

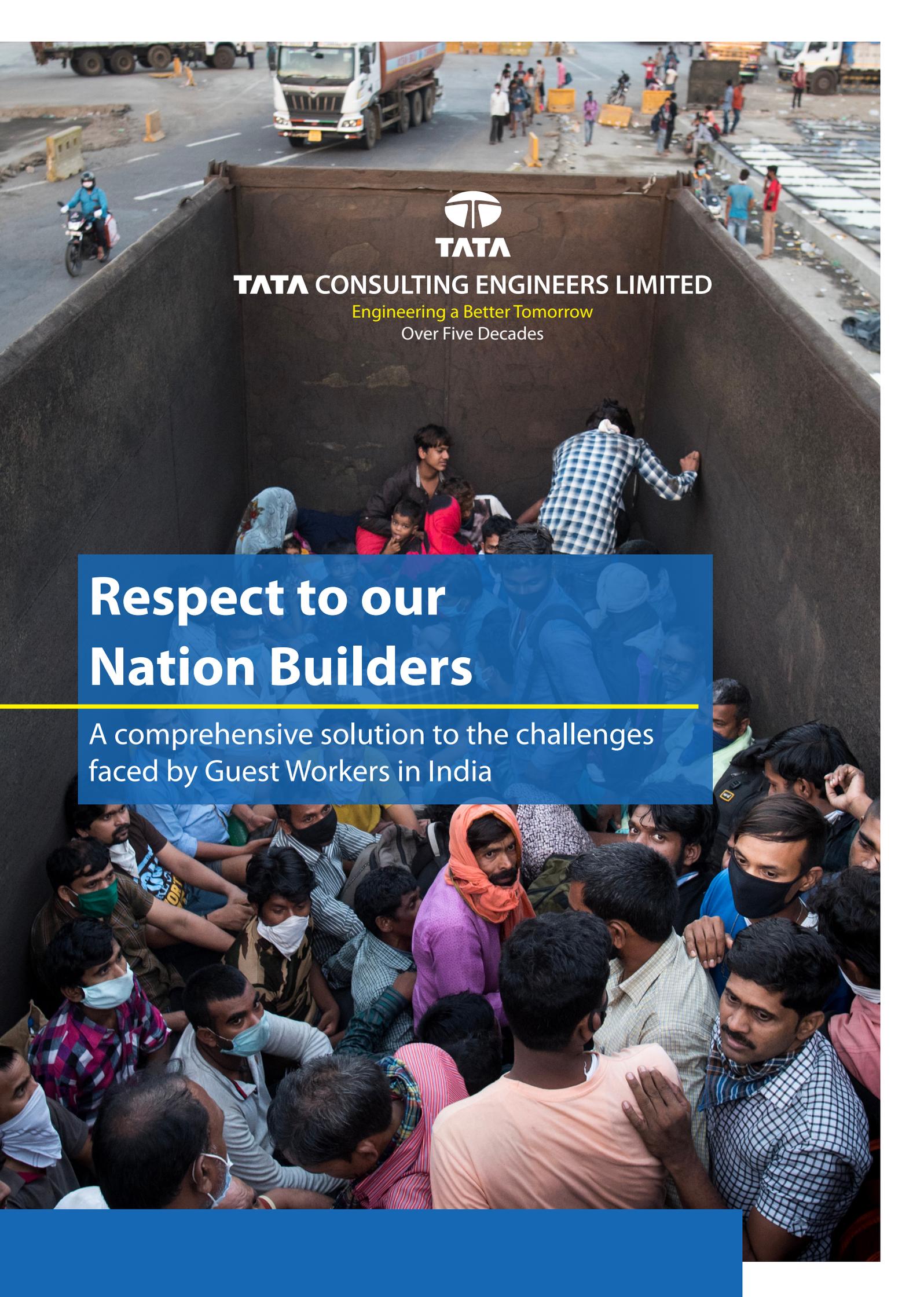


TATA CONSULTING ENGINEERS LIMITED

Engineering a Better Tomorrow
Over Five Decades

Respect to our Nation Builders

A comprehensive solution to the challenges
faced by Guest Workers in India



Introduction

“Labour is prior to, and independent of, the capital. Capital is only the fruit of Labour, and could never have existed if Labour had not first existed. Labour is the superior of capital, and deserves much higher consideration.”

Abraham Lincoln

The imposition of strict lockdown to counter the spread of the highly contagious COVID19 virus brought the country to a sudden and grinding halt. Little was envisaged at that time of the plight that would befall the silent workforce that was engaged in building our nation. Some studies have highlighted the large number of country’s population working in the unorganised (mostly) sector away from their native place. We have heard enough of the term “migrant labour” to define this workforce, but this itself is a misnomer and somewhat derogatory. Many people working in white-collar jobs also work away from their native place, but the same terminology is not applied to this group. It is only used to the band of hapless workers, who had to move out for employment, mostly in the unorganised sector, under poor living and working conditions. However, the contribution of this workforce to the overall economy is significant (more than 10% of GDP). The following quote from Abraham Lincoln aptly captures this.

“Labour is prior to, and independent of, the capital. Capital is only the fruit of Labour, and could never have existed if Labour had not first existed. Labour is the superior of capital, and deserves much higher consideration.”

In this document, as a mark of respect to the people otherwise termed as “migrant labours”, we will term them as “guest workers”.

The size of the workforce in India as per 2011 census stood at 482 million and is estimated to have exceeded 500 million in 2016. As per 2011 census,

the total populace who moved within the country in search of work stood at 453.6 million (37% of the country’s population), including those who move within their native state of domicile (85%), outside of the state (13%) and the balance (2%) from other countries.

Based on 2011 Census, National Sample Survey Organization (NSSO) survey and Economic survey 2020, Professor Amitabh Kundu of Research and Information System for Developing countries, estimated there are about 65 million inter-state migrating population of which 33 per cent are guest workers. Casual workers constitute 30 per cent of this workforce while another 30 per cent work regularly but in the informal sector. The research further shows the regional distribution of the originating state of domicile of this guest workforce with Uttar Pradesh accounting for 25 per cent, Bihar 14 per cent, Rajasthan at 6 per cent and Madhya Pradesh 5 per cent.

This study will focus on guest workers engaged in the construction industry in India. To understand the scope of the study, we first look at the status of the construction industry in India, contribution to the economy, it’s growth potential and the dependency on the use of technology.

Status of the Construction Industry in India

The construction industry in India ranks second in terms of contribution to GDP and number of persons employed after the agricultural sector, with the share currently at approximately 7 per cent. In absolute terms, the construction industry accounts for GDP of INR 2670 billion out of total GDP at constant prices (2011-2012 price) of INR 38036 billion¹. The nominal GDP of India in 2019 stood at USD 2.94 trillion, equivalent to INR 205800 billion at an exchange rate of 1USD = INR 70². The Gross Value Added (GVA) from the construction sector in 2019-20 stands at USD 192 billion³.

According to market research agency Statista, the growth rate in the construction industry in India from 2015 – 2020 period was estimated at 5.65 per cent. Another market research agency, Research and Markets predicted the construction industry to grow at CAGR of 11.2 per cent in 2019 – 2024 to reach the value of INR 35,220.8 billion in 2024. The residential construction market is estimated to grow at CAGR of 11.1 per cent, and the commercial construction industry is expected to grow at 12.2 per cent over this forecast period. Mordorintelligence, another market research agency, makes a more conservative growth estimate for the period of 2019 – 2024 with CAGR predicted at 6 per cent.

From these studies, a reasonable growth rate of the construction industry that comprises of the main sectors of commercial, residential, industrial, energy, utility infrastructure and transport infrastructure can be considered as 6 per cent CAGR. According to reports, 76.5 million workers are required in the construction and real estate industry by 2022⁴. Due to the ongoing pandemic situation in the country, these figures are likely to change; surveys after the pandemic crisis show that 50% to 80% workers left the worksites and many of them are unlikely to return to the worksites in future. This trend, coupled with changed construction practices through technology intervention and design alternatives, may alter the nature of workforce involvement in construction.

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1 <https://tradingeconomics.com/india/gdp-from-construction>

2 <https://www.investopedia.com/insights/worlds-top-economies/#:~:text=India%20has%20become%20the%20fifth,per%20capita%20down%20to%20%24%2C170.>

3 <https://www.makeinindia.com/sector/construction>

4 <https://www.anujpuri.com/housing-india-construction-workers/>

The Workforce in the Construction Industry



The proportion of guest workers in the total workforce is high, especially among the urban population. Movement of the workforce across regions has an essential effect on socio-economic development of the country. This movement carries the human capital to the area of requirement, giving them a chance at better living and in turn help them learn new skills. The movement also includes rural to urban migration that increases the urbanisation process. The current pandemic situation has brought to the fore the known concerns on the economic, social and political exploitation of these guest workers.

The moving workforce comprises of both short-term and long-term migrants with short term migrant population being much higher than the long-term. The construction sector comprises the largest share of short-term migrants that comprise 41.6% of rural migrants and 25.2% of urban migrants.

The composition of migrating construction workers captured in the studies by NSS and Periodic

Labour Force Survey (PLFS) show an increasing trend of migration of both male and female workers from both rural and urban background. In the last three decades, the percentage of moving workforce in construction has increased from 1.7% to 14.5% for rural males, and from 4.2% to 11.7% for urban males. For the female workforce, the corresponding figures are 0.6% to 5.3% from a rural background and from 2.2% to 4.1% from the urban background⁵.

Two mechanisms drive migration – “pull migration” applicable to people seeking better opportunity confined to the non-agricultural workforce in the urban area. “push migration” with people moving out due to lack of local opportunities, mostly in rural settings for people who do not have recourse to agriculture as an occupation. Push migrants face more significant hardships since they lack the required skill to find jobs requiring specific capabilities.

The data on workforce migration pattern through the various census periods segregated into streams of the reason of migration shows that the most significant proportion of movement from both rural to urban and urban to urban are for work opportunities⁶.

Review of the report by the Ministry of Housing and Urban Poverty Alleviation about the data on workforce migration brings out the following observations:

1. The migration pattern comparison between male and female shows that migration of male workers is dominated by work opportunities and is mostly inter-state in nature. Family reasons, particularly marriage, govern female migration.
2. The proportion of short duration male migration is higher than more extended duration migration suggesting the temporary nature of work engagement opportunities.

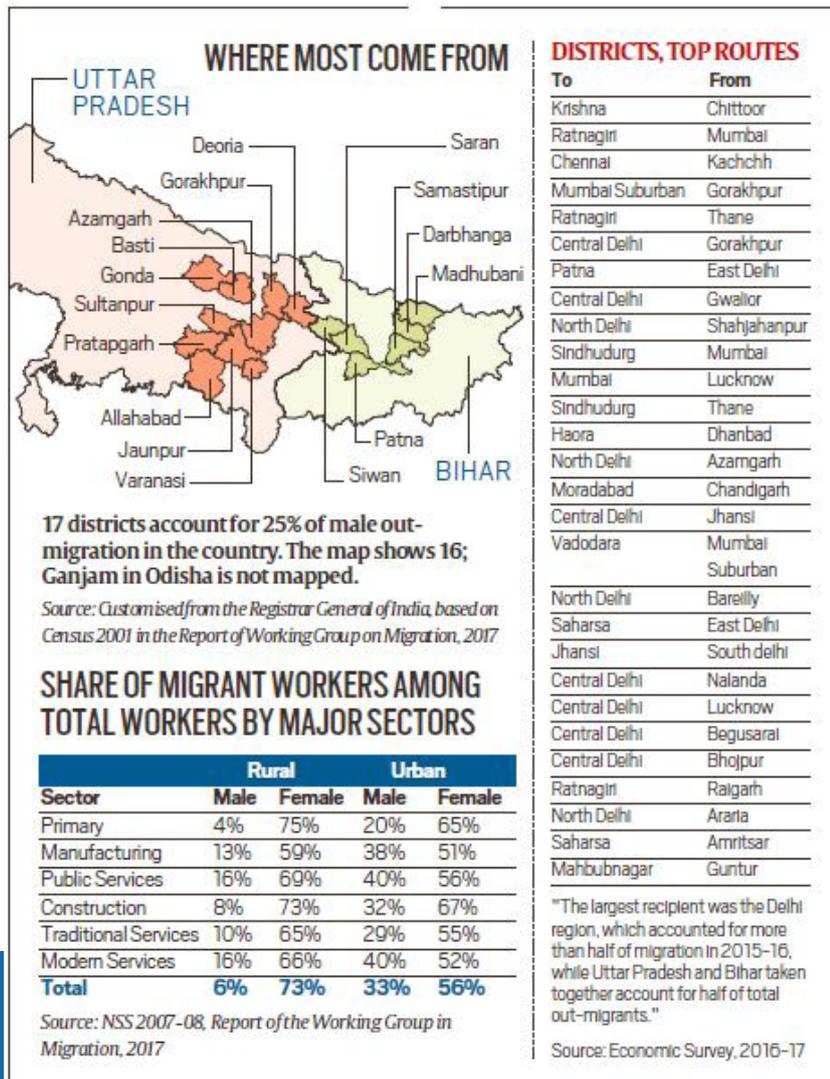
3. The relative proportion of migrant workers by work sector – rural migration of males, is far lower than that of urban migration because the construction industry requires skilled workers available more in urban areas. A higher proportion of female migration is due to movement with the family.
4. For the construction industry, the share of non-migrant and migrant workers is almost equal.
5. The relative proportion of short-term migrants in the construction sector is higher since construction projects have fixed completion dates after which the workforce is no longer required at the site.

Two mechanisms drive migration – “pull migration” applicable to people seeking better opportunity confined to the non-agricultural workforce in the urban area. “push migration” with people moving out due to lack of local opportunities, mostly in rural settings for people who do not have recourse to agriculture as an occupation. Push migrants face more significant hardships since they lack the required skill to find jobs requiring specific capabilities.

⁵ Periodic Labour Force Survey – July 2017 to June 2018, National Statistical Office, Govt. of India http://www.mospi.gov.in/sites/default/files/publication_reports/Annual%20Report%2C%20PLFS%202017-18_31052019.pdf

⁶ REPORT OF THE WORKING GROUP ON MIGRATION, January 2017, Ministry of Housing and Urban Poverty Alleviation <http://mohua.gov.in/upload/uploadfiles/files/1566.pdf>

Source of Migration of Guest Workers in the Construction Industry



Data on the migration of the workforce from rural to urban areas show that 25% of out-migration across state boundaries occur from 17 districts concentrated in eastern Uttar Pradesh and Bihar. This is followed by another 25% contribution from 37 other districts including, West Bengal, Odisha, Maharashtra, Rajasthan, Jharkhand and western Uttar Pradesh as shown in Figure 1. The districts in Bihar, Jharkhand and eastern Uttar Pradesh also have the largest ratio of out-migrants to the local workforce, exceeding 10% and going up to 50%.

Figure 1: Source of the migrating workforce

The Vulnerability of Guest Workers in the Construction Industry

The biggest source of vulnerability for the guest workforce is the absence of proper data on this workforce and the absence of an appropriate state-organised system of realistic statistics on the number and the nature of movement. Short-term and seasonal migratory movements which are a significant component, are mostly unaccounted for. The two state conducted mechanisms for data collection – Census and National Sample Survey (NSS) use different criteria for the definition of migration. While Census records change in address between two counts that are taken at an interval of 10 years, NSSO defines migration as a change in address over past six months. To give an example of the anomaly, while the Census report of 2001 pegs migrant population at 30%, NSS survey data of 2007-08 determined this population to be at 28%. This discrepancy in data makes it more challenging to plan and devise policies for the benefit of this community.

Guest workers face numerous forms of exploitation at their workplace including irregular or non-payment of wages, physical abuse, lack of housing of minimum standard, lack of basic amenities like water and sanitation, inadequate or absence of health facilities, entitlement to social protection and food under National Food Security Act 2013 through the Public Distribution System (PDS), voting rights, caste certificates or access to government schemes like National Rural Health Mission. Though this workforce is engaged in building works, they are

entirely neglected in the planning process of such projects. Even the Smart City programs have left out a significant chunk of the poor and marginalised population. They are ironically considered a problem case for the very development they help create.

Many of these guest workers start as unskilled workforce at a very early age and stagnate in this poorly paid, hazardous, low skill work in a work-life span shortened by poor nutrition, health hazards and high physical demands. Their children then fall into the same cycle, and the vulnerability is transferred down through generations as can be seen from the graphic on the lifestyle of guest workers from south Rajasthan (Figure 2).

This workforce is exposed to the health risks that include occupational health hazards like malnutrition, lung diseases, respiratory problems, allergies, kidney and bladder infections and back problems and other infectious diseases. Often this group is stigmatised as carriers of such diseases. The children of the families of this workforce who usually travel to the workplace with their parents have little or no opportunity for schooling and education or child care facilities.

Finally, ill-founded restrictions on domicile status deny the right to this population for enrolling in skill-building and enhancing opportunities. There is little awareness of the facilities available, absence of career counselling, and inflexible rules of education qualification and preset timing for skill acquisition leave limited opportunities for them.

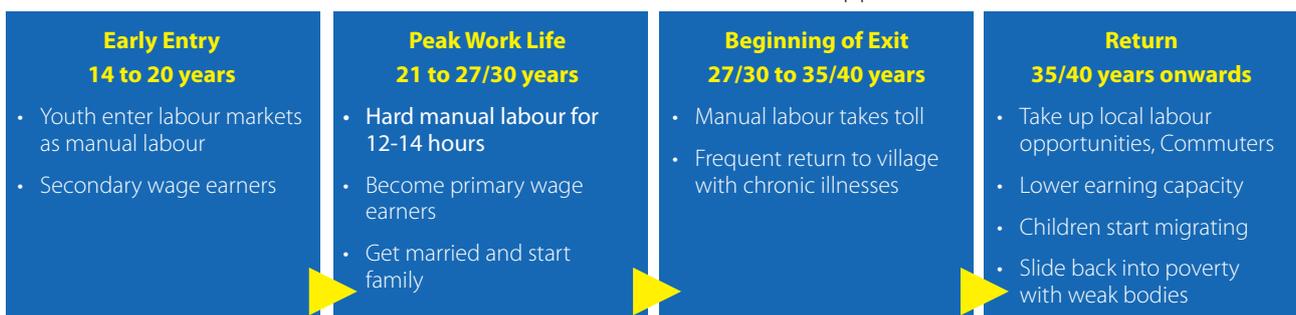


Figure 2: Lifecycle map of a typical guest worker

Current International Practices, Specification and Policies

This section summarises provisions for living facilities for construction workers at project sites as specified by international bodies like International Labour Organization (ILO), and financing agencies like World Bank (WB), European Bank for Reconstruction and Development (EBRD), International Finance Corporation (IFC), and Asian Development Bank (ADB).

IFC/ EBRD/ WB Guidelines on Workers' Accommodation

This document provides guidelines on the principles and standards applicable for construction of workers' accommodation, including provision for construction workers. The provisions cover transport systems, general living facilities, rooms/ dormitories, sanitary facilities, canteen and cooking facilities, food safety, medical facilities and leisure/ social facilities. The baseline standards to be adopted for these facilities are determined by local building rules & regulations and good building practices.

The following Table 1 highlights the key issues for construction worker camps.

Examples	Common Characteristics	Sectors Covered	Key Issues
Workers camp	Temporary	Extractives	Enforcement of standards and monitoring difficulties
Worker village	Migrant workers	Utilities	Relations with the communities
Mobile worker camp	Gender Separation	Infrastructure	Living Standards
		Manufacturing	Cost

Table 1: Requirements for workers' accommodation at the construction camp

International Labour Organization (ILO)

ILO's document "*Migrant Work & Employment in the Construction Sector*" makes a holistic review of the impact of internationally migrating workforce in the construction industry. It highlights the standards and practices with reference to a few country-specific case studies. The document highlights the various risks faced by the migrant workforce in various countries including recruitment anomalies, precarious legal status, immigration risks, local law compliances, job volatility, layers of sub-contracting to get employment, wage theft, poor workplace health and safety conditions, trafficking, forced Labour, policing, and absence of settlement support services in host place. ILO Helpdesk document No. 6 provides details for the guiding principles, siting and construction of workers' accommodation and the sanitation, health and safety facilities that should be made available.

ILO Construction OS&H Guidelines⁷ specify the welfare guidelines for setting up a construction site. The instructions are related to accommodation, facilities of water for drinking and washing, sanitary facilities, restrooms at the worksite, transport to and from the workplace. These facility provisions are intended to improve worker health and reduce fatigue. The facilities can be provided individually by separate contractors or by one contractor for all workers.

Asian Development Bank (ADB)

ADB along with ILO has produced a document "*Core Labour Standard*" (CLS)/ International Labour Standard (ILS) which is implemented in projects funded by them as a commitment to "Social Protection Strategy".

⁷ https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/presentation/wcms_161841.pdf

Eliminating forced and child labour and discrimination of employment opportunities and benefits are the underlying principles of CLS. Further standards develop these basic CLS principles and address issues of migrant workers also. The document stresses on equal treatment in terms of providing social benefits to local and migrant workers. Providing financial services to the vulnerable worker groups through microfinancing institutions with an emphasis on savings rather than credit is one of the means that ADB promotes in its effort towards improving income and asset security thus reducing the need for work opportunity related migration. Inspection by law enforcement agencies in various countries is another tool deployed to minimise exploitation of workers enhancing social security of workers at project sites.

To ensure compliance to ILS/CLS in ADB funded projects, the bidding documents are prepared, incorporating the 22 labour related clauses covering areas of the CLS in the General Conditions of Contract (GCC). With respect to temporary workers, it explicitly ensures that there is no discrimination with permanent workers in terms of CLS, health and safety provisions, and accident insurance. The ADB monitoring process tracks the implementation of these guidelines on records throughout the project execution phase for compliance with CLS and is subsequently documented in Project Completion Report (PCR) and Project Performance Evaluation Report (PPER).

Occupation Health and Safety Administration (OSHA), US Department of Labour

OSHA standard 1910.142 provides details for the construction of temporary labour camps. It specifies the type of construction, sleeping facilities, kitchen and cooking facilities, water supply requirements, toilet and sanitary requirements, drainage and sewerage system requirements, laundry, washing and bathing facilities, lighting, waste disposal, first aid, medical facilities and reporting of infectious diseases.

Best Practice guidelines for Labour Camp Accommodation Welfare UAE

This document provides guidelines for compulsory accommodation for construction workers for establishments with less than 50 workers with wage less than AED 2000 per month. It provides guidelines for housing facility, good living conditions, sanitation and public health facilities and rest houses at the workplace. The contractor is required to comply with this standard to guarantee health and safety of the workers⁸.

Guidelines from New Zealand Labour Department

Guidelines for the provision of facilities and general safety in the construction industry from New Zealand Labour Department⁹ provides general guidance on health and safety of construction workers including washing facilities, toilets, public and general safety.

Various other reputed international construction agencies and developers (AES Gener Una Empresa, Lusail Real Estate Development Company, have detailed standards and guidelines for setting up, operating and closure of labour camps^{10, 11}.

8 <https://u.ae/en/information-and-services/jobs/labour-accommodation>

9 <https://worksafe.govt.nz/topic-and-industry/building-and-construction/facilities-on-construction-sites/>

10 <https://www3.opic.gov/Environment/EIA/aesgener/pwrplnt/appendices/Annex%2033%20-%20General%20Rules%20for%20Construction%20Camps.pdf>

11 <https://www.lusail.com/wp-content/File%20Store/HSEQ/HSE%20and%20Fire%20Management/Lusail-Project%20Procedures-%20By%20Department/Occupational%20Health%20and%20Hygiene/LUS-HSE-WG3-446-054.01%20-%20Labour%20Camp%20Minimum%20Requirements.pdf>



Current Government/Private Sector Specifications for Labour Camps

Government Sector Projects

The review of specifications for Government funded projects is found to spell out provisions for the construction of labour camps with guidelines for room sizes, ventilation requirements, cooking facilities, type of construction, area and internal lighting, water supply, plumbing and sanitary requirements, temporary latrines, and sewerage facilities, mother and child welfare and day creche facilities. All comply with local public works and health authority guidelines, Factory Rules of the state and approval of the resident engineer. The specification also provides for inspection of the facilities by authorised inspectors from Labour Commissioner Office. An Environmental and Social Impact Assessment Report for Municipal Drainage Development Project spells out the requirement of numbers of local and guest workers and allotment of government land for labour camp along with detail specification for setting up of labour camp and its inspection in line with IFC and EBRD guidelines¹².

Private Sector Projects

Review of project specifications and the General Conditions of Contract for various project owners shows disparity amongst the provisions for facilities to be provided to construction labour at project sites. Most of the specifications have detailed provisions regarding wages, PF, accident insurance, ESI facilities, dealing with infectious diseases, occupational health and safety including the use of safety equipment

and training for the execution of work. Standards for accommodation and other living facility requirements including water supply and sanitation are generally not spelt out directly. Still, compliance with local regulations, factory rules are required, and the cost and responsibility are vested on the contractor.

Some other owner specifications for projects have more detailed provisions that deal with worker living place requirements, medical and sanitary facilities and social benefits to be provided at site to the workers. Specifications are laid down for room sizes, ceiling height, ventilation requirements and sanitary facilities. Material requirements for construction of these workers accommodation specify the use of fire-resistant, non-hazardous materials with nominal resistance to a natural disaster. Insulation properties shall ensure prevention of extreme temperature conditions in rooms both for high summer and low winter temperatures. Specifications also cover the quantity and quality of water supply, toilet facilities (separately for male and female), lighting provisions with circuits having tripping device and breakers¹³.

One of the recent projects under Ministry of Micro, Small and Medium Enterprises (MSME), the contract specifically required that the contractor should only hire workers registered under BOCW (Buildings and Other Construction Workers) Act. The agreement also required compliance with the provisions of this act concerning welfare facilities for the construction kers.

¹² Specifications from Government funded projects

¹³ General Conditions of Contract from Specifications for various private sector infrastructure projects

Current Policy & Regulations Regarding Guest Workforce in India

Labour appears under the concurrent list in the Constitution of India, and a large number of laws have been enacted by Central and State Governments. The various facets covered include occupational health, safety, employment, training of apprentices, fixation, minimum wages and its payment, compensation for injuries at workplace, bonded Labour, contract labour, women and child labour, industrial dispute resolution, social security provision like PF, EI, and bonus. The broad classification of these laws is¹⁴:

1. Laws related to Industrial Relations
2. Laws related to Wages
3. Laws related to Working Hours, Conditions of Service and Employment
4. Laws related to Equality and Empowerment of Women
5. Laws related to Deprived and Disadvantaged Sections of the Society
6. Laws related to Social Security

There are two principal legislation dealing with building and other construction workers:

1. The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996;
2. The Building and Other Construction Workers Welfare Cess Act, 1996.

The Building and Other Construction Workers Act 1996 provides the framework for "**Draft Model Welfare Scheme for Building and Other Construction Workers**". Section 60 of this Act details out the provisions about facilities like transit accommodation, hostel, Labour shed, night shelter, mobile toilets, mobile creches and advises the states to take steps for implementing the provisions.

¹⁴ National Crime Investigation Bureau website - https://ncib.in/pdf/ncib_pdf/Labour%20Act.pdf

Funds generated through the cess collection should be made available primarily for providing social security to the guest workers with the balance for creating additional benefits under Section 22(h) of this Act.

The provisions for creating transit accommodation, mobile toilet, a mobile creche for construction site workers should meet the following requirements:

1. Use only government/local body owned land
2. Should be centrally located
3. Priority to be given to Tier I & II cities
4. Should be exclusive for BOC registered workers
5. Rent shall be charged and recorded
6. Proper amenities shall be provided and maintained
7. The expenditure shall not exceed more than 10% of the cess collected or 10% of the total expenses in the financial year
8. Should not contradict provisions towards employer's obligation for creating such facilities

According to these laws, building and other construction workers, including brick-kiln workers, should be registered with state-level Construction Workers Welfare Boards. The rules also lay down minimum safety standards and employment conditions. The law mandates a cess at 1% of the construction cost to be used to create a fund for providing social security and related facilities for construction workers; the state-level Construction Workers Welfare Board manages the fund. The mandate for social security benefits cover¹⁵:

1. Medical assistance and accident cover
2. Pension
3. Maternity benefits

¹⁵ Submissions in National Campaign Committee for Central Legislation on Construction Labour v. Union of India, WP (Civil) No. 318/ 2006, provided by MoL&E

4. Educational assistance for children of workers
5. Assistance to family members in case of death (by accident, at a worksite or even in case of natural death)
6. Funeral assistance
7. Marriage assistance for children of workers (in some states)

The spending categories of this fund are broadly spelt out under following heads:

1. Support for public provision
2. Educational assistance for children of Construction workers
3. Medical assistance or Insurance
4. Life Insurance
5. Social security
6. Marriage assistance
7. Housing assistance
8. Tools and/or Assets

Administrative spending is restricted to 5% of the fund value.

Even though the Central Government passed the CWWB Act in 1998, the implementation of the act by states has been slow with rules framed by 2011. Construction workers need to be registered with CWWB to claim benefits under this act. Data on registered workers in Figure 3 show that the states have been able to register only about half the workforce in this sector in the two decades after its enactment.

Some of the states with substantial guest worker contribution have a poor record of registration.

A survey in 2013 of actual data from states show poor utilisation of this fund with Kerala being way above other states. Some improvement had been noted in 2015 with some zero-spending states initiating the fund usage to bolster the percentage utilisation from 15% to 21%. However, overall use still stayed at a low level. There is also concern over the outreach of these programs and the level of awareness among the target beneficiaries. The 38th report of the Standing Committee on Labour shows that out of INR 3868.523 billion collected as welfare cess since 1996, only INR 996.761 billion has been utilised (25.8%). The national average of cess distributed to workers through all the schemes under this act worked out to INR 499/ worker-year¹⁶.

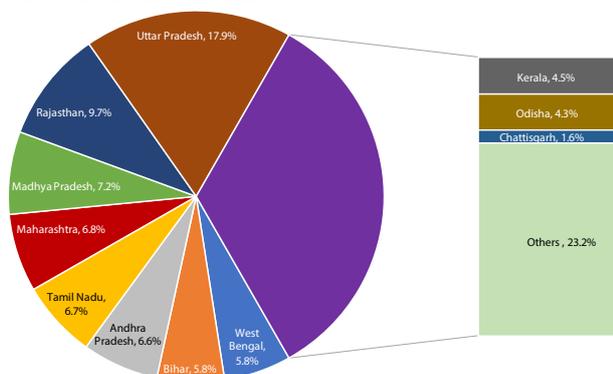
Current estimates of the unused fund collected from construction cess are about Rs. 20,000 crores⁴.

To improve the awareness level, actions that should be taken are:

1. Registration of workers by the states (spot registration camps)
2. Campaigns through radio and mobile phones
3. Training to workers with training materials by agencies like UNESCO
4. Awareness-raising drive through civil society organisations

The low level of awareness and information percolation amongst the workers has resulted in the continuance of poor working and living conditions.

Share of Construction Workforce



Share of Workers Registered under CWWB

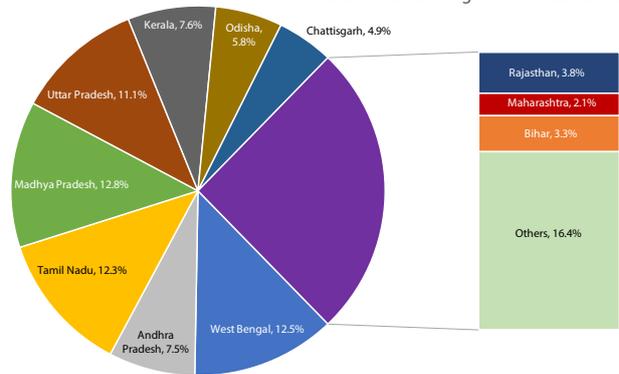


Figure 3: Share of the workforce in construction and registered with CWWB

¹⁶ <https://www.indiaspend.com/why-construction-workers-missed-government-welfare-benefits-for-23-years/#:~:text=Among%20the%20new%20proposals%20is,for%20a%20life%20and%20disability>

Dismal but slowly improving Use of the CWWB Cess							
Name of the States/UTs	Regd. workers	Amount of cess collected (` Cr.)		Amount spent (` Cr.)		Spending as share of collection (%)	
		2013	2015	2013	2015	2013	2015
Kerala	7%	808.8	1234.0	728.8	1152.4	90%	93%
Chhattisgarh	4%	222.2	539.3	125.4	345.4	56%	64%
Tamil Nadu	11%	604.3	1290.9	278.0	511.9	46%	40%
Madhya Pradesh	12%	903.7	1575.6	312.8	552.0	35%	35%
Puducherry	0.2%	20.7	71.7	4.6	31.2	22%	44%
Arunachal Pradesh	0.04%	23.0	..	4.6	..	20%	..
Sikkim	0.1%	18.6	54.7	2.4	10.8	13%	20%
Twenty other states/UTs	59%	8927.7	19660.5	279.5	2517.4	3%	13%
Eight other states/UTs	6%	70.4	1027.9	0.0	245.8	0%	24%
Total (cr.)	2.24	11599.3	25454.5	1736.2	5367.0	15%	21%

Source: submissions by Ministry of Labour and Employment to the Working Group
See text, para 41, for characteristics of the twenty state and eight state groups

Table 2: Data on usage of fund from the construction cess

This table shows the usage data of the CWWB Cess fund across various states and through different years. Barring few states, the utilisation is poor, but there is an improving pattern that can be noticed.

Another area of great concern is the low skill level of workers, especially in the construction sector. The National Policy for Skill Development and Entrepreneurship 2015 aims to accelerate the skilling effort to required standards in a sustainable manner. The magnitude of the problem can be understood from the following workforce data

1. 12.8 million Indians enter the labour market for the first time each year
2. 72.88 million are employed in the organised sector
3. 387.34 million are working in the unorganised sector

This Policy identifies the framework of institutes that help impart the training and links skill development to improved employability and productivity of workers.

Review of the provisions as specified by international standards, specifications by international funding agencies and Indian Government funded projects show that the requirements for facilities for the workforce at construction sites are indicated in the tender documents for adoption by contractors during the execution of the project. The rules and regulations framed by the governments at Centre and State levels in India include provisions for registration of such workers, social benefits, and acceptable living standards for the workforce at construction sites. Enforcement of these standards as statutory/ regulatory requirements for construction sites, especially for privately-funded industrial and infrastructure projects is an area which needs more attention through the involvement of regulatory bodies, industry associations and non-governmental organisations.

Reality Check of the Condition of Workers at Site and Labour Camps in India

Construction projects are for a specific duration only after which the site activity winds down. The engagement of construction workers at a location is temporary. Hence most project specifications do not require the execution contractor to set up specific living provisions for construction workers but focus on meeting the basic regulatory requirements of minimum wages, PF and ESI contribution, and workplace safety and health requirements. The welfare of the workforce specifically spelt out in terms of minimum living conditions – accommodation, sanitary facilities, children schooling are found on rare occasions. Developers are not sensitive towards creating permanent/ semi-permanent facilities for the living arrangement of workers. Fulfilment of the social welfare commitments gets left out despite having such provisions in labour laws.

There is a difference in the living facility availed by local and long-term contract workers and short-term migrating workers. The former class can avail off-site rental accommodation, often sharing with other workers for a better economy of spend, and because they mostly migrate alone without family and can avail sharing accommodation. The latter class are primarily found in vulnerable off-site settlements of slums and illegal road/rail side settlements. The vulnerability of this latter group is more pronounced since, in most cases, they migrate with their family – spouse and children. Most of these people work in the unorganised sector. Hence, the problem is more magnified due to lack of concern and commitment towards social benefits for this group effecting both security and wellbeing of the family members on this migrant worker group.

Another difference arises due to the nature of the construction project itself. On real estate or industry infrastructure development projects, the construction workforce is contracted out, and the contractor usually makes some arrangement for these workers close to the site for better utilisation of their time. However, in public utility projects like roads, bridges, cross country pipelines, transmission lines and other infrastructure projects, no such housing facility is usually provided. The workforce has to make its own arrangement or occupy government lands through an agreement with local authorities.

A common problem in formalising facility provision for the construction workforce is proof of residence at the place of work. Since the nature of residence of this workforce is temporary, there is a tendency to retain the proof of identity and residence of their place of origin through documents like ration card, election card, property tax receipts, utility bill receipts and not update them with each change of location in few years. However, this lack of local residence documents is the source of the vulnerable position these guest workers face in the new locale. There is need for rethinking on the residency proof documents either by making documents like ration card, election card valid across the country (and already linked to Aadhaar card, PAN card) or accepting other documents like registration with Building and Other Construction Workers' Welfare Board. Both these changes will require policy interventions for the design and implementation of the new system, which should make the process simple and streamlined and fully digital¹⁷.

¹⁷ Research Report: Housing Conditions of Construction Workers in Ahmedabad by Renu Desai, Sachin Soni, Uchita Vaid and Manthan Mevada Proposal: Preliminary Design for a Pilot Project for Migrant Construction Workers' Housing by Sachin Soni, Renu Desai, Manthan Mevada and Uchita Vaid Centre for Urban Equity, CEPT University, Ahmedabad, December 2014

Proposed Solutions for a Safe Work Environment for Our Nation Builders

The proposed solutions for improving the status of living facilities and social benefits to the construction workforce will require awareness, understanding and implementation of the requirements of the regulations provided in the acts and adopting the best international practices concerning living standards.

A central registry, Aadhar, Insurance, Health, Payments and Tracking of Labour

As stated in the previous sections, the issues of registration of construction and building workers, provisions of accident insurance and benefits, safety measures, health insurance, work hours, wage payments and records thereof, safety and health records are provided for in the appropriate acts. The mechanism for adoption, implementation and its verification are also covered comprehensively under this act. Such provisions need to be explicitly built into the contract with the execution agency to provide the required instruments to monitor the effective implementation of the minimum requirements covered under the act.

The worker registration process and documentation can be made entirely on the digital platform and linked to other documents like Aadhaar, ration cards, PF account, ESI registration etc. This will enable tracking the worker location, the status of employment, health status and other information across the country till the registration is valid. The registration can be linked to the “Jan-Dhan” accounts to facilitate wage payments by any employer at any geographic location of the worker in the country.

The successful implementation of the provisions of the BOCW Act will go a long way in alleviating the poor condition of guest workers at construction sites. The Central Government empowers states

through Section 60 of the Act for implementing the provisions with the help of advisory committees. The act is applicable for all construction projects except for individual houses costing less than INR 1 million. It covers any person engaged in building or construction work and ancillary industries like a brick kiln, sand mining, stone cutting. Still, it excludes factory and mine workers and persons in managerial or administrative roles.

The act also provides for constituting enforcement machinery using inspector teams appointed by the Government. These inspectors have the power to enter, inspect, and seize activities at construction sites non-conformant with the provisions of the act. However, the meagre penalty limit of up to six months imprisonment and a fine of Rs 2000 is not a deterrent tool. Data on such penalty imposition and its effectiveness in ensuring compliance to the act is also not available¹⁸.

Provision for Living facilities

Construction projects being of defined duration do not attract attention towards providing formal living facilities for the temporary workforce at the site. Since the engagement of construction workers at a location is brief, provision of permanent housing for such temporary workforce may not be a feasible solution. Solution proposals for proper accommodation arrangements for the guest workers should address the two streams of long-term and short-term migrating workforce separately.

Living facilities for the workers can either be done by integrating these facilities in the overall real estate development plan or by the developer facilitating low-cost rental housing in the nearby areas. The available government funding can be used to create low-cost housing for construction workers during

¹⁸ Shamindra Nath Roy, Manish, Mukta Naik, “Migrants in Construction work - Evaluating the Welfare Framework”, Centre for Policy Research, June 2017

the project execution phase. It can then be sold out to the socially and economically weaker sections of the society through a transparent allotment process. This will require substantial effort at government policymaking and implementation levels.

Under the BOCW Act, some state governments have extended financial assistance to construction workers for building their house on own land, for example, UP Govt provides Rs 45,000 to such workers against proof of domicile certificate and land ownership records¹⁹. However, as can be easily understood, such provisions will not apply to guest workers who will not be able to produce such documents.

According to news reports²⁰, Maharashtra labour department plans to construct 1 lakh houses for construction workers as part of Pradhan Mantri Awas Yojana (PMAY) at the cost of INR 500 crore. Only registered workers will be eligible to get this facility. The NSSO data shows that out of 27.53 lakh construction workers in the state, only 6.88 lakhs are registered with the labour department, and out of these, only 3.45 lakhs registrations were active. Maharashtra government also announced schemes for providing nutritious meals to construction workers for Rs. 5 (“Atal Ahar Yojana”), pension to workers above the age of 60 years (“Shramev Jayate Yojana”), and medical facilities up to INR 1.5 lakh per worker (“Jan Aarogya Yojana”).

Planning of worker accommodation at greenfield sites

Some industrial and infrastructure projects identify land area demarcated for the establishment of construction workers camp. In Government-funded projects, land for establishing worker camps are arranged on Government-owned properties when available nearby. In real estate development projects, mostly financed by private developers, facilities for accommodation of guest construction workers are not usually planned. There is very little data publicly available on the number of construction workers engaged at project sites versus real estate and other infrastructure sectors.

¹⁹ http://upbocw.in/english/staticpages/housing_plan.aspx

²⁰ <https://indianexpress.com/article/cities/mumbai/maharashtra-plans-housing-scheme-for-construction-workers-5034125/>, https://www.business-standard.com/article/pti-stories/maharashtra-govt-launches-scheme-for-construction-workers-119030701142_1.html

To assess the number of construction workers that would be required at a site, productivity assessment is needed to be carried out at the planning stage of the project. Central Public Works Department (CPWD)/BIS Code IS 7272 provides standard work units per person for various categories of construction activities. Using this data, the project planner can estimate the workforce requirement in different phases commensurate with construction work volume to determine the need for living facilities required in various stages of the construction work at the site.

Figure 4 shows typical temporary housing types that can be used for construction labour accommodation. The temporary housing facilities shall be of modular design, capable of easy assembly and dismantling. These can be reused at the end of construction work by transporting to another worksite.



Figure 4: Temporary prefabricated units for construction worker accommodation

Proposed is the basic framework of facilities, using these guidelines, which can be developed at new construction sites:

For sites with a small workforce of fewer than 50 persons and project duration not exceeding one-year, separate permanent labour camp may not be planned. The construction workforce can be provided with accommodation within the first phase living facilities of the main project.

Most residential projects have provision for a common club/ community centre in the development plan; commercial building projects usually incorporate a parking facility or an annexe building for services; industrial projects include office/command centre buildings. These utility/ office buildings can be developed first at the site along with other construction enabling facilities using the minimum number of construction workforce who will be provided temporary accommodation in mobile housing units. After this building is constructed and functional, it can serve as accommodation for the larger batch of construction workers for the significant phase of the construction.

For sites with more extensive workforce requirements for longer durations, separate construction worker accommodation needs to be planned off-site. As seen earlier, in Government-funded projects, the specification calls for minimum requirements for workforce accommodation on Government-owned lands. In contrast, such conditions are not spelt out in private developer-funded projects (Figure 5). For these large value projects development of living and health facilities for the workers may be made compulsory through government regulation and included in the project cost. The minimum standards to be adopted for such facilities shall conform to laid down guidelines of ILO/ UNDP/ OSHA/ WB/ ADB/ EBRD or similar agencies. Figure 5 shows typical layout of construction camp from Govt tender and Figure 6 shows arrangement for worker accommodation at a project site managed by Tata Consulting Engineers (TCE).

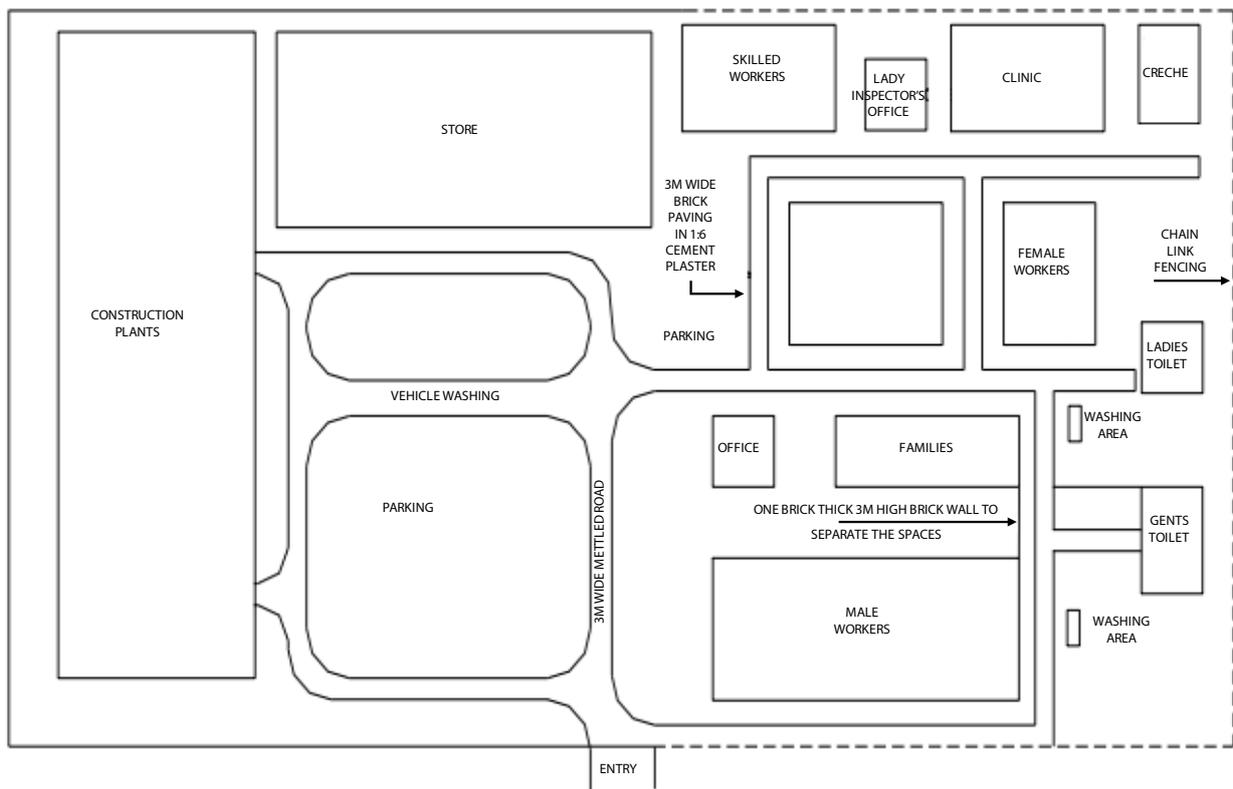


Figure 5: Typical layout of Construction Camp for a government-funded project (from an NHAI Tender)



Figure 6: Google Map image of TCE managed project site showing Labour Camp and Training Centre.

Labour camp in Figure 6 has an occupancy of 616 with ten toilets, ten bathrooms, two drinking water facilities, seven kitchens. All rooms have tube lights, ceiling and pedestal fans. Separate washing area for clothes and utensils



Figure 7: Worker accommodation and facilities at the project site managed by TCE

In the case of Smart City projects, LIG housing development should be included as part of the area-based development (ABD) in the first phase of project development. These units can be constructed with mechanised construction techniques of prefabricated/pre-cast construction to reduce dependence on manual workers and subsequently these can be used as housing for construction workers during the significant part of the overall city development program. This will alleviate the problems of standard accommodation and facilities for the guest workforce and incorporate the principle of inclusive development of weaker sections of the society and go a long way in the elimination of the urban slums.

Prefabricated housing solutions are available (e.g., Tata Steel's "Nest-in – Habinest") that offer light gauge steel construction for Mass Housing²¹. Such solutions can be used to create temporary housing for guest workers at construction sites. The structures being of steel construction are robust, durable and reusable across different project sites after completion of work at one site, offering a sustainable solution for construction worker housing.

21 <https://www.nestin.co.in/products/Prefabricated-Housing/>

Regulatory Approvals for Projects Linked to Labour Camps

Government of India has under the Ministry of Labour and Employment enacted laws dealing with Building and Construction Workers, which is implemented through the office of the Chief Labour Commissioner (CLC). The act requires the formation of an Advisory Committee at both Central and State levels along with Expert Committees. The Government can appoint registering officers for implementation of the provisions of the act through power conferred on the officer by the act. This includes power for registration of establishments through an application process, revocation of registration and disabling non-registered establishments from engaging construction workers.

The act also provides for registration of the construction workers as beneficiaries for receiving benefits under the provision of the fund set up through the collection of construction cess. A registered worker is provided with a photo identity card that also details the building construction work carried out by the worker, and this card must be produced for inspection as required. The Government should also lay down rules for work hours, rest day in a week, determination of fitness for work, minimum wages and overtime work payments.

Employer establishments having more than five hundred building workers are required to constitute a Safety Committee and appoint a safety officer.

The Government can frame safety rules applicable to construction sites that include safe access, safe workplace, adequate scaffolding, control of demolition work, use of explosives, use of transporting and hoisting equipment, proper site lighting, hazardous atmosphere (dust/ fumes/ gases/ vapours), handling of material, safeguard against moving machinery and parts, safe use of plants and tools that use compressed air, fire precaution, electric safety, safety belts and nets, precautions for various types of construction activities, medical facilities at

the site and a safety policy document.

The act requires the formation of a welfare board at each state level for providing accident benefits, pension, loan sanctions, GSI premium payment, children education allowance, medical expenses, maternity benefits among other welfare measures. The board is required to maintain accounts of the fund subject to audit by Comptroller and Auditor General (CAG) of India.

Contractors are required to maintain register and records of the workers employed, work performed, numbers of hours of work in a typical day, rest day, wage payment and receipts.

The Central Government appoints a Director-General of Inspection to lay down standards for inspection applicable pan-India. The State Government appoints a Chief Inspector of Building and Construction to ensure compliance to provisions of the act in the state. At both central and state level required number of officers are also appointed as inspectors who have powers to:

1. Inspect construction site at reasonable hours
2. Examine construction workers at the site for information on employer details and wages received
3. Inspect or seize register/wage records under the Criminal Code Procedure (CPC)

The penalty provision under the law for a violation of rules include three months jail term/ two thousand rupees fine extending to an additional one hundred rupees per day for a continuation of violation after conviction. Subsequent breach of compliance on same cause shall invite prison term of six months or fine of five hundred rupees extensible to two thousand rupees or both. No cognisance will be taken of convictions made two years before present offence.

Industry 4.0 Applications at Sites & Labour Camps

Movement of construction labour and review of work performed, and progress can be made using remote monitoring systems. Labour movement at the site can be tracked by using RFID tags that can trace the position of the worker at the site during the working hour. Use of CCTV camera at worksites can follow the movement and work performance of the construction workforce. It also enhances the safety and health condition of workers without the physical presence of a safety officer at the site. It helps take urgent action in case of accidents or other health incidents.

Use of tracking and monitoring systems through IoT applications have opened new digitally enabled ways of tracking and monitoring the workers and activities at the site. In this section, we discuss some of these applications and use cases from various service and solution providers.

RFID and BIM-Enabled Solution

This solution is proposed in a paper published in the Journal of Information Technology in Construction. It integrates RFID and BIM using RFID tags, readers, fixed turn-style readers, mobile hand-held devices and cloud server for tracking persons in real-time to control safety, security and workforce onboarding protocols²².

GAROFID

This RFID based system tracks workers, contractors and visitors at construction sites for enhancement of safety and productivity.

It can track and locate workers in zones of 65~400 feet radius, monitor movement of workers and analyse the data to target areas of better work management, streamlining of attendance system and provide a real-time view of the construction site in various zones²³.

Construction Labour Tracking System

Another application case is the CLTS for measuring Labour Productivity. This technique uses two-way communication among workers, supervisors and site engineers along with tracking through Geographic Information System (GIS) to collect measure performance. It can be used to monitor Labour in the work area to identify crowded zones at the project site²⁴.

SAP

This tool helps track time spent by Labour and work performed at the site, record compliance to regulatory requirements, improve workplace efficiency, and manage pay rates for piece work. Tracked information can be viewed through customised reports, obtain supervisor approval for time entry and process payroll and billing systems. The features of the tool include check-in time stamp, time spent at the worksite in a designated area and outside, manage labour charge codes, check out time stamp, summarise labour tracking data, edit and approve time records, and view labour tracking reports. Though it is used primarily for shop floor monitoring in production facilities, it can be customised for use in building construction sites²⁵.

22 "RFID and BIM-enabled Worker Location Tracking to Support Real-Time Building Protocol Control and Data Visualization", by Aaron M. Costin, Ph.D. Candidate, School of Civil and Environmental Engineering, Georgia Institute of Technology, Jochen Teizer, Ph.D., RAPIDS Construction Safety and Technology Laboratory, Bernd Schoner, Ph.D., Trimble ThingMagic, published in Journal of Information Technology in Construction

23 <https://gaorfid.com/people-tracking-for-construction-sites/>

24 https://www.researchgate.net/publication/333052989_Implication_of_a_Construction_Labour_Tracking_System_for_Measuring_Labour_Productivity#:~:text=Tracking%20job%2Dsite%20equipment%20and,are%20critical%20for%20improving%20productivity.&text=The%20developed%20CLTS%20tool%20is,labour%20productivity%20on%20construction%20sites.

25 https://help.sap.com/doc/saphelp_me151/15.1.3/VERSIONFOR_SAPME/en-US/a2/bd2e71d88d46419f1e65342c3d2ec0/frameset.htm

B2W Track

B2W is a web and mobile-based software used for recording, communicating and analysing work progress. It helps managers and supervisors keep better track of construction work through data acquisition on-field momentum (productivity, labour attendance, material and equipment), make better decisions using accurate and current data and implement cost control measures²⁶.

Trimble LEM (Labour Equipment Materials)

This tool is used to increase the precision and volume of field productivity. It provides facilities for collection of real-time data, report generation, onboarding of workforce, time and attendance management and intruder detection. Different modules are available for concrete structures, steel structures, MEP services, architectural and general work solutions to perform functions of design, construction and operation of the facilities. Remote Construction Site Monitoring (RCSM) tool provides a real-time view of construction progress²⁷. It can be used to monitor workforce presence at the site, automate compliance, security, health and safety checks, enable remote communication with site teams, monitor site security, contactless site entry and wellbeing checks.

Litum Real-Time Location System (RLTS)

IoT construction network using RFID tags and stationary receivers can help track movement of assets and workforce and provide bird's eye view of the overall workflow. Litum uses ultra-wideband frequencies in 6 GHz range for communication. It collects data continuously from RFID tags and readers on workers, equipment used, vehicle movement, working hours, and maintenance records. It helps optimise and improve resource management, monitor and log actual labour hours.

Facilities are available to track safety records like entry to the unauthorised area, detect falls and trips, motion sensors to detect worker not having moved for a long time, and SOS button is used for sending emergency alerts. Additional equipment sensors are also available to track potential hazards of an impending collision, geo-fencing sensitive areas, enforcing skill level certification for a specific task, monitoring temperature and detection of hazardous gases, prevent equipment loss and theft²⁸.

TCE Smart Site solutions

Tata Consulting Engineers (TCE) has developed a desktop and mobile-based application called SmartSite™ that can bring all stakeholders at a construction site on a single platform. The application supports Digital Collaboration and Mobility, the key trends to help construction players in their Digital Transformation. The app is an amalgamation of 60 years' experience of TCE and agility brought by the real-time information sharing. It enables tracking and managing all engineering documentation for the project, collaborate digitally through electronic review and correspondences and ensures better visibility of project status through real-time dashboard and reports. There is also an application "Suraksha" to track site safety indicators. The app is also used for capturing the daily data of all the people available on the construction site. This data helps in segregating the workforce according to the skill category viz. skilled, unskilled or according to their trade. In future with the use of RFID/NFC ID cards, once a worker punches in attendance, the data can be captured and analysed. The registry data, health records, location of residence, work assigned, and area of work can be analysed for insights to ensure their wellbeing.

²⁶ <https://www.b2wsoftware.com/products/track/>

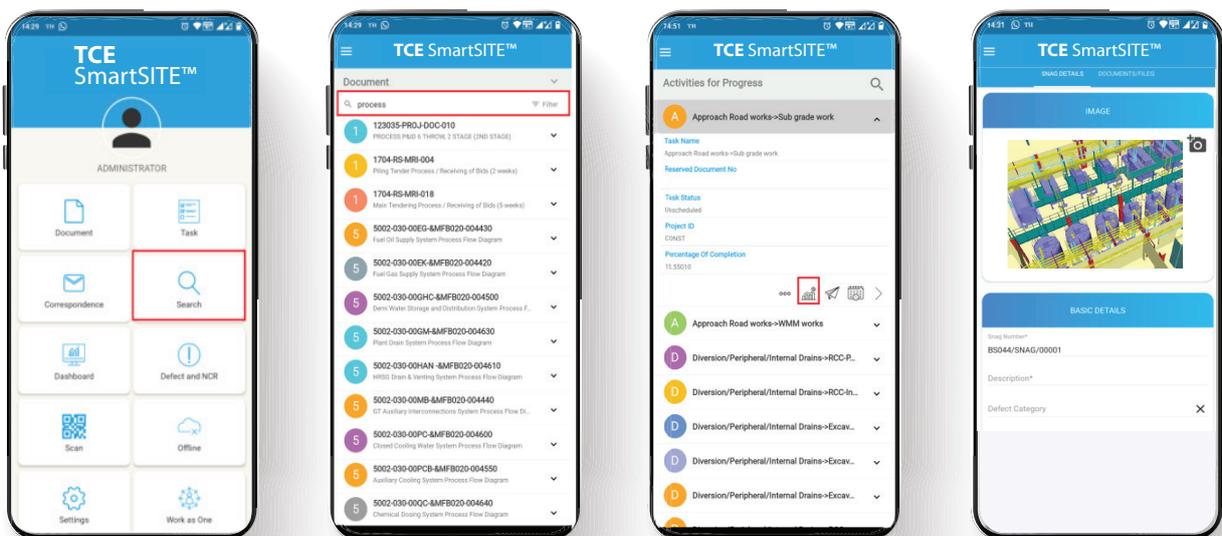
²⁷ <https://constructible.trimble.com/construction-industry/remote-construction-site-monitoring>

²⁸ <https://litumiot.com/rlts-for-construction-improves-operations-safety/>

Smart Applications: Go Paperless

At Tata Consulting Engineers (TCE) we have promoted the use of smart project management applications that help reduce the exchange of paper and stop the spread of infection in COVID19 times. With the help of the following apps we have managed to go paperless to a large extent:

1. Suraksha App for daily tracking of site safety indicators.
2. Increased use of drones and fixed point photography to reduce the need for manual inspection
3. Use of mobile based TCE SmartSITE™ App to
 - Manage and track engineering drawings and documents across their lifecycles.
 - Bring all stakeholders together on the same platform, having built-in quality management processes.
 - Ensure that everyone works on the most up-to-date information with complete traceability.
 - Collaborate digitally through electronic reviews, comments, approvals, RFI's, correspondences and transmittals
 - Work as a team and make sure everyone is held accountable for their responsibilities and action items.
 - Ensure better visibility through real-time dashboard and reports.



Role of Industry Associations and Government in Ensuring Implementation

The industry associations (CEAI, CII, FICCI, ASSOCHAM, Construction Industry Development Council – CIDC) act as an intermediary between the Government and the industry sector. These associations represent the collective voice of the various sectors of business and industry for discussions on policies and regulations formed by the Government. These discussions aim to boost the business and contribute to economic growth. These bodies are usually composed of experts and leaders from the industry and advise the Government for developing business regulations and practices towards sustainable industry operation. The Government also consults this body of experts before formulating technical standards, policies and schemes. In this role, the industry associations can help the Government develop policies for ensuring social benefits to the construction workers. The association and its members can arrange workshops and awareness sessions for disseminating the benefits to the workers through dialogues with worker unions and representatives. They can also engage with the government officers as part of the inspection teams to ensure compliance with the rules and regulation at construction sites.

Another area where these industry associations can extend support to the Government is in skill development and enhancement program for workers. The percentage of low skilled workers is very high compared to high skilled workers. With the construction industry moving towards more mechanised construction, reskilling, new skill development and expertise in operating construction machinery are becoming increasingly important. The associations and its member organisations can carry out skill development programs either as part of the CSR activities or in partnership with NGOs.



Recommendations

The preceding sections have highlighted the importance of the construction industry to the Indian economy, the role of the guest workers in the construction industry across the country, the severe conditions under which this workforce must perform, regulatory provisions under various acts, international and national practices for the provision of decent living conditions and social benefits to this workforce. Against this backdrop, the opportunities for improvement of the situation have also been highlighted in respective sections. The following recommendations are presented for implementation for complete regulation of this largely unorganised workforce sector and improving the living conditions at construction project sites.

1 Make registration of all construction workers compulsory under the BOCW Act. The registration shall be linked to Aadhaar and Jan-Dhan account of the workers. The registration shall be with state welfare boards, but the documents will be valid pan India.

2 The social security/ benefit provisions provided in the welfare measures stated in the act – PF, ration cards, ESI registration shall also be mandatory and linked to the registration. All information shall be stored on digital platforms, and simple smartphone-based application tools shall be available for accessing and using the data.

3 Strengthen the institutional arrangement at government level (mainly by state governments) for improving the collection of the construction cess and utilisation of the welfare fund created out of this cess amount for providing pan-country social security benefits to the registered workers.

4 Improve awareness among the workers on the benefits of enrolling through the state welfare boards through campaigns by the state government, civil society organisations and industry associations using public communication and digital media.

5 Develop and deploy continuous skill development program to elevate the skill level of the workers so that they can engage in jobs requiring higher skills for better remuneration, ultimately improving their livelihood.





6 Project specifications should specifically provide for the improved living and health facilities to be offered to construction workers at site as minimum requirements. The better living facilities for construction workers at worksites shall be as per the provisions of the requirements of BOCW Act and international guidelines by ILO, OSHA, IFC, WB, ADB and other reputed institutions.

7 Living facilities for construction workers can be either temporary or can use portions of the permanent construction of the project in a planned manner. The temporary housing facilities shall be well designed, easily dismantlable and reusable after the end of construction work at the site and can be transported to another worksite. At other sites, building construction can be planned so that common facilities are constructed in the first phase using mechanised construction techniques for use by the guest workers during the construction of the main components.

8 Control and regulatory measures should be put in place that relates the project approval/ sanction to the minimum level of acceptable living standards, and health and social benefits of the construction workers. Government bodies, along with industry associations, can be authorised to review the provisions to construction worker benefits made in the detailed project report/project execution plan document for financial approval of a project.

9 During project execution, a mandatory inspection of the worker registration and employment process being exercised by the contractor and implementation of the provisions of social security benefits shall be carried out by government officials/ appointed agencies with assistance from industry associations.

10 At the construction site, use of digital platforms for checking and monitoring the regulatory compliances of the guest workers, following the conditions at the living facilities provided through CCTV, tracking the health condition of the workers through mobile-based applications, monitoring their movement at the site through GIS/ RFID based monitoring systems can improve conditions at both the workplace and accommodation leading to better productivity and engagement of the workforce.

Summary and Conclusion

The plight under which the guest workforce engaged in the construction industry was working was brought to light during the lockdown imposed to contain the COVID19 pandemic. This miserable condition was reflected in the mass exodus of the workforce, leaving the construction sites; a survey conducted by Gleeds India Insights shows about 50% to 80% of workers have left the sites. In India, a significant part of the construction industry is dependent on manual Labour, both skilled and unskilled and the absence of the guest workforce will result in lower productivity and delay in infrastructure projects underway.

Though some activities of construction can be mechanised and prefabricated through the infusion of new technologies, the imperative would be on getting the workforce back at the site which the surveys show may happen around last quarter of 2020 or first quarter of 2021. Without the workers, the construction industry will find it very difficult to restart operations on a large scale.

Opening of construction sites and deployment of the workforce will need to include compulsory worker registration, provide enhanced living, and social benefits including compulsory PF, ESI registration, and new health and safety requirements to maintain hygiene standards and social distancing norms. These increased workforce benefit requirements may also affect productivity norms requiring additional workforce strength than in the pre-COVID times. To make the construction activities at site cope with the “new normal” way of working, new construction technologies like BIM, Reality Capture, 3D Printing, prefabrication and pre-casting, use of IoT based sensors and monitors for remote monitoring of workforce and site activities will gain prominence. Mechanised construction using more equipment and heavy piece handling machinery through product-based design approach, prefabricated and modular construction with standard designs, improved contract clauses with workers, and revised site execution procedures will see an increase in the application.

To make the construction activities at site cope with the “new normal” way of working, new construction technologies like BIM, Reality Capture, 3D Printing, prefabrication and pre-casting, use of IoT based sensors and monitors for remote monitoring of workforce and site activities will gain prominence.

The Government has also realised the need for ensuring better work and living conditions for guest workforce in the construction industry. As this study shows, there are regulatory provisions for governing the requirements and benefits to construction workers. However, the level of implementation of these acts in projects has not been at the desired levels. There are reports in public news media about Government planning to rethink on the definition of the guest workers and the introduction of new/ additional legislation for enhancing social security is being planned by the labour ministry. The law will provide for workers to enjoy the benefits across the country and will also include unorganised sector workers by recognising this sector through Unorganized Worker Identification Number (U-WIN). This registration is proposed to be linked to the Aadhaar database and accessible to centre and states. While the process of framing and enacting new laws to benefit the guest workforce in the construction industry would be welcome, TCE opines that ensuring better implementation of the available legislation through available means and using digital tools for creating, managing and utilising the data would go a long way to ensure the due respect to our Nation Builders.

The Company

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Useful Links

1. [SOP for Restarting Office post Lockdown](#)
2. [SOP for Restarting Construction Sites post Lockdown](#)

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