Specialised Institutes or Research Centres set up by Ministry		
Certification programmes of ITIs / ITCs (short term courses)		
Certification programmes of ITIs/ ITCs (long term (1-2yrs) courses)		
Apprenticeship Training Scheme of DGET, Ministry of Labour		
Modular Employable Skills scheme of DGET, Ministry of Labour		
PG/ Graduation/ degree courses		
Distant learning courses		
Other (specify)		

6. **Amongst the various sources of formal skilling in capital goods sector, please indicate the source from which workforce with lower level of skills (at production/ operations level) is usually hired?** (Rank 1 for Source having highest demand and so on)

Skilling Source type	Rank	Reasons / Remarks
Specialised Institutes or Research Centres set up by Ministry		
Certification programmes of ITIs / ITCs (short term courses)		
Certification programmes of ITIs/ ITCs (long term (1-2yrs) courses)		
Apprenticeship Training Scheme of DGET, Ministry of Labour		
Modular Employable Skills scheme of DGET, Ministry of Labour		
PG/ Graduation/ degree courses		
Distant learning courses		
Schooling (10th pass)		
Other (specify)		

7. **Are good vocational training institutes for capital goods manufacturing available in your region /cluster?**

☐ ..... Yes, please specify ☐ No ☐ Can't say

8. **a) Do employees hired through ITIs/ ITCs require re-training?**

☐ Yes ☐ No

b) If yes, for which role is re-training mostly done? (Tick all appropriate)

☐ Machinist ☐ Welder ☐ Electrician ☐ IT Engineer ☐ Assembler ☐ Designer ☐ Manager/ Supervisor ☐ Other 1 (specify) ☐ Other 2 (specify)

c) If yes, what are the key reasons for retraining?

- Inadequate theoretical knowledge
- Inadequate practical experience - lack of knowledge and practice on requisite machinery
- Inappropriate course curriculum in training institutes
- Weak communication skills
- Any other, please specify.....

9. What is the extent of skill gap across different functions in capital goods sector?

Function/ Role	Extent of skill shortage*		
Production	No Shortage	Occasional shortage	Frequent/ Major shortage
Maintenance	No Shortage	Occasional shortage	Frequent/ Major shortage
Testing/ Quality	No Shortage	Occasional shortage	Frequent/ Major shortage
Research	No Shortage	Occasional shortage	Frequent/ Major shortage
Administration/ HR	No Shortage	Occasional shortage	Frequent/ Major shortage
Sales/ Marketing	No Shortage	Occasional shortage	Frequent/ Major shortage
Any other (specify)	No Shortage	Occasional shortage	Frequent/ Major shortage

** If reply is occasional or major shortage – please include in comments the reasons*

10. Please indicate if capital goods sector faces the below mentioned skill related challenges and suggest possible action(s) that can be taken for addressing those.

Skill related challenges	Tick appropriate	Actions that can be taken (tick all appropriate)			
Inadequate availability of training institutes	– No such concern – Not a critical issue but more can be done – Major challenge	☐ Cluster level institutes	☐ More ITIs in cluster	☐ Vocational training at schools	☐ Others (specify)
Lack of skilled personnel	– No such concern – Not a critical issue but more can be done – Major challenge	☐ Create awareness for skilling	☐ Need for low-cost training	☐ Certification of vocational courses to be recognised	☐ Others (specify)
Poor quality of training infrastructure	– No such concern – Not a critical issue but more can be done – Major challenge	☐ Increase in-take capacity	☐ Better labs, modern machines	☐ Use cluster's common facilities centre for training	☐ Others (specify)
Poor Quality of teachers/ faculty	– No such concern – Not a critical issue but more can be done – Major challenge	☐ Involve industry people as trainers	☐ Training for teachers/ trainers	☐ Hire technically qualified trainers	☐ Others (specify)

Inadequate course/ curriculum in training	– No such concern – Not a critical issue but more can be done – Major challenge	☐ Industry linkage in designing curriculum	☐ Appropriate mix of theory and practical	☐ Others (specify)

11. Do you believe that the rural employment scheme of the Govt. of India i.e. MNREGA has contributed to skill shortage in your industry? (*Please specify reasons in comments)*

☐ Strongly Agree ☐ Somewhat Agree ☐ Can't say ☐ Somewhat Disagree ☐ Strongly Disagree

12. a) Do you agree that many youth do not go in for vocational training because of non-availability of funds?

☐ Agree ☐ Disagree ☐ Can't say

b) If you agree, what can be done to address the issue? (Tick all appropriate)

☐ Govt. should introduce interest subvention schemes to provide concessional loans to prospective students
☐ Training institutes should lower the course fees
☐ Any other, please specify.....

13. In your opinion, what other measures should the government take to address skill related issues and challenges?

Annexure 3 (b): Questionnaire Industry Association – Food Processing

1. **What is the functional composition of workforce in Food Processing sector?**

Function/ Role	% of Total workforce (approx.)
Production	
Procurement	
Storage	
Testing/ Quality	
Research	
Administration/ HR	
Sales/ Marketing	
Any other (please specify)	
Total	**100%**

2. **a) Over the last 5 years, has there been an increase in technology adoption in the sector?**

☐ Yes ☐ No

b) If yes, how does this impact the skill requirements in the sector? (*e.g. if there is increasing trend towards greater capital intensity/ technology adoption, do companies need to hire specially trained people or existing manpower is trained for same and is that a challenge?)*

_____

3. **What is the education/ skill composition of workforce in food processing sector?**

Function/ Role	Basic educational qualification required #
Food technologist	
Quality controller	
Operators	
Assemblers	
Packaging workers	
Supervisors/ Managers	
Maintenance staff	
Helpers	
Procurement staff	
Sales/ marketing executives	
Other 1 (specify)	

 # No education qualification/ 10th std or below / ITI or ITC certification / Diploma / Graduates/ Post Graduates/ MBA

4. **a) What is the proportion of workforce with formal and informal skills in Food processing sector?**

Type of skilling	Percentage
Formal – through higher education colleges	
Formal – through vocational training institutes	
Formal – through apprenticeship training scheme	
Informal	
Total	**100%**

b) What are the reasons for low levels of formal skilling through vocational training / apprenticeship (if applicable)?

---

5. **Amongst the various sources of formal skilling in food processing sector, please indicate the source from which workforce with higher level of skills (requiring highly technical expertise/ research) is usually hired?** (Rank 1 for Source having highest demand and so on)

Skilling Source type	Rank	Reasons / Remarks
Specialised Food Processing Centres or Institutes set up by Ministry of Food Processing like Central Food Technology Research Institute, Council for Entrepreneurial Development Centre, etc.		
Certification programmes of ITIs / ITCs (short term courses)		
Certification programmes of ITIs/ ITCs (long term (1-2yrs) courses)		
Apprenticeship Training Scheme of DGET, Ministry of Labour		
Modular Employable Skills scheme of DGET, Ministry of Labour		
PG/ Graduation/ degree courses		
Distant learning courses		
Other (specify)		

6. **Amongst the various sources of formal skilling in food processing sector, please indicate the source from which workforce with lower level of skills (at production/ operations level) is usually hired?** (Rank 1 for Source having highest demand and so on)

Skilling Source type	Rank	Reasons / Remarks
Specialised Food Processing Centres or Institutes set up by Ministry of Food Processing like Central Food Technology Research Institute, Council for Entrepreneurial Development Centre, etc.		
Certification programmes of ITIs / ITCs (short term courses)		
Certification programmes of ITIs/ ITCs (long term (1-2yrs) courses)		
Apprenticeship Training Scheme of DGET, Ministry of Labour		
Modular Employable Skills scheme of DGET, Ministry of Labour		
PG/ Graduation/ degree courses		
Distant learning courses		
Schooling (10th pass)		
Other (specify)		

7. **Are good vocational training institutes for food processing available in your region /cluster?**

☐ ..... Yes, please specify ☐ No ☐ Can't say

8. **a) Do employees hired through ITIs/ ITCs require re-training?**

☐ Yes ☐ No

b) If yes, for which functions is the re-training mostly done? (Tick all appropriate)

Production	Procurement	Storage	Testing/ Quality	Research	Administration/ HR	Sales/ Marketing	Other....
☐	☐	☐	☐	☐	☐	☐	☐

c) If yes, what are the key reasons for retraining?

☐ Inadequate theoretical knowledge
☐ Inadequate practical experience - lack of knowledge and practice on requisite machinery
☐ Inappropriate course curriculum in training institutes
☐ Weak communication skills
☐ Any other, please specify.....

9. What is the extent of skill gap across different functions in food processing sector?

Function/ Role	Extent of skill shortage*		
Production	☐ No Shortage	☐ Occasional shortage	☐ Frequent/ Major shortage
Procurement	☐ No Shortage	☐ Occasional shortage	☐ Frequent/ Major shortage
Storage	☐ No Shortage	☐ Occasional shortage	☐ Frequent/ Major shortage
Testing/ Quality	☐ No Shortage	☐ Occasional shortage	☐ Frequent/ Major shortage
Research	☐ No Shortage	☐ Occasional shortage	☐ Frequent/ Major shortage
Administration/ HR	☐ No Shortage	☐ Occasional shortage	☐ Frequent/ Major shortage
Sales/ Marketing	☐ No Shortage	☐ Occasional shortage	☐ Frequent/ Major shortage

** If reply is occasional or major shortage – please include in comments the reasons*

10. Please indicate if Food processing sector faces the below mentioned skill related challenges and suggest possible action(s) that can be taken for addressing those.

Skill related challenges	Tick appropriate	Actions that can be taken (tick all appropriate)			
Inadequate availability of training institutes	– No such concern – Not a critical issue but more can be done – Major challenge	☐ Cluster level institutes	☐ More ITIs in cluster	☐ Vocational training at schools	☐ Others (specify)
Lack of skilled personnel	– No such concern – Not a critical issue but more can be done – Major	☐ Create awareness for skilling	☐ Need for low-cost training	☐ Certification of vocational courses to be recognised	☐ Others (specify)

	challenge				
Poor quality of training infrastructure	– No such concern – Not a critical issue but more can be done – Major challenge	☐ Increase in-take capacity	☐ Better labs, modern machines	☐ Use cluster's common facilities centre for training	☐ Others (specify)
Poor Quality of teachers/ faculty	– No such concern – Not a critical issue but more can be done – Major challenge	☐ Involve industry people as trainers	☐ Training for teachers/ trainers	☐ Hire technically qualified trainers	☐ Others (specify)
Inadequate course/ curriculum in training	– No such concern – Not a critical issue but more can be done – Major challenge	☐ Industry linkage in designing curriculum	☐ Appropriate mix of theory and practical	☐ Others (specify)	

11. Do you believe that the rural employment scheme of the Govt. of India i.e. MNREGA has contributed to skill shortage in your industry? (*Please specify reasons in comments)*

☐ Strongly Agree ☐ Somewhat Agree ☐ Can't say ☐ Somewhat Disagree ☐ Strongly Disagree

12. a) Do you agree that many youth do not go in for vocational training because of non-availability of funds?

☐ Agree ☐ Disagree ☐ Can't say

b) If you agree, what can be done to address the issue? (Tick all appropriate)

☐ Govt. should introduce interest subvention schemes to provide concessional loans to prospective students
☐ Training institutes should lower the course fees
☐ Any other, please specify.....

13. In your opinion, what other measures should the government take to address skill related issues and challenges?

_____

_____

Annexure 4 (a): List of responses – Capital Goods

Name	Company	Designation
R Vatirajan	Padmavahini Transformers P Ltd	Chairman/Managing Director
Roshan	Plasto Electricals	Manager
Vijay	JVM Associates	Proprietor
Pradeep Jacob	Louisons Rubber Products	Design engineer(also partner)
Muthuviran	Accura Automation Engineers (P) Ltd.	Admin
Prabha	Nanostar Technologies	Manager
Partipal	Sri Harini Rubber Product	Owner
Venkatachalam	Acutus Home Appliances	General Manager
Kannan	Paragon Home Appliances	Proprietor
Rajashekhran	Aboorva Systems	Proprietor
Madhushudan	Powermag Control System Pvt Ltd	Director
Mr. Bhupendra N. Desai	Desai International Imports and Exports	Owner
Mr. Nandagopal	Jeyaletshmi Machine Works	Partner
Karthik Karthikeyan	KK Works	Partner
S. Thirumoorthi	Merit Industries Limited	Director
Manikandan	Able Electronic Services	Manager
M. M. Ghani	FM Engineers	Owner
Mr. M. Tito George	Marshal Hydraulics	M.D.
B.Gunasekaran	PENTAGON SWITCHGEAR PRIVATE LIMITED	M.D.
Mr. D. Nataraj	ABC Agro & Food Machine India Pvt Ltd	M.D.
Maharajan	Lakshmi Automatic Loom Works Ltd	Account manager

Name	Company	Designation
V. Balasubramanian (Owner)	R J Equipments Industries	Owner
Satish kumar	Alpha Helical Pumps Pvt Ltd	Business operation head
R. Sathish Kumar	Accu Tech Engineers, Coimbatore	Partner
Bharti Nirmala	Isha Engineering & Co.	
Bhanu	Sha Hydraulics Private Limited	M.D.
Joseph Anand (Sales Manager)	Stellas Equipments Pvt. Ltd.	Sales manager
Selvaraju	Eltex group (KLRF)	Asst. Manager-HR
Suresh A	Victus Dyeing	HR
R. Mallika	Super Spinning mills Limited	HR Manager
Govarthanan	LG Balakrishnan & Bros ltd	HR
Ganesh Kumar J	Aathava Garments India Pvt ltd	HR Manager
S K Ranganathan	Laxmi Electrical Drivers limited	HR Head
A Ravi Kumar	Shardha Terry product ltd	GM Operation
Chitta	United cooling system pvt ltd	HR
Srinivasan	Sri Lakshmi wire netting co.	Owner
Satish	Delta power system	Owner
Ravi shankar	Powersonic electric solution India pvt ltd	Director
Mahesh K	Adwaith textile limited	HR -Executive
S Mohamad jinnah	SAM Turbo industries pvt limited	Sr. Manager -HR

Annexure 4 (b): List of responses – Food Processing

Name	Company	Designation
Abran Shaikh	Spantek Food Machines	M.D.
Arun Kulkarni	Shiva Engineers	CEO
Ashish Patil	Vostok Refrigeration	Owner
Dilip Lunkad	Lunkad food corporation	Owner
Ebrahim pathan	Master food technology	Owner
G S bindra	Bindra's Hospitality services pvt	Owner
Girish	Varaj Engineering	Manager
Hemant Grime	Girms wheat grass	Administration
Jaywant kadam	Kadam Infra	Director
Karlekar	Kamdhenu Pickels and spices	HR
Laxman	Pravin Masalewale	HR Dept.
Madhavi naik	Iccha food product	Owner
Mandhir Mamidwar	Indo Allied Protien Food Pvt Ltd	Plant Head
Mr ghume	RND Automation Pvt Ltd	HR
Mr Kadam	Trimurti corns agro food pvt ltd	HR
Mr kailas	Kailas Engineering System	Manager
Ms Neeraja	S+S Inspection Pvt Ltd	HR
Nasreem Q Sayed	Supreme Foods	Owner
Nitin	Shingote Agro Foods Pvt. Ltd.	Manager
Prakash	Storm India-Poultry proceessing	Owner
Rajeev	Kamdhenu Pickles and spices	Owner
Raju	Modern Agro foods	Manager
Rohanta Vyawahare	Shivraj Agro Industries	Owner
S B Kulkarni	Jhonfood	General Manager
sadashiv	Bipin Engineers Pvt Ltd	WorkManager
Samadhan	Chordia Food Product	HR Admin
Sangeeta Kayak	Savika malnla Gruh Udyog	Owner
Santosh Bankar	Gayatri Sales	Owner
Sopanrao B Salunke	SBS Food pvt ltd	Owner
Sudhir Niyaz	Gayatri Refrigerator	Owner

Name	Company	Designation
Vijay Kumar	Pushpam Group	Manager
Vinay Harinhau gargate	Sohum Udyog	Proprietor
Vipul	Jayshree Food and Beverages	Owner
Madan Modi	Kotuleswar Fruit Process Work	Manager
Rajesh Gandhi	Adinath Agro Processed Food Pvt Ltd	Director
Jitendra shah	Green Heart	Director

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