INFRASTRUCTURE

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EXECUTIVE SUMMARY

| High budgetary allocation for infrastructure | ▪ In Union Budget 2020-21, the Government has given a massive push to the infrastructure sector by allocating Rs 1,69,637 crore (US$ 24.27 billion) to enhance the transport infrastructure. |
| ▪ Private sector is emerging as a key player across various infrastructure segments, ranging from roads and communications to power and airports. |
| ▪ Private investment into physical and social infrastructure is key to putting India in a high growth trajectory, which will make it a US$ 5 trillion economy by 2024-25. |
| ▪ Yearly private equity (PE) and venture capital (VC) investment in India is expected to surpass US$ 65 billion in 2025. |
| Increasing private sector involvement | |
| Improvement in logistics | ▪ The logistics sector in India is growing 10.5 per cent annually and is expected to reach US$ 215 billion in 2020. |
| ▪ India was ranked second* in the 2019 Agility Emerging Markets Logistics Index. |
| Rising foreign direct investment (FDI) in the sector | ▪ FDI in construction development sector (townships, housing, built up infrastructure and construction development projects) and construction (infrastructure) activities stood at US$ 25.66 billion and US$ 16.84 billion, respectively, between April 2000 and March 2020. |

* prepared by Agility for ranking emerging countries in terms of their logistics performance

Source: Media sources, DPIIT, Equirius Capital, EY
ADVANTAGE INDIA
• India is expected to become the third largest construction market globally by 2022.
• India has a requirement of investment worth Rs 50 trillion (US$ 777.73 billion) across infrastructure by 2022 for a sustainable development in the country.

• Large investment in infrastructure have provided momentum to overall PE/VC investment into India, which touched an all-time high value of US$ 14.5 billion during 2019.
• Construction development sector and infrastructure activities sector received FDI inflow amounting to US$ 25.66 billion and US$ 16.84 billion, respectively, from April 2000 to March 2020.

• Favourable valuation and earnings outlook makes this sector an attractive opportunity.
• Only 24 per cent of the national highway network in India is four-lane, therefore there is an immense scope for improvement.
• The Regional Connectivity Scheme (RCS) gives opportunity for development of airports.

• With initiatives like ‘Housing for All’ and ‘Smart Cities Mission’, the Government of India is working on reducing bottlenecks and impeding growth in the infrastructure sector. Rs 2.05 lakh crore (US$ 31.81 billion) will be invested in the smart cities mission.

• 100 per cent FDI is permitted under the automatic route across various infrastructure sectors.

Note: UDAY – Ujjwal Discom Assurance Yojana
Source: Media Sources, DIPP, PricewaterhouseCoopers
MARKET OVERVIEW AND TRENDS
The eight core infrastructure industries include coal, crude oil, natural gas, refinery products, fertilisers, steel, cement and electricity.

In FY20, the cumulative growth of the eight core industries stood at 0.6 per cent.

In FY20, growth in the index was led by steel (4.2 per cent) and fertilisers (2.7 per cent).

**Index of eight core Industries**

Note: *- Till May 2020
Source: Ministry of Commerce and Industry
GROWTH IN INFRASTRUCTURE RELATED ACTIVITIES

- National highway construction recorded the highest increase of 15 per cent in line with government’s increased focus on improving logistics.
- In March 2020, NHAI accomplished the highest ever highway construction of 3,979 km of national highways in FY20.
- Freight earnings in FY20 stood at Rs 113,480.65 crore (US$ 16.10 billion), while its gross revenue stood at Rs 174,660.52 crore (US$ 24.99 billion) during the same period.
- Cargo traffic handled stood at 707.4 million tonnes (MT) in FY20.
- Electricity production in India reached 1,252.61 BU in FY20.

Note: Data is as per latest available information, P – Provisional

Source: Economic Survey 2017 Ministry of Railways, Union Budget 2018-19, Indian Ports Association, Central Electricity Authority
Highway construction in India increased at a CAGR of 21.44 between FY16-FY19. In FY19, 10,855 km of highways were constructed. The Government of India aims to construct 65,000 km of national highways at a cost of Rs 5.35 lakh crore (US$ 741.51 billion) by 2022.

The Government will use plastic waste for the construction of roads. One of the roads has been recently constructed with plastic waste near Dhaula Kuan (New Delhi), while there are plans to construct Delhi-Meerut Expressway and Gurugram-Sohna road.

In April 2020, the Government set a target of constructing roads worth Rs 15 lakh crore (US$ 212.80 billion) in the next two years.

In May 2020, Border Roads Organisation (BRO) achieved major milestone by digging up a 440-metre long tunnel below the busy Chamba town on Rishikesh-Dharasu road Highway (NH 94).

In June 2020, National Highway Authority of India (NHAI) became fully digital with the launch of unique cloud based and Artificial Intelligence powered Big Data Analytics platform – Data Lake and Project Management Software.

On July 15, 2020, Minister for Road Transport and Highways, Mr Nitin Gadkari inaugurated and laid the foundation stone of various highway projects as part of a new economic corridor worth Rs 20,000 crore (US$ 2.84 billion) in Haryana.
Revenue growth has been strong over the years. Indian Railways’ revenue increased at a CAGR of 2.57 per cent during FY16-FY19 and reached US$ 27.71 billion in FY19. The gross revenue stood at Rs 174,660.52 crore (US$ 24.99 billion) in FY20.

The Indian Railways received allocation under Union Budget 2020-21 at Rs 72,216 crore (US$ 10.33 billion).

The Ministry of Railways is working on a plan to earn Rs 15,000 crore (US$ 1.56 billion) over the next 10-20 years through rail display network (RDN), enabling real-time information to passengers.

Indian Railways will require investment of Rs 35.3 trillion (US$ 545.26 billion) by 2032 for capacity addition and modernisation. The capital expenditure in the sector is expected to increase by 92 per cent annually.

Railways is leading India’s fight against climate challenge and is taking significant steps towards meeting its ambitious goal of being a net zero carbon emissions organisation by 2030 and meeting India’s Intended Nationally Determined Contributions (INDC) targets.

In June 2020, Indian Railways created a new world benchmark by commissioning first high rise Over Head Equipment (OHE) with a contact wire height of 7.57 metre and successfully running double stack containers in electrified territory on Western Railway.

Indian Railways registered the best safety record in the last 15 months with no fatality of any railway passenger in any train accident.

**Note:** CAGR – Compound Annual Growth Rate, E – Estimates, P-Provisional, FY – Indian Financial Year (April–March)

**Source:** Vision 2020, Ministry of Railways
POWER GENERATION CAPACITY HAS INCREASED AT A HEALTHY PACE

- In FY20, total thermal installed capacity in the country stood at 230.81 GW, while renewable, hydro and nuclear energy installed capacity totalled 86.76 GW, 45.70 GW and 6.78 GW, respectively.

- With electricity production of 1,252.61 BU in FY20, the country witnessed growth of around 0.26 per cent over the previous fiscal year.

- Indian energy sector is expected to offer investment opportunities worth US$ 300 billion over the next 10 years.

- As on 31 March 2019, 26.02 million households have had electricity connections under the Saubhagya Scheme.

- Prime Minister Mr Narendra Modi inaugurated the 750 megawatt (MW) solar project set up at Rewa, Madhya Pradesh on July 10, 2020.

**Note:** GW - Gigawatt, @ CAGR till FY20, *- till June 2020

**Source:** CEA (Central Electricity Authority)
KEY PRIVATE PLAYERS

**IRB Infrastructure Developers Ltd**
- Major projects: Mumbai–Pune BOT Project, Pune–Nashik BOT Project, Bharuch–Surat BOT Project, Thane–Bhiwandi by-pass 4 Lane Project, Thane Ghodbunder BOT Project, Ahmedabad–Baroda NH-8, 6 laning of Agra - Etawah bypass

**Ashoka Buildcon Limited**
- Major projects: NH6 Dhankuni to Kharagpur, Sambalpur Baragarh, NH4 Belgaum Dharwad, NH-3 Pimpalgaon – Nashik – Gonde Road (JV with L&T), Jaora – Nayagaon Road, Chennai Outer Ring Road, Modhul – Nippani Road, Indore Edalabad Road, Wainganga Bridge, Ahmednagar Aurangabad Road

**HCC**
- Major projects: Bandra–Worli Sea Link, Badarpur Elevated Highway Project, Delhi Faridabad Elevated Expressway, Breakwater construction for new port at Ennore, Chennai, New Railway Line Project from Jiribam - Tupul

**Punj Lloyd**
- Major Projects: Hyderabad-Vijayawada Road Project, Sikkim’s Greenfield Airport, The Medanta (Medicity), Bangalore Metro Rail Project, Upgradation of Belgaum-Maharashtra Border Section of NH-4, Elevated Viaduct, Delhi Metro

**Larsen & Toubro**
- Major Projects: Hyderabad Metro Rail, Construction of a 6-lane bridge over the Ganges river, Mechanise Track Laying for India's first 626 km Dedicated Freight Corridor, Monorail in Mumbai, Railway electrification works and Rigid Overhead Contact System for the Delhi Metro, Kakrapar nuclear power project and Srinagar Hydel Power Project, Uttarakhand

*Source: Company websites*
STRATEGIES ADOPTED
STRATEGIES ADOPTED

- The company has selected countries and regions with maximum congruence to its strengths and most favourable logistics. The Middle East and China have been identified as prime centres for expansion for manufacturing and projects businesses as L&T seeks to ramp up its presence in these markets through a slew of new projects and business initiatives.

- Global sourcing policy is another key area that has given a thrust to its international strategy. With a steady rise in material costs, the company has placed sourcing teams in China, Europe and Russia.

- To expand nuclear energy portfolio, efforts to increase scope by offering products beyond conventional island in nuclear business is under way.
- Considering the National Action Plan on Climate Change targeting 15 per cent of electricity generation from renewables by 2020, BHEL is looking towards expanding its capacity to manufacture photo voltaic modules and cells.
- BHEL’s collaborative initiatives to address the growing demand potential in Railway Transportation including Metro and Suburban Railways include initiative with Indian Railways for setting up a greenfield Mainline Electrical Multiple Unit (MEMU) Coach Factory in Rajasthan.

- GMR Airports Limited (GAL) bagged the development and operation rights of the greenfield international airport proposed at Bhogapuram in Vizianagaram district from the state Government in April 2020.
- GMR Airport’s international partner, Groupe ADP of France, has raised US$ 2.47 billion in bonds in two-parts.

- Adani Ports and Special Economic Zone (APSEZ) Ltd acquired 40.25 per cent stake in Snowman Logistics for Rs 296 crore (US$ 42.35 million) and 70 per cent stake in Kishnapatnam port for over Rs 5,500 crore (US$ 790 million) in 2019.

Source: Company websites, Media sources
GROWTH DRIVERS AND OPPORTUNITIES
GROWTH DRIVERS FOR INFRASTRUCTURE IN INDIA

- Government initiatives
- Public Private Partnerships (PPP)
- Infrastructure needs
- International investment
- Housing development

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GOVERNMENT INITIATIVES DRIVING GROWTH IN THE SECTOR

• For 2019-20, the total capital expenditure of Railways is expected to be Rs 1.59 trillion (US$ 22.04 billion).

• As per Union Budget 2020-21, the Ministry of Railways have been allocated Rs 72,216 crore (US$ 10.33 billion).

• 2,000 km of coastal connectivity roads have been identified for construction and development.

• The Government of India will construct 65,000 km of highways by 2022.
  • Bharatmala phase II is going to be launched to develop the state road networks

• In Union Budget 2020-21, the Government announced Rs 91.82 billion (US$ 13.14 billion) for road transport and highway.

• As per Union Budget 2019-20, the investment of Rs 50 lakh crore (US$ 750 billion) for railways infrastructure between 2018-2030 is needed.

• Rs 8,350 crore (US$ 1.16 billion) was allocated in Union Budget 2019-20 for creation and augmentation of telecom infrastructure in the country.

• In the second phase of Strategic Crude Oil reserves, reserve capacity will be increased to 15.33 MT.

• In the second phase of Solar Park Development, an additional capacity of 20,000 MW will be generated.

Source: Union Budget 2019-20, Media sources
In Budget 2017-18, affordable housing was given infrastructure status. “Housing for All” programme was launched in June 2015 to build 20 million urban homes and 30 million rural houses by 2022.

Homes in India are currently most affordable in nearly two decades with overall mortgage payment accounting for 22 per cent of average post-tax income.

As per Union Budget 2019-20, Government has finalised the model tendency law for promotion of rental housing.

Source: Bloomberg, Economic Times, JLL, Anarock
INFRASTRUCTURE DEVELOPMENT IN NORTHEAST INDIA

- As of September 2018, Rs 1.90 trillion (US$ 27.07 billion) was sanctioned for construction of about 12,000 km of roads in the northeast region in India.
- For 2020-21, budgetary allocation for the Ministry of Development of Northeastern Region has been increased to Rs 3,049 crore (US$ 432.54 million) from Rs 2,629 crore (US$ 376.16 million) in 2018-19.
- Indian Prime Minister launched three transport links in February 2019 – a strategically important region abutting the Chinese border in the Northeast.
- The Civil Aviation Ministry launched UDAAN 3.1 in February 2019 as it invited bids for airlines to fly over 28 to 30 routes to cover northeast.
- Mr Conrad K. Sangma, Chief Ministry of Meghalaya, inaugurated the First Swadesh Darshan Scheme in January 2019. Quality of infrastructure was aimed in the scheme.
- With an eye on China, India is working on a slew of road and bridge projects to improve connectivity with Bangladesh, Nepal and Myanmar.
- Government announced plans to invest US$ 6.98 billion across northeast states.
- Arunachal Pradesh was brought on the railway map of India with India’s longest rail-cum-road bridge — the 4.94-km long Bogibeel bridge over Brahmaputra.
- Government has also announced plans to convert all meter gauge tracks in northeast to broad gauge tracks.
- In FY20, Rs 53,370 crore (US$ 7.64 billion) was provided for infrastructure and socio-economic development of northeast region.

Source: Media sources
Logistics and warehousing play an important role in the industrial advancement of the country. They are a fundamental part of business infrastructure and one of the key enablers in the global supply chain.

By 2022, market size of logistics sector is expected to reach US$ 215 billion.

In 2017, the logistics sector was given infrastructure status in India. Logistics market in India stood at US$ 160 billion in 2017. The sector is expected to grow at a CAGR of 10.5 per cent to reach US$ 215 billion by 2020.

In 2018, India was ranked 44 out of 167 countries in the World Bank's Logistics Performance Index (LPI) 2018. India was also ranked second* in the 2019 Agility Emerging Markets Logistics Index.

Investment in the logistics sector is expected to reach US$ 500 billion annually by 2025. Warehousing in India is expected to get investment of Rs 50,000 crore (US$ 7.12 billion) between 2018-20.

Hiranandani Group planned to enter the logistics and warehousing sector with an investment of Rs 25 billion (US$ 356.23 million) in two projects during Q12019.

The warehousing and logistics industry is expected to grow 35 per cent in 2021.

*Source: Economic Survey 2017-18, KPMG Report, News Articles
### AIRPORTS INFRASTRUCTURE INVESTMENT

<table>
<thead>
<tr>
<th>Metro airports</th>
<th>Non-metro airports</th>
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<tbody>
<tr>
<td>- The Airports Authority of India (AAI) aims to bring around 250 airports under operation across the country by 2020. &lt;br&gt; - AAI has developed and upgraded over 23 metro airports in the last 5 years. &lt;br&gt; - AAI plans to develop city-side infrastructure at 13 regional airports across India with help from private players for building of hotels, car parks and other facilities, and thereby boosting its non-aeronautical revenues. &lt;br&gt; - Airport housing will also have height restrictions to avoid interference with flight paths. They will also have to be far from the runway and 45m above a defined level of the airport, which will allow 4-5 floors to be built. &lt;br&gt; - The development of Navi Mumbai airport has been approved. The project will be developed on 74:26 per cent partnership between Mumbai International Airport Limited (MIAL) and City &amp; Industrial Development Corporation of Maharashtra (CIDCO) and airport’s phase I with annual handling capacity of 10 million passengers each year rephrasing it from the origin.</td>
<td>- AAI plans to spend over Rs 21,000 crore (US$ 3.2 billion) between 2018-22 to build new terminal and expand capacity of existing ones. &lt;br&gt; - The Government of Andhra Pradesh will develop greenfield airports in six cities-Nizamabad, Nellore, Kurnool, Ramagundam, Tadepalligudem and Kothagudem under the PPP model. &lt;br&gt; - Upfront subsidy has been proposed through which non-metro airports would be funded by imposing 2 per cent levy on both domestic and international airfares. &lt;br&gt; - About 22 airports will be connected under regional connectivity scheme of AAI. &lt;br&gt; - Over 30 airport development projects are under progress across various regions in northeast India. &lt;br&gt; - AAI plans to develop over 20 airports in tier II and tier III cities in the next 5 years. &lt;br&gt; - 56 new airports are expected to become functional in the country over the next few years (as of April 2018).</td>
</tr>
</tbody>
</table>

*Source: Media sources*
At least 10 Indian cities are working on metro railway projects and the Government initiated a plan in 2012 to study the feasibility of such networks in all cities with a population of more than 2 million.

Metro rail projects worth over Rs 500 billion ($7.7 billion) is underway.

Metro rail network has reached 657 kms.

A new Metro Rail Policy was announced in August 2017, to give boost to private investments by mandating PPP component in new projects. A new committee to lay down standards for metro rail systems was approved in June 2018.

In June 2020, A&M Development Group, a European infrastructure development company, announced its plans to invest Rs 100 crore (US$ 14.19 million) in Mumbai metro project along with RCC Infra Ventures through its recently formed Indian arm, Oberoi-A&M Infra-Consortium.

Monorail has made its beginning in India with Mumbai being the first city in the country to have this transport system in place.

It took more than six years from the date of inviting Request for Qualification for MMRDA (Mumbai Metropolitan Region Development Authority) to complete a part of the project, involving a stretch of 8.26 km.

Monorail Projects are being developed in Chennai, Pune, Thiruvananthpuram, Bengaluru, Thane, Delhi, Port Blair, Dehradun, Chandigarh etc.

Source: Media sources
INCREASING INVESTMENTS IN INDIAN INFRASTRUCTURE

- Construction development sector and infrastructure activities sector received FDI inflow amounting to US$ 25.66 billion and US$ 16.84 billion, respectively, from April 2000 to March 2020.

- In Union Budget 2019-20, under Pradhan Mantri Awas Yojana (PMAY-Urban), over 8.1 million houses with an investment of about Rs 483,000 crore (US$ 69.10 billion) were sanctioned, out of which, construction started on around 4.7 million houses. Over 2.6 million houses were completed, of which, nearly 2.4 million houses were delivered to respective beneficiaries.

- Brookfield’s US$ 1.9 billion acquisition of Pipeline Infrastructure India in first quarter of 2019 was the largest PE investment in the sector.

- In 2019, PE/VC investment in infrastructure stood at US$ 14.5 billion, witnessing growth of 225 per cent y-o-y.

- The sector witnessed the largest deal in 2019, which was US$ 1.1 billion in GVK Airport Holdings Ltd. by Abu Dhabi Investment Authority, Public Sector Pension Investment Board and National Investment and Infrastructure Fund.

- In 2019, infrastructure sector witnessed seven merger and acquisition (M&A) deals worth US$ 1,461 million.

_Note: FDI – Foreign Direct Investment,
Source: DIPP, Media sources, Venture Intelligence & mint Research, EY_
The Government of India has given a massive push to the infrastructure sector by allocating Rs 1.69 lakh crore (US$ 24.27 billion) for the transport sector.

Communication sector allocated Rs 38,637.46 crore (US$ 5.36 billion) to the development of post and telecommunications departments.

Indian railways received Rs 72,216 crore (US$ 10.33 billion), of which, Rs 64.587 billion (US$ 8.95 billion) is capital expenditure.

Rs 91,823 crore (US$ 13.14 billion) has been allocated towards road transport and highway.

Allocation of Rs 888.00 crore (US$ 110.88 million) for the upgradation of state Government medical colleges (PG seats) at district hospitals and Rs 1,361.00 crore (US$ 188.63 million) for Government medical colleges (UG seats) and Government health institutions.

The Government has suggested the investment of Rs 5,000,000 crore (US$ 750 billion) for railways infrastructure between 2018-2030.

Metro rail network has reached 657 kms.

Government has announced to invest Rs 10,000,000 crore (US$ 1.5 trillion) in infrastructure over the next five years.

To upgrade 1,25,000 km of road length over the next five years, the estimated cost of Rs 80,250 crore (US$ 12.03 billion) is envisaged under Pradhan Mantri Gram Sadak Yojana 3 (PMGSY).

30,000 km of PMGSY roads have been built using Green Technology, Waste Plastic and Cold Mix Technology.

Government has ensured power availability to states at affordable rates through model – One Nation, One Grid.

Government has proposed to permit investments made by Foreign Institutional Investor’s (FIIs)/Foreign Portfolio Investments (FPIs) in debt securities issued by Infrastructure Debt Fund.

Bharatmala phase 2 to be launched to develop state road networks.

Government proposed National Mission on Quantum Technologies and Applications with an outlay of Rs 8,000 crore (US$ 1.14 billion) over a period of five years.

Source: Union Budget 2020-21
OPPORTUNITIES IN INFRASTRUCTURE

Government initiatives
- India plans to spend US$ 1.4 trillion on infrastructure in the next five years.
- For funding and development of infrastructure, the Government of India has decided to rely on off-budget sources and PPP.
- On July 14, 2020, National Highways Authority of India (NHAI) approached all Indian Institutes of Technology (IITs), National Institute of Technology (NITs) and reputed Engineering Colleges to collaborate and adopt nearby stretches of National Highways (NH) as part of Institutional Social Responsibility (ISR) on voluntary basis to provide world-class road infrastructure in the country.

International associations
- Japanese investment has played significant role in India’s growth story. Japan pledged investment worth US$ 35 billion for the period of 2014-19 to boost India’s manufacturing and infrastructure sectors.
- As of October 2019, the US government’s Overseas Private Investment Corporation (OPIC) planned to invest in India’s infrastructure, port and solar energy sectors.

Urban Indian real estate
- With every sixth urban person globally being an Indian, the real estate and construction sector holds significant opportunity for both global and domestic companies engaged across the value chain.
- India will need to construct 43,000 houses every day until 2022 to achieve the vision of Housing for All by 2022. Hundreds of new cities need to be developed over the next decade.
- This has the potential for catapulting India to the third largest construction market globally. The sector is expected to contribute 15 per cent to the Indian economy by 2030.
- The recent policy reforms such as the Real Estate Act, GST and REITs are steps to reduce approval delays and are only going to strengthen the real estate and construction sector.

Source: Media sources, Ministry of Finance, M-SIPS - Modified Special Incentive Package Scheme, EDF – Electronics Development Funds
KEY INDUSTRY ORGANISATIONS
## INDUSTRY ORGANISATIONS

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<tr>
<th>National Highways Authority of India (NHAI)</th>
<th>Airports Authority of India (AAI)</th>
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<td><strong>Address:</strong> Rajiv Gandhi Bhawan, Safdarjung Airport,</td>
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USEFUL INFORMATION
FY: Indian Financial Year (April to March) – So, FY11 implies April 2010 to March 2011
FDI: Foreign Direct Investment
CAGR: Compounded Annual Growth Rate
GOI: Government of India
R&D: Research and Development
JV: Joint Venture
SEZ: Special Economic Zone
BOT: Build-Operate-Transfer
IBEF: Indian Brand Equity Foundation
NHAI: National Highways Authority of India
PPP: Public-Private-Partnership
Wherever applicable, numbers have been rounded off to the nearest whole number
## EXCHANGE RATES

### Exchange Rates (Fiscal Year)

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### Exchange Rates (Calendar Year)

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**Source:** Reserve Bank of India, Average for the year
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