



# INDUSTRY RESEARCH REPORT: INFRASTRUCTURE

Client: [AFCONS Infrastructure Ltd.](#)

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## Contents

<b>Chapter 1: Macro-Economic Overview .....</b>	<b>1</b>
Global Macro-Economic Overview .....	1
India's Macro-Economic Overview .....	2
<b>Chapter 2: Global Infrastructure Construction Industry Overview .....</b>	<b>6</b>
Global Construction Market Overview .....	6
Emerging market to drive Global Construction Growth, wherein India is projected to be the fastest growing construction market in the world .....	9
Outlook on MENA region .....	11
Outlook on Central and Eastern Europe region .....	12
Outlook on SSA region .....	12
Outlook on APAC region .....	13
<b>Chapter 3: Indian Construction Infrastructure Industry Overview .....</b>	<b>15</b>
Assessment of Overall Construction Industry in India .....	15
EXIM Bank to support Indian project exporters .....	19
Assessment of Infrastructure Construction Segment .....	22
Outlook on Indian Infrastructure .....	24
Roads and Highways .....	28
Railways .....	31
Urban Infrastructure .....	34
Ports .....	46
Hydro-electric Power .....	50
Oil and Gas Construction Segment Overview .....	51
Irrigation Construction Segment Overview .....	53
Conclusion .....	55
<b>Chapter 4: Brief Profile of Afcons Infrastructure Limited .....</b>	<b>56</b>
<b>Chapter 5: Competitive Mapping of Key Indian Infrastructure Players .....</b>	<b>64</b>
<b>List of Abbreviations .....</b>	<b>72</b>

## Chapter 1: Macro-Economic Overview

### Global Macro-Economic Overview

#### World Bank's Global Economic Prospect (GEP), January 2024: India to remain the fastest growing economy in the world

As per the latest World Bank's Global Economic Prospect (GEP), January 2024; economic growth projection for India is at 6.4% for FY2025. India grew at 6.3% in FY2024 mainly on account of strong domestic demand, rising public infrastructure spending and strong private-sector credit growth. However, World Bank projected that the private consumption growth might taper off due to high food inflation and diminishing pent-up demand. India will remain the fastest-growing major economy with FY2026 real GDP growth rate forecasted at 6.5% as per World Bank.

World Bank Real GDP Growth Projections (% change from previous year)					
	CY2021	CY2022	CY2023e	CY2024f	CY2025f
<b>World</b>	<b>6.2</b>	<b>3.0</b>	<b>2.6</b>	<b>2.4</b>	<b>2.7</b>
<b>Advanced economies</b>	<b>5.5</b>	<b>2.5</b>	<b>1.5</b>	<b>1.2</b>	<b>1.6</b>
United States	5.8	1.9	2.5	1.6	1.7
Euro area	5.9	3.4	0.4	0.7	1.6
Japan	2.6	1.0	1.8	0.9	0.8
<b>Emerging market and developing economies</b>	<b>7.0</b>	<b>3.7</b>	<b>4.0</b>	<b>3.9</b>	<b>4.0</b>
East Asia and Pacific	7.5	3.4	5.1	4.5	4.4
China	8.4	3.0	5.2	4.5	4.3
Indonesia	3.7	5.3	5.0	4.9	4.9
Thailand	1.5	2.6	2.5	3.2	3.1
Europe and Central Asia	7.1	1.2	2.7	2.4	2.7
Latin America and the Caribbean	7.2	3.9	2.2	2.3	2.5
Middle East and North Africa	3.8	5.8	1.9	3.5	3.5
Saudi Arabia	3.9	8.7	-0.5	4.1	4.2
South Asia	8.3	5.9	5.7	5.6	5.9
India <sup>1</sup>	9.1	7.2	6.3	6.4	6.5
Bangladesh <sup>1</sup>	6.9	7.1	6.0	5.6	5.8
Sub-Saharan Africa	4.4	3.7	2.9	3.8	4.1
Nigeria	3.6	3.3	2.9	3.3	3.7
South Africa	4.7	1.9	0.7	1.3	1.5
Angola	1.2	3.0	0.5	2.8	3.1

Source: World Bank Global Economic Prospects, January 2024 (e: Expected; f = Forecast)

<sup>1</sup> GDP growth rates are on a fiscal year basis

Global growth is expected to slow to 2.4% in CY2024 reflecting the lagged and ongoing effects of tight monetary policies to rein in decades-high inflation, restrictive credit conditions, and anemic global trade and investment. Near-term prospects are diverging, with subdued growth in major economies alongside improving conditions in emerging market and developing economies (EMDEs) with solid fundamentals. Meanwhile, the outlook for EMDEs

with pronounced vulnerabilities remains precarious amid elevated debt and financing costs. Downside risks to the outlook predominate. The recent conflict in the Middle East, coming on top of the Russian Federation's invasion of Ukraine, has heightened geopolitical risks. Conflict escalation could lead to surging energy prices, with broader implications for global activity and inflation. Other risks include financial stress related to elevated real interest rates, persistent inflation, weaker-than-expected growth in China, further trade fragmentation, and climate change-related disasters. Against this backdrop, policy makers face enormous challenges and difficult trade-offs. Commodity exporters face the additional challenge of coping with commodity price fluctuations, underscoring the need for strong policy frameworks. To boost longer-term growth, structural reforms are needed to accelerate investment, improve productivity growth, and close gender gaps in labour markets.

## India's Macro-Economic Overview

### Gross Domestic Product (GDP)

According to the Second Advance Estimates of National Income for FY2024 released by the National Statistical Office (NSO) on 29<sup>th</sup> February 2024; Real GDP or GDP at Constant (2011-12) Prices in the year FY2024 is estimated to attain a level of INR 172.90 trillion, against the First Revised Estimates of GDP for the year FY2023 of INR 160.71 trillion. The growth rate of GDP during FY2024 is estimated at 7.6% as compared to growth rate of 7.0% in FY2023. Nominal GDP or GDP at Current Prices in the year FY2024 is estimated to attain a level of INR 293.90 trillion, against INR 269.50 trillion in FY2023, showing a growth rate of 9.1%.

Private final consumption expenditure (PFCE) registered a moderate growth of 3.0% in FY2024. Government final consumption expenditure (GFCE) growth at 3.0% remained muted as the Government of India (Government) continued a consolidation path to restore fiscal health, while stepping up capital expenditure to support growth and investment. The improvement in the quality of expenditure bodes well for sustainability and de-risking of growth going forward. Gross fixed capital formation (GFCF) remained strong with a double-digit growth of 10.2% in FY2024, primarily aided by the government's thrust on infrastructure. As a result, the ratio of real GFCF to GDP increased to 34.1% in FY2024 from 33.3% in the preceding year. India's exports, after exhibiting remarkable recovery post-COVID with a growth of 32.7% in FY2022, tapered to 1.5% in FY2024. The growth in imports at 10.9% in FY2024 outpaced the growth in exports.

Components of GDP						
Component	Growth (percent)					
	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024
<b>Total Consumption Expenditure</b>	<b>7.0</b>	<b>5.0</b>	<b>-4.6</b>	<b>9.8</b>	<b>7.1</b>	<b>3.0</b>
Private	7.1	5.2	-5.2	11.6	6.8	3.0
Government	6.7	3.9	-0.9	0.1	9.0	3.0
<b>II. Gross Capital Formation</b>	<b>6.2</b>	<b>-6</b>	<b>-11.6</b>	<b>21.8</b>	<b>5.5</b>	<b>10.2</b>
Gross Fixed Capital Formation	11.2	1.1	-7.3	17.8	6.6	10.2
Change in Stocks	27.3	-58.7	-85.5	916.5	14.5	5.0
Valuables	-9.7	-14.2	26.4	36.1	-19.1	13.8
<b>III. Net Exports</b>						
Exports	11.9	-3.4	-9.1	32.7	13.4	1.5
Imports	8.8	-0.8	-13.7	23.6	10.6	10.9
<b>IV. GDP</b>	<b>6.5</b>	<b>3.9</b>	<b>-5.8</b>	<b>9.8</b>	<b>7.0</b>	<b>7.6</b>

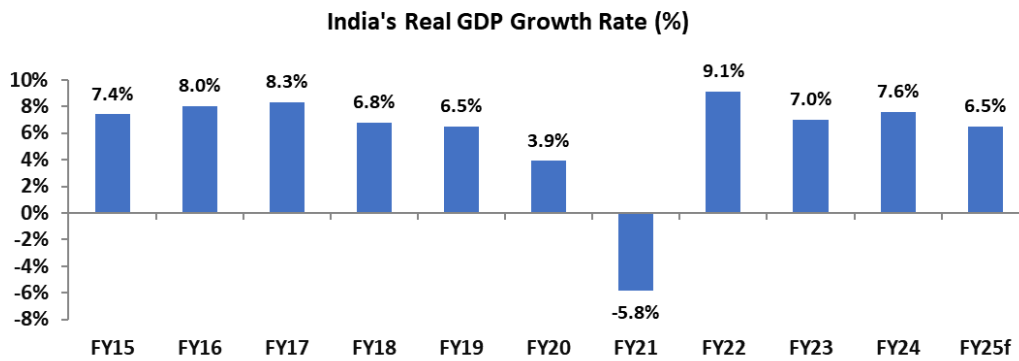
Source: The National Statistical Office (NSO), Ministry of Statistics and Programme Implementation (MoSPI), RBI

Note: FY2022 is Second Revised Estimates, FY2023 is First Revised Estimates and FY2024 is Second Advance Estimates of National Income

India Ratings (Ind-Ra) expects real GDP to grow 6.5% y-o-y in FY2025. Despite the base effect, the sequential real GDP growth indicates that the economic recovery is on track due to the sustained government capital expenditure, healthy corporate performance, deleveraged corporates/banking sector balance sheet, continued softness in global commodity prices and prospect of a new private corporate capex cycle.

However, there are risks as aggregate demand is largely driven by government capex. Prevailing consumption demand is still skewed in favour of the goods and services consumed by the households belonging to the upper 50% of the income bracket. As a result, the consumer durables segment of Index of Industrial Production grew at just 1.0% during 9MFY2024. The spill-over effect of government capex is visible in industrial segments namely capital and infrastructure/ construction goods, which during 9MFY2024 grew 7.0% and 10.4% respectively. Hit by the growth slowdown in advanced economies and rising trade distortions/geopolitical fragmentation, exports are likely to face global headwinds even in FY2025. India's goods and services exports during 10MFY2024 recorded a negative growth rate of 0.14%.

Another issue that will have implications for gross value added (GVA) and corporate profitability in FY2025 is the rise in Wholesale Price Index (WPI) inflation which is akin to producers' price index. WPI after remaining in deflation from April to October 2023 has turned into inflation since November 2023. A rise in input cost, if is not adequately passed into output prices, will reduce value addition/corporate margin. Given that consumption is not broad-based, producers will find it difficult to pass on the higher input cost to output prices.



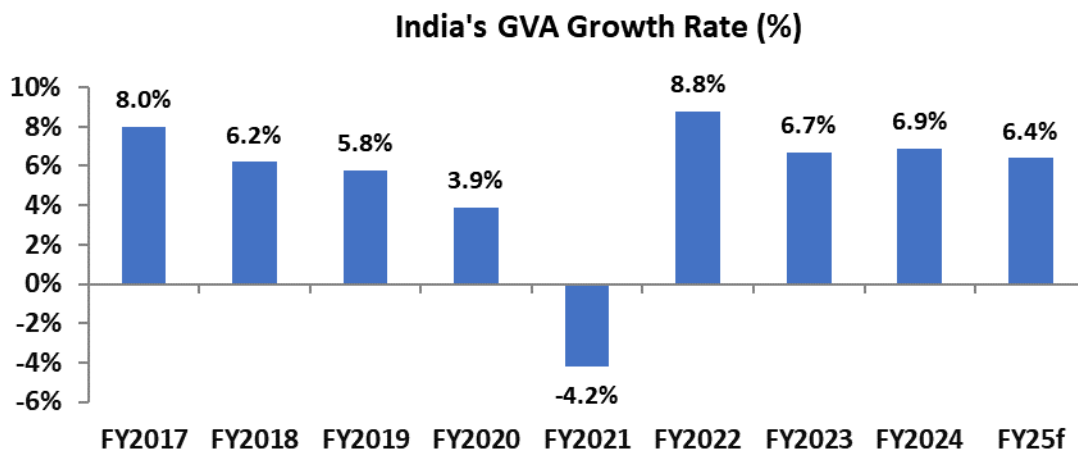
\*f=forecasted

Source: NSO, RBI, India Ratings

Note: Data for FY2022 is Second Revised Estimates, FY2023 is First Revised Estimates and FY2024 is Second Advance Estimates of National Income

### Gross Value Added (GVA)

According to the Second Advance Estimates (SAE) of National Income for FY2024 released by the National Statistical Office (NSO) on 29<sup>th</sup> February 2024, aggregate supply - measured by gross value added (GVA) at basic prices - expanded by 6.9% in FY2024, as compared with a growth of 6.7% a year ago. GVA growth was driven by growth in construction and manufacturing sector. The construction sector is expected to register a double-digit growth rate of 10.7% in FY2024, while the manufacturing sector is expected to display a strong performance with an 8.5% growth in FY2024, contributing significantly to the overall GDP growth in FY2024.

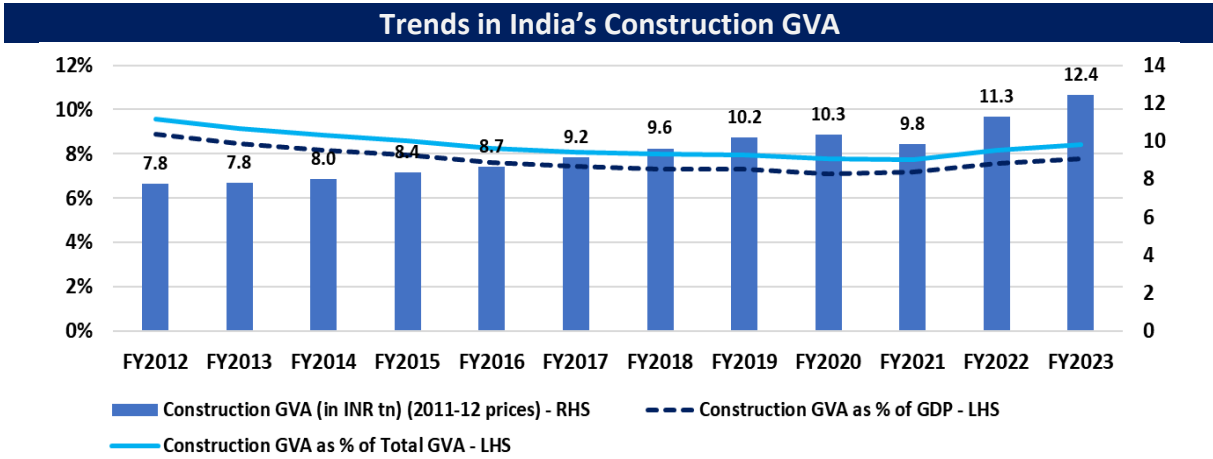


Source: NSO, RBI, India Ratings

Components of GVA						
Sector	Growth (percent)					CAGR (%) (FY2019-2023)
	FY2019	FY2020	FY2021	FY2022	FY2023	
Construction	6.5	1.6	-5.7	14.8	10.0	11.4
<b>GVA at Basic Prices</b>	<b>5.8</b>	<b>3.9</b>	<b>-4.2</b>	<b>8.8</b>	<b>7.0</b>	<b>4.8</b>

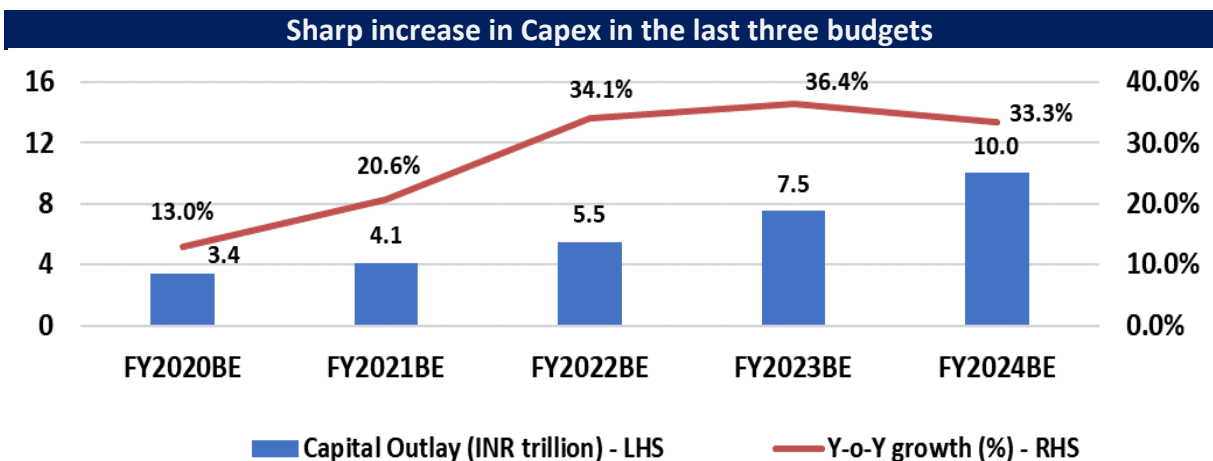
Source: NSO, RBI

Gross value-add in the construction sector increased from INR 7.8 trillion in FY2012 to INR 12.4 trillion in FY2023. Construction Gross Value Added (GVA) witnessed growth of 10% in FY2023. It is expected to grow at 9-11% in FY2025 owing to the government’s emphasis on infrastructure development and a robust order book.



Source: NSO, RBI, FSIAPL

Growth in the upcoming year FY2025 will be supported by solid domestic demand and a pickup in capital investment. Compensating for the private sector’s caution in capital expenditure, the government raised capital expenditure substantially. Budgeted capital expenditure rose 2.9 times in the last 4 years, from FY2020 to FY2024, re-invigorating the Capex cycle. The Central Government sharply raised capex in the last three budgets. Capital outlay increased from INR 3.4 trillion in FY2020 to INR 10.0 trillion in FY2024 as depicted in the chart below.

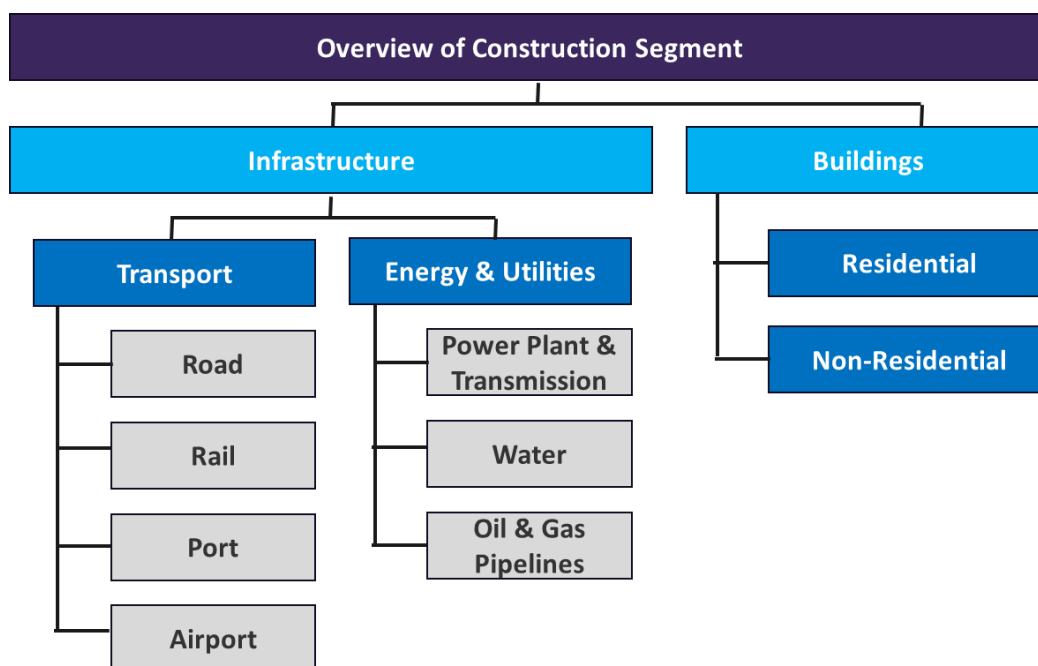


Source: Union Budget of India, FSIAPL, BE- Budget Estimates

## Chapter 2: Global Infrastructure Construction Industry Overview

### Global Construction Market Overview

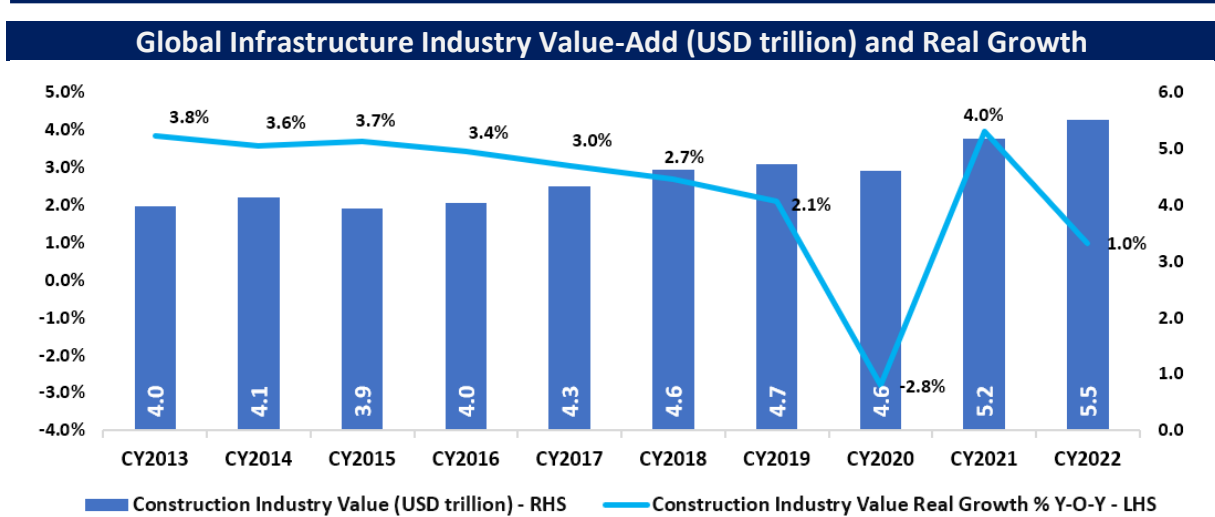
Broadly, there are two sectors of construction: Infrastructure construction and Building construction. Building construction is usually further divided into residential and non-residential. Economic infrastructure includes transportation, power, water, and telecom systems that boost economic activity and provide essential services. Roads, ports, airports, rail, and telecom networks are needed for trade and mobility. Electricity fuels production, and clean water underpins public health. Apart from economic infrastructure, the broader definition of infrastructure also includes oil and gas, mining and social infrastructure.



Source: FSIAPL

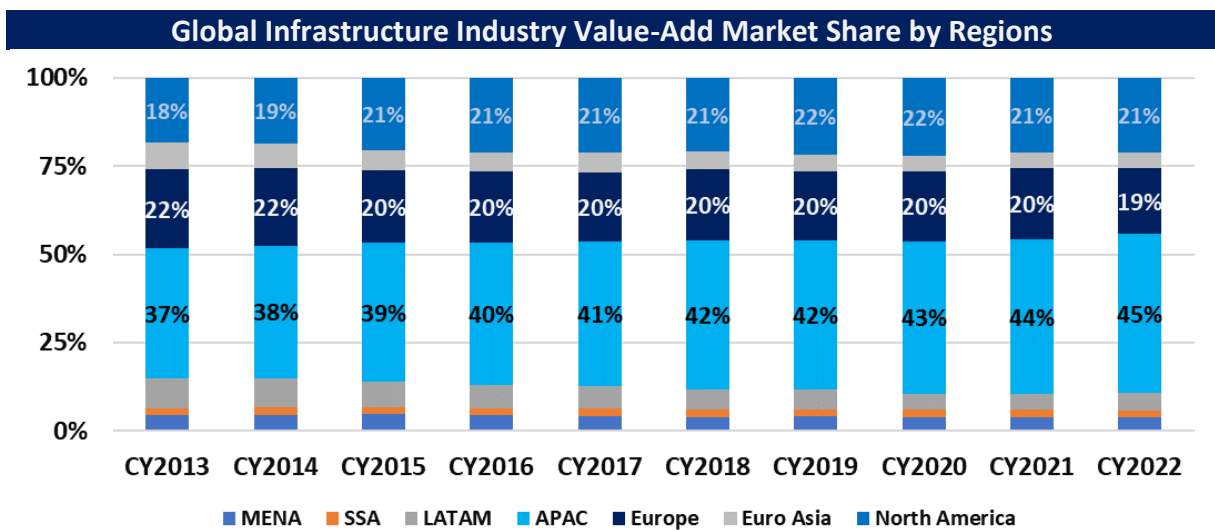
As per Fitch Solutions, the global construction industry value-add, comprising of transport, power, water, telecom, oil and gas, mining and construction, stood at USD 5.5 trillion at the end of CY2022, having grown from USD 4.0 trillion in CY2013. The construction data is derived from national accounts from each market's national statistics office (or equivalent) or from international organisations which compile national account data, most notably the UN. Specifically, it measures the gross value added (GVA) of the construction industry over the reported 12-month period in nominal values.





Source: Fitch Solutions

As per Fitch Solutions, the global construction industry has grown at a CAGR of 3.7% from USD 4.0 trillion in CY2013 to USD 5.5 trillion in CY2022.



Source: Fitch Solutions

- Note: 1. MENA (Middle East and North Africa) includes Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Libya, Morocco, Oman, Qatar, Saudi Arabia, United Arab Emirates and Yemen.  
 2. SSA (Sub Saharan Africa) includes Angola, Botswana, Cameroon, Cote D'Ivoire, Ethiopia, Gabon, Ghana, Kenya, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Sudan, Tanzania, Uganda, Zambia and Zimbabwe.  
 3. LATAM (Latin America) includes Argentina, Belize, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Uruguay and Venezuela  
 4. APAC (Asia Pacific) includes Australia, Bangladesh, Cambodia, China (Mainland), Hong Kong, China, India, Indonesia, Japan, Laos, Malaysia, Mongolia, Myanmar, New Zealand, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, China, Thailand and Vietnam  
 5. Europe includes Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and United Kingdom  
 6. Euro Asia includes Bosnia & Herzegovina, Bulgaria, Croatia, Cyprus, Estonia, Israel, Kazakhstan, Latvia, North Macedonia, Romania, Russia, Slovakia, Slovenia, Turkiye, Turkmenistan, Ukraine and Uzbekistan.  
 7. North America includes Canada and United States

Over 85% of the infrastructure market is comprised of the APAC region, North America and Western Europe. The share of APAC in the overall pie has increased from 37% in CY2013 to 45% in CY2023. China and USA dominated the overall infrastructure market and accounted for over 40% of the market in CY2022.

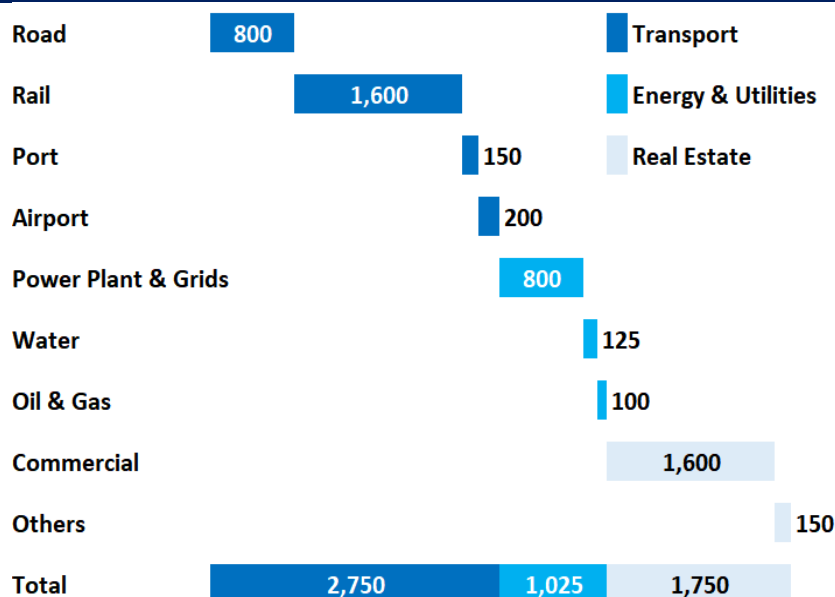
**Top 25 Countries by Infrastructure Market Share in CY2022**

China (Mainland)	22.4%	Italy	1.7%
United States	18.2%	South Korea	1.6%
Taiwan, China	4.7%	Spain	1.2%
India	4.6%	Brazil	1.0%
Japan	4.1%	Saudi Arabia	0.9%
Germany	4.0%	Nigeria	0.8%
United Kingdom	3.2%	Turkiye	0.8%
Canada	2.8%	Netherlands	0.8%
France	2.5%	Poland	0.7%
Indonesia	2.3%	Bangladesh	0.7%
Australia	2.0%	Switzerland	0.7%
Mexico	1.9%	United Arab Emirates	0.6%
Russia	1.7%	Others	14.2%

Source: Fitch Solutions

FSIAPL has also tried to understand the sectoral break-up of the global construction market based on Fitch Solutions’ proprietary Infrastructure Key Projects Data, a comprehensive catalogue of the major power, transport, utilities, residential and non-residential projects in each market. However, a significant part of the residential construction could be under the unorganised sector.

**Approximate Break-up of Global Construction Market by Segments in USD Billion (CY2022)**

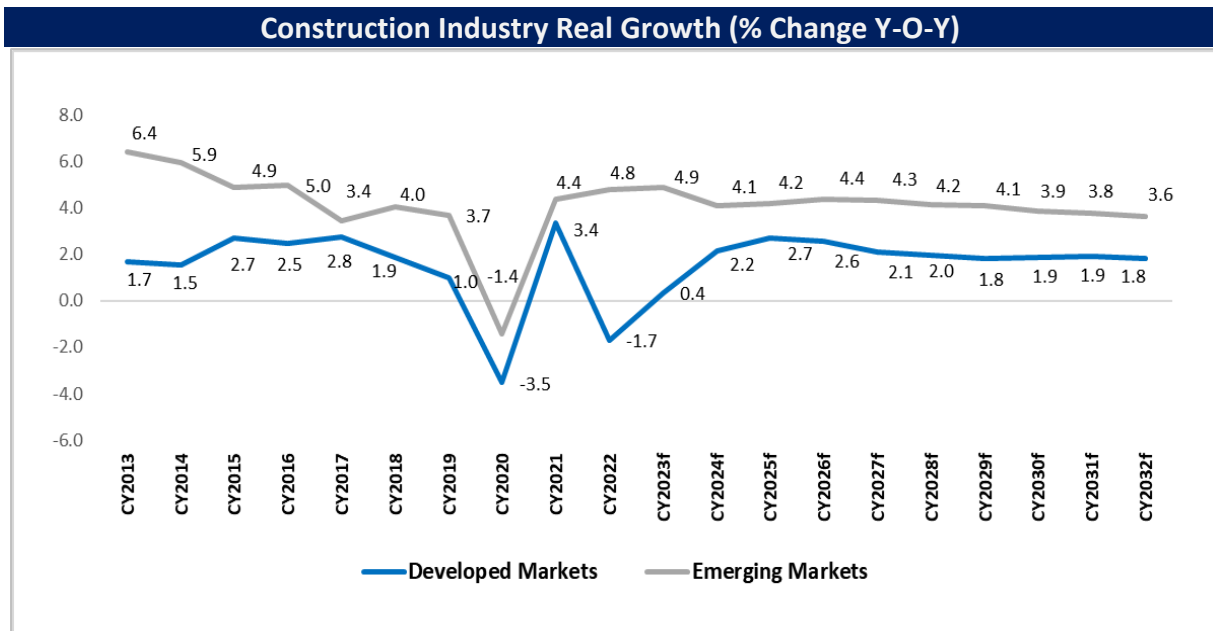


Source: Fitch Solutions

### Emerging market to drive Global Construction Growth, wherein India is projected to be the fastest growing construction market in the world

Global construction growth will largely be driven by expanding construction investment in emerging markets, with emerging market construction industry value to grow by an annual average of 4.13% y-o-y over the next decade. This will mark a modest increase in growth compared to average annual growth of 4.10% y-o-y between CY2013 and CY2022. The strong growth of construction in emerging markets will be driven in large part by emerging markets in Asia, given the large size of these markets and relatively high growth rates. FSIAPL forecasts that Asia’s construction industry will grow by 4.9% y-o-y and 4.2% y-o-y in CY2023 and CY2024, and by an annual average of 4.0% y-o-y between CY2023 and CY2032.

Emerging markets in the region will lead growth in the region with India, Indonesia, Vietnam, Philippines and Bangladesh amongst markets that will see the highest growth rates in the region over the coming decade. Mainland China’s construction growth will also continue to play a strong role in shaping growth trends in the region, given the large size of Mainland China’s construction industry, which accounted for about 23% of global construction industry value in USD terms in CY2022. FSIAPL forecasts Mainland China’s construction industry will outpace Asia’s construction industry overall in CY2023 with real growth of 5.7% y-o-y and match regional growth in CY2024 with growth of 4.2% y-o-y. FSIAPL forecasts that Mainland China will see average annual construction growth of 3.8% over the next ten-year forecast period.



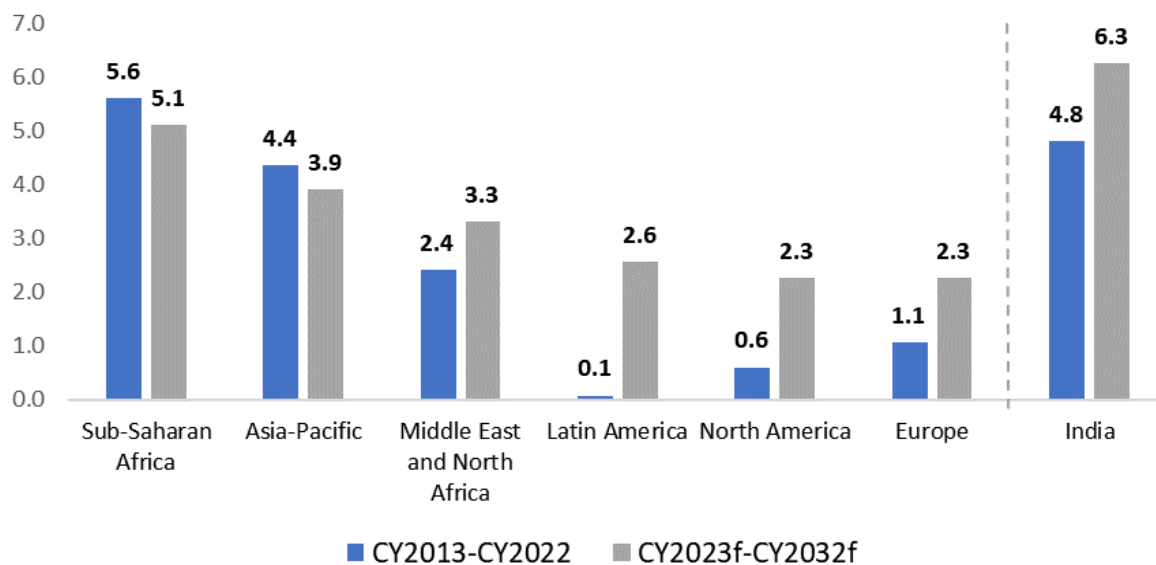
f= Fitch Solutions forecast; Source: National sources, Fitch Solutions

Also contributing to global construction growth will be the expansion of construction in Sub-Saharan African (SSA) markets, with the SSA construction industry value to grow in real terms by 4.6% y-o-y in CY2023 and 5.3% y-o-y in CY2024 and see average annual growth of 5.1% y-o-y between CY2023 and CY2032. This will mark a slight moderation in growth for the region compared to average annual growth of 5.6% y-o-y between CY2013 and CY2022 but will put

SSA as the strongest growing region globally over the coming decade. FSIAPL anticipates that growth will be concentrated in East and West Africa, with markets like Côte d'Ivoire, Tanzania, and Rwanda set to be global outperformers.

Middle East and North African markets are also set to see strong investment, as an uptick in revenues from the oil and gas industry allows for greater capital expenditure on construction and infrastructure projects. FSIAPL forecasts that the MENA construction industry will grow by 3.1% y-o-y in CY2023 and 3.2% y-o-y in CY2024, with average annual real growth of 3.3% y-o-y over the next decade. This will mark a significant acceleration of growth for the region after a sharp decline in global oil prices in CY2014 weighed on investment in subsequent years, leading the region's construction industry to grow in real terms by just 2.4% y-o-y on average between CY2013 and CY2022. Egypt in particular stands to see robust construction growth over the coming years, spurred by a large project pipeline. India is projected to be the fastest growing large construction market in the world as depicted in the graph below.

**Average Annual Construction Industry Real Growth (%) by Region and Period**



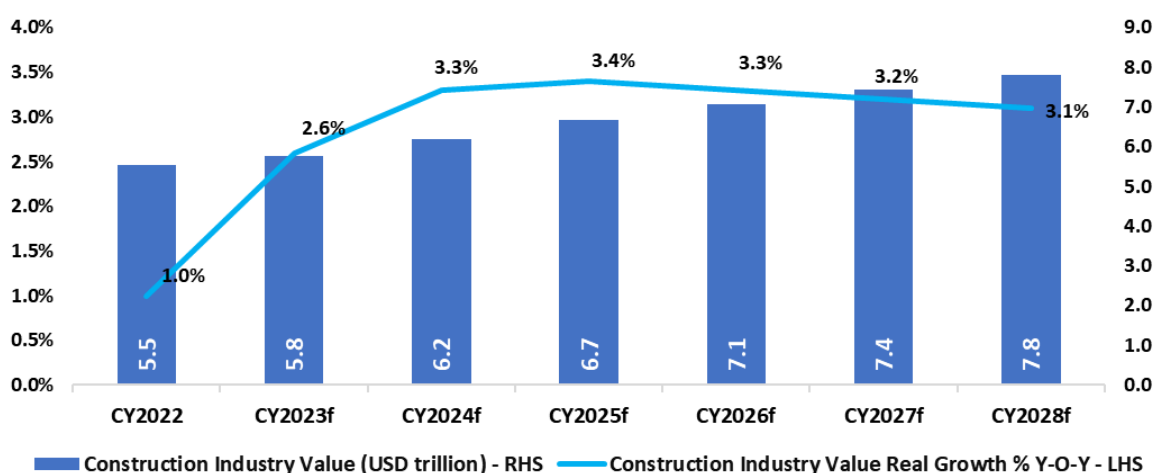
*f= Fitch Solutions forecast; Source: National sources, Fitch Solutions*

Construction Industry Market size of Sub Saharan Africa is USD 117.9 billion, Asia Pacific is USD 2,588.4 billion, Middle East and North Africa is USD 215.5 billion, Latin America is USD 302.3 billion, North America is USD 1,163.2 billion and Europe is USD 1,127.6 billion as of CY2023.

FSIAPL's construction industry growth forecasts for markets globally imply that the value of the global construction industry will grow in real terms by 2.6% y-o-y in CY2023 and by 3.3% y-o-y in CY2024. Over the next ten years, FSIAPL projects that the global construction industry will expand annually in real terms by 3.1% y-o-y on average. This highlights that global construction industry will grow at a faster pace in the next ten-year period than the annual average of growth of 2.5% y-o-y over the previous ten-year period extending from CY2013 to CY2022. Some of the growth drivers for the global construction market include -

- Middle Eastern countries, particularly Saudi Arabia are expected to front load their higher oil revenues in 2022 into infrastructure developments part of their plans to diversify their economies beyond oil.
- Companies in advanced economies are working to diversify their supply chains away from China, which will support investments in logistics infrastructure in countries such as India, Vietnam and Indonesia.
- Regional growth will be supported by robust growth in ASEAN's largest construction markets Indonesia, Philippines and Vietnam, as well as India. India and Bangladesh will lead construction growth in South Asia. Over the long term, Vietnam will remain one of the fastest-growing construction markets in Asia supported by strong demand fundamentals and rising investor interests, amid an ongoing government commitment to the sector across several development plans and reforms.
- Sub-Saharan Africa is set to record the fastest growth of all regions globally, driven by demographic tailwinds, growing middle classes, and high infrastructure investments in some markets, relative to their construction industry value. Countries in Sub-Saharan Africa expected to invest significantly in energy and transportation infrastructure.

**Global - Construction Industry Value (USD Trillion) And Real Growth Forecast**

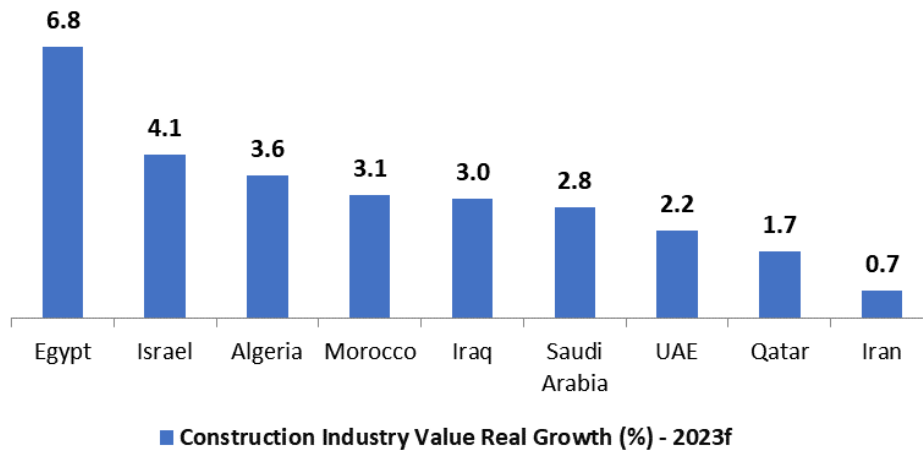


f= Fitch Solutions forecast; Source: National sources, Fitch Solutions

**Outlook on MENA region**

Over the medium term, the MENA region will see robust growth of 3.2% y-o-y on average between CY2023 and CY2027 with infrastructure having a central position in economic diversification efforts across key markets in the region. Among MENA's largest markets in terms of construction industry value, Egypt will see the highest real growth during CY2023 at 6.8% y-o-y. Support for growth will be provided by ongoing large-scale infrastructure projects, such as the Ain-Sokhna-Marsa Matrouh High-Speed Rail project.

Select MENA Markets - Construction Industry Value Real Growth, Top 10 Largest Markets



f= Fitch Solutions forecast; Source: National sources, Fitch Solutions

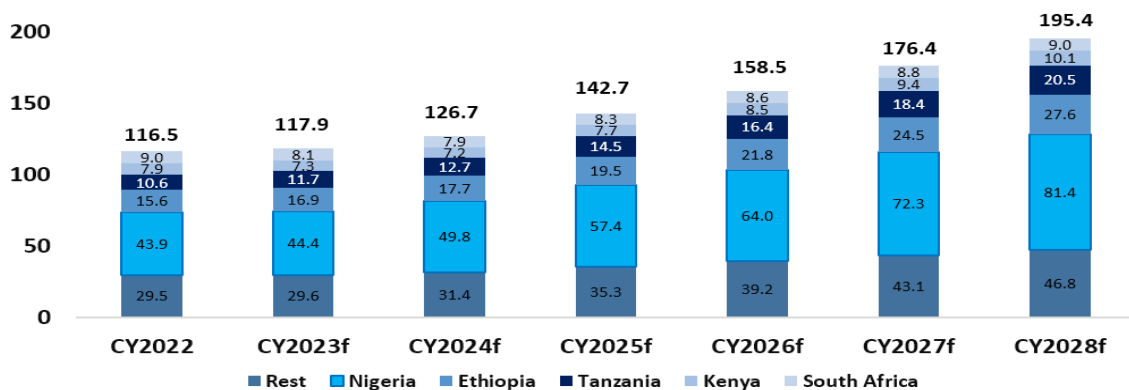
Outlook on Central and Eastern Europe region

Europe's construction industry will see real growth of 1.5% y-o-y during CY2023, underperforming the global construction industry during the year. In the medium term, between CY2023 and CY2027, FSIAPL expects the Europe region to average annual real growth of 2.1% below the global construction industry's average of 3.2% y-o-y over the same period. The macroeconomic environment facing Europe is, in particular, weighing on construction activity, via restrictive monetary policy amid slow disinflation, continuing disruption to the energy supply, and a limited ability for targeted fiscal support beyond existing funding commitments. Spain remains poised to be the fastest-growing construction market in CY2023.

Outlook on SSA region

With average annual construction industry growth of 9% y-o-y from USD 116.5 billion in CY2022 to USD 195.4 billion CY2028, Sub-Saharan Africa (SSA) is set to record the fastest growth of all regions globally, driven by demographic tailwinds, growing middle classes, and high infrastructure investments in some markets, relative to their construction industry value. Particularly, several fast-growth markets in East and West Africa are set to lead this expansion, with Southern African growth prospects remaining relatively more muted.

SSA Construction Industry Value (USD billion)



f= Fitch Solutions forecast; Source: General Authority for Statistics, Fitch Solutions

**Water supply projects funded by Indian Government's Lines of Credit (LOCs) in Africa**

- Afcons Infrastructure has completed 2 water supply projects worth INR 5.31 billion in Tanzania
- The company is currently executing 8 water supply projects worth INR 25.92 billion in 6 countries in Africa

**Outlook on APAC region**

FSIAPL forecasts Asia's construction industry to grow by 5% y-o-y in CY2023, followed by medium-term growth averaging 4.2% per year between CY2024 and CY2027. Globally, only Sub-Saharan Africa is expected to grow faster. Regional growth will be supported by robust growth in ASEAN's largest construction markets Indonesia, Philippines and Vietnam, as well as India. Among the region's developed markets, Australia will outperform to provide support to regional construction industry growth.

India and Bangladesh will lead construction growth in South Asia, while Sri Lanka's and Pakistan's construction industries will continue to be adversely impacted by the countries' economic and political challenges. FSIAPL forecasts India's construction industry to expand by 6.5% in FY2023, followed by medium-term growth averaging 6.3% per year between FY2024 and FY2027. Near-term growth will be supported by strong government support. The FY2023 budget includes an increase of capital investment by a third, with a focus on improving transport and logistics infrastructure that is embedded in a wider push to increase manufacturing capacity, especially across higher value-add supply chain segments. Rail and road transport development are key focus areas of the budget. The budget signals a stronger focus on expanding the renewables sector, with strong emphasis on solar and green hydrogen. India continues to be a relatively attractive destination for private investment in infrastructure, and its project pipeline has expanded in recent years, which will support growth forecasts going forward. Despite weak global demand and elevated borrowing costs, India's infrastructure construction sectors will benefit from logistics investment over the near-to-medium term as the country aims to attract manufacturing capacity away from Mainland China and companies attempt to diversify supply chains. In tandem, investments are expected to be supported by regulatory reforms aimed at streamlining construction and financing processes.

**Indian Government's Lines of Credit (LOCs) funded projects in Bangladesh:**

India's infrastructure development engagement, both in terms of finance and nature of projects, has increased with Bangladesh over the past few years. As per EXIM Bank of India website, Bangladesh has the highest level of exposure with around USD 7,862 million as on 12<sup>th</sup> December 2023.

The Government of India's LOC funded project details in Bangladesh is as follows:

S.No.	Year of Approval	Borrower	Purpose	Amount of Credit (in USD mn)
1	2010-2011	Government of Bangladesh	Financing export of goods and projects including development of railway infrastructure, dredging, construction of bridges, procurement of buses, locomotives, coaches etc.	862
2	2015-2016	Government of Bangladesh	Financing various social and infrastructure development projects in Bangladesh [such as power, railways, road transportation, IT, shipping, health and technical education sectors]	2,000
3	2016-2017	Government of Bangladesh	Developmental Projects	4,500
4	2016-2017	Government of Bangladesh	Defence related Procurement	500
<b>Total Government of India's Lines of Credit (USD mn)</b>				<b>7,862</b>

Source: Exim Bank of India website

Afcons Infrastructure is executing 3 road projects and 1 rail project in Bangladesh with a total project value of INR 31.90 billion.

### Sri Lanka

After a large contraction of the construction sector over CY2022, FSIAPL expects a weak performance going into CY2023 and CY2024 as a result of the unfolding political and economic crisis in the country. After an estimated contraction of 8.6% in CY2022, FSIAPL forecasts weak growth of 0.3% and 0.8% in CY2023 and CY2024 respectively, as the political and economic difficulties continue, despite the IMF bailout deal

**Greater Male Connectivity Project by Afcons Infrastructure, Maldives (Ongoing):** Afcons Infrastructure is engaged in the biggest infrastructure project in Maldives. The company is designing and building of Greater Male Connectivity – Male to Thilafushi Link Project under Ministry of National Planning, Housing and Infrastructure, Maldives. The project is valued at INR 37.52 billion.

Country wise and sector wise details of the total project pipelines is as follows:

**Summary of Total Project pipeline (Amount in USD million)**

Country Name	Airports	Commercial Construction	Industrial Construction	Oil & Gas Pipelines	Power Plants & Grids	Ports	Rail	Roads & Bridges	Water	Total
Vietnam	2,662	54,778	23,477	14,125	-	9,618	158,993	30,152	1300	295,105
Democratic Republic of Congo and Liberia	-	-	-	-	97,680	-	250	4,188	-	102,118
Saudi Arabia	8,036	24,245	32,805	-	1,000	2,000	32,125	-	1,439	101,650
Mozambique	-	-	58,875	5,000	9,822	1,075	21,900	780	700	98,152
Philippines	28,877	464	2,387	-	12,145	394	22,201	26,949	-	93,417
Tanzania	-	1,550	34,000	-	2,568	11,590	7,691	1,726	271	59,396
Ghana	-	8,807	5,200	-	309	1,350	32,496	570	656	49,388
Bhutan, Nepal and Maldives	6,900	-	400	-	31,399	300	2,830	4,400	-	46,229
Bangladesh	-	-	-	-	-	970	29,866	12,856	954	44,646
Romania	-	326	12,970	-	1,097	-	16,129	11,083	-	41,605
Cambodia	300	3,000	1,900	-	330	-	15,443	650	1700	23,323
Laos	-	-	-	-	12,016	-	1,192	5,100	-	18,308
Sri Lanka	-	14,400	392	-	310	550	1,880	-	-	17,532
Uganda	-	-	5,000	-	2,125	-	2,300	2,274	-	11,699
Zambia	-	550	420	-	2,650	-	4,289	1,300	-	9,209
Armenia and Georgia	-	-	-	-	3,680	3,370	-	-	-	7,050
Bosnia - Herzegovina	-	300	289	-	968	-	287	3,815	-	5,659
Côte d'Ivoire	-	-	-	-	3,812	-	1,641	-	-	5,453
Gabon	-	-	1,000	-	401	-	-	1,529	-	2,930
<b>Grand Total of total project pipeline (Amount in USD million)</b>										<b>1,032,869</b>

Source: Fitch Solutions

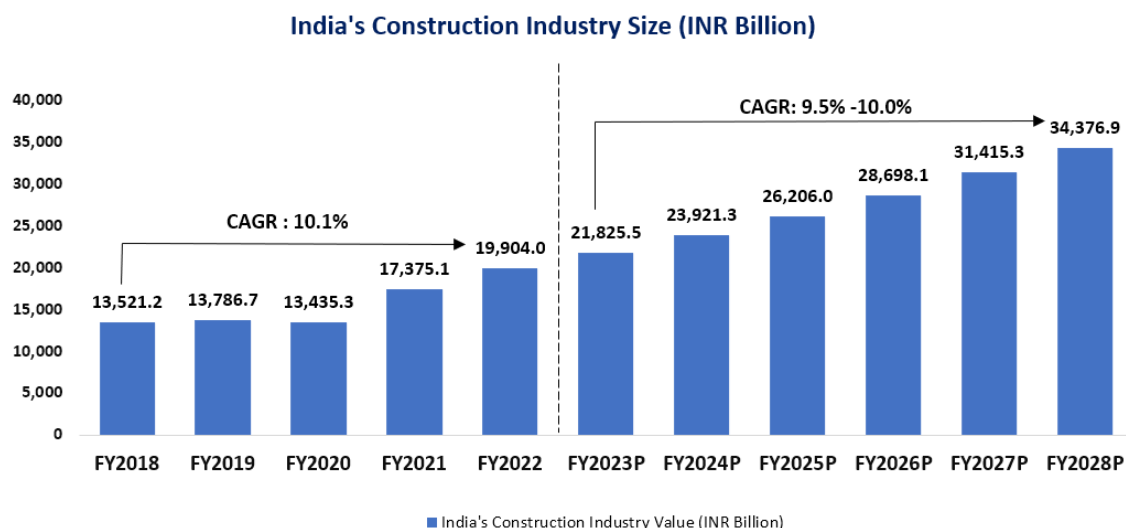
Note: This table includes projects above USD 250 million value only



## Chapter 3: Indian Construction Infrastructure Industry Overview

### Assessment of Overall Construction Industry in India

As per Fitch Solutions, the Indian Construction industry value stood at INR 19,904.0 billion as of FY2022, having grown at a CAGR of 10.1% from INR 13,521.2 billion as of FY2018. India's construction industry will continue to grow at strong rates driven by stable government support for infrastructure development and expanded private involvement in key sectors and public-private partnerships.



Source: Reserve Bank of India, Fitch Solutions

Note: P= Projections

The break-up of different categories forming part of the overall Indian construction industry is given in the table below. Infrastructure industry forms 38.9% of the total construction industry, residential building industry forms 15.7% of the total construction industry and non-residential building industry forms 45.4% of the total construction industry in India.

Category wise break-up of Indian Construction Industry (FY2018 - FY2022)					
Year	FY2018	FY2019	FY2020	FY2021	FY2022
Infrastructure industry value (INR Billion)	5,041.1	5,749.4	5,778.3	6,880.3	7,750.6
Infrastructure industry value, % of total construction	37.3%	41.7%	43.0%	39.6%	38.9%
Residential building industry value (INR Billion)	2,872.5	2,730.6	2,519.8	2,723.4	3,125.5
Residential building industry value, % of total construction	21.2%	19.8%	18.8%	15.7%	15.7%
Non-residential building industry value (INR Billion)	5,607.6	5,306.7	5,137.2	7,771.4	9,027.9
Non-residential building industry value, % of total construction	41.5%	38.5%	38.2%	44.7%	45.4%
<b>India's Construction Industry Value (INR Billion)</b>	<b>13,521.2</b>	<b>13,786.7</b>	<b>13,435.3</b>	<b>17,375.1</b>	<b>19,904.0</b>

Source: Reserve Bank of India, Fitch Solutions

FSIAPL forecast India's construction industry to grow at a CAGR of 9.5%-10.0% from INR21,825.5 billion in FY2023 to INR34,376.9 billion in FY2028. Near-term growth will be supported by strong Government push in the form of infrastructure development projects such as National Infrastructure Pipeline, Smart Cities Mission, Gati Shakti, UDAN, Bharatmala Pariyojana, Sagarmala and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) etc. These government programmes aim to enhance connectivity, upgrade urban

infrastructure, develop transportation networks and foster overall construction sector of India.

**Capital Outlay of the Overall Construction Industry in India (FY2018 – FY2024)**

The FY2024 budget includes an increase of capital investment with a focus on improving transport and logistics infrastructure that is embedded in a wider push to increase manufacturing capacity, especially across higher value-add supply chain segments. Rail and road transport development are key focus areas of the budget, underpinning FSIAPL’s positive outlook for transport infrastructure growth. The table below signifies that various ministries have allocated higher budget for capital expenditures in FY2024.

**Capital Outlay of Core Infrastructure Ministries in India (INR Billion) – 2018 to 2024**

Segments	Name of the Ministry	FY2022A	FY2023RE	FY2024BE	Growth % (FY2024BE v/s FY2023RE)
Infrastructure	Roads	1133.1	2063.0	2586.1	25.4%
	Railways	1172.7	1591.0	2400.0	50.8%
	Urban Infra	259.5	236.8	260.0	9.8%
	Ports	6.1	6.7	10.7	58.7%
	Power	28.3	0.2	0.2	-27.3%
	Irrigation	1.8	3.0	3.6	22.1%
Industrial	Oil & Gas	3.5	0.4	355.1	NM
	Metals & Minig	0.5	0.6	0.8	26.0%
<b>Total Capital Outlay of Core Infrastructure Ministries (INR Billion)</b>		<b>2605.5</b>	<b>3901.8</b>	<b>5616.3</b>	<b>43.9%</b>

Source: Union Budget, FSIAPL

Note: A- Actuals, RE – Revised Estimates, BE – Budgeted Estimates, NM- Not Meaningful

Out of the core 8 infrastructure ministries, the ministries which have been allocated higher share for capital expenditure in FY2024 are Ministry of Petroleum and Natural Gas, Ministry of Road Transport and Highways (25.4% higher than FY2023RE), Ministry of Railways (50.8% higher than FY2023RE), Ministry of Ports, Shipping and Waterways (58.7% higher than FY2023RE), Ministry of Jal Shakti - Department of Water Resources, River Development and Ganga Rejuvenation (22.1% higher than FY2023RE) and Ministry of Mines (26.0% higher than FY2023RE). The table below highlights the historical compounded annual growth (CAGR) and expected CAGR of core infrastructure sectors in India:

Segment	Historical CAGR (FY2018-23)	Expected CAGR (FY23-28f)
<b>Roads</b>		
National Highway	40 - 45%	5-6%
State Highway	8 - 10%	4-5%
Rural Roads	2-3%	1-2%
Oil & Gas	-25.6%	4.0%
<b>Parameters</b>	<b>Historical CAGR (FY2020-24)</b>	<b>Expected CAGR (FY24-28f)</b>
Irrigation	3.9%	4.0%
<b>Parameters</b>	<b>Historical CAGR (FY2018-24)</b>	<b>Expected CAGR (FY24-28f)</b>
Railways	33.0%	6.0%
Metals & Minig	-1.6%	4.2%
<b>Parameters</b>	<b>Historical CAGR (FY2018-22)</b>	<b>Expected CAGR (FY22-28f)</b>
Urban Infra	14.0%	5.0%
Ports	35.5%	4.5%

Source: Union Budget, FSIAPL

### **Outlook on the Capital Outlay of Overall Construction Industry in India (FY2024 – FY2028)**

India continues to be a relatively attractive destination for investment in infrastructure and its project pipeline has expanded in recent years, which will support the growth forecasts going forward. FSIAPL has projected the capital outlay of core Infra Ministries in the table given below. FSIAPL expects the capital outlay for road sector to increase at a CAGR of 6%, railway sector to increase at a CAGR of 6% and ports sector to increase at a CAGR of 4.5% during the period FY2024–FY2028. Irrigation, Oil & Gas and Metals sector would post CAGR of 4–4.2% during the period FY2024–FY2028. For a detailed analysis of each sector, please refer to the sector wise sections in the subsequent pages.

### **Projection of Capital Outlay of Core Infra Ministries in India (INR Billion) FY2024 to 2028**

Segments	Name of the Ministry	FY2024BE	FY2025P	FY2026P	FY2027P	FY2028P	CAGR % (2024-2028)	
Infrastructure	Roads	Ministry of Road Transport and Highways	2586.1	2741.2	2905.7	3080.0	3264.8	6.0%
	Railways	Ministry of Railways	2400.0	2544.0	2696.6	2858.4	3029.9	6.0%
	Urban Infra	Ministry of Housing and Urban Affairs	260.0	273.0	286.6	301.0	316.0	5.0%
	Ports	Ministry of Ports, Shipping and Waterways	10.7	11.2	11.7	12.2	12.7	4.5%
	Power	Ministry of Power	0.2	0.2	0.2	0.2	0.2	5.0%
	Irrigation	Ministry of Jal Shakti - Department of Water Resources, River Development and Ganga	3.6	3.7	3.9	4.1	4.2	4.0%
Industrial	Oil & Gas	Ministry of Petroleum and Natural Gas	355.1	369.3	384.1	399.4	415.4	4.0%
	Metals & Minig	Ministry of Mines	0.8	0.8	0.8	0.9	0.9	4.2%

Source: FSIAPL

### **Growth Drivers of overall Construction sector in India**

The Indian Construction industry is poised for growth driven by the government’s sustained thrust on capital expenditure ahead of the general elections, sector-specific rebound in private capex and accelerated project execution supported by the likely reduced raw material price volatility. Few factors fostering the growth of Construction Industry in India are as follows:

#### **Increased Budgetary allocation for the Infrastructure sector**

The Union budget includes an increase of capital investment with a primary focus on improving transport and logistics infrastructure. Rail and road transport development are key focus areas of the FY2024 Union Budget, with the Ministry of Railways and the Ministry of Road Transport and Highways being allocated INR 2.4 trillion and INR 2.6 trillion respectively. Exceeding estimations for the last financial year by 50.8% and 25.4% respectively, these allocations continue the government's prioritisation of the sectors over past years. The promotion of coastal shipping as an alternative to land transport poses some upside risk for port development in India. Overall, the Government’s strong support for the sectors underpins FSIAPL’s positive outlook for medium-term transport infrastructure construction growth in India.

#### **Rising FDI in the Infrastructure sector**

Much of the Government’s focus on transport infrastructure improvements form part of a wider push to attract foreign direct investment (FDI) and boost domestic manufacturing capacity. The budget reflects the government’s attempts attract such FDI by expanding manufacturing capacity in the higher value-add segments and emerging industries like electric vehicle (EV) battery manufacturing and by removing logistics bottlenecks.

**Rapid urbanization has a significant impact on the Construction Industry**

According to Census 2011, the decadal growth of urban population was higher than rural population, with 31.2% of the population living in urban areas. There has been an increase in the number of large cities in India. As many as 53 cities in India has a million plus population as per Ministry of Housing and Urban Affairs. The growth of urbanization in India has had a significant impact on various industries, including the construction industry. As urban populations continue to grow, the demand for new construction projects including housing, commercial buildings, infrastructure, smart cities etc will increase. Government push in the form of infrastructure development projects such as National Infrastructure Pipeline, Smart Cities Mission, Gati Shakti, UDAN, Bharatmala Pariyojana, Sagarmala and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) will foster the growth of Construction activity in India

**Reforms Facilitating Private and Foreign Investment**

Private sector capital expenditure in India is finally rebounding in FY2023 from pre-pandemic levels. Growth opportunities arising from Indian Government's policy steps in recent years, domestic corporates focusing more on localisation and multi-nationals looking to reduce risk in global supply chains may attract higher private investment in the medium term. The Indian banking system's improved financial health and confidence in borrowers' credit profiles also positions it well for the higher credit growth needed to realise the corporates' spending plans. The 'General Instructions on Procurement and Project Management Guidelines' of 2021 is a right step towards reforming the tender process in the PPP infrastructure projects and to encounter the cost and time overruns that have been plagued India's infrastructure sector since long time.

Recent reforms of India's FDI regulations are positive for attracting investment and participation in the country's infrastructure sectors, which would be positive for overall growth given India's sizeable infrastructure needs. The cabinet approved revisions to the FDI regulations relaxing restrictions on foreign ownership of airlines, power exchanges and construction and real estate businesses. It was the latest reform to come as part of Prime Minister's Make in India initiative, which previously also relaxed restrictions on FDI in the roads and railway sub-sectors. There is significant room for foreign companies to grow their presences in India's infrastructure sector, though FSIAPL acknowledges that FDI regulations are just one component of improving the market's attractiveness. Given India's immense infrastructure deficit, the sector would benefit from capital and technical expertise that foreign investors and partners could bring.

**Delays noticed in certain construction projects**

The Infrastructure and Project Monitoring Division (IPMD) under the Ministry of Statistics and Programme Implementation (MoSPI) is mandated by the Government to monitor central sector infrastructure projects costing INR 1,500 million and above based on the information provided on the Online Computerised Monitoring System (OCMS) by the project implementing agencies. According to the MoSPI report of March 2023; out of 1,449 projects, as many as 56.7% projects (821 projects) were delayed and 24.4% (354 projects) reported cost overruns (22–25% increase in cost over original cost). These 354 infrastructure projects have been hit by cost overruns of more than INR 4.55 trillion.

Out of the 821 delayed projects, 190 projects have overall delays in the range of 1–12 months, 177 projects have been delayed for 13–24 months, 325 projects for 25–60 months and 129 projects have been delayed for more than 60 months. The average time overrun in these 821 delayed projects was 37.79 months. These delays often stem from factors such as poor planning, delay in progress payments, contractor/subcontractor's lack of expertise and land acquisition difficulties. The result of these delays is cost overruns, which will reduce profitability of projects and increase financial pressures faced by contractors. Potentially lower profits may negatively impact interest from the private sector, especially in projects that are to be procured via PPPs.

### EXIM Bank to support Indian project exporters

EXIM Bank, on behalf of and with the support of the Government of India, extends Lines of Credit (LOC) to sovereign governments, regional development banks and overseas entities to promote development in partner countries. During the year FY2023, the Bank extended 7 LOCs aggregating USD 670.32 million, to support the export of projects, goods and services from India to the Governments of Armenia, Cuba, Mauritius, Maldives, Sri Lanka and Suriname. These LOCs finance the supply of defence equipment, fertilisers, along with rice and execution of social infrastructure projects. The Bank has a portfolio of 303 GOI-LOCs with credit commitments aggregating USD 31.85 billion which are at various stages of implementation. The Bank has also set up a dedicated infrastructure group to enhance the Bank's role in project identification, Detailed Projects Report (DPR) validation, expediting procurement and monitoring and evaluation of LOC projects.

Some major projects of Afcons Infrastructure Limited funded by the Government of India – Lines of Credit (LOCs) through EXIM Bank include the following:

- Greater Male Connectivity – Maldives: Afcons Infrastructure Limited is engaged in the design and build of Greater Male Connectivity – Male to Thilafushi Link Project for the Ministry of National Planning, Housing and Infrastructure, Maldives. This is an EPC project which valued around INR 37,520 million.
- Road Project, Mozambique: Afcons Infrastructure Limited is engaged in the rehabilitation of road N280/N281 between Tica, Buzi and Nova Sofala in Sofala Province, Mozambique for National Roads Administration (ANE), Maputo, Mozambique. This is an item rate project which valued around INR 9,590 million. This is one of the most important road infrastructure projects in the country. It will reduce travel distance and time between capital city Maputo and provincial capital Beira.
- Afcons Infrastructure Limited is executing 3 road projects and 1 rail project in Bangladesh with a total project value of INR 31,900 million.
- Afcons Infrastructure Limited has completed 2 water supply projects worth INR 5,310 million in Tanzania
- Afcons Infrastructure Limited is currently executing 8 water supply projects worth INR 25,920 million in 6 countries in Africa.

EXIM Bank's disbursements under the Buyer's Credit programme amounted to INR 6.30 billion, significantly enhancing export opportunities for Indian companies across multiple countries including Ghana, Senegal, Maldives, Uganda, South Africa, Thailand, UAE, etc.

Buyer's Credit under the National Export Insurance Account (BC-NEIA) is a unique financing mechanism that provides a safe mode of nonrecourse financing to Indian exporters and serves as an effective market entry tool to traditional as well as new markets in developing countries that need deferred credit on a medium or long-term basis. As on 31<sup>st</sup> March 2023, the Bank has sanctioned an aggregate amount of USD 3.38 billion, for thirty-six projects, valued at USD 3.72 billion under BC-NEIA. Under BC-NEIA, the Bank supported project exports from an Indian company for the construction of a transmission line for the Tambacounda - Kolda - Ziguinchor link in Senegal, as well as extensions and rehabilitation of networks in the regions. This project is strengthening the power infrastructure in Senegal and provides a substantial socioeconomic boost to the southern region of the country.

Some major projects of Afcons Infrastructure Limited funded by EXIM Bank under Buyer's Credit - NEIA Programme includes the following:

- Zambia – Lusaka City Decongestion Project: Afcons Infrastructure Limited was engaged in the construction, rehabilitation and widening of 91 km roads in Lusaka City, 29 km roads with dedicated bus lanes for Bus Rapid Transit (BRT) and improvement of 9 junctions along with 4 new flyovers for the Ministry of Local Government and Housing (MLGH), Zambia. This was an EPC project which valued around INR 17,590 million. This project was completed six months ahead of schedule in a pandemic year. Afcons had built Zambia's first flyovers and this project was a strategic roads decongestion project in Africa.
- Tema to Mpakadan Railway Project, Ghana: Afcons Infrastructure Limited is currently engaged in the construction of single standard gauge railway line of 97.68 km from Port of Tema to Akosombo for the Ghana Railway Development Authority (GRDA). This is an EPC project which valued around INR 32,070 million. This is the largest railway project in Ghana and the project includes longest railway bridge (300m) in the country over Lake Volta. This is the first bridge to have raker pile foundations in Africa.

### **Trends in the Tendering process of Infrastructure Projects in India**

The Ministry of Finance (Procurement Policy Division, Department of Execution) introduced 'General Instructions on Procurement and Project Management' on 29<sup>th</sup> October 2021. The 2021 Guidelines aimed at reforming the existing procurement and project management rules and procedures in the execution of public projects which was affected for a long time by cost and time overruns. Changes introduced in the 2021 Guidelines are as follows:

**Scrapping the practice to reject a single bid during open tenders:** Previously, a single bid was not accepted, according to the guidelines issued by the Central Vigilance Commission. In case, the second round of tendering also fetched a single bid, the authority floating the tender was allowed to take a call on the bid. This practice has contributed majorly to the time and cost overruns. The government in the 2021 Guidelines has scrapped the practice followed by public authorities to reject a single bid during open tenders, stating that it should be considered valid subject to some conditions. The reason for scrapping the practice to reject a single bid was to save time and cost.

### **Trends in Line of Credit for Infrastructure sector in India**

According to RBI's data on sectoral deployment of Bank credit, credit growth to large industries posted a turnaround during FY2023, led by capital-intensive industries such as infrastructure, supported by the government's higher capex spending. However, it

moderated by the end of the year. The infrastructure credit growth was led by roads sector, which continued to post decent credit growth over a high base. Commodity-intensive industries such as metals recovered during FY2023.

According to Reserve Bank of India's Sectoral deployment of Bank credit May 2023 data, the pace of lending to the infrastructure sector, including power and roads, fell sharply to 1.8% year-on-year in May 2023 compared to 9.8% in May 2022. Within the segment, the growth in loans to the power sector was at 0.3% y-o-y in May 2023, down from 9.3% in May 2022. The RBI data showed that outstanding credit to power sector stood at INR 6.17 trillion in May 2023. The share of power sector loans is around half of the bank's infrastructure loan portfolio of INR 12.2 trillion as of May 2023.

### Sectoral Credit Growth of SCBs (y-o-y % growth)

Sector	2020-21*	2021-22#		2022-23											
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
<b>Non-food Credit</b>	<b>5.5</b>	<b>9.7</b>	<b>11.4</b>	<b>12.7</b>	<b>13.7</b>	<b>15.1</b>	<b>16.0</b>	<b>16.9</b>	<b>18.3</b>	<b>17.6</b>	<b>15.3</b>	<b>16.7</b>	<b>15.9</b>	<b>15.4</b>	
<b>II. Industry (Micro &amp; Small, Medium and Large)</b>	<b>-0.4</b>	<b>7.5</b>	<b>8.0</b>	<b>8.8</b>	<b>9.5</b>	<b>10.5</b>	<b>11.4</b>	<b>12.6</b>	<b>13.6</b>	<b>13.1</b>	<b>8.6</b>	<b>8.7</b>	<b>7.0</b>	<b>5.7</b>	
II.1. Micro & Small	7.5	23.0	30.0	33.0	29.6	28.3	28.2	27.1	20.4	19.6	13.7	15.2	13.2	12.3	
II.2. Medium	31.4	54.4	53.7	49.3	47.4	36.8	35.6	36.2	31.0	29.7	15.4	18.1	13.5	19.6	
II.3. Large	-3.1	2.0	1.3	2.0	3.3	5.2	6.4	7.9	10.9	10.5	6.9	6.5	5.0	3.0	
II.3.1 Infrastructure	1.1	9.1	9.7	9.8	9.5	11.1	11.0	10.9	10.9	10.5	5.3	2.3	0.6	-0.7	
II.3.1.1 Power	-1.1	7.1	8.1	9.3	8.7	9.7	9.4	8.1	7.5	7.7	2.4	2.8	0.6	-1.1	
II.3.1.2 Telecommunications	-21.9	13.4	13.8	12.8	13.1	11.4	17.2	16.3	18.4	22.9	5.3	-12.8	-11.8	-14.6	
II.3.1.3 Roads	24.7	19.5	17.3	17.6	17.8	16.4	15.3	13.4	13.8	13.4	12.5	8.7	6.8	5.3	
II.3.2 Basic Metals & Metal Products	-8.8	-5.5	-4.4	-2.3	0.6	5.6	5.7	10.6	14.1	15.3	19.1	22.0	19.7	19.1	

← Contraction

Expansion →

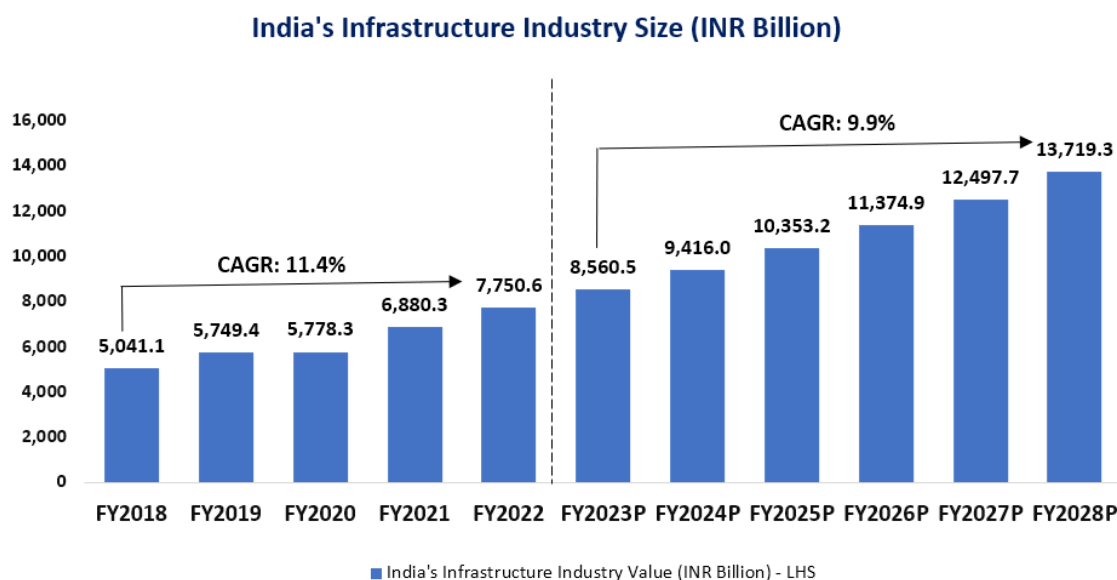
\*: March 2021 over March 2020; #: March 2022 over March 2021

Source: Reserve Bank of India

Roads, another crucial segment of the infrastructure sector also saw moderation in growth to 5.2% y-o-y in May 2023 from 17.6% a year ago. The outstanding bank loans to the roads sector stood at INR 2.89 trillion in May 2023. However, reflecting pick up business activity in the industrial sector, the credit to units in basic metal and metal products actually showed a reversal in trend with 16.5% y-o-y growth in May 2023 compared to contraction of 2.3% a year ago.

## Assessment of Infrastructure Construction Segment

The Government of India has been placing strong emphasis on India’s Infrastructure sector as it is crucial to India's overall growth. The Indian Infrastructure industry has grown at a CAGR of 11.4% from INR 5,041.1 billion in FY2018 to INR 7,750.6 billion in FY2022 as shown in the graph below.



Source: Reserve Bank of India, Fitch Solutions  
 Note: P= Projections

Sustained investment in infrastructure will help India gradually bridge its sizeable infrastructure deficit, which range from rural road and power access to strained urban transport systems. Ongoing regulatory reforms made as part of Government’s Make in India initiative are also opening up infrastructure sectors to greater foreign and private involvement, which will unlock greater pools of financing and improve operational efficiencies in the industry. Thus, FSIAPL estimates India’s Infrastructure Industry to grow at a CAGR of 9.9% from INR8,560.5 billion in FY2023 to INR13,719.3 billion in FY2028.

Improved capacity utilisation, a pick-up in credit demand and improved business expectations are pointing towards strengthening of investment activity in the Indian economy in the period ahead. On the downside, higher cost of capital owing to the tightening of monetary policy by various central banks including RBI, global uncertainty led by geo-political tensions and risk of slowdown in major advanced economies could hamper investment activities. Overall, the investment cycle appears to be poised to gain momentum going ahead, but its sustainability needs to be monitored.

## Transport Infrastructure Construction to boost the Infrastructure sector

Transport Infrastructure - Industry Size (India FY2018 - FY2022)						
Year	FY2018	FY2019	FY2020	FY2021	FY2022	CAGR growth % (FY2018-22)
Transport Infrastructure Industry Size (INR billion)	2,255.2	2,612.4	1,826.7	2,942.8	3,320.6	10.2%
Roads and bridges Infrastructure Industry Size (INR billion)	1,618.9	1,362.4	973.7	1,710.4	1,928.8	4.5%
Railways Infrastructure Industry Size (INR billion)	577.9	736.6	640.3	1,078.0	1,217.9	20.5%
Airports Infrastructure Industry Size (INR billion)	38.6	496.6	163.1	113.8	128.8	35.2%
Ports, harbours, waterways Infrastructure Industry Size (INR billion)	19.9	16.7	49.7	40.6	45.1	22.7%

Source: Industry Sources, Fitch Solutions



India's Transport Infrastructure industry was at INR 2,255.2 billion as of FY2018. It grew at a CAGR of 10.2% from FY2018 to reach INR 3,320.6 billion as of FY2022. India's transport infrastructure construction sector is expected to expand by 10.7% y-o-y in FY2023. It is further expected to grow at a CAGR of 9.6% from INR3,675.2 billion in FY2023 to INR5,811.9 billion in FY2028 supported by both public and private investment.

Transport Infrastructure - Industry Forecast (India FY2023 - FY2028)							
Year	FY2023f	FY2024f	FY2025f	FY2026f	FY2027f	FY2028f	CAGR growth % (FY2023-28)
Transport Infrastructure Industry Size (INR billion)	3,675.2	4,032.0	4,422.9	4,845.3	5,310.9	5,811.9	9.6%
Roads and bridges Infrastructure Industry Size (INR billion)	2,143.6	2,355.8	2,587.4	2,839.8	3,115.2	3,415.3	9.8%
Railways Infrastructure Industry Size (INR billion)	1,339.8	1,465.5	1,604.6	1,753.5	1,921.7	2,100.1	9.4%
Airports Infrastructure Industry Size (INR billion)	142.8	157.5	173.3	189.6	206.6	223.9	9.4%
Ports, harbours, waterways Infrastructure Industry Size (INR billion)	49.1	53.2	57.6	62.4	67.4	72.7	8.2%

f = Fitch Solutions forecast; Source: Industry Sources, Fitch Solutions

### Energy & Utilities Infrastructure to witness robust growth

Energy and Utilities Infrastructure - Industry Size (India FY2018 - FY2022)							
Year	FY2018	FY2019	FY2020	FY2021	FY2022		CAGR growth % (FY2018-22)
Energy and utilities infrastructure Industry Size (INR billion)	2,785.9	3,137.0	3,951.6	3,937.5	4,430.0		12.3%
Power plants and transmission grids infrastructure Industry Size (INR billion)	2,061.5	2,258.7	2,963.7	3,071.2	3,544.0		14.5%
Oil and Gas pipelines infrastructure Industry Size (INR billion)	167.2	219.6	237.1	157.5	221.5		7.3%
Water infrastructure Industry Size (INR billion)	557.2	658.8	750.8	708.7	664.5		4.5%

Source: Industry Sources, Fitch Solutions

Energy and Utilities Infrastructure - Industry Forecast (India FY2023 - FY2028)							
Year	FY2023f	FY2024f	FY2025f	FY2026f	FY2027f	FY2028f	CAGR growth % (FY2023-28)
Energy and utilities infrastructure Industry Size (INR billion)	4,885.3	5,384.0	5,930.4	6,529.6	7,186.8	7,907.4	10.1%
Power plants and transmission grids infrastructure Industry Size (INR billion)	3,615.1	3,876.5	4,447.8	5,093.1	5,749.4	6,325.9	11.8%
Oil and Gas pipelines infrastructure Industry Size (INR billion)	293.1	376.9	355.8	261.2	359.3	395.4	6.2%
Water infrastructure Industry Size (INR billion)	977.1	1,130.6	1,126.8	1,175.3	1,078.0	1,186.1	4.0%

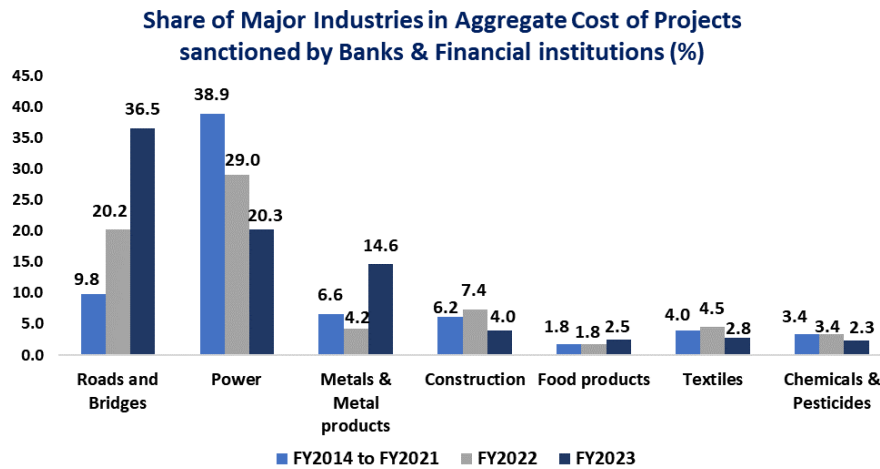
f = Fitch Solutions forecast; Source: Industry Sources, Fitch Solutions

India's Energy and utilities Infrastructure industry was at INR 2,785.9 billion as of FY2018. It grew at a CAGR of 12.3% from FY2018 to reach INR 4,430.0 billion as of FY2022. FSIAPL forecast that India's energy and utilities infrastructure sector will continue to grow at a CAGR of 10.1% between 2023 and 2028. Growth in India's energy and utilities infrastructure sector over the coming decade will be driven by substantial investment in the upgrade and expansion of power plants, electricity transmission and distribution networks, and water utilities in order to meet growing demand caused by a growing population and increasing urbanisation.

### Infrastructure Sector continued to attract the maximum Capex Projects led by Roads, Bridges and Power sectors

According to RBI, the total cost of projects sanctioned by Banks and Financial Institutions during FY2023 increased to a record high of INR 2.7 trillion, highlighting the effect of the government's efforts to push capital expenditure. The government's thrust on capex, besides various policy initiatives to revive the investment cycle and improved economic outlook provided a conducive environment for private corporates to undertake fresh capital investment. The total cost of projects, around 35% is likely to be spent during FY2024 and about 25% in the subsequent period.

RBI stated that infrastructure sector continued to attract the maximum Capex projects led by roads, bridges and power sectors.



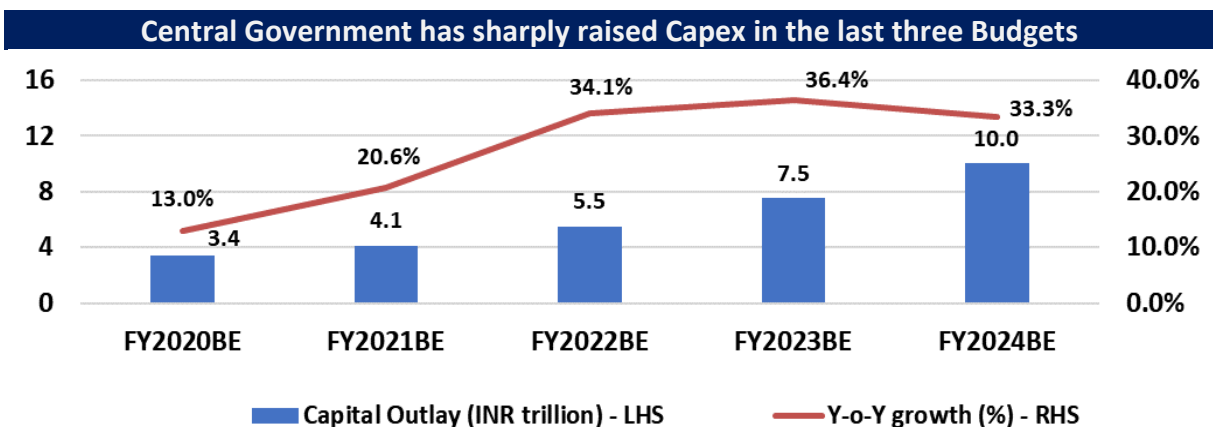
Source: Reserve Bank of India

The phasing profile of the envisaged capex, based on the pipeline projects financed, suggests that it increased significantly to INR 1.7 trillion in FY2024 compared to INR 0.9 trillion in FY2023. State-wise distribution showed that the top five states of Uttar Pradesh, Gujarat, Odisha, Maharashtra and Karnataka together accounted for 57.2% share in total project cost during FY2023, higher than their 43.2% share during FY2022. In FY2023, Uttar Pradesh accounted for the highest share (16.2%) in the total cost of projects sanctioned by banks and financial institutions, followed by Gujarat, Odisha, Maharashtra and Karnataka. The share of Uttar Pradesh and Odisha in the total cost of projects improved sharply from the previous year as well as the average share recorded during the period FY2014 to FY2021.

## Outlook on Indian Infrastructure

### Increasing Central Government Capex to boost Indian Infrastructure Industry

Infrastructure spending has a multiplier effect on the economy. Hence, over the last decade, the government has been increasing the outlay for infrastructure. The Central Government sharply raised capex in the last two budgets. Capital outlay increased from INR 4.1 trillion in FY2021 to INR 10.0 trillion in FY2024.

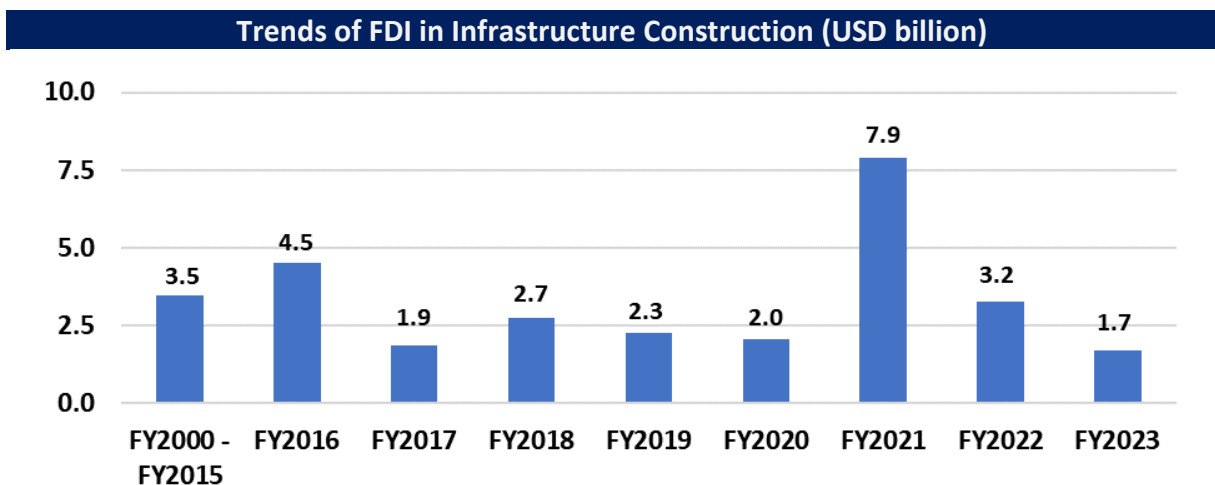


Source: Union Budget of India, FSIAPL, BE- Budget Estimates

A capex thrust in the last three budgets of the Government of India was not an isolated initiative meant only to address the infrastructure gaps in the country. The government's thrust on Capital expenditure, particularly in the infrastructure-intensive sectors like roads and highways, railways, and housing and urban affairs, has longer-term implications for growth. While on the one hand, capital expenditure strengthens aggregate demand and crowds-in private spending in times of risk aversion; it also enhances the longer-term supply-side productive capacity. With early signs of a rebound in private sector investments in recent months, capital expenditure has played its role. To push for enhancing Capex from all directions, the Centre announced several incentives to boost states' capital expenditure in the form of long-term interest-free loans and capex-linked additional borrowing provisions.

### Rising FDI in the Infrastructure sector

Much of the government's focus on transport infrastructure improvements form part of a wider push to attract foreign direct investment (FDI) and boost domestic manufacturing capacity. Companies globally continue seeking to diversify their supply chains to reduce their reliance on Mainland China, often adopting a China Plus One strategy that involves moving a portion of their supply chains to another attractive market like India or Vietnam. The recent budgets reflect the government's attempts to attract such FDI by expanding manufacturing capacity in the higher value-add segments and emerging industries like electric vehicle (EV) battery manufacturing and by removing logistics bottlenecks. Alongside, the government hopes that FDI will also flow into the infrastructure construction segment.



Source: DPIIT, FSIAPL

Note: Data includes FDI inflow received through Government Route + Automatic Route + acquisition of existing shares only

Recent reforms of India's FDI regulations are positive for attracting investment and participation in the country's infrastructure sectors, which would be positive for overall growth given India's sizeable infrastructure needs. The cabinet approved revisions to the FDI regulations relaxing restrictions on foreign ownership of airlines, power exchanges and construction and real estate businesses. It was the latest reform to come as part of Prime Minister Narendra Modi's Make in India initiative, which previously also relaxed restrictions on FDI in the roads and railway sub-sectors. Compared with many other emerging markets in Asia, India has one of the lowest rates of foreign participation and investment in its

construction and infrastructure industries. This means that there is significant room for foreign companies to grow their presences in India's infrastructure sector. Given India's immense infrastructure deficit, the sector would benefit from capital and technical expertise that foreign investors and partners could bring.

### **India at the cusp of new Private Capex cycle**

Indian economy is at the cusp of a new private corporate capex cycle. The Reserve Bank of India's release on private capex outlook dated 18<sup>th</sup> August 2022 concludes that there has been a material improvement in private capex outlook. This is on the basis of data from project approvals by banks, data on project funding through ECBs, and equity fund-raising by private companies. RBI's paper on 'Private Corporate Investment: Performance and Near-Term Outlook' highlights, that the envisaged capital investments of private corporates, based on the projects sanctioned by banks/Financial Institutions, increased for the second consecutive year after remaining subdued during FY2020 and FY2021. Overall, investment plans of 982 projects were made during FY2023, with record capital outlay of INR 3.5 trillion – higher than the level seen since FY2015, as against 791 projects in FY2022 with investment intentions of INR 1.9 trillion. The infrastructure sector continued to attract maximum capex projects, led by the road & bridges, power sector reflecting the Government's push towards infrastructure development. Several structural reforms implemented over the past few years such as Goods and Services Tax (GST), Insolvency and Bankruptcy Code (IBC), Digitisation, Corporate tax rationalisation and labour laws are expected to further support the investment growth trajectory. Historically, in an election year, state government tends to push for completion of infrastructure projects. Also, more money gets pumped into the system. So, there is a high probability that in the next twelve months, slew of infrastructure projects would be announced and also the ongoing ones would get completed. This would be a good opportunity for infrastructure and construction companies in India.

### **Improvement in Contracts Arbitration and Dispute Resolution Mechanism**

India has already undertaken major structural reforms to facilitate ease of doing business recently, including legal reforms to revamp the existing arbitration framework. In 2021, the Parliament has passed an Amendment to the Arbitration and Conciliation Act, 1996. Moreover, the Commercial Courts, Commercial Division and Commercial Appellate Division of High Courts Act, 2015 has been passed to fast track commercial dispute resolution.

Government has also decided to implement a one-time settlement scheme called 'Vivad se Vishwas II (Contractual Disputes)' to effectively settle pending disputes. The scheme was announced in the Union Budget 2023-24 by the Union Finance Minister. The scheme will apply to all domestic contractual disputes where one of the parties is either the Government of India or an organisation working under its control. Under the scheme, for Court Awards passed on or before 30.04.2023 the settlement amount offered to the Contractor will be up to 85% of the net amount awarded/ upheld by the court. For Arbitral Awards passed on or before 31.01.2023, the settlement amount offered is up to 65% of the net amount awarded.

These initiatives by the government and the judiciary will help to improve the institutional capacity necessary to create a vibrant ecosystem to make India the next big hub for international commercial arbitration.

### Introduction of Quality-cum-Cost based selection for procurement of works and Non-consulting services

Generally during the tendering process of infrastructure projects in India, the contracts were awarded to the lowest bidder. Though the L1 system ensures that the least cost is incurred for the project, however the quality of work and other relevant consideration is often overlooked. It is not an efficient policy for awarding tender involving huge commercial value. The 2021 Guidelines revised earlier guidelines and extended the Quality cum Cost based Selection (QCBS) for procurement of works and non-consultancy services. Unlike the lowest bidder, QCBS evaluates a bidder based on a combination of technical and quality scores. However, the maximum weightage for non-financial parameters cannot exceed 30%. However, most of the infrastructure projects exceed the QCBS threshold of INR 100 million.

### Significant improvement in India’s Infrastructure

The dedicated programs for road connectivity (Bharatmala), port infrastructure (Sagarmala), electrification, railways upgradation, and operationalising new airports/ air routes (UDAN) have significantly improved the physical infrastructure in the last few years. With the National Infrastructure Pipeline (NIP) in FY2019 and the National Monetization Pipeline (NMP) in FY2021, a strong baseline for infrastructure creation and development has been put in place, providing a multitude of opportunities for foreign investment and engagement. The NIP was launched with 6,835 infrastructure projects with a projected infrastructure investment of INR 111 trillion for FY2020-25 for developing a comprehensive view of infrastructure development in the country, monitoring its progress at the highest levels in the government for timely completion, and enabling a pipeline view for investors for them to plan infrastructure investments. As per India Investment Grid website, NIP has expanded to over 9,358 projects across 57 sub-sectors with project value of INR 158.9 trillion (USD 1910.2 billion) as on 30<sup>th</sup> September 2023. NIP covers economic and social infrastructure projects jointly funded by the Central Government, State Governments, and the private sector. With its strong forward and backward linkages, physical infrastructure will enhance the economy’s productivity in the medium term.

Opportunity in key infrastructure segment in India is provided in the table below:

Sector	Subsector	No. of opportunities	Value of opportunities	Mode of implementation (No. of projects)
Roads & Highway sector	Road and Bridges	3,763 opportunities	USD 404.41 billion	EPC - 3014, PPP - 544, Private-5, Not disclosed-65, To be finalised-101, Others-34
	Railway Track	665 opportunities	USD 198.35 billion	EPC - 525, PPP - 27, Private-11, To be finalised-70, Others-32
Railway sector	Railway Terminal Infrastructure	39 opportunities	USD 2.46 billion	EPC - 21, PPP - 4, Private-1, To be finalised-3, Others-10
	Railway rolling Stock	53 opportunities	USD 44.38 billion	EPC - 43, PPP - 1, Private-0, To be finalised-2, Others-7
Urban Infra sector	Metro	61 opportunities	USD 67.86 billion	EPC - 49, PPP - 3, To be finalised-8, Others-2
	Bus Terminals	61 opportunities	USD 2.6 billion	EPC - 37, PPP - 17, To be finalised-5, Others-2
	Regional Rapid Transport system	2 opportunities	USD 8.3 billion	EPC - 2
Energy sector	Integerated Transport Hub	13 opportunities	USD 9.8 billion	EPC - 10, PPP - 3
	Energy Generation (Renewable)	501 opportunities	USD 216.72 billion	EPC - 260, PPP - 63, To be finalised-22, Private-20, Others-136
	Energy Generation (Non-Renewable)	182 opportunities	USD 151.2 billion	EPC - 98, PPP - 6, To be finalised-7, Private-36, Others-35
Water sector	Water treatment plants	1519 opportunities	USD 112.99 billion	EPC -1402 , PPP -59 , To be finalised-36, Private-0, Others-22
	Irrigation segment	641 opportunities	USD 156.46 billion	EPC - 594, PPP - 3, To be finalised-6, Private-1, Others-37

Source: India Investment Grid website (Data as of 30<sup>th</sup> September 2023)

## Roads and Highways

The pace of National Highway construction in India has increased consistently due to the systematic push through corridor-based National Highway development approach, from about 16.6 km/ day in FY2016 to about 30.1 km/ day in FY2023. FSIAPL expects India’s pace of National Highways construction to increase to 32-33 km/ day in FY2024.

Road transportation in India has gradually increased over the years with improvement in connectivity between cities, towns and villages. The total length of all road network in India increased from 5.47 million kms as of FY2015 to 6.33 million kms as of FY2023 (upto 31<sup>st</sup> December 2022). The total length of National Highways increased from 0.10 million kms as of FY2015 to 0.14 million kms as of FY2023 (upto 31<sup>st</sup> December 2022).

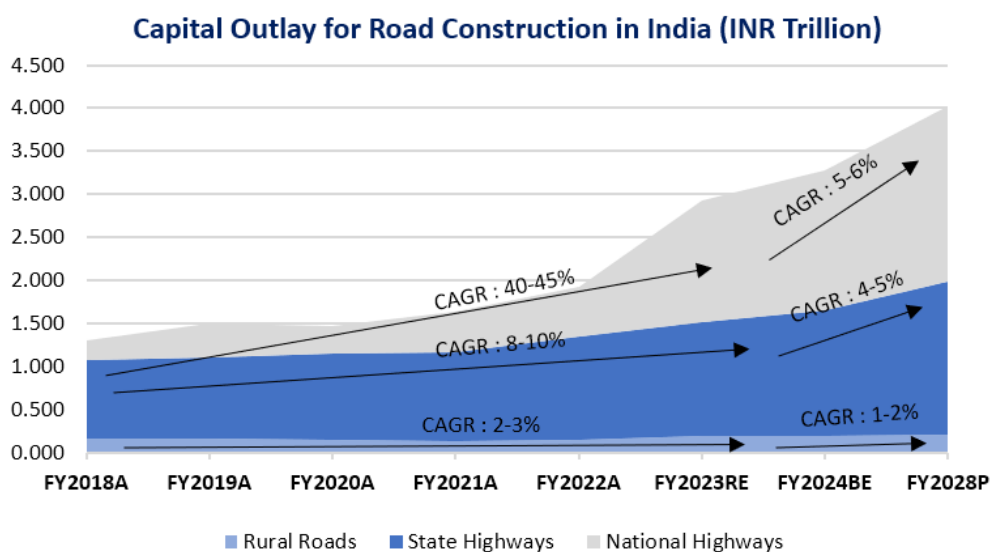
**Total length and break-down of Road Network in India (in million Kms)**

Year	National Highways	State Highways	Other Roads	Total
FY2015	0.10	0.17	5.21	5.47
FY2016	0.10	0.18	5.33	5.60
FY2017	0.11	0.18	5.61	5.90
FY2018	0.13	0.19	5.90	6.22
FY2019	0.13	0.18	6.02	6.33
FY2020	0.13	0.19	6.17	6.49
FY2021	0.14	0.18	5.90	6.22
FY2022	0.14	0.17	6.06	6.37
FY2023*	0.14	0.17	6.02	6.33
<b>CAGR % (FY2015 - FY2023*)</b>	<b>5.0%</b>	<b>-0.002%</b>	<b>1.8%</b>	<b>1.8%</b>

Source: Ministry of Road Transport and Highways of India

\* Data as of 31st Dec 2022

## Capital Outlay for Road Construction in India (FY2018 - FY2028P)



Source: Union Budget, State Budgets, FSIAPL

Note: Note: A- Actuals, RE – Revised Estimate, BE – Budgeted Estimate, P – Projected

The capital outlay on National Highway construction in India have increased at a CAGR of 40-45% between FY2018–FY2023. Driven by robust Government funding, the Indian road sector will be a key driver of transport infrastructure development in India over the coming 5 years. FSIAPL expects investment in National Highways to rise by 5-6% between FY2023 to FY2028P led by Expressway execution. Investments in State Highways is expected to rise by 4-5% and Investment in Rural Roads is expected to rise by 1–2% between FY2023 to FY2028P. The large pipeline of road projects reflects the government’s aim to modernise Indian Highways and upgrade the quality of roads, with government projections pointing to USD 270.0 billion of spending over the next five years as part of the country’s National Infrastructure Pipeline. Additionally, MoRTH received a push with the Union Budget raising the allocation for road sector by 36% to around INR 2.6 trillion for FY2024.

**Capital Outlay for Roads and Bridges in Key states:**

States' spending on roads and bridges as a proportion of GSDP has remained static at around 0.5-0.6% for the past decade. Fiscal constraints, revenue expenditure and focus on the agricultural economy are the main cause for states spending less on roads and bridges. Few States tend to spend more on infrastructure for the rural sector, agriculture and irrigation sector. The table below highlights the Capital outlay by key states for road and bridge projects from FY2021 to FY2024:

Capital Outlay for Roads and Bridges in Key States				(Amount in INR Million)	
Name of the State	2020-21 (Actuals)	2021-22 (Budgeted Estimates)	2021-22 (Revised Estimates)	2022-23 (Budgeted Estimates)	2023-24 (Budgeted Estimates)
Maharashtra	117,638.4	158,436.1	221,576.1	201,328.8	142,240.0
Uttar Pradesh	180,206.3	367,531.9	291,437.3	321,504.2	273,680.0
Madhya Pradesh	54,018.9	55,283.3	68,788.2	55,104.5	86,030.0
Rajasthan	30,049.3	48,438.1	49,859.7	55,051.7	35,250.0
Gujarat	54,517.0	41,082.2	53,771.3	53,300.9	37,280.0
Tamil Nadu	127,482.3	140,150.2	122,979.7	163,110.1	194,650.0
Karnataka	105,489.7	87,047.3	79,610.1	80,780.9	82,080.0
Andhra Pradesh	738.1	22,711.5	927.0	27,134.2	33,570.0

Source: Reserve Bank of India, Respective State Budgets

**Upcoming Key Road projects in India:**

Details of top upcoming road projects in India are as follows:

Project Name	State	Project Type	Project Cost (USD Mn)	Size (Kms)	Project Status
Bengaluru - Pune Expressway Project	Maharashtra	Highway/Motorway	5455	700	At planning stage
Nagpur - Hyderabad - Bengaluru Expressway	Maharashtra	Highway/Motorway	5437	1100	At planning stage
Hyderabad - Warangal Industrial Corridor	Telangana	Road	5030	116	At planning stage
Hyderabad - Nagpur Industrial Corridor	Maharashtra	Road	4070	585	At planning stage
Gorakhpur - Forbesganj - Islampur Highway Project	Uttar Pradesh	Highway/Motorway	3906	600	At planning stage
Ludhiana - Delhi Expressway	Punjab	Highway/Motorway	3664	357	At planning stage
Pune Ring Road Project	Maharashtra	Road	3652	173.7	At planning stage
Peripheral Ring Road, Bangalore	Karnataka	Road	2880	73.5	At planning stage
Virar-Aliibaug Multimodal Corridor	Maharashtra	Highway/Motorway	7482	126	At planning stage
Amaravati Outer Ring Road Project	Andhra Pradesh	Road	2511	186	At planning stage
Ahmedabad - Jawaharlal Nehru Port Expressway	Gujarat	Highway/Motorway	2480	473	At planning stage
Vijayawada - Bengaluru Expressway Project	Andhra Pradesh	Highway/Motorway	2361	624	In tender/Tender launched
Bengaluru - Chennai Expressway	Tamil Nadu	Highway/Motorway	2053	262	At planning stage
Shiradi Ghat Tunnel	Karnataka	Road	1818	23.6	At planning stage
Vijayawada - Nagpur Express Highway Project	Maharashtra	Highway/Motorway	1805	457	At planning stage
Regional Ring Road	Telangana	Road	1800	347	At planning stage
Upper Ganga Canal Expressway, Sanauta Bridge - Purkazi	Uttar Pradesh	Highway/Motorway	1758	148	At planning stage
Pune Ring Road Project, Urse - Varve	Maharashtra	Road	1660	68.8	At planning stage
Shimla - Matur Highway Four-laning Project	Himachal Pradesh	Highway/Motorway	1406	223	At planning stage

Source: Fitch Solutions

### Upcoming Key Bridges/Flyovers/Elevated Road projects in India:

Project Name	State	Project Cost (INR Billion)	Current status of the project
Versova-Virar Sea Link Project	Maharashtra	352.4	Announced
Ranasthalam Six Lane Elevated Corridor Project (NH-16)	Andhra Pradesh	118.7	Announced
Talegaon-Chakan-Shikrapur Elevated Flyover Project (NH-548D)	Maharashtra	110.0	Announced
Wagholi-Shikrapur-Viman Nagar Flyover Project	Maharashtra	100.0	Announced
Central Silk Board Junction-Hebbal Elevated Corridor Project (Bengaluru North-South Corridor 1)	Karnataka	72.2	Announced
Jnanabharathi-Varthur Kodi Elevated Corridor Project (Bengaluru East-West Corridor 2)	Karnataka	69.6	Announced
Mahanadu Junction-Nidamanuru Railway Bridge Six Lane Flyover Project	Andhra Pradesh	60.0	Announced
Mahim-Malad Elevated Road Project (Western Express Highway)	Maharashtra	55.0	Announced
Mahipalpur Bypass-Barapullah Elevated Road Project (Sarai Kale Khan-Dhaura Kuan)	Delhi	50.0	Announced
Telangana East-West Side (ORR) Skyway Project	Telangana	44.2	Announced
Elevated road from Chennai port to Mauravoyal	Tamil Nadu	32.0	Under Bidding
Palashbari-Sualkuchi Four-Lane Bridge Project (Assam Bridge-II Project)	Assam	31.97	Under Bidding
Kakrola Mor-Wazirabad Six Lane Elevated Corridor Project	Delhi	30.0	Announced
Ghatkopar-Kopri Elevated road project	Maharashtra	29.0	Announced
Digha-Sonepur Six Lane High Level-Extra Dosed Cable Bridge Project(NH-139W)	Bihar	26.4	Under Bidding
Signature Bridge-DND Flyway Elevated Corridor Project	Delhi	25.0	Announced
Sariska Tiger Reserve Elevated Road Project	Rajasthan	22.0	Announced
Delhi East-West Corridor Project	Delhi	20.0	Announced
Kotdwar-Ram Nagar-Kandi Marg Elevated Road Project	Uttarakhand	20.0	Announced
Paradise Junction-Outer Ring Road (ORR) Elevated Corridor Project	Telangana	15.0	Announced
Signature Bridge - Kalindi Kunj Bypass Elevated Corridor Project	Delhi	13.0	Announced
Anandnagar-Saket Elevated road project	Maharashtra	12.8	Announced
Naini-Jhansi Four-Lane Bridge Project	Uttar Pradesh	12.5	Announced
Balason-Sevoke Four Lane Elevated Corridor Project (Darjeeling More)	West Bengal	11.5	Under Bidding
Coimbatore Western Bypass Flyover Project	Tamil nadu	11.3	Under Bidding

Source: Indian Infrastructure



## Railways

### Spend on Railway Construction in India (FY2018 - FY2028P)

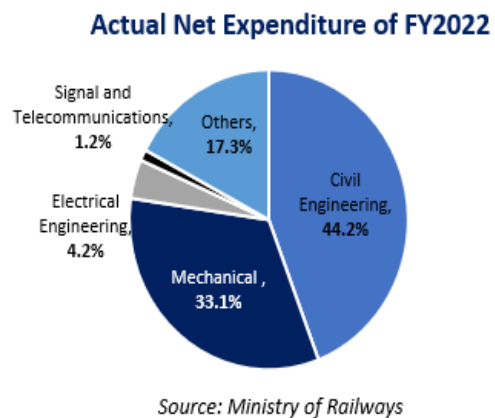
Railway construction work majorly includes the construction of new lines, gauge conversion, doubling, yard remodeling, road safety works, level crossings work, road over work, under bridge work, track renewals, bridge and tunnel work, electrification projects, electrical works, traction distribution work, signal and telecommunication work etc.

Expenditure of Railways is generally financed through:

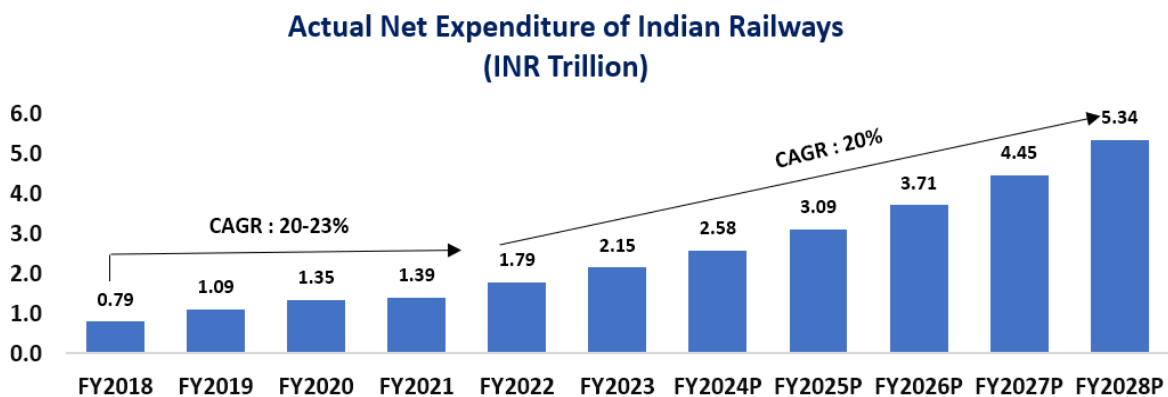
- i. Internal resources (freight and passenger revenue)
- ii. Budgetary support from the Central Government
- iii. Extra-budgetary resources (borrowings, institutional financing and public-private partnerships).

Railways' working expenses (salaries, pension, and asset maintenance) are met through its internal resources. Railways generate some surplus, which is not enough to cover its capital expenditure plans. Capital expenditure is supported by the Grant from the Central Government and Extra-Budgetary resources.

Ministry of Railways has highlighted the details of the actual net expenditure of Indian Railways in its annual report. The actual net expenditure of Indian Railways has increased at a CAGR of 20-23% from INR 0.79 trillion in FY2018 to INR 1.79 trillion in FY2022. As of FY2022 Civil engineering work constitutes major share of 44.2% of the actual net expenditure; followed by Mechanical works (33.1%), Electrical Engineering (4.2%), Signal and Telecommunication (1.2%) and other expenses (17.3%). Other expenses include computerization expense, railway research expenses, amenities expenses, training expenses, specified work expenses, investment in non-government undertakings etc.



FSIAPL expects the actual net expenditure of Indian Railways to increase at a CAGR of 20% to reach INR 5.34 trillion by FY2028P.



*Source: Annual Reports of Ministry of Railways*

### Key railway projects

The following table gives a summary of the total project cost of upcoming rail projects within different rail project types in India:

Project Type	Project Cost (USD Mn)
Commuter Rail Projects	8,915
Freight Rail Projects	1,359
High Speed Rail Projects	89,777
Mainline Rail Projects	32,240
Metro Rail Projects	22,468
Monorail Rail Projects	408

Source: Fitch Solutions

List of 20 key railway projects in India as per the Fitch Solutions Infrastructure Key Projects Data (as on 22<sup>nd</sup> Aug 2023) is provided below:

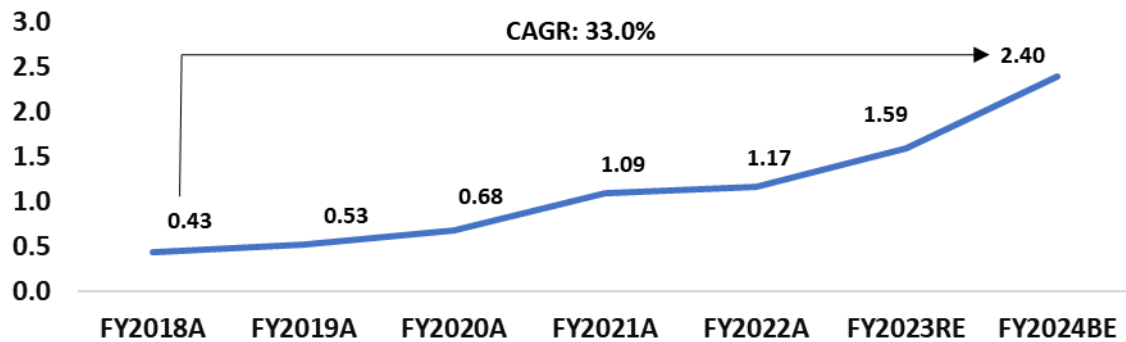
Project Name	Project Type	Project Cost (USD Mn)	Size (Kms)	Project Status
Delhi - Chennai High-speed Railway Line	High Speed	32600	1754	At planning stage
Delhi - Agra - Lucknow - Varanasi - Bihar High Speed Railway Project	High Speed	23000	991	At planning stage
Mysuru - Chennai Bullet Train Project	High Speed	15133	435	At planning stage
Bilaspur-Manali- Ladakh (Leh) Rail Project	Mainline	11342	465	At planning stage
Mumbai - Pune Hyperloop Project, Maharashtra	High Speed	10176	140	At planning stage
Thiruvananthapuram - Kasaragod Semi High Speed Rail Line (Silver Line)	Mainline	8472	529.45	At planning stage
Delhi - Amritsar High Speed Railway Project	High Speed	8368	465	At planning stage
Delhi - Rewari - Alwar Regional Rapid Transit Line	Commuter Rail	5500	197.3	At planning stage
Dehradun - Haridwar - Rishikesh Metro Line, Uttarakhand	Metro	5276	73	At planning stage
Delhi - Haryana (Sonapat - Panipat) Regional Rapid Transit Line	Commuter Rail	2937	103	At planning stage
Pune - Nashik Semi High Speed Rail Line Project, Maharashtra	Mainline	2131	235	At planning stage
CSMT - Panvel Elevated Rail Corridor, Maharashtra	Other	1874	55	At planning stage
Indore - Manmad Railway Line	Mainline	1400	362	At planning stage
Bengaluru Metro, Phase 3, Nagawara - Kempegowda International Airport	Metro	1217	25	Announced
Mumbai Metro Line 11, Wadala - CST (General Post office), Maharashtra	Metro	1171	12.77	At planning stage
Bengaluru Metro, Phase 3, MG Road - Hope Farm, Karnataka	Metro	1169	16	Announced
Gurgaon - Manesar - Bawal Metro Rail Project, Haryana	Metro	1098	-	At planning stage
Hyderabad Metro - Phase II, BHEL - Lakdikapul, Telangana	Metro	1039	26	At planning stage
Madurai Metro Rail Project, Thirumangalam - Othakadai, Tamil Nadu	Metro	1039	31	At planning stage
Bangalore (Namma) Metro - Phase II-A, Silk Board - K.R. Puram Metro Line	Metro	838	19.75	At planning stage

Source: Fitch Solutions

### Review of Capital Outlay for the Railways sector

The Union Budget allocated INR 2.40 trillion capital outlay for the Ministry of Railways for FY2024. This allocation is 4.4 times (CAGR of 33% from FY2018) the capital outlay of INR 0.55 trillion allocated in FY2018.

### Capital Outlay for the Railway sector (INR Trillion)



Source: Union Budgets

Note: BE- Budgeted Estimate, A – Actuals, RE – Revised Estimate

Railways’ capital expenditure includes investments for constructing new lines, procuring wagons, doubling of lines and renewing tracks. The share of capital expenditure in total expenditure of Indian Railways has consistently increased in recent years. The table below highlights that the increase in Capital Expenditure has been funded through budgetary support from the central government and extra budgetary resources. Extra budgetary resources funded more than 50% of capital expenditure between FY2018 and FY2021. Hence, Union Government has made efforts to increase the budget support from FY2022 onwards.

#### Budget details of Ministry of Railways (INR Trillion)

Year	Budget Support	Internal and External Budgetary Resources (IEBR)	Total
Actual 2021-2022	1.17	0.73	1.91
Budget 2022-2023	1.37	1.09	2.46
Revised 2022-2023	1.59	0.96	2.55
Budget 2023-2024	2.40	0.53	2.93
<b>CAGR % (Budget FY2023-2024 v/s Actuals 2021-2022)</b>	<b>43.1%</b>	<b>-15.2%</b>	<b>23.9%</b>

Source: Ministry of Railways Budget document

#### Other key highlights of the budgetary policy for the Railways are:

- 100 critical transport infrastructure projects for last- and first-mile connectivity for coal, fertiliser and food grain sectors have been identified and will be taken up on a priority basis with investment of INR 7.5 trillion, including INR 0.15 trillion from private sources.
- Ministry of Railways aims to increase the number of Vande Bharat trains, introducing hydrogen-powered trains, laying new tracks and completing the Ahmedabad–Mumbai bullet train project.
- Vande Bharat Express would remain one of their major areas of focus. Besides the Perambur Integral Coach Factory, the Vande Bharat Express would now also be rolled out from three more factories in Sonapat (Haryana), Latur (Maharashtra) and Raebareli (UP).

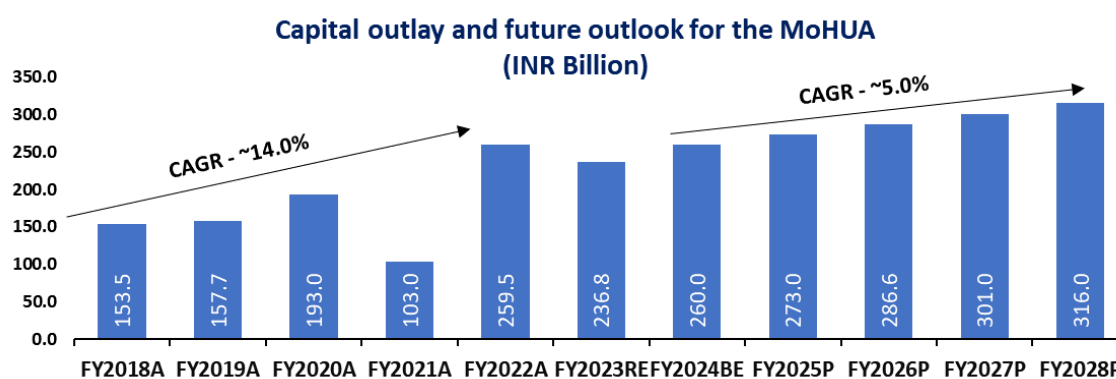
- New projects for FY2024 would also include the indigenously built hydrogen trains (which use hydrogen as fuel). These trains will be introduced in heritage circuits, with the first such train to run between Kalka and Shimla.
- Double lines would be laid over 2,800 km, gauge conversion would be carried out over 150 km and new lines over 600 km would be constructed.

## Urban Infrastructure

### Overview of Urban Infrastructure

Urban infrastructure consists of Metro, Smart City, Water Supply and Sanitation (WSS) projects, and others.

### Capital outlay for urban infrastructure in India (FY2018 - FY2028P)



Source: Union Budget Documents, FSIAPL Analysis

Note: Ministry of Housing and Urban Affairs (MoHUA); A – Actuals, RE - Revised Estimates, BE – Budgeted Estimates, P – Projected

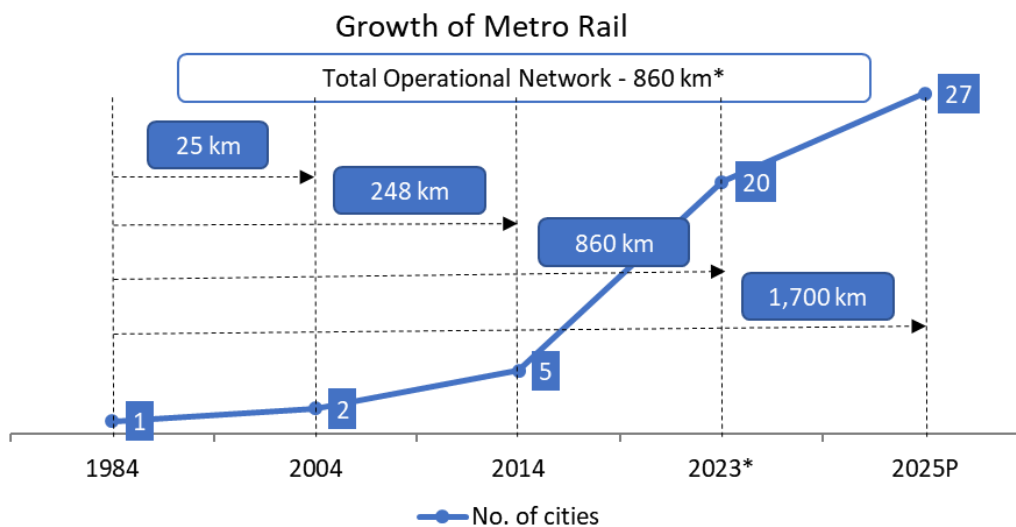
The actual capital outlay for the Ministry of Housing and Urban Affairs (MoHUA) has increased at a CAGR of ~14.0% from INR 153.5 billion in FY2018 to INR 259.5 billion in FY2022. As per FSIAPL’s analysis based on historical trend, the capital outlay in the MoHUA are projected to increase at a CAGR of ~5.0% from FY2024BE to INR 316.0 billion in FY2028P.

### Key announcement under Union Budget 2023-24

- An Urban Infrastructure Development Fund will be established for the development of urban infrastructure by public agencies in tier-2 and tier-3 cities. The Fund will be managed by the National Housing Bank and is expected to have an annual allocation of INR 100.00 billion.
- Cities will be incentivised to improve their credit worthiness for municipal bonds through property tax reforms and setting aside user charges.
- States and cities will be encouraged to undertake urban planning reforms such as efficient use of land resources, transit-oriented development, and enhanced availability and affordability of urban land.
- All cities and towns will be enabled for 100% mechanical desludging of septic tanks and sewers. Enhanced focus will be given to scientific management of dry and wet waste.

### Overview of Metro Segments

The swift urbanization and growing population densities in Indian cities have presented numerous challenges, such as significant traffic congestion and environmental pollution. However, the metro rail system has emerged as a promising solution for countless urban residents, providing them with a dependable, efficient, and environmentally conscious means of travel. Prior to 2014, only five cities in India had a modest 248 km of metro rail networks. As of April 2023, a staggering 860 km of metro lines are operational across 20 cities. Moreover, the pace of progress has soared, as the country witnessed a remarkable shift from a monthly average of 0.68 km of commissioned metro lines before May 2014 to an impressive 5.6 km per month (as on April 2023).



Source: Ministry of Information & Broadcasting (MoIB), Press Information Bureau (PIB); FSIAPL Analysis  
 Note: (\*) As on April 2023; P – Projected

Item	Before 2014	Addition after 2014	Current Status
Number of cities with operational Metro Network	5	15	20
Commissioning of new metro rail lines (km)	248	612	860
Approved metro networks, including RRTS for construction (km)	659	1,059	1,718
Approved RRTS corridor for construction (km)	0	82	82
Metro passengers per day (ridership in million)	1.7	6.8	8.5*

Source: Ministry of Housing and Urban Affairs (MoHUA), Press Information Bureau  
 Note: (\*) (pre-COVID 2019)

To address the imperative for an extensive metro network across India, the Metro Rail Policy was instituted in 2017, serving as a blueprint for the nationwide expansion and modernization of metro networks. The emphasis on domestic manufacturing of metro coaches under the "Make in India" initiative has also yielded manifold advantages. Not only has it bolstered the domestic manufacturing sector, but it has also fostered self-reliance and diminished the country's dependence on foreign imports.

## Elevated Metro: Key Operational/ Under Constructions Projects with Estimated Project Cost

City & State	Projects Details	Proposed Network Length	Type	Estimated Project Cost	
<b>Agra Metro</b> Under Construction: 11.9 km Approved: 17.5 km	Line-1: Sikandra – Taj East Gate	6.569 km	Elevated	INR 83.79 billion (Line-1)	
	Line-2: Agra Cantt. – Kalindi Vihar	15.40 km	Elevated		
	<b>Operational Lines (Phase 1, Phase 2)</b>				
	Line-1 (Purple Line): Baiyyappanahalli – Mysore Road	13.3 km	Elevated	INR 116.90 billion (Phase 1)	
	Line-2 (Green Line): Nagasandra – Yelachenahalli	20.2 km	Elevated		
	<b>Under Construction Lines (Phase 2, Phase 2A, Phase 2B)</b>				
	Line-1 (Purple Line): Baiyyappanahalli – KR Pura	2.257 km	Elevated	INR 360.00 billion (Phase 2)	
	Line-1 (Purple Line): KR Pura – Whitefield (Kadugodi)	13.0 km	Elevated		
	Line-1 (Purple Line): Kengeri – Challaghatta	1.314 km	Elevated		
	Line-2 (Green Line): Yelachenahalli – Anjanapura Depot	6.29 km	Elevated		
	Line-2 (Green Line): Hesaraghatta Cross (erst. Nagasandra) – Madavar (erst. BIEC)	3.031 km	Elevated		
	Line-3 (Yellow Line): RV Road – Bommasandra	19.143 km	Elevated		
	Line-4 (Pink Line): Gottigere (Kalena Agrahara) – Nagawara	7.501 km	Elevated		
	Line-5 (Blue Line): Central Silkboard – KR Puram	18.236 km	Elevated		
	Line-5 (Blue Line): KR Puram – Hebbal – KIAL Terminals	37.0 km	Elevated, At-Grade and Underground (within the airport)		
Line-5 (Blue Line): Mysore Road – Challaghatta	8.814 km	Elevated			
Line-1 (Purple Line): Baiyyappanahalli – Whitefield	15.257 km	Elevated	NA		
Line-2 (Green Line): Yelachenahalli (Puttenahalli) – Silk Institute (Anjanapura)	6.29 km	Elevated			
Line-2 (Green Line): Hesaraghatta Cross (formerly Nagasandra) – Madavar (formerly BIEC)	3.031 km	Elevated	INR 96.17 billion (Phase 2B)		
<b>Proposed Lines (Phase 3 - Approvals Pending)</b>					
Carmelaram – Yelahanka	37.0 km	NA			
Marathahalli – Hosakerehalli	21.0 km	NA			
Silkboard – KR Puram – Hebbal	29.0 km	NA	INR 160.41 billion		
<b>In addition, here are some other potential lines on the drawing board:</b>					
JP Nagar to K R Puram via Hebbal	NA	NA			
Magadi Road Toll Gate to Kadabagere	NA	NA			
Gottigere to Basavapura	NA	NA			
RK Hegde Nagar to Aerospace Park	NA	NA			
Kogilu Cross to Rajanukunte	NA	NA			
Bommasandra to Attibele	NA	NA			
Iblur to Carmelaram	NA	NA			
<b>Bhopal Metro</b> Under Construction: 6.22 km Approved: 21.65 km Proposed: 77.13 km	<b>Bhopal Metro Phase 1 Lines (Approved)</b>				
	Line-2 (Orange Line): Karond Circle – AIIMS	14.99 km	Elevated & Underground	INR 69.41 billion	
	Line-5 (Blue Line): Bhadbhada Square – Ratnagiri Tiraha	12.91 km	Elevated		
	<b>Bhopal Metro Proposed Lines</b>				
	Line-1 (Green Line): Bairgarh – Awadhpuri	NA	NA	NA	
	Line-3 (Red Line): Bhauri Bypass (NH12 Junction) – Vasant Kunj Bus Stop	NA	NA	NA	
	Line-4 (Yellow Line): Ashok Garden Auto Stand – Mother Teresa School	NA	NA	NA	
	Line-6 (Brown Line): Habibganj Naka – Mandideep	NA	NA	NA	
	<b>Phase 1 Project</b>				
	Line-1 (Blue Line): Chennai Airport – Washermanpet	23.10 km	Elevated & Underground	NA	
Line-2 (Green Line): Chennai Central – St. Thomas Mount	22.0 km				
<b>Chennai Metro</b> Operational: 54.15 km Under Construction: 102.97 km Approved: 15.93 km Proposed: 15.3 km	<b>Phase 1 Extension</b>				
	Line-1 (Blue Line): Washermanpet – Wimco Nagar	6.672 km	Elevated	INR 37.70 billion	
	<b>Phase 2 Project</b>				
	Line-3 (Purple Line): Madhavaram – SIPCOT 2	19.0 km	Elevated	INR 618.43 billion	
	Line-4 (Orange Line): Light House – Poonamallee Bus Depot	16.02 km	Elevated		
	Line-5 (Red Line): Madhavaram – Sholinganallur	38.77 km	Elevated		
	<b>Delhi Metro</b> Operational: 350.8 km Under Construction: 65.1 km Proposed: 57.3 km	<b>Phase 1 Project</b>			
Line-1 (Red Line): Shahdara – Rithala		22.0 km	Elevated	INR 105.71 billion	
Line-2 (Yellow Line) Vishwavidyalaya – Central Secretariat		11.0 km	Elevated		
Line-3 (Blue Line) Dwarka Sector-9 – Indraprastha		32.1 km	Elevated		

City & State	Projects Details	Proposed Network Length	Type	Estimated Project Cost	
<b>Delhi Metro</b> Operational: 350.8 km Under Construction: 65.1 km Proposed: 57.3 km	<b>Phase 2 Project (New Lines)</b>				
	Line-4 (Blue Line): Yamuna Bank – Vaishali	8.74 km	Elevated	INR 187.83 billion	
	Line-5 (Green Line): Inderlok – Mundka	15.15 km	Elevated		
	Line-5 (Green Line): Kirti Nagar – Ashok Park Main	3.31 km	Elevated		
	Line-6 (Violet Line): Central Secretariat – Badarpur	20.16 km	Elevated		
	Line-x (Airport Express Line): New Delhi – Dwarka Sector 21	22.70 km	Elevated		
	<b>Phase 2 Project (Extensions of Existing Lines)</b>				
	Line-1 (Red Line): Shahdara – Dilshad Garden	3.09 km	Elevated	INR 410.79 billion	
	Line-2 (Yellow Line): Vishwavidyalaya – Jahangipuri	6.36 km	Elevated		
	Line-2 (Yellow Line): Central Secretariat – HUDA City Centre	27.58 km	Elevated		
	Line-3 (Blue Line): Indraprastha – Noida City Centre	15.07 km	Elevated		
	Line-3 (Blue Line): Dwarka Sector 9 – Sector 21	2.77 km	Elevated		
	<b>Phase 3 Project (New Lines)</b>				
	Line-7 (Pink Line): Majlis Park – Shiv Vihar	58.596 km	Elevated	INR 249.48 billion	
	Line-8 (Magenta Line): Janakpuri West – Botanical Garden	38.235 km	Elevated		
	Line-9 (Grey Line): Dwarka – Dhansa Bus Stand	5.340 km	Elevated		
	<b>Phase 3 Project (Extensions of Existing Lines)</b>				
	Line-1 (Red Line): Dilshad Garden – Ghaziabad Bus Adda	9.410 km	Elevated		
	Line-2 (Yellow Line): Jahangirpuri – Samaypur Badli	4.489 km	Elevated		
	Line-3 (Blue Line): Noida City Centre – Sector 62	6.82 km	Elevated	INR 51.50 billion	
	Line-5 (Green Line): Mundka – Bahadurgarh	11.182 km	Elevated		
	Line-6 (Violet Line): Central Secretariat – Kashmir Gate	9.370 km	Elevated		
	Line-6 (Violet Line): Badarpur – Ballabgarh	17.075 km	Elevated		
	Airport Express Line: Dwarka Sec-21 – ECC Centre	1.878 km	Elevated		
	<b>Phase 4 Approved New Lines</b>				
	Line-10 (Silver Line): Aerocity – Tughlakabad	4.279 km	Elevated	INR 62.50 billion	
	<b>Phase 4 Approved Extensions</b>				
	Line-7 (Pink Line): Mukundpur – Maujpur	12.558 km	Elevated		
	Line-8 – Magenta Line: Janakpuri West – R.K. Ashram	21.18 km	Elevated		
	<b>Phase 4 Lines/ Extensions Pending Approval</b>				
	Line-1 (Red Line): Rithala – Narela	21.73 km	Elevated		
	Line-1 (Red Line): Narela – Kundli	4.86 km	Elevated		
Line-3 (Blue Line): Noida Sector-62 (Electronics City) – Sahibabad	5.11 km	Elevated			
Line-4 (Blue Line): Vaishali – Mohan Nagar	5.06 km	Elevated			
Line-10 (Silver Line): Lajpat Nagar – Saket G-Block	7.96 km	Elevated & Underground			
<b>Phase 5 Project</b>		NA	NA		
<b>Gurgaon (Gurugram) Metro</b> Operational: 12.1 km Approved: 28.8 km Under Construction: 0 km Proposed: 170.19 km	New Line: Gurgaon – Manesar – MBIR	82.0 km		NA	
	Phase 1: Gurugram Railway Station to Panchgaon in Manesar	35.0 km	NA		
	Phase 2: Panchgaon (Manesar) to Dharuhera	22.0 km	NA		
	Phase 3: Dharuhera – Manesar Bawal Investment Region (MBIR)	25.0 km	NA		
	New Line: Gurgaon – Faridabad	31.0 km	NA	INR 51.50 billion	
	New Line: Sector 21 Dwarka – IFFCO Chowk Gurgaon	12.225 km	NA		
	New Line: HUDA City Centre – Gurugram Railway Station	11.15 km	NA		
	New Line: HUDA City Centre – Dwarka	27.48 km	NA		
	Extn of Line-1: Sector 55/56 – Vatika Chowk	6.34 km	NA		
	<b>Hyderabad Metro</b> Operational: 67 km Under Construction: 0 km Approved but Unbuilt (Phase 1): 5 km Proposed (Phase 2): 63 km	<b>Phase 1 Project</b>			NA
Line-1 (Red Line): Miyapur – LB Nagar		29.87 km	Elevated		
Line-2 (Green Line): JBS Parade Ground – MGBS		9.6 km	Elevated		
Line-3 (Blue Line): Nagole – Raidurg		28.0 km	Elevated	INR 84.53 billion	
<b>Phase 2 Project (New Phase 2 Plan)</b>					
Airport Express Line: Mindspace Junction – Rajiv Gandhi International Airport (RGIA)		28.5 km	Elevated		
Red Line Extension: Miyapur – Lakdikapul		26.0 km	Elevated		
Blue Line Extension: Raidurg – Mindspace		1.0 km	Elevated		
Blue Line Extension: Nagole – LB Nagar		5.0 km	Elevated		
<b>Phase 2 Project (Old Phase 2 Plan)</b>					
New Line: Tarnaka – ECIL		7.0 km	NA	INR 62.50 billion	
Line-1 – Red Line Extension: LB Nagar – Hayathnagar		7.0 km	NA		
Line-1 – Red Line Extension: Miyapur – BHEL – Patancheru		13.0 km	NA		
Line-3 – Blue Line Extension: Nagole – LB Nagar – Falaknuma – Shamshabad Airport		28.0 km	NA		
Line-3 – Blue Line Extension: Raidurg – Gachibowli – Shamshabad Airport		30.7 km	NA		
<b>Airport Express Line</b>	28.5 km	Elevated			

City & State	Projects Details	Proposed Network Length	Type	Estimated Project Cost
Indore Metro Under Construction: 16.217 km Approved: 15.1313 km Proposed: 57.18 km	<b>Indore Metro Phase 1 Lines (Approved)</b>			
	Line-3 (Yellow Line): Palasia – Railway Station – Rajwara- Airport – Bhawarsala – MR10 – Palasia (Ring Line)	33.53 km	Elevated & Underground	INR 75.00 billion
	<b>Indore Metro Proposed Lines</b>			
	Line-1A: Sri Aurobindo Hospital – Collectorate office – Indore Bypass 1	NA	NA	NA
	Line-1B: Sri Aurobindo Hospital – Collectorate office – Regional Park (1B)	NA	NA	NA
	Line-2: Dewas Naka – Juni Indore – MHOW	NA	NA	NA
	Line-4: MR9 – Indore Railway Station – Indore Bypass 4	NA	NA	NA
Jaipur Metro Operational: 11.98 km (Phase 1A & Phase 1B) Under Construction: 0 km Proposed: 28.27 km (Phase 1C, Phase 1D & Phase 2)	<b>Jaipur Metro Operational Lines (Phase 1A and Phase 1B)</b>	Phase 1A: 9.63 km Phase 1B: 2.35 km	Elevated & Underground	INR 9.69 billion (Phase 1B)
	Line-1 (Pink Line): Mansarovar – Badi Chaupar			
	<b>Jaipur Metro Proposed Lines (Phase 1C, Phase 1D and Phase 2)</b>			
	Line-1 (Pink Line): Badi Chaupar – Transport Nagar (Phase 1C)	0.76 km	Elevated	NA
	Line-1 (Pink Line): Mansarovar to Ajmer Road Chauraha (Phase 1D)	1.35 km	Elevated	
	<b>Phase 2 Project</b>			
	Line-2 (Orange Line): Ambabari – India Gate (Sitapura Industrial Area)	23.51 km	Elevated	INR 95.00 billion
Kanpur Metro Operational: 8.728 km Under Construction: 15.057 km Approved: 8.6 km	Line-1: IIT Kanpur – Naubasta	15.164 km	Elevated	INR 110.76 billion
	Line-2: Rawatpur Railway Station – Jaurali	8.6 km	Underground and Elevated	
Kochi Metro Operational: 26.8 km (Phase 1 & 1A) Under Construction: 1.16 km (Phase 1B) Approved: 11.2 km (Phase 2)	<b>Kochi Metro Operational Line (Phase 1 &amp; 1A)</b>			
	Line-1 (Blue Line): Aluva – S.N. Junction	26.8 km	Elevated	NA
	<b>Kochi Metro Under Construction Line (Phase 1B)</b>			
	Line-1 (Blue Line): S.N. Junction – Tripunithura	1.163 KM	Elevated	
	<b>Kochi Metro Approved Lines (Phase 2)</b>			
	Line-2 (Pink Line): JLN Stadium – Infopark II	11.2 km	Elevated	INR 23.10 billion
Kolkata Metro Operational: 47.85 km Under Construction: 47.72 km On Hold/ Proposed: 44.46 km	<b>Kolkata Metro Routes (Operational)</b>			
	Blue Line (Line-1): Dakshineswar to New Garia (Kavi Subhash)	32.25 km	At-Grade, Elevated & Underground	INR 4.16 billion
	Green Line (Line-2): Sector V to Sealdah	5.3 km	Elevated	INR 85.75 billion
	Purple Line (Line-3): Joka to Taratala	6.5 km	Elevated	INR 24.47 billion
	<b>Kolkata Metro Routes (Under Construction Lines)</b>			
	Purple Line (Line-3): Taratala to Mominpur	3.75 km	Elevated	INR 26.19 billion
	Yellow Line (Line-4): Noapara to NSCBI Airport	6.87 km	At-grade, elevated & underground	INR 48.30 billion
	Orange Line (Line-6): New Garia (Kavi Subhash) to NSCBI Airport (Biman Bandar)	29.87 km	At-grade, elevated & underground	INR 290.15 billion
	<b>Kolkata Metro Routes (On-Hold &amp; Proposed Lines)</b>			
	Green Line (Line-2): Howrah Maidan to Satrangachi Bus Terminal	10.0 km	Elevated	NA
	Green Line (Line-2): Sector V to Teghoria	5.7 km	Elevated	NA
	Purple Line (Line-3): Mominpur to Esplanade	5.0 km	Elevated & Underground (majority)	INR 26.19 billion
	Yellow Line (Line-4): NSCBI Airport (Biman Bandar) to Barasat	11.26 km	Underground and Elevated	INR 48.30 billion
Pink Line (Line-5): Baranagar to Barrackpore	12.50 km	At-grade & elevated	INR 20.69 billion	
Lucknow Metro Operational: 22.878 km Proposed: 85 km	<b>Lucknow Metro Phase 1A Route (Operational)</b>			
	Line-1: CCS Airport – Munshi Pulia	19.438 km	Elevated	INR 69.28 billion
	<b>Lucknow Metro Proposed Routes</b>			
	Line-2: Lucknow Railway Station (Charbagh) – Vasant Kunj	4.548 km	Elevated	INR 42.65 billion
	<b>Lucknow Metro Phase 2 Routes (Proposed)</b>			
	Extn of Line-1: Munshi Pulia – Jankipuram	NA	NA	
	Extn of Line-2: Charbagh – SGPPI (Sanjay Gandhi Postgraduate Institute of Medical Sciences)	NA	NA	
	New Line-3: IIM Lucknow – Rajajipuram	NA	NA	NA
	<b>Lucknow Metro Phase 3 Routes (Proposed)</b>			
	Indiranagar – CG City South	NA	NA	
Airport – Atal Bihari Vajpayee Ekana Cricket Stadium	NA	NA		
Secretariat – CG City South	NA	NA		
Meerut Metro Under Construction: 20 km Proposed: 15 km	Line-1: Partapur – Modipuram (Under Construction)	14.40 km	Elevated	NA
	Line-2: Shradhapuri Phase II – Jagriti Vihar (Proposed)	10.7 km	Elevated	



City & State	Projects Details	Proposed Network Length	Type	Estimated Project Cost
<b>Mumbai Metro</b> Operational: 46.5 km Under Construction: 133.9 km Approved: 21.289 km Proposed: 136.4 km	<b>Mumbai Metro – Operational Lines</b>			
	Line-1 (Blue Line): Versova – Andheri – Ghatkopar	11.4 km	Elevated	
	Line-2A (Yellow Line): Dahisar (East) – D.N. Nagar, (Andheri West)	18.589 km	Elevated	INR 64.10 billion
	Line-7 (Red Line): Dahisar (East) – Gundavali (Andheri East)	16.5 km	Elevated	INR 62.08 billion
	<b>Mumbai Metro – Under Construction Lines</b>			
	Line-2B (Yellow Line): D.N. Nagar – Bandra – Mandale	23.643 km	Elevated	INR 109.86 billion
	Line-7A (Red Line): Andheri East – CSIA Terminal 2	0.255 km	Elevated	INR 65.18 billion
	Line-9 (Red Line): Dahisar East – Mira Bhayandar	11.38 km	Elevated	(L-7A & 9)
	Line-4 (Green Line): Bhakti Park (Wadala) – Kasaravadavali	32.32 km	Elevated	INR 145.49 billion
	Line-4A (Green Line): Kasaravadavali – Gaimukh	2.88 km	Elevated	INR 9.49 billion
	Line-5 (Orange Line): Kapurbawdi (Thane) – Bhiwandi – Kalyan	24.90 km	Elevated	INR 84.16 billion
	Line-6 (Pink Line): Lokhandwala – JVLR – SEEPZ – Kanjurmarg	15.18 km	Elevated	INR 66.72 billion
	<b>Mumbai Metro – Approved Lines</b>			
	Line-10 (Green Line): Gaimukh – Shivaji Chowk (Mira Road)	9.209 km	Elevated	INR 44.76 billion
	<b>Mumbai Metro – Proposed Lines</b>			
	Line-11 (Green Line): Bhakti Park (Wadala) – CSMT	3.979 km	Elevated	INR 87.39 billion
	Line-12 (Orange Line): Kalyan – Dombivali – Talaja	20.75 km	Elevated	INR 84.16 billion
	Line-8 (Gold Line): Chhatrapati Shivaji Maharaj International Airport (CSIA) – Navi Mumbai International Airport (NMIA)	35.0 km	NA	NA
	Line-13 (Purple Line): Shivaji Chowk (Mira Road) – Virar	23.0 km	NA	NA
Line-14 (Magenta Line): Vikhroli – Kanjurmarg – Badlapur	45.0 km	NA	NA	
<b>Mumbai Monorail – Operational Lines</b>				
Line-1: Chembur – Jacob Circle	19.54 km	Elevated	NA	
<b>Nagpur Metro</b> Operational: 38.215 km Approved: 48.3 km (Phase 2)	<b>Nagpur Metro Phase 1 Routes</b>			
	Line 1 (Orange Line): Automotive Square – Khapri	19.658 km	Elevated	NA
	Line 2 (Aqua Line): Lokmanya Nagar – Prajapati Nagar	19.407 km	Elevated	
	<b>Nagpur Metro Phase 2 Routes</b>			
	Line-1 (Orange Line) Reach 1A: MIHAN to Butibori MIDC ESR	18.7 km	Elevated	
	Line-1 (Orange Line) – Reach 2A: Automotive Square to Kanhan	13.0 km	Elevated	INR 59.76 billion
	Line-2 (Aqua Line) – Reach 3A: Lokmanya Nagar to Hingna	6.6 km	Elevated	
	Line-2 (Aqua Line) – Reach 4A: Prajapati Square to Transport Nagar	5.5 km	Elevated	
	Line-2 (Aqua Line) – Reach 5: Vasudev Nagar – Wadi	4.5 km	Elevated	
	<b>Navi Mumbai Metro Routes (Under Construction)</b>			
Line-1: CBD Belapur – Pendhar	11.10 km	Elevated	INR 30.63 billion	
<b>Navi Mumbai Metro Future Network</b>				
Line-2: Talaje MIDC – Khandeshwar	7.12 km	Elevated	INR 28.20 billion	
Line-3: Talaje MIDC – Pendhar	3.87 km	Elevated	INR 17.50 billion	
Line-4: Khandeshwar – Navi Mumbai International Airport (NMIA)	4.17 km	Elevated	INR 12.70 billion	
<b>Noida Metro</b> Operational: 29.7 km Under Construction: 0 km Approved: 14.95 km Proposed: 70 km	<b>Noida Metro Operational Route</b>			
	Line-1 (Aqua Line): Sector 51 – Greater Noida Depot	29.7 km	Elevated	INR 55.03 billion
	<b>Noida Metro Approved Routes</b>			
	Phase 1 (Aqua Line): Sector 51 to Greater Noida Sector-2	9.605 km	NA	INR 26.82 billion
	Phase 2 (Aqua Line): Greater Noida Sector-2 to Knowledge Park V	5.8 km	NA	
	<b>Noida Metro Proposed New Routes</b>			
	Extension of Aqua Line: Depot Station to Chamrawali Bodaki	3.5 km	NA	NA
New Line: Sector 142 – Botanical Garden	11.504 km	Elevated		
New Line: Greater Noida Knowledge Park II – Jewar Airport	35.64 km	Elevated (Express & Local services)		
<b>Patna Metro</b> Under Construction: 22.1 km Approved: 8.8 km	<b>Patna Metro Phase 1 Route</b>			
	Line-1 (East – West Line): Danapur Cantonment – Khemni Chak	9.36 km	Elevated	INR 133.66 billion
	Line-2 (North – South Line): Patna Junction Railway Station – New ISBT	6.0 km	Elevated	

City & State	Projects Details	Proposed Network Length	Type	Estimated Project Cost
<b>Pune Metro</b> Operational: 10.35 km Under Construction: 44.23 km Approved: 4.41 km Proposed: 26.46 km	<b>Pune Metro Phase 1 Lines (Under Construction)</b>			
	Line-1 (Purple Line): Pimpri Chinchwad Municipal Corporation (PCMC) – Swargate	11.570 km (PCMC – Range Hills Ramp)	Elevated	INR 114.00 billion
	Line-2 (Aqua Line): Vanaz – Ramwadi	14.665 km	Elevated	NA
	<b>Pune Metro Line-3 Route</b>			
	Line-3: Hinjawadi – Civil Court	23.33 km	Elevated	NA
	<b>Pune Metro Approved Lines</b>			
	Line-1 (Purple Line): Pimpri Chinchwad Municipal Corporation (PCMC) – Nigdi	4.41 km	Elevated	NA
	<b>Pune Metro Proposed Lines</b>			
	Line-1 Extension (Purple Line): Swargate – Katraj	5.464 km	Elevated	INR 42.84 billion
	Line-3 Extension: Shivaji Nagar – Kadam Wakwasti	18.0 km	NA	NA
	Line-4: Swargate – Pul Gate	3.0 km	NA	NA
<b>Surat Metro</b> Under Construction: 41.93 km	Line-1: Sarthana – Dream City	15.75 km	Elevated	INR 120.20 billion
	Line-2: Bhesan – Saroli	19.26 km	Elevated	

Source: *The Metro Rail Guy*, accessed on September 27, 2023

Note: NA – Not Available

### New Elevated Metro Projects with Estimated Project Cost

City & State	Projects Details	Proposed Network Length	Type	Estimated Project Cost
<b>Coimbatore (Kovai) Metro</b>	Line-1: Kaniyur to Ukkadam Bus Stand	26.0 km	Elevated	INR 90.00 billion
	Line-2: Bilichi to Ukkadam Bus Stand	24.0 km	Elevated	
	Line-3: Karanampettai to Thannerpanthal	42.0 km	Elevated	
	Line-4: Ganeshapuram – Karunyanagar	44.0 km	Elevated	
	Line-5: Vellalore – Ukkadam	8.0 km	Elevated	
<b>Guwahati Metro</b>	Line 1: Dharapur – Narangi	22.6 km	Elevated	NA
	Line 3: Jalukbari – Khanapara	19.4 km	Elevated	
	Line 4: ISBT – Paltan Bazar	9.4 km	Elevated	
	Additional potential lines being explored:			
	Dharapur – Guwahati Airport	NA	NA	
	North Guwahati – AIIMS	NA	NA	
<b>Madurai Metro</b>	Madurai Metro's route has not been finalized	31.0 km	NA	INR 85.00 billion
<b>Uttarakhand (Devbhoomi) Metro project</b>	Line-1: Haridwar – Rishikesh	32.0 km	Elevated & At-Grade	INR 16.63 billion
	Line-2: Nepali Farm – Dehradun	41.0 km		

Source: *The Metro Rail Guy*, accessed on September 27, 2023

Note: NA – Not Available

- Underground Metro:** Underground metro, as the name suggests the tracks are below the ground surface. Underground metro is generally proposed in older dense parts of cities where roads are narrow and sharp turn is there which doesn't allow elevated rail alignment without major demolitions. The power consumption is about ten times more for underground metro system mainly due to Environmental Control System (ECS) and Tunnel Ventilation System (TVS). Underground metro has minimal visual impact and encroachment of the already congested city space. Cityscape is maintained, further beautification is possible, green cover can be increased, reduces the traffic congestion and overall quality of life is improved.

### Key Projects

- Pune Metro (Total length – 16.59 km – PCMC building to Swargate): 5.09 km – Underground
- Chennai Metro Rail project
  - Phase-I Extension of the project from Washermanpet to Thiruvottiyur (Wimco Nagar) covering 9.051 km with 8 Metro Stations (2 Underground Stations)
  - Corridor-3: Madhavaram to SIPCOT covering 45.8 km is a North South Corridor connecting the prime locations like IT Corridor, Adayar, Mylapore and

- Purasaiwalkam with 50 Metro Stations comprising of 30 Underground Metro Stations.
- Corridor-4: Lighthouse to Poonamallee Bypass covering 26.1 km is the East West Corridor covering the commercial hubs of city viz. Nandanam, T.Nagar, Vadapalani, Valasaravakkam, Porur and Poonamallee with 30 Metro Stations comprising of 12 Underground Metro Stations.
  - Corridor-5: Madhavaram to Sholinganallur covering 47.0 km is the orbital corridor connecting prime locations viz., Villivakkam, Anna Nagar, Koyambedu, Virugambakkam, Ramapuram, Madipakkam and Medavakkam with 48 Metro Stations comprising of 6 Underground Metro Stations.
  - Mumbai Metro:
    - Metro Line 9 is extension of Line 7 from Andheri to CSIA and Dahisar to Mira Bhayander and is 13.581 km long (2.195 km underground) with 10 stations.
    - Metro Line 3 (Aqua line 3): Colaba-Bandra-SEEPZ (Santacruz Electronics Export Processing Zone) line covering 33.5 km long line will be the first underground metro line in Mumbai, with 27 underground stations and one at-grade station.

### Underground Metro: Key Operational/ Under Constructions Projects with Estimated Project Cost

City & State	Projects Details	Proposed Network Length	Type	Estimated Project Cost
<b>Agra Metro</b>	Under Construction: 11.9 km Line-1: Sikandra – Taj East Gate Approved: 17.5 km	7.681 km	Underground	INR 83.79 billion (Line-1)
<b>Meerut Metro</b>	Line-1: Partapur – Modipuram (Under Construction) Line-2: Shradhapuri Phase II – Jagriti Vihar (Proposed)	5.6 km 4.3 km	Underground Underground	NA
<b>Mumbai Metro</b>	<b>Mumbai Metro – Under Construction Lines</b> Line-3 (Aqua Line): Cuffe Parade – BKC – SEEPZ – Aarey Colony Line-7A (Red Line): Andheri East – CSIA Terminal 2	33.5 km 2.915 km	Underground & At-Grade Underground	INR 231.36 billion INR 65.18 billion (L-7A & 9)
	<b>Mumbai Metro – Proposed Lines</b> Line-11 (Green Line): Bhakti Park (Wadala) – CSMT	8.765 km	Underground	INR 87.39 billion
<b>Patna Metro</b>	<b>Patna Metro Phase 1 Route</b> Line-1 (East – West Line): Danapur Cantonment – Khemni Chak Line-2 (North – South Line): Patna Junction Railway Station – New ISBT	7.5 km 8.0 km	Underground Underground	INR 133.66 billion
<b>Pune Metro</b>	<b>Pune Metro Phase 1 Lines (Under Construction)</b> Line-1 (Purple Line): Pimpri Chinchwad Municipal Corporation (PCMC) – Swargate	5.019 km (Range Hills Ramp – Swargate)	Underground	NA
<b>Surat Metro</b>	Line-1: Sarthana – Dream City	7.02 km	Underground	INR 120.20 billion

Source: *The Metro Rail Guy*, accessed on September 27, 2023

Note: NA – Not Available

City & State	Projects Details	Proposed Network Length	Type	Estimated Project Cost	
<b>Bangalore Metro</b> Operational: 68.6 km Under Construction: 103.86 km Proposed: 105.55 km	<b>Operational Lines (Phase 1, Phase 2)</b>				
	Line-1 (Purple Line): Baiyyappanahalli – Mysore Road	4.8 km	Underground	INR 116.90 billion (Phase 1)	
	Line-2 (Green Line): Nagasandra – Yelachenahalli	3.0 km	Underground		
	<b>Under Construction Lines (Phase 2, Phase 2A, Phase 2B)</b>				
	Line-1 (Purple Line): KR Pura – Whitefield (Kadugodi)	NA	Underground	INR 360.00 billion (Phase 2)	
Line-4 (Pink Line): Gottigere (Kalena Agrahara) – Nagawara	13.885 km	Underground	INR 96.17 billion (Phase 2B)		
Line-5 (Blue Line): KR Puram – Hebbal – KIAL Terminals	37.0 km	Elevated, At-Grade and Underground (within the airport)			
<b>Bhopal Metro</b> Under Construction: 6.22 km Approved: 21.65 km Proposed: 77.13 km	<b>Bhopal Metro Phase 1 Lines (Approved)</b>				
	Line-2 (Orange Line): Karond Circle – AIIMS	14.99 km	Elevated & Underground	INR 69.41 billion	
	<b>Phase 1 Project</b>				
<b>Chennai Metro</b> Operational: 54.15 km Under Construction: 102.97 km Approved: 15.93 km Proposed: 15.3 km	Line-1 (Blue Line): Chennai Airport – Washermanpet	23.10 km	Elevated & Underground	NA	
	Line-2 (Green Line): Chennai Central – St. Thomas Mount	22.0 km			
	<b>Phase 1 Extension</b>				
	Line-1 (Blue Line): Washermanpet – Wimco Nagar	2.379 km		INR 37.70 billion	
	<b>Phase 2 Project</b>				
<b>Delhi Metro</b> Operational: 350.8 km Under Construction: 65.1 km Proposed: 57.3 km	Line-3 (Purple Line): Madhavaram – SIPCOT 2	26.4 km	Underground	INR 618.43 billion	
	Line-4 (Orange Line): Light House – Poonamallee Bus Depot	10.07 km			
	Line-5 (Red Line): Madhavaram – Sholinganallur	5.83 km			
	<b>Phase 4 Approved New Lines</b>				
	Line-10 (Silver Line): Aerocity – Tughlakabad	19.343 km	Underground		
<b>Hyderabad Metro</b> Operational: 67 km Under Construction: 0 km Approved but Unbuilt (Phase 1): 5 km Proposed (Phase 2): 63 km	<b>Phase 4 Approved Extensions</b>				
	Line-8 – Magenta Line: Janakpuri West – R.K. Ashram	7.74 km	Underground	INR 249.48 billion	
	<b>Phase 4 Lines/ Extensions Pending Approval</b>				
	Line-10 (Silver Line): Lajpat Nagar – Saket G-Block	7.96 km	Elevated & Underground		
	Line-11: Inderlok – Indraprastha	12.58 km	Underground		
<b>Hyderabad Metro</b> Operational: 67 km Under Construction: 0 km Approved but Unbuilt (Phase 1): 5 km Proposed (Phase 2): 63 km	Airport Express Line: Mindspace Junction – Rajiv Gandhi International Airport (RGIA)	2.5 km	Underground	INR 62.50 billion	
	<b>Indore Metro Phase 1 Lines (Approved)</b>				
<b>Indore Metro</b> Under Construction: 16.217 km Approved: 15.1313 km Proposed: 57.18 km	Line-3 (Yellow Line): Palasia – Railway Station – Rajwara- Airport – Bhawarsala – MR10 – Palasia (Ring Line)	33.53 km	Elevated & Underground	INR 75.00 billion	
	<b>Jaipur Metro Proposed Lines (Phase 1C, Phase 1D and Phase 2)</b>				
<b>Jaipur Metro</b> Operational: 11.98 km (Phase 1A & Phase 1B) Under Construction: 0 km Proposed: 28.27 km (Phase 1C, Phase 1D & Phase 2)	Line-1 (Pink Line): Badi Chaupar – Transport Nagar (Phase 1C)	2.65 km	Underground	NA	
	<b>Kanpur Metro</b>				
<b>Kanpur Metro</b> Operational: 8.728 km Under Construction: 15.057 km Approved: 8.6 km	Line-1: IIT Kanpur – Naubasta	8.621 km	Underground	INR 110.76 billion	
	Line-2: Rawatpur Railway Station – Jaurali	8.6 km	Underground and Elevated		
<b>Kolkata Metro</b> Operational: 47.85 km Under Construction: 47.72 km On Hold/ Proposed: 44.46 km	<b>Kolkata Metro Routes (Operational)</b>				
	Blue Line (Line-1): Dakshineswar to New Garia (Kavi Subhash)	32.25 km	At-Grade, Elevated & Underground	INR 4.16 billion	
	Green Line (Line-2): Sector V to Sealdah	3.8 km	Underground	INR 85.75 billion	
	<b>Kolkata Metro Routes (Under Construction Lines)</b>				
	Green Line (Line-2): Howrah Maidan to Sealdah	7.24 km	Underground	INR 85.75 billion	
Yellow Line (Line-4): Noapara to NSCBI Airport	6.87 km	At-grade, elevated & underground	INR 48.30 billion		
<b>Kolkata Metro Routes (On-Hold &amp; Proposed Lines)</b>					
<b>Lucknow Metro</b> Operational: 22.878 km Proposed: 85 km	Purple Line (Line-3): Mominpur to Esplanade	5.0 km	Elevated & Underground (majority)	INR 26.19 billion	
	Yellow Line (Line-4): NSCBI Airport (Biman Bandar) to Barasat	11.26 km	Underground and Elevated	INR 48.30 billion	
	<b>Lucknow Metro Phase 1A Route (Operational)</b>				
<b>Lucknow Metro</b> Operational: 22.878 km Proposed: 85 km	Line-1: CCS Airport – Munshi Pulia	3.4 km	Underground	NA	
	<b>Lucknow Metro Proposed Routes</b>				
	Line-2: Lucknow Railway Station (Charbagh) – Vasant Kunj	6.55 km	Underground		

Source: The Metro Rail Guy, accessed on September 27, 2023

Note: NA – Not Available

### Underground Metro: Key Proposed Projects with Estimated Project Cost

City & State	Projects Details	Proposed Network Length	Type	Estimated Project Cost
Guwahati Metro	Line 2: MG Road – Khanapara	10.0 km	Underground	NA

Source: *The Metro Rail Guy*, accessed on September 27, 2023

Note: NA – Not Available

### Huge upcoming opportunity in Metro projects in India

The following tables are the approved route figures include routes approved at least by the state government:

### Large pipeline of projects (over USD 250 Mn): A huge construction opportunity in the coming years:

Overview of total metro project pipeline value at various project status is as follows:

Project Status	Project Cost (USD Mn)
Projects announced	3,262.0
Projects approved	1,626.0
Projects at planning stage	17,270.0
Projects in tender/tender launched	310.0
Project finance closure	1,330.0
Projects under construction	22,703.0
<b>Total Project Cost (USD Mn)</b>	<b>46,501.0</b>

Source: *Fitch Solutions*

Details of metro project pipeline value at each project status is as follows:

Project Name	City/ State	Project Cost (USD Mn)	Project Status
Bengaluru Metro, Phase 3 Extension, Bannerghatta Line - Jigani, Karnataka	Bengaluru, Karnataka	584.0	Announced
Bengaluru Metro, Phase 3 Extension, Whitefield	Bengaluru, Karnataka	292.0	Announced
Bengaluru Metro, Phase 3, MG Road - Hope Farm	Bengaluru, Karnataka	1,169.0	Announced
Bengaluru Metro, Phase 3, Nagawara - Kempegowda International Airport (KIA)	Bengaluru, Karnataka	1,217.0	Announced
<b>Total project cost</b>		<b>3,262.0</b>	

Source: *Fitch Solutions*

Project Name	City/ State	Project Cost (USD Mn)	Project Status
Ahmedabad - Dholera Metro Project, Gujarat	Ahmedabad, Gujarat	819.0	Approved
Meenambakkam - Kilambakkam Metro Line Extension	Tamil Nadu	499.0	Approved
Noida Metro Aqua Line Extension	Noida, Uttar Pradesh	308.0	Approved
<b>Total project cost</b>		<b>1,626.0</b>	

Source: *Fitch Solutions*

Project Name	City/ State	Project Cost (USD Mn)	Project Status
Bangalore (Namma) Metro - Phase II-A, Silk Board - K.R. Puram Metro Line	Bengaluru, Karnataka	838.0	At planning stage
Dehradun - Haridwar - Rishikesh Metro Line	Dehradun, Uttarakhand	5,276.0	At planning stage
Dehradun - Haridwar - Rishikesh Metro Line - Stage I	Haridwar - Rishikesh, Uttarakhand	347.0	At planning stage
Dwarka Sector 21 (Delhi) - IFFCO Chowk, Gurgaon (Haryana) Metro Line	Gurgaon (Haryana)	359.0	At planning stage
Faridabad - Palwal Metro Project	Haryana	527.0	At planning stage
Gurgaon - Manesar - Bawal Metro Rail Project	Gurgaon, Haryana	1,098.0	At planning stage
Huda City Centre - Cyber City Metro Line Project	Gurugram, Haryana	824.0	At planning stage
Hyderabad Airport Express Metro, Mindspace Junction - Shamshabad Airport	Hyderabad, Telangana	765.0	At planning stage
Hyderabad Metro - Phase II, BHEL - Lakdikapul, Telangana	Hyderabad, Telangana	1,039.0	At planning stage
IGI Airport Inter Terminal Air Train	Delhi	300.0	At planning stage
Jaipur Metro - Phase II, Orange Line (Sitapura - Amba Bari), Rajasthan	Jaipur, Rajasthan	619.0	At planning stage
Lucknow Metro - Phase II, Vasant kunj - Charbagh	Lucknow, Uttar Pradesh	536.0	At planning stage
Madurai Metro Rail Project, Thirumangalam - Othakadai	Madurai, Tamil Nadu	1,039.0	At planning stage
Mumbai Metro - Line 12, Kalyan - Taloja	Mumbai, Maharashtra	664.0	At planning stage
Mumbai Metro - Line 3 Extension, Cuffe Parade - Navy Nagar	Mumbai, Maharashtra	394.0	At planning stage
Mumbai Metro Line 11, Wadala - Chhatrapati Shivaji Maharaj Terminus (General Post office)	Mumbai, Maharashtra	1,171.0	At planning stage
Palam Vihar - Dwarka Sector 21 (Delhi) Metro Project	Gurgaon, Haryana	291.0	At planning stage
Pune Metro Extension Project, Nigdi - Swargate	Pune, Maharashtra	542.0	At planning stage
Thiruvananthapuram Light Metro Project, Technocity (Pallipuram) - Karamana	Thiruvananthapuram, Kerala	641.0	At planning stage
<b>Total project cost</b>		<b>17,270.0</b>	

Source: Fitch Solutions

Project Name	City/ State	Project Cost (USD Mn)	Project Status
Kolkata Metro Line 3, Purple Line, Mominpur - Esplanade	Kolkata, West Bengal	310.0	In tender/Tender launched
<b>Total project cost</b>		<b>310.0</b>	

Source: Fitch Solutions

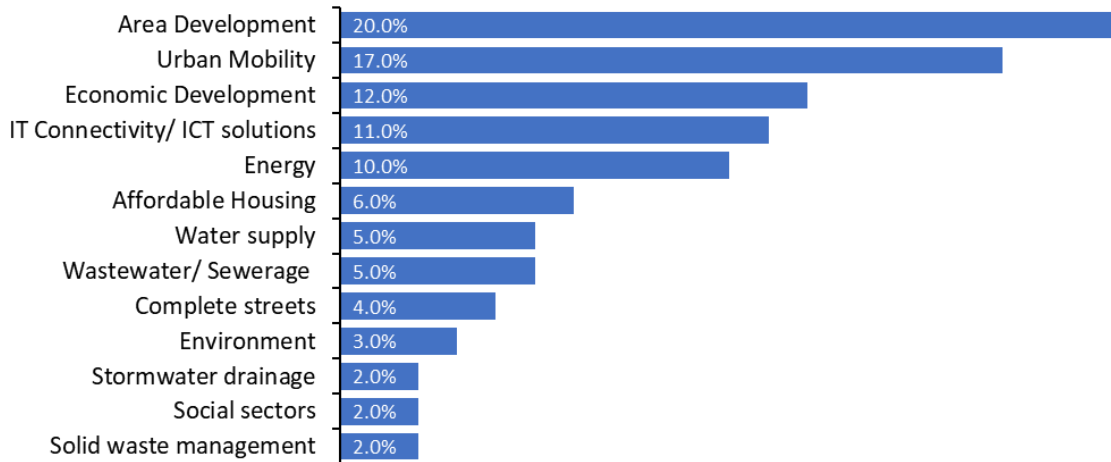
Project Name	City/ State	Project Cost (USD Mn)	Project Status
Bangalore (Namma) Metro - Phase II-B, Kasturi Nagar - Kempegowda International Airport Metro Line	Bangalore, Karnataka	1,330.0	Project finance closure
<b>Total project cost</b>		<b>1,330.0</b>	

Source: Fitch Solutions

## Proposed Investments

Investments with expected INR 2,050.18 billion have been proposed by 100 Smart Cities as part of their smart city plans. Investment focusing on revamping an identified area (Area Based Projects) contributes 81% of the total investment and the remaining 19% of the investment will focus on smart initiatives across the city (Pan City Initiatives). The envisaged total investment of INR 2,050.18 billion for ABD and Pan city initiatives and other technical and administrative costs/ contingencies is proposed to be funded through various sources as depicted in 'Sources of Funding' above.

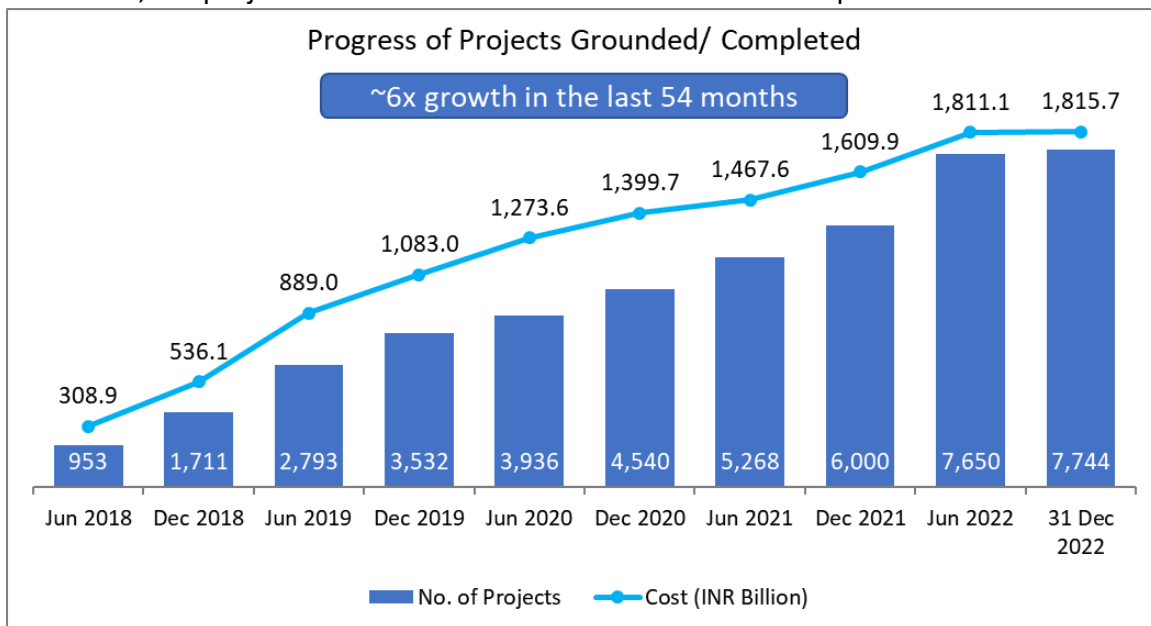
Proposed project Investment of INR 2,050.18 billion



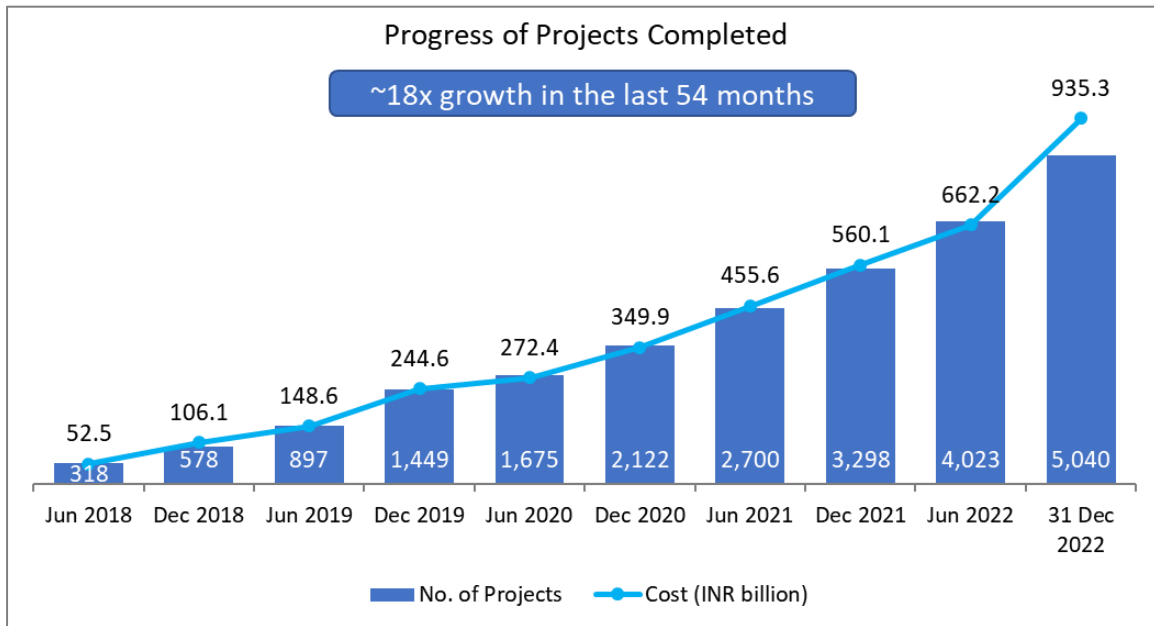
Source: MoHUA Annual Report 2022-23; FSIAPL Analysis

**Current Implementation Status – Projects**

Under the SCM, 100 Smart Cities have been selected in four Rounds based on All India Competition. All 100 cities have incorporated Special Purpose Vehicles (SPVs), Smart City Advisory Forums (SCAFs) and appointed Project Management Consultants (PMCs). As on 31<sup>st</sup> December 2022, work orders were issued in 7,744 projects worth around INR 1,815.67 billion, of which 5,040 projects worth INR 935.29 billion have been completed.



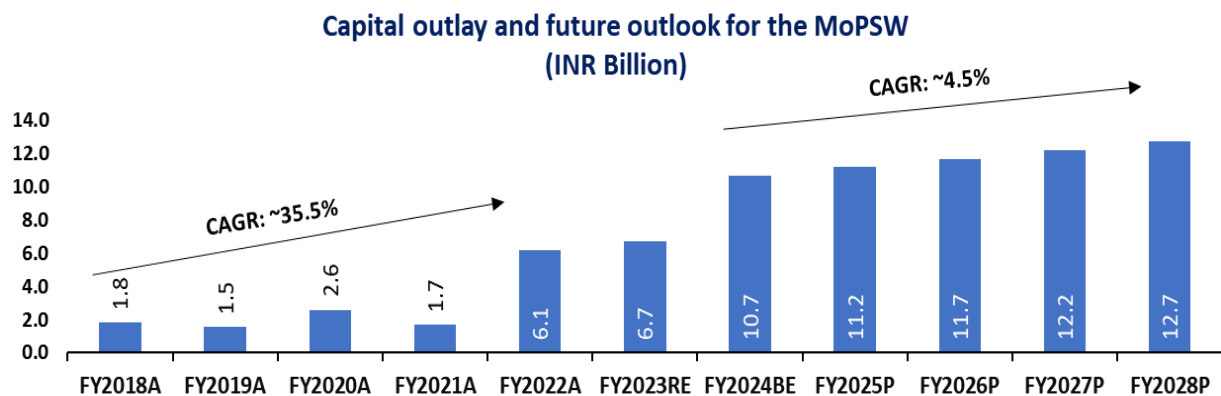
Source: MoHUA Annual Report 2022-23; FSIAPL Analysis



Source: MoHUA Annual Report 2022-23; FSIAPL Analysis

## Ports

### Capital outlay for ports sector in India (FY2018 - FY2028P)



Source: Union Budget Documents

Note: A – Actuals, RE - Revised Estimates, BE – Budgeted Estimates, P – Projected

The exponential growth in the ports industry is illustrated by the capital outlay on ports, light houses, shipping and other transport services. The actual capital outlay for MoPSW has increased at a CAGR of 35.5% from INR 1.8 billion in FY2018 to INR 6.1 billion in FY2022. Based on the historical trend and as per FSIAPL’s analysis, the capital outlay in the port industry are projected to increase at a CAGR of 4.5% from INR 10.7 billion in FY2024BE to INR 12.7 billion in FY2028P.

### Synopsis of Projects under Sagarmala Programme

There are 802 projects worth investment of INR 5.40 trillion for implementation under the Sagarmala Programme by 2035, out of which, 220 projects worth INR 1.12 trillion have been completed and 231 projects worth INR 2.21 trillion are under implementation. In addition to



the above, 351 projects worth INR 2.07 trillion are under various stages of development. These projects are being implemented by relevant central ministries, state governments, major ports, and other agencies primarily through the private or PPP mode. Regular monitoring of the projects and interaction with project proponents, various line ministries and implementing agencies is being done with MIS (Management Information System) tool. These projects are categorized into five pillars - port modernization, port connectivity, port-led industrialization, coastal community development and coastal shipping & inland water transport. Under holistic development of coastal districts, a total of 567 projects with an estimated cost of around INR 580.00 billion have been identified.

Summary of projects under Sagarmala Programme

Pillar	Completed		Under Implementation		Under Development		Grand Total	
	No. of Projects	Total Project Cost (INR billion)	No. of Projects	Total Project Cost (INR billion)	No. of Projects	Total Project Cost (INR billion)	No. of Projects	Total Project Cost (INR billion)
Port Modernization	89.0	312.1	63.0	640.6	89.0	1,543.8	241.0	2,496.6
Port Connectivity	69.0	320.1	67.0	763.0	73.0	339.3	209.0	1,422.3
Port led Industrialization	9.0	458.7	21.0	727.1	3.0	12.8	33.0	1,198.5
Coastal Community Development	20.0	14.8	19.0	25.8	43.0	73.2	82.0	113.7
Coastal Shipping & IWT	33.0	17.1	61.0	52.6	143.0	102.8	237.0	172.4
<b>Grand Total</b>	<b>220.0</b>	<b>1122.7</b>	<b>231.0</b>	<b>2209.0</b>	<b>351.0</b>	<b>2071.7</b>	<b>802.0</b>	<b>5,403.4</b>

Source: MoPSW Annual Report 2022-23

## Overview of other key ongoing and proposed projects

### 1. International Container Transshipment Port (ICTP) at Galathea Bay, Andaman and Nicobar Island

The MoPSW, as part of the holistic development of the Great Nicobar Island, is working towards the development of a Mega International Container Transshipment Port (ICTP) at Galathea Bay of the Great Nicobar Island of the Andaman & Nicobar Islands in the Bay of Bengal. Recently, the Ministry of Environment, Forest and Climate Change (MoEFCC) granted Stage I environmental clearance for the project. The proposed facility is expected to cost INR 410.00 billion and will be developed in four phases. Kolkata-based Syama Prasad Mookerjee Port is the nodal agency for the implementation of this project. With a handling capacity of approximately 4 million 20-foot equivalent units (TEUs), Phase I, is expected to be put into service in 2028. Later, this capacity will be enhanced to 16 million TEUs. Phase I of the project is expected to cost around INR 180 billion and it will involve building breakwaters, dredging, reclamation, berths, storage areas, buildings and utilities, as well as purchasing and installing equipment and developing a port colony with the support of the government.

The project focuses on three key drivers, which can result in making it a leading container transshipment port, that is –

- Strategic location in terms of proximity (40 nautical miles from Malacca Strait) with the international shipping trade route,
- Availability of natural water depth of over 20 metres and
- Carrying capacity of transshipment cargo from all ports in the proximity, including Indian ports

It becomes necessary for India to have a transshipment hub that can save revenue loss, reduce logistics inefficiencies, and can create an opportunity to become a large hub for Asia-Africa, Asia-US/ Europe container traffic trade. At present, about 75% of the nation's transhipped cargo is handled at ports outside the country. With the development of the

Galathea Bay port project, Indian ports can save around USD200 million – USD220 million transshipment cargo each year. Besides, several other allied businesses, namely, ship chandlery-ship supplies, ship repair, crew change facility, logistics value-added services, warehousing and bunkering are being planned at this transshipment port. (Source: *India Infrastructure* article named 'New Potential: Developing India as a container transshipment hub'; *Financial Express* article named 'Government to build International Container Transshipment Port in Great Nicobar Island')

## 2. Vizhinjam International Container Transshipment Terminal, Kerala

The Vizhinjam International Container Transshipment Terminal in Kerala also holds the potential to become a big transshipment hub. Adani Ports and Special Economic Zone Limited is developing Vizhinjam port as India's first mega transshipment container terminal. At present, around 75% of the total work on the port has been completed. In addition, about 33% of the dredging is over. The first phase of the under-construction transshipment port will be fully commissioned by May 2024. Once phase 1 becomes operational, Vizhinjam port is projected to handle 1 million TEUs (20-foot equivalent container units), and in subsequent phases, another 6.2 million TEUs will be added, which makes up over 70% of the country's current transshipment. Phase 1 of the seaport project involves building a 3.1 km breakwater, an 800 meter container berth to accommodate two 12,500 TEU container vessels and a fishing harbour.

After the completion of breakwater works, the remaining dredging, reclamation of sea and container berth work will be resumed. The project involves the construction of a greenfield, deepwater international container transshipment terminal at Vizhinjam on a design-build-finance-operate-transfer basis for a concession period of 40 years. Meanwhile, the Expert Appraisal Committee of the MoEFCC has returned the proposal for amendment in environmental and coastal regulation zone clearance. The amendment was sought for the development of an underground tunnel of 9.43 km length, at an estimated cost of INR 10.6 billion, for providing rail connectivity at the port.

Adani Ports and Special Economic Zone Ltd (APSEZ), which is part of the Adani Group, is responsible for the construction, operation and maintenance of the port. Vizhinjam, located about 14 km from Kerala's capital city of Trivandrum, has a natural depth of over 18 m and is located hardly ten nautical miles (18 km) from the international shipping route from West Asia, Africa and Europe to the far eastern regions of the world. Additionally, the availability of a 20-metre contour within one nautical mile from the coast, minimal littoral drift along the coast, the natural depth that excludes the need for maintenance dredging, potential for better road, and rail transport link potential make Vizhinjam a strategic well-suited for the greenfield project. Vizhinjam is envisaged to be an all-weather, multipurpose, deepwater, mechanised, greenfield port that seeks to garner the lion's share of the Indian transshipment cargo now being handled by the nearby foreign ports and emerge as the future transshipment hub of the country.

The port is currently being built under a landlord model with a Public Private Partnership component on a design, build, finance, operate, and transfer (DBFOT) basis. The Central and State governments together are providing a grant of INR 16.35 billion (about 40% of the project cost) under the Viability Gap Funding (VGF) scheme for public-private projects

(PPP). VGF is a government grant provided to support infrastructure projects viewed as 'economically justified but fall short of "financial viability". The Kerala government is expected to spend about INR 34.36 billion for basic infrastructure civil works such as the breakwater, quay wall, dredging, reclamation, rail and road access to the port. (Source: India Infrastructure article named 'New Potential: Developing India as a container transshipment hub'; Swarajya article named 'Explained: The significance of Vizhinjam Transshipment Port in Kerala, first phase of project set to be fully commissioned by May 2024')

### 3. Dockyards in Cochin port

The central government has decided to increase the depth of dockyards in Cochin port to facilitate anchoring of huge ships. For this, the centre has announced an investment worth INR 3.8 billion by including the project in the Sagarmala scheme. The proposed project will elevate Kochi port to a transshipment hub, thereby contributing to the trading sector. The current depth of the dockyard in Cochin port is 14.5 metres, which will be increased to 16 metres in the first phase of the project. Besides, this will help improve the container management capacity of the Vallarpadam terminal from 1 million TEUs to 2 million TEUs.

Increasing the depth of the dockyard in Cochin will adversely affect the Colombo port in Sri Lanka. Currently, most of the international cargo vessels are being docked at the Colombo port to transport containers to the Cochin port. By improving the dockyard in Kochi port, these huge cargo vessels can arrive in Cochin directly. The distance from the international ship route to Kochi port is only 49 nautical miles, while the distance to the Port of Colombo is 110 nautical miles. (Source: India Infrastructure article named 'New Potential: Developing India as a container transshipment hub');

### 4. Other key proposed projects (over USD 250 million) are as follow:

Project Name	City/ State	Project Cost (USD Mn)	Project Status
Astaranga Port Project, Puri, Odisha	New Port	887.0	At planning stage
Bhavnagar Port Development Project, Saurashtra, Gujarat	Port Expansion	490.0	At planning stage
Chennai Port Mega Container Terminal Project, Tamil Nadu	Port Expansion	739.0	At planning stage
Chidambaranar Port (Tuticorin Port) Expansion, Tamil Nadu	Port Expansion	900.0	At planning stage
Colachel Port Project, Phase I, Enayam, Tamil Nadu	New Port	985.0	At planning stage
Colachel Port Project, Phase II, Enayam, Tamil Nadu	New Port	1,727.0	At planning stage
Colachel Port Project, Phase III, Enayam, Tamil Nadu	New Port	1,416.0	At planning stage
Dahej Port, Bharuch, Gujarat	New Port	674.0	At planning stage
Dahej Port, Phase I, Bharuch, Gujarat	New Port	415.0	At planning stage
Dahej Port, Phase II, Bharuch, Gujarat	New Port	259.0	At planning stage
Diamond Harbour Container Terminal Project, Kolkata Port, West Bengal	Port Expansion	281.0	At planning stage
Haldia Dock II Project, West Bengal	Port Expansion	311.0	At planning stage
Honnavar Port Project, Uttara Kannada, Karnataka	New Port	375.0	At planning stage
Jawaharlal Nehru Port - Fifth Container Terminal, Maharashtra	Port Expansion	823.0	At planning stage
Jawaharlal Nehru Port - Liquid Cargo Terminal, Nhava Island, Maharashtra	Port Expansion	404.0	At planning stage
Krishnapatnam Port Project, Phase III, Andhra Pradesh	New Port	1,836.0	At planning stage
Kulpi Container Port, West Bengal	New Port	427.0	At planning stage
Machilipatnam Port Project - Phase I, Bhavanapadu, Andhra Pradesh	New Port	628.0	At planning stage
Machilipatnam Deep Water Port, Krishna, Andhra Pradesh	New Port	1,675.0	At planning stage
Nakkapalli Container Port, Visakhapatnam, Andhra Pradesh	New Port	4,866.0	At planning stage
Paradip Outer Harbour Project, Odisha	New Port	1,226.0	At planning stage
Paradip Port - Western Dock Cargo Berth Project, Odisha	Port Expansion	301.0	At planning stage
Riverine Port, Mahanadi River, Kendrapada, Odisha	New Port	500.0	At planning stage
Riverine Port, Phase I, Mahanadi River, Kendrapada, Odisha	New Port	261.0	At planning stage
Tajpur Deep - Sea Port, West Bengal	New Port	3,138.0	At planning stage
Tuticorin Port Outer Harbour Project, Tamil Nadu	Port Expansion	920.0	At planning stage
Vadhavan Port, Palghar, Maharashtra	New Port	8,787.0	At planning stage
Wadhwan Port Project, Maharashtra	New Port	8,860.0	At planning stage
<b>Total project cost</b>		<b>44,111.0</b>	

Source: Fitch Solutions

## Hydro-electric Power

### Hydro Capacity Addition by 2030

Considering the unique advantages of hydropower (including Pump Storage Projects) and the increasing need of hydropower for grid stability/ balancing, the Government has envisaged to add 51 number of hydro schemes with an aggregate Installed capacity of around 26.4 GW (including 13 number of Pumped Storage Schemes of 14.2 GW).

#### Summary (Hydro)

(All figures in MW)	Central	State	IPPs	Total
2022-23	60.0	10.0	0.0	70.0
2023-24	2,800.0	90.0	150.0	3,040.0
2024-25	1,084.0	783.5	0.0	1,867.5
2025-26	3,370.0	640.0	240.0	4,250.0
2026-27	540.0	450.0	0.0	990.0
<b>Total</b>	<b>7,854.0</b>	<b>1,973.5</b>	<b>390.0</b>	<b>10,217.5</b>

#### Summary (PSP)

(All figures in MW)	Central	State	IPPs	Total
2023-24	1,000.0	0.0	0.0	1,000.0
2024-25	0.0	500.0	1,200.0	1,700.0
<b>Total</b>	<b>1,000.0</b>	<b>500.0</b>	<b>1,200.0</b>	<b>2,700.0</b>

Source: MoP Annual Report 2022-23

Note: IPPs – Independent Power Producers

### Tunnelling projects in Hydropower and Irrigation Sector

According to projects tracked by India Infra-structure Research, India has more than 2,500 km of completed tunnel length. A sector-wise analysis indicates that the hydropower sector has the highest share of completed tunnels of over 1,200 km, followed by irrigation (more than 470 km), railways (more than 270 km), metro tunnels (more than 240 km), water and sewerage (more than 230 km) and roads (more than 60 km).

Details of Key Tunnel Projects in the Pipeline (as of June 2023)

Sector	Project	State	No. of Tunnels	Tunnel Length (km)	Status	Implementory Agency	Tunnel Contractor	Estimated Project Cost
Hydro	Luhri Hydroelectric Project Stage I	Himachal Pradesh	3	40.7	Ongoing	SJVN Limited	LHPC	INR 18.10 billion
	Parbati Hydro Electric Project - II	Himachal Pradesh	1	31.6	Ongoing	National Hydroelectric Power Corporation (NHPC) Limited	Gammon India Limited, Patel Engineering Limited, SEW Infrastructure Limited, Valecha Engineering Limited	INR 111.34 billion
Irrigation	Wainganga (Gosikhurd)-Nalganga (Purna Tapi) Link Project	Maharashtra	1	480.0	Planned	Maharashtra Government	-	INR 537.52 billion
	Krishna (Satpewadi)-Nira (Somanathali) Link Canal (Part IV of the Upper Krishna-Bhima intra-state link project)	Maharashtra	1	95.4	Planned	Maharashtra Government	-	NA
	Tunnel to link Kanhan river and Totladoh reservoir situated on Pench river	Maharashtra	1	60.0	Planned	Vidarbha Irrigation Development Corporation (VIDC)	-	INR 28.00 billion

Source: India Infrastructure Research

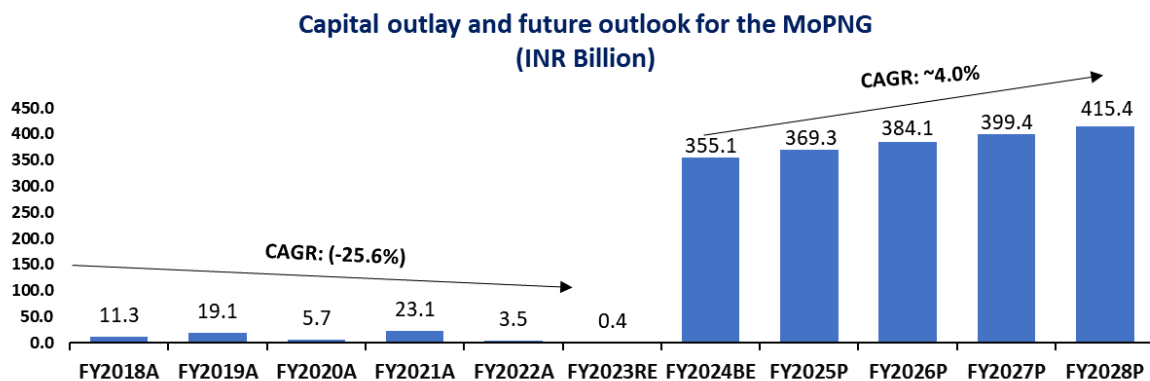
**Outlook of construction spend on Hydro-electric power in India over the past five years (FY2018 to FY2023)**

Key constructions investments on hydro-electric power projects in India

- NHPC is exploring to develop around 20,000-22,000 MW of pumped hydro energy storage projects in Odisha, Maharashtra, Madhya Pradesh and Andhra Pradesh.
- SJVN Ltd. (Satluj Jal Vidyut Nigam) has bagged five hydropower projects in Arunachal Pradesh's Dibang Basin. The investment in these projects, totalling 5,097 megawatts, will be more than INR 500.00 billion. Construction of these projects will reduce carbon emissions by around 1.1 million tonne per year
- NHPC is in the process of development of 2,880 MW Dibang Multipurpose Project for INR 319 billion in Arunachal Pradesh, which will be the largest hydropower project in the Country
- 2,000 MW Subansiri Upper HEP and 1,800 MW Kamala HEP have been allotted to NHPC by Government of Arunachal Pradesh
- NHPC is also committed for the commissioning of two mega Projects i.e. 2000 MW Subansiri Lower HEP and 800 MW Parbati-II HEP in the present FY2024
- NHPC has been accorded investment approval of INR 9.73 billion by Government of India for preconstruction activities of Sawalkot HEP
- NHPC has signed an MoU for three projects in Nepal i.e West Seti (750 MW), SR-6 (450 MW) and Phukot Karnali (480 MW) HE Projects
- NHPC has 6 projects in the pipeline at different stages of investigation or under appraisal of Government of India awaiting Techno Economic Clearances. This includes magnanimous Siang Upper HEP having more than 10,000 MW installed capacity.
- NHPC is also venturing into development of Pumped Storage Hydro Projects and Solar Power Projects in different parts of the Country as well as exploring new technologies such as Green Hydrogen generation and Floating Solar projects.

**Oil and Gas Construction Segment Overview**

**Capital outlay for Ministry of Petroleum and Natural Gas (MoPNG) in India (FY2018 - FY2028P)**



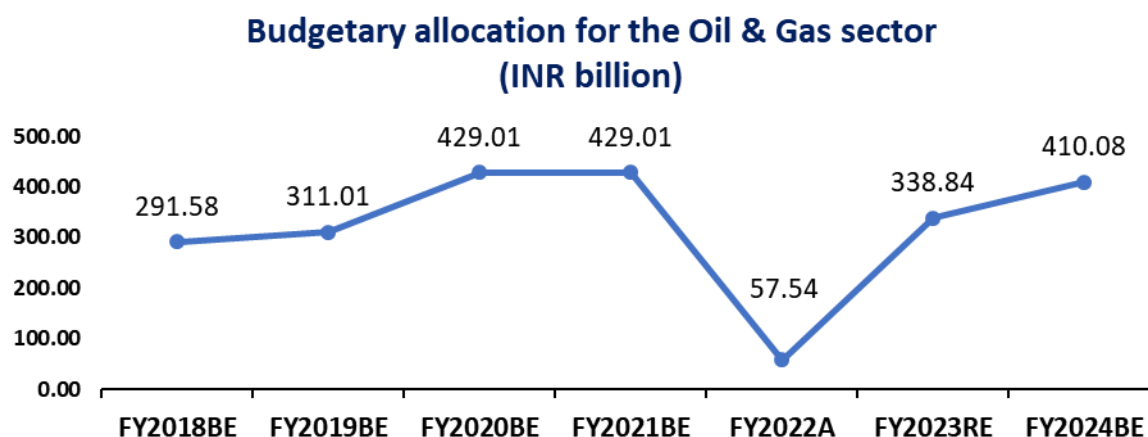
Source: Union Budget Documents

Note: A – Actuals, RE - Revised Estimates, BE – Budgeted Estimates, P – Projected

The capital outlay for the MoPNG has seen a fluctuating trend in the past five years. The actual capital outlay has increased to INR 19.1 billion in FY2019 from INR 11.3 billion from FY2018. It has further increased to INR 23.1 billion in FY2021 from INR 5.7 billion in FY2020. The actual capital outlay has dropped to INR 3.5 billion in FY2022. As per FSIAPL’s analysis, the capital outlay in the MoPNG are projected to increase at an average CAGR of ~4.0% from FY2024BE to INR 415.4 billion in FY2028P.

**Review of budgetary allocation for the oil & gas sector**

The Union Budget allocated INR 410.08 billion for the Ministry of Petroleum and Natural Gas for FY2024. This allocation is 1.4 times the budgetary support of INR 291.58 billion allocated in FY2018.



Source: Union Budget Documents

Note: BE- Budgeted Estimate, A – Actuals, RE – Revised Estimate

The MoPNG is concerned with exploration and production of oil and natural gas, refining, distribution and marketing, import and export, and conservation of petroleum products. In 2023-24, the Ministry has been allocated INR 410.08 billion, a 21% increase over the revised estimates for 2022-23.

**Allocation to the Ministry of Petroleum and Natural Gas (INR billion)**

Major Heads	Actuals 2021-22	RE 2022-23	BE 2023-24	% Change (BE over RE)
Capital Support to OMCs	0.0	0.0	300.0	-
One Time Grant to OMCs	0.0	220.0	0.0	-
SPR	3.4	2.2	57.1	2509%
LPG Subsidy	34.2	91.7	22.6	-75%
Others	19.9	24.9	30.4	22%
<b>Total</b>	<b>57.5</b>	<b>338.8</b>	<b>410.1</b>	<b>21%</b>

Source: Union Budget Documents 2023-24; PRS

Note: BE- Budgeted Estimate, RE – Revised Estimate, SPR - Strategic Petroleum Reserves, OMC – Oil Marketing Company

**Key announcement under Union Budget 2023–24**

- INR 350.00 billion will be allocated towards priority capital investments to enable energy transition, achieve net zero targets and energy security.
- Denatured ethyl alcohol will be exempt from basic customs duty to support the Ethanol Blending Program.

- 500 new waste-to-wealth (biogas) plants at an investment of INR 100.00 billion to be established. Additionally, 5% CBG mandate to be introduced for all organizations marketing natural and biogas
- The government will return 95% of the forfeited amount relating to bid or performance security to MSMEs where there was failure to execute contracts during the COVID period. This will provide relief to MSMEs operating in oil and gas sector
- MSMEs can further take benefit of the revamped credit guarantee scheme which will enable additional collateral-free guarantee of INR 2.00 trillion and cost of credit will be reduced by about 1%
- A Green Credit Programme will be notified which will incentivize environmentally sustainable and responsive actions

### Irrigation Construction Segment Overview

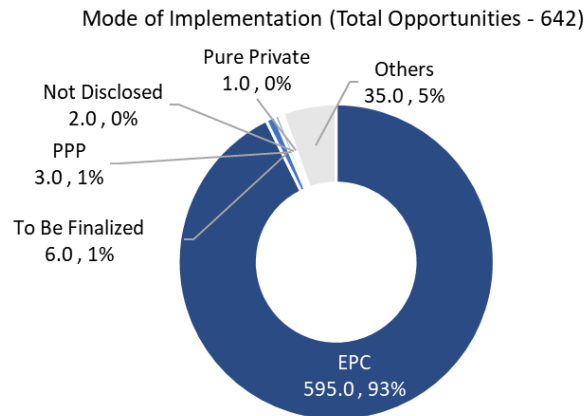
As per FSIAPL's analysis and based on historical trend, the capital outlay in the irrigation industry are projected to increase at a CAGR of ~4.0% from FY2024BE to INR 4.2 billion in FY2028P. Over INR 5.0 trillion is planned to be invested in various irrigation projects announced under centrally sponsored schemes and programmes.

### Irrigation Projects in India

#### Opportunity for construction activities in Irrigation

Over INR 5.0 trillion is planned to be invested in various irrigation projects announced under centrally sponsored schemes and programmes. Technology in the irrigation sector has evolved significantly over the past 10 years with regard to construction equipment, water transfer techniques and types of irrigation systems. Innovative technology-led irrigation systems such as solar-powered lift micro-irrigation are gaining prominence over conventional flooding methods of irrigation. Greater thrust is also being given to drip and sprinkler irrigation systems, and efficient water-use mechanisms. With all these developments, the sector certainly offers significant opportunities for EPC contractors, and technology and equipment suppliers.

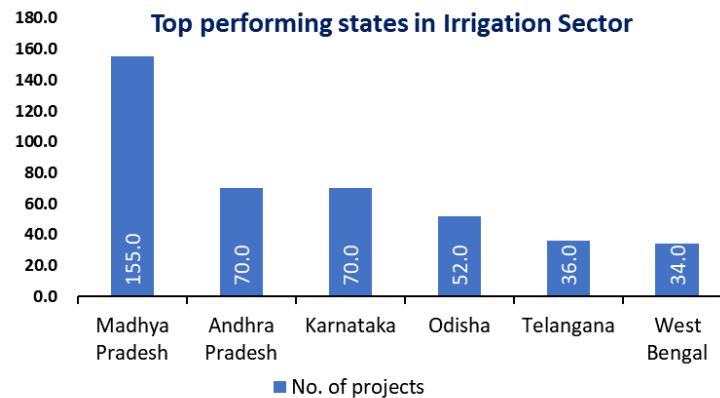
As per Department for Promotion of Industry and Internal Trade under Ministry of Commerce and Industry, India's public irrigation sector is one of the largest in the world. National Infrastructure Pipeline (NIP) has expanded to over 642 projects across irrigation sector with project value of USD 230.75 billion as on 4<sup>th</sup> October 2023.



Source: India Investment Grid, accessed on 4<sup>th</sup> October, 2023; FSIAPL Analysis

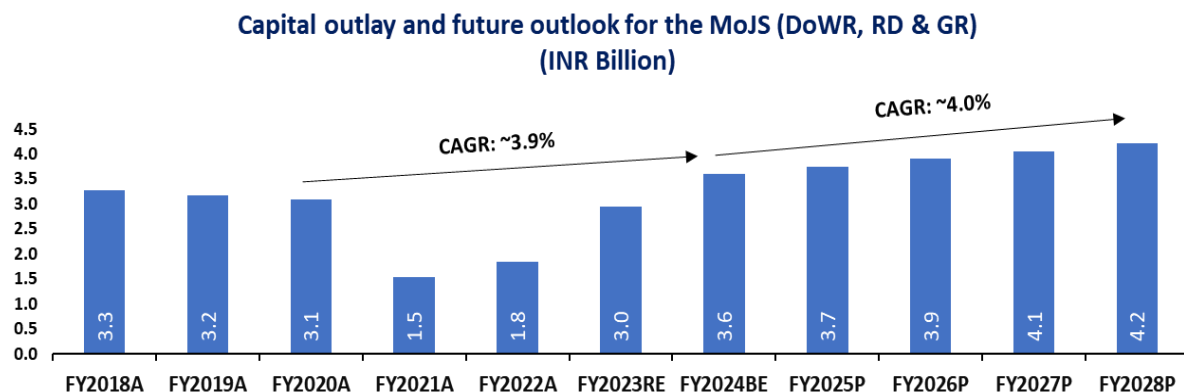
Note: EPC – Engineering, Procurement and Construction; PPP – Public-private partnership

As per NIP data shared by govt., Madhya Pradesh has the highest no. of irrigation projects (155) in pipeline. The top performing states as per NIP is given below:



Source: India Investment Grid, accessed on 4<sup>th</sup> October, 2023; FSIAPL Analysis

**Review and outlook of capital outlay on Ministry of Jal Shakti (MoJS) – The Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD & GR) (FY2018 to FY2028P)**



Source: Union Budget Documents

Note: A – Actuals, RE – Revised Estimates, BE- Budgeted Estimates, P – Projected,



The actual capital outlay for Ministry of Jal Shakti (MoJS), Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD & GR) has increased at a CAGR of 3.9% from INR 3.1 billion in FY2020 to INR 3.6 billion in FY2024BE. As per FSIAPL's analysis and based on historical trend, the capital outlay in the irrigation industry are projected to increase at a CAGR of ~4.0% from FY2024BE to INR 4.2 billion in FY2028P.

## Conclusion

India is world's fifth-largest economy and one of the fastest growing large economies in the world with expected GDP growth of 6.5% in FY2025. Global construction industry stood at ~ USD 5.5 trillion as of CY2022 and is expected to grow to USD 7.80 trillion by CY2028 primarily due to diversification from to non-oil economy in MENA region and expanding construction investment in emerging markets. Construction industry in Sub-Saharan Africa (SSA) is set to record fastest growth of all regions globally and expand from USD 116.5 billion in CY2022 to USD 195.4 billion CY2028. Indian Construction industry value stood at INR 19,904.0 billion as of FY2022. It is projected to be the fastest growing construction market in the world growing at a CAGR of 9.5% to 10% between FY2023-FY2028 to reach INR34,376.9 billion market size by FY2028. The key driver for growth being stable government's support for infrastructure development and expanded private capex in key sectors and public-private partnerships.

Below is summary of opportunities across infrastructure segments in India for next 4-5 years:

- India's transport infrastructure construction sector is expected to grow at a CAGR of 9.6% from INR 3,675.2 billion in FY2023 to INR 5,811.9 billion in FY2028.
- The capital outlay for road construction is expected to reach ~ INR 4.03 trillion by FY2028.
- India has total metro projects pipeline of ~ USD 22.2 billion at various stages (projects announced, approved, planning).
- Indian Railways to increase net expenditure at CAGR of 20% and expected to reach INR 5.34 trillion by FY2028.
- Investments in smart cities are expected to touch INR 2,050.18 billion by FY2028 with 100 Smart Cities as part of smart city plans giving boost to urban infrastructure.
- Under Sagarmala Programme, 351 port infrastructure projects worth INR 2.07 trillion are under various stages of development.
- Over INR 5.0 trillion is planned to be invested in various irrigation projects announced under centrally sponsored schemes and programmes.
- The capital outlay in the MoPNG is projected to increase at an average CAGR of ~4.0% from FY2024BE to INR 415.4 billion in FY2028.
- Major upcoming capex plan by private corporates is also giving huge opportunity to the construction players in India with overall investment plans of 982 projects made during FY2023, with record capital outlay of INR 3.5 trillion.

## Chapter 4: Brief Profile of Afcons Infrastructure Limited

Afcons Infrastructure Limited (AIL) is one of India's largest international infrastructure construction companies, as per the 2023 ENR (Engineering News-Record, US) Top International Contractors rankings, based on FY2023 International Revenue in USD millions. (International Revenue is defined as construction revenue generated outside an infrastructure company's home country). AIL was established in 1959 as Rodio Hazarat and Company, a partnership between Rodio Foundation Engineering Limited, Switzerland and Hazarat and Company Private Limited, India and later converted to private limited company on 22nd November 1976. Over the past six decades, AIL has emerged as one of the leading infrastructure construction companies by continuously delivering world-class projects in areas of marine, hydro and underground, water, highways, bridges, metro, tunnels, and onshore and offshore oil and gas. The company has a transnational presence in almost the entire spectrum of infrastructure activities. In fact, it is one of the leading infrastructure construction companies involved in execution of large and complex projects both in India and overseas. AIL has a strong track record of delivering projects on or ahead of schedule.

- Focus areas of AIL includes marine works, highways, bridges, railways, metro works, hydro and underground, water, tunnels, oil & gas, LNG (liquefied natural gas) tanks.
- AIL has presence / delivered projects in 30 countries across South Asia, Africa, Middle East and CIS.

AIL is amongst the top 3 Indian companies as per 2023 ENR (Engineering News-Record, US) rankings. As per 2023 Top Global Sourcebook of ENR (Engineering News-Record, US) top international contractors rankings (companies ranked based on the construction revenue generated outside of each company's home country), AIL is:

- 10th largest international marine and port facilities contractor (only Indian company in top 25)
- Ranked 12th in bridges sector in the world (only Indian company in top 25)
- Ranked 42nd in transportation sector in the world (only Indian company in top 50)
- Ranked 18th in transmission Lines and aqueducts in the world
- Ranked 43rd in Water Supply in the world

*(Source: 2023 ENR (Engineering News-Record, US) Rankings – ENR The Top 250 Report of 2023, [ENR12112023\\_GSB\\_compressedR.pdf](#))*

AIL operate in a competitive environment. Its competition for each project varies based on the type of project, contract value and potential margins, the complexity and location of the project, the reputation of the client and risks relating to revenue generation. While service quality, technical ability, performance record, experience, health and safety records, the availability of skilled personnel and sufficiency of financial resources are key factors in client decisions among competitors, price is often the deciding factor in most tender awards. AIL in past have successfully outbid many large players and won many marquee projects as demonstrated in its orderbook.

AIL is executing and has delivered many complex, challenging, unique, first of its kind infrastructure projects in the world and India. Many of AIL's projects have been executed under challenging environmental conditions. Below are few such projects:

- 1) **Wharf & Approach Trestle Works Phase 1 of Fourth Container Terminal, JNPT, Mumbai:** Jawaharlal Nehru Port Trust (JNPT) is India's largest container port. AIL constructed 1000 m x 61 m suspended deck wharf (5 modules each of 200 m length) and approach trestles (5 nos. each of 97 m long) for the container terminal at the Jawaharlal Nehru Port, Mumbai. PSA's Bharat Mumbai Container Terminals, JNPT's fourth container terminal, has a quay length of 1000 metres and is the deepest berths at Jawaharlal Nehru Port.

(Source:

[https://jnport.gov.in/filedata/JNPT\\_Investment\\_brochure\\_23\\_2021\\_03\\_11\\_06\\_06\\_10.pdf](https://jnport.gov.in/filedata/JNPT_Investment_brochure_23_2021_03_11_06_06_10.pdf),  
<https://bmctpl.com/wp-content/themes/twentyten/PDF/new7.pdf>)

- 2) **New Owendo International Port, Gabon:** AIL was engaged in engineering, procurement and construction of the new general cargo terminal at the New Owendo International Port, comprising a 420 m long main berth and 70 m long service berth, container yard, back-up yard and other land facilities. AIL completed the project in only 18 months. This is Gabon's only deep draft multi-cargo handling port.

(Source:

<https://www.arisepl.com/location/gabon/#:~:text=Built%20in%20only%2018%20months%20and%20inaugurated,its%20sister%20facility%2C%20the%20Owendo%20Mineral%20Port.>)

- 3) **Bulk Jetty, Port of Sohar, Oman:** This was one of the world's deepest ports. AIL was engaged in engineering, procurement and construction of approach trestle of length 780 m, bulk jetty of length 600 m and related works at the port of Sohar, Oman. Sohar Port is one of the few global ports equipped with deep-water jetties capable of handling the world's largest ships.

(Source: <https://soharportandfreezone.om/en>)

- 4) **Agra Lucknow Expressway Project, UP:** Upon inauguration on 21.11.2016, Agra Lucknow Expressway is the longest Access Controlled Expressway in the country with expected travel time of 3 and half hours between its two extremes. AIL has constructed Package 2 and Package 4 in Agra Lucknow Expressway Project. Under Package 2, AIL was engaged in development of Firozabad (Village Gurha) to Etawah (Village Moonf) (KM 53.500 TO KM 115.500) Access Controlled Expressway (Green Field) Project in the state of Uttar Pradesh on EPC Mode. Under Package 4, AIL was engaged in development of Kannauj (Village Narmau) to Unnao (Village Neval) (Km 172.500 to Km 236.500) Access Controlled Expressway (Green Field) Project in the state of Uttar Pradesh on EPC Mode. Both Package 2 and Package 4 were completed much ahead of the schedule.

(Source: <https://upeida.up.gov.in/en/article/agra-lucknow-expressway>)

- 5) **Four Laning of NH-1A – Jammu Udhampur Highway, J&K:** AIL was engaged in rehabilitation, strengthening and four lanning of Jammu- Udhampur section from km 15.00 (on Jammu Bypass) to km 67.00 of NH-1A, Jammu and Kashmir. The project road

traverses through one of the toughest and steepest terrains in the country. The project was completed much ahead of the schedule.

(Source: [https://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0\\_0\\_311712511214115ProjectSummary.pdf&FilePath=../writereaddata/Addinfo/](https://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_311712511214115ProjectSummary.pdf&FilePath=../writereaddata/Addinfo/))

- 6) **Ahmedabad Underground Metro Project:** AIL was engaged in the design and construction of two underground metro stations - Kankaria East and Kalupur and underground tunnel from east end of east ramp to east end of launching shaft near Kalupur metro station from chainage 14328.88 m to chainage 11882.88 m including finishes and excluding PHE, electrical and HVAC for Ahmedabad Metro Rail Project, Phase-1.
  
- 7) **Chenab Bridge Project:** This is the world's tallest single-arch railway bridge. It is 35 meters higher than the iconic Eiffel Tower in Paris. This is one of the toughest bridge works undertaken in India due to geological and engineering considerations and first bridge designed for blast load. Blast load means that the bridge will be able to withstand the impact of an explosion. AIL's commitment to quality is underscored by accreditations, such as the accreditation granted to their weld coupon testing laboratory by the National Accreditation Board for Testing and Calibration Laboratories (NABL). Originally established in Chenab, AIL has now relocated their NABL accredited facilities to Nagpur (This lab was the first of its kind to be set-up by any contractor for the Indian Railways).  
  
(Source: <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1709652>)
  
- 8) **MG Setu Bridge Over River Ganga, Patna:** Upon completion in March 2020, this is Asia's longest roadway bridge. The new steel superstructure consisting of about 6,600 metric steel is being provided by replacing old existing distressed concrete superstructure. This is a new type of work being executed in India for the first time.  
  
(Source: <https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1642600>, <https://web.archive.org/web/20140918091228/http://bstdc.bih.nic.in/patna.htm>)
  
- 9) **Vallarpadam Rail Bridge, Kerala:** It is an 8.86 km rail corridor. The bridge on this section is 4.62 km long and is the longest railway bridge in India.  
  
(Source: <https://rvnl.org/project-details/30/Bridge%20Work>, <https://www.constructionweekonline.in/people/hard-act-to-follow>)
  
- 10) **Metro Tunnelling Below Hooghly River, East West Metro, Kolkata:** This is India's first underwater tunnel below Hooghly River. The Howrah metro station is the nation's deepest metro station.  
  
(Source: <https://pib.gov.in/PressReleaseFramePage.aspx?PRID=2011855>)
  
- 11) **Kanpur Elevated Metro:** AIL constructed Kanpur elevated metro project in a record time of less than 2 years despite Covid-19 pandemic. AIL was engaged in construction of elevated viaduct and 9 Nos. elevated station (viz. IIT Kanpur Station, Kalyanpur

Railway Station, SPM Hospital Station, Kanpur University Station, Gurudev Chauraha Station, Geeta Nagar Station, Rawatpur Railway Station, Lala Lajpat Rai Hospital Station & Motijheel Station) including special span on Priority Section of Corridor- 1, Phase-I of Kanpur Metro at Kanpur, Uttar Pradesh.

(Source: <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1785815>)

- 12) **C2 – Mumbai Ahmedabad High Speed Rail Project:** AIL is constructing 21 km long tunnel including India’s first 7 Km long undersea rail tunnel.

(Source: <https://nhsrcl.in/en/media/press-release/nhsrcl-signs-contract-construction-21-km-long-tunnel-including-indias-first-7#:~:text=The%2021%20km%20long%20tunnel,come%20up%20in%20the%20country.>)

- 13) **Barakhamba Metro Station, New Delhi:** AIL was engaged in the construction of a part of underground portion including Barakhamba Road underground station for DMRC.

- 14) **Nagpur Metro Projects:** This is India’s first 4-layer transportation system at Gaddigodam Railway Crossing. AIL was engaged in the design and construction of elevated viaduct of length 2.607 km between Gaddigodam to Sitabuldi (excluding stations) and Railway span near Gaddigodam, Viaduct and Road cum Rail flyover (double decker) of length 4.065 km including approach ramps on bill of quantities basis (excluding stations) in Reach 2.

(Source: [https://www.metrorailnagpur.com/pdf/newsletter/feb\\_mar\\_2022.pdf](https://www.metrorailnagpur.com/pdf/newsletter/feb_mar_2022.pdf))

- 15) **Chennai Central Metro Station:** Chennai Central Metro Station, constructed by AIL is one of the largest underground metro stations in India.

(Source: <https://chennaiemr.org/wp-content/uploads/2018/06/Times-of-India-2.10.17.pdf>)

- 16) **Atal Tunnel, Rohtang:** This is the world’s longest highway tunnel above 10,000 ft (~ 3,000+ meter) sea level. It has reduced distance between Kulu and Lahaul by 48 kms and travel time by four hours and provides all weather connectivity.

(Source: <https://pib.gov.in/PressReleaseSelfframePage.aspx?PRID=1796961>, AIL)

- 17) **Nagpur Mumbai Samruddhi Expressway:** Upon completion in December 2024, Nagpur Mumbai Samruddhi expressway will be amongst India's top 2 longest expressway. AIL executed two packages namely Package 2 and 14. In Package 14 at Igatpuri, Afcons constructed India's widest (17.61m wide) and Maharashtra's longest (7.7 km-long, twin tunnels) road tunnels. Both Package 2 and Package 14 were completed much ahead of the schedule.

(Source: <https://mahasamruddhimahamarg.com/nagpur-mumbai-super-communication-expressway-transforming-economic-fortune-of-maharashtra/>, <https://mahasamruddhimahamarg.com/interesting-facts/#:~:text=Out%20of%20the%206%20tunnels,longest%20highway%20tunnel%20in%20Maharashtra>)

18) **Annaram Barrage:** Annaram Barrage is a part of Kaleshwaram Lift Irrigation Project, which is world's largest multi-stage lift irrigation project.

(Source: <https://bhoopalapally.telangana.gov.in/tourist-place/kaleshwaram-lift-irrigation-project/>, AIL)

19) **T49 Tunnel:** It is India's longest railway tunnel. AIL constructed 7.32 km of total 12.75 km tunnel for Udhampur Srinagar Baramulla Rail Link. AIL was engaged in the construction of Tunnel T49 (Part Tunnel) and Side Adits, Tunnel T50, Bridge 4, Bridge 5 and Earthworks at Arpinchala (between Km 116.600 & 125.000 approx.) on Dharam - Qazigund Section of Udhampur-Srinagar-Baramulla New BG Railway Line PROJECT

(Source: [https://pib.gov.in/PressReleasePage.aspx?PRID=1883802#:~:text=major%20cavity%20formation-,Breakthrough%20of%20the%20Escape%20tunnel%20\(12.895%20km\)%20of%20the%20longest,successfully%20negotiating%20major%20cavity%20formation](https://pib.gov.in/PressReleasePage.aspx?PRID=1883802#:~:text=major%20cavity%20formation-,Breakthrough%20of%20the%20Escape%20tunnel%20(12.895%20km)%20of%20the%20longest,successfully%20negotiating%20major%20cavity%20formation))

20) **Heera Redevelopment (HRD) Process Platform, India:** AIL was the first Indian EPC contractor to install an offshore process platform using floatover technology. AIL was engaged in the EPC of entire Heera Redevelopment (HRD) Process Platform facility including modification of three existing platforms, relocation of existing cable, bridge connecting HRC process complex and HRD.

(Source: [https://ongcindia.com/documents/77751/1767719/4774\\_306\\_AR\\_14\\_15.pdf/0e97d729-f934-0206-1e1f-04ce7e65402e](https://ongcindia.com/documents/77751/1767719/4774_306_AR_14_15.pdf/0e97d729-f934-0206-1e1f-04ce7e65402e))

AIL had put in significant investment in knowledge management processes at the company. AIL has been recognized in the field of knowledge management at the international level. According to Global Mike award website, the global and outstanding awards are given to a select group of organizations that have demonstrated excellence in knowledge management and innovation and that have surpassed the standard criteria, showcasing outstanding performance in their fields. AIL has received MAKE (Most Admired Knowledge Enterprise) awards for India, Asia and Global levels in 2016 and 2017. AIL continued to receive recognition in knowledge management and won MIKE (Most Innovative Knowledge Enterprise) awards for India and Global levels from 2018 to 2023.

(Source: <https://www.globalmikeaward.com/mike-award/winner-list/2023>)

AIL is the only Infrastructure company to win this award at Global and India levels and is the only infrastructure company to have a Chief Knowledge Officer. This highlights AIL's capabilities in the knowledge management. Whenever AIL works on a project, it's work doesn't just centre around it. It also devotes itself to developing local communities around its sites. The company strive for inclusive growth, and honour responsibilities towards employees, communities, and the environment. AIL tries to reflect this through meaningful contributions to local communities around its projects globally. It supports development of strong and sustainable local communities wherever it works.

Revenue from the domestic business was INR 86.06 billion (68.1%) and the international business recorded revenue of INR 40.31 billion (31.9%) in FY2023. Revenue from operations of AIL was INR 126.4 billion in FY2023, meanwhile total revenue was INR128.4 billion in FY2023. ICRA has given AIL long-term rating of A+ (Stable, Reaffirmed) and short-term rating of A1 (Reaffirmed) as on 29<sup>th</sup> September 2023.

### **Company Business**

AIL has its presence in below mentioned sectors:

Sr. No.	Businesses
1	Marine and Industrial
2	Surface Transport
3	Urban Infrastructure
4	Oil and Gas
5	Hydro and Underground

Source: <https://www.afcons.com/en/bu/marine-industrial>

#### **1. Marine and Industrial**

Under marine and industrial segment AIL covers project related to ports and harbours jetties, dry docks, wet basins, breakwaters, outfall and intake structure, LNG tanks and material handling systems. AIL has done 190+ projects in this segment. LNG jetty project in Dahej (India), the project was executed in one of the toughest sea conditions with water current ranging from 8 to 10 knots and tide variations ranging up to 11m. Bulk jetty project in Port of Sohar (Oman), port of Sohar is one of the world's deepest ports and the deep-water jetty, with draft of more than 20m, is used to import iron ore. The port can berth the biggest iron ore ships in the world. They have also done some other projects like phosphate rock terminal in Aqaba (Jordan), LNG tanks in Kochi (India), new sulphur jetty in Kuwait, bauxite material handling system in Guinea, new Owendo international port in Africa in the marine and industrial segment.

#### **2. Surface Transport**

AIL has a rich experience in surface and transport segment which covers project like highways and roads, interchanges, mining-related, infrastructure, railways. AIL has completed many projects in the segment some of those projects are Bhairab railway bridge, during execution, AIL used 2.5m diameter bored cast in-situ piles in marine environment for the first time, Jammu Udhampur highway which is one of the fastest hill-road project in NHAI's (National Highways Authority of India) history and AIL completed the job ahead of time, Mina Salman interchange in Bahrain, Vallarpadam railway bridge which is India's longest railway bridge and AIL completed the project in record time of 27 months, cable stayed bridge across river Mapusa in Goa and Agra Lucknow express project which was 36 months project and AIL completed it in 22 months' time. Chenab railway bridge is one of the toughest bridge works undertaken in India, due to geological and engineering considerations and first bridge designed for blast load. It is world's tallest single-arch railway bridge.

#### **3. Urban Infrastructure**

AIL's urban infrastructure business focusses on metro works, bridges and flyovers. In this segment major ongoing and completed projects are elevated viaduct in New Delhi and metro tunnelling below Hooghly river in Kolkata. The twin tunnels below Hooghly river are the first ever in India and were completed in 67 days against planned 127 days, model town station in New Delhi, underground metro in Chennai, Kanpur metro, Chennai central metro station.

#### 4. Oil and Gas

AIL's oil and gas business focusses on offshore oil and gas and onshore oil and gas segments. HRD (Heera Redevelopment) process platform, AIL is the first Indian EPC contractor to install an offshore process platform using float over technology on time. Some other major ongoing and completed projects are ICP-R process platform, Assam pipeline and Vopak terminal Kandla capex upgrade project phase-1 in which the scope is dismantling of existing structures (including 8 tanks), relocation of tanks and structures and upgradation (including automation of terminal and reconstruction of 20 tanks and construction of six new tanks).

#### 5. Hydro and Underground

AIL's hydro and underground business focusses on the dams and barrages, tunnels and underground works and water and irrigation. Atal tunnel, Rohtang in Himachal Pradesh is world's longest highway tunnel above 10,000ft (~ 3,000+ meter) sea level. It has reduced distance between Kulu and Lahaul by 48 kms and travel time by four hours and provides all weather connectivity. AIL is building five Broad Gauge Single Line Tunnels as part of the ambitious Udhampur Srinagar Baramulla Rail Link Project in tough terrain. Other major ongoing and completed projects are tunnels 1 and 2 in J&K, Konkan railway corporation limited tunnel J&K, tunnel T49 J&K, Kol dam hydroelectric project in Himachal Pradesh, Annaram barrage project in Telangana, water supply pipeline project in Tanzania.

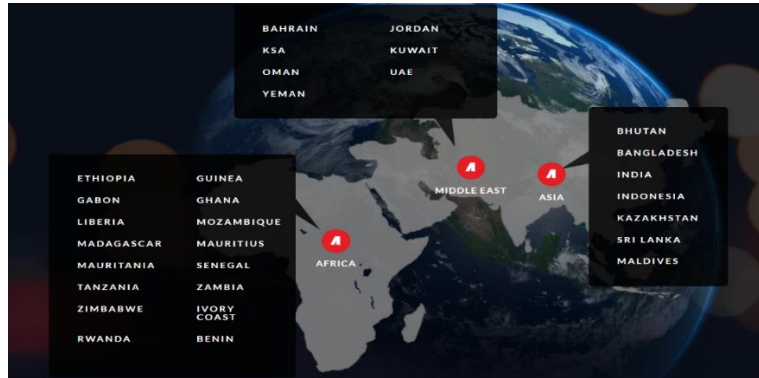
#### Technological Capabilities

AIL has an indigenous strategic equipment fleet worth ~ USD 450 million as of 30<sup>th</sup> September 2023. The strategic equipment fleet caters to diversified infrastructure segments and business units and providing AIL with a technological edge in executing unique and challenging projects. As of 30<sup>th</sup> September 2023, AIL has 8 large capacity Jack-ups (200-750 tonne) including Samrat, Mahakaya which are one of the biggest jack up of its kind in India; 10 marine barges (200-1,200 tonne); 133 cranes including world's largest cable crane commissioned for Chenab rail bridge project; 24 jumbo drills; 20 piling rigs and fleet of total 20 customized TBMs (16 + 4 ordered). AIL's inventory of customized tunnel boring machines is one of the largest amongst its peers in India. AIL has two dedicated workshops in Delhi and Nagpur for maintenance of its strategic equipment and undertake equipment related innovation.

#### Geographic Presence

AIL's global presence has enabled a robust and agile supply chain that extends across 2 continents in over 30 countries.

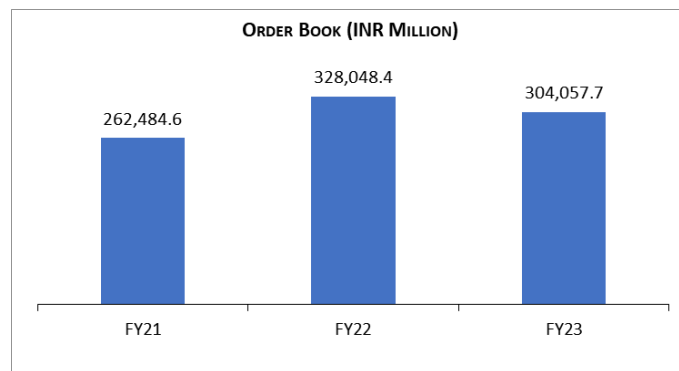




Source: <https://www.afcons.com/en/afcons-presence>

**Order Book**

AIL’s order book has increased at a CAGR of 7.6% from INR 262,484.6 million in FY2021 to INR 304,057.7 million in FY2023. AIL’s order book for past 3 years is depicted in the graph below:



Source: AIL Annual Reports

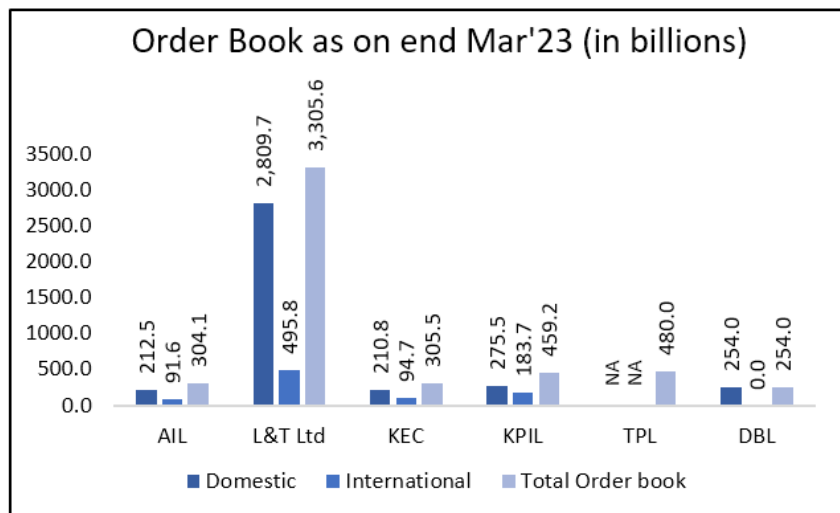
## Chapter 5: Competitive Mapping of Key Indian Infrastructure Players

Competitive mapping of following key infrastructure players is covered in this section:

Company Name	Area of operation	Geographical presence
<b>Afcons Infrastructure Limited</b>	Marine and Industrial, Surface Transport, Urban Infrastructure, Oil and Gas, Hydro and Underground	30 countries across South Asia, Africa, Middle East and CIS
<b>Larsen and Toubro Limited (L&amp;T Ltd.) (Standalone)</b>	Infra Projects (Buildings and Factories, Transportation Infrastructure, Heavy Civil Infrastructure, Water and Effluent Treatment, Power Transmission and Distribution, Minerals and Metals), Energy Projects, Hi-Tech Manufacturing and Others. The Others segment comprises Realty, Construction & Mining Machinery, Rubber Processing Machinery, Smart World & Communication and E-commerce / Digital Platforms and Data Centers.	Over 30 countries around the world
<b>KEC International Limited</b>	Transmission and Distribution, Railways, Civil, Urban Infrastructure, Oil and Gas Pipelines, Cables, Solar	Across 6 continents in over 110 countries
<b>Kalpataru Projects International Limited</b>	Power Transmission and Distribution, Water, Buildings and Factories, Railways, Urban Infrastructure, Oil and Gas, Biomass	Across 5 continents in 63 countries
<b>Tata Projects Limited</b>	Transportation, Oil and Gas, Space and Nuclear, Metal and Minerals, Power, Water	More than 100 countries across 6 continents
<b>Dilip Buildcon Limited</b>	Roads and Highways, Rails and Metro, Airport, Mining, Irrigation, Special Bridges, Urban Development	Present in 19 states and 1 union territory of India

Source: FSIAPL analysis

### Order Book comparison of all players



Source: FSIAPL analysis

Notes:

- 1) Data of L&T Ltd. is on standalone basis in the above chart
- 2) AIL- Afcons Infrastructure Limited, KEC - KEC International Limited, KPIL - Kalpataru Projects International Limited, TPL - Tata Projects Limited and DBL - Dilip Buildcon Limited.
- 3) Domestic and International order book split details of TPL is not available in its annual reports, hence, mentioned as 'NA'.

**Key Performance Indicators:**
**Afcons Infrastructure Limited**

Metric	Operational/ Financial	Half year ending September 30, 2023	As at and for the year ended 31st March, 2023	As at and for the year ended 31st March, 2022	As at and for the year ended 31st March, 2021
Order Book (INR Million)	Operational	348,883.90	304,057.70	328,048.40	262,484.60
Domestic Order Book (INR Million)	Operational	260,930.70	212,459.40	233,125.30	191,204.50
Domestic Order Book %	Operational	74.79%	69.87%	71.06%	72.84%
Overseas Order Book (INR Million)	Operational	87,953.20	91,598.30	94,923.00	71,280.20
Overseas Order Book %	Operational	25.21%	30.13%	28.94%	27.16%
Book to Bill Ratio (x)	Operational	2.68	2.41	2.98	2.80
Order Inflow (INR Million)	Operational	79,989.80	79,238.30	1,68,830.40	77,997.70
Revenue from operations (INR Million)	Financial	65,053.92	126,373.82	110,189.66	93,755.62
% Revenue from overseas projects	Financial	28.10%	31.90%	32.30%	36.00%
Total Income (INR Million)	Financial	66,553.51	128,440.90	112,695.49	95,211.24
EBITDA (INR Million)	Financial	7,080.02	13,737.89	10,685.99	8,973.95
EBITDA Margin (%)	Financial	10.64%	10.70%	9.48%	9.43%
Profit after tax (PAT) (INR Million)	Financial	1,951.27	4,108.60	3,576.05	1,699.07
PAT Margin (%)	Financial	2.93%	3.20%	3.17%	1.78%
Cash Profit Margin (%)	Financial	6.31%	6.87%	6.33%	4.41%
Total Equity (INR Million)	Financial	33,535.90	31,757.18	27,120.80	23,900.23
Total Debt (INR Million)	Financial	28,439.21	15,628.16	15,552.01	15,885.89
Net Debt (INR Million)	Financial	21,403.13	11,853.72	10,287.85	8,776.47
Net Debt to EBITDA (x)	Financial	1.51	0.86	0.96	0.98
Total Debt to Equity (x)	Financial	0.85	0.49	0.57	0.66
Return on Equity (ROE) (%)	Financial	12.58%	13.96%	14.02%	7.33%
Return on Capital Employed (ROCE) (%)	Financial	17.06%	20.04%	17.30%	16.50%
Cash Flow from Operations (CFO) (INR Million)	Financial	-1,801.76	12,154.82	6,104.53	9,288.88
CFO/EBITDA (%)	Financial	-25.45%	88.48%	57.13%	103.51%
Net Working Capital (in days)	Financial	73	38	43	42
Gross Block (INR Million)	Financial	49,759.72	47,157.35	41,399.11	35,788.58
Gross Block/Revenue from Operations (%)	Financial	38.24%	37.32%	37.57%	38.17%

Source: Audited restated financial statements (FY23, FY22, FY21 and half year ending Sept 30, 2023), Company's Presentation, FSIAPL

**L&T Ltd. (Standalone)**

Metric	Operational/ Financial	Half year ending September 30, 2023	As at and for the year ended 31st March, 2023	As at and for the year ended 31st March, 2022	As at and for the year ended 31st March, 2021
Order Book (INR Million)	Operational	NA	3,305,550.00	3,155,670.00	2,723,660.00
Domestic Order Book (INR Million)	Operational	NA	2,809,717.50	2,556,092.70	2,233,401.20
Domestic Order Book %	Operational	NA	85.00%	81.00%	82.00%
Overseas Order Book (INR Million)	Operational	NA	495,832.50	599,577.30	490,258.80
Overseas Order Book %	Operational	NA	15.00%	19.00%	18.00%
Book to Bill Ratio (x)	Operational	NA	2.99	3.12	3.71
Order Inflow (INR Million)	Operational	NA	1,499,840.00	1,189,560.00	1,106,220.00
Revenue from operations (INR Million)	Financial	550,816.60	1,105,009.80	1,010,004.10	733,155.90
% Revenue from overseas projects	Financial	NA	17.00%	20.00%	23.00%
Total Income (INR Million)	Financial	581,761.70	1,145,359.30	1,046,130.60	767,510.30
EBITDA (INR Million)	Financial	68,885.50	133,004.80	126,036.80	106,968.60
EBITDA Margin (%)	Financial	11.84%	11.61%	12.05%	13.94%
Profit after tax (PAT) (INR Million)	Financial	45,020.80	78,489.70	78,794.50	113,369.70
PAT Margin (%)	Financial	7.74%	6.85%	7.53%	14.77%
Cash Profit Margin (%)	Financial	9.10%	8.05%	8.65%	16.11%
Total Equity (INR Million)	Financial	593,262.30	715,279.50	671,140.50	604,135.40
Total Debt (INR Million)	Financial	268,569.10	181,510.90	202,982.90	238,087.10
Net Debt (INR Million)	Financial	238,216.50	135,814.50	137,997.80	200,454.30
Net Debt to EBITDA (x)	Financial	1.73	1.02	1.09	1.87
Total Debt to Equity (x)	Financial	0.45	0.25	0.30	0.39
Return on Equity (ROE) (%)	Financial	14.31%	11.32%	12.36%	20.14%
Return on Capital Employed (ROCE) (%)	Financial	13.84%	13.47%	13.32%	11.93%
Cash Flow from Operations (CFO) (INR Million)	Financial	-23,783.50	72,639.60	59,987.90	83,507.90
CFO/EBITDA (%)	Financial	-34.53%	54.61%	47.60%	78.07%
Net Working Capital (in days)	Financial	108	121	128	184
Gross Block (INR Million)	Financial	NA	161,093.40	144,412.50	125,748.00
Gross Block/Revenue from Operations (%)	Financial	NA	14.58%	14.30%	17.15%

Source: Company's Annual Reports, Company's Half yearly financial statements, Company's Investor Presentation, FSIAPL

## KEC International Limited

Metric	Operational/ Financial	Half year ending September 30, 2023	As at and for the year ended 31st March, 2023	As at and for the year ended 31st March, 2022	As at and for the year ended 31st March, 2021
Order Book (INR Million)	Operational	313,200.00	305,530.00	237,160.00	191,090.00
Domestic Order Book (INR Million)	Operational	216,108.00	210,815.70	149,410.80	118,475.80
Domestic Order Book %	Operational	69.00%	69.00%	63.00%	62.00%
Overseas Order Book (INR Million)	Operational	97,092.00	94,714.30	87,749.20	72,614.20
Overseas Order Book %	Operational	31.00%	31.00%	37.00%	38.00%
Book to Bill Ratio (x)	Operational	1.79	1.77	1.73	1.46
Order Inflow (INR Million)	Operational	90,000.00	223,780.00	172,030.00	118,760.00
Revenue from operations (INR Million)	Financial	87,426.20	172,817.10	137,422.60	131,142.00
% Revenue from overseas projects	Financial	NA	37.17%	32.11%	41.18%
Total Income (INR Million)	Financial	87,612.70	173,130.30	137,556.90	131,441.20
EBITDA (INR Million)	Financial	5,190.00	8,565.00	9,116.40	11,658.40
EBITDA Margin (%)	Financial	5.90%	4.95%	6.63%	8.87%
Profit after tax (PAT) (INR Million)	Financial	981.60	1,760.30	3,320.80	5,527.20
PAT Margin (%)	Financial	1.12%	1.02%	2.41%	4.21%
Cash Profit Margin (%)	Financial	2.13%	1.95%	3.56%	5.37%
Total Equity (INR Million)	Financial	38,442.10	37,714.20	36,199.30	33,596.90
Total Debt (INR Million)	Financial	47,298.10	31,944.50	28,627.10	19,284.90
Net Debt (INR Million)	Financial	44,807.10	28,502.90	26,007.70	16,793.20
Net Debt to EBITDA (x)	Financial	4.32	3.33	2.85	1.44
Total Debt to Equity (x)	Financial	1.23	0.85	0.79	0.57
Return on Equity (ROE) (%)	Financial	5.24%	4.76%	9.52%	17.95%
Return on Capital Employed (ROCE) (%)	Financial	2.81%	10.34%	12.81%	19.36%
Cash Flow from Operations (CFO) (INR Million)	Financial	-10,403.20	6,067.30	-2,837.10	8,445.40
CFO/EBITDA (%)	Financial	-200.45%	70.84%	-31.12%	72.44%
Net Working Capital (in days)	Financial	114	84	101	85
Gross Block (INR Million)	Financial	NA	19,884.50	18,476.30	17,117.50
Gross Block/Revenue from Operations (%)	Financial	NA	11.51%	13.44%	13.05%

Source: Company's Annual Reports, Company's Half yearly financial statements, Company's Investor Presentation, FSIAPL

## Kalpataru Projects International Limited

Metric	Operational/ Financial	Half year ending September 30, 2023	As at and for the year ended 31st March, 2023	As at and for the year ended 31st March, 2022	As at and for the year ended 31st March, 2021
Order Book (INR Million)	Operational	470,400.00	459,180.00	327,610.00	279,000.00
Domestic Order Book (INR Million)	Operational	282,240.00	275,508.00	196,566.00	203,670.00
Domestic Order Book %	Operational	60.00%	60.00%	60.00%	73.00%
Overseas Order Book (INR Million)	Operational	188,160.00	183,672.00	131,044.00	75,330.00
Overseas Order Book %	Operational	40.00%	40.00%	40.00%	27.00%
Book to Bill Ratio (x)	Operational	2.69	2.81	2.22	2.15
Order Inflow (INR Million)	Operational	90,150.00	NA	NA	NA
Revenue from operations (INR Million)	Financial	87,590.00	163,614.40	147,773.80	129,494.40
% Revenue from overseas projects	Financial	NA	33.28%	33.00%	46.00%
Total Income (INR Million)	Financial	87,890.00	164,011.40	148,663.00	130,164.60
EBITDA (INR Million)	Financial	7,520.00	13,829.40	12,467.00	15,434.90
EBITDA Margin (%)	Financial	8.60%	8.43%	8.39%	11.86%
Profit after tax (PAT) (INR Million)	Financial	2,030.00	4,350.20	5,350.60	6,620.40
PAT Margin (%)	Financial	2.31%	2.65%	3.60%	5.09%
Cash Profit Margin (%)	Financial	4.96%	5.04%	5.96%	7.96%
Total Equity (INR Million)	Financial	48,340.00	47,206.20	42,785.70	37,385.00
Total Debt (INR Million)	Financial	38,710.00	36,824.60	37,089.40	31,964.90
Net Debt (INR Million)	Financial	32,560.00	26,225.90	25,149.20	26,046.30
Net Debt to EBITDA (x)	Financial	2.16	1.90	2.02	1.69
Total Debt to Equity (x)	Financial	0.80	0.78	0.87	0.86
Return on Equity (ROE) (%)	Financial	8.96%	9.67%	13.35%	18.66%
Return on Capital Employed (ROCE) (%)	Financial	6.93%	12.09%	12.01%	17.18%
Cash Flow from Operations (CFO) (INR Million)	Financial	-960.00	6,563.90	7,136.60	9,310.00
CFO/EBITDA (%)	Financial	-12.77%	47.46%	57.24%	60.32%
Net Working Capital (in days)	Financial	106	102	107	101
Gross Block (INR Million)	Financial	NA	30,803.30	26,704.40	25,247.30
Gross Block/Revenue from Operations (%)	Financial	NA	18.83%	18.07%	19.50%

Source: Company's Annual Reports, Company's Half yearly financial statements, Company's Investor Presentation, FSIAPL

## Tata Projects Limited

Metric	Operational/ Financial	Half year ending September 30, 2023	As at and for the year ended 31st March, 2023	As at and for the year ended 31st March, 2022	As at and for the year ended 31st March, 2021
Order Book (INR Million)	Operational	NA	480,000.00	525,360.00	484,970.00
Domestic Order Book (INR Million)	Operational	NA	NA	NA	NA
Domestic Order Book %	Operational	NA	NA	NA	NA
Overseas Order Book (INR Million)	Operational	NA	NA	NA	NA
Overseas Order Book %	Operational	NA	NA	NA	NA
Book to Bill Ratio (x)	Operational	NA	2.83	3.84	3.98
Order Inflow (INR Million)	Operational	NA	88,800.00	148,000.00	88,600.00
Revenue from operations (INR Million)	Financial	NA	169,476.16	136,793.72	121,873.80
% Revenue from overseas projects	Financial	NA	9.00%	3.08%	6.95%
Total Income (INR Million)	Financial	NA	170,419.31	137,588.71	122,891.67
EBITDA (INR Million)	Financial	NA	-3,372.30	-941.78	8,600.40
EBITDA Margin (%)	Financial	NA	-1.98%	-0.68%	7.00%
Profit after tax (PAT) (INR Million)	Financial	NA	-8,556.54	-6,204.61	1,245.31
PAT Margin (%)	Financial	NA	-5.02%	-4.51%	1.01%
Cash Profit Margin (%)	Financial	NA	-3.81%	-2.93%	2.93%
Total Equity (INR Million)	Financial	NA	27,996.23	20,182.60	14,007.48
Total Debt (INR Million)	Financial	NA	35,552.91	35,660.13	29,263.65
Net Debt (INR Million)	Financial	NA	22,431.16	20,744.00	24,792.87
Net Debt to EBITDA (x)	Financial	NA	-6.65	-22.03	2.88
Total Debt to Equity (x)	Financial	NA	1.27	1.77	2.09
Return on Equity (ROE) (%)	Financial	NA	-35.52%	-36.29%	9.23%
Return on Capital Employed (ROCE) (%)	Financial	NA	-9.11%	-6.28%	14.29%
Cash Flow from Operations (CFO) (INR Million)	Financial	NA	-13,015.11	978.11	5,210.01
CFO/EBITDA (%)	Financial	NA	-385.94%	-103.86%	60.58%
Net Working Capital (in days)	Financial	NA	71	70	80
Gross Block (INR Million)	Financial	NA	15,484.51	13,680.97	12,926.55
Gross Block/Revenue from Operations (%)	Financial	NA	9.14%	10.00%	10.61%

Source: Company's Annual Reports, Company's Half yearly financial statements, Company's Investor Presentation, FSIAPL

## Dilip Buildcon Limited

Metric	Operational/ Financial	Half year ending September 30, 2023	As at and for the year ended 31st March, 2023	As at and for the year ended 31st March, 2022	As at and for the year ended 31st March, 2021
Order Book (INR Million)	Operational	239,886.00	253,950.00	255,945.00	274,114.00
Domestic Order Book (INR Million)	Operational	239,886.00	253,950.00	255,945.00	274,114.00
Domestic Order Book %	Operational	100.00%	100.00%	100.00%	100.00%
Overseas Order Book (INR Million)	Operational	0.00	0.00	0.00	0.00
Overseas Order Book %	Operational	0.00%	0.00%	0.00%	0.00%
Book to Bill Ratio (x)	Operational	2.08	2.39	2.68	2.70
Order Inflow (INR Million)	Operational	NA	109,181.00	78,110.00	2,19,581.00
Revenue from operations (INR Million)	Financial	57,694.44	106,436.45	95,664.29	101,682.82
% Revenue from overseas projects	Financial	0.0%	0.0%	0.0%	0.0%
Total Income (INR Million)	Financial	58,385.04	107,116.09	96,048.16	102,104.96
EBITDA (INR Million)	Financial	7,432.42	7,996.26	6,082.69	20,584.99
EBITDA Margin (%)	Financial	12.73%	7.47%	6.33%	20.16%
Profit after tax (PAT) (INR Million)	Financial	855.15	-13.92	-5,496.76	4,365.46
PAT Margin (%)	Financial	1.46%	-0.01%	-5.72%	4.28%
Cash Profit Margin (%)	Financial	4.78%	3.71%	-1.56%	8.61%
Total Equity (INR Million)	Financial	41,346.95	40,016.06	35,506.69	33,998.06
Total Debt (INR Million)	Financial	67,629.10	66,579.69	87,955.28	105,250.08
Net Debt (INR Million)	Financial	63,156.70	62,319.65	82,127.39	97,162.23
Net Debt to EBITDA (x)	Financial	4.25	7.79	13.50	4.72
Total Debt to Equity (x)	Financial	1.64	1.66	2.48	3.10
Return on Equity (ROE) (%)	Financial	4.47%	-0.04%	-15.82%	13.35%
Return on Capital Employed (ROCE) (%)	Financial	1.54%	3.49%	1.59%	12.36%
Cash Flow from Operations (CFO) (INR Million)	Financial	8,912.83	28,451.72	16,237.02	10,820.39
CFO/EBITDA (%)	Financial	119.92%	355.81%	266.94%	52.56%
Net Working Capital (in days)	Financial	129	129	189	149
Gross Block (INR Million)	Financial	NA	40,123.16	41,999.46	40,759.07
Gross Block/Revenue from Operations (%)	Financial	NA	37.70%	43.90%	40.08%

Source: Company's Annual Reports, Company's Half yearly financial statements, Company's Investor Presentation, FSIAPL

**Notes –**

1. Ratios calculated as per FSIAPL standards and may not match company reported numbers.
2. Financials of half year ending September 30, 2023 are unaudited in nature.
3. Book to Bill Ratio (x), Net Debt to EBITDA (x), ROE (%), ROCE (%) and Gross Block/Revenue from Operations (%) are annualised for Half year ending September 30, 2023.
4. EBITDA value and EBITDA% For half year ending September 30, 2023 for KEC International Limited is taken as stated by KEC International Limited in their Q2FY24 Investor Presentation.
5. EBITDA value and EBITDA% for half year ending September 30, 2023 for Kalpataru Projects International Limited is taken as stated by Kalpataru Projects International Limited in their Q2FY24 Investor Presentation.
6. EBITDA value and EBITDA% for half year ending September 30, 2023 for Dilip Buildcon Limited is taken as stated by Dilip Buildcon Limited in their Q2FY24 Financial statements.
7. Consolidated financial data for half year ending September 30, 2023 of Tata Projects Limited is not available, hence mentioned as 'NA'.
8. The financials of peers i.e. L&T Ltd., Kalpataru Projects International Limited and KEC International Limited are publicly available in crore. Hence while reporting number in million up to two decimal, values available in crore are multiplied by 10. Hence actual value in second decimal may not be in line with actual audited financial of these peers.

**Definitions and Interpretations -**

1. Order Book represents the estimated contract value of the unexecuted portion of a company's existing assigned EPC contracts and is an indicator of visibility of future revenue for the company.
2. Domestic Order Book represents the estimated contract value of the unexecuted portion of a company's existing assigned EPC contracts in India and is an indicator of visibility of future revenue for the Company from projects in India.
3. Domestic Order Book % is an indicator of the contribution of projects in India to the overall order book. It is calculated as amount of outstanding order book from India as on a particular period as a % of total order book.
4. Overseas Order Book represents the estimated contract value of the unexecuted portion of a company's existing assigned EPC contracts outside India and is an indicator of visibility of future revenue for the Company from projects outside India.
5. Overseas Order Book % is an indicator of the contribution of projects outside India to the overall order book. It is calculated as amount of outstanding order book outside India as on a particular period as a % of total order book.
6. Book to Bill Ratio is an indicator of the size of the order book as of a particular period to the revenue generated for that period. It is calculated as Order Book as at a particular period divided by the Revenue from operations for that period.
7. Order Inflow represents the amount of orders won for a particular period.
8. Revenue from operations represents the scale of a company's business as well as provides information regarding a company's overall financial performance.
9. Total income represents the scale of a company's business as well as provides information regarding operating and non-operating income.
10. % Revenue from overseas projects represents the scale of a company's operations outside India. It is calculated as Revenue from operations for the current period/year from projects/operations outside India as a % of revenue from operations.
11. EBITDA provides a comprehensive view of a company's financial health. EBITDA is calculated as Profit before exceptional items and tax (PBIT) + Depreciation + Interest on borrowing component of finance cost. Other component of finance cost like Bank charges and Commission, redemption premium on borrowing etc. is not added back while arriving at the EBIDTA from the PBIT.
12. EBITDA Margin (%) is an indicator of the profitability of a company's business and assists in tracking the margin profile of a company's business. EBITDA Margin (%) is the percentage of EBITDA divided by Total Income.
13. PAT represents the profit / loss that a company makes for the financial year or during a given period. It provides information regarding the overall profitability of a company's business.
14. PAT Margin (%) is an indicator of the overall profitability of a company's business. PAT Margin (%) is calculated as restated profit (after tax) for the period / year as a % of Total Income.

15. *Cash Profit is an indicator of the profitability of the business ex-depreciation and amortization expense. Cash Profit is calculated as PAT plus depreciation/amortization expense. Cash Profit margin is calculated as Cash Profit as a % of Total Income.*
16. *Total Equity is an indicator of a company's financial standing/ position as of a certain date. Total equity has been defined as the aggregate value of the paid-up equity share capital and all reserves. It excludes non-controlling interest.*
17. *Total Debt is a financial position metric, and it represents the absolute value of borrowings. Total Debt is computed as Non-Current Borrowings plus Current Borrowings.*
18. *Net Debt is a liquidity metric and it represents the absolute value of borrowings net of cash and cash equivalents, bank balances and other cash and cash equivalents. It is calculated as Total Debt minus cash and cash equivalents, bank balances other than cash and cash equivalents.*
19. *Net Debt to EBITDA ratio enables a company to measure the ability and extent to which a company can cover their debt in comparison to the EBITDA being generated by them. Net Debt to EBITDA ratio is calculated as Net Debt divided by EBITDA.*
20. *Total Debt to Equity Ratio is a measure of the extent to which a Company can cover their debt and represents a company's debt position in comparison to their equity position. It helps evaluate a company's financial leverage. Total Debt to Equity Ratio (Gearing Ratio) is calculated as Total Debt divided by Total Equity.*
21. *Return on Equity represents how efficiently a company generates profits from their shareholders funds. ROE is calculated as PAT as a % of Average Total Equity.*
22. *Return on Capital Employed represents how efficiently a company generates earnings before interest & tax from the capital employed. ROCE is calculated as EBIT as a % of Average Capital Employed wherein Capital Employed refers to sum of Total Equity and Total Debt.*
23. *Cash Flow from Operations is a measure of the cash generated or used by a company's core operations, excluding any financing or investing activities.*
24. *CFO as a % of EBITDA is a measure of how much of the cash generated from operations is getting translated into EBITDA. CFO/EBITDA is calculated as Cash flow from Operations as a % of EBITDA.*
25. *Net Working Capital Days describes duration it takes for a company to convert its working capital into revenue. Net Working Capital (in days) is calculated as  $[(\text{Current Assets minus cash and bank}) \text{ minus } (\text{Current Liabilities-short term debt})] / \text{Revenue from Operations} * \text{No. of Days in the year}$ .*
26. *Gross block represents the total worth of all the assets currently employed in the business. It is the sum of all assets of the company valued at their cost of acquisition.*
27. *Gross block/ Revenue from Operations is a measure of a company's efficiency in utilizing assets to generate revenue. It is calculated as Gross Block as a % of Revenue from Operations.*

### Financial Comparison of the peer companies:

2023 Financial Comparison						
Metric	Afcons	L&T (standalone)	KEC	Kalpataru	Tata Projects	Dilip Buildcon
Order Book (INR Million)	304,057.70	3,305,550.00	305,530.00	459,180.00	480,000.00	253,950.00
Domestic Order Book (INR Million)	212,459.40	2,809,717.50	210,815.70	275,508.00	NA	253,950.00
Domestic Order Book %	69.87%	85.00%	69.00%	60.00%	NA	100.00%
Overseas Order Book (INR Million)	91,598.30	495,832.50	94,714.30	183,672.00	NA	0.00
Overseas Order Book %	30.13%	15.00%	31.00%	40.00%	NA	0.00%
Book to Bill Ratio (x)	2.41	2.99	1.77	2.81	2.83	2.39
Order Inflow (INR Million)	79,238.30	1,499,840.00	223,780.00	NA	88,800.00	109,181.00
Revenue from operations (INR Million)	126,373.82	1,105,009.80	172,817.10	163,614.40	169,476.16	106,436.45
% Revenue from overseas projects	31.90%	17.00%	37.17%	33.28%	9.00%	0.00%
Total Income (INR Million)	128,440.90	1,145,359.30	173,130.30	164,011.40	170,419.31	107,116.09
EBITDA (INR Million)	13,737.89	133,004.80	8,565.00	13,829.40	-3,372.30	7,996.26
EBITDA Margin (%)	10.70%	11.61%	4.95%	8.43%	-1.98%	7.47%
Profit after tax (PAT) (INR Million)	4,108.60	78,489.70	1,760.30	4,350.20	-8,556.54	-13.92
PAT Margin (%)	3.20%	6.85%	1.02%	2.65%	-5.02%	-0.01%
Cash Profit Margin (%)	6.87%	8.05%	1.95%	5.04%	-3.81%	3.71%
Total Equity (INR Million)	31,757.18	715,279.50	37,714.20	47,206.20	27,996.23	40,016.06
Total Debt (INR Million)	15,628.16	181,510.90	31,944.50	36,824.60	35,552.91	66,579.69
Net Debt (INR Million)	11,853.72	135,814.50	28,502.90	26,225.90	22,431.16	62,319.65
Net Debt to EBITDA (x)	0.86	1.02	3.33	1.90	-6.65	7.79
Total Debt to Equity (x)	0.49	0.25	0.85	0.78	1.27	1.66
Return on Equity (ROE) (%)	13.96%	11.32%	4.76%	9.67%	-35.52%	-0.04%
Return on Capital Employed (ROCE) (%)	20.04%	13.47%	10.34%	12.09%	-9.11%	3.49%
Cash Flow from Operations (CFO) (INR Million)	12,154.82	72,639.60	6,067.30	6,563.90	-13,015.11	28,451.72
CFO/EBITDA (%)	88.48%	54.61%	70.84%	47.46%	-385.94%	355.81%
Net Working Capital (in days)	38	121	84	102	71	129
Gross Block (INR Million)	47,157.35	161,093.40	19,884.50	30,803.30	15,484.51	40,123.16
Gross Block/Revenue from Operations (%)	37.32%	14.58%	11.51%	18.83%	9.14%	37.70%
CAGR % of EBITDA (INR Million) (FY21 to FY23)	23.73%	11.51%	-14.29%	-5.34%	NA	-37.67%
CAGR% of PAT (INR Million) (FY21 to FY23)	55.50%	-16.79%	-43.57%	-18.94%	NA	NA

Source: Company's Annual Reports, Company's Half yearly financial statements, Company's restated financials, Company's Investor Presentation, FSIAPL

2022 Financial Comparison						
Metric	Afcons	L&T (standalone)	KEC	Kalpataru	Tata Projects	Dilip Buildcon
Order Book (INR Million)	328,048.40	3,155,670.00	237,160.00	327,610.00	525,360.00	255,945.00
Domestic Order Book (INR Million)	233,125.30	2,556,092.70	149,410.80	196,566.00	NA	255,945.00
Domestic Order Book %	71.06%	81.00%	63.00%	60.00%	NA	100.00%
Overseas Order Book (INR Million)	94,923.00	599,577.30	87,749.20	131,044.00	NA	0.00
Overseas Order Book %	28.94%	19.00%	37.00%	40.00%	NA	0.00%
Book to Bill Ratio (x)	2.98	3.12	1.73	2.22	3.84	2.68
Order Inflow (INR Million)	1,68,830.40	1,189,560.00	172,030.00	NA	148,000.00	78,110.00
Revenue from operations (INR Million)	110,189.66	1,010,004.10	137,422.60	147,773.80	136,793.72	95,664.29
% Revenue from overseas projects	32.30%	20.00%	32.11%	33.00%	3.08%	0.00%
Total Income (INR Million)	112,695.49	1,046,130.60	137,556.90	148,663.00	137,588.71	96,048.16
EBITDA (INR Million)	10,685.99	126,036.80	9,116.40	12,467.00	-941.78	6,082.69
EBITDA Margin (%)	9.48%	12.05%	6.63%	8.39%	-0.68%	6.33%
Profit after tax (PAT) (INR Million)	3,576.05	78,794.50	3,320.80	5,350.60	-6,204.61	-5,496.76
PAT Margin (%)	3.17%	7.53%	2.41%	3.60%	-4.51%	-5.72%
Cash Profit Margin (%)	6.33%	8.65%	3.56%	5.96%	-2.93%	-1.56%
Total Equity (INR Million)	27,120.80	671,140.50	36,199.30	42,785.70	20,182.60	35,506.69
Total Debt (INR Million)	15,552.01	202,982.90	28,627.10	37,089.40	35,660.13	87,955.28
Net Debt (INR Million)	10,287.85	137,997.80	26,007.70	25,149.20	20,744.00	82,127.39
Net Debt to EBITDA (x)	0.96	1.09	2.85	2.02	-22.03	13.50
Total Debt to Equity (x)	0.57	0.30	0.79	0.87	1.77	2.48
Return on Equity (ROE) (%)	14.02%	12.36%	9.52%	13.35%	-36.29%	-15.82%
Return on Capital Employed (ROCE) (%)	17.30%	13.32%	12.81%	12.01%	-6.28%	1.59%
Cash Flow from Operations (CFO) (INR Million)	6,104.53	59,987.90	-2,837.10	7,136.60	978.11	16,237.02
CFO/EBITDA (%)	57.13%	47.60%	-31.12%	57.24%	-103.86%	266.94%
Net Working Capital (in days)	43	128	101	107	70	189
Gross Block (INR Million)	41,399.11	144,412.50	18,476.30	26,704.40	13,680.97	41,999.46
Gross Block/Revenue from Operations (%)	37.57%	14.30%	13.44%	18.07%	10.00%	43.90%

Source: Company's Annual Reports, Company's Half yearly financial statements, Company's restated financials, Company's Investor Presentation, FSIAPL



2021 Financial Comparison						
Metric	Afcons	L&T (standalone)	KEC	Kalpataru	Tata Projects	Dilip Buildcon
Order Book (INR Million)	262,484.60	2,723,660.00	191,090.00	279,000.00	484,970.00	274,114.00
Domestic Order Book (INR Million)	191,204.50	2,233,401.20	118,475.80	203,670.00	NA	274,114.00
Domestic Order Book %	72.84%	82.00%	62.00%	73.00%	NA	100.00%
Overseas Order Book (INR Million)	71,280.20	490,258.80	72,614.20	75,330.00	NA	0.00
Overseas Order Book %	27.16%	18.00%	38.00%	27.00%	NA	0.00%
Book to Bill Ratio (x)	2.80	3.71	1.46	2.15	3.98	2.70
Order Inflow (INR Million)	77,997.700	1,106,220.000	118,760.000	NA	88,600.000	2,19,581.00
Revenue from operations (INR Million)	93,755.620	733,155.900	131,142.000	129,494.400	121,873.795	101,682.820
% Revenue from overseas projects	36.00%	23.00%	41.18%	46.00%	6.95%	0.00%
Total Income (INR Million)	95,211.24	767,510.30	131,441.20	130,164.60	122,891.67	102,104.96
EBITDA (INR Million)	8,973.95	106,968.60	11,658.40	15,434.90	8,600.40	20,584.99
EBITDA Margin (%)	9.43%	13.94%	8.87%	11.86%	7.00%	20.16%
Profit after tax (PAT) (INR Million)	1,699.07	113,369.70	5,527.20	6,620.40	1,245.31	4,365.46
PAT Margin (%)	1.78%	14.77%	4.21%	5.09%	1.01%	4.28%
Cash Profit Margin (%)	4.41%	16.11%	5.37%	7.96%	2.93%	8.61%
Total Equity (INR Million)	23,900.23	604,135.40	33,596.90	37,385.00	14,007.48	33,998.06
Total Debt (INR Million)	15,885.89	238,087.10	19,284.90	31,964.90	29,263.65	105,250.08
Net Debt (INR Million)	8,776.47	200,454.30	16,793.20	26,046.30	24,792.87	97,162.23
Net Debt to EBITDA (x)	0.98	1.87	1.44	1.69	2.88	4.72
Total Debt to Equity (x)	0.66	0.39	0.57	0.86	2.09	3.10
Return on Equity (ROE) (%)	7.33%	20.14%	17.95%	18.66%	9.23%	13.35%
Return on Capital Employed (ROCE) (%)	16.50%	11.93%	19.36%	17.18%	14.29%	12.36%
Cash Flow from Operations (CFO) (INR Million)	9,288.88	83,507.90	8,445.40	9,310.00	5,210.01	10,820.39
CFO/EBITDA (%)	103.51%	78.07%	72.44%	60.32%	60.58%	52.56%
Net Working Capital (in days)	42	184	85	101	80	149
Gross Block (INR Million)	35,788.58	125,748.00	17,117.50	25,247.30	12,926.55	40,759.07
Gross Block/Revenue from Operations (%)	38.17%	17.15%	13.05%	19.50%	10.61%	40.08%

Source: Company's Annual Reports, Company's Half yearly financial statements, Company's restated financials, Company's Investor Presentation, FSIAPL

As compared to the five peer companies analysed above, AIL has achieved the highest return ratios namely return on equity (ROE) and return on capital employed (ROCE) in FY2023. In terms of ROCE, AIL leads with 20.04% ROCE in FY2023, while its competitors have ROCE below 15.00% in FY2023. Additionally, AIL has highest return on equity (ROE) compared to its peers, which is at 13.96% in FY2023 which is more than its competitors which have a ROE% of 11.50% or lower, reflecting good ability to generate profits from shareholders' equity.

AIL's EBITDA margin is good at 10.70% in FY2023, and it ranks second highest among the five peer companies analysed. AIL's EBITDA margin in FY2023 stands just after the industry giant L&T (which has EBITDA margin of 11.61% in FY2023); whereas other competitors' EBITDA margin was 10.00% or lower in FY2023.

AIL's PAT margin at 3.20% in FY2023 is the second highest among the five peer companies analysed, it stands just after L&T (which has PAT margin of 6.85% in FY2023). All other competitors have PAT below 2.70% in FY2023. AIL's Cash profit margin at 6.87% in FY2023 is the second highest among the five peer companies analysed, it again stands just after L&T (which has Cash profit margin of 8.05% in FY2023).

AIL has grown its EBITDA and PAT at the fastest rate as compared to its peers during the period FY2021 – FY2023. AIL's EBITDA grew at a CAGR of 23.73% from INR 8, 973.95 million in FY2021 to INR 13,737.89 million in FY2023. AIL's PAT grew at a CAGR of 55.50% from INR 1,699.07 million in FY2021 to INR 4,108.60 million in FY2023.

When examining financial leverage, AIL presents a healthy picture with a debt-to-equity ratio of 0.49, indicating a balanced approach to financing. AIL's efficiency in operations is further

highlighted by its cash flow generation, where it ranks second in terms of cash flow from operations relative to EBITDA, signalling strong operational effectiveness. AIL ranks second with CFO/EBITDA margin of 88.48% in FY2023, only after Dilip Buildcon Limited with CFO/EBITDA margin of 355.81% in FY2023.

AIL's working capital management is also noteworthy, with net working capital days being on the lower end at 38 days in FY2023 (lowest among the peers), which typically signifies a more efficient turnover of inventory and receivables. AIL has 31.90% revenue from overseas projects in FY2023, which stand third highest (only after KEC at 37.17% and Kalpataru at 33.28%) among the peer companies analysed.

## List of Abbreviations

AIL: Afcons Infrastructure Limited	MENA: Middle East and North Africa
AMRUT: Atal Mission for Rejuvenation and Urban Transformation	MIKE: Most Innovative Knowledge Enterprise
APSEZ: Adani Ports and Special Economic Zone Ltd	MIS: Management Information System
BC-NEIA: Buyer's Credit under the National Export Insurance Account	MLGH: Ministry of Local Government and Housing
BRT: Bus Rapid Transit	MoEFCC: Ministry of Environment, Forest and Climate Change
CAGR: Compounded annual growth rate	MoHUA: Ministry of Housing and Urban Affairs
DBFOT: Design, build, finance, operate, and transfer	MoIB: Ministry of Information & Broadcasting
DBL: Dilip Buildcon Limited	MoJS: Ministry of Jal Shakti
DoWR, RD & GR: The Department of Water Resources, River Development and Ganga Rejuvenation	MoPNG: Ministry of Petroleum and Natural Gas
EAP: East Asia and Pacific	MoSPI: Ministry of Statistics and Programme Implementation
ECA: Europe and Central Asia	NABL: National Accreditation Board for Testing and Calibration Laboratories
ECS: Environmental Control System	NHAI: National Highways Authority of India
ENR: Engineering News-Record	NIP: National Infrastructure Pipeline
EV: Electric vehicle	NIP: National Infrastructure Pipeline
FDI: Foreign Direct Investment	NMP: National Monetization Pipeline
FSIAPL: Fitch Solutions India Advisory Private Limited	NSO: National Statistical Office
GDP: Gross Domestic Product	OCMS: Online Computerised Monitoring System
GEP: Global Economic Prospect	PE: Provisional Estimates
GFCE: Government final consumption expenditure	PFCE: Private final consumption expenditure
GFCF: Gross fixed capital formation	PIB: Press Information Bureau
GRDA: Ghana Railway Development Authority	PMC: Project Management Consultants
GST: Goods and Services Tax	PPP: Public-private projects
GVA: Gross Value Added	QCBS: Quality cum Cost based Selection
IBC: Insolvency and Bankruptcy Code	SAR: South Asia
ICTP: International Container Transhipment Port	SCAF: Smart City Advisory Forums
Ind-Ra: India Ratings	SEEPZ: Santacruz Electronics Export Processing Zone
IPMD: Infrastructure and Project Monitoring Division	SPV: Special Purpose Vehicles
KEC: KEC International Limited	SSA: Sub-Saharan Africa
KPIL: Kalpataru Projects International Limited	TBM: Tunnel Boring Machine
L&TC: L&T Construction	TEU: 20-foot equivalent units
LAC: Latin America and the Caribbean	TPL: Tata Projects Limited
LNG: Liquefied natural gas	TVS: Tunnel Ventilation System
LOC: Lines of Credit	VGf: Viability Gap Funding
MAKE: Most Admired Knowledge Enterprise	

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