

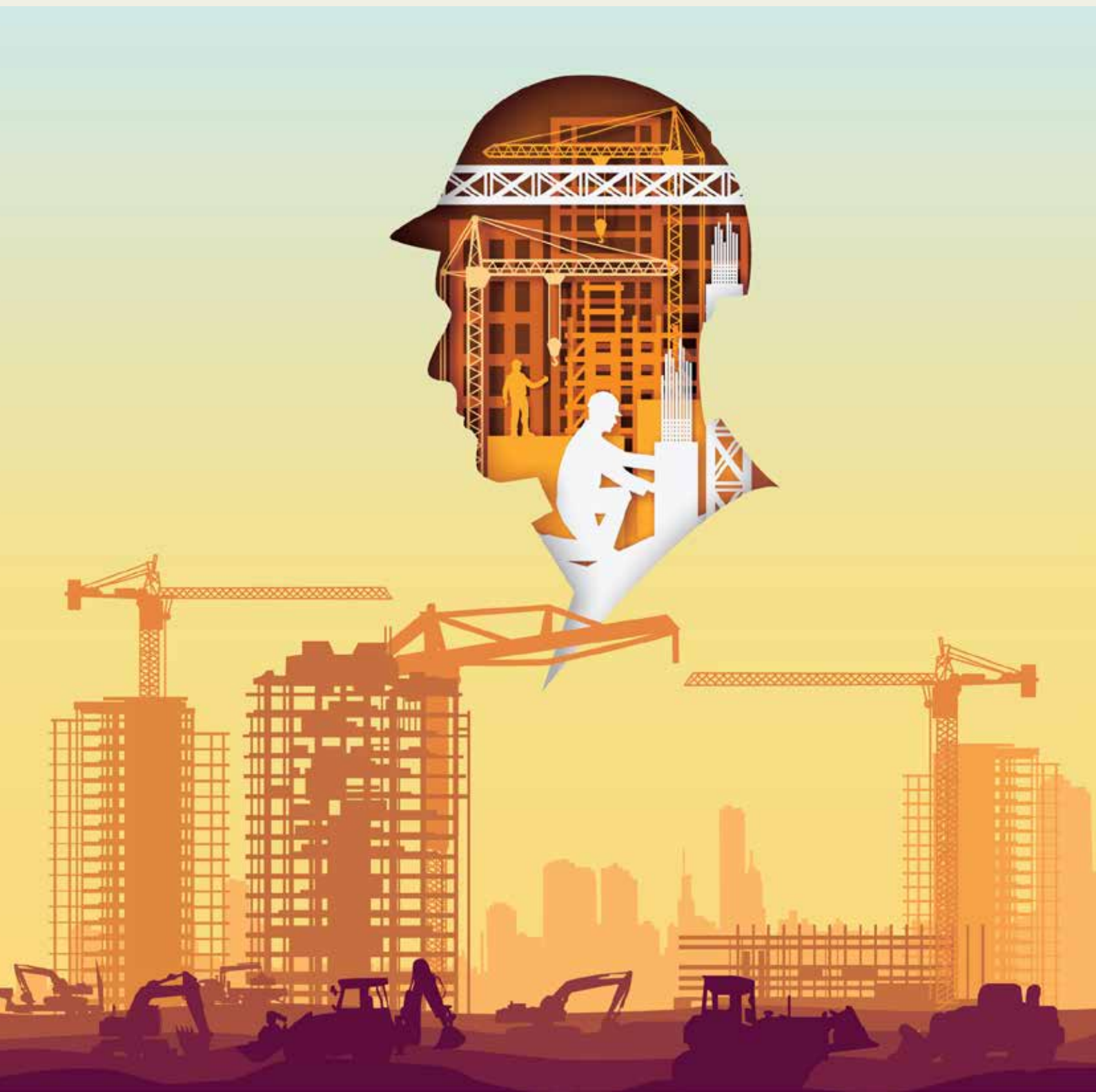
Skilled Employment in Construction Sector in India



2023

The report assesses the growth in construction sector in India emphasising on the existing levels and gaps in skilled employment in the sector.

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Foreword



► **Shishir Bajjal**
Chairman and Managing Director - Knight Frank India

In the recent few decades, India's economy has significantly grown positioning itself as one of the fastest growing economies globally. In tandem with economic growth, the construction sector which includes both real estate and infrastructure development and services as well has significantly expanded. In terms of output, the construction sector contributes nearly 18% to the total economic output and is highly correlated with the economy's GDP growth. Hence, as India seeks to achieve a GDP growth target of USD 7 trillion by 2030, the construction sector as well will grow in tandem.

To complement the growth in India's construction sector arising from infrastructure and real estate development, the employment needs to grow in the economy. For an optimum growth, the sector needs skilled as well as semi-skilled employees aiming at maximizing productivity levels.

Currently, India has a demographic advantage to cater to the employment needs of the country including the construction sector. However, despite the demographic advantage, the employability of graduates coming from construction related educational backgrounds has been challenging.

In this report we have addressed these challenges and have identified the gaps challenging the employability in the construction sector. The challenges are not limited to skilled employment, but also exist in semi-skilled employment categories. As an advocacy, we have provided a few key recommendations that needs to be implemented by the policy makers, education, and training institutions as well as the private firms.

With this backdrop, I would like to present to you Knight Frank India's research report "**Skilled employment in the construction sector in India**". I hope you find this report valuable in understanding the present state and future requirements of employment in the construction sector in India. I would like to thank RICS for providing a platform to release our valuable report.



► **Ashwani Awasthi**
Managing Director – South Asia, RICS

As India's economy continues its remarkable growth trajectory, the construction sector plays a vital role in fuelling this progress. The construction sector, including real estate and infrastructure development, has witnessed significant expansion over the last decade, contributing significantly to the Indian economy. This growth has been driven by increasing income levels, domestic demand, and favourable business conditions, attracting both foreign and domestic investors.

As we envision India's economy to surge and secure its place as the third largest in the world, it is imperative that we recognise and address the critical issue of the skills gap in the construction sector. The built environment plays a pivotal role in driving economic growth, and unleashing its full potential requires a skilled and capable workforce.

At RICS, we have long been committed to championing the cause of skill development and professionalism in the construction industry. We firmly believe that addressing the skills gap is paramount to achieving our national objectives and fostering sustainable growth.

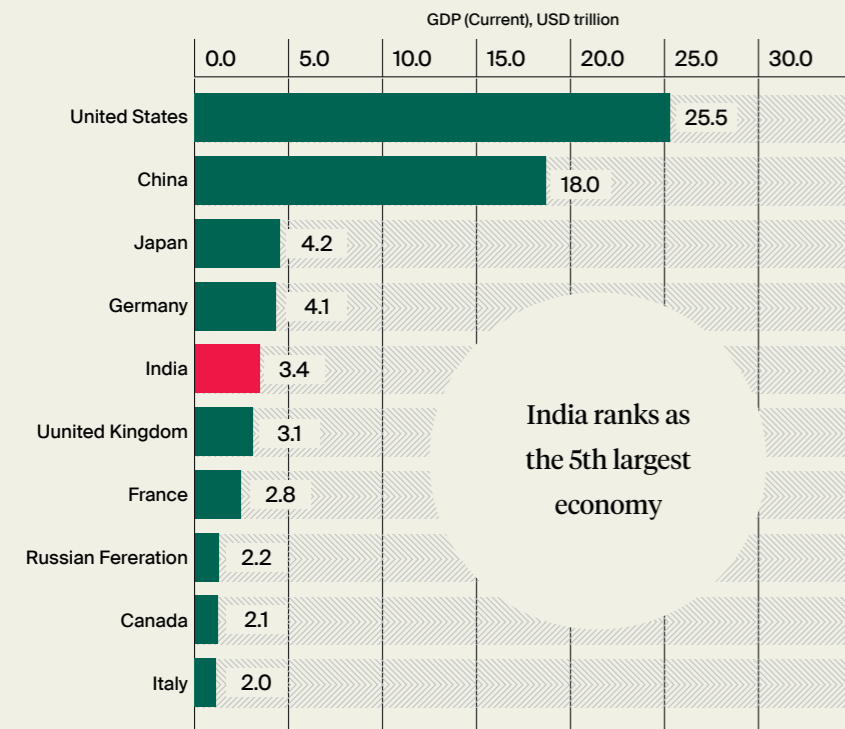
We are delighted to join hands with Knight Frank in releasing this comprehensive report on Skilled Employment in the Construction Sector in India. The report not only sheds light on the current state of the sector but also offers valuable insights into the demand for skilled employees and the areas that require urgent attention. By empowering our workforce with cutting-edge skills and expertise, we can overcome the challenges posed by the skills gap and transform it into an opportunity for progress.

As industry leaders, it is incumbent upon us to collaboratively work towards creating an ecosystem that nurtures talent and empowers our workforce with the necessary skills. Through effective partnerships, policy reforms, and education initiatives, we can bridge the skills gap and build a future-ready construction industry.

I extend my heartfelt appreciation to Knight Frank for their valuable contribution to this report and their dedication to addressing the critical issue of skilled employment in the construction sector. Together, let us pave the way for a skilled and sustainable future, ensuring that the construction industry propels India towards greater economic prosperity.

Skilled Employment in Construction Sector in India

► In the last few decades, the Indian economy has grown manifold bracing multiple global crises such as the dot com crash in 2000, the GFC crisis in 2008, the latest being the COVID-19 pandemic through 2020 and 2021. Currently, even as economies globally face growth downturns due to inflationary pressures and interest rate actions of the central banks, India's economic growth trajectory has remained resilient. In terms of GDP at market prices, the current size of India's economy is estimated to be at USD 3.4 trn and is positioned as the fifth largest economy globally.



Source: World Bank, Knight Frank Research; Note: Current GDP estimates as of 2022



The rapid growth in India's economy is driven by increasing income levels which provides impetus to domestic demand and improving business conditions which has gained appeal from the domestic as well as foreign investors. The pace of economic growth has further widened the scope of expansion of the construction sector in India which includes real estate as well as infrastructure development to accommodate the growing needs of the economy. By 2030, India's economy is estimated to be at USD 7 trn, propelling a high degree of growth in the construction sector.

High degree of correlation between construction sector output and economic growth

	Real GDP	Construction	Real Estate Services
Real GDP	1.00		
Construction Output	0.97	1.00	
Real Estate Services Output	0.97	0.94	1.00

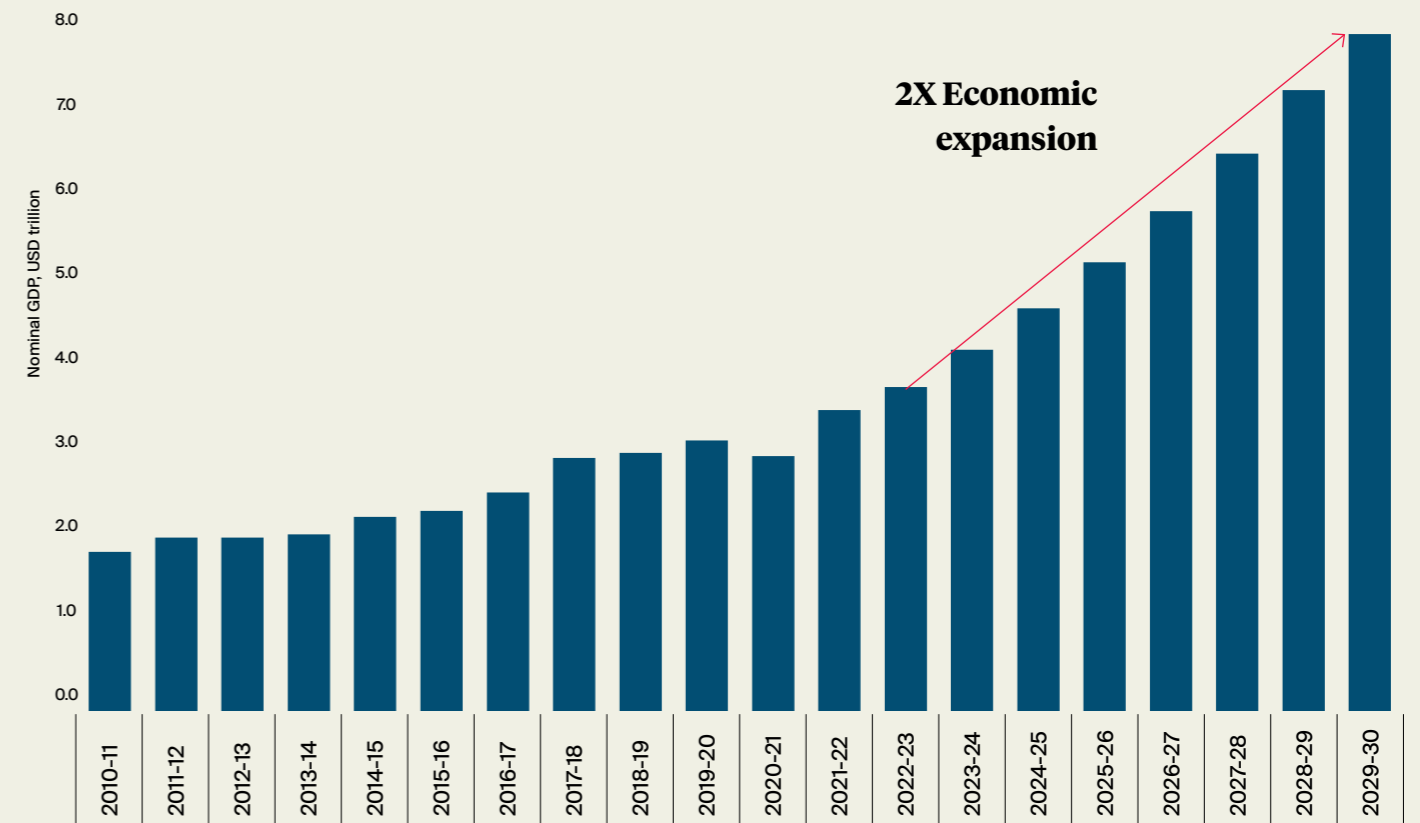
Source: CSO, Knight Frank Research

¹USD 1 = INR 82

²Construction output includes value of output from real estate and infrastructure construction activities.

³Real estate services output include value of output from professional services such as research, consulting, business development etc.

Size of India's economy estimated to be at USD 7 trn by 2030



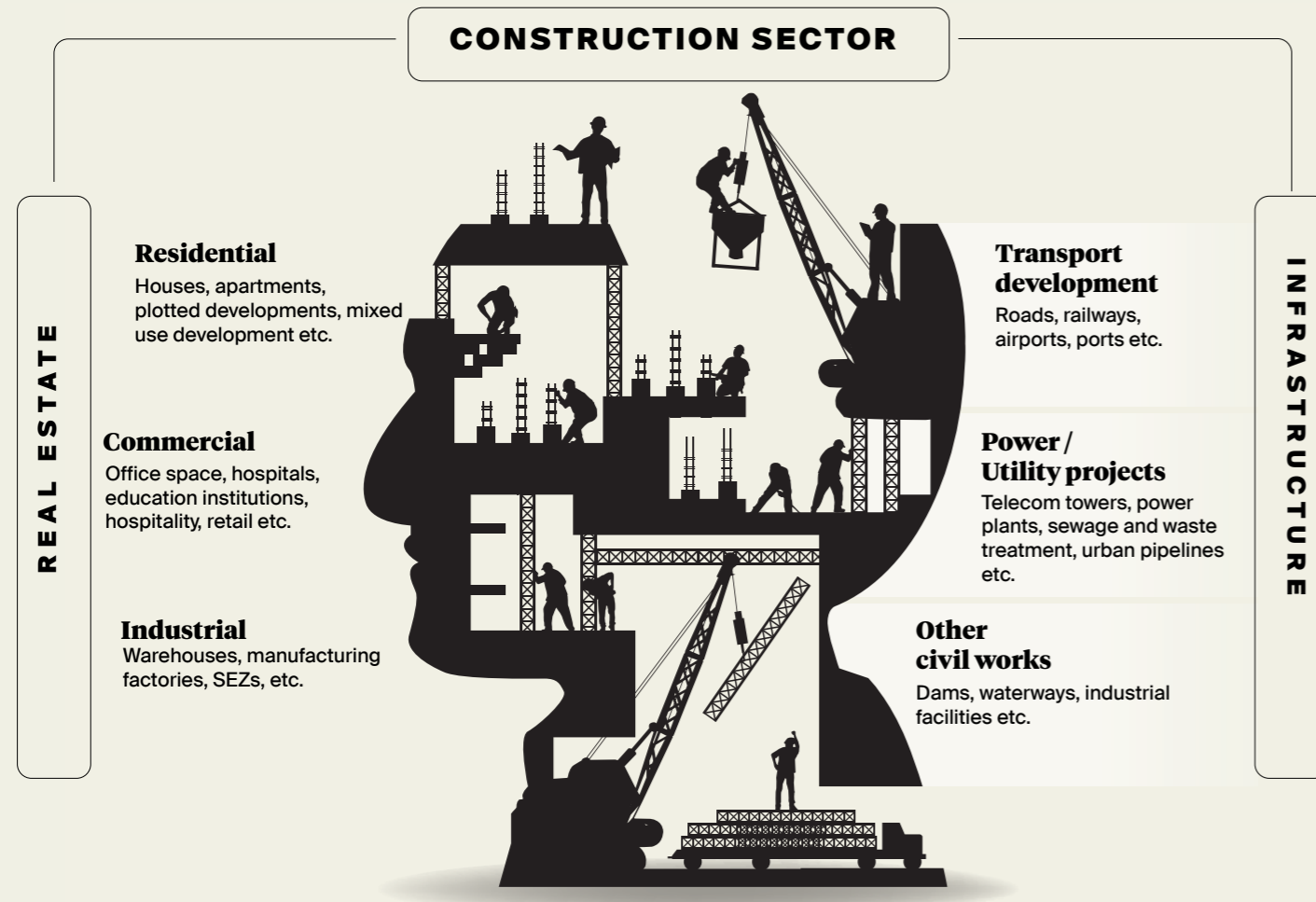
Source: CSO, Knight Frank Research. Note: Assumption (i) Economic growth at CAGR of 14% (ii) 2% INR depreciation each year

Role of construction sector in India's economic growth

In the last ten years, the output from India's construction sector – inclusive of both infrastructure and real estate development and services – has grown at a CAGR of 11%. The construction sector, along with the output generated from real estate services and ownership of dwellings, contributes 18% to the economy's total output. Additionally, this sector is the second largest employment generator with multiple linkages to the economy. In terms of productivity, the elasticity of employment to output of the construction sector is 1.12⁴.

⁴ Estimating employment elasticity of growth for the Indian economy, RBI Working Paper 2014-15



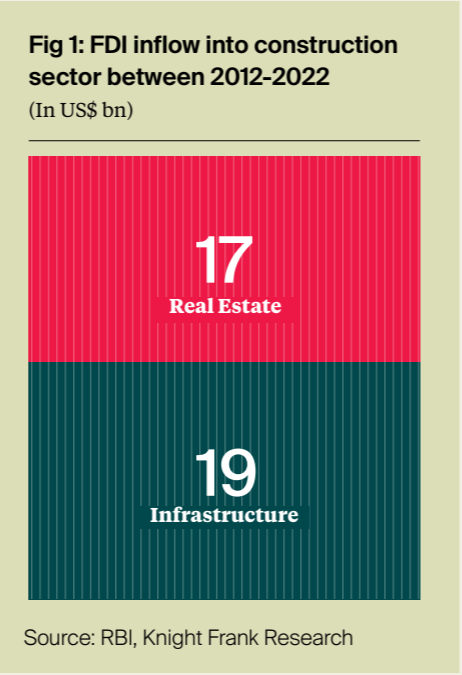


Infrastructure development: The roadmap to future growth

Sustainable infrastructure development improves competitiveness across all sectors of the economy such as agriculture, mining and manufacturing, generating a significant number of jobs, which in turn propels domestic consumption and economic growth. Recognizing the need to improve infrastructure such as roads, railways, ports, telecommunications and energy infrastructure, the central government has increased its budgetary allocation as well as undertaken initiatives to encourage private investments in infrastructure development. The Government of India's capital outlay towards infrastructure has increased from 1.7% of GDP in FY 2012-13 to 2.5% estimated for FY 2023-24. Additionally, the central government's policy initiatives such as National Infrastructure Pipeline (NIP) announced in 2020 envisages USD 1.4 trn investment between FY 2020-25; Bharatmala announced in 2022 aims at better planning and execution of infrastructure development in the country.

Real Estate Sector: Growth in tandem with the economy

The output generated from India's real estate sector is estimated to grow to USD 1 trn by 2030 from the existing USD 650 bn. The growth push to the real estate sector is mostly emerging from the residential demand, in addition to commercial, retail, hospitality, and warehousing developments, to cater to demand arising from the growing population. Between 2012-2022, 2.8 mn residential units have been launched across the top 8 cities⁵ in India, translating into 3.1 bn sq ft of residential real estate development⁶. Additionally, there is a stock of 880 mn sq ft of Grade A office development and 106 mn sq ft of retail real estate inclusive of shopping malls and high streets across the top 8 cities in India. Business sentiments and conducive policy measures undertaken by the policy makers in the last few years have boosted the investment sentiments of both domestic as well as international investors towards the construction sector in India. Between FY 2012-22, India's construction sector has attracted a cumulative FDI inflow of USD 35 bn.



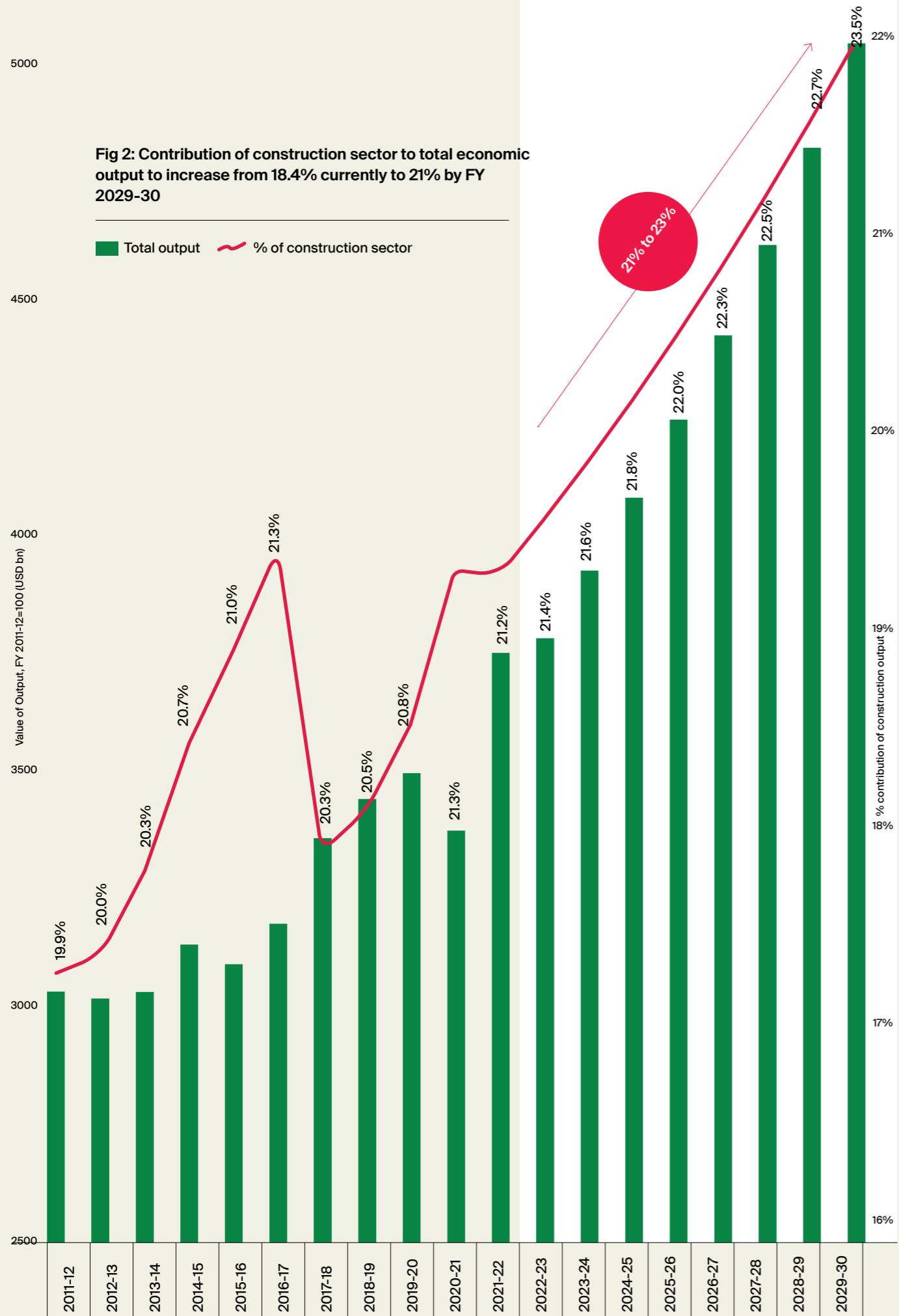


Fig 2: Contribution of construction sector to total economic output to increase from 18.4% currently to 21% by FY 2029-30

Value of output (US\$ billion)	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Total Economic Output	3683	3387	3243	3441	3392	3541	3863	3947	3550	4018	3927	4058	4194	4335	4480	4630	4785	4946
Construction	447	396	365	382	363	373	411	410	368	423	408	415	423	431	440	448	456	465
Real estate services	168	163	180	215	240	273	249	288	272	307	316	344	374	407	443	482	525	571
Contribution to total economic output (%)																		
Construction	12.1%	11.7%	11.3%	11.1%	10.7%	10.5%	10.6%	10.40%	10.40%	10.50%	10.40%	10.20%	10.10%	10.00%	9.80%	9.70%	9.50%	9.40%
Real estate services	4.6%	4.8%	5.5%	6.2%	7.1%	7.7%	6.4%	7.30%	7.70%	7.60%	8.00%	8.50%	8.90%	9.40%	9.90%	10.40%	11.00%	11.50%

Source: CSO, Knight Frank Research

Key growth drivers for India's construction sector:

Increasing population driving real estate and infrastructure demand:

As per World Bank estimates, India's population has increased from 1.2 bn in 2010 to 1.4 bn in 2022, an average annual growth of 1.1%. Supported by economic growth and growing employment opportunities, the share of urban population in total employment has increased from 30% in 2010 to 37% in 2022 and is further expected to increase to 40% by 2030. Thus, the population shift leading to massive urbanization has accentuated the potential demand for real estate and supporting infrastructure development.

Expansion in commercial and industrial real estate driven by rapid growth of IT/ITeS and manufacturing:

Driven by increasing economic activities, the job market in India is extensively getting formalized. In 2022, nearly 80 mn of active workforce was employed in the formal sector⁷. Factors such as growing start-ups, innovation in technologies, expanding GCCs, India facing businesses etc. have necessitated the demand for skilled employees in urban centers, consequently driving the demand for commercial office spaces. Currently, the top 8 cities in India have occupied office stock of 750 mn sq ft⁸.

Increasing consumerism to drive retail and hospitality real estate:

India's per capita gross national income has increased from INR 65,011 in FY 2010-11 to INR 113,144 in FY 2022-23. This has also increased the disposable income of consumers, propelling demand for retail, entertainment, and hospitality consumption. As per Knight Frank estimates, the organized retail sales volume in India is expected to grow to USD 136 bn in FY 2027-28 from USD 52 bn in FY 2021-22. This increases the scope of organized retail development in India such shopping malls. To support the increasing retail consumption, the gross leasing area of shopping malls in the top 8 cities is estimated to grow to 104 mn sq ft by FY 2028 from the existing 93 mn sq ft.

Rise in Capex allocation to Infrastructure:

Aiming at economic growth targets, the Government of India has significantly increased its capital expenditure allocation for infrastructure development in the country. As per the central budget estimates, the Capex allocation for infrastructure has increased from 1.7% of the GDP in FY 2012-13 to 2.5% estimated for FY 2023-24. The maximum allocation has been towards the development of roads and railways. Other sectors such as ports, airports, urban development etc. have also received adequate focus.



⁷Economic Survey 2022-23

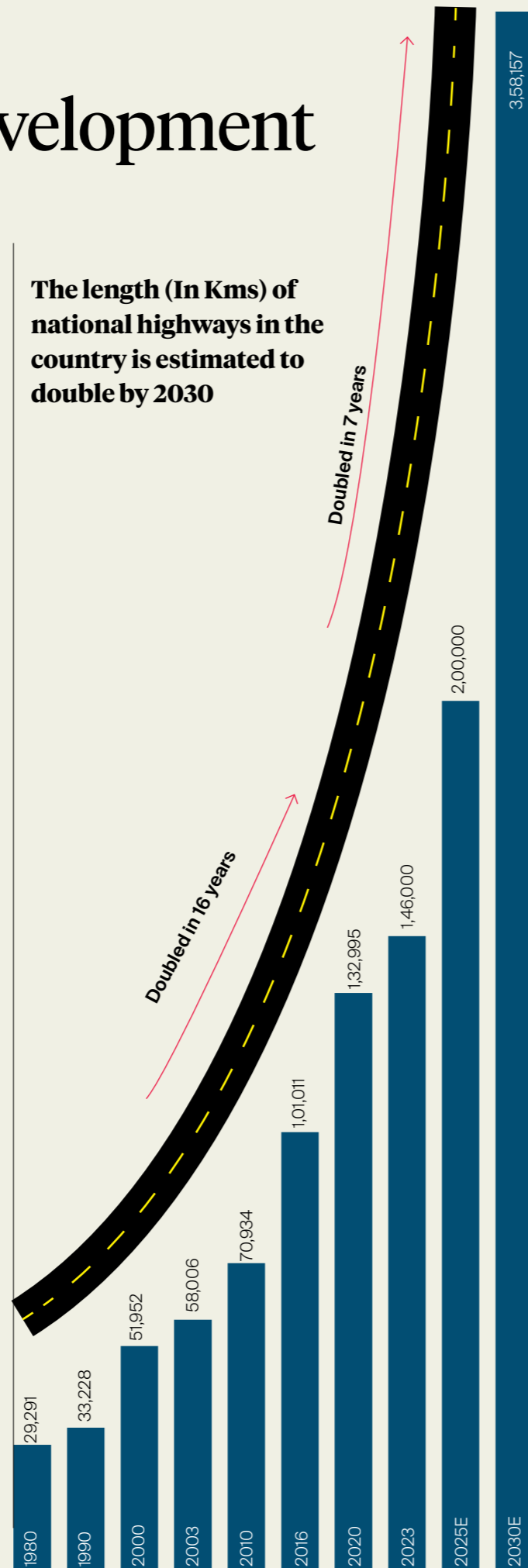
⁸India Real Estate: Residential and Office Market in H1 2023, Knight Frank India

Infrastructure development

Central government budgetary capital allocation to infrastructure development has increased from 1.4% of the GDP in FY 2011 to an estimated 2.5% in FY 2024 budget estimates (BE)

Value in USD bn (USD 1 = INR 82)	FY 2010-11	FY 2023-24 BE
Roads and Highways	1.1	31.5
Railways	2.2	29.3
Defence	7.7	20.9
Petroleum and Natural Gas	0.0	4.3
Housing & Urban Affairs	0.7	3.2
Telecommunication	0.0	7.5
Power	0.4	0.0
Atomic Energy	0.3	1.9
Space	0.2	0.8
Water Resources	0.0	0.0
New & Renewable Energy	0.0	0.0
Civil Aviation	0.2	0.0
Ports, Shipping, and Waterways	0.0	0.1
Total Infra Capex	13.0	99.6
As a % of GDP	1.4%	2.5%

The length (In Kms) of national highways in the country is estimated to double by 2030



Source: GoI, Knight Frank Research

Demand and supply assessment

Growth in real estate and infrastructure development to boost demand for skilled manpower in the construction sector

Growth in India's real estate and infrastructure sector will generate considerable demand for manpower in the industry. With the advent of technology, the construction sector has also adapted itself to improve productivity, raising the demand for skilled manpower. India's construction sector is the second largest employment generator and as of 2023, 71 mn of the workforce is estimated to be employed in the construction sector. However, 81% of this workforce is unskilled. Only 19% i.e. 1.3 mn of the workforce in the real estate sector are skilled employees. Owing to the growing demand for real estate and infrastructure, the demand for skilled employees will continue to arise from developers, construction companies, consulting firms etc. whereas the supply of the skilled manpower is to be generated from government initiatives, academic and training institutes.

As per the estimates of National Skill Development Council (NSDC), 87% of the overall employees (skilled + unskilled) are absorbed by the real estate sector, whereas 13% are absorbed by the infrastructure sector. Currently, of the total workforce of 71 mn employed in the construction industry in India, 4.4 mn are core skilled employees which includes engineers, technicians, clericals etc, and 6.9 mn are vocationally trained employees.

Employment in construction sector is estimated to grow to 100 mn to attain economic growth targets

Occupation	Unit in 000s				% Share			
	2005	2011	2023E	2030E	2005	2011	2023E	2030E
Engineers	822	1050	2200	3309	2.7%	2.6%	3.1%	3.3%
Technicians/Foremen	573	1120	2271	3811	1.8%	2.7%	3.2%	3.8%
Clericals	738	930	1916	2908	2.4%	2.3%	2.7%	2.9%
Skilled Force	3267	3730	6884	10530	10.5%	9.1%	9.7%	10.5%
Semi-skilled	25600	34200	57695	79724	82.6%	83.4%	81.3%	79.5%
Total	31000	41030	70966	100282	100.0%	100.0%	100.0%	100.0%

Source: NSDC, CMIE, Knight Frank Research

Supply of Skilled employment

Skilled employees in the construction sector are broadly defined as individuals who have attained graduation in related courses, primarily civil engineering. Employees in this sector also graduate from other fields such as finance and management to support the non-technical job requirements of the sector. Apart from the core skilled workforce, the sector also provides employment to the secondary level of skilled workforce who are vocationally trained, such as plumbers, carpenters, electricians etc. India has nearly 3200 universities and colleges providing full time construction related courses.

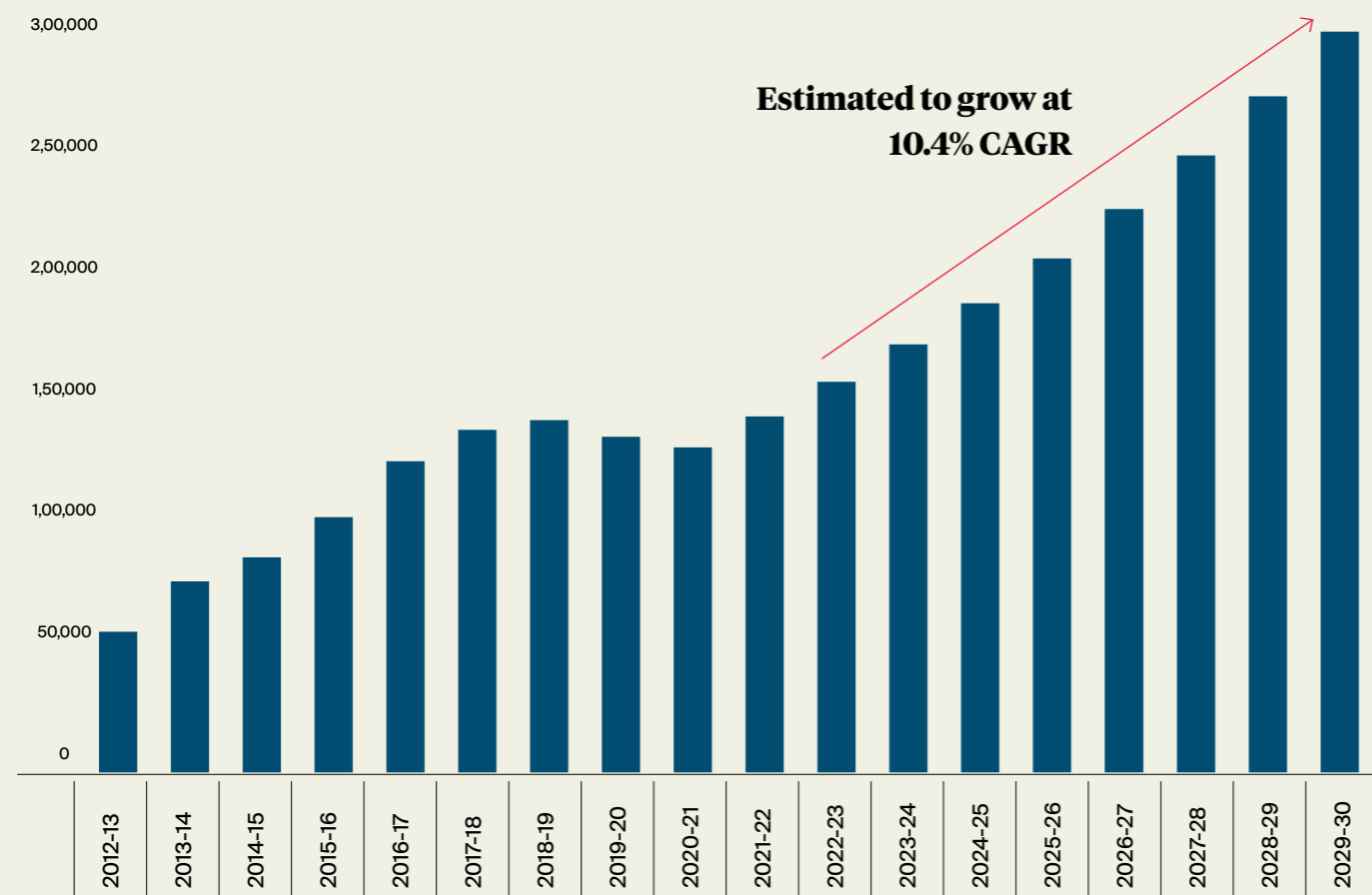
Between 2012-21, the cumulative supply of core skilled employees i.e. civil engineers, was 8,96,864. Owing to demographic advantage and the increased leaning towards education, an estimated 17 lakh civil engineers are estimated to seek employment by FY 2029-30, growing at a CAGR of 10.4% with an average annual increment of 1.8 lakhs. However, as per industry discussions only 50% of the civil engineers get absorbed into employment as a) fresh graduates find it challenging to match up to industry requirements b) its convenient to seek employment in other related industries.



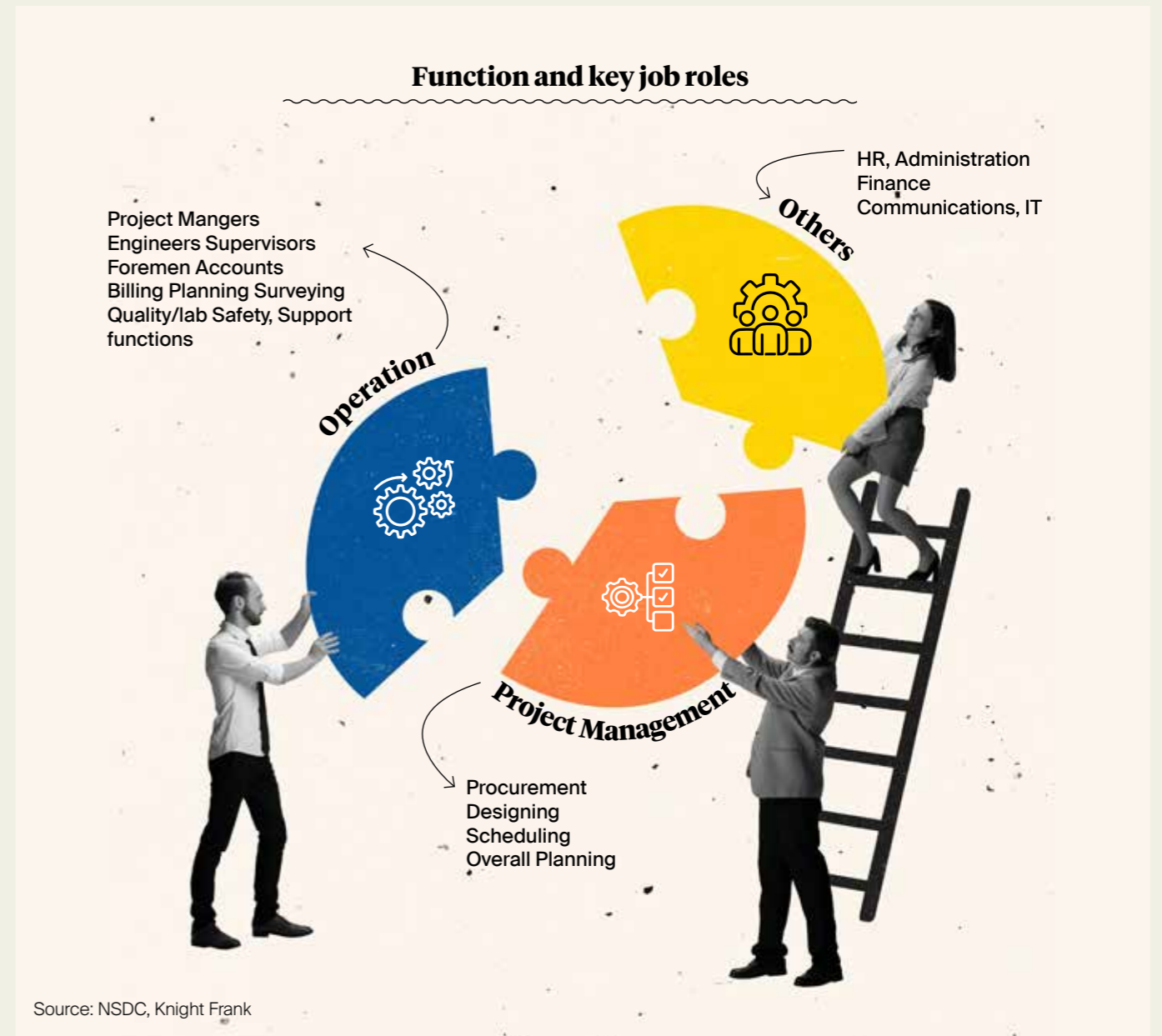
Qualitative assessment of skilled workforce in construction sector in India

In the construction sector the technical skills of the potential employee is the most prominent trait required. This is categorized into – a) Civil traits: those who are closely associated with understanding structures and civil engineering related aspects, b) Mechanical traits: Those which require understanding of machines and mechanical engineering, c) Technological traits. Those who have adept knowledge of technologies and software related to the construction sectors.

Incremental supply of key graduates required for construction sector



Source: AISHE, Knight Frank Research



Source: NSDC, Knight Frank

Hierarchy of skilled manpower in construction sector



Skill gap qualitative analysis of the skilled workforce in construction sector

Job Role	Education Qualification	Skills Required	Skill Gap
Project Manager	Graduate engineers/post graduate engineers with relevant work experience	<ul style="list-style-type: none"> Project Management skills Supervision skills Good understanding of the industry Leadership qualities, good communication skills Demonstrated ability to effectively implement the project and finish it in the given time Required technical skills and field experience Leadership qualities 	<ul style="list-style-type: none"> Lack of leadership, managerial, supervisory and project management skills. Inadequate analytical and problem-solving abilities
Project Engineers	Gradate engineers – Civil/Architect/Mechanical/Electrical	<ul style="list-style-type: none"> Domain skills – technical and construction engineering Project management skills such as – planning, scheduling, designing, procurement & execution. Knowledge and understanding of the project Safety management and preventive maintenance skills 	<ul style="list-style-type: none"> Mismatch in industry education imparted and industry required skills Lack of application of knowledge into practice Lack of specialization in areas such as – CAD, planning, project execution and quality control

Supervisors	Diploma Engineers/ITIs with experience	<ul style="list-style-type: none"> Domain knowledge Ability to supervise and mentor the labours Planning skills – ability to estimate and forecast the required raw materials, manpower and machinery Ability to schedule and monitor the project Labour management skills Maintain safe and productive work environment 	<ul style="list-style-type: none"> Poor communication skills to increase productivity Inadequacy in the formal training of technical skills to match the industry standards
Skilled workmen – Mason, plumber, welder, equipment	Minimally educated	<ul style="list-style-type: none"> Trade skills – Carpentry, plastering, plumbing etc. Ability to communicate and coordinate with unskilled workmen Ability to operate machines and operating key equipment 	<ul style="list-style-type: none"> Lack of knowledge on machine operation and equipment maintenance Lack of understanding of quality control process Sub-optimal productivity

Source: NSDC, Knight Frank Research

Recommendations

From the above quantitative and qualitative analysis, we infer that although the supply of skilled manpower required for the growth of construction sector in the country is adequate, the scale of employability is not the same. Therefore, skill development for the optimum growth of the construction sector is imperative, primarily for the following reasons:

- India has a demographic advantage as India's working age population (aged 15–64) is larger than the non-working, with an estimated 63% of the population being in the working age group. This demographic will be actively seeking employment opportunities.
- Developed countries such as the US and Canada which are spending massively in construction and real estate development are facing a shortage of skilled manpower. For instance, as per the Construction Skills Network (CSN) Report, the construction sector in the US will need an additional 2,66,000 skilled and vocationally trained workers by 2026. The country is expected to face a further shortage due to its ageing population. This provides an opportunity for overseas demand of Indian graduates who are equipped with adequate skills to cater to the global industry.

To conclude, for the Indian economy to grow at an optimum level, it is crucial that the working age population is employable to cater to the industry needs. Emphasis on skill development should be undertaken by educational institutes, the government and policy makers, as well as by private entities such as developers and firms engaged in the construction industry. Given below are some key recommendations:

- Strengthening of training modules in institutes as per industry requirements: Over the last few years, the construction industry has witnessed technological advancement. The industry has been integrating with innovative technologies such as Information and Communications Technology (ICTs), Internet of Things (IoT), etc along with being a multi-disciplinary knowledge sharing platform. The education curriculum and training modules in India need to be updated accordingly

and aligned with industry requirements. As per industry discussion, a significant portion of graduates and trained candidates entering the construction industry are ill-equipped to meet industry requirements and work with modern-day concepts. Therefore, to achieve optimum employability, the education curriculum needs to be updated and integrated with industry requirements. This can be done through extensive engagement with the private employment sector.

- Promote global centric education: The employment opportunities in construction sector are not just limited to India. Indian graduates equipped with necessary skills have the potential to attract employment demand from the overseas market too. However, to take advantage of this, the education system in India needs to impart a global curriculum in addition to training and practices. Courses with specializations aiming at global requirements have a potential to provide long term global employment opportunities.
- Collaboration between academic institutions and private employers: Student engagement with private sector employers through their academic institutions, increases their exposure to real-world work environment. Regular engagements such as interning, participation in conferences, authoring research papers and building case studies, equips students with real skills required to be employable.
- Encourage coursework and certification with professional bodies: Upskilling post-employment, could be one of the key strategies to enable the employees to enhance their capabilities and develop additional skills. Incentives by the private sector employers to encourage their employees to pursue additional certifications, course works and training from reputed professional bodies will not just boost the quality of employees in the organization, but also increase the quality of work and productivity. To achieve this, the private sector can collaborate with reputed academic institutions and other professional bodies.



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