



India's Journey of Infrastructure Development

For Prelims: [Infrastructure](#), [GPS](#), [Galathea Bay](#), [India-Middle East-Europe Economic Corridor](#), [Sagarmala](#), [Namo Bharat train](#), [RRTS Corridor](#), [Parvatmala Programme](#), [Ukraine](#), [Gaza](#), [Delhi-Mumbai Expressway](#), [PM GatiShakti National Master Plan](#), [Dedicated Freight Corridors](#), [KAVACH](#), [Alternative Fuels](#), [Green Building](#), [PLI](#).

For Mains: Achievements, challenges and way forward for India's Infrastructure Development.

[Source: BS](#)

Why in News?

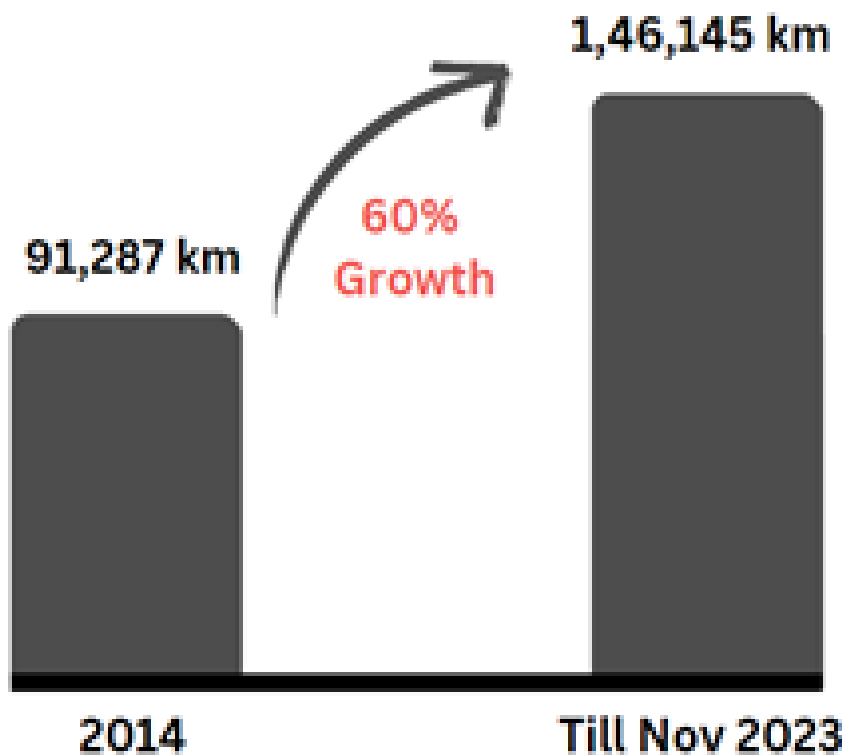
India's infrastructure has transformed over the past 25 years, with increased progress and private participation. However, challenges remain as 90% of the required infrastructure is yet to be built to reach its USD 30 trillion economy goal by 2047.

What are India's Achievements in the Infrastructure Sector by 2024?

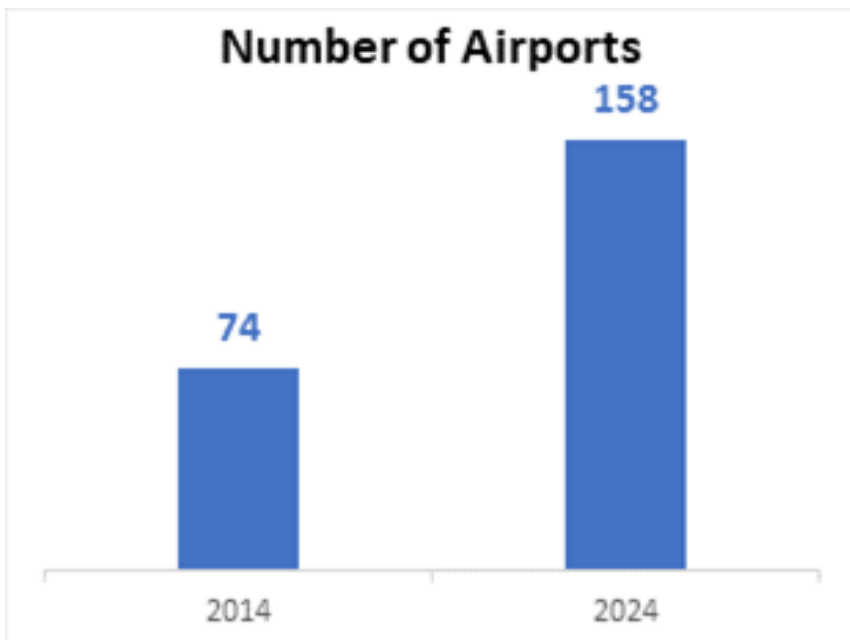
- **Roads and Highways:** Road network nearly tripled to 146,000 km since 2000, featuring modern access-controlled expressways and [GPS-based toll systems](#).
 - Since 2014, the government has built 3.74 lakh km of rural roads, connecting over 99% of rural habitations and improving accessibility.
 - Toll collections reached Rs 2.1 trillion, over 25 years, reflecting robust private sector participation.

//

Total Length of National Highway



- **Railways:** India's first **bullet train project**, with trainsets capable of running at **280 km/h** is set for completion by **2026**.
 - As of December 2023, **93.83%** of the **broad-gauge tracks (called large line and distance between the two tracks is 5 feet 6 inches)** were electrified, up from 21,801 km in 2014.
 - A **reduction in consequential accidents** over the past decade despite several high-profile incidents like the Kanchenjunga Express crash.
- **Maritime Sector:** India plans to invest **Rs 54 trillion** to become a **top-five shipbuilding nation by 2047**.
 - Mega ports like **Galathea Bay** and the **India-Middle East-Europe Economic Corridor** are being developed to boost trade connectivity.
 - The government has launched **839 Sagarmala projects**, including **port modernization and coastal connectivity**, with an investment of **Rs 5.8 lakh crore**.
- **Aviation:** Weekly domestic flights increased from **3,568 in 2000 to 22,484 in 2024**.
 - Low-cost carriers like **IndiGo** dominate the market, democratizing air travel for millions.
 - **Orders for over 1,000 planes** from Air India and IndiGo signal long-term growth.
 - The total number of **operational airports stands at 158**, with **84 airports** constructed between **2014 and 2024**.



- **Urban Metro:** The metro network has grown from **248 km in 2014 to 945 km by 2024**, serving **21 cities** and **1 crore daily passengers**.
 - The **Namo Bharat train** on the **Delhi-Meerut RRTS corridor** enhances regional connectivity and urban transport.
- **Ropeways Development:** The **Parvatmala Programme** has seen the initiation of **32 ropeway projects**, enhancing connectivity in difficult terrains and reducing urban congestion.

Note: India ranked **38th** in the World Bank's **Logistics Performance Index (LPI) 2023**.

What are the Challenges in India's Infrastructure Sector?

- **Stalled and Delayed Projects:** The **Rs 10 trillion Bharatmala Project** was **shelved** due to red tape, while the **Rs 20 trillion Vision 2047 plan** has been **deferred** following a policy shift.
 - Financial constraints and **underutilization of resources** hinder large-scale projects like the **Delhi-Mumbai Expressway** and the **India-Middle East-Europe Economic Corridor**.
 - India needs significant investments to become a **USD 30 trillion economy by 2047**, with **90% of infrastructure still to be built**.
- **Sluggish Progress:** Railway route expansion has been slow, with only 231 km of new tracks added annually on average since 2000, reflecting less than a kilometer per day.
 - Contract awarding for highway projects fell drastically, with only **1,152 km awarded by August 2024**, a historic low.
- **Private Sector Dependency:** While private sector involvement has grown, the **recycling of capital** for projects remains a challenge.
 - Toll collection has raised **equity concerns**, with **private corporations** receiving **Rs 1.4 trillion of the Rs 2.1 trillion** collected since 2000.
 - **Recycling of capital** is a strategy of **selling non-core or underperforming assets** and **reinvesting** in more profitable opportunities.
- **Maritime Disruption:** The maritime sector struggles to meet its 2047 goal of becoming a top-5 shipbuilding nation, hindered by **Ukraine and Gaza wars** and the collapse of the **global supply chain**.
- **Aviation Sector Bottlenecks:** Intense competition has led to the **bankruptcy** of several airlines, including **Jet Airways, Kingfisher Airlines, and Go First**.
- Market consolidation between **IndiGo and privatised Air India** limits competition and poses risks of **monopolistic tendencies**.

What are Government Initiatives for Infrastructure Development?

- [PM Gati Shakti Scheme](#)
- [Bharatmala scheme](#)
- [National Infrastructure Pipeline \(NIP\)](#)
- [Sagarmala Project](#)
- [Ude Desh Ka Aam Nagrik \(UDAN\)](#)

Way Forward

- **Integrated Infrastructure:** The [PM GatiShakti National Master Plan](#) ensures infrastructure projects complement each other, reducing delays and duplication, while boosting **high-speed connectivity**.
 - High-speed transport networks, such as **expressways, high-speed rail corridors, dedicated freight corridors**, upgraded airports, and **multi-modal logistics parks** boost trade and supply chain performance.
- **Safer and Resilient Infrastructure:** The government's initiatives, like [KAVACH](#) for railways and the **Advanced Traffic Management System**, aim to reduce accidents and improve safety.
 - Adopting technologies like [Advanced Driver Assistance Systems \(ADAS\)](#) in vehicles and building **safer infrastructure** will further protect citizens and reduce fatalities.
- **Incorporating Green Technologies:** The shift to [EVs](#) and [alternative fuels](#) in public transport will reduce the transportation sector's carbon footprint, with schemes like [FAME-II](#) and [PLI](#) accelerating this transition.
 - Focusing on [green building](#) practices, water conservation, [waste management](#), and renewable energy will make future infrastructure sustainable and climate-resilient.
- **Technological Integration:** The use of technology, such as [FASTags](#) for smooth toll payments and [Digiyatra apps](#) for easy airport check-ins, enhance convenience and save travel time.
- **Policy and Regulatory Reforms:** India must pursue regulatory reforms and a clear policy framework to **boost private sector investment**, especially in ports, railways, and aviation, to meet infrastructure targets
 - The **government, private sector, and local communities** should collaborate to develop a **multi-year National Transport Strategy**, including essential policies and investments.

Drishti Mains Question:

Analyze the achievements and challenges in India's infrastructure sector and suggest measures for its future growth.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. In India, the term "Public Key Infrastructure" is used in the context of (2020)

- (a) Digital security infrastructure
- (b) Food security infrastructure
- (c) Health care and education infrastructure
- (d) Telecommunication and transportation infrastructure

Ans: (a)

Q. With reference to 'National Investment and Infrastructure Fund', which of the following statements is/are correct? (2017)

1. It is an organ of NITI Aayog.
2. It has a corpus of `4,00,000 crore at present.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: (d)

Mains:

Q. "Investment in infrastructure is essential for more rapid and inclusive economic growth." Discuss in the light of India's experience. (2021)

PDF Refernece URL: <https://www.drishtiiias.com/printpdf/india-s-journey-of-infrastructure-development>

