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## Skills Development in India: Challenges and Strategies<sup>1</sup>

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### Executive Summary

The Indian economy is widely expected to grow at sustained high rates over the next few decades and emerge as the second largest economy by 2050. These robust projections have much to do with the demographic profile of the country. India is slated to have one of the youngest populations in the world, with the bulk of the population figuring in the working age. Low dependency ratio and a surplus workforce put India at a strong comparative advantage vis-à-vis most major economies. However, in order to utilise this ‘demographic dividend’ effectively, India needs to impart adequate and appropriate skills to its workforce.

Institutional higher education capacities in India are unevenly distributed across the country. There is also a clear dominance of pure science, arts and commerce subjects. While 56 percent of the higher education institutes are devoted to arts, science and commerce, medical colleges, engineering and technology colleges and polytechnics comprise ten percent, seven percent and six percent of total institutes respectively. The dominance of arts, science and commerce in higher education has prevented the bulk of the pass-outs from the system from acquiring skills required by the manufacturing and service industries.

The size of the current technical training infrastructure is much smaller than what is required. India currently has the capacity for training 3.1 million people per year. This is insufficient, given that every year, 12.8 million new people enter the workforce. The distribution of training capacities is unbalanced, with the industrially-advanced states of Maharashtra, Andhra Pradesh, Tamil Nadu and Karnataka, accounting for 48 percent of recognised technical training institutions.

Industrial training institutes (ITIs) and polytechnics supply the largest volumes of technical training. The former have certificate courses while the latter offer diploma programmes in both engineering and non-engineering disciplines. More than 60 percent of the ITIs are privately owned while the rest belong to different state governments. The polytechnics are administered by the Ministry of Human Resource Development. The institutes offer diploma programmes in 1,800 different disciplines with the majority of programmes being in

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engineering subjects. The technical training infrastructure also includes apprentice training in 254 industries and vocational education at the higher secondary level in schools.

The 11<sup>th</sup> Five-Year Plan reported that only two percent of the workforce aged between 15 and 29 years receives formal technical training while another eight percent receives non-formal training. The situation is particularly dismal in rural areas. Hardly a quarter of the 12.8 million new entrants to the workforce receive formal training. This poses serious implications for the skills level of the workforce. The problem has a generic dimension since attendance rates in schools drop significantly after children/the youth hit 15 years of age, which is also the time from when the workforce participation rates increase sharply. Thus, several new entrants to the labour force do not have higher education and lack requisite skills. The technical training system also suffers from an excessive emphasis on longer-duration courses, a lack of alignment with industry requirements, the under-utilisation of existing capacities and poor physical infrastructure.

Recognising the importance of increasing and diversifying the skills-building capacity in the country, the National Skill Development Policy (NSDP) was announced earlier this year. The Policy puts forth the target of achieving 500 million skilled people in the country by the year 2022. The emphasis is on institution-based skills development through polytechnics, ITIs, vocational training centres, apprenticeship training, training for self-employment and entrepreneurial ventures, addressing the training requirements of retired persons, and expanding the outreach of e-learning and distance learning.

The newly-established National Skill Development Corporation (NSDC), comprising distinguished technical professionals, will set up industry-specific skill councils. It will be instrumental in forging skills development initiatives by involving the private sector through public-private-partnerships (PPPs). Efforts have already been initiated to establish 1,500 ITIs and 5,000 skills development centres through the PPP mode. The new policy is also expected to set standards for competency-based qualifications and certificates on national- approved criteria. The NSDC, ITIs and polytechnics are expected to substantially increase their training capacities over the next decade so as to achieve the target of equipping/training 500 million people by 2022.

The implementation of the NSDP is expected to substantially increase opportunities for foreign technical training providers. In this respect, Singapore, with its proven capacities in vocational and technical training, is well poised to collaborate with Indian institutes. The bilateral Comprehensive Economic Cooperation Agreement between India and Singapore provides an enabling framework for such collaboration. Moreover, English proficiency in both countries can help in the efficient reproduction and dissemination of training modules. Finally, training the young Indian workforce can ensure that Singapore and other ageing industrialised Asian economies can draw upon India's well-trained surplus skilled manpower to address their own impending shortages of skilled workers in the future.

## Introduction

The Indian economy grew at an average rate of 8.8 percent during the period 2003-04 to 2007-08. The onset of the financial crisis and deepening of cyclical deceleration in the economy have resulted in gross domestic product growth reducing to 6.7 percent in 2008-09. However, the economy is expected to return to its high growth trajectory in the medium term. Most analysts expect the Indian economy to grow at sustained high rates during the coming decades and emerge as one of the largest economies in the world. The most celebrated of these opinions is articulated by Goldman Sachs. According to Goldman Sachs, India is projected to become the second largest economy in the world by the year 2050.<sup>3</sup>

One of the main reasons behind the optimism regarding the Indian economy stems from its demographic profile. India's current population of 1.2 billion is expected to enlarge to 1.8 billion by 2045. The significant aspect of this increase relates to the expansion in the size of its working age (15-64 years) population. The emerging demographic dynamics of the country ensures that it will have one of the youngest populations in the world, with the bulk of the population belonging to the working age category. By the year 2026, 64.8 percent of the Indian population is expected to be in the working age bracket.<sup>4</sup>

There are two important implications of this development. First, India will have one of the lowest dependency ratios (ratio of non-working population to working population) in the world. This will be in sharp contrast to most major economies. Higher life expectancies and greater ageing populations will lead to comparatively adverse demographic profiles for advanced Western economies as well as Japan and China. A lower dependency ratio implies lower social costs on an ageing population. India scores favourably in this regard. Second, with most major economies ageing fast, their contributions in terms of new additions to the global workforce will progressively be reduced. India, however, will be a notable exception. The global workforce is expected to be overtly dominated by Indians in the next couple of decades. A study by the Boston Consulting Group shows that, while the world is expected to encounter a shortage of 47 million working people by 2020, India will have a surplus of 56 million working people.<sup>5</sup>

The demographic dynamics, popularly referred to as the 'demographic dividend', provides India with strong advantages insofar as achieving high rates of growth powered by an enlarging workforce is concerned. However, India will be able to utilise the dividend meaningfully, provided it is able to equip its workforce with the appropriate skills. In this respect, skills development emerges as one of the most critical aspect of India's economic policies.

This paper analyses the current skills development capacity in India by examining the technical training infrastructure of the country. It identifies the deficiencies of the system and outlines the latest policy initiatives for building skills. It also examines the scope for foreign technical training providers in playing an active role in India's skills-building efforts, with particular reference to Singapore.

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<sup>3</sup> See <http://www2.goldmansachs.com/ideas/brics/index.html> [Accessed on 13 September 2009].

<sup>4</sup> Chapter 6, 'Benchmarking of Skill Deficit and Plan to Achieve Target by 2022'; National Skill Development Policy, Ministry of Labour, Government of India; p. 31.

<sup>5</sup> Op. cit.

## **India's Technical Training Infrastructure: A Critical Analysis**

Higher education capacities in India are unevenly distributed across the country. They display a clear tendency of concentrating on a few large states. Uttar Pradesh (2,774), Andhra Pradesh (2,768), Maharashtra (2,419), Karnataka (1,880), Tamil Nadu (1,645), Gujarat (1,134), Madhya Pradesh (1,095) and Rajasthan (1,076) are the eight Indian states with more than 1,000 higher educational institutions. These states account for more than 70 percent of India's total higher education institutes (see Annexure 1).

It is often argued that higher education institutes tend to increase along with an increase in industrial and economic prosperity. The state profile of India's higher education institutes does not entirely vindicate this argument. Andhra Pradesh, Maharashtra, Karnataka, Tamil Nadu and Gujarat are five Indian states with per capita incomes higher than the national average and with strong industrial bases. These features are missing from Uttar Pradesh, Madhya Pradesh and Rajasthan. Thus, if the number of higher educational institutes were a function of industrial growth and economic prosperity, then there should not have been as many institutions in these latter states, given their economic backwardness. On the other hand, the large presence of such institutes is clearly not a sufficient condition for higher economic growth.

The institutional capacities show a dominance of colleges in the arts, science and commerce disciplines (Figure 1). These colleges comprise 56 percent of total higher education institutes. The shares of engineering (seven percent) and medical colleges (10 percent) are much less while that of polytechnics (six percent) is even lower.

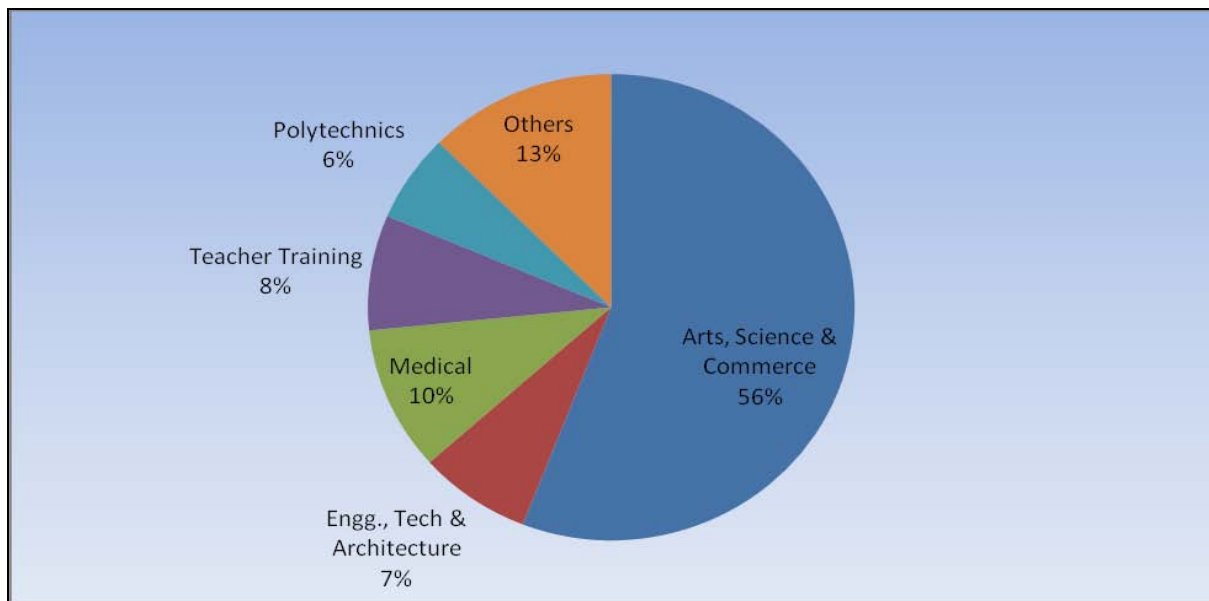
The distribution underlines a distinct imbalance within India's higher education system/infrastructure/industry/sector. The structure is skewed in favour of non-technical disciplines. This imbalance has reflected adversely on the 'employability' of students. Students obtaining graduate degrees in arts, science and commerce disciplines are often at a loss in locating appropriate employment opportunities. This is on account of the mismatch between their skills and the requirements of the labour market, particularly those of the industry. Job opportunities in both manufacturing and knowledge-intensive services demand activity-specific technical skills, which, unfortunately, advanced qualifications in pure arts, science and commerce do not impart.

The skills mismatch has two serious implications for the labour market. On the one hand, it prevents the growth of the workforce in a manner that is responsive to the needs of the economy. This leads to bottlenecks in the availability of labour for industrial requirements. While this is the supply-side perspective, the demand-side perspective is also affected by adversities. Due to inappropriate qualifications, large sections of the workforce do not find adequately remunerative occupations.

India's present formal technical training infrastructure is much more restricted than the requirements. The regulatory guidelines for technical education are administered by the All India Council for Technical Education (AICTE). There are professional colleges imparting technical education to students who have completed their higher secondary (Level 12) education. In addition, there are vocational training facilities in schools, training sessions provided by specialised professional institutions and apprenticeship preparation. Apart from the vocational training at the final school levels, technical trainings at professional colleges and other institutions begin only after students have finished 12 years of continuous study.

Specific technical training is available for different disciplines within the broader ambits of agriculture, education, engineering and technology, and medicine. Within these trades, there is a pronounced emphasis on engineering. Polytechnics, industrial training institutes (ITIs) and industrial training centres (ITCs) focus primarily on engineering courses. Ninety percent of the diploma programmes and 80 percent of the certificate training programmes are in engineering subjects.<sup>6</sup> The overt focus on engineering disciplines has resulted in a lack of adequate capacities in building skills in other disciplines.

**Figure 1: Share of Different Disciplines in India’s Higher Education Institutions**



Source: Computed from Statistics compiled by the Ministry of Human Resource Development, Government of India

The technical training infrastructure displays a skewed pattern similar to that observed for overall higher education. The four industrially-advanced states of Karnataka, Tamil Nadu, Maharashtra and Andhra Pradesh account for 48.1 percent or 2,628 of the country’s total 5,465 technical/industrial/art and craft schools recognised by the Directorate General of Employment and Training (DGET) of the Government of India. On the other hand, the north-eastern states (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Sikkim) have only 1.1 percent (59) of the technical institutions.

The ITIs comprise a significant part of India’s technical training infrastructure. These institutes focus on certificate programmes in both engineering and non-engineering disciplines.<sup>7</sup> A large segment of these institutes have come up under private initiative. The Planning Commission estimates 63 percent of the ITIs to be under private initiative and the remaining are owned by different state governments.<sup>8</sup> Due to a greater focus of government resources in the university sector, the demand for technical education in the non-university sector has been met mostly by private institutes. The ITIs offer training facilities to students passing out from Level 8 or 10, depending on the type of courses offered. Most of the certificate courses are of one to two years duration. There are also six Advanced Training

<sup>6</sup> Agarwal, Pawan (2009), *Indian Higher Education: Envisioning the Future*, Sage Publications; p. 207.

<sup>7</sup> Training is offered in 57 engineering subjects and 50 non-engineering disciplines. Chapter 5, ‘Skill Development and Training’, Eleventh Five-Year Plan; p. 88; Planning Commission, Government of India.

<sup>8</sup> Op. cit., p. 88.

Institutes (ATIs) that are managed by the central government, which offers technician training in industrial occupations or industry, medical occupations or medicine, consumer electronics and process documentation.

Though the number of private ITIs is greater than government-owned ones, student intake capacities are higher in state-owned institutes than their private counterparts.<sup>9</sup> However, the ITI infrastructure in the country has been seriously affected by an acute shortage of qualified teachers leading to poor student-teacher ratios.<sup>10</sup> Nonetheless, ITI certificate holders have enjoyed reasonably good prospects in the job market, which could be on account of the more effective screening processes followed by these institutes.<sup>11</sup> Since 2004-05, there have been sustained efforts to upgrade a select group of 100 ITIs into 'centres of excellence'. The exercise focuses not only on improving the infrastructures of these institutes, but also on facilitating their operational autonomies.

India's polytechnics are administered by the Ministry of Human Resource Development (HRD). They are expected to play a key role in equipping the workforce with appropriate skills. There were 1,272 polytechnics in the country in the year 2005-06. The polytechnics offer diploma-level courses of three-year durations in around 1,800 disciplines approved by the AICTE. The total intake capacity of these institutes, as estimated by the AICTE, was 726,741 in the year 2006-07.<sup>12</sup> The thrust of these institutes is offering diploma programmes in different disciplines of the engineering trade. The current group of polytechnics includes a considerable number of privately-sponsored institutes as well. Tenth standard pass-outs are allowed to apply for training in polytechnics.

A nationwide study of the distribution of polytechnics reveals that 10 states account for 85 percent of these institutes (Figure 2). The industrially-advanced states of Tamil Nadu, Maharashtra, Karnataka, Andhra Pradesh and Gujarat lead the list of polytechnics, which has probably helped them in ensuring a steady supply of skilled labour to industries. In contrast, Rajasthan and Madhya Pradesh, in spite of figuring among the leading Indian states in terms of total stock of higher education institutions, rank much lower in the number of polytechnics. Uttar Pradesh – a relatively industrially-backward state, just like Rajasthan and Madhya Pradesh – ranks fairly high in the number of polytechnics.

The greater number of polytechnics in Uttar Pradesh gives a deceptive impression about the ability of the state to produce a steady stream of skilled labour. Indeed, as Table 1 indicates, despite having more polytechnics than Gujarat, Haryana, Kerala, Madhya Pradesh and West Bengal, the average institutional enrolment in Uttar Pradesh is much lower than all these states. This reflects adversely upon the state's ability to effectively utilise its technical education capacities. Andhra Pradesh also has a relatively lower average enrolment compared with other high polytechnic states. However, it needs to be clarified that while lower enrolment can reflect poorly upon institutional capacity utilisation, higher enrolments can also at times underline the overutilisation of institutional capacities. This is particularly relevant for states like Kerala, West Bengal and Haryana.

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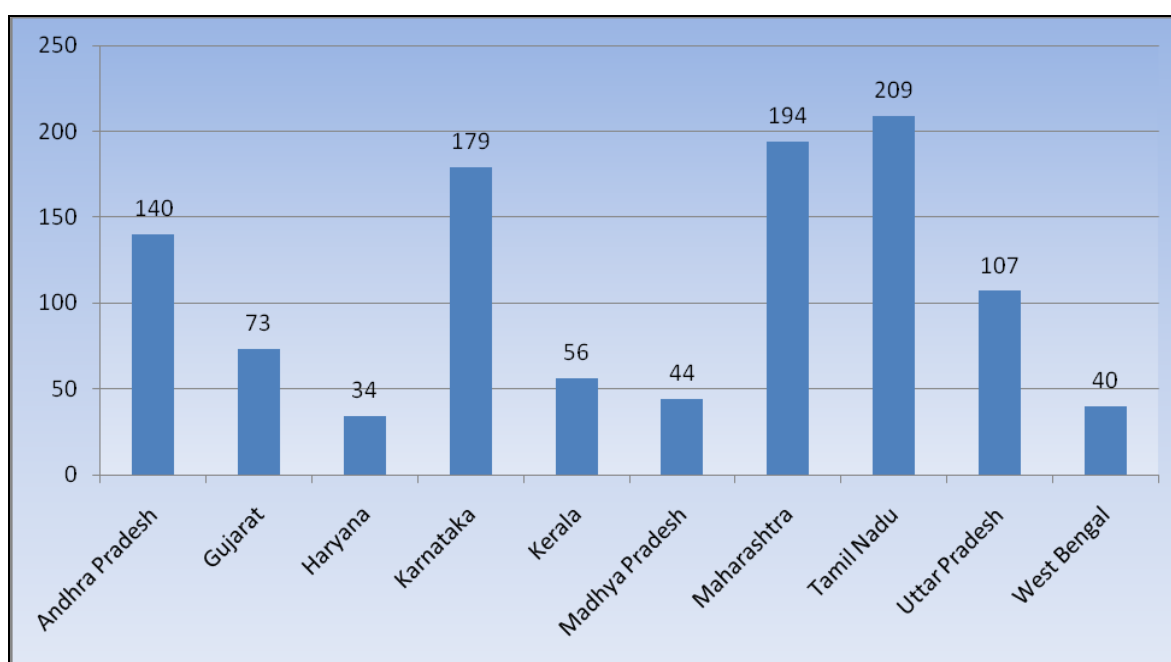
<sup>9</sup> There are privately owned and managed industrial training centres (ITCs) as well.

<sup>10</sup> The estimated ratio is one teacher for every 5.5 student. Agarwal (2009), p. 208.

<sup>11</sup> Ibid.

<sup>12</sup> As documented by the Ministry of Human Resource Development, Government of India.

**Figure 2: India's Top Ten States in terms of Polytechnics (no.)**



Source: Ministry of Human Resource Development, Government of India

**Table 1: Average Enrolments in India's Top Ten Polytechnic States**

State	Enrolment (no.)	Polytechnics (no.)	Average Enrolment
Andhra Pradesh	51,204	140	366
Gujarat	42,735	73	585
Haryana	23,112	34	680
Karnataka	100,274	179	560
Kerala	28,284	56	505
Madhya Pradesh	24,970	44	568
Maharashtra	107,232	194	553
Tamil Nadu	17,4238	209	834
Uttar Pradesh	27,963	107	261
West Bengal	19,404	40	485

Source: Ministry of Human Resource Development, Government of India. Enrolment estimates are for 2006-07.

India's technical training and skills development infrastructure also includes training for apprentices and skills-building at the school level. The Apprentices Act came into force in 1961. The Act is administered by the DGET and pertains to apprentices in 254 industries. The Central Apprenticeship Council outlines the policies, and different norms and standards of apprenticeship training in the country.<sup>13</sup> The entry requirements for apprentices vary from Level 8 to 12 pass-outs, depending upon the training discipline. The training modules vary between six months and four years. Successful candidates are awarded national apprenticeship certificates that are recognised for employment opportunities in government and semi-government organisations.

<sup>13</sup> 'Apprenticeship Training Scheme'; See <http://labour.nic.in/annrep/annrep0607/english/chapter29.pdf> [Accessed on 11 September 2009].

As on 30 June 2006, 20,800 establishments covered under the Act had a total capacity for training 240,256 apprentices. The capacity, however, has not been fully utilised. A total of 172,747 people have been trained, putting the capacity utilisation rate at 71.9 percent. It is important to ensure efficient utilisation of existing capacities before attempting an expansion of capacities. The under-utilisation of existing capacity is also noticed in the training of graduate and technician apprentices. While Level 8 to 12 pass-outs are offered apprentice training in 153 subjects, graduates and technicians can be trained in 95 subjects. However, in this category as well, out of a total existing capacity for 87,316 apprentices, as on 30 June 2006, only 51,542 were trained.<sup>14</sup> The capacity utilisation rate is at a much lower level of 59 percent in the graduate category compared to the Level 8 to 12 pass-out category.

Vocational training is also provided in schools. After passing the secondary level (Level 10), the scope for vocational education exists at the higher secondary level (Levels 11 and 12). The quality of skills taught at the higher secondary levels is essentially simple, with the broader objective of developing stronger vocational interests among students. There are 9,583 such schools in the country offering around 150 vocational courses in agriculture, business, commerce, engineering, technology, health, paramedical, home science and science. School-based training currently covers around one million students all over the country.

### **Technical Training Infrastructure: Major Deficiencies**

Certain implications of the insufficient and inadequate skills capacities of the workforce are quite appalling. Latest estimates indicate that only two percent of the workforce aged between 15 and 29 years receive formal vocational training,<sup>15</sup> while another eight percent receive non-formal training.<sup>16</sup> The lack of training and skills is more conspicuous if viewed from rural and gender perspectives respectively. Only 14 persons out of every 1,000 rural residents in the age group of 15-29 years received formal training. In urban areas, the number increased to 49 out of 1,000 persons. While only 13 women out of every 1,000 rural women were found to have received formal training, the corresponding number for urban women was 45.<sup>17</sup>

The access to skills on the part of new entrants to the Indian workforce is limited in the country. This is a matter of long-term policy concerns. The 11<sup>th</sup> Five-Year Plan (2007-2012) points out that, in industrialised countries, 60-96 percent of the population aged between 20 and 24 years receive formal vocational training that equips them to contribute productively upon their entry in the labour market. India has the capacity to train a maximum of 3.1 million people per year. This means that a maximum of 24.2 percent of the 12.8 million new entrants to the workforce every year can be formally trained. It is another matter that even this rather limited capacity may remain underutilised in several segments.

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<sup>14</sup> Ibid.

<sup>15</sup> Comparable figures for Korea, Germany, Japan and the United Kingdom are 96 percent, 75 percent, 80 percent and 68 percent of their workforces respectively.

<sup>16</sup> Chapter 5, 'Skill Development and Training', Eleventh Five-Year Plan; p. 87; Planning Commission, Government of India. The National Sample Survey (NSS) results show that out of every 1,000 persons in the age group 15-29 years, 24 get formal vocational training. Annexure 5.1.4; p. 99.

<sup>17</sup> National Sample Survey Report 517, Table 10, National Sample Survey Organization (NSSO), Government of India. These are results of the 61<sup>st</sup> round of the National Sample Surveys and pertain to the year 2004-05. Reported in Annexures 5.1.3 & 5.1.4 of Chapter 5, 'Skill Development and Training', Eleventh Five-Year Plan; p. 99; Planning Commission, Government of India.



The issue of the lack of skills has a generically complicated dimension if viewed from the perspective of drop-outs from the formal education system. Attendance rates in schools drop sharply after students attain the age of 15 years. From a rate of 84.7 percent in the age group of 5-14 years, attendance in schools drops to 50.4 percent in the age group of 15-19 years. The labour force participation rate, however, increases sharply in the age group of 15-19 years.<sup>18</sup> Thus, the attainment of higher education and participation in the labour force tend to move in opposite directions for significant sections of the population. Typically, the pursuit of higher education should delay entry into the labour force until at least the age of 22-24 years – the time by which students finish post-graduate education in universities. However, an earlier entry into the labour force implies lesser educational qualifications on part of the entrants at the time of entry. Such entry reflects adversely upon the skill endowments of the entrants. Indeed, the Planning Commission estimates that 80 percent of the workforce does not possess skills that are commensurate with employment requirements.<sup>19</sup>

The shortcomings of India's skills development system are not confined to limited capacities alone. A key shortcoming of the system is its inability to align to labour market requirements. As a result, the 'employability' of several highly educated entrants is not commensurate with their qualifications either. The bias of the higher education system towards arts, science and commerce has affected employment prospects by not equipping students with the skills appropriate for industry and professional occupations. This bias and the resultant distortion could have been corrected by a matching expansion in technical education capacities. Unfortunately, such capacities have not expanded by the extent that is desired.

As pointed out previously, there exist wide gaps between the different states of the country with respect to institutional capacities in technical education. The gaps have led to disparities within the labour market. Industrial and technical employment has been much higher in some states and regions of the country compared to others. A greater availability of better skills in some parts of the country has created differences in skill premiums between regions. These disparities are unfortunate as they have the potential of creating social tensions and unrests.

The 11<sup>th</sup> Five-Year Plan also notes that one of the main reasons behind the low vocational training of the youth in India is the excessive reliance on a few training courses with relatively longer durations.<sup>20</sup> This is in sharp contrast to a more populous and vigorously industrialising economy like China, which has introduced several short-duration technical training courses covering a diverse array of skills and addressing specific requirements of employers.

The technical training system also suffers from a variety of qualitative shortcomings. Most of the polytechnics and ITIs run dated programmes with poor infrastructural facilities, particularly in terms of the limited supply of kits and tools. A lack of interaction between the industries and the relevant institutes has constrained the growth of awareness on both parties in terms of each other's requirements and limitations.

Technical training provided by privately-owned polytechnics and ITIs has also not been able to make an appreciable difference to the system. One of the handicaps of the private institutes in this regard has been their inability to raise course fees on many occasions. A significant

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<sup>18</sup> Annexure 5.1.1 and 5.1.2 of Chapter 5, 'Skill Development and Training', Eleventh Five-Year Plan; p. 99; Planning Commission, Government of India

<sup>19</sup> Op. cit., p. 89.

<sup>20</sup> Op. cit., p. 87.

number of the students seeking vocational training are drop outs from the formal schooling system. Many of them are forced to discontinue formal higher education due to financial constraints. The same constraints remain operative in their quest for vocational training as well. An awareness of the low-paying capacity of most of the students inhibits the institutes from charging higher fees. This has adverse consequences as far as upgrades of institutional facilities are concerned.

### **Initiatives for Skills Development**

The urgency to equip the workforce with varied skills consistent with the demands arising from industry has been officially recognised by India's 11<sup>th</sup> Five-Year Plan. The Plan has laid out the framework for moving towards a long-term skills development policy.

The National Skill Development Policy (NSDP), announced earlier this year, attempts to address the skills mismatch in the economy from the larger perspective of the vision of 'inclusive growth' illustrated in the 11<sup>th</sup> Five-Year Plan. The policy proposes the establishment of a Skill Development Initiative (SDI). The Initiative '*...will empower all individuals through improved skills, knowledge, nationally and internationally recognised qualifications to gain access to decent employment and ensure India's competitiveness in the global market*'.<sup>21</sup>

The main aim of the SDI is to increase the 'employability' of the workforce and to ensure that workers are able to adapt to variations in technological applications and new demands arising in the labour market. The key objectives of the effort are to:<sup>22</sup>

1. Create long-term opportunities for skills development for all, in particular, for the youth, women and disadvantaged groups.
2. Encourage stakeholders to own skills development initiatives.
3. Develop a high-quality skilled workforce relevant to current and emerging employment market needs.
4. Establish flexible delivery mechanisms responsive to a wide range of needs of diverse stakeholders.
5. Facilitate effective coordination between ministries, the central government, state governments and public and private skills providers.

The SDI takes note of not only increasing the country's capacity to impart skills, but also do so in a dynamically efficient manner. Skills-building is not a static process. As the labour market requirements change, following changes in the modes of production, individual skills need to be upgraded for the workforce to remain relevant and employable. Thus, skills development needs to foresee and respond to emerging changes at a fast pace.

The 11<sup>th</sup> Five-Year Plan aims to increase the skills development capacity in the country from 3.1 million persons per year to 15 million. The higher capacity is expected to be adequate to

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<sup>21</sup> Chapter 1, 'National Policy on Skill Development'; p. 8; see <http://labour.nic.in/policy/NationalSkillDevelopmentPolicyMar09.pdf> [Accessed on 6 September 2009].

<sup>22</sup> Op. cit.

accommodate the annual incremental additions to the workforce, which are currently to the tune of around 12.8 million.<sup>23</sup> The National Policy on Skill Development puts forth the target of achieving 500 million skilled people in the country by the year 2022.

The increase of skills development capacity to 15 million per year will not only enable India to equip new entrants into the workforce with the right skills but will also create a surplus body of skilled manpower in the country. This is expected to act as a vital strategic asset in India's quest for sustained high growth. However, at the same time, the five-fold increase in skills development capacity from its current level entails a huge challenge. The ambitious target is expected to be achieved through the following framework:<sup>24</sup>

1. Estimate skills shortages from sectoral and regional perspectives.
2. Address skills shortages through public-private-partnership (PPP)-based initiatives.
3. Reorient the public sector ITIs, polytechnics and other vocational training institutes in a manner that enables their transition into autonomous private management-based institutions.
4. Establish an efficient accreditation system for technical training institutions.
5. Encourage industry associations and specialised councils to develop skills development plans for high growth sectors.<sup>25</sup>
6. Establish a 'National Skill Inventory' and a 'National Database for Skill Deficiency Mapping' for facilitating a meaningful exchange between employers and potential job-seekers.
7. Set up trainee placement and tracking systems.
8. Enhance capacities of employment exchange systems by upgrading them to counselling centres.
9. Enlarge the scope of the 'Skill Development Centre' programme into a 'Virtual Skill Development Resource Network' for web-based learning.

The National Policy on Skill Development has an ambitious and exhaustive scope. The scope includes institution-based skills development through polytechnics, industrial training institutes and vocational training centres, apprenticeship training, training for self-employment and entrepreneurial ventures, addressing the training requirements of retired persons and expanding the outreach of e-learning and distance learning. An elaborate

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<sup>23</sup> Chapter 5, 'Skill Development and Training', Eleventh Five-Year Plan; p. 93; Planning Commission, Government of India

<sup>24</sup> Op. cit., p. 92.

<sup>25</sup> These sectors are automobile and auto components, banking/insurance and financial services, construction, chemicals and pharmaceuticals, construction materials, education services, electronic hardware, food processing, furniture, gem and jewellery, health care services, information technology-enabled services and business processing outsourcing, software services, leather goods, media and entertainment, organized retail, real estate services, textiles and apparel, tourism, hospitality & travel, transportation logistics, warehousing and packaging. Annexure 5.3; Chapter 5, 'Skill Development and Training', Eleventh Five-Year Plan; p. 100; Planning Commission, Government of India.

institutional architecture has been envisaged by the Policy for addressing its imperatives. The Prime Minister's National Council on Skill Development is the apex body for overseeing skills development. The Council is followed by a National Skill Development Board under the Planning Commission and a National Skill Development Corporation (NSDC).

The NSDC – set up as a Corporation under the Indian Companies Act of 1956 – is responsible for setting up industry (or sector)-specific skills councils. The latter are expected to analyse and project existing and future skills development requirements in different industries. The industry-specific skills plans drawn up from these analyses shall devote particular attention to competency standards, necessary qualifications, examination and certification processes and accreditation of institutions. The NSDC has been conceived as a body of reputed and experienced skills development professionals drawn from different disciplines. Unlike the National Council on Skill Development and the Skill Development Board, which include ministries and executives and are essentially expected to discharge coordinating functions, the NSDC is expected to play a more direct role in skills development.

Some of the key features of India's skills development efforts as envisaged by the 11<sup>th</sup> Five-Year Plan and the Skill Development Policy are discussed below.

#### Public Private Partnership

The envisaged expansion in skills-building capacity cannot be achieved without active support from the private sector. In this regard, the Skill Development Policy emphasises the importance of developing appropriate incentive mechanisms for involving the private sector in a substantive manner. The NSDC is expected to play a key role in forging the PPPs.

There are reports of action having already been initiated for establishing 1,500 ITIs and 5,000 skills development centres (SDCs) through the PPP mode. There are also efforts to set up 11 ATIs, four institutes for the training of trainers and 12 regional vocational training institutes dedicated specifically to the skills development needs of women through PPP models.<sup>26</sup>

The Confederation of Indian Industry (CII) has been collaborating closely with the government in pursuing skills development efforts. Different industry groups that are members of the CII are partnering the central and state governments in upgrading 237 ITIs through PPPs.

#### Upgrading Quality

Improving the quality of existing training facilities is a vital component of the skills development policy. The infrastructure is to be improved by making it more responsive to the specific needs of different industries and the extensive application of information technology to enhance the impact of learning. Recruiting capable trainers is also an essential part of improving quality. The focus is on recruiting trainers with considerable practical experience.

It is imperative to make the vocational qualifications framework compatible with internationally-accepted benchmarks. The proposed 'National Vocational Qualification

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<sup>26</sup> See [http://machinist.in/index.php?option=com\\_content&task=view&id=2256&Itemid=2](http://machinist.in/index.php?option=com_content&task=view&id=2256&Itemid=2) [Accessed on 11 September 2009].

Framework' will introduce competency-based qualifications and certifications on the basis of nationally accepted criteria. This is important to ensure that the skills imparted across the country are of uniform quality. The Framework is also expected to avoid duplication and overlapping of qualifications while ensuring the promotion of labour market mobility. The general and vocational educational qualifications will be made comparable at appropriate levels while working towards the development of a nationally-accepted framework for the affiliation and accreditation of financial institutions.

### Addressing Needs of the Unorganised Sector

More than 90 percent of India's workforce belong to the unorganised non-factory sector. One of the biggest challenges in skills development is to impart requisite skills to this sizeable workforce. The Skill Development Policy plans to address the needs of specific segments within the unorganised sector in a focused manner. These segments include workers in micro enterprises, casual workers, school drop-outs, farmers and artisans.

The training needs of the unorganised sector are expected to be addressed by all formal training agencies including government institutes, private agencies and civil society organisations. SDCs addressing the specific needs of target groups will be set up. Arrangements will also be made for mobile training sessions in rural areas. An important aspect of the unorganised sector training programme will be the focus on short-duration modules for encouraging greater participation. A similar aspect will be the emphasis on skills facilitating self-employment.

### Horizontal Expansion of Training Capacities

In order to achieve the target of 500 million skilled workers by 2022, it is imperative to have a time-bound framework for expanding institutional training capacities. In this respect, the Skill Development Policy has outlined well-defined targets for training institutes under the aegis of different ministries/departments/organisations of the central government. These are indicated in Annexure 2.

The NSDC has been assigned a critical role in the capacity expansion exercise. By the year 2022, the NSDC is expected to develop capacities for training 150 million people. Such enhancement of capacity on the part of the NSDC is expected to be matched by the technical training institutions (ITIs, ITCs, and other institutes and centres) under the aegis of the DGET of the Ministry of Labour and Employment. The aggregate institutional training capacity of the DGET-recognised institutes is expected to increase from the current level of 1.2 million to 100 million. Apart from these two entities, the HRD ministry is expected to play a significant role in expanding capacity (Annexure 2).

### **The Role of Foreign Training Providers**

India's massive effort to build up the skills of its workforce presupposes an extensive participation of private technical training providers. In this respect, the PPP mode pursued by the NSDC can be meaningfully exploited, not only through advanced efforts from the domestic private sector, but from foreign technical training providers as well.

The AICTE had notified the regulatory guidelines for foreign universities/institutions to provide technical education in India on 16 May 2005.<sup>27</sup> These guidelines aim to facilitate collaborations between Indian and foreign institutions in the fields of technical education, research and training. The guidelines pertain to degree and diploma programmes and also cover diverse modes of training such as formal, non-formal and distance modes. Foreign institutions can offer training facilities in India in collaboration with existing Indian institutes recognised by the AICTE. Following the announcement of the guidelines, quite a few collaborations have taken place between Indian and foreign institutes. The details are provided in Annexure 3.

As the initiatives indicated under the NSDP are implemented over the next few years, the scope for foreign technical training providers is expected to increase manifold. In this regard, the demand will be particularly strong for training that addresses the vocational training requirements of the population. Such training facilities have been ably developed by some mature Asian economies. These include Japan, South Korea, Taiwan, Hong Kong and Singapore.

Among the countries mentioned above, collaborative prospects with Singapore appear to be particularly strong for a variety of reasons. First, from a supply-side perspective, Singapore possesses a well-developed technical education infrastructure that has acquired a global reputation. The polytechnics are important examples. These institutes have been imparting a diverse variety of technical skills specific to workplace requirements in a knowledge-driven economy. Along with the polytechnics, the Institute of Technical Education (ITE) has been specialising in disbursing vocational training with specific focus on industrial demands. The expertise and quality of the Singaporean polytechnics and the ITE can be of vital significance to India at a time when it is upgrading its own technical training institutes and equipping them with more diverse and industry-oriented training facilities.

The second reason behind the bright collaborative prospects between India and Singapore arise from the presence of an enabling framework provided by the Comprehensive Economic Cooperation Agreement (CECA). The CECA has already created the ground for trade in education services between the two countries by allowing for the acceptance of specific technical education qualifications. Given the CECA, it is much easier for Singaporean technical training providers, compared to those from other countries, to select and offer degree and diploma programmes that are treated as mutually-equivalent qualifications in both countries.

A third reason, for which the Singapore technical training providers should be encouraged to move into India's skills-building efforts, pertains to the proficiency of English in both countries as the medium for instruction and curriculum development. The rapid movement of professionals on both sides in recent years has also given both countries the opportunity to assess each other's technical training systems. This again creates an enabling background in terms of the familiarity with the respective systems based on which technical institutions on both sides can collaborate.

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<sup>27</sup> 'AICTE Regulations for Entry and Operation of Foreign Universities in India imparting technical education, 2005'; Available at <http://www.aicte.ernet.in/>.

Finally, India's skills development initiative offers Singapore and other countries possessing similar technical training expertise a wonderful opportunity to reap the benefits from India's demographic dividend. With India poised to become a reservoir of surplus skills within the next two decades, Asia's industrialised economies can contribute to building these skills in a manner conducive to their future requirements. Given the shortage of skilled labour likely to be faced by these economies in the longer term, India's skilled workforce will be an obvious option to address the skills deficits. Active involvement in equipping the young Indian workforce from now on can ensure the mature ageing Asian economies access to a capable body of diversely skilled workers in the not too distant future.

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### Annexure 1: State-wise Distribution of India's Technical Training Institutions

States/Union Territories	Arts, Science & Commerce	Engg, Tech. & Architecture	Medical colleges	Teacher training colleges	Polytechnics	Others	Total
Andhra Pradesh	1,603	278	311	343	140	93	2768
Arunachal Pradesh	10	1	1	2	1	1	16
Assam	348	4	10	40	9	28	439
Bihar	800	10	28	15	12	36	901
Chhattisgarh	334	16	20	4	10	51	435
Goa	23	5	7	2	5	7	49
Gujarat	518	45	90	125	73	283	1,134
Haryana	168	45	35	37	34	18	337
Himachal Pradesh	95	6	12	30	6	29	178
Jammu & Kashmir	65	5	6	127	12	19	234
Jharkhand	113	11	7	8	8	23	170
Karnataka	930	134	423	68	179	146	1,880
Kerala	189	99	125	21	56	82	572
Madhya Pradesh	712	74	97	21	44	147	1,095
Maharashtra	1,018	193	345	255	194	414	2,419
Manipur	58	1	1	6	1	4	71
Meghalaya	54	1	0	3	1	3	62
Mizoram	26	1	0	2	2	1	32
Nagaland	41	0	0	4	2	22	69
Orissa	702	45	58	13	31	92	941
Punjab	232	53	61	47	18	49	460
Rajasthan	751	50	34	111	17	113	1,076
Sikkim	3	1	2	2	2	1	11
Tamil Nadu	693	269	198	160	209	116	1645
Tripura	14	2	3	1	2	6	28
Uttar Pradesh	1,637	114	93	121	107	702	2,774
Uttarakhand	87	12	20	1	24	28	172
West Bengal	374	60	68	66	40	35	643
A&N Islands	3	0	0	1	2	1	7
Chandigarh	12	7	4	3	1	1	28
Dadra	0	0	0	0	1	0	1
Daman & Diu	1	0	0	1	1	0	3
Delhi	68	20	24	10	23	64	209
Lakshadweep	0	0	0	0	0	0	0
Puducherry	17	5	9	19	5	4	59
India	11,699	1,567	2,092	1,669	1,272	2,619	20,918

Source: Ministry of Human Resource Development, Government of India.



## Annexure 2: Projected Expansion in Skills Development Capacity

Ministry / Department/ Organisation	Present number of institutions	Present training capacity per annum (million)	Projected number of trained persons by 2022 (million)
National Skill Development Corporation	--	--	150
Labour & Employment	33,000	1.2	100
Tourism	38	0.02	5
Textiles	277	0.02	10
Transport	1	0.002	30
Tribal Affairs	63	0.006	
Rural Development (RUDSETI) and IL & FS	156	0.6	20
Women & Child Welfare	68	1.8	10
Agriculture	72	2.0	20
a) HRD Higher Education b) HRD Vocational Education	10,000 (Vocational schools)  (Engineering Colleges - 2,297 Polytechnics - 1,675)	2.0  1.4	50
Dept of Heavy Industry	*	*	10
Urban Development	34	13 ('000)	15
Department of Information Technology	1,000 (Affiliated centres) + 7 CDAC	0.14	10
Food Processing Industries	34	0.10	50
Construction Industry Development Council (under Planning Commission )	147	0.5	20
Health & Family Welfare	3,802	0.1	10
Micro Small Medium Enterprise (MSME)	356	0.3	15
Social Justice & Empowerment	Through NGOs & others		5
Overseas Indian Affairs	In partnership with MSME, state government, CII., NGO, etc.	0.01	5
Finance-Insurance/Banking	*		10
Consumer Affairs	*		10
Chemicals & Fertilisers	6	0.02	5
Others (Power, Petroleum etc.)	NA		15

Source: National Skill Development Policy, Ministry of Labour, Government of India; p. 44

Note: The original estimates given in the Policy have been converted to million from lakh. Following such conversion, the figures have been rounded off in several cases for limiting decimals. As a result there are likely to be some marginal variations from the original figures reported in the Policy.

### Annexure 3: Foreign Collaborations in India's Technical Education

<b>Indian Institution</b>	<b>Foreign Institution</b>	<b>Programme</b>	<b>Approved Intake</b>
<b>Institute of Hotel Management (IHM),</b> Aurangabad, Maharashtra	University of Huddersfield, U.K.	B.A. (Hons.) in Hotel Management & BA Culinary Arts	120 & 60
<b>Asia Pacific Institute of Information Technology (APIIT),</b> Panipat, Haryana	Staffordshire University, U.K.	B.Eng. (Hons) Computing; B.Eng. (Hons) Computing in Software Engineering Specialisation; and B.Eng. (Hons) Computing in Multimedia Specialisation	60; 40; and 40
<b>Sreenidhi Institute of Science &amp; Technology</b> Rangareddy, Andhra Pradesh	Vaughn College of Aeronautics & Technology, New York, USA	B.S. Airlines Management; B.S. Airport Management; B.S. Electronics Engineering (Avonics option)	60; 60; and 60
<b>IIMT Hotel Management College,</b> Meerut, Uttar Pradesh	TAFE South Australia	Advanced Diploma in Hospitality Management	50
<b>Maharaja Agrasen Institute of Technology</b> Delhi	Auburn University, Alabama, USA	B.S. in Mechanical Engineering B.S. in Electrical and Computer Engineering	60; and 60
<b>Daly College Business School</b> Indore, Madhya Pradesh	Demontfort University, Leicester, UK	1. BA (Hons.) Business Studies Programme	60

Source: All India Council for Technical Education.