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**Shortage of Skilled Workers:
A Paradox of the Indian Economy**

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Editor's Foreword

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Abstract

As a country endowed with labour, India's situation is at best ironic. On the one hand, domestic economic growth has created huge employment demand and job opportunities, while on the other, a shortage of skills is making more people unemployable. What adds to the irony is that there are 17 central government ministries that offer skill development initiatives through school education, institutes of higher learning and specialised vocational training institutes. The large size of the population alone cannot be India's problem since China, with a similar scale of population and training structure, has better labour productivity (indicating higher skills). This paper argues that India lacks sufficient skilled workers as its existing vocational training system does not target the casual or informal workforce, which constitutes over 90 per cent of India's working population. This paper examines the vocational training offered for specific skills in construction and highlights the lack of inclusiveness and poor coordination in the complex federal government structure.

Keywords: labour shortage, casual workforce, vocational training, skills mismatch, construction

Introduction

By 2025, it is estimated that 70 per cent of Indians will be of working age. This ‘demographic dividend’ could give India an edge over the developed countries where a larger segment of the population would by then be past retirement. However, this demographic dividend can easily turn into a demographic disaster if a majority of the working age population remains unemployable due to a lack of skills. Even today, one hears of a shortage of skilled workers across industries, which does not augur well for sustaining India’s economic growth. For instance, the construction industry lacks sufficient plumbers and construction machine operators, resulting in a slowing of construction activity and increasing the overall cost of projects, posing a major challenge to India’s infrastructure development plans (Heikkila 2012).

In the light of this situation, skill development has gained an impetus in India’s policy-making circles headquartered in New Delhi. The central government’s concern with this shortage of skilled workers is best described in the words of the Indian Prime Minister, Manmohan Singh, ‘As our economy booms and as our industry grows, I hear a pressing complaint about an imminent shortage of skilled employees. As a country endowed with huge human resources, we cannot let this be a constraint’ (Government of India 2011a). Towards this end, the government of India has set for itself a task of creating a skilled workforce of 500 million by 2022. A National Skill Development Council has been created under the Prime Minister’s auspices. Of the 500 million, over two-thirds of the target has to be met by existing vocational training initiatives offered by 17 central government ministries. For the remaining one-third, a private-public partnership based National Skill Development Corporation (NSDC) has been set up. Given the policy focus and ambitious targets for scaling up vocational training and skill development efforts, it is important to first explain why a shortage of labour still exists despite ongoing initiatives to improve training.

This paper highlights that vocational training offered in India is mismatched with the needs of casual workers who constitute over 90 per cent of the labour force, resulting in a shortage of skilled workers at the national level. Casual workers, such as construction workers, often comprise migrant workers from rural areas with poor education, no formal training and who are in ‘dire’ need of occupational up-scaling.¹

¹ ‘Annual Report to the People on Employment,’ Ministry of Labour and Employment, Government of India, New Delhi, 1 July 2010, Page 15, Available from http://labour.nic.in/Report_to_People.pdf.

First, there are high barriers to entry under the current vocational training set-up. For example, the existing structure requires secondary education (class VIII) as a prerequisite for enrolling into vocational training schemes. This restricts a significant proportion of illiterate or less educated workers from even entering into the formal training system. In contrast, the Chinese vocational education and training (VET) system, which is similar to India's, targets a larger population as the average education level of its working age population is higher.² The Chinese government also has specific initiatives at the local government level to train unskilled and uneducated migrant labour for sectors like construction, while such initiatives are missing in India.

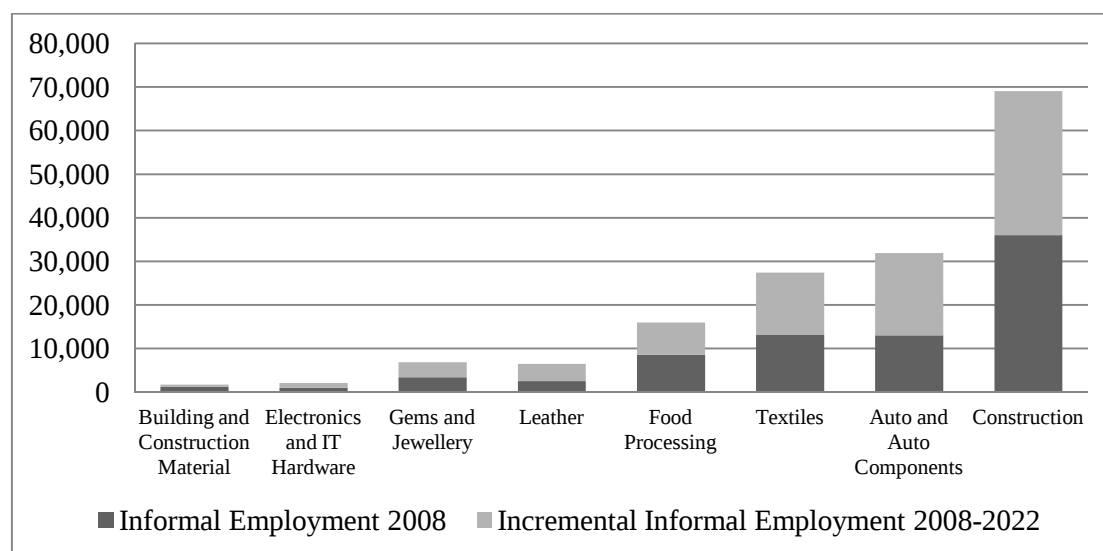
Second, the federal structure of the Indian government results in a lack of coordinated action between national and state governments, which shows in mismatched prioritisation at the policy-making and implementation levels. For instance, the central government's findings estimate that the construction sector will create over six times more jobs than the Information Technology (IT) and related services sectors by 2022 (FICCI 2010:11). However, the state growth plan for two major states, Uttar Pradesh (UP) and Maharashtra, which drive construction growth, shows state government initiatives for the IT sector and none for construction. This mismatch between India's policies at the national level and 'on-the-ground' implementation by the states nullifies the policy focus in the informal sector, further compounding the perpetual shortage of skilled workers.

The paper is divided into three main sections. The first section details the current structure of India's existing vocational training system, government focus and recent policy decisions. This is followed by a literature review of some common arguments made to explain India's skills deficit and concludes why none of these address the lack of training for casual workers. The second section examines construction-specific vocational training initiatives across two Indian states, UP and Maharashtra, to illustrate the lack of avenues for training for casual workers in India. The construction sector employs 83 per cent casual workers and hence, is similar to the Indian workforce demographic. It also represents a large majority of the workforce

² Data on China's skilled workforce is unavailable but can be gauged from its higher labour productivity. New York based think tank The Conference Board has estimated that India's GDP per person grew an average of 5.4% during 2005-2010 whereas China's increased 9% during the same period. http://www.conference-board.org/pdf_free/economics/2011TED_Country.pdf.

as it is the second largest employer after agriculture. Further, construction has been estimated to create the highest incremental casual employment up to 2022 (Figure 1).

Figure 1: Projected Employment in Sectors with a Significant Casual Workforce



Source: NSDC, XIth Five Year Plan of the Planning Commission, Government of India

The states of UP and Maharashtra together have been estimated to drive 20 per cent of this incremental employment. Therefore, vocational training mismatch in these states could reasonably be considered emblematic of a similar problem for casual construction workers across India. In illustrating the problems of India's current vocational training structure, the paper will also compare the findings with China, where the vocational training system has been able to reach a larger working age population due to higher literacy rates and better coordinated efforts at policy-making and execution levels. China matches India's scale (of population); both are developing economies and experience inter-state workforce migration patterns that constitute a casualised workforce. It would have been ideal to compare findings from Indian states with Chinese provinces of similar size and demographics, but the lack of official English language data for China made this difficult. Therefore, the paper is mostly limited to country level comparisons.

Having highlighted the neglected training needs of construction workers, this paper concludes by stressing the need for a re-prioritisation of skill-building initiatives by lowering entry barriers, institutionalising informal transfer of skills and aligning the training offered with sector specific supply and demand at state level in order to make vocational training relevant for India's large casualised workforce.

Vocational Training in India

As in many developed countries, vocational training in India is offered outside the formal schooling structure and caters to people with minimum secondary school education. India's VET system for skill building is complex with responsibilities distributed across multiple ministries and various levels of government. To limit the scope of this paper, the focus is only on the vocational training initiatives provided by the Indian Ministry of Labour and Employment, which has a mandate to train over 100 million people of the government's target to skill 500 million people by 2022 (Government of India 2011b).

The Ministry of Labour and Employment provides vocational training through over 8,000 government-aided Industrial Training Institutes (ITIs, government run) and Industrial Training Centres (ITCs, self-financed).³ Being on the concurrent list of the Indian Constitution, both central and state governments share legislative powers and responsibilities over vocational training.⁴ The Directorate General of Employment and Training (DGE&T) under the Ministry of Labour and Employment is the main organisation that forms vocational training policies and certification norms at the national level, while the state governments are responsible for the programmes and their implementation. The industry or the private sector plays only an advisory role in the existing training system. Training programmes on 128 trades are mainly offered under the Craftsmen Training and Apprenticeship Training schemes.⁵ Table 1 highlights the complex division of responsibilities between the central and state governments; and the peripheral role of the private sector.

Put together, all ITIs across India have the capacity to train only a million people annually, whereas close to 13 million people are being added to the workforce each year. Moreover, placement outcomes post-training from these institutes have also remained poor over the years.⁶ The Planning Commission of India has attributed this to a mismatch between training delivered and required, a quantitative shortage of capacity, lack of private sector participation and outdated syllabi. Subsequent reforms by the central government have aimed to address these quantitative and qualitative

³ Referred to collectively as ITIs through the rest of the paper.

⁴ 'Eleventh Five Year Plan,' Planning Commission, Government of India, New Delhi, not dated, p.88.

⁵ Directorate General of Employment and Training website, Ministry of Labour and Employment, Government of India, New Delhi, not dated.

⁶ 'Eleventh Five Year Plan,' Planning Commission, Government of India, New Delhi, not dated, p.89.

challenges and therefore have been directed towards upgrading capacity and aligning the curriculum and training provided to meet market needs. Dependence on private participation for such reforms has increased in recent years. In his budget speech for the year 2004-2005, the then Finance Minister, P. Chidambaram, announced a scheme to upgrade 500 ITIs into specialised centres of excellence with World Bank funding. Further, in 2007, the Ministry of Labour and Employment announced a scheme to upgrade another 1,396 ITIs by engaging private partners under the Eleventh Five Year Plan by 2012. However, lack of coordination arising from the complex distribution of powers between government levels has restrained implementation of these schemes.

Table 1: Division of Responsibilities in the Vocational Training Structure

Training Scheme	Central Government	State Government	Industry
Craftsmen Training	Policy, procedures, standards, duration in consultation with the NCVT	Day to day administration of the institute	Advise central and state governments at national, state and institutional levels
	Conduct final trade tests on behalf of NCVT		Assist in the final trade tests
Apprenticeship Training	Policy, procedure, notification of industries, designation of trades, syllabi, standards etc. in consultation with the Central Apprenticeship Council	Assist, co-ordinate and regulate programmes in state, public and private sector industries	Implementation of the practical training programme in accordance with the Apprentices Act
	Assist, co-ordinate and regulate programmes in central public sector industries	Impart related instructions	Arrange for basic training (by employers, employing more than 500 workers)
	Concurrent jurisdiction with the states to assist, co-ordinate and regulate programmes in private sector industries	Impart basic training in the case of those industries in the private sector which employ less than 500 workers	Advise the central and the state governments at the national and state levels
	Conduct final trade tests on behalf of NCVT		

Source: Directorate General of Employment and Training, Ministry of Labour and Employment, Government of India

Amid slow reform of the ITI model of vocational training and an increasing urgency to skill its citizens, the central government has announced more initiatives. The Ministry of Labour and Employment recently created a National Policy on Skill Development (not a law) to synergise efforts of various central government initiatives towards achieving the ambitious target of 500 million skilled workers by 2022. States have been identified as key actors under this policy. The cabinet has approved a 'Coordinated Action Plan for Skill Development,' with a three tier institutional structure consisting of (i) the Prime Minister's National Council on Skill Development, (ii) National Skill Development Coordination Board and (iii) National Skill Development Corporation (NSDC). The Prime Minister's National Council on Skill Development plays a policy-making role at the national level. The National Skill Development Board coordinates the execution of policies framed by the Prime Minister's Council, assessing skill gaps at the regional and national levels, and monitoring ongoing schemes. Finally, the NSDC has been set up as a public-private venture to engage the corporate sector in vocational training with the objective to skill 150 million people by 2022. The NSDC has so far established two partnerships with training organisations and non-governmental organisations. However, the organisation was set up very recently and hence its performance cannot yet be fully analysed.

The existing literature on India's vocational training systems explains the training challenges specific to regularised workers only and does not highlight the mismatch between training offered and the needs of casual workers. Academic articles on the subject of India's skill deficit are mostly confined to the shortage of skilled professionals in the IT sector and its impact on the sector's growth (Kapur *et al* 2001:20). However, the concern about shortages of skilled workers in IT is not reflective of the larger skilled workforce problem in India because IT lacks the scale of informal sectors (like construction). Moreover, it requires a workforce trained in higher educational institutions and not vocational training centres. Further, the concerns with skill-related employability issues in the IT sector may be over-emphasised as the sector comprises a fraction of the Indian workforce. The National Association of Software and Service Companies (Nasscom)⁷ report that the Indian IT sector employs only two million people directly. Besides, on-the job training is common in IT firms. Top Indian IT companies such as Tata Consultancy Services and

⁷ Nasscom is an organisation that represents the Indian software industry.

Infosys have established partnerships with engineering colleges for training students on soft skills and decision-making techniques.⁸ By contrast, no such private sector training initiatives are seen in the informal sector, which means the absolute shortage of skills in such workers may be more acute compared to those in IT. It is also argued that despite the IT sector's increasing reach to smaller Tier II and Tier III towns, it does not have the capacity to employ the millions of workers from rural areas (Bennhold 2011). In conclusion, a narrow focus on the IT sector ignores the need to skill the huge casualised workforce that constitutes the majority of India's working population.

Case studies on international models of skill development and vocational training practiced by developed countries commonly cite Germany's successful dual education model, suggesting that India can learn precious lessons (FICCI 2010:30). While such cases are exemplary, replicating them in the Indian context may be misguided due to a variety of reasons. The vocational training system in India is similar and yet different from the dual education system followed in Germany. In the German system, students can opt for a vocational course after nine years of compulsory education. In contrast, education has been made legally compulsory in India only since 2010 but secondary education is still a pre-requisite for enrolling into vocational training institutes. This linkage between education and vocational training, as this paper also highlights, is a major reason why many Indian workers are unable to benefit from the training provided. For this reason, the model which has been successful in Germany is unlikely to be successful in India. Besides, institutional differences between India and developed countries also limit the scope of learning and implementation (Mehrotra 2009:6). For instance, apprenticeship training where students work with companies as trainees is highly successful in Germany because of the close nexus between the government, labour unions and the private sector (Rieble-Aubourg 1996:174). However, in India, the apprenticeship scheme has failed due to limited private sector participation and administrative challenges arising from the distribution of power across various levels of governments (Government of India 2009:23). Evidently then, to suggest developed countries as role models of vocational training in India is inherently flawed. For these reasons, a comparison with China

⁸ 'Creating a Job Ready Workforce,' The Hindu, 17 January 2011, Available from <http://www.thehindu.com/todays-paper/tp-features/tp-educationplus/article1096069.ece>.

seems more reasonable since the two countries have similarities in terms of size, scale of population and overall level of development.

Another common argument made for explaining the failure of vocational training initiatives in India is the lack of private sector participation due to stringent labour laws. It is argued that laws such as the Minimum Wages Act and the Industrial Disputes Act, which guarantee minimum wages and impose restrictions on downsizing workforces, create a disincentive for private firms from investing in training (Panagariya 2007) since they do not have the autonomy to retrench workers or alter their wages during unprofitable periods. This argument is problematic because of two reasons. First, labour is on the Concurrent list of India's Constitution, which means both the central and state governments regulate the sector. A study of industrial growth plans of a number of states reveals that, despite 'rigid' national level laws, state governments show an openness to 'reconsider' minimum wages depending on the needs of the industry and changing industrial environment.⁹ Second, most laws are applicable only to the regularised work sector where the government can monitor a firm's activities, whereas the informal sector that employs the majority of the total labour force is mostly unregulated. For instance, the most criticised Industrial Act that prohibits employers from firing workers is not even applicable to casual workers. Even where there are laws, poor implementation and flouting of rules at the ground level, specifically in the informal sector, is common. The Ministry of Labour and Employment has also documented that 'violation of laws on minimum wages, equal wages, child labour, contract workers and interstate migrant workers etc, is rampant in construction as in agriculture and home based occupations' (Government of India 2011c:635). Such examples illustrate that constraints arising from laws may be exaggerated.

A final argument of existing literature on the skill development issue in India is linked to the socio-cultural set-up that looks down on vocational training and therefore prohibits people from engaging in it. The World Bank (2006:6) has highlighted that vocational training is considered a stigma in India. This is linked to the manual work requirement of the sector, which is considered to have a low status. Anecdotal evidence points to a preference for higher education and formal degrees, especially engineering degrees. However, this argument also applies to the small pool

⁹ 'Industrial and Service Sector Investment Policy,' 2004, Udyog Bandhu, Department of Infrastructure and Industrial Development, Government of Uttar Pradesh, Lucknow, India, p 20.

of regularised workers. Academic degrees may be prized over vocational training for a person with minimum education levels and relatively better social background. However, for a casual worker with little education and poor family background, finding employment may be a bigger concern than worrying about the social aspect of engaging in manual work.

In conclusion, the existing vocational training structure in India is complex, with responsibilities divided between various government levels and industry, and has led to poor employment outcomes post-training. The commonly cited perspectives on skill shortages are focused on skill building challenges for the regularised sector and its workforce but do not sufficiently analyse the reasons for poor participation of casual workers in such programmes.

The Shortage of Skilled Construction Workers

The Indian construction industry comprising infrastructure and real estate sectors employs over 26 million casual workers and is the country's second largest employer after agriculture. The Planning Commission of India has projected that the construction sector will require another 47 million people in the workforce over the next decade (FICCI 2010:13). Despite such significance to the Indian economy, there is no specific policy for skill building in the construction sector.¹⁰ The current pool of the construction workforce in India comprises mainly unskilled workers (Table 2).

Table 2: Employment in Construction Sector by Education Level of Workers

Category	Percentage of employment	Total Employment
Unskilled workers	83%	25.6 million
Skilled workers	10%	3.3 million
Engineers	3%	0.8 million
Technicians and foremen	2%	0.6 million
Clerical	2%	0.7 million

Source: Report of the Working Group on Construction for the Eleventh Five Year Plan, *Planning Commission*, Government of India

¹⁰ 'Construction Industry Urged to Set Up Skill Council,' *The Hindu*, Chennai, 24 January 2011.

Most of these unskilled workers are seasonal, migrant workers from poorer agricultural states and they lack education and formal training¹¹ and usually pick up skills on the job, informally from peers or supervisors, resulting in inefficient performance on the job. Among the 10 per cent skilled construction workers, emigration to overseas countries - Gulf countries in most cases - for higher wages is common.¹² Emigration worsens the shortage of skilled workers and creates an upward pressure on domestic wages¹³ leading to a situation where Indian firms have to import workers to meet their requirements.

In 2008, DLF, one of India's leading real estate developers, reportedly brought in skilled carpenters, steel fixers and electricians from China, Indonesia and Philippines as they were cheaper and more productive than their Indian counterparts (Dhall 2008). Reliance Industries, a major Indian business conglomerate, reportedly brought in 4,000 Chinese construction workers for the construction of India's largest oil refinery at Jamnagar district in the state of Gujarat (Choudhary 2007). Large firms in the construction business have been vocal about the negative impact of the lack of skilled carpenters and masons on quality and delivery of projects (Pearson and Sharma 2011). The need for skilled construction workers becomes more pressing for India as the increasing use of technology and mechanisation is expected to reduce the requirement of unskilled workers on individual construction sites. For instance, the time in laying two consecutive slabs has been reduced from 18-20 days to 7-8 days due to the use of pre-fabricated parts and modular structures.¹⁴ Therefore, in order to remain employable, construction workers will have to upgrade their skills.

Realising the severity of the shortage of skilled construction workers, the government of India had conducted a skills mapping study and identified carpentry, electrician, painter, welder, masonry, crane operations and plumbing as key roles which will be in demand until 2022 and the level of skills required (Table 3). Together, these key roles will require 7.3 million vocationally trained workers by 2022.¹⁵

¹¹ 'Annual Report to The People on Employment,' Ministry of Labour and Employment, Government of India, New Delhi, 1 July 2010, p16.

¹² Migration Information Source, Migration Policy Institute.

¹³ 'Migration News,' July 2008, Vol 15, No 3.

¹⁴ 'Human Resource and Skill Building Requirements in the Building, Construction and Real Estate Services,' National Skill Development Corporation, New Delhi, not dated, p. 37.

¹⁵ Own estimates based on data from National Skill Development Corporation.

Table 3: Incremental Requirement for Key Skills in the Construction Sector in India by 2022

Profile	Incremental Requirement ('000)	Skill Level
Project managers and engineers	473	Specialised
Supervisors	473	Specialised
Surveyors	47	Specialised
Foremen	946	Specialised
Crane operators	7	Vocationally Trained
Electricians	473	Vocationally Trained
Welders	473	Vocationally Trained
Plumbers	1,183	Vocationally Trained
Carpenters	1,892	Vocationally Trained
Others (including painters, equipment operators)	459	Vocationally Trained
Steel fixers	1,419	Vocationally Trained
Masons	1,419	Vocationally Trained
Minimally educated	38,038	
Total	47,302	

Source: Report on 'Human Resource and Skill Building Requirements in the Building, Construction and Real Estate Services,' *National Skill Development Corporation*.

However, the total current annual training capacity of vocational training institutes across India is one million (FICCI 2010:8). Given that there are 8,477 industrial training institutes (ITIs) offering 41,423 courses, of which 12,132 are related to key construction roles,¹⁶ and assuming that all courses have equal enrolment, the total existing training capacity for key construction skills is 300,000 (0.3 million) per annum. It will only be enough to train three million people by 2022, less than half of the demand of 7.3 million. It should be noted that the minimally educated workforce in the sector (38 million) will also need to be continually upgraded at the national level. Besides the quantitative limitation of the existing training structure, there is an obvious mismatch between the training offered and required in two major Indian states, UP and Maharashtra, that drive construction activity and employment.

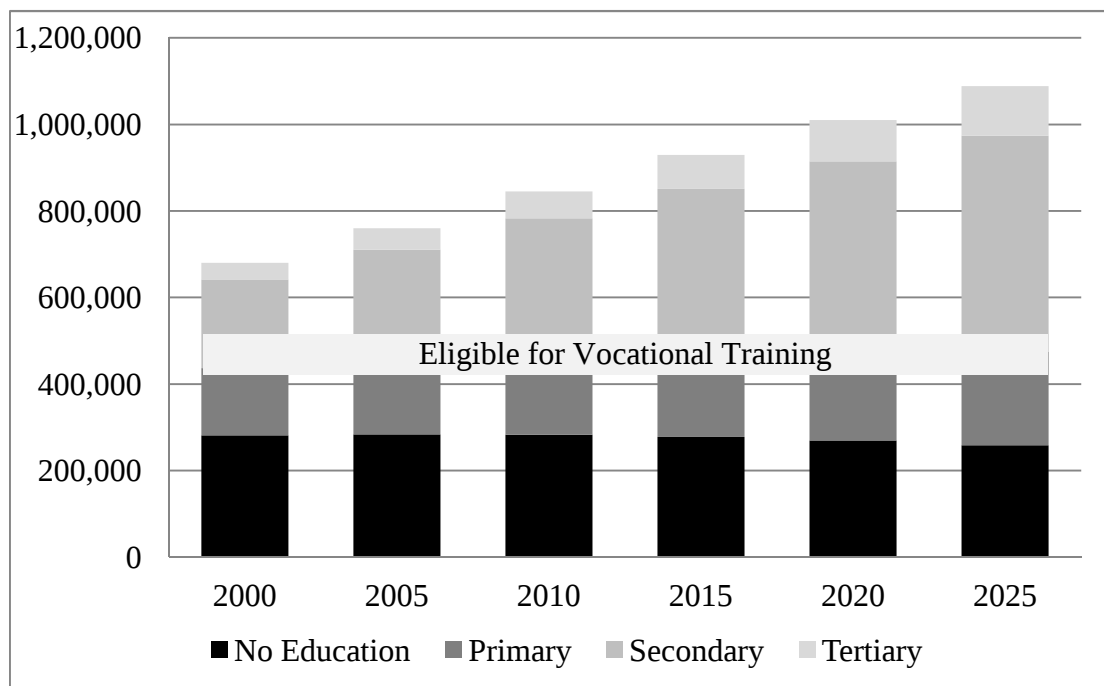
¹⁶ See note 5.

Lack of inclusiveness

Rigid entry barriers

In both UP and Maharashtra, craft and apprenticeship schemes under the ITIs are the main options for acquiring construction-related training. Minimum secondary school education (Class VIII and Class X) is a prerequisite for enrolling into these schemes.¹⁷ For instance, to take up the training programme for carpentry skills, one needs to have formal school education until standard VIII, with Science as one of the subjects. Likewise, for plumbing and masonry courses, one has to have minimum class VIII education. However, this requirement is not suited for casual workers who are likely to be either less educated or school drop-outs. Data on the education profile of carpenters, plumbers and masons is not available but, given the distribution of population in India by education as per Figure 2, a clear inference is that the current vocational training system targets less than 50 per cent of the entire working population in India.

Figure 2: India's Population (15+) in '000 by Education



Source: Based on *World Bank Data on Education*.

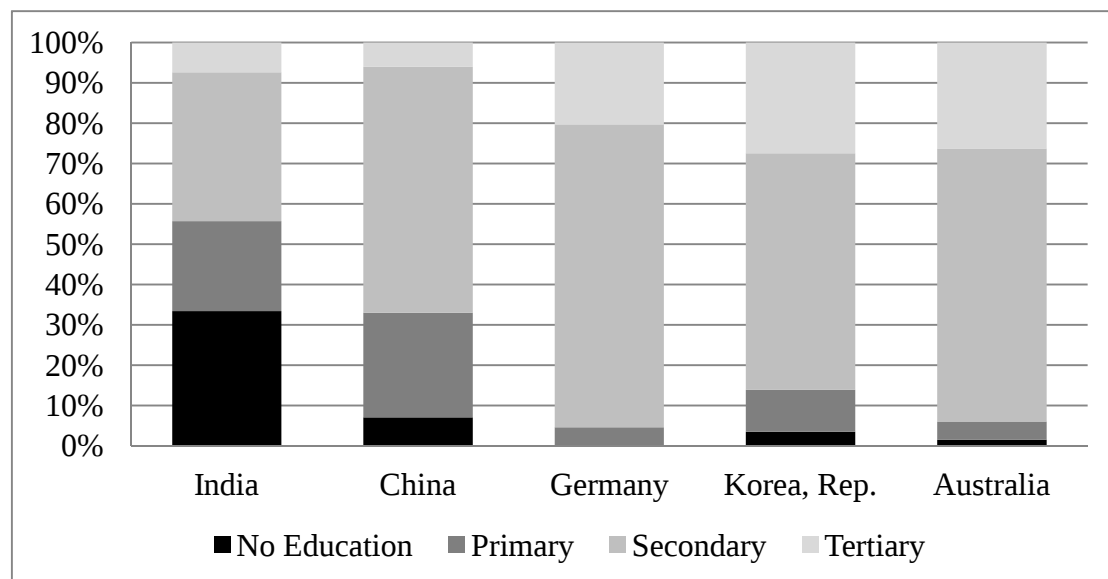
In India, the minimum education requirement for vocational training creates an entry barrier for most casual workers in the construction sector. China follows a similar structure of vocational training where secondary school education is a pre-

¹⁷ See note 5.

requisite for enrolling into the vocational training stream. Even so, China achieves a better intake as education and vocational training policies have been in sync with each other to achieve a coordinated result. The Chinese government introduced a Vocational Education Law in 1996 which introduced vocational subjects into senior secondary schools after the minimum nine years of primary and junior secondary education mandated by the Education Law of 1986. Students can opt for one of the dual track options of either academic or vocational education.

More specifically for construction training at this secondary school level, Chinese provincial authorities, along with the Chinese Ministry of Construction, jointly supervise two types of formal training schools: ‘construction operative schools’ and ‘construction engineering schools’ that offer on-site training (Jie and Fox 2001:4). Both types of school demand secondary education as an eligibility requirement. Since education is compulsory, China has a higher percentage of workers with secondary education (over 60 per cent) than India (Figure 3). Therefore, China has been able to target a larger proportion of its workforce with an education-linked vocational training system. Figure 3 also shows that secondary education levels are higher in developed countries like Germany and Korea, and this is why they have been able to target a larger segment of people with education-linked vocational training.

Figure 3: Percentage of Population (15+) by Education in 2010



Source: Based on education data sourced from the *World Bank*.

In contrast, in India, the central government brought into force a law for nine years of compulsory education for children only in 2010. By linking education levels as basic requirements for vocational training, the Indian government has neglected a large proportion of Indian workers, who are not sufficiently educated to meet the training requirements. Further, it is observed that in India, those who do manage to study up to secondary school level end up enrolling in computer related courses (Table 4), probably because of the prestige and higher wages associated with these jobs. Better career prospects in IT and financial services sectors have been reportedly luring students away from pursuing subjects like civil engineering, further creating a chronic deficit in the construction industry.¹⁸

Table 4: Distribution of Young (15-29) Population with Formal Vocational Training

Sector	Total %
Computer trades	30.0
Electrical & electronic engineering	12.5
Textiles	9.8
Others	9.1
Mechanical engineering	7.9
Health & para-medical	6.4
Drivers, mechanics	5.9
Office & business-related	4.8
Civil engineering & building construction	3.3
Artisan/craftsman/handicrafts, cottage industries	1.9
Beauticians, hair-dressing	1.7
Creative arts/artists	1.2
Others	4.5

Source: India Labour Report (2009) 'The Geographic Mismatch and a Ranking of Indian States by their Labour Ecosystem,' *Team Lease Services*.

Besides stringent education requirements, the long duration of courses (for carpentry, plumbing) in ITIs is also not suited to the specific needs of migrant construction workers. Basic construction related courses are at least a year long in duration while the advanced level can be up to three years. However, construction

¹⁸ 'India Faces Chronic Engineering Skills Shortage,' *The Financial Times*, 5 October 2009.

workers are often seasonal and inter-state migrants, who engage in construction activities under a contractor for short durations lasting a few months. This suggests that there is a mismatch between the long-term duration of training offered and the short-term requirements of migrant workers. To address this mismatch, the Directorate General of Employment and Training had introduced a modular employable skills scheme, which has more flexible entry requirements and shorter course durations. However, the scale of this scheme is limited. The scheme has a target to train a million people over five years in 1200 courses.¹⁹ Given that there are only 40 courses on construction, the scheme can cater for only 6,000 people a year for construction jobs. Clearly, the migrant population in India (almost 20 million) has minimal avenues of training via ITIs in its current model at the national level.

Compared to this, China has in place a formal mechanism where provincial governments have agreements with each other for training rural migrant workers. Official data for China's migration workforce is not available but media reports suggest that in rural areas, parents force their children to opt out of schools to work as migrant workers in cities.²⁰ China has institutionalised informal training for the migrant workforce through the concept of 'cradles of building craftsmen' and 'construction labour bases'. 'Cradles of building craftsmen' is an informal master-apprentice system in which skilled building craftsmen pass on their skills to the next generation, and also offer their services to urban construction companies (Jie and Fox 2001:32). Since 1989, the local governments of the labour-sending and labour-receiving cities have institutionalised migrant labour movement by entering into formal agreements on training and employment of rural labour (ibid). The cradles of building craftsmen have evolved as construction labour bases under this arrangement and these are major suppliers of construction workers to urban and coastal areas. As early as 1988, the Chinese Ministry of Construction had identified 30 provinces as state-level construction labour supply bases (Xiaoying and Zhao 2004:14). Some of these bases are located in densely populated provinces like Jiangsu, Henan and Shandong with a significant presence of construction firms.²¹ A clear inference is that

¹⁹ Modular Employable Skill Scheme, Directorate General of Employment and Training, Ministry of Labour and Employment, Government of India, New Delhi, not dated.

²⁰ 'China: Young Women Fight For a Better Life,' www.Chinaworker.info, 7 March 2011.

²¹ Population and construction data sourced from online database China Data Online.

training bases have been strategically located in provinces with a high supply and demand for migrant construction workers.

Further, the Chinese municipal authorities have Incoming Construction Force Administration Offices as intermediaries between the employing construction companies and the incoming workforce. These help register incoming labour and require contractors to hire only out of this pool of registered workers (Jie and Fox 2001:33). The Incoming Construction Force Administration Office under the Beijing Construction Commission is one such organisation with the responsibility for handling applications of the construction workforce from outside of Beijing, having them registered in Beijing and providing them with training. Evidently, there is an attempt to organise migrant workers as registered workers. China also has an ongoing project with the World Bank for enhancing migrant worker skills and improving their employability in urban areas (World Bank 2010a). Such a strong focus on training of migrant workers is missing in India.

Dependence on private participation

Recent reforms targeted at improving vocational training quality and capacity in Indian ITIs are dependent on the public private partnership model. Under this operating model, the state government as the owner of the ITI provides new training infrastructure and regulates admissions and fees. The industry is given academic and financial autonomy while the central government provides an interest free loan for setting up the infrastructure (Government of India 2010b:27). This operating model may work well to improve funding and relevance of courses, but seems conceptually flawed from an inclusiveness perspective. This is because private partners need scale and resources to adopt ITIs and such large-scale firms exist only in the regularised sector. The informal sector is dominated by small-scale unregistered firms who may lack the resources and incentives to invest in skill training. A very high proportion of the enterprises in the informal sectors are micro (less than ten employees) and small (between ten and 50 employees) enterprises. The construction sector is larger scaled with about 200 firms in the corporate sector; 120,000 class-A registered contractors and thousands of small contractors who compete for small jobs or work as sub-contractors.²² The bulk of casual workers in the construction sector are contractual

²² Report on 'Human Resource and Skill Building Requirements in the Building, Construction and Real Estate Services,' National Skill Development Corporation, India, New Delhi, not dated, p. 17.

workers on daily wages, and not permanent employees at construction firms. Therefore, a medium-sized or family owned real estate firm has no clear incentive to invest in their training.

It is also seen that a few large firms in the construction sector have set up their own training schools to build a steady supply of skilled construction workers independent of the government training system. For instance, engineering firm Larsen and Toubro has set up a chain of Construction Skills Training Institutes (CSTI) across six Indian states. Compared to ITIs, eligibility requirements at CSTIs are lower and course duration shorter. A person interested in trades like masonry or carpentry only need to be able to read and write (unlike minimum class VIII criterion of ITI) and the course lasts three months (against three years at ITIs). Training is delivered in six local languages and people passing from the institute are subsequently employed by the company's sub-contractors. The CSTIs can train up to 8,000 people annually (Ghosh 2010). Leading corporate Reliance Industries has also set up a training institute in Gujarat to train plumbers and masons to meet the skilled worker requirements at its refinery in Jamnagar district. The Craft Training Institute provides certified training to unskilled and semi-skilled persons who, on completion of training, are employed by Reliance's contractors at the Jamnagar project for two years.²³ However, the scale of such private initiatives is limited and caters to the demands of the company itself rather than general upskilling of the construction sector workforce. The model of private institutes seems more relevant, but lacks the scale of government vocational training system. It further reduces the number of private companies in the highly fragmented construction sector who could potentially invest in ITIs. Hence, increasing private participation to make vocational training more relevant does not address the needs of the informal sector and its workforce.

In comparison to India's over-reliance on private partnership, the Chinese government traditionally relied on its own training capabilities. This is probably because the construction sector in China is more organised than in India. In China, governments at various levels own construction firms which execute projects within their administrative boundaries. China's construction industry is vertically structured at four levels: central, provincial, municipal and national levels, with the Ministry of Construction at the top (Jie and Fox 2001:4). The sector is also well-regulated with a

²³ Reliance Industries Limited Website.

Construction Law that sets the rules of entry and security of the industry. Construction activity is mainly driven by large capital investments in infrastructure projects, which are executed by centrally or locally owned state firms. Previously, each Ministry had its own construction company that implemented sector specific building and maintenance activities. Post-decentralisation, construction companies have become commercial entities, which are involved in skill building. The China State Construction Engineering Corporation is one such example.

Lack of coordinated action between government levels

Prioritisation of technology sectors at the state level

In both UP and Maharashtra, ITIs are the main providers of construction-related courses, such as carpentry and masonry, that have been identified by government study to be in demand. There are about 849 total ITIs across UP, of which only 15 offer training in plumbing skills.²⁴ There is not even one ITI across the huge state that offers training on masonry.²⁵ Carpentry-related training is imparted in only approximately ten institutes while building construction is offered at just one training centre. In contrast, 172 ITIs in UP offer courses for ‘computer operator and programming assistant’.²⁶ Likewise in Maharashtra, there are around 807 ITIs across the state, of which 60 institutes impart training courses on masonry. Carpentry is taught at 123 institutes across Maharashtra, while plumbing is taught at 106 places. Here also, 345 ITIs offer courses for ‘computer operator and programming assistant.’ Data on the actual number of skilled masons, plumbers and carpenters produced by the ITIs in UP and Maharashtra is not available, but we can extrapolate this information from available statistics.²⁷ There are 8,477 ITIs across India.²⁸ Assuming all ITIs have the same training capacity, the total number of masons, plumbers and carpenters trained in the two states, in the most optimistic scenario, would come to less than 40,000 skilled construction workers annually. This is a mere one per cent of

²⁴ Own assessment from data on Directorate General of Employment and Training, Ministry of Labour and Employment, Government of India, New Delhi, not dated, Available from <http://dget.gov.in/lisdapp/nvtis/nvtis.htm>.

²⁵ See note 5.

²⁶ See note 24.

²⁷ Number of ITIs providing selected construction trades/ Total number of ITIs across India x 1 million = total people trained.

²⁸ See note 5.

the annual requirement.²⁹ This clearly shows that the current training capacity provided by state governments in two major construction-demand states is not targeted towards the sector, even though central government has projected it to drive future economic growth and employment.

Further, the state level policies continue to indicate an emphasis on technology-oriented sectors and a complete absence of specific initiatives for the construction sector. For instance, UP's Industrial and Service Sector Investment Policy 2004 details state government schemes to attract private investment in infrastructure with the larger vision to support new industries such as biotechnology and IT.³⁰ Further, specific skill-building initiatives are outlined only for handicraft and IT sectors. Similarly in Maharashtra, the Investment and Infrastructure Policy 2006 lists government incentives for services sectors such as agro-technology, retail and infrastructure.³¹ The state policy mentions a broad plan to 'set up Service Training Institutes to train people on soft skills required in the services sector and reform its existing ITIs'. This indicates that despite a national need for skilled construction workers, two major states that drive construction activity are indifferent to the training needs of the workforce engaged in the sector.

Indifferent states

The central government in 2004 had announced a scheme to upgrade 500 ITIs into trade specific 'centres of excellence' to match the needs of local industries, partly through World Bank funding³². Execution at the state level has remained slow, which highlights the complexities that a federal government structure can create. The World Bank (2010b) noted in its annual project execution status report: 'Improving quality of vocational training through up-gradation of 400 ITIs in 34 states and union Territories has taken longer than expected. One of the key issues requiring attention is the weak capacity of the government of India's Ministry of Labour and Employment and state counterpart departments.'

²⁹ The construction sector will require 47 million skilled workers by 2022, or around four million persons a year. See Table 3 for a detailed breakup.

³⁰ Industrial and Service Sector Investment Policy 2004, Udyog Bandhu, Department of Infrastructure and Industrial Development, Government of Uttar Pradesh, Lucknow, p. 27-29.

³¹ Industrial, Investment and Infrastructure Policy of Maharashtra, 2006, Small Industries Development Bank of India, p. 5, p. 16.

³² The scheme was to upgrade 100 ITIs through government resources and remaining 400 from World Bank funding.

Subsequently, the central government in 2007 announced its plans to upgrade another 1,396 ITIs through private participation during the Eleventh plan (2007-2012). However, lack of coordinated action between the central and state governments has resulted in on-the ground challenges for keen private players. Indian industry lobby organisation FICCI has failed to meet its own targets of adopting ITIs under the reform plan and has attributed it administrative complexities arising from bureaucratic hurdles (Banerji and Bhuyan 2009). FICCI's former secretary general was quoted as saying in a leading Indian financial daily: 'It was decided to set up a new training block, with new building and machinery. According to government rules, only Public Works Department is allowed to construct the building, but no contractors were willing because the contract size was small. This would not have happened had private contractors been allowed'. Further, in cases where state governments have been involved with ITI upgrading, the technology sector is prioritised. Having established the significance of the construction industry in UP and Maharashtra, it would be reasonable to expect that the respective state governments prioritise it as a focus area. However, ITIs located in UP and Maharashtra that have been selected for upgrading mainly offer automobile, manufacturing and electronics-related courses, and not construction.³³

The central government also requires states to set up 'State Skill Development Missions' to coordinate regional initiatives and reduce multiple government interfaces for securing new project approvals (Government of India 2010a:216). As per the Planning Commission, Maharashtra had not set up a State Skill Development Mission until April 2010, despite being one of India's most progressive states. UP has set up its Skill Development Mission but no information on it could be traced during the course of this research. Further, poor investments towards skill-building initiatives, in UP and Maharashtra, also paint a gloomy picture. UP's planned annual expenditure outlay, over the last few years, shows consistently significant allocation for the craftsmen training schemes (of ITIs).³⁴ As explained in this paper earlier, training under the craftsmen training scheme requires minimum secondary schooling. Given that UP's average literacy rate is amongst the lowest in India (Government of India

³³ 'List of 100 ITIs to be upgraded into Centres of Excellence,' Directorate General of Employment and Training, Ministry of Labour and Employment, Government of India, New Delhi, not dated.

³⁴ Own assessment from studying Uttar Pradesh's annual state plans since 2008, Planning Commission website. Available from http://www.planningcommission.nic.in/plans/stateplan/index.php?state=b_outbody.htm.

2004), it is not clear why a state with low literacy rates would contribute to a training scheme where minimum secondary education is a pre-requisite. A clear inference is that the state investments may be misdirected to schemes that are not suited to the training requirements of its people. Maharashtra's planned annual investments since 2009 show no specific allocation for vocational training.³⁵

This section clearly highlights that despite its aims to provide skill development to its people, the Indian central government has been unable to do so because state governments, responsible for on-the ground execution of initiatives, have remained indifferent. Evidently, states have not matched the central government's sense of urgency for implementing skill development initiatives for casual workers such as those engaged in construction activities. Worse still, state policies show continued investments towards failing schemes at the cost of mass employment sectors like construction.

Conclusion and Recommendations

As a fast growing developing economy, India needs skilled architects, plumbers and masons among others to contribute to the country's growth. However, the Indian construction industry complains of a shortage of skilled workers which is likely to worsen if more workers are not made employable. Towards this end, multiple skill development initiatives have been launched in the country but it appears that these are unable to create avenues for casual workers and are not of the scale needed. This is problematic because it can stall the country's growth plans and development goals. This paper aimed to explain why India faces a shortage of skilled workers despite multiple ongoing skill building initiatives. The main reason behind the lack of a sufficient number of skilled workers is the absence of training for casual workers, who dominate the Indian workforce. Lack of inclusiveness in the current vocational training system and poor coordination between government levels have resulted in the exclusion of casual workers from the ongoing vocational training initiatives.

India has adopted an education-linked Western model of vocational training without first putting in place compulsory education policies. Rigid entry requirements that mandate secondary education as a pre-requisite, and long course durations, are mismatched with the profile of casual workers. Recent schemes that are more relevant

³⁵ Maharashtra's annual investment plans since 2009-2011, not dated. Available from http://www.planningcommission.nic.in/plans/stateplan/index.php?state=b_outbody.htm.

to the profile of migrant workers have a problem of limited scale and are dependent on private partnerships. This implies that existing entry barriers for vocational training have to be lowered in order to make the current system more inclusive. This involves lowering minimum education requirements for training in the short-term while simultaneously strengthening primary and secondary education system in the long-term. Further, increasing training capacity will yield better results if it is strategically matched with regions and sectors that drive employment. For instance, the existing system has an oversupply of some trades (computer trades in UP and Maharashtra) at the cost of more significant employment sectors (construction) in the same states. The state governments can play a role in balancing this supply and demand.

Ironically, the government's focus to bring in private sponsorship by giving private firms autonomy on academies further compounds the lack of inclusiveness in the existing system. Given the fragmented nature of the informal sector and the workforce therein, over-dependence on private sector participation for reforms is unlikely to yield desired training goals for casual workers. Therefore, the government needs to create incentives for small and medium scale firms to engage in training programmes. For instance, the government could give tax rebates to small sized firms that invest in training their employees. Alternatively, the central government could consider sponsoring individuals (who want to be trained) rather than firms that provide training. India can also learn lessons from and consider formalising the informal process of skill building by providing an assessment framework and creating local level councils. Skilled craftsmen in rural areas are a big pool that can be tapped. India could learn from the Chinese model of construction labour bases where local governments have formalised the process of training transfer from skilled workers to migrant construction workers. To this end, NGOs could play a role in facilitating cluster-based training.

The federal structure of the Indian government further leads to a mismatch between prioritisation at the policy-making and execution levels. The central government of India is aware and concerned about the shortage of skills of casual workers, but lacks the coordinated effort from states to overcome the problem. This leads to policy initiatives that on the surface seem to improve training, but are inadequate as they do not target the training needs of the informal sector. UP and Maharashtra are two states that supply and employ a significant casualised workforce in sectors such as construction, but existing training capacity and training policies

have focused on meeting demands of organised sectors like IT and biotechnology. Given the different regional demographics and levels of development, all states cannot expect all of their citizens to become specialists in IT or biotechnology sectors. Therefore, states could identify their mass employment sectors and invest in training in that direction instead of funding general training initiatives, which have shown poor employment outcomes. For instance, states with lower literacy rates may reap more fruitful results by scaling up modular employable schemes with short term courses, than making continued investments in craftsmen and apprenticeship training schemes. There is a glaring need to simplify the training structure itself. This is not to say that the government role is not important. In fact, there is a need for the government to play the role of a regulator to prevent exploitative measures, such as exorbitant training fees, given that training initiatives for the underprivileged section of the workforce have to be addressed.

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