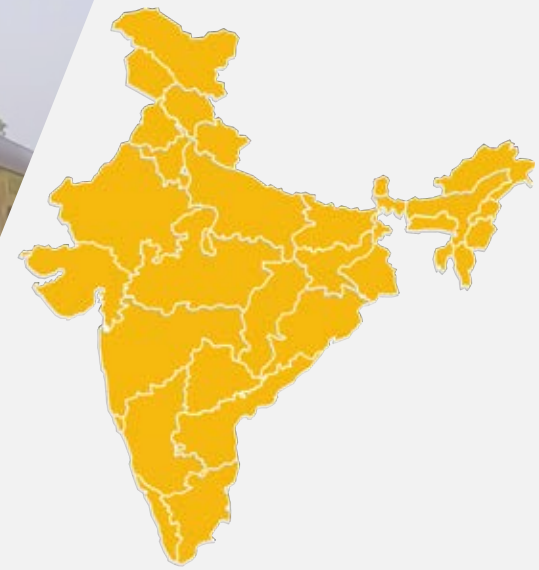




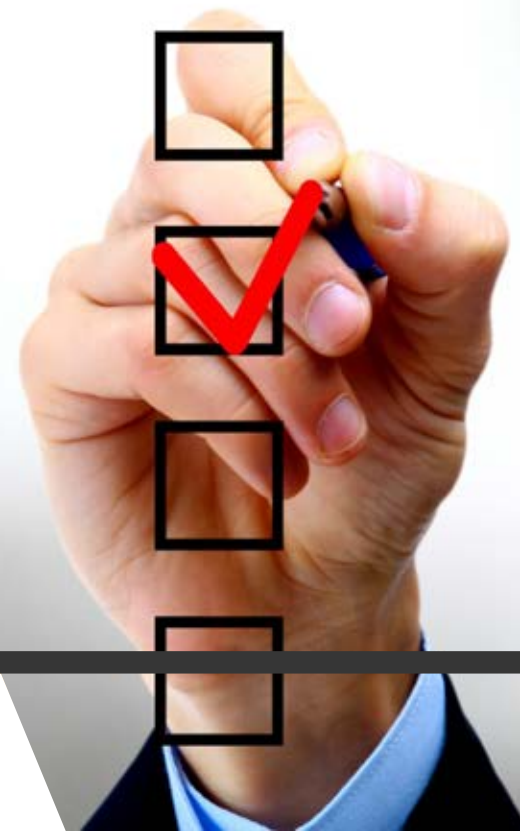
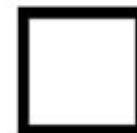
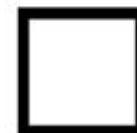
# RAILWAYS



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# EXECUTIVE SUMMARY

## World's 3rd largest rail network

- Indian Railways has 13,452 passenger trains and 9,141 freight trains daily.
- On the commercial front, freight traffic of Indian Railways increased to 1,221.39 million tonnes in FY19. As of November 2019, Freight traffic in FY20 (provisional) stood at to 780.45 million tonnes

## Growing public-private partnership

- Private sector companies are being encouraged to participate in rail projects, which were largely in the public domain. The Cabinet approved 'participative models for rail-connectivity and capacity augmented projects', which allows private ownership of some railway lines
- Launch of Foreign Rail Technology Cooperation Scheme along with revamping of PPP for better results
- The Delhi-Lucknow Tejas Express becomes the first train to be operated by private players.
- India to build its first railway station inside tunnel at a height of 3,000 meters and length of 27 km on Bilaspur-Manali-Leh line in Himachal Pradesh.

## Growth initiatives

- Under the Union Budget 2019-20, the Government of India allocated Ministry of Railways Rs 1,60,176 crore (US\$ 22.91 billion).
- Indian Railways is targeting to triple freight traffic from current 1.2 billion tonnes\* in FY19 to 3.3 billion tonnes by 2030.
- Indian Railways has planned completion of electrification in next 4-5 years, which will lead to energy savings worth Rs 10,000 crore (US\$ 1.55 billion). In July 2019, longest electrified tunnel built between Cherlopalli and Rapuru stations.

## Modernisation/ Technology upgradation

- India Railways as undertaken modernisation of railway stations under the Adarsh station scheme. Out of the total 1,253 railway stations identified under the scheme, over 1,050 railway stations have already been modernised.
- Various technologies such as electronic interlocking at all interlocked Broad Gauge stations, Automatic Train Protection(ATP) system have been introduced by Indian Railways.
- All electric locomotives have been provided with Vigilance Control Devices(VCD) which helps in checking the alertness of Loco Pilots(LPs)
- The government has decided to manufacture only Linke Hoffman Bushce (LHB) type coaches from 2018-19 onwards and decided to adopt HOG system (Head on Generation technology) in all LHB Coaches trains in September, 2019.

*Note: \*Approximate*

*Source: Make in India, Indian Railways, News Articles*

# ADVANTAGE INDIA



## ADVANTAGE INDIA

- Increasing urbanisation and rising incomes (both urban and rural) are driving growth in the passenger segment
- Growing industrialisation across the country has increased freight traffic over the last decade
- India is projected to account for 40 per cent of the total global share of rail activity by 2050.

Growing Demand

- Freight traffic is set to increase significantly due to rising investments and private sector participation
- Metro rail projects are being envisaged across many cities over the next ten years

Attractive Opportunities

- FDI Inflows in railway related components from April 2000 to September 2019 stood at US\$ 1,070.91 million.
- Railway infrastructure investments are expected to increase from US\$ 58.96 billion in 2013-17RE to US\$ 124.13 billion in 2018-22E.^
- As per Union Budget, it is estimated that Railway Infrastructure would need an investment of Rs 50 lakh crores (US\$ 715 billion) between 2018-30.

Higher Investments

- The government has increased the scope of PPP beyond providing maintenance and other such supporting roles. PPP is being utilised in areas such as redevelopment of stations, building private freight terminals and private container train operations.
- Government has allowed 100 per cent FDI in the railway sector

Policy Support

*Note: FDI - Foreign Direct Investment, ^As per CRISIL Infrastructure Yearbook 2017, RE – Revised Estimates, E - Estimate*

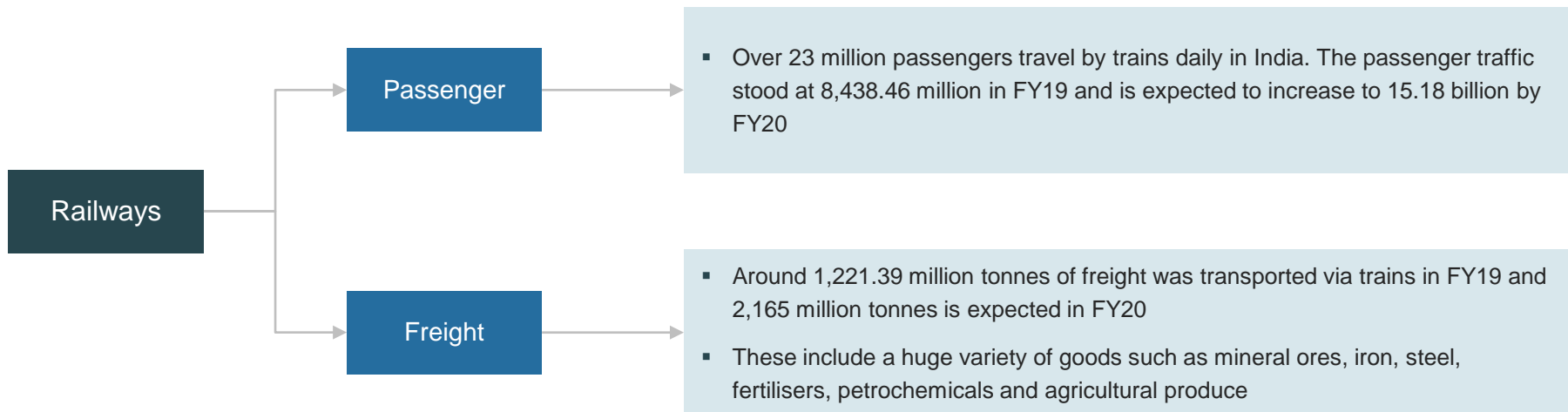
*Source: Railway Budget 2019-20, Press Information Bureau, Department for Promotion of Industry and Internal Trade in source,, The Future of Rail Opportunities for energy report by International Energy Agency*

# MARKET OVERVIEW



# INDIAN RAILWAYS HAS TWO MAJOR SEGMENTS

- Indian Railways (IR) is:
  - A departmental undertaking of the Government of India (GOI), which owns and operates most of India's rail transport
  - Overseen by the Ministry of Railways
- As of 2017-18, IR has a total route network of about 68,442 kms.
- It operates more than 22,300 trains daily
- It has 0.278 million wagons, 71,825 coaches and 11,764 locomotives

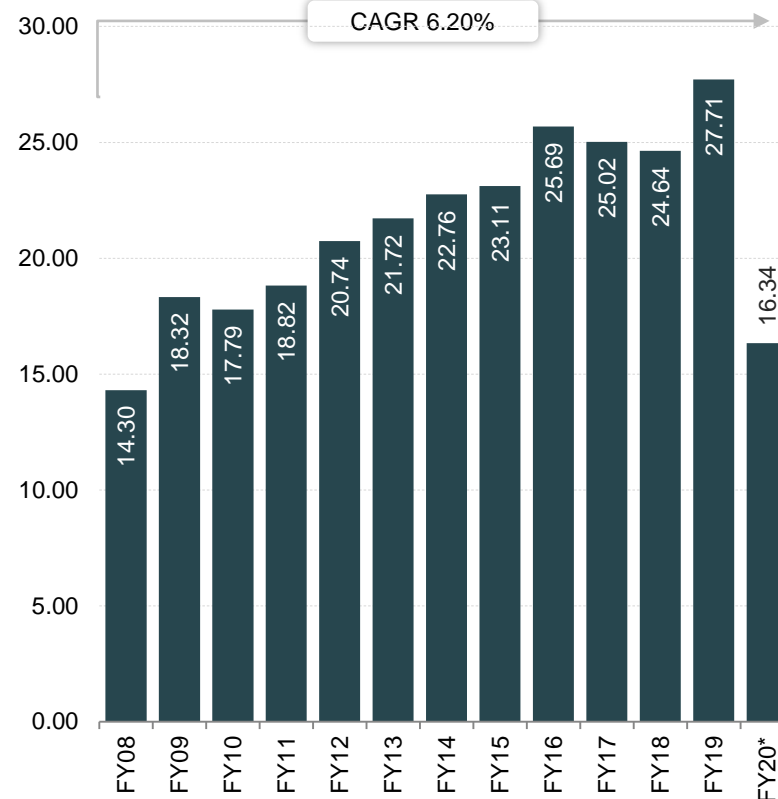


Source: Ministry of Railways, Make In India, Railway Budget 2019-20, Indian Railways Statistical Publications 2019-120

# STRONG REVENUE GROWTH FOR INDIAN RAILWAYS

- Revenue growth has been strong over the years. Indian Railways' revenues increased at a CAGR of 6.20 per cent during FY08-FY19 and reach to US\$ 27.13 billion in FY19. The gross revenue stood at Rs 114,197.94 crore (US\$ 16.34 billion) in FY20P (up to November 2019).
- Revenues from the sector are estimated to reach to US\$ 44.5 billion by the end of FY20
- Indian Railways has undertaken various measures to boost revenues including:
  - Passenger Earnings - introduction of new trains, operation of special trains during peak seasons, running premium special trains with dynamic pricing
  - Freight Earnings – reduction in distance of mini rakes, withdrawal of port congestion charge, rationalisation of Merry-go-Round policy
  - Parcel Earnings – leasing parcel space to private parties, liberalisation of parcel policy
  - Other Earnings – adoption of bulk advertising rights, vinyl wrapping of trains, right of way charges

Gross revenue trends over the years (US\$ billion)



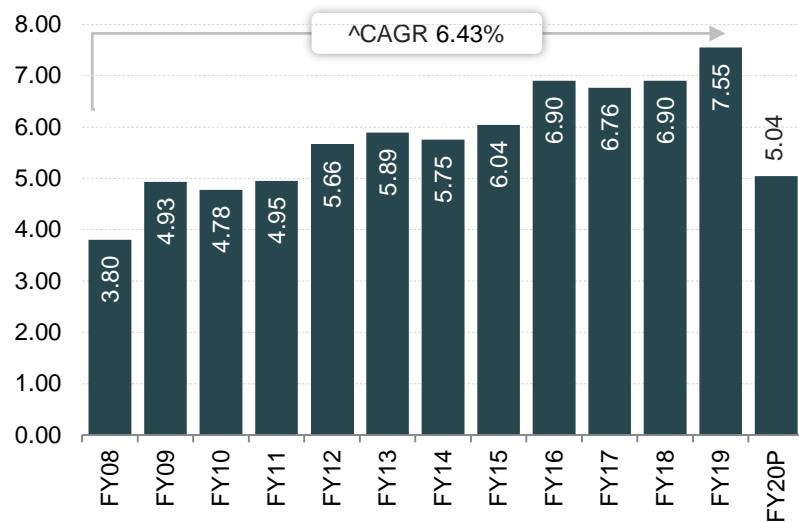
**Note:** CAGR – Compound Annual Growth Rate, E – Estimates, P-Provisional, FY – Indian Financial Year (April–March), \*- till November 2019

**Source:** Ministry of Railways

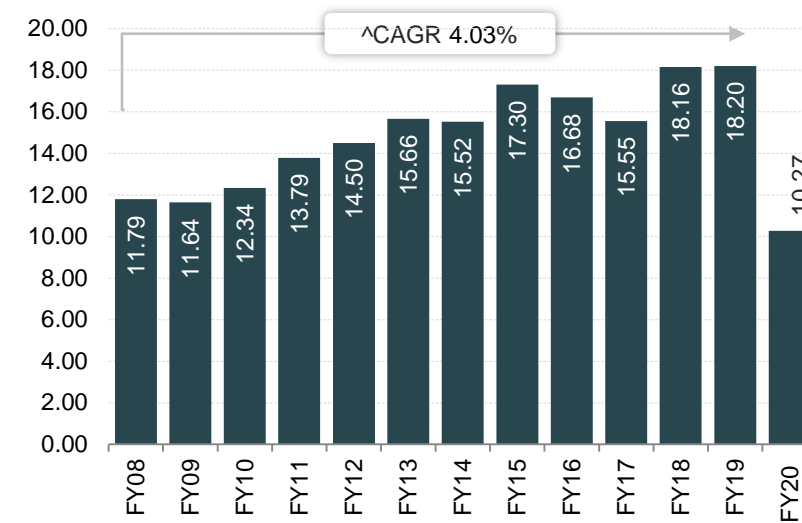


# SEGMENT-WISE REVENUE GROWTH FOR INDIAN RAILWAYS

**Passenger earnings (in US\$ billion) (up to November 2019)**



**Earnings from freight (in US\$ billion) (up to November 2019)**



- Revenues from the passenger segment of Indian Railways have increased at a CAGR of 6.43 per cent to US\$ 7.55 billion in FY19 from US\$ 3.80 billion in FY08. Passenger earnings of Indian Railways is estimated at Rs 35,254.05 crore (US\$ 5.04 billion) in FY20 (up to November 2019).
- Freight earnings of Indian Railways have grown at a CAGR of 4.03 per cent to US\$ 18.20 billion in FY19 from US\$ 11.79 billion in FY08. Freight earnings in FY20 (up to November 2019) stood at Rs 71,800.20 crore (US\$ 10.27 billion).
- Increasing carrying capacity, cost effectiveness, improving quality of service will support the increment in the share of Railway in the freight movement from 35 per cent to 50 per cent by 2020
- With 630 kilometres of metro rail in 13 cities and over two dozen metro projects lined up, India's metro rail network is expanding at a fast pace.

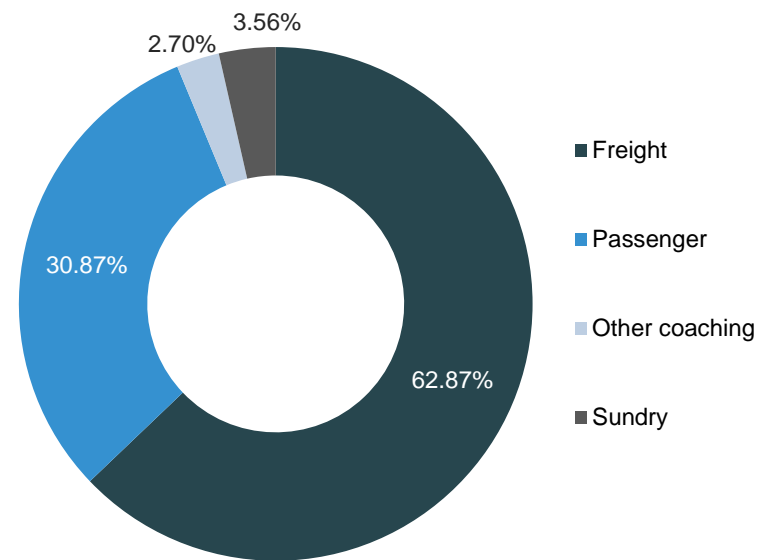
**Notes:** CAGR – Compound Annual Growth Rate, FY–Financial Year, Exchange Rates used are averages of the year, P – Provisional

**Source:** Ministry of Railways

# FREIGHT ACCOUNTS FOR MORE THAN TWO-THIRDS OF RAILWAY'S REVENUES

- Freight business for Indian Railway is supported by 9 commodities: coal, iron, steel, iron ore, food grains, fertilizers, petroleum products etc.
- Indian Railways' freight business has increased by seven times approximately in the last fifty years i.e. from 167.39 million tonnes in 1970-71 to 1159.55 million tonnes in 2017-18.
- Freight remains the major revenue earning segment for the Railways, accounting for 62.87 per cent of total revenues in FY20 (up to November 2019), followed by the passenger segment.
- Profits from the freight segment are used to cross-subsidise the passenger segment.
- Dedicated Freight Corridor Corp. of India Ltd (DFCCIL), is already building the first two freight corridors—Eastern Freight Corridor from Ludhiana to Dankuni (1,856 km) and Western Freight Corridor from Dadri to Jawaharlal Nehru Port (1,504 km)—at a total cost of Rs 81,000 crore (US\$ 11.59 billion).
- Khurja-Bhadan section of eastern corridor in Uttar Pradesh to be formally opened for traffic on October 2, 2019.
- In November 2019, pilot project was launched to study the feasibility of using Railways' parcel service for e-tail players

Revenue break-up by segment (FY20) (up to November 2019)



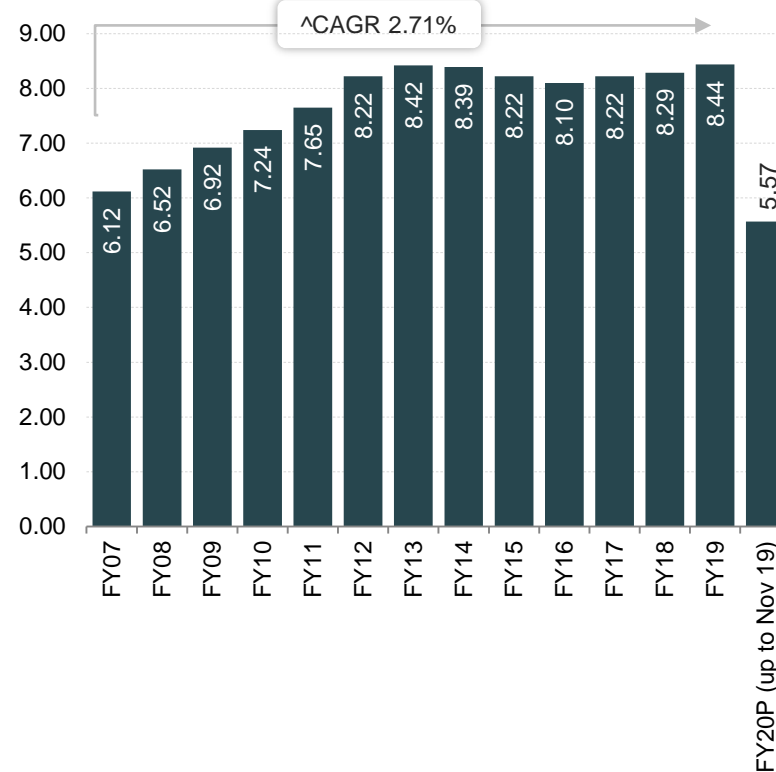
*Note: Other Coaching includes service coaches such as pantry cars, parcel vans, mail vans, etc, \* - Provisional*

*Source: Railway Budget 2019-20, Ministry of Railways*

# PASSENGER VOLUMES WITNESS HEALTHY GROWTH

- Train travel remains the preferred means of long-distance travel for majority of Indians.
- Increase in the demand for passenger trains is supported by urbanisation, improving income standards, etc
- During FY19, passenger traffic in the country increased to 8.44 billion and grew at a CAGR of 2.71 per cent during FY07-19 Passenger traffic was valued at 5.57 billion in FY20P (up to November 2019).
- In May 2018, IRCTC introduced Alternate Train Accommodation Scheme (ATAS) which aims to provide confirmed berths in alternate trains to waitlisted passengers. The scheme is expected to improve the experience of passengers of Indian Railways.

Trends in passenger volumes (in billions)

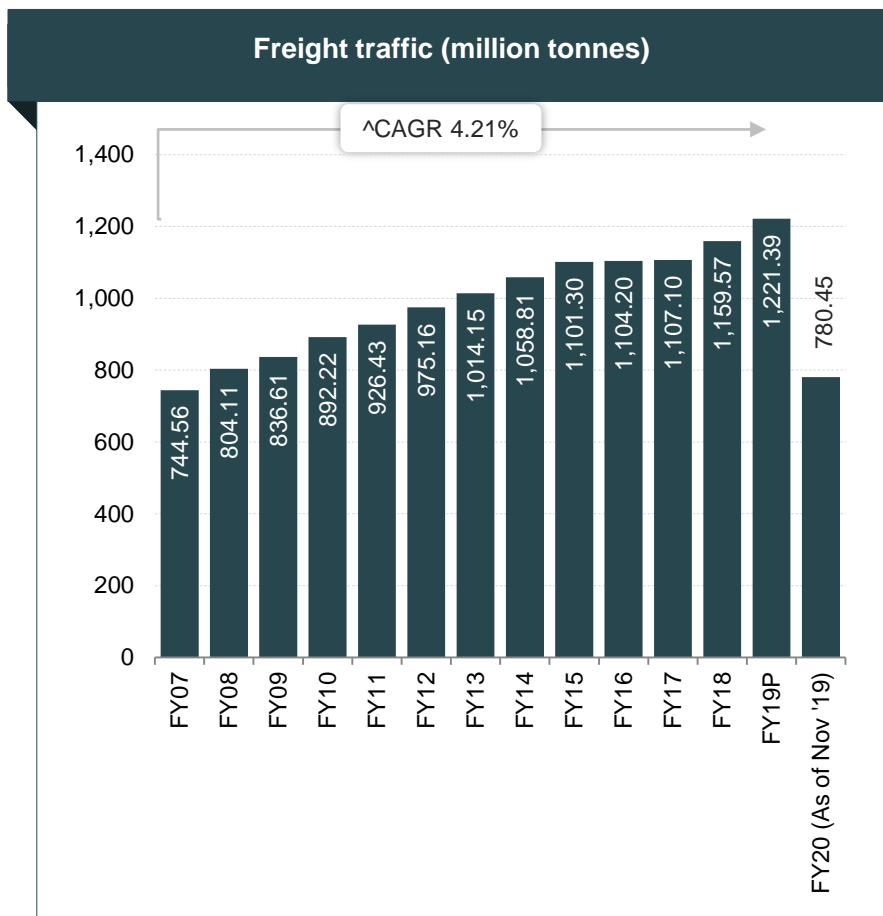


**Note:** CAGR – Compound Annual Growth Rate, E – Estimate, FY – Indian Financial Year (April–March), P – Provisional, ^CAGR is up to FY19

**Source:** Make In India, Ministry of Railways

# STRONG GROWTH IN FREIGHT TRAFFIC

- The government is investing heavily in building rail infrastructure in the country.
- With increasing participation expected from private players, both domestic and foreign, due to favourable policy measures, freight traffic is expected to grow rapidly over the medium to long term
- Freight traffic carried by Indian Railways increased from 744.56 million tonnes in FY07 to 1,221.39 million tonnes in FY19. Freight traffic reached 780.45 million tonnes in FY20 (up to November 2019).
- Indian Railway estimates originating loading for freight business segment would increase to 2,165 MT by FY20.
- Indian Railways has handled 1,175 million tonnes (MT) of freight traffic between April 2018-March 15, 2019 and is on track to surpass its revised target of 1,216 MT for 2018-19.

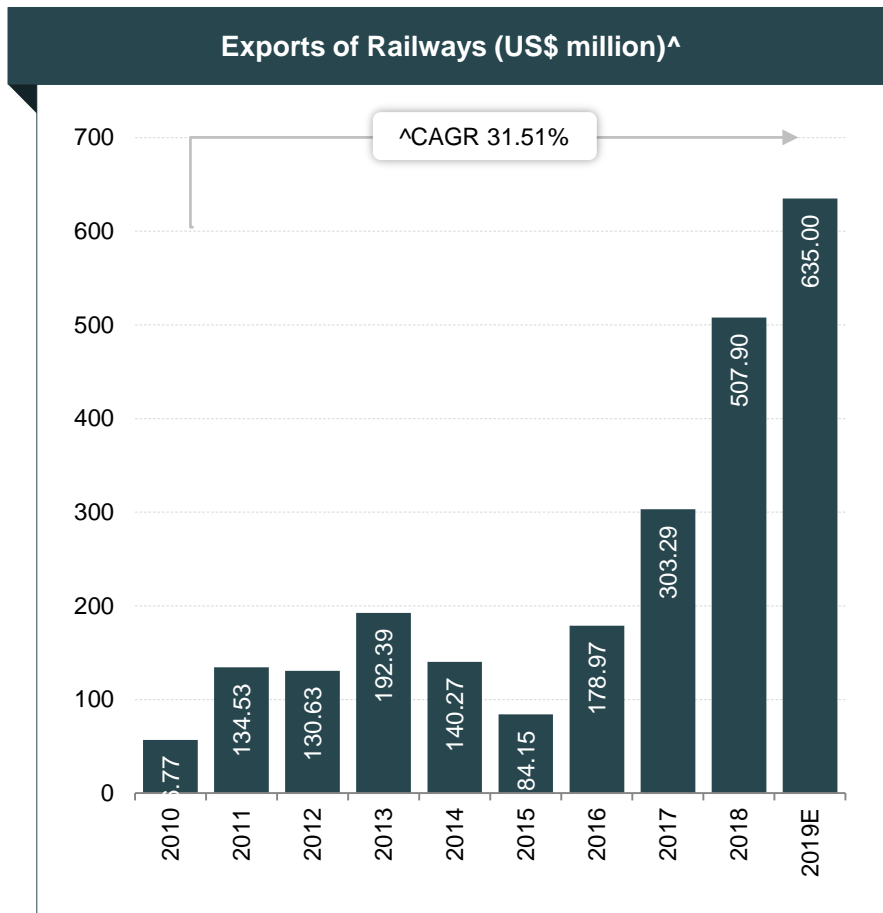


**Note:** CAGR – Compound Annual Growth Rate, E- Estimated F – Forecast, FY – Indian Financial Year (April–March), P – Provisional,, ^CAGR is up to FY19

**Source:** Ministry of Railways, Vision 2020, Press Information Bureau

# RISING EXPORTS OF RAILWAYS SECTOR





- India was among the top 20 exporters of railways globally, as of 2017.
- India's exports of railways have grown at a CAGR of 31.51 per cent during 2010-2018 to US\$ 507.90 million. Exports of railways in 2019E stood at US\$ 635 million.
- The major exporting destinations in 2017 were Australia (US\$ 167.84 million), Myanmar (US\$ 22.27 million) and Bangladesh (US\$ 17.62 million).
- As of November 2018, Indian Railways is planning to come out with a new export policy for railways.
- In 2019, Train 18, Indian Railways' fastest engine-less self-propelled train, gained several queries for export.



**Note:** CAGR – Compound Annual Growth Rate, \*Provisional data for Jan-Nov 2018, ^Exports of Railway, Tramway Locomotives, Rolling Stock, Equipment, Data is the latest available  
**Source:** UN Comtrade, News Articles

# KEY PLAYERS SUPPORTING INDIAN RAILWAYS

## Key organisations supporting Indian Railways

Company	Business description
	<ul style="list-style-type: none"> <li>▪ Navratna PSU under India's Ministry of Railways</li> <li>▪ Carrier, terminal operator and warehouse operator</li> </ul>
	<ul style="list-style-type: none"> <li>▪ SPV set up under the Ministry of Railways</li> <li>▪ Undertakes planning and development; mobilisation of financial resources; construction, maintenance and operation of the Dedicated Freight Corridor (DFC)</li> </ul>
	<ul style="list-style-type: none"> <li>▪ SPV created by the Government of India</li> <li>▪ Builds engineering works required by Indian Railways</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Mini Ratna PSU with one of the largest neutral telecom infrastructure providers in the country</li> <li>▪ Strives to modernise train control operation and safety system of Indian Railways</li> </ul>

**Notes:** PSU – Public Sector Undertaking, DFC – Dedicated Freight Corridor, SPV – Special Purpose Vehicle

**Source:** Relevant Company Annual Reports and websites, Techsci Research

# RECENT TRENDS AND STRATEGIES



# NOTABLE TRENDS IN INDIAN RAILWAYS...(1/2)

Demand for urban transport	<ul style="list-style-type: none"><li>There is a rapid increase in demand for urban mass transportation systems in the country. Several metro rail projects are in progress to improve connectivity within cities.</li><li>The central government inaugurated the Pune Metro Rail project on December 24, 2016. The metro line would have 30 stations and the 1st phase would cover 31.25 km. The project is estimated to be completed by 2021 at a cost of US\$ 1.67 billion. In December 2018, the Prime Minister of India laid the foundation stone for the third phase of the Pune metro. In January 2019, the Department of Economic Affairs (DEA) and the French Development Agency (AFD) have signed a credit facility framework agreement for extending its funding to Rs 20.27 billion (US\$ 280.96 million)</li></ul>
M-ticketing and E-ticketing	<ul style="list-style-type: none"><li>As of July 2018, Indian Railways has decided to start accepting soft copies of documents placed in DigiLocker of customers. In May 2018, IRCTC introduced its mobile android app which can be utilised by IRCTC e-wallet users to book e-rail tickets. In F19, The internet ticketing segment contributed 12.35 per cent to IRCTC's revenue.</li><li>In October 2019, Indian Railway launched One Touch ATVM for fast ticketing at 42 Suburban Stations of Central Railway.</li></ul>
International Investment	<ul style="list-style-type: none"><li>IR has attracted increasing foreign investments through strategic alliances with various countries over the last few years.</li><li>In November 2019, Indian Railways entered into Procurement cum Maintenance Agreement with Madhepura Electric Locomotive Pvt. Ltd. (MELPL), a joint venture of Indian Railways and France-based Alstom to manufacture 800 electric locomotives for freight service and its associated maintenance.</li></ul>
Travel Insurance Scheme	<ul style="list-style-type: none"><li>Railways has rolled out its insurance scheme for passengers, under which they can buy a premium of 1.52 cents while booking a ticket to get an insurance cover of up to US\$ 1.5 thousand.</li></ul>
Semi high-speed trains projects	<ul style="list-style-type: none"><li>IR intends to look for cost effective options to increase speed to 160–200 km per hour on existing routes such as Delhi–Chandigarh and Delhi–Agra.</li><li>In February 2019, the Government of India launched India's first semi-high-speed train called Vande Bharat Express which will run between Delhi and Varanasi and in October 2019, second semi-high-speed train called Delhi-Katra Vande Bharat Express was launched.</li></ul>

Notes: km/h – kilometre per hour

Source: Ministry of Railways, Railway Budget 2019–20, Techsci Research



# NOTABLE TRENDS IN INDIAN RAILWAYS...(2/2)

## Bullet Trains

- Studies are being commissioned for other high speed routes in the diamond quadrilateral
- India is keen on manufacturing and exporting bullet train coaches to possibly bring down the operating cost of Shinkansen trains
- For the upcoming Mumbai-Ahmedabad bullet train project, 24 bullet train sets have been planned to acquire from Japanese companies through tendering process
- Average speed of faster trains will increase from the existing 110 and 130 kmph to 160 and 200 kmph respectively
- The estimated value of the project is US\$ 14.52 billion, which will reduce the duration of the journey by 2 hours. Construction of the corridor is expected to complete by 2023

## High-speed trains projects

- Indian Railways plans to build 7 high-speed rail corridors to provide faster rail connectivity across the country, for high speed train project, at a cost of US\$ 17 billion
- 'Train 20' high speed next generation sleeper class train, which will replace Rajdhani Express, is expected to be rolled out by 2020.
- The Indian Railways has collaborated with the government of Japan for the construction of a high speed passenger train corridor between Ahmedabad and Mumbai. The government has set a target of commencing the train by 2023.

## New Services Launched

- In February 2019, Indian Railways decided to launch food packets with QR codes and give live kitchen feed.
- Around 4,100 km of Railway lines are expected to be commissioned in 2018-19

## Development Investments

- Under the Union Budget 2019-20 the Government of India has allotted Rs 2,200 crore (US\$ 304.92 million) for gauge conversion, Rs 700 crore (US\$ 97.02 million) for doubling of tracks, Rs 6,114.82 crore (US\$ 847.51 million) for rollingstock and Rs 1,750 crore (US\$ 242.55 million) for signalling and telecom.

*Notes: km/h – kilometre per hour*

*Source: Ministry of Railways, Railway Budget 2015–16, Railway Budget 2016–17, Techsci Research*

# STRATEGIES ADOPTED BY INDIAN RAILWAYS

## Revenue-based strategies

- Provision of online rail bookings, hotel reservations and retiring rooms by IRCTC adds to revenues of Indian Railways and are focusing on international tourists and have also produced many tour packages for foreigners
- Indian Railways has set a target of US\$ 5.95 billion revenues from monetising, railways in the next 10 years. By doing so, the railways aims to increase earnings through traditional as well as non-traditional sources and reduce expenditure.

## Turnaround strategies for passenger traffic

- Fare for premium classes were reduced to compete with the airlines, luxury buses and personal transport vehicles
- The length of popular trains was increased from 16–18 coaches to 24–26 coaches
- Private participation is encouraged, and information technology was used to make ticket reservation more feasible to passengers along with an airline-style upgradation from lower class to higher class has been introduced for passengers
- The speed is expected to be raised to 160 kmph on Delhi-Mumbai and Delhi Howrah routes by 2022-23. The passenger trains have got approval to raise 60 per cent increase in average speed.
- Rajdhani train journeys will become fully overnight.

## Turnaround strategies for freight traffic

- Axle load was increased from 20.3 tonnes to 22.9 tonnes and 25 tonnes for selected routes and freight discounts can customers offering high tariffs
- The average speed of freight trains would increase to 50 km/h and Mail/Express trains to 80 km/h by the end of 2020
- Freight rates on cement, coal, urea, kerosene, LPG and food grain and pulses have been hiked by upto 10 per cent to bring an additional revenue of US\$ 655.1 million per year

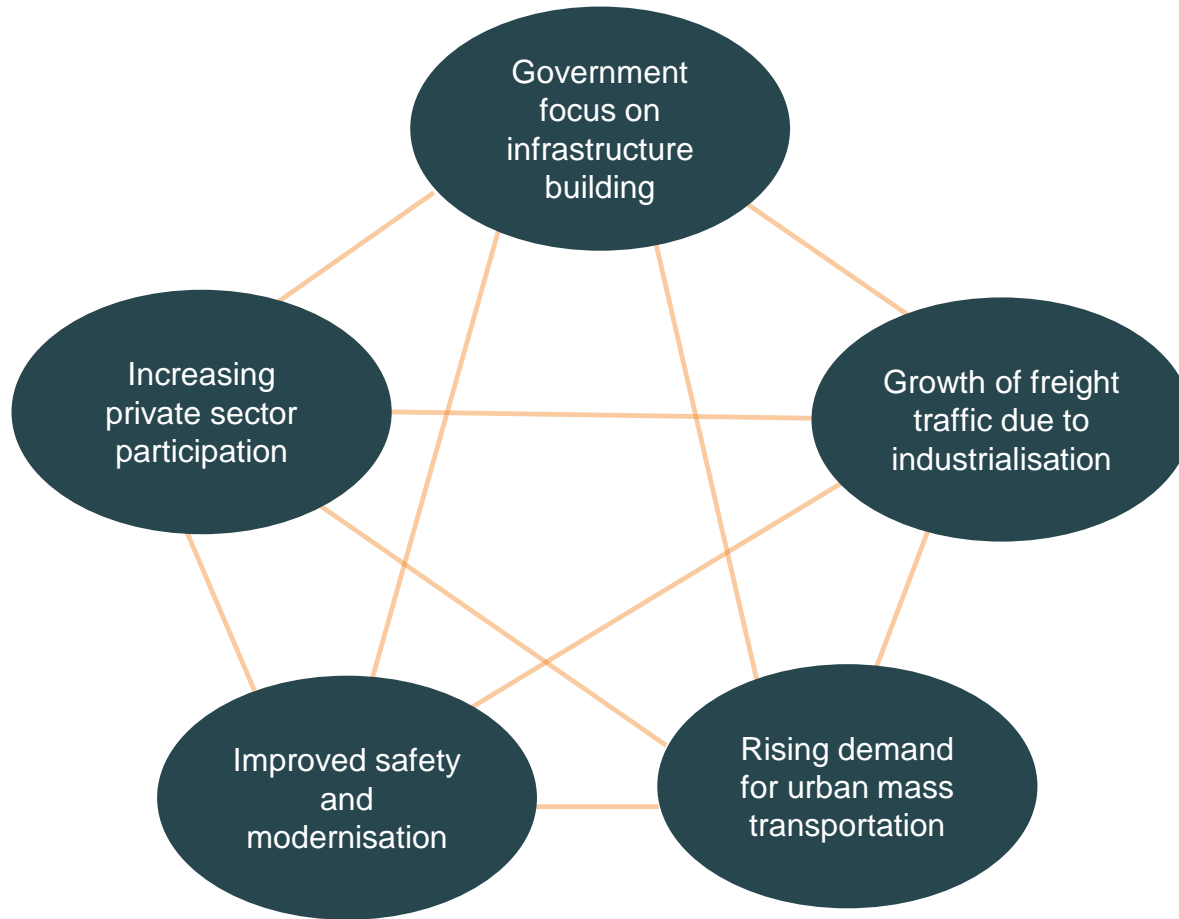
*Notes: IRCTC – Indian Railway Catering and Tourism Corporation*

*Source: Ministry of Finance, Railway Budget 2019-20, Techsci Research, News articles*

# GROWTH DRIVERS AND OPPORTUNITIES

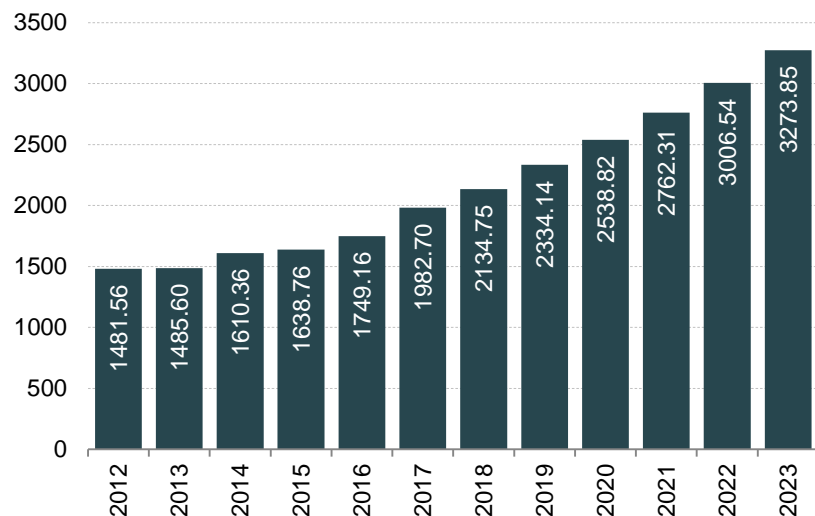


# STRONG DEMAND AND POLICY SUPPORT DRIVING INVESTMENTS

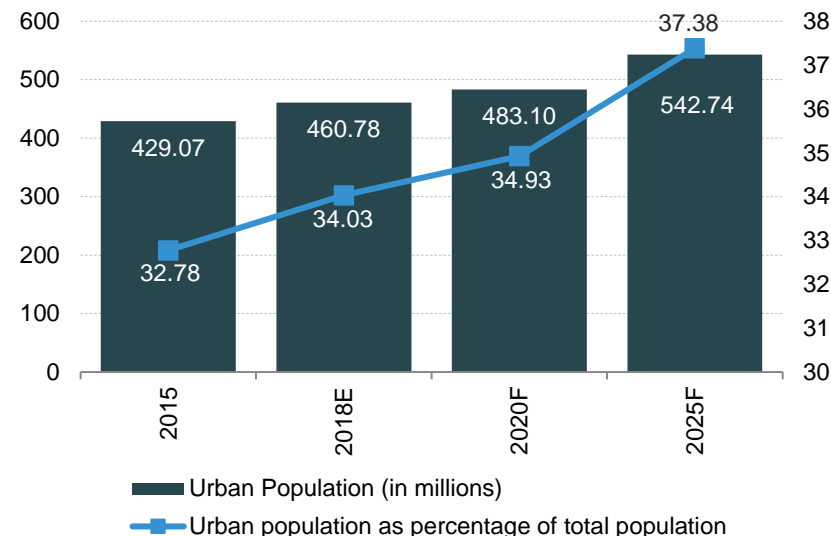


# RISING INCOME AND URBANISATION DRIVING PASSENGER TRAFFIC GROWTH

**GDP per capita at current prices (US\$) (estimate after 2013)**



**Urbanisation in India<sup>^</sup>**



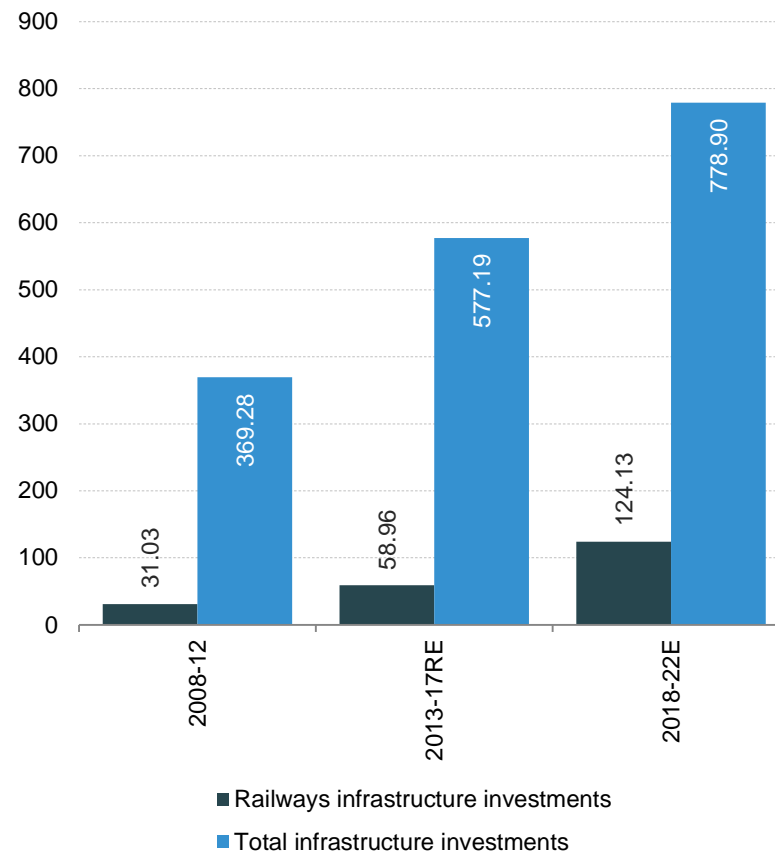
- Increasing incomes in urban and rural areas have made rail travel affordable to a large number of Indians.
- Improvement of urban-rural connectivity has been another major contributor to the growth of Railways industry in the country.
- Population residing in urban areas is expected to increase from 460.78 million<sup>^</sup> in 2018E to 542.74 million<sup>^</sup> in 2025F. The percentage of India's total population residing in urban areas is expected to increase from 34.03 per cent<sup>^</sup> in 2018E to 37.38 per cent<sup>^</sup> in 2025F.

**Note:** <sup>^</sup>data relates to mid-year, E – Estimate, F – Forecast, urbanisation data is expected to be updated from World Urbanization Prospects 2019

**Source:** Ministry of Railways, IMF World Economic Outlook April 2018, United Nations World Urbanisation Prospects 2018

- It is estimated that India will require US\$ 4.5 trillion of infrastructure investments by 2040 to enhance economic growth and community well being.
- Government of India allocated around Rs 4.56 lakh crore (US\$ 63.20 billion) for infrastructure in Budget 2019-20, realising the need for investments in the sector.
- Railways sector, one of the 34 infrastructure sub-sectors, is expected to get a boost as a result of the government’s initiatives.
- Railways infrastructure plans to invest Rs 50 lakh crore (US\$ 715.41 billion) by 2030.
- In November 2019, National Green Tribunal (NGT) has ordered to develop at least 5 per cent of major stations as Eco-smart stations.
- In July 2019, Longest electrified tunnel built between Cherlopalli and Rapuru stations.
- Mumbai Metro Rail Corporation Limited (MMRCL) has completed 45 per cent of tunnelling work for the Metro-3 corridor (Colaba-Bandra-SEEPZ) till the end of March 2019.
- As per Union Budget 2019-20, Ministry of Railways have been allocated Rs 94,071 crore (US\$ 14.11 billion) in 2019-20.
- The government has suggested the investment of Rs 5,00,000 crore (US\$ 750 billion) in Budget 2019-20 for railways infrastructure between 2018-30.

**Infrastructure Investments (US\$ billion)**



Notes: RE – Revised Estimates, E- Estimate

Source: CRISIL Infrastructure Yearbook 2017, Economic Survey 2017-18, Railway Book

- In December 2012, the Cabinet approved the new policy of 'participative models for rail-connectivity and capacity augmented projects'. The policy addressed the issues of ownership of the railway line and repayment of investment
- Since the launch of the policy, railway authorities have received various proposals from private investors and have already given approval (can now acquire land and begin construction) for four port connectivity projects, to ease congestion
- Areas proposed for private investment during this period would include elevated rail corridor in Mumbai, some parts of dedicated freight corridor, freight terminals, redevelopment of stations and power generation/energy saving projects
- Other measures taken/proposed include:
  - Setting up of a modern signalling equipment facility at Chandigarh through the PPP route
  - Construction of new lines – Bhupdeopur-Raigarh (Mand Colliery) and Gevra Road-Pendara Road – and doubling of Palanpur-Samakhiali section through the PPP route
  - Setting up of 2 locomotive plants through PPP route is crucial for the development of infrastructure sector
  - Setting up of Joint Ventures with major public sector customers for fulfilling the requirements of new lines
- Ministry of Railways has jointly set up factories with Alstom and General Electric (GE) at Madhepura and Marhowra to manufacture 800 electric locomotives and 1000 diesel locomotives. The ministry has 26 per cent stake in both the Joint Ventures (JVs). In addition to manufacturing of locomotives, the companies will also have to undertake maintenance of the first 500 units by setting up manufacturing facilities by establishing maintenance facilities at Saharanpur, Nagpur, Roza and Gandhidham. In March 2018, Alstom completed production of the first all-electric locomotive at the manufacturing facility in Madhepura, Bihar.
- As per Union Budget 2019-20, government enhance the metro railway initiatives by encouraging more Purchasing Power Parities (PPP) initiatives and ensuring completion of sanctioned works, while supporting Transit Oriented Development (TOD) to ensure commercial activity around transit hubs.
- As per Union Budget 2019-20, Purchasing Power Parities (PPP) projects investment of Rs 50 trillion (US\$ 750 billion) in railways by 2030.

*Notes: PPP – Public Private Partnership; MUTP-III: Mumbai Urban Transport Project-III*

*Source: Ministry of Railways, Make in India, Techsci Research*

To modernise Indian Railways, the focus is on 2 fundamental drivers, Safety and Growth and along with a 5-pronged strategy:

- Modernise core assets – They are key revenue generating assets
- Explore new revenue models – To meet the funding needs for modernisation and growth
- Review projects – To ensure financial viability, social benefits and timely implementation
- Focus on enablers – For a holistic and long-term approach to modernisation and execution
- Mobilise resources – To capitalise on an opportunity

Information Technology – To improve operational efficiency

## Key focus areas

Core assets	Track and bridges	Signalling	Rolling stock	Stations and terminals
Revenue models	PPPs	Land	Dedicated freight corridors	High-speed trains
Projects	Review of existing and proposed projects			
Enablers	ICT	Indigenous development	Safety	
Resources	Funding	Human resource	Organisation	

*Note: ICT – Information and Communication Technology, PPP – Public Private Partnership*

*Source: :Ministry of Railways, Techsci Research*



### Track upgradation and welded rails

- Sleepers have been upgraded from wooden, steel and CST-9 to PSC sleepers
- Heavier section and high tensile strength rails are being used (52 kg/60 kg 90 UTS rails are being used in place of 90 R/52 kg 72 UTS rails)
- Under Union Budget 2019-20, 36,000 km rail track is being targeted for renewal.
- Replacing analogue type machines with digital type machines and promotion of better and improved welding techniques

### Adarsh Scheme

- Adarsh Station Scheme was started in 2009-10 for development/modernisation of railway stations.
- As of June 2019, 1,253 stations were identified under the scheme of which 1,103 stations have been developed as per norms.
- The total allocation for the scheme has increased from Rs 1,470.79 crore (US\$ 228.21 million) in 2017-18 to Rs 1,657 crore (US\$ 236.23 million).
- The Moula-Ali station has been developed under Adarsh Station Scheme at a cost of Rs 3.5 crore (US\$ 0.49 million).

### Increasing operational efficiency

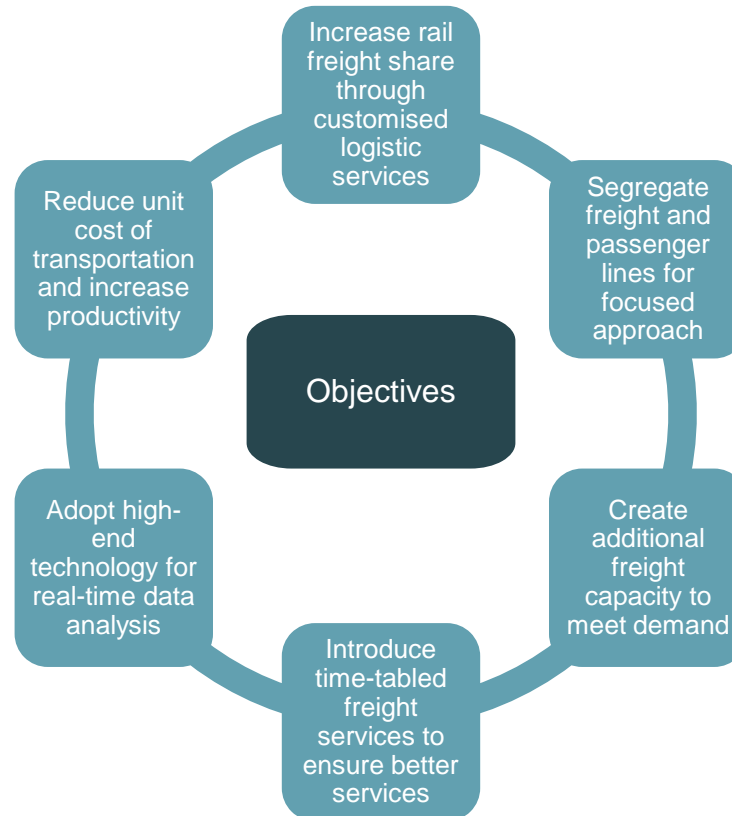
- Design and development of 5500 HP WDG5 diesel locomotive for faster, longer and heavier trains
- Development of high-sensitivity thermal imaging camera with online scanning facility to improve the reliability of electric traction system
- Development of 25 KV HV connector for multiple operation of WAP5 locomotives with 1 pantograph in raised condition

### Unreserved Ticketing Services (UTS)

- UTS was made functional at 5,778 locations with 10,760 terminals. Currently, 90 per cent of unreserved tickets are now generated through UTS. The app received 10,62,560 new users till January 2019.
- By June 2019, 3.87 lakh passengers have purchased the unreserved tickets through online application.
- The Indian Railways have introduced a mobile app "utsonmobile" in Chennai which would allow the passengers a paperless ticketing system and have considered to extend the services in all metros

*Note: Km – Kilometres, IR – Indian Railways, UTS – Ultimate Tensile Strength, CST9 – Central Standard Trial-9, PSC – Pre Stressed Concrete*

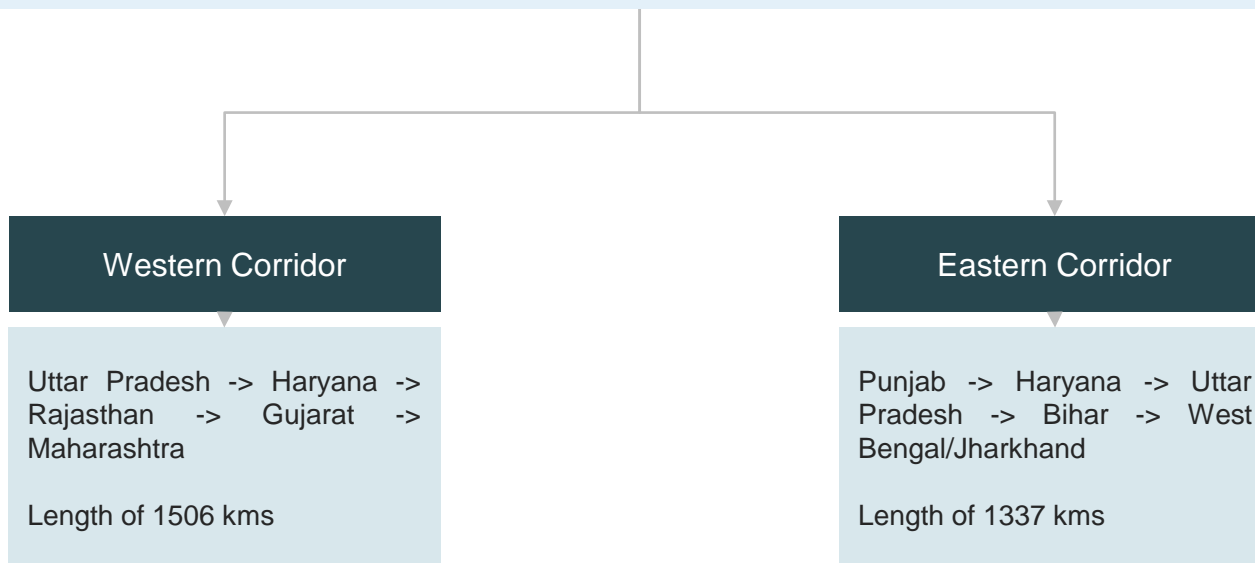
*Source: Ministry of Railways, Techsci Research*



*Note: Ministry of Railways, Techsci Research*

# DEDICATED FREIGHT CORRIDOR ... (2/3)

- DFCCIL, a special purpose vehicle, was set up for implementing the DFC project under the administrative control of the Ministry of Railways
- The plan is to construct dedicated freight lines along the Eastern (1856 km route length) and Western (1504 km route length) parts of India
- Total length: 2,8243 kms; total estimated cost: US\$ 11.66 billion as on September 2019; of which financial progress stands at 63.6 per cent and physical progress of the project is 67.5 per cent.
- World Bank granted loan of US\$ 1,100 million for EDFC-2 and have sanctioned a loan of US\$ 650 million for EDFC-3 in October, 2016



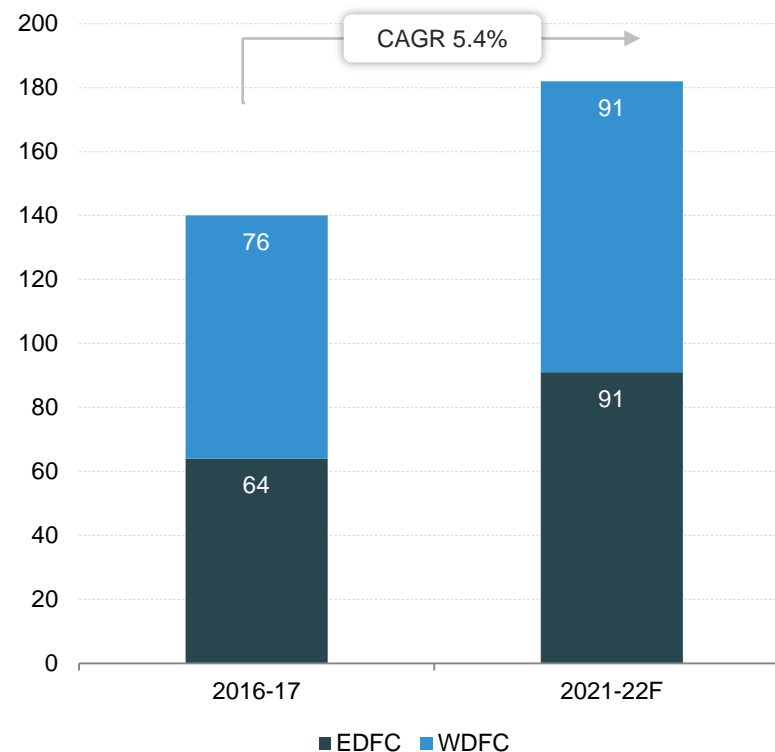
*Note: DFC – Dedicated Freight Corridor, DFCCIL – Dedicated Freight Corridor, Corporation of India Limited, JV – Joint Venture, EDFC – Eastern Dedicated Freight Corridor*

*Source: Ministry of Railways, Techsci Research*

# DEDICATED FREIGHT CORRIDOR ... (3/3)

- Freight traffic via DFC would increase at a CAGR of 5.4 per cent to 182 MT in 2021–22 from 140 MT in 2016–17
- Container traffic would probably be an important constituent of the WDFC and is expected to grow to 5.3 million TEUs in 2021–22 from 3.8 million TEUs in 2016–17
- According to the operational strategy as mentioned in the Vision 2020, dedicated freight corridors and speed raising projects would be completed in time bound manner
- By 2020, 30,000 km of route would be double/multiple lines.
- In August 2018, a 190 km stretch of the Western Dedicated Freight Corridor, between Ateli, Haryana and Phulera, Rajasthan, commenced operations.
- Further, in November 2018, a 194 km section between Bhadan and Khurja in Uttar Pradesh was completed and a trial run was conducted.
- The Bhaupur and Khurja section of the Eastern Dedicated Freight Corridor (EDFC) in Uttar Pradesh (UP) is expected to open by November 2019.

Freight traffic projections on DFC (in MT)



**Note:** CAGR – Compound Annual Growth Rate, DFC – Dedicated Freight Corridor, EDFC – Eastern Dedicated Freight Corridor, WDFC – Western Dedicated Freight Corridor, MT – Million Tonnes, F - Forecast

## Foreign Direct Investment

- 100 per cent FDI under automatic route is permitted for approved list of projects

## Automobile Freight Train Operator Scheme 2013

- To increase its share in automobiles transportation, Indian Railways notified a new scheme in March 2013, Automobile Freight Train Operator. The scheme provides logistic service providers and road transporters an opportunity to introduce their own special wagons to run on the railways' network and avail of freight rebates in return. The requirements for the scheme are laid down as under:
  - Companies with minimum net worth of US\$ 3.7 million or annual turnover of US\$ 5.5 million are eligible to participate in this scheme
  - A registration fee of US\$ 0.9 million is required to be paid to the Railway Ministry on approval as AFTOs
  - Companies are required to introduce at least 3 rakes and make them operational within 6 months from the commissioning of the 1st rake
  - The freight rates would be notified from time to time for specific stock to be moved by AFTOs
  - The freight rebate would be incorporated in the freight rates specified for transport of automobiles
  - Special wagons would be designed and developed by Research, Design and Standards Organisation (RDSO) for induction by 3rd party logistics providers and road transporters
  - Each rake is to have a capacity to carry 318 small cars. The rake should be tested by RDSO
- Railways was the preferred carrier of automobiles in the country with loading from automobiles traffic growing 16 per cent in 2017-18
- To make the policy more effective, Ministry of Railways liberalised the AFTO policy by reducing registration fees from Rs 5 crore (US\$ 0.78 million) to Rs 3 crore (US\$ 0.47 million). Also, the requirement of minimum procurement of at least 3 rakes under the scheme has been relaxed to 1 rake.

Source: Times of India, Ministry of Railways, Techsci Research

<p>R3i policy</p>	<ul style="list-style-type: none"> <li>▪ The policy aims to attract private sector participation in rail connectivity projects to create additional rail transport capacity</li> <li>▪ The policy allows for 4 models: (a) Cost Sharing-Freight Rebate (b) Full Contribution- Apportioned Earnings (c) Special Purpose Vehicle (SPV) and (d) Private Line</li> </ul>
<p>R2CI</p>	<ul style="list-style-type: none"> <li>▪ This new policy was initiated to improve rail connectivity to coal and iron ore mines</li> <li>▪ The policy offers the developer involved in the construction of the line to levy a surcharge on the freight over a period of 10–25 years</li> <li>▪ The policy has two models: Capital Cost and SPV Models. The Capital Cost Model is relevant when there are 2 players, whereas the SPV Model is intended for a large number of players</li> </ul>
<p>Public Private Partnership (PPP)</p>	<ul style="list-style-type: none"> <li>▪ Connectivity to the major ports through PPP funding</li> <li>▪ Approval has been granted for 7 ports amounting to US\$ 0.7 billion</li> <li>▪ Development of the major stations to equip them with international level of amenities and services</li> </ul>
<p>Wagon investment scheme</p>	<ul style="list-style-type: none"> <li>▪ Indian Railways launched the Wagon Investment Scheme in 2005 to offer freight rebates and supply a guaranteed number of rakes for a period of 7 to 15 years for different types of wagons</li> <li>▪ The Ministry of Railways proposed to set up 5 wagon factories in Secunderabad, Bardhaman, Bhubaneswar/Kalahandi, Guwahati and Haldia under the JV/PPP model.</li> <li>▪ Till May 2019, 77 general-purpose rakes have been approved by the IR under the GPWIS policy for multiple private investors, while two rakes are already operational in the East Coast Zone</li> <li>▪ Approval for 4 new BLC and 2 BTAP rakes have been granted and 12 rakes of BLC wagons were procured in FY16.</li> </ul>

**Note:** R3i – Railways' Infrastructure for Industry Initiative, SPV – Special Purpose Vehicle, R2CI – Railways Policy for Connectivity to Coal and Iron Ore Mines

**Source:** Ministry of Railways, Make in India website, Techsci Research

## Railways announcements

- Under Union Budget 2019-20, the Government of India allocated Rs 64,587 crore (US\$ 8.95 billion) as capital support for Indian Railways.
- For passenger safety, a Rashtriya Rail Sanraksha Kosh will be created with a corpus of Rs 1 lakh crore (US\$ 15.61 billion) over a period of 5 years. It is proposed to feed about 7,000 stations with solar power in the medium term.
- By 2024, Indian railways will be run completely on electricity.
- The Government of India is going to come up with a 'National Rail Plan' which will enable the country to integrate its rail network with other modes of transport and develop a multi-modal transportation network.
- A new Metro Rail Policy will be announced with focus on innovative models of implementation and financing, as well as standardisation and indigenisation of hardware and software.
- By 2019, all coaches of Indian Railways will be fitted with bio toilets. In the next 3 years, the throughput is proposed to be enhanced by 10 per cent.
- 500 stations will be made differently abled friendly by providing lifts and escalators.

## Participative models for rail connectivity and capacity augmented projects

- This policy supersedes the R3i and R2CI policies notified earlier
- The policy provides for supplementing government's investment in rail infrastructure projects by private capital flows
- The policy contains the following models: non-government railway; JV with equity participation by railways; capacity augmentation through funding by customers; capacity augmentation – annuity model applicability; and BOT
- A few projects undertaken under the participative policy of Ministry of Railways include Jaigarh Port-Digni Port, Hamarpur-Rewas Port, Chiplun-Karad, Vaibhavwadi-Kolhapur and Indore-Mammad.

*Note: kms – Kilometers*

*Source: Ministry of Railways, Railway Budget 2015-16, Press Information Bureau, Techsci Research*

## Key modernisation initiatives

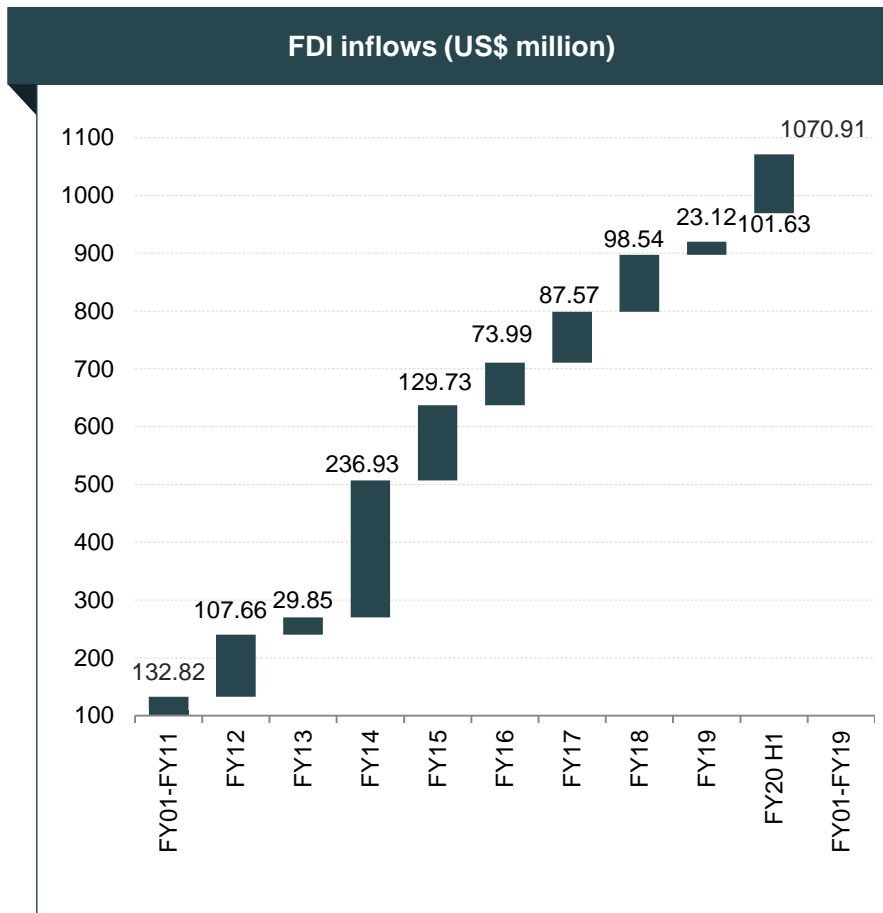
- Government of India has preponed its target of install bio-toilets in the entire fleet of coaches by 2019. As of March 2018, bio-toilets have been installed in around 60 per cent of all passenger-carrying coaches of Indian Railways.
- Introduced 'Operation 5 minutes' scheme for passengers travelling unreserved, which provides the passengers the time to purchase tickets within 5 minutes
- Introducing 24/7 All – India helpline number through which passengers could address their problems on a real – time basis. Toll free number, 138 has been launched as 24/7 All-India helpline number and availability of Toll - free number, 182, for security related complaints
- In an initiative to decarbonize rail transport, Indian Railways will be collaborating with various public sector enterprises to speed up the process of electrification of railway tracks. Electrification of 6,000 km of routes has been planned for 2018-19. A total of 1,106 RKM has been electrified across the entire Indian Railways network.
- In December 2018, Central Railway's Nagpur division has developed an Artificial Intelligence (AI) robot named USTAAD (Undergear Surveillance Through Artificial Intelligence Assisted Droid) to eliminate human error.
- In February 2019, Government of India launched Rail Drishti Dashboard to Promote Transparency and Accountability. It brings information from various sources on a single platform and gives access to key statistics and parameters to every citizen of the country.
- In October 2019, Indian Railways launched 09 'Sewa Service' Trains to connect smaller towns around major cities
- In October 2019, RailTel completed Phase-I Execution of NIC e-office for Indian Railways where 58 units are using e-office for paperless work.

*Source: Ministry of Railways, Railway Budget 201 – 16, News Articles; Press Information Bureau, Techsci Research*



# INCREASING FDI INFLOWS

- From April 2000 to September 2019, FDI in Railways related components industry stood at US\$ 1,070.91 million.



*Note: FDI – Foreign Direct Investment, Q1- April-June 2019*

*Source: : Department for Promotion of Industry and Internal Trade in source*

# INDUSTRY ASSOCIATIONS



## Indian Railways

Address: Rail Bhavan, Raisina Road  
New Delhi-110001  
Tel: 91 11 23411173  
Website: [www.indianrail.gov.in](http://www.indianrail.gov.in)

# USEFUL INFORMATION



- CAGR: Compound Annual Growth Rate
- FDI: Foreign Direct Investment
- FY: Indian Financial Year (April–March)
- FY12 implies April 2011 to March 2012
- DFC: Dedicated Freight Corridor
- DFCCIL: Dedicated Freight Corridor Corporation of India Limited
- PPP: Public-Private Partnership
- IIP: Index of Industrial Production
- R2CI: Railways Policy for Connectivity to Coal and Iron Ore Mines
- R3i: Railways' Infrastructure for Industry Initiative
- CST – 9: Central Standard Trial-9,
- SPV: Special Purpose Vehicle
- US\$ : US Dollar
- Wherever applicable, numbers have been rounded off to the nearest whole number

# EXCHANGE RATES

## Exchange Rates (Fiscal Year)

Year INR	INR Equivalent of one US\$
2004-05	44.95
2005-06	44.28
2006-07	45.29
2007-08	40.24
2008-09	45.91
2009-10	47.42
2010-11	45.58
2011-12	47.95
2012-13	54.45
2013-14	60.50
2014-15	61.15
2015-16	65.46
2016-17	67.09
2017-18	64.45
2018-19	69.89

## Exchange Rates (Calendar Year)

Year	INR Equivalent of one US\$
2005	44.11
2006	45.33
2007	41.29
2008	43.42
2009	48.35
2010	45.74
2011	46.67
2012	53.49
2013	58.63
2014	61.03
2015	64.15
2016	67.21
2017	65.12
2018	68.36

Source: Reserve Bank of India, Average for the year

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