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Executive summary

2. GROWING PUBLIC-PRIVATE PARTNERSHIP (PPP)

- 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 allowed private ownership of some railway lines.
- The government has announced two key initiatives for seeking private investments—running passenger trains by private operators across the railways network and redevelopment of railway stations across the country. According to Indian Railways, these projects have the potential of bringing an investment of over US$ 7.5 billion in the next five years.

1. WORLD’S FOURTH-LARGEST RAIL NETWORK

- Indian Railways has >123,542 kms of total tracks over a 67,415-km route and ~7,300 stations.
- As of FY20, the Indian Railways daily operated 13,169 passenger and 8,479 goods trains.
- In FY20-21, Indian Railways recorded the highest loading in freight transportation.

3. GROWTH INITIATIVES

- To boost rail infrastructure and make the Indian Railways network future ready, Indian Railways has identified 56 projects across the country in various zones to be completed by Feb-Mar 2021 and FY22.
- The iconic project of Chenab Bridge is in progress. Its cost is estimated to be Rs. 1,486 crore (US$ 200.46 million) and the design life of the bridge is said to be 120 years.
- Under the Union Budget 2021-22, the government allocated Rs. 110,054.64 crore (US$ 15.19 billion) to the Ministry of Railways.
- Indian manufacturers, under the ‘Atmanirbhar Bharat’ initiative, are being urged to develop an alternative to high-tech machines that are needed to build high-speed rail speedily for the country’s first high-speed rail corridor connecting Ahmedabad and Mumbai.
- As part of the National Rail Plan for 2030, Indian Railways is expected to create a future-ready railway system by 2030 to bring down logistics cost and ensure 100% electrification of broad rail routes by December 2023.

4. MODERNISATION/TECHNOLOGY UPGRADEATION

- Indian Railways will use LiDAR (Light Detection and Ranging) technique, with laser-enabled equipment mounted on a helicopter, to survey the surface for the Delhi-Varanasi high-speed rail corridor.
- In a bid to provide storm warnings and other weather updates to station masters and passengers, the Indian Railways installed automated weather forecast equipment at 19 stations under the North Western Railway zone.
Advantage India

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

2. Opportunities
   - In August 2021, Indian Railways Organisation of Alternative Fuels (IROAF) invited bids for trains based on hydrogen fuel cell for the Indian Railways Network to promote green railways.
   - Metro rail projects are being envisaged across many cities over the next ten years.

3. Policy support
   - 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% FDI in the railway sector.

4. Higher investment
   - FDI inflows in railway-related components stood at US$ 1.23 billion from April 2000 to March 2021.
   - Investment in Railway's infrastructure is estimated to increase from US$ 58.96 billion in 2013-17RE to US$ 124.13 billion in 2018-22E.\(^\)
   - It is estimated that Railway's infrastructure would need an investment of Rs. 50 lakh crores (US$ 715 billion) between 2018-30.

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

- 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 FY20, IR had a total route network of 67,956 kms.
  - It daily operated 13,169 passenger and 8,479 goods trains.
  - It has >123,542 kms of total tracks over a 67,415-km route and ~7,300 stations.
  - It had million 2,93,077 wagons, 76,608 coaches and 12,729 locomotives.
  - Introduced 153 new passenger trains.

- ~1,232.64 million tonnes of freight was transported via trains in FY21.
  - These include a huge variety of goods such as mineral ores, iron, steel, fertilisers, petrochemicals and agricultural produce.

- Over 23 million passengers daily travel by train in India. Passenger traffic stood at 8,086 million in FY20.

Source: Indian Railways Year Book 2019 - 20
Strong revenue growth for Indian railways

- Revenue growth has been strong over the years. Indian Railways’ revenue reached US$ 24.78 billion in FY20. The gross revenue stood at Rs. 39,655.25 crore (US$ 5.34 billion) in FY22 (until June 2021).

- 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

- Indian Railways is also looking at other areas of revenue generation such as the following: a) Change in composition of coaches so that it can push the more profitable AC coach travel; b) Additional revenue streams by monetising traffic on its digital booking IRCTC; and c) Disinvesting IRCTC

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

- The total passenger revenue between April 2020 and February 2021 stood at Rs. 12,409.49 crore (US$ 1.70 billion) as against Rs. 48,809.40 crore (US$ 6.7 billion) for the corresponding period in the previous year.

- In FY22 (until August 2021), passenger earnings stood at Rs. 11,702.10 crore (US$ 1.56 billion) and freight earnings stood at Rs. 54,724.99 crore (US$ 7.30 billion).


- In the first quarter of FY22, North Central Railways recorded the highest growth in freight earnings at Rs. 437.57 crore (US$ 58.75 million), which is 24.2% more than last year’s earnings of Rs. 325.33 crore (US$ 43.68 million). Freight loading also increased to 4.32 million tonnes, which is 33.3% higher than last year’s loading of 3.24 million tonnes.

- With 637.2 kms 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

**Source:** Ministry of Railways, News Articles
Freight accounts for more than two-thirds of railway’s revenues

- Freight business for Indian Railway is supported by 9 commodities, few of them being coal, iron, steel, iron ore, food grains, fertilizers, petroleum products.
- In
- Freight remains the key revenue earning segment for the Indian Railways, accounting for 79.1% of the total revenue in FY22 (until August 2021), followed by the passenger segment.
- Profit from the freight segment is used to cross-subsidise the passenger segment.
- In FY21, Indian Railways recorded the highest loading in freight transportation. With this, the freight revenue of Indian Railways also increased to ~Rs. 1,17,386 crore (US$ 15.84 billion) in the same period, as against Rs. 1,13,897 crore (US$ 15.36 billion) in FY20.
- Dedicated Freight Corridor Corp. of India Ltd. (DFCCIL) is already building 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).
- Indian Railways plans to achieve 2,024 MT (metric tonne) loading in 2024 from the current 1,200-1,300 MT.
- Laterite, one of the key raw materials used for construction, was recently loaded and ferried between Tamil Nadu and Andhra Pradesh. The Railways ministry termed this to be the ‘new stream of freight traffic’. The first consignment generated revenue worth Rs.19.21 lakh (US$ 25.79 thousand) for the Indian Railways.
  - Originating from the mines in Kutch—laterite is brought into Chennai via six ships carrying as much as 70,000 tonnes of materials every year. From the Chennai Port, laterite is transported through these freight trains to cement manufacturing plants in Andhra Pradesh. According to the Southern Railways zone, the resulting freight traffic is estimated to fetch annual revenue worth Rs. 24 crore (US$ 3.2 million) for Indian Railways.

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

- Train travel remains the preferred mean for long-distance travel for majority of Indians.
- Increase in the demand for passenger trains is supported by urbanisation, improving income standards, etc.
- During FY20, passenger traffic in the country reached 8,086 million and is estimated to reach 12 million by 2031. In FY22 (until August 2021), passenger traffic stood at 887.63 million.
- In the wake of COVID-19, Indian Railways halted passenger train operations and converted those coaches into COVID care centres and were used to supply oxygen cylinders.
  - As of April 2021, Indian Railways made ~4,000 COVID-19 care coaches with ~64,000 beds ready for use by states.
  - As of May 23, 2021, Indian Railways delivered >15,284 MT of Liquid Medical Oxygen (LMO) in >936 tankers to 14 states.
- 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.

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

**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 medium to long term.
- Freight traffic carried by Indian Railways stood at 1,232.64 million tonnes in FY21 and is estimated to stand at 2,024 MT by 2024.
- In FY22 (until August 2021), freight loading stood at 561.80 million tonnes compared with 430.75 million tonnes in FY21.
- In August 2021, freight earnings stood at US$ 1.43 billion and freight loading reached 110.43 million tonnes.
- In the first quarter of FY22, North Central Railway registered the highest growth in freight earnings at Rs. 437.57 crore (US$ 58.75 million), which is 24.2% higher than last year’s earnings of Rs. 325.33 crore (US$ 43.68 million). Freight loading also increased to 4.32 million tonnes, which is 33.3% higher than last year’s loading of 3.24 million tonnes.
- In November 2020, India Railways announced that 40% of dedicated freight corridor (DFC) will be opened for traffic by end-FY21, while the entire 2,800 km route will be completed by June 2022.
- In January 2021, Prime Minister Mr. Narendra Modi flagged off the world’s first double-stack, long-haul container train from New Ateli in Haryana to New Kishanganj in Rajasthan.

Note: CAGR - Compound Annual Growth Rate, FY - Indian Financial Year (April-March)
Source: Ministry of Railways, Vision 2020, Press Information Bureau
Rising export of railways sector

- India’s export of railways grew at a CAGR of 52.52% during 2010-2019 to reach US$ 635 million.
- In 2019, Train 18, Indian Railways’ fastest engine-less self-propelled train, gained several queries for export.
- On July 28, 2020, Railways handed over 10 Broad Gauge (BG) locomotives to Bangladesh, under grant assistance from the Government of India.
- In January 2021, Hyundai Motor India Ltd. (HMIL) has announced that it has exported 125 cars to Nepal via the Indian Railways. The export is claimed to be eco-friendly and the first-ever by the company. With this step, the company is aiming to reduce carbon footprint by 20,260 tonnes.

**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*
RECENT TRENDS AND STRATEGIES
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.
   - 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
• 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.
• Average speed of faster trains will increase from the existing 110-130 kmph to 160-200 kmph, respectively.
• 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
• 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. These rails are primarily used by metro rail corporations, high-speed corridors and bullet trains.

Source: News Articles
Notable trends in Indian railways… (3/4)

8

New services/programmes launched
• 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.

Source: News Articles
Notable trends in Indian railways… (4/4)

### 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.

### Budget Allocation
- Under the Union Budget 2021-22, the government allotted Rs. 1,803.01 crore (US$ 249.07 million) for gauge conversion, Rs. 3,000 crore (US$ 414.43 million) for doubling tracks, Rs. 6,815.36 crore (US$ 941.51 million) for rolling stock and Rs. 2,448.30 crore (US$ 338.22 million) for signalling and telecom.

### Hospital management information system
- In November 2020, Indian Railways (with the objective of bringing hospital management on a single architecture to prevent pilferage and making operations seamless) entrusted RailTel Corporation of India Limited ("RailTel") with the implementation of a hospital management information system ("HMIS")—an integrated clinical information system for its 125 health facilities and 650 polyclinics across India for improved hospital administration and patient healthcare.

### New Railway Projects
- In February 2021, Minister of Railways Mr. Piyush Goyal dedicated 88 Railway projects to the country worth Rs. 1000 crore (US$ 138.14 million) in the states of Kerala, Tamil Nadu, Madhya Pradesh, West Bengal and Karnataka.
- Indian Railways’ Udhampur-Srinagar-Baramulla rail link project in Jammu and Kashmir is expected to be completed by 2023.

*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 revenue of Indian Railways. IR is focusing on international tourists and have 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.

- 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 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 increased to 44 kmph in FY21 from 24 kmph in FY20.

- 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 railways 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. As of July 2021, 258,906 bio toilets have been installed across ~73,078 passenger train coaches.

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 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% 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

- Government focus on infrastructure building
- Growth of freight traffic due to industrialisation
- Rising demand for urban mass transportation
- Improved safety and modernisation
- Increasing private sector participation
Rising income and urbanisation driving passenger traffic growth

- 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 460.78 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 34.03%\(^*\) in 2018 to 37.38%\(^*\) 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
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 July 2021, the South-Central Railway zone announced infrastructure development by doubling the maximum permissible speed to 100 km per hour on the Godavari Bridge. The initiative gave a major boost to the Indian Railways on infrastructure modernisation.

In July 2021, Indian Railways executed remodeling of Gangapur City Yard to boost the speed of railways between Delhi and Mumbai route.

Rail Land Development Authority (RLDA) is working on long-term planned projects worth Rs. 50,000 crore (US$ 6.74 billion) for redeveloping 123 railway stations, across the country, on a self-sustainable model, which is in line with the smart city projects.

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.

In December 2020, a Northeast Frontier Railway (NFR) spokesperson stated that at least six construction projects, including three new lines and three double-line projects, will be completed in 2021. Among these three new rail line projects, two will be international lines, connecting to neighbouring countries—Bangladesh and Nepal.

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.

Notes: RE - Revised Estimates, E- Estimate
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 - Bhopdeopur-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 form 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 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
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**

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**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.
- Under the scheme, 1,253 stations were identified for development, of which 1,201 stations have been developed and the remaining 52 stations will be developed by 2021-22.
- Total allocation for the scheme increased from Rs. 1,470.79 crore (US$ 228.21 million) in 2017-18 to Rs. 3,422.57 crore (US$ 467.25 million) in 2019-20.

1. 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).
- 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.
Dedicated freight corridor… (1/2)

OBJECTIVES

1. Increase rail freight share through customised logistic services
2. Segregate freight and passenger lines for focused approach
3. Create additional freight capacity to meet demand
4. Introduce time-tabled freight services to ensure better services
5. Adopt high-end technology for real-time data analysis
6. Reduce unit cost of transportation and increase productivity

Note: Ministry of Railways
**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: 2,8243 kms; total estimated cost: US$ 11.66 billion as on September 2019; financial progress stands at 63.6% and physical progress stands 67.5%.
- 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.

**Western Corridor**

- Uttar Pradesh -> Haryana -> Rajasthan -> Gujarat -> Maharashtra
- Length: 1,506 kms

**Eastern Corridor**

- Punjab -> Haryana -> Uttar Pradesh -> Bihar -> West Bengal/Jharkhand
- Length: 1,337 kms

**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*
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
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 run completely on electricity.

Indian Railways has completed eight major capacity enhancement projects by taking advantage of the coronavirus lockdown. These projects included three super critical projects with a combined length of 68km, three critical projects with a combined length of 45km, 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.

Since the launch of first ‘Kisan Rail’ service on August 7, 2020, the Indian Railways have operated a total of 1,040 Kisan Rail services by transporting ~3.38 lakh tonnes of consignment across 72 routes in the country until July 30, 2021.

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**

- 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 stimated 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.

- 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.

- 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, Vaibhawwadi-Kolhapur and Indore-Mhammad.

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

- From April 2000 to March 2021, FDI inflows in railways-related components industry stood at US$ 1.23 billion.
- 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
Source: Department for Promotion of Industry and Internal Trade
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<td>Indian Railways</td>
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<td>RITES Limited</td>
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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)

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**Note:** As of September 2021  
**Source:** Reserve Bank of India, Average for the year
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