

RAILWAYS



March 2024

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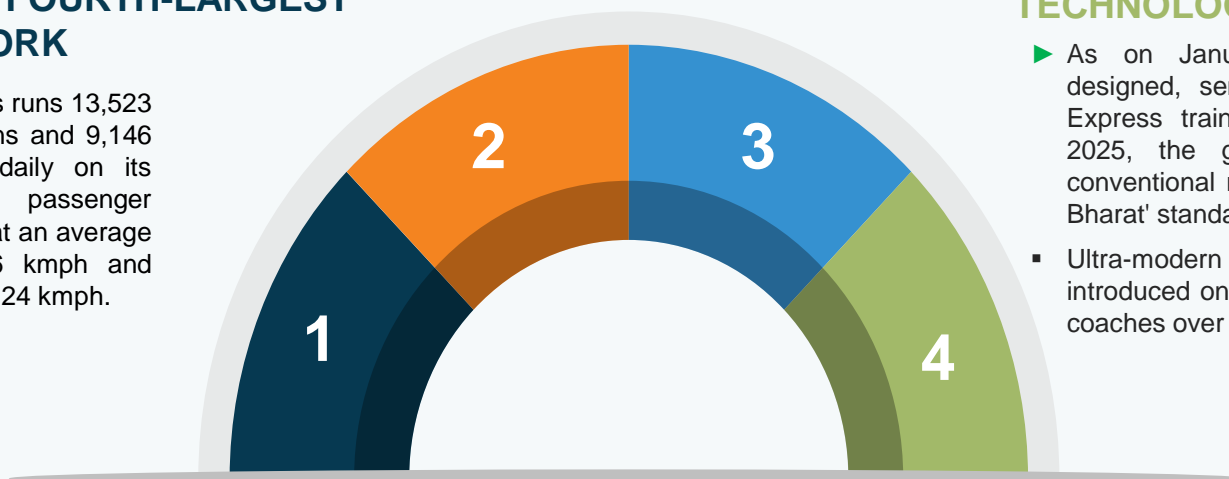
Executive summary

2. GROWING PUBLIC-PRIVATE PARTNERSHIP (PPP)

- Indian Railways is exploring a new public-private partnership (PPP) model to attract private investment to re-develop railway stations.
- Under this model, investors would receive up to 40% of the total project cost as viability-gap funding (VGF) and be allowed to use the space above platforms and tracks commercially.
- Under the hybrid PPP model, bids will be chosen based on the quantum of VGF support required by the private investor. The private developer will be allowed to develop air space to generate additional revenue through commercial activities, including the lease of office space, development of entertainment and recreational facilities, hospitality services, malls and even healthcare facilities.

1. WORLD'S FOURTH-LARGEST RAIL NETWORK

- Indian Railways runs 13,523 passenger trains and 9,146 freight trains daily on its network with passenger trains running at an average speed of 50.6 kmph and freight trains at 24 kmph.



3. GROWTH INITIATIVES

- Under the Interim Budget 2024-25, the government allocated US\$ 30.3 billion (Rs. 2.52 lakh crore) to the Ministry of Railways.
- In 2024-25 Indian railways is planning to Create three important railway routes for moving energy, minerals, and cement efficiently; connecting ports better; and improving busy traffic routes.
- The Bairabi-Sairang project aims to create an additional 51.38 km of railway track in northeast India.
- Indian Railways launched a new tourism product i.e. theme based tourist circuit train -'Bharat Gaurav' to showcase India's rich cultural heritage and magnificent historical places.
- In Union Budget 2022-23, the One Station One Product scheme was announced which is aimed to provide opportunities for enhanced livelihood through skill development to local artisans, potters, weavers/handloom weavers, craftsmen etc., through the provision of sale outlets at Railway Stations across India.

4. MODERNISATION/ TECHNOLOGY UPGRADATION

- ▶ As on January 2023, 41 indigenously designed, semi-high speed Vande Bharat Express trains are in operation In 2024-2025, the goal is to upgrade 40,000 conventional rail bogies to meet the 'Vande Bharat' standards.
- Ultra-modern Tejas trains have been introduced on the LHB platform with sleeper coaches over Indian Railways.



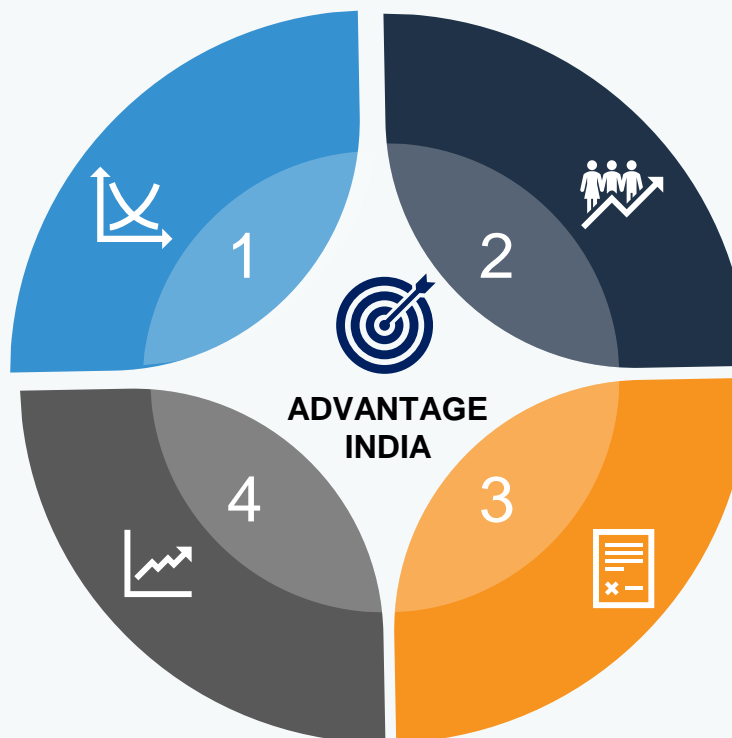
Advantage India

1. Growing demand

- ▶ The government announced 5,000 km of Metro rail network by 2047 in 100 cities.
- ▶ Vision 2024 has been envisaged to achieve targets of 2024 MT freight loading by 2024.
- ▶ In 2024-2025, the goal is to upgrade 40,000 conventional rail bogies to meet the 'Vande Bharat' standards.
- ▶ In 2023-24, traffic revenue is estimated to be Rs. 2,64,600 crore (US\$ 32.18 billion), comprising 99.8% of the total revenue.

4. Higher investment

- ▶ Foreign Direct Investment (FDI) inflows in railway-related components stood at US\$ 1.40 billion from April -December 2023.
- ▶ The government has laid an ambitious target to allocate US\$ 1.4 trillion between 2019 and 2023, including investment to the tune of US\$ 750 billion on the railway infrastructure by 2030.



2. Opportunities

- ▶ In FY 23 One Station One Product scheme was launched to provide opportunities for enhanced livelihood through skill development through provision of sale outlets at railway stations across India.
- ▶ Station redevelopment project will boost the passenger experience, generate new employment opportunities and have a multiplier effect on India's economy.

3. Policy support

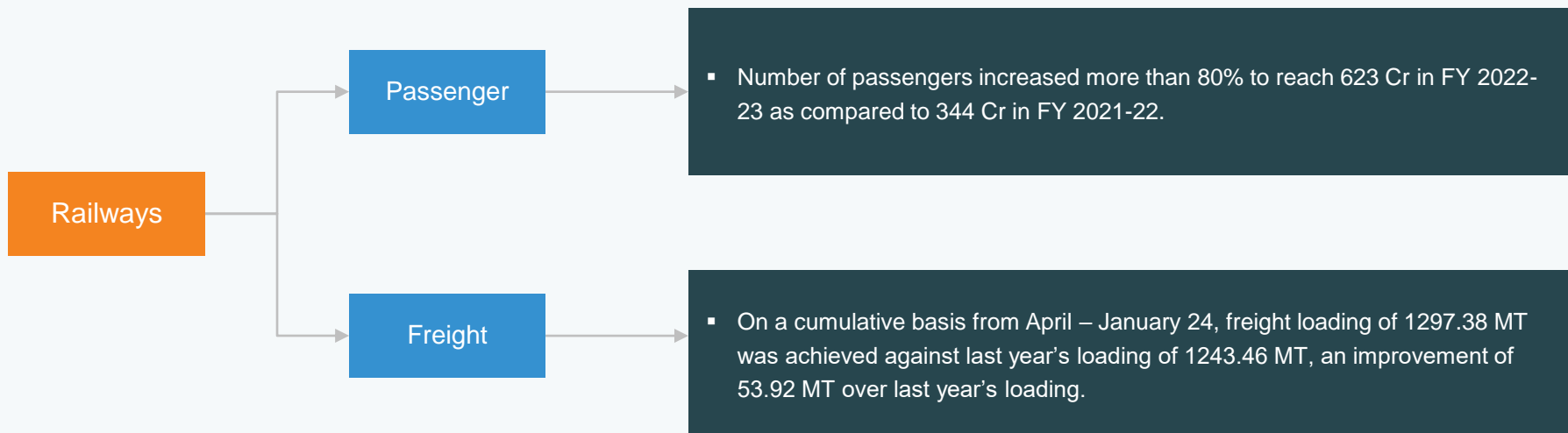
- ▶ Taking cognizance of its significance in overall infrastructural development, the NIP envisages an investment in Indian Railways worth Rs. 11.43 lakh crore (US\$ 138 billion) till 2024-25.
- ▶ Railway Development Authority is spreading the redevelopment of 60 railway stations across India on a PPP Model.

Source: 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



Indian railways has two major segments

- India has the fourth-largest railway system in the world, following the US, Russia and China.
- Indian Railway (IR) is:
 - a departmental undertaking of the Government of India, which owns and operates most of India's rail transport.
 - overseen by the Ministry of Railways.
- As of FY22, IR had a total route network of 68,103 kms.
 - It runs 13,523 passenger trains and 9,146 freight trains daily.
 - It has 1,26,611 kms of total tracks over a 68,103-km route and 7,337 stations.
 - It had 5321.69 million passengers and 1109.38 million tonnes of freight.
 - 41 Vande Bharat trains operational as on January 2024.

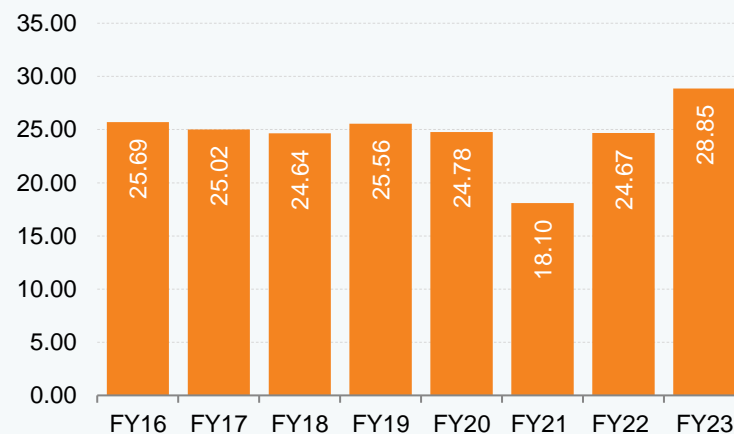


Source: Indian Railways Year Book 2021- 22, PIB

Strong revenue growth for Indian railways

- The Indian Railways expects to complete total revenue of Rs. 2,65,000 crore (US\$ 32.23 billion) by the end of the fiscal year 2023-24.
- For FY24:
 - Total revenue from traffic is estimated to be Rs. 2,64,600 crore (US\$ 32.18 billion), which comprises 99.8% of the total revenue.
 - Freight revenue is estimated to be Rs. 1,79,500 crore (US\$ 21.83 billion) which is 68% of the traffic revenue.
 - The passenger revenue is estimated to be Rs. 70,000 crore (US\$ 8.51 billion), an increase of 9% in 2022-23.
- Vision 2024 has been envisaged to achieve targets of 2024 MT freight loading by 2024.
- Indian Railways has planned to install 1000 MW of solar power plants and about 200 MW of wind plants by 2022-23. Out of this, about 204.82 MW (101.42 MW solar and 103.4MW wind power) of renewable power has already been set up.
- Indian Railways electrified 6,577 Route Kilometers (RKMs) in CY 2023, bringing the total broad-gauge network electrification to 93.83% of the total (65,556 RKMs).

Gross revenue trends (US\$ billion)

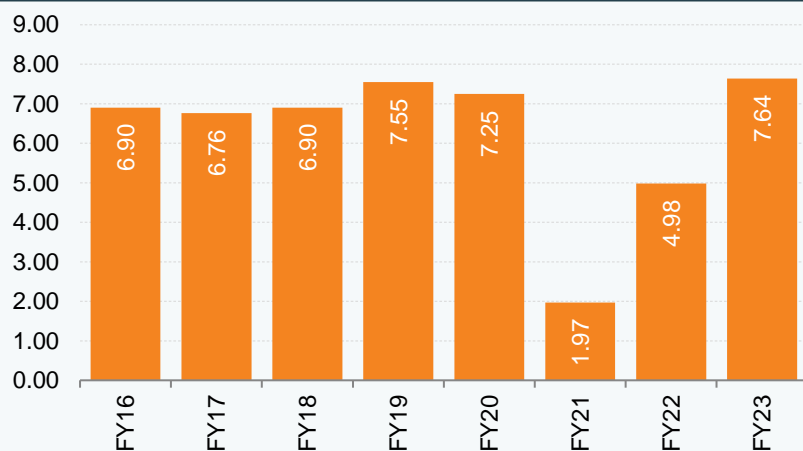


Note: CAGR - Compound Annual Growth Rate, E - Estimates, FY - Indian Financial Year (April-March), PSU – Public Sector Undertaking

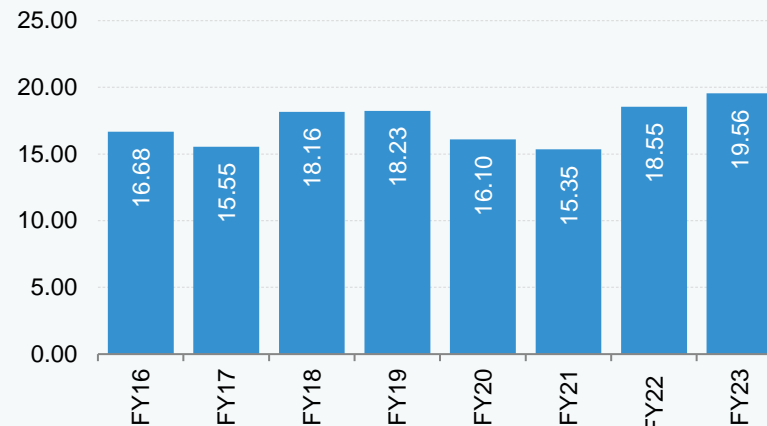
Source: Ministry of Railways

Segment-wise revenue growth for Indian railways

Passenger earnings (in US\$ billion)



Earnings from freight (in US\$ billion)



- During FY 2023, the total passenger revenue stood at US\$ 7.64 billion, compared to US\$ 4.98 billion achieved during the same period last year.
- During the period April 1- January 31, 2023, the revenue generated from the reserved passenger segment stood at US\$ 5.1 billion and revenue from the unreserved passenger segment stood at US\$ 1.4 billion.
- On a cumulative basis from April-January 2024, railways freight earnings stood at US\$ 16.9 billion against US\$ 16.3 billion over last year, an improvement of 4% compared to last year.
- “Hungry For Cargo”, IR has made sustained efforts to improve the ease of doing business and improve the service delivery at competitive prices, resulting in new traffic coming to railways from both conventional and non-conventional commodity streams. The customer-centric approach and work of Business Development Units backed up by agile policymaking helped Railways towards this landmark achievement.

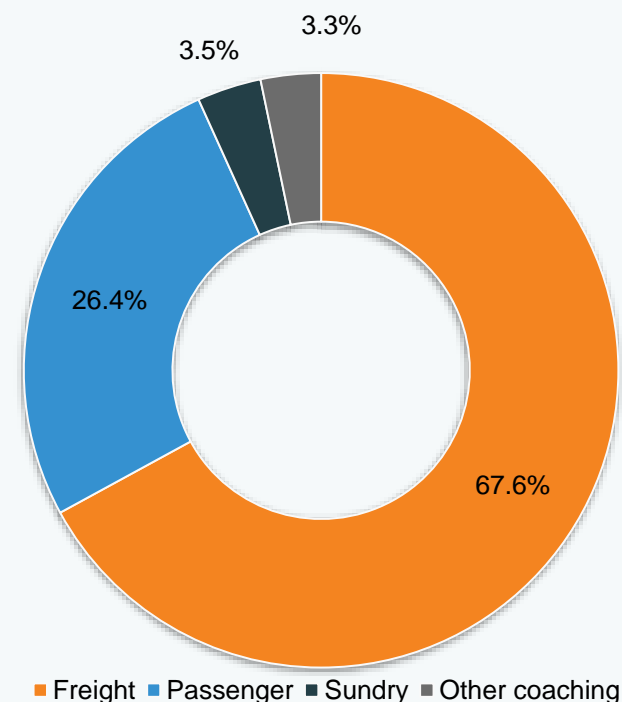
Notes: CAGR - Compound Annual Growth Rate, FY-Financial Year, Exchange Rates used are averages of the year

Source: Ministry of Railways, News Articles

Freight accounts for more than two-thirds of railway's revenues

- Most of the freight traffic of the railway comes from a few bulk goods such as coal, iron, and cement. The freight basket has remained largely unchanged over the last 15 years.
- Coal freight alone constitutes more than 40% of the traffic volume and traffic revenue.
- 68% of the traffic revenue is estimated to come from freight services (US\$ 21.83 billion).
- Total revenue from freight for 2023-24 (April- January) is estimated to be Rs. 1,55,557 crore (US\$ 19.18 billion), an increase of Rs. 6468 crore (US\$ 797 million) over last year for same period. Freight revenue is estimated to be Rs. 1,62,100 crore (US\$ 19.72 billion) in 2022-23, an increase of 14.89% over the revised estimates for 2021-22. The passenger revenue is estimated to be Rs. 63,300 crore (US\$ 7.70 billion), an increase of 61.42% over a low base in 2021-22.
- Between 2013-14 and 2023-24, freight traffic is expected to grow at an annualized rate of 3.5%.
- 60% of the dedicated freight corridors have been commissioned as of 31st January 2023.
- The 1,506-km-long WDFC runs from Dadri in Uttar Pradesh to Jawaharlal Nehru Port Terminal in Maharashtra, whereas the 1,337-km-long EDFC runs from Ludhiana in Punjab to Sonnagar in West Bengal.
- A total route length of 1,724 km (861 km of EDFC and 863 km of WDFC) has been commissioned out of a total of 2,843 km till 31 January 2023.
- In 2023-24, railways are estimated to have sundry earnings of Rs. 8,000 crore (US\$ 973.7 million), an increase of 13% over the revised estimates for 2022-23. In 2023-24, sundry earnings are estimated to comprise 3% of revenue receipts.

Revenue breakdown by segment, (FY23)



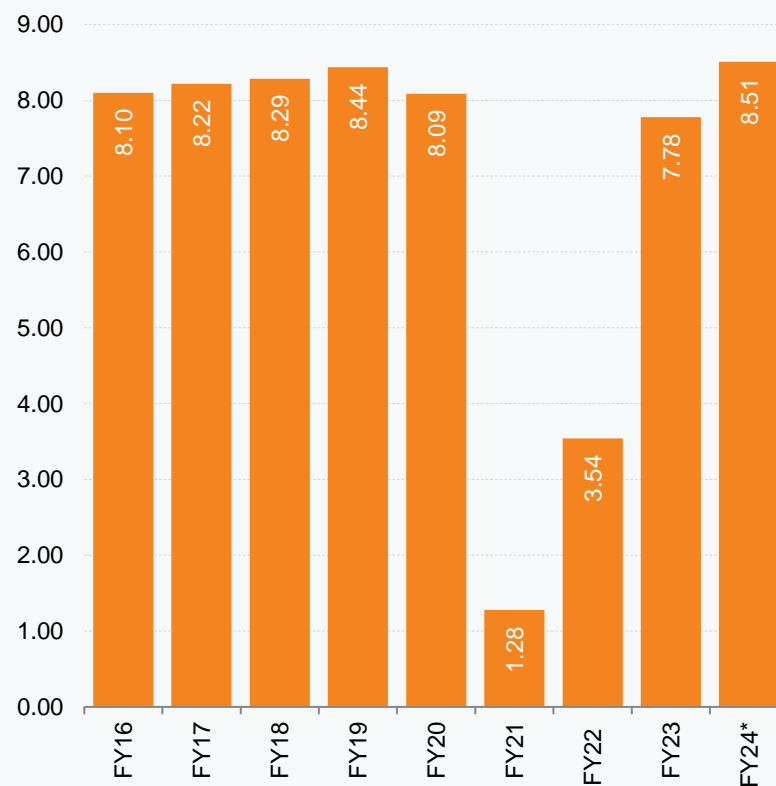
Note: Other Coaching includes service coaches such as pantry cars, parcel vans, mail vans, etc

Source: Railway Budget 2019-20, Ministry of Railways

Passenger volumes expected to recover post pandemic

- Majority of the passenger revenue (96% in 2023-24) comes from the non suburban traffic (or the long-distance trains).
- Passenger traffic is estimated to grow at an annualised rate of 2% between 2013-14 and 2023-24.
- In 2022-23, Railways is estimated to earn 69% of its internal revenue from freight and 24% from passenger traffic. The remaining 7% will be earned from other miscellaneous sources such as parcel service, coaching receipts, and sale of platform tickets.
- 26% of the traffic revenue is estimated to come from passenger services (US\$ 8.4 billion).
- Passenger traffic is estimated to grow at 11% over the revised estimates for 2022- 23.
- During 2023-24, the total passenger revenue stood at US\$ 8.51 billion, registering an increase of 9% in comparison to US\$ 7.78 billion achieved during the same period last year.
- The passenger volumes are likely to gradually increase post-pandemic. In April 2021, Indian Railways announced plans to add new trains for the convenience of passengers. It will also introduce four Shatabdi Express trains and a Duronto Express special train.

Trends in passenger volumes (in billions)

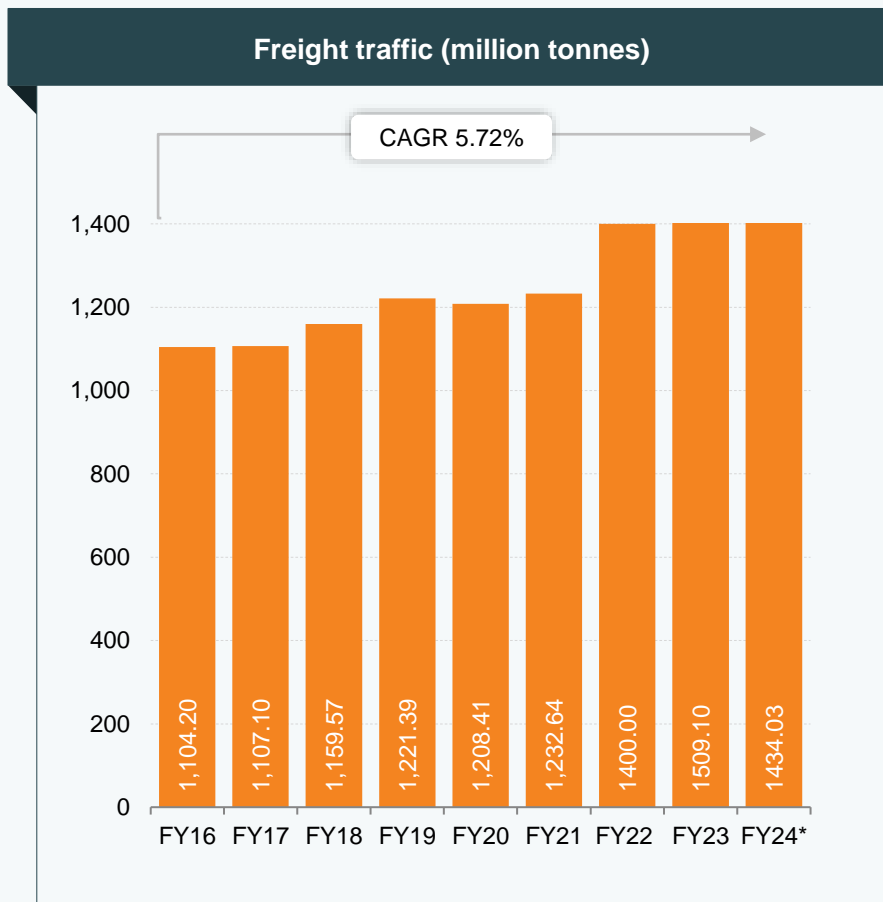


Note: CAGR - Compound Annual Growth Rate, E - Estimate, FY - Indian Financial Year (April-March) *Until July 2023

Source: Make In India, Ministry of Railways

Strong growth in freight traffic

- In FY 2022-23, Indian Railways achieved 1,512 MT of freight, 94 MT more than the previous best of 1,418 MT in FY 2021-22, showing 7% growth, also generated revenue of US\$ 19.28 billion (Rs. 1,60,158 crore) from freight services.
- In FY 2023-24, Indian Railways loaded 1,434.03 MT of freight from April to February, an increase of about 66.51 MT and Revenue rose by approximately US\$ 778 million (Rs. 6,468 crore) compared to the same period last year.
- Indian Railways has undertaken a mega-infrastructure project of two Dedicated Freight Corridors (DFC) namely Eastern and Western Dedicated Freight Corridors (EDFC & WDFC) to facilitate faster evacuation of freight traffic.
- The 1,506-km-long WDFC runs from Dadri in Uttar Pradesh to Jawaharlal Nehru Port Terminal in Maharashtra, whereas, the 1,337-km-long EDFC runs from Ludhiana in Punjab to Sonnagar in West Bengal.
- A total route length of 1,724 km (861 km of EDFC and 863 km of WDFC) has been commissioned out of a total of 2,843 km till 31 January 2023.
- 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.
- In FY23, North Western Railway registered the highest growth in freight earnings at Rs. 6,839.93 crore (US\$ 832.39 million), which is 30.82% higher than last year's earnings of Rs. 5,228.13 crore (US\$ 636.3 million). Freight loading also increased to 32.69 million tonnes, which is 10.07% higher than last year's loading of 29.70 million tonnes.

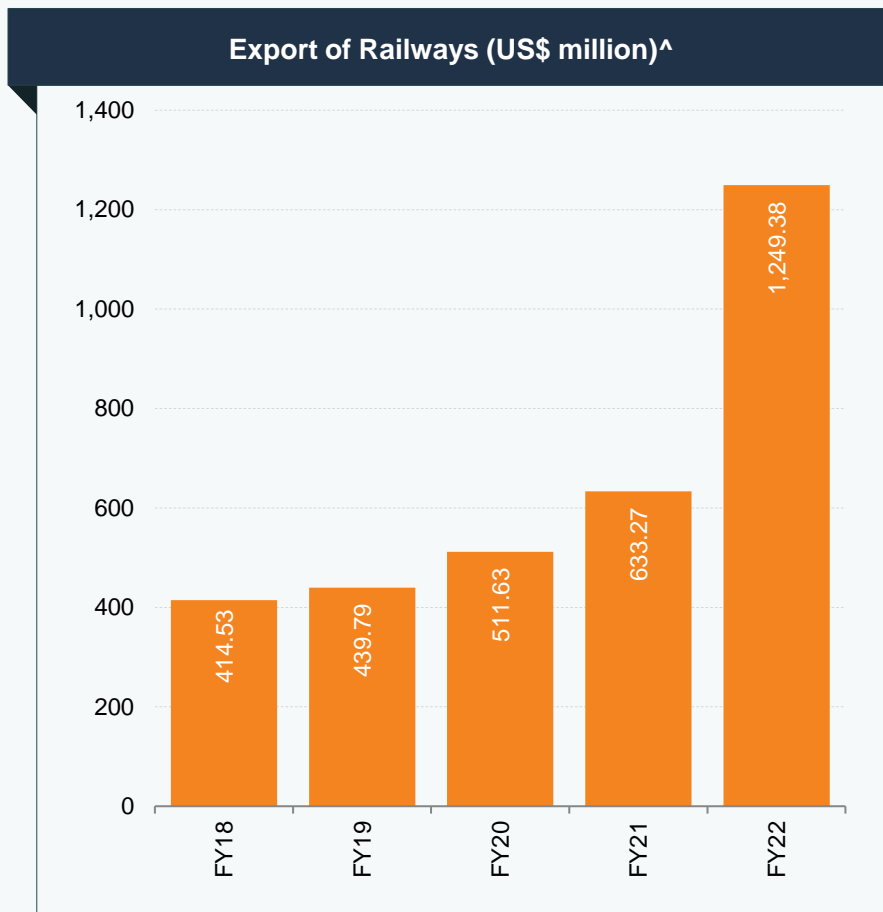


Note: MT- Million Tonnes, CAGR - Compound Annual Growth Rate, FY - Indian Financial Year (April-March), *Until February 2023-24

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

Rising export of railways sector

- Indian Railways plans to market semi-high-speed 'Vande Bharat' trains by 2025-26, aiming to cover 10-12 lakh kilometers on 75 trains in three years. Indian Railways will target European, South American, and East Asian markets for exporting 'Made in India' trains.
- India's export of railways grew at and reached US\$ 1,249.38 million in FY22 as compared to US\$ 633.27 million in FY21.
- ICF (Integrated Coach Factory) of Indian Railways has exported more than 650 rail coaches, shells, and other components manufactured in Chennai based unit during the last few years (till 2022) to 14 countries, including Thailand, Burma, Taiwan, Philippines, Tanzania, Uganda, Vietnam, Nigeria, Bangladesh, Mozambique, Malaysia, Angola and Sri Lanka.
- ICF has also exported one rake of 1600HP DEMU against the order of two rakes of 1600HP DEMU to neighbouring Nepal railways.
- 2 DEMU rakes and 160 mainline coaches are also likely to be exported by the ICF to Sri Lanka apart from manufacturing coaches for various high-speed trains on the LHB technology.



Note: CAGR - Compound Annual Growth Rate, ^Exports of Railway, Tramway Locomotives, Rolling Stock, Equipment, Data is the latest available, E-Estimated

Source: UN Comtrade, News Articles

Key players supporting Indian railways

▪ Key organisations supporting Indian Railways

1

- Navratna PSU under India's Ministry of Railways
- Carrier, terminal operator and warehouse operator



2

- SPV set up under the Ministry of Railways
- Undertakes planning and development; mobilisation of financial resources; construction, maintenance and operation of the Dedicated Freight Corridor (DFC)



3

- SPV created by the Government of India
- Builds engineering works required by Indian Railways



4

- Mini Ratna PSU with one of the largest neutral telecom infrastructure providers in the country
- Strives to modernise train control operation and safety system of Indian Railways



Note: This list is indicative
Source: Company Website



Notable trends in Indian railways... (1/4)

1

Demand for urban transport

- 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.
- 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 expected to be completed by 2021 at a cost of US\$ 1.67 billion. In January 2019, the Department of Economic Affairs (DEA) and the French Development Agency (AFD) signed a credit facility framework agreement to extend funding to Rs. 20.27 billion (US\$ 280.96 million). In May 2021, the Government of India and European Investment Bank (EIB) signed a finance contract for the second tranche of US\$ 182.30 million for the Pune Metro Rail project.

2

M-ticketing and e-ticketing

- In July 2018, Indian Railways decided to start accepting soft copies of documents placed in DigiLocker of customers. In May 2018, IRCTC introduced its mobile android app to be utilised by IRCTC E-wallet users to book E-rail tickets. In FY19, the internet ticketing segment contributed 12.35% to IRCTC's revenue.
- The Centre is working to upgrade the online passenger ticket booking system of the Indian Railway Catering and Tourism Corporation (IRCTC) to ensure that it can handle more demand.
- In October 2019, Indian Railway launched One Touch ATVM for fast ticketing at 42 suburban stations of Central Railway.

3

International investment

- 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.

4

Travel insurance scheme

- Railways 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.

Source: News Articles

Notable trends in Indian railways... (2/4)

5

Semi high-speed train projects

- 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.
- In June 2021, the Central Government approved to implement a 235-km semi high-speed rail corridor between Pune and Nashik in Maharashtra. The project will be built at a cost of Rs. 16,039 crore (US\$ 2.20 billion).
- In November 2020, Indian Railways' Rail Coach Factory (RCF), in Kapurthala, rolled out a semi high-speed double-decker coach. Equipped with the modern amenities and design, the coach can run at a top speed of up to 160 km/h.

6

Bullet trains

- The accomplishment of building 100 kilometers of viaducts was made possible by the installation of 40-meter long 'full span box girders' and 'segmental girders'.
- For the upcoming Mumbai-Ahmedabad bullet train project, 24 bullet train sets are planned to be acquired from Japanese companies through tendering process.
- 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 be completed by 2023.
- On November 26, 2020, National High Speed Rail Corporation Limited (NHSRCL) signed an agreement with L&T to design and construct 47% alignment works for Mumbai-Ahmedabad bullet train project.

7

High-speed trains projects

- In July 2023, India is constructing 508 km of high-speed tracks and 174 km supporting semi-high speeds near Tughlakabad-Agra Cantonment.
- Indian Railway has planned to build 7 high-speed rail corridors to provide faster rail connectivity across the country at a cost of US\$ 17 million.
- In October 2020, Jindal Steel and Power Limited (JSPL) became the first and only Indian manufacturer to develop 60E1 1175 heat treated (HT) rails that are suitable for high-speed and high-axle load applications.

Notable trends in Indian railways... (3/4)

8

New services/programmes launched

- In August 2022, the government launched Mission Raftaar for speed enhancement and to achieve a target of doubling average speed of freight trains and increasing the average speed of superfast /mail/express trains by 25 kmph.
- In September 2021, Indian Railways started rail-based tourism by leasing or selling railway coaches to private players.
- The Indian Railway launched the National Rail Plan, Vision 2024, to accelerate implementation of critical projects, such as multitrack congested routes, achieve 100% electrification, upgrade the speed to 160 kmph on Delhi-Howrah and Delhi-Mumbai routes, upgrade the speed to 130 kmph on all other golden quadrilateral-golden diagonal (GQ/GD) routes and eliminate all level crossings on the GQ/GD route, by 2024.

9

Security Protocols and Procedures

- The Indian Railways reviewed its security, crowd management and enforcement to meet the COVID-19 protocols as the footfalls are likely to increase ahead of the festive season. The new mandate includes the field officers to conduct intensive awareness campaigns among passengers on guidelines issued by the Railway administration to prevent outbreaks in trains and at stations.
- A new campaign 'Meri Saheli' was launched to provide safety to female passengers and effectively respond to any security-related issues faced or seen by female passengers. This initiative is two-pronged and will also aim to curb human trafficking of women and children.

10

Enhanced safety features

- To suit the new requirements of passengers amidst the COVID-19, the temperature and air-circulation settings in AC train coaches have been modified by the Indian Railways.
- In November 2020, Indian Railways developed anti-COVID-19 coach to prevent the spread of coronavirus. This anti-COVID-19 coach has hands-free water tanks and flushes; copper-coated handles and locks.

Notable trends in Indian railways... (4/4)

11

Scheduling Amendments

- Indian Railways is scheduled to run 392 festival trains to and from Kolkata, Lucknow, Patna and Varanasi starting from mid-October 2020 until end-November 2020 to cater to the growing demand during Durga Puja, Dussehra, Diwali and Chhatt Puja festivities.
- Furthering the revenue maximisation agenda, these special trains will have 10-30% higher ticket prices including a special surcharge.

12

Budget Allocation

- Under the Interim Budget 2024-25, capital outlay of Rs. 2.52 lakh crore (US\$ 30.3 billion) has been allocated to the Ministry of Railways, which is the highest ever outlay and about ten times the outlay made in 2013-14.

13

Hospital management information system

- HMIS has been synchronized with various other digital initiatives of Indian Railway like Unique Medical ID, IPASS and ARPAN etc. and is capable of further such integrations as per need. Digitization of health data which is accessible through unique medical ID (UMID) of Railway healthcare beneficiaries is going to make the healthcare services hassle free and transparent. Patient can take OPD appointment by scanning the QR code through HMIS app. This will bring improvement in patient care and patient services to approximately 10 million Railway health beneficiaries.

14

New Railway Projects

- With a view to improve rail connectivity and ease travel for commuters, the Union Cabinet approved seven projects for Ministry of Railways in August 2023 at a cost of around Rs. 32,500 crore (US\$ 3.93 billion). Spanning 35 districts in nine States - Uttar Pradesh, Bihar, Telangana, Andhra Pradesh, Maharashtra, Gujarat, Odisha, Jharkhand, and West Bengal, the projects will add 2,339 km to the existing network.
- As on April 2022, a total of 452 railway projects of total length 49,323 km costing approx. Rs. 7.33 lakh crore are in different stages of planning/ sanction/ execution across Indian Railways.
- Over 342 railway projects have been mapped on the GatiShakti GISplatform developed by BISAG-N.

Source: News Articles

Strategies adopted by Indian railways...(1/2)

REVENUE-BASED STRATEGIES



- Provision of online rail bookings, hotel reservations and retiring rooms by IRCTC adds to the revenue of Indian Railways. IR focuses on international tourists and has also produced many tour packages for foreigners.
- Indian Railway has set a target of US\$ 5.95 billion in revenue from monetising railways in the next 10 years. By doing so, IR aims to increase earnings through traditional as well as non-traditional sources and reduce expenditure.
- Indian Railways has registered a record revenue of Rs 2.40 lakh crore (US\$ 28.98 billion) in the 2022-23 financial year, up by nearly Rs. 49,000 crore (US\$ 5.88 billion) from the previous year.
- Plans are in place to remove pantry car services from 300 trains and replace them with AC-3 tier coaches to increase revenue by Rs. 1,400 crore. Meal service will rely on base kitchens at railway stations, e-catering and train-side vending machines according to the Railway Ministry.
- Replacing reusable linen sets with disposable linens is another revenue-sharing strategy under review since the pandemic. Contracts are being distributed to private vendors for selling disposable sheets, towels and pillows at train stations to prevent COVID-19 outbreaks. This will reduce the railways maintenance overheads by passing the cost to the passenger.
- These decisions have been made in response to a revenue and expense audit report compiled by the AIRF.

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 were offered to customers offering high tariffs.
- The speed of freight trains was decreased to 30.5 kmph in FY23 from 41.90 kmph in FY22.
- Freight rates on cement, coal, urea, kerosene, LPG and food grain and pulses have been hiked by 10% to bring additional revenue of US\$ 655.1 million per year.

Source: News Articles

Strategies adopted by Indian railways...(2/2)

GO ECO-FRIENDLY



- The Railway Minister, Shri. Piyush Goyal, announced on November 29, 2020, that tea will be sold in environment-friendly 'Kulhads' (earthen cups) in place of plastic cups at all railway stations in the country. Currently, >400 railway stations serve tea in 'Kulhads'. This strategy will be the contribution of the Indian Railways towards a plastic-free India.
- The Indian Railways has fulfilled its pledge of installing bio-toilets in passenger trains. During 2021-22, bio-toilets were installed across 79,269 passenger coaches which will prevent fall of nearly 2, 74,000 litres of human excreta on tracks every day.
- In June 2023, IRCON (formerly Indian Railways Construction Company Limited) signed a memorandum of understanding (MoU) with the National Investment and Infrastructure Fund Limited and Ayana Renewable Power Limited. This partnership will consider suitable opportunities for solar energy production for the Indian Railways as they intend to increase the share of renewables in their overall energy mix.

TURNAROUND STRATEGIES FOR PASSENGER TRAFFIC

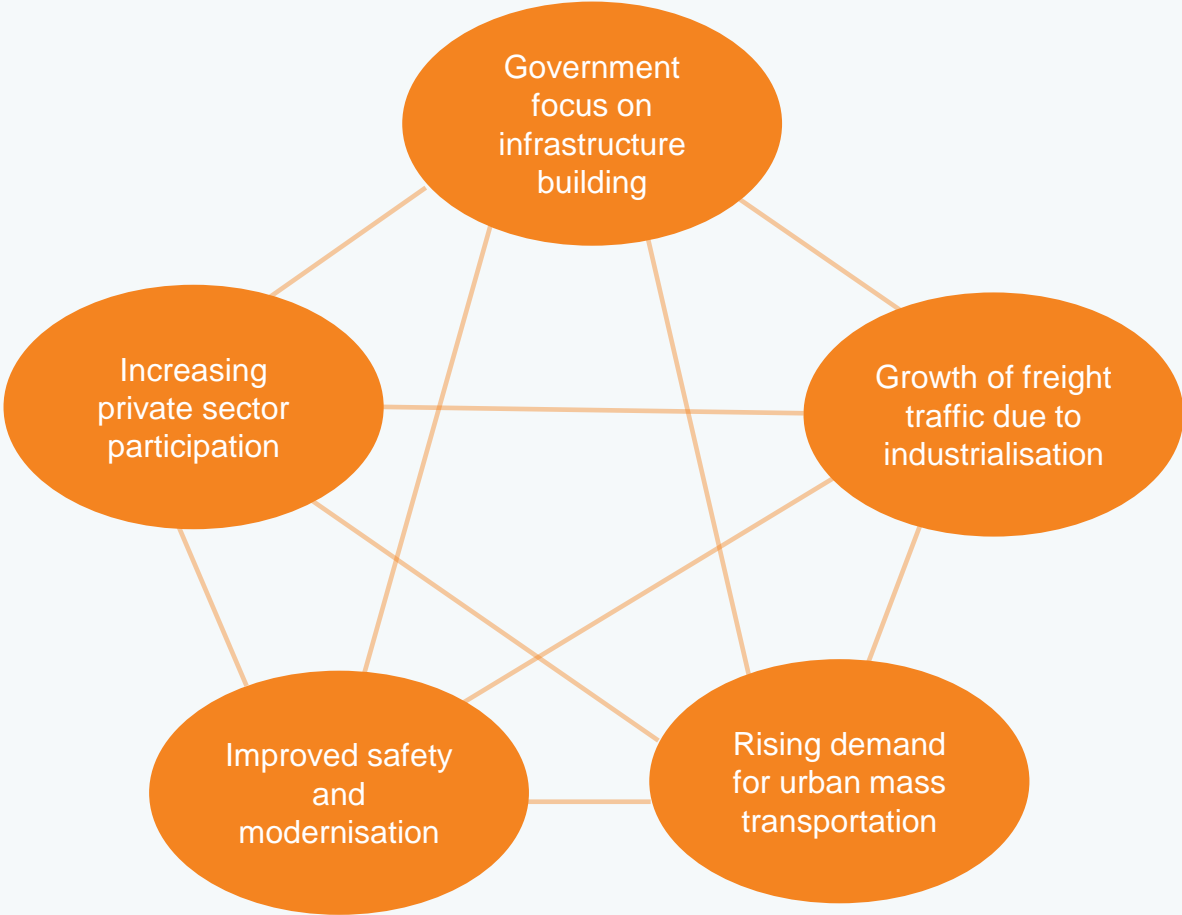


- Fare for premium classes were reduced to compete with airlines, luxury buses and personal transport vehicles.
- The length of popular trains was increased from 16-18 coaches to 24-26 coaches.
- Private participation is encouraged. Information Technology was used to make ticket reservation more feasible to passengers along with an airline-style upgradation facility from lower class to higher class.
- The speed was 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% increase in average speed.
- Rajdhani train journeys will become fully overnight.
- In September 2020, the Indian Railways announced the 'Clone Train Scheme', wherein it plans to run a clone train with the train of the same number, to help and provide relief to waitlisted passengers over heavy passenger traffic routes

Source: News Articles

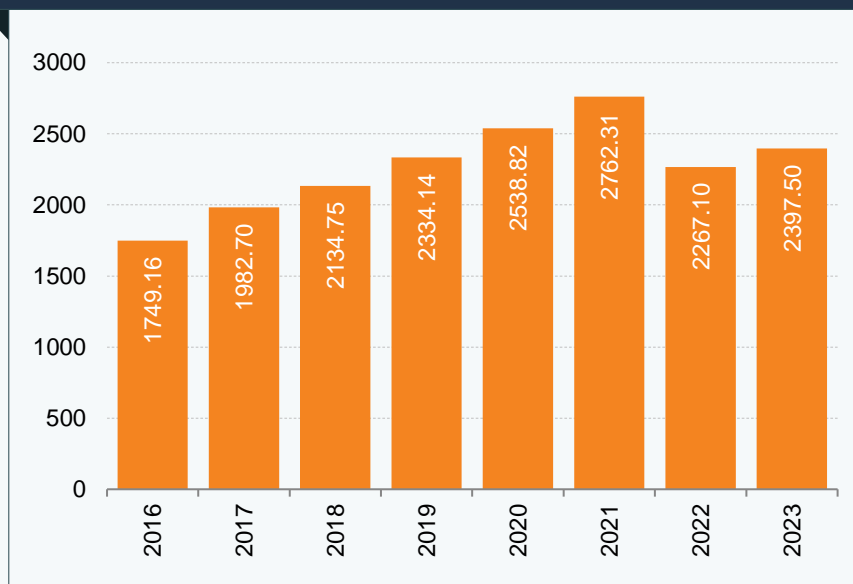


Strong demand and policy support driving investments

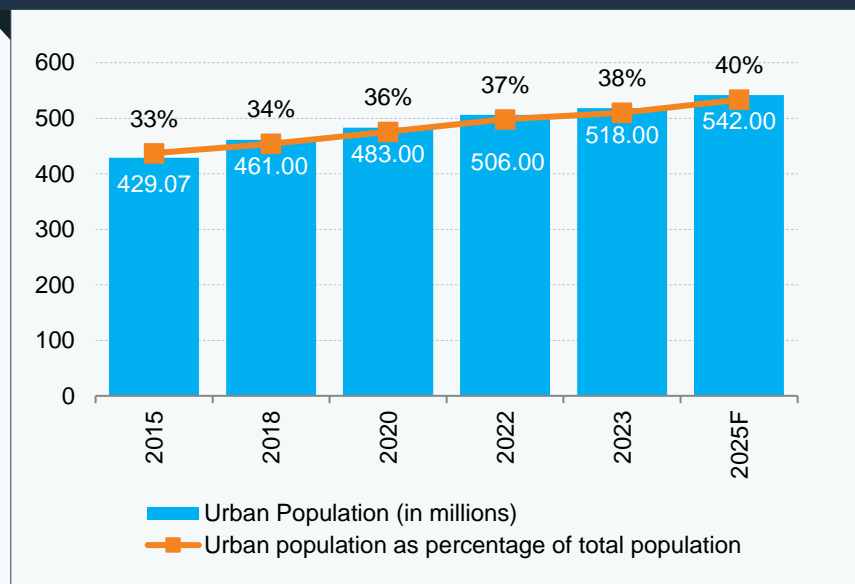


Rising income and urbanisation driving passenger traffic growth

GDP per capita at current prices (US\$)



Urbanisation in India[^]



- Increasing incomes in urban and rural areas have made rail travel affordable to large number of Indians.
- Improvement of urban-rural connectivity has been another major contributor to the growth of Railways in the country.
- Population residing in urban areas is expected to increase from 461 million[^] in 2018 to 542.74 million[^] in 2025F. The percentage of India's total population residing in urban areas is expected to increase from 34.05%[^] in 2018 to 40.03%[^] in 2025F.

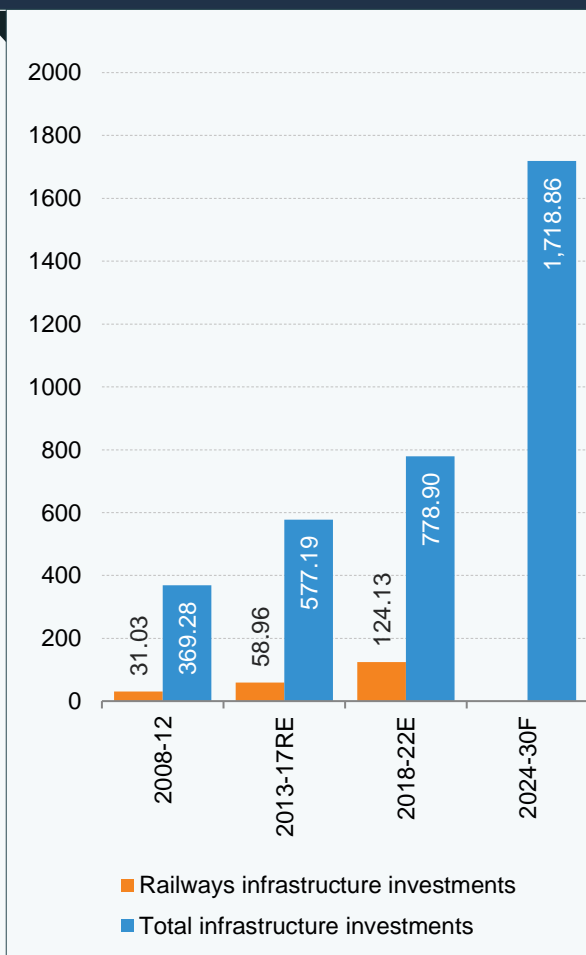
Note: [^]data relates to mid-year, E - Estimate, F - Forecast

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

Infrastructure development

- In 2024-25, Railways' capital expenditure is targeted at US\$ 30.33 billion (Rs 2.52 lakh crore).
- As on 31st January 2024, 41 trains of the Vande Bharat service are currently running on the Indian Railways, linking states with a Broad Gauge (B.G.) electrified network.
- In October 2023, it was reported that, India's investments in infrastructure will rise to Rs. 143 trillion (US\$ 1.71 trillion) between financial years 2024 and 2030, as per analytics firm CRISIL.
- In July 2023, it was informed that the Indian Railways is set to introduce trains for lower income groups, mainly passengers who work as manual labourers.
- 100 PM-GatiShakti Cargo Terminals for multimodal logistics facilities will be developed over next three years.
- The Prime Minister, Mr. Narendra Modi laid the foundation stone for the redevelopment of 508 Railway Stations across the country. Redeveloped at a cost of more than Rs. 24,470 crores (US\$ 2.95 billion), these 508 stations are spread across 27 states and union territories, including 55 each in Uttar Pradesh and Rajasthan, 49 in Bihar, 44 in Maharashtra, 37 in West Bengal, 34 in Madhya Pradesh, 32 in Assam, 25 in Odisha, 22 in Punjab, 21 each in Gujarat and Telangana, 20 in Jharkhand, 18 each in Andhra Pradesh and Tamil Nadu, 15 in Haryana, 13 in Karnataka among others.
- 400 new-generation Vande Bharat trains will be manufactured over next three years.
- 2,000 km of network will be brought under Kavach, the indigenous technology for safety and capacity augmentation.
- 'One Station-One Product' concept will be popularized to help local businesses and supply chains.
- It is estimated that India will require US\$ 4.5 trillion of infrastructure investment by 2040 to enhance economic growth and community well being. Under the Union Budget 2021-22, the government allocated Rs. 110,054.64 crore (US\$ 15.19 billion) to the Ministry of Railways.
- Indian Railways is planning annual capital expenditure of Rs. 2 lakh crore (US\$ 27.18 billion) until FY24 in line with the robust infrastructure upgrade envisaged for the railway network.
- In November 2020, Hindustan Construction Company (HCC), in a joint venture with Vensar Constructions Company (VCCL), bagged two orders totalling Rs. 236 crore (US\$ 32.05 million) from the Northeast Frontier Railway.
- The Indian Railways is likely to deliver 58 super critical as well as 68 critical projects worth more than Rs.1,15,000 crore (US\$ 15.44 billion) in the next few years.
 - 27 super critical projects will be completed by December 2021, while two projects will be handed over by March 2022. 29 super critical projects—spanning 1,044 kms and costing Rs. 11,588 crore (US\$ 1.5 billion)—have been commissioned.
 - Four projects worth Rs. 1,408 crore (US\$ 189.05 million) have been completed and the remaining projects are targeted for completion by March 2024.

Infrastructure Investment (US\$ billion)



Notes: RE - Revised Estimates, E- Estimate

Source: CRISIL Infrastructure Yearbook 2017, Economic Survey 2019-20, Railway Book, News Article

Expanding scope of public private partnership (PPP)

- 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 PPP
 - Construction of new lines - Bhupdeopur-Raigarh (Mand Colliery) and Gevra Road-Pendara Road; Doubling of Palanpur-Samakhiali section through PPP.
 - Setting up of 2 locomotive plants through PPP is crucial for the development of infrastructure sector.
 - Setting up joint ventures (JV) with major public sector customers for fulfilling the requirements of new lines.
- As per the Union Budget 2019-20, Government enhanced the metro railway initiative by encouraging more purchasing power parity initiatives and ensuring completion of sanctioned works, while supporting transit-oriented development (TOD) to ensure commercial activity around transit hubs.
- Purchasing power parity projects in railways is expected to receive investment of Rs. 50 trillion (US\$ 750 billion) by 2030.
- Western Railways division has signed a deal with the logistics partner of Amazon India for speedy transportation of parcels in Rajdhani Express. The division completed its first consignment journey from Mumbai to New Delhi in October 2020. The deal stipulates consignment deliveries for 113 days from October 2020 to February 2021 with an estimated good transportation of 2,712 tonnes; this will help generate a revenue of Rs. 2 crore.
- In February 2023, two people aware of the development said that the Indian Railways is exploring a new public-private partnership (PPP) model to attract private investment to redevelop railway stations,. Under this model, investors would receive up to 40% of the total project cost as viability-gap funding (VGF) and be allowed to use the space above platforms and tracks commercially.
- In February 2021, Indian Railways called for 'Request for Qualification (RFQ)' for redeveloping New Delhi railway station under a public-private partnership, with an estimated project cost of Rs. 5,000 crore (US\$ 690.75 million).
- In June 2021, Indian Railway Stations Development Corporation Limited (IRSDC) shortlisted nine bidders for redevelopment of Mumbai's Chhatrapati Shivaji Maharaj Terminus Railway Station (CSMT).
- On 26 July 2021, the Ministry of Railways received bids from the private and public sectors to operate 29 pairs of trains with about 40 modern rakes, entailing an investment of ~Rs. 7,200 crore (US\$ 966.74 million).

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

Source: Ministry of Railways, Make in India

Modernisation strategy ... (1/2)

To modernise Indian Railways, the focus is on two fundamental drivers, safety and growth along with a 5-pronged strategy:

- Modernise core assets - 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

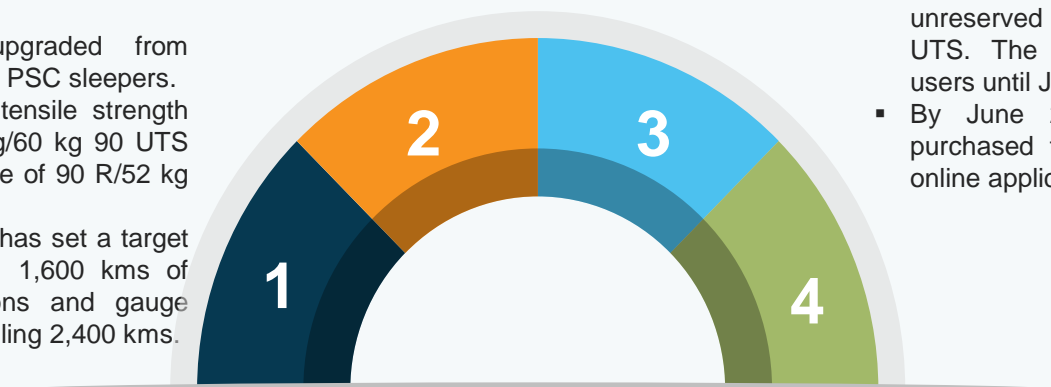
Modernisation: new theme of Indian railways... (2/2)

2. ADARSH SCHEME

- In 2009-10, Indian Railways implemented the 'Adarsh' Station scheme, wherein railway stations are upgraded/modernised to provide better and enhanced amenities to passengers.
- Railway stations are upgraded/modernized under 'Adarsh' Station Scheme based on identified need of providing better enhanced passenger amenities at stations.
- Under the scheme, 1,253 stations were identified for development, of which 1,215 stations have been developed and the remaining 38 stations will be developed by 2022-23.
- Total allocation for the scheme increased from Rs. 2,615.3 crore (US\$ 314 million) in 2020-21 to Rs. 2800.00 crore (US\$ 336 million) in 2021-22.

1. TRACK UPGRADATION AND WELDED RAILS

- Indian Railways aims to achieve 100% electrification of all broad-gauge routes by 2024.
- 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).
- For FY22, Indian Railways has set a target of 300 kms of new lines, 1,600 kms of doubling single-line sections and gauge conversion of 500 kms, totalling 2,400 kms.



3. INCREASING OPERATIONAL EFFICIENCY

- Design and development of 5500 HP WDG5 diesel locomotive for faster, longer and heavier trains. Development of 25 KV HV connector for multiple operation of WAP5 locomotives with 1 pantograph in raised condition.
- Launch of a zero-based timetable to increase efficiency by pruning 600 trains and eliminating halts at 10,200 train stations; this will boost revenue by Rs. 2,000 crore (US\$ 262 million)
- About 4,000 unmanned level crossings have been eliminated in one year by the Indian Railways. In August 2020, freight trains ran about 94% faster than in August 2019.
- As of May 5, 2021, Indian Railways commissioned Wi-Fi at 6,000 railway stations.
- In June 2021, the Central Government approved a Rs. 25,000 crore (US\$ 3.43 billion) five-year plan to use 4G technology to modernise communication networks in railway stations and improve safety and security of train journeys.

4. UNRESERVED TICKETING SERVICES (UTS)

- UTS was made functional at 5,778 locations with 10,760 terminals. Currently, 90% of unreserved tickets are generated through UTS. The app received 10,62,560 new users until January 2019.
- By June 2019, 3.87 lakh passengers purchased the unreserved tickets through online application.

OBJECTIVES

1. Increase rail freight share through customised logistic services

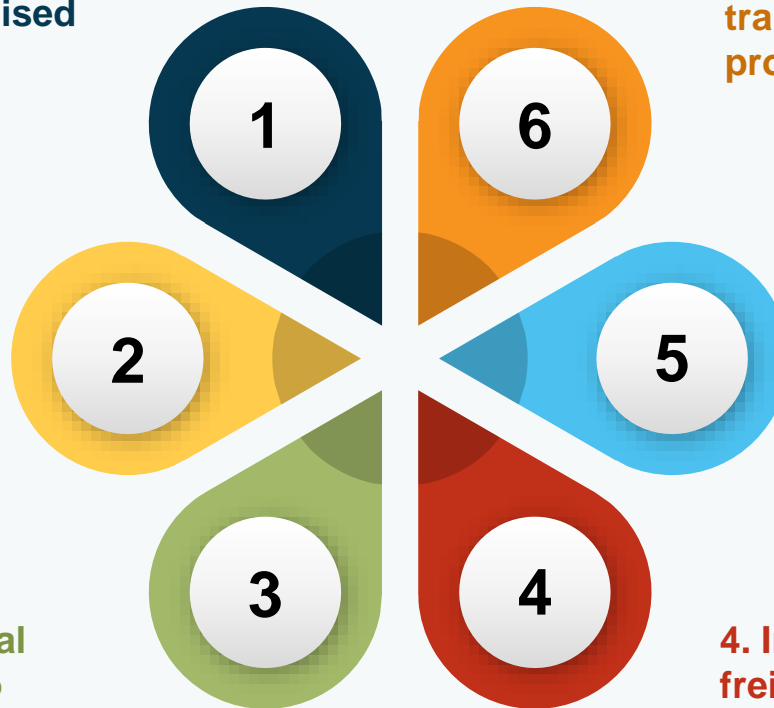
6. Reduce unit cost of transportation and increase productivity

2. Segregate freight and passenger lines for focused approach

5. Adopt high-end technology for real-time data analysis

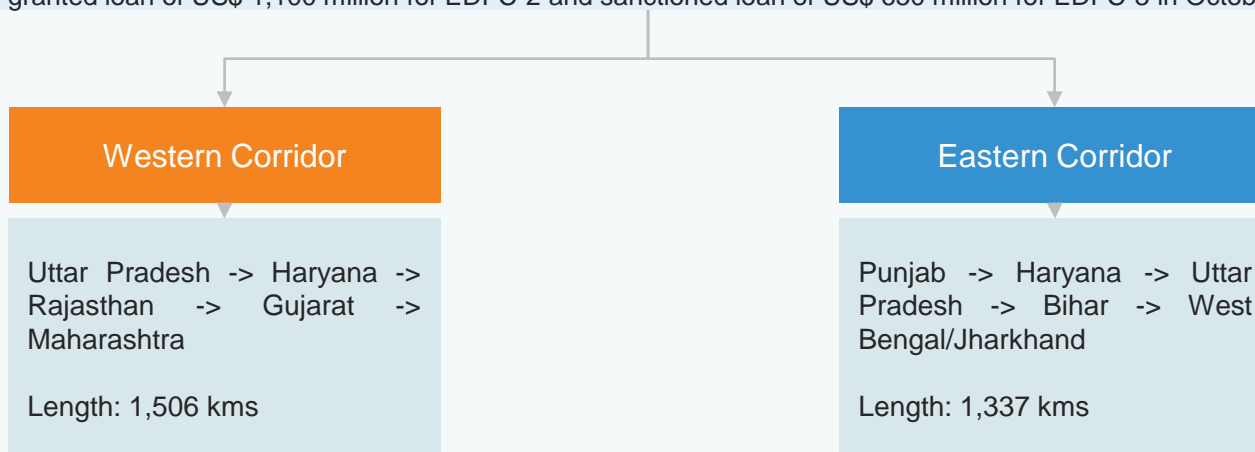
3. Create additional freight capacity to meet demand

4. Introduce time-tabled freight services to ensure better services



Dedicated freight corridor... (2/2)

- DFCCIL, a special purpose vehicle, was set up for implementing the DFC project under the administrative control of 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: 28243 kms; total estimated cost: US\$ 11.66 billion as on September 2019; financial progress stands at 63.6% and physical progress stands 67.5%.
- As on January 2023, a total of 1724 kilometers of Dedicated Freight Corridor (DFC) had been commissioned, with 861 kilometers completed on the Eastern Dedicated Freight Corridor (EDFC) and 863 kilometers on the Western Dedicated Freight Corridor (WDFC).
- The eastern wing of the DFC is being funded by the World Bank and western wing is being financed by the Japanese International Cooperation Agency.
- The Japanese International Cooperation Agency has granted Rs. 8,553 crore (US\$ 1,167.68 million) for phase 1 of the DFC.
- The World Bank granted loan of US\$ 1,100 million for EDFC-2 and sanctioned 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

Policy and regulatory framework... (1/4)

Foreign Direct Investment (FDI)

- 100% 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.
- 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: News Sources

Policy and regulatory framework... (2/4)

R3i policy

- The policy aims to attract private sector participation in rail connectivity projects to create additional rail transport capacity.
- 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.

R2CI

- This new policy was initiated to improve rail connectivity to coal and iron ore mines.
- 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.
- 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.

Public Private Partnership (PPP)

- Connectivity to the major ports through PPP funding. Approval has been granted for 7 ports amounting to US\$ 0.7 billion.
- Development of the major stations to equip them with international level of amenities and services.
- As of October 2020, the Railway Ministry issued a policy to develop shed facilities at small/roadside railway stations aimed at augmenting terminal capacity through the participation of the private sector. Private parties are allowed to develop a goods wharf, utilities for labourers (resting space, drinking water, etc.), approach roads, loading and unloading docks and other related infrastructure.
- All facility developments will require approval from the Indian Railways and need to comply with their designs, standards and specifications.

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

Policy and regulatory framework... (3/4)

Railway announcements

- As on January 2024, approximately 94% of the total Broad Gauge network of Indian Railways has been electrified.
- In November 2021, Indian Railways announced that ~102 semi-high-speed Vande Bharat Expresses are expected to commence operations by 2024, with at least 10 new trains scheduled to launch by August 2022 that will connect 40 cities.
- Indian Railways got a capital outlay of Rs. 2.40 lakh crore (US\$ 28.98 billion) from Ms. Nirmala Sitharaman in the Budget. This is the highest ever capital outlay for railways to date and is 9 times the outlay provided to railways in 2013-14.
- In October 2021, Indian Railways announced a plan to establish ~500 multi-modal cargo terminals under the 'PM GatiShakti' programme, with an estimated outlay of Rs. 50,000 crore (US\$ 6.68 billion) in four-five years. Through this plan, the government plans to integrate various modes of transportation for seamless movement of parcel and bulk cargo (e.g., coal and steel).
- 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.
- Indian Railways has completed eight major capacity enhancement projects by taking advantage of the coronavirus lockdown. These projects included three supercritical projects with a combined length of 68km, three critical projects with a combined length of 45km, the upgradation of the 389km railway line from Jhajha in Bihar to Pandit Deen Dayal Upadhyaya Junction in Uttar Pradesh and a new 82km port connectivity line to Paradip.
- As a part of the Railways' plans to upgrade its network, the Ministry announced that all non-AC sleeper coaches will be replaced by AC coaches for trains running >130 kmph. This move has been taken as a technical necessity for high-speed trains with the bonus of improving passenger experience.

Wagon investment scheme

- 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.
- Ministry of Railways proposed to set up 5 wagon factories in Secunderabad, Bardhaman, Bhubaneswar/Kalahandi, Guwahati and Haldia under the JV/PPP model.
- Till May 2019, 77 general-purpose rakes were approved by IR under the GPWIS policy for multiple private investors. Two rakes are already operational in the east coast zone.

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

Policy and regulatory framework... (4/4)

Key modernisation initiatives

- Government of India announced about the MoU signed with USAID/India on June 14, 2023, help Indian Railways achieve Net Zero Carbon Emission by 2030.
- In an initiative to decarbonise rail transport, Indian Railways will be collaborating with public sector enterprises to boost the electrification process of railway tracks. It logged the highest-ever electrification of sections by covering 6,015 route kilometres (RKM) in 2020-21. In addition, it has achieved >5x electrification of tracks in the last seven years (between 2014 and 2021) vs. between 2007 and 2014.
- On July 25, 2021, the Indian Railways Station Development Corporation (IRSDC), a nodal agency of the Ministry of Railways spearheading the re-development of railway stations across the country, claimed that the two railway stations will be redeveloped at an indicative cost of Rs. 1,285 crore (US\$ 172.54 million) in four years.
- The Indian Railways has decided to undertake electrification of Broad Gauge (BG) rail lines in a mission mode and is likely to complete the process by 2023-24. Of the 64,689 kms of broad gauge route, 45,881 kms has been electrified and the remaining 18,808 kms route is yet to be electrified. About Rs. 21,000 crore (US\$ 2.8 billion) is estimated to be spent on electrification of the remaining BG routes.
- In February 2021, Indian Railways decided to replace the rake of Agartala-Anand Vihar Terminal Special Rajdhani Express with the upgraded Tejas Sleeper coaches.
- Government of India preponed its target of install bio-toilets in the entire fleet of coaches by 2019. As of March 2018, bio-toilets were installed in around 60% of all passenger-carrying coaches of Indian Railways.
- 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.

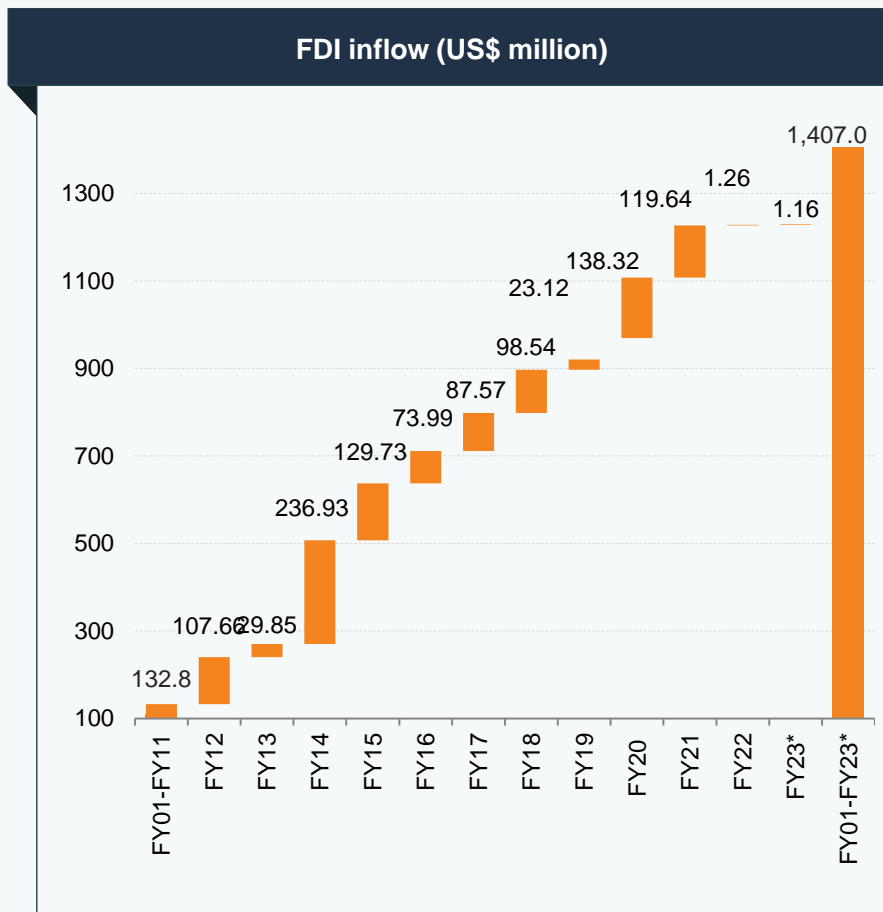
Participative models attracting capital

- 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.
- 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.

Source: Ministry of Railways, Railway Budget 201 - 16, News Articles, Press Information Bureau

Increasing FDI inflow

- FDI inflows in railway-related components stood at US\$ 1.40 billion from April -December 2023.
- 100 % Foreign Direct Investment in the railway sector is allowed under automatic route for operation and maintenance of suburban corridor projects through PPP, including a 100% FDI in Railways infrastructure.
- In July 2020, the Ministry of Railways decided to create a special cell, Project Development Cell (PDC), in the railway board to increase investments and inflow of foreign direct investment (FDI).





*Note: FDI - Foreign Direct Investment, *Until December 2023*

Source: : Department for Promotion of Industry and Internal Trade

Key Industry Contacts



Key industry organisations

	Agency	Contact Information
	<p>Indian Railways</p>	<p>Address: Rail Bhavan, Raisina Road New Delhi-110001 Tel: 91 11 23411173 Website: www.indianrail.gov.in</p>
	<p>RITES Limited</p>	<p>Address: Rites Bhawan, Gurgaon Sector 29, Gurgram, Haryana - 122002 Tel: 91 124 2571666/2818999 Fax: 91 124 2571660 Mail: info@rites.com Website: www.rites.in</p>



Glossary

- 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	Rs. 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
2019-20	70.49
2020-21	73.20
2021-22	74.42
2022-23	78.60

Exchange Rates (Calendar Year)

Year	Rs. 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
2019	69.89
2020	74.18
2021	73.93
2022	79.82
2023	82.61
2024*	83.09

Note: *- Until February 2024

Source: Foreign Exchange Dealers' Association of India

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