

India's Infrastructure Transformation, Key Developments, Significance

August 15, 2026 • vajiramandravi.com



India's infrastructure landscape has undergone a major transformation over the past 12 years, moving from a project-based approach towards integrated, technology-driven and multimodal infrastructure development. Rising public capital expenditure, expansion of railways and highways, modern airports and metros, stronger ports and waterways, industrial corridors, and wider access to housing and tap water are together strengthening connectivity, logistics efficiency, basic services and long-term economic growth.

Rising Public Investment in Infrastructure

The scale of public investment has expanded significantly over the past 12 years. **Public capital expenditure increased from about ₹2 lakh crore in FY 2014-15 to ₹12.2 lakh crore in FY 2026-27**, providing greater fiscal support for infrastructure development.

Alongside higher spending, the **focus has gradually moved from building individual assets to developing connected infrastructure networks**, with greater emphasis on coordination and long-term capacity creation.

Railways: Moving Towards Faster and Safer Mobility

Indian Railways is being modernised through electrification, new-generation trains, advanced safety systems and station redevelopment.

- **Railway capital expenditure:** Increased to a record ₹2,93,030 crore in FY 2026-27, supporting railway infrastructure, capacity expansion and safety.
- **Near-total electrification:** About 99.6% of the broad-gauge railway network was electrified by July 2026, up from around 20% before 2014. **India is now second only to Switzerland among major railway systems in electrification.**
- **New-generation trains:** 162 Vande Bharat, 2 Vande Bharat Sleeper and 72 Amrit Bharat services are expanding modern rail connectivity.
- **Advanced safety:** Kavach Version 4.0 has been commissioned on major railway routes, strengthening automatic train protection and railway safety.
- **High-speed rail:** The Mumbai-Ahmedabad High-Speed Rail Corridor covers 508 km and has a design speed of 350 kmph.
- **Station redevelopment:** Under the **Amrit Bharat Station Scheme**, railway stations are being modernised with improved passenger amenities and infrastructure.
- **Green mobility:** India has also moved towards alternative-fuel rail technology with the development of its indigenous hydrogen fuel-cell trainset.

Roads: Expanding National and Rural Connectivity

Road infrastructure has expanded rapidly to improve the movement of people, goods and agricultural produce across the country.

- **Large road network:** India now has the **world's second-largest road network**, covering about 63.73 lakh km.
- **National Highway expansion:** National Highway length increased by about 61%, from 91,287 km in FY 2014 to 1,46,572 km in March 2026.
- **Wider highways:** Four-lane and above National Highways increased from 18,371 km in 2014 to 45,516 km.
- **Rural connectivity:** Under **Pradhan Mantri Gram Sadak Yojana** (PMGSY), about 3.86 lakh km of rural roads were constructed during 2000-2014, compared with about 4.11 lakh km during 2014-2026.
- **Pradhan Mantri Gram Sadak Yojana-IV (PMGSY-IV):** Aims to connect 25,000 unconnected habitations by 2029.
- **Bharatmala:** Under the **Bharatmala Pariyojana**, **22,590 km of highways had been completed by March 2026**, strengthening major road corridors and improving connectivity across the country.

Bridges and Tunnels: Connecting Difficult Terrain

Large bridges and tunnels are helping overcome geographical barriers, especially in the Himalayan and coastal regions.

- **Chenab Bridge:** Located in Jammu and Kashmir, it is the *world's highest railway arch bridge*, standing 359 metres above the Chenab River.
- **Anji Khad Bridge:** India's first cable-stayed railway bridge.
- **Pamban Bridge:** India's first vertical-lift railway sea bridge, connecting Rameswaram with the mainland.
- **Z-Morh/Sonamarg Tunnel:** Provides all-weather connectivity through an avalanche-prone region of Jammu and Kashmir and improves access towards Ladakh.
- **Atal Tunnel:** Provides an important all-weather route between Manali and Lahaul-Spiti.

These projects are significant not only for economic connectivity but also for strategic mobility in difficult and border regions.

Civil Aviation: Bringing Regional Connectivity Closer

India's aviation infrastructure is expanding beyond major cities, with greater focus on smaller towns and remote regions.

- **UDAN (Ude Desh ka Aam Nagrik):** Connected 95 airports, heliports and water aerodromes through 679 routes, making air travel more accessible to smaller cities and remote regions and benefiting over 1.68 crore passengers by July 2026.
- **Airport expansion:** Operational airports increased from 74 in 2014 to 165 by July 2026.
- **Greenfield airports:** 25 greenfield airports have been approved since 2014.
- **Digital travel:** Digi Yatra is operational at 38 airports, improving contactless and paperless passenger processing.
- **Modified UDAN:** Approved with an outlay of ₹28,840 crore, it aims to develop 100 new airports and 200 modern helipads and strengthen last-mile regional connectivity.

Metro Expansion: Strengthening Urban Mobility

India now has the world's third-largest metro network.

- **Metro network:** Expanded from 248 km in 2014 to 1,155 km by March 2026.
- **Wider coverage:** The number of cities with metro connectivity increased from 5 to 26.
- **Ridership:** Daily metro ridership crossed 1.15 crore passengers.
- **Underwater metro:** Kolkata operationalised India's first underwater metro tunnel beneath the Hooghly River in 2024.
- **Water-based transit:** Kochi Water Metro introduced an innovative water-based mass-transit model connecting islands and the mainland.

Maritime Infrastructure: Supporting Trade and Logistics

Ports and waterways are being developed as important pillars of India's trade and logistics network.

- **Port capacity:** Major ports' cargo-handling capacity nearly doubled from 873 MMTPA in 2014 to around 1,728 MMTPA in 2026.
- **Faster turnaround:** Average vessel turnaround time improved from 94 hours to 48.8 hours in 2025-26.

- **Cargo handling:** Major ports handled 915.17 MT of cargo in FY 2025-26, compared with 581 MT in FY 2014-15.
- **Sagarmala:** The Sagarmala Programme has strengthened port-led development and coastal connectivity.
- **National waterways:** Increased from 5 in 2014 to 111 in 2026, of which 32 are operational.
- **Ship recycling:** India became the world's leading ship-recycling nation in 2025, with a 35.4% global share.
- **Maritime insurance:** The **Bharat Maritime Insurance Pool**, launched in May 2026, provides domestic insurance support against major maritime risks faced by Indian-flagged and Indian-controlled vessels.

Together, higher port capacity, faster turnaround and expanded waterways can reduce logistics costs and strengthen India's position in global trade.

Integrated Logistics and Industrial Infrastructure

The biggest change is the growing focus on connecting different infrastructure systems rather than developing them in isolation.

- **PM GatiShakti:** The National Master Plan brings infrastructure planning across 58 Ministries and Departments onto a common platform using more than 3,291 data layers.
- **Network Planning Group:** By August 2026, 396 projects worth about ₹18.66 lakh crore had been evaluated.
- **National Logistics Policy:** Aims to improve multimodal transport and supply-chain efficiency.
- **PRAGATI:** Has reviewed 382 projects worth over ₹85 lakh crore and helped resolve 2,958 issues.
- **Industrial land:** More than **4,220 industrial parks** have been mapped on the **India Industrial Land Bank**, helping investors identify suitable industrial land and supporting faster investment decisions
- **Industrial smart cities:** 20 industrial smart cities have been approved across 7 industrial corridors.
- **BHAVYA:** Approved in March 2026, the scheme aims to develop 100 new plug-and-play industrial parks.

The importance of this approach lies in integration. A highway is more valuable when it connects efficiently with a railway, port or industrial cluster. Similarly, a port becomes more competitive when cargo can move quickly through roads, railways and inland waterways.

Water, Housing and Urban Infrastructure

Infrastructure development is increasingly reaching households through better access to water, housing and urban services.

- **Rural tap water:** Under the **Jal Jeevan Mission**, rural household tap-water coverage rose from 3.23 crore households in 2019 to more than 15.89 crore by July 2026.
- **JJM 2.0:** Approved in March 2026, it extends the mission to December 2028 with an enhanced outlay of ₹8.69 lakh crore.
- **Urban housing:** Under PMAY-Urban, 99.25 lakh houses had been completed by August 2026.
- **Women's ownership:** Around 96% of houses under PMAY-U 2.0 are allotted to women, strengthening women's ownership of housing assets.

- **Rural housing:** Under PMAY-Gramin, 3.13 crore houses out of 3.91 crore sanctioned houses had been completed by August 2026.
- **Urban infrastructure:** Under AMRUT and AMRUT 2.0, projects worth about ₹2.79 lakh crore have been sanctioned since 2015.
- **Smart Cities:** Under the Smart Cities Mission, 7,790 projects worth ₹1.56 lakh crore had been completed by March 2026.

What Makes India's Infrastructure Transformation Different?

India's Infrastructure Transformation is not only about building more infrastructure; it is increasingly about making different infrastructure systems work together.

- **From isolated projects to integrated planning:** PM GatiShakti connects roads, railways, ports, airports and industrial infrastructure through common planning.
- **From connectivity to multimodal connectivity:** Road, rail, waterways, ports and aviation are increasingly being linked to reduce logistics costs and travel time.
- **From basic infrastructure to modern infrastructure:** Vande Bharat, Kavach, high-speed rail, metro systems and hydrogen-based mobility show the shift towards newer technologies.
- **From major cities to wider regional access:** UDAN, PMGSY, rural housing and Jal Jeevan Mission are extending infrastructure benefits to smaller towns and villages.
- **From infrastructure as an asset to infrastructure as an economic enabler:** Better transport and logistics infrastructure can improve manufacturing competitiveness, supply chains, investment and employment.

Significance for India's Development

A stronger infrastructure network can create a multiplier effect across the economy while improving productivity, inclusion and quality of life.

- **Economic growth:** Better connectivity reduces the time and cost of moving goods and people, improving overall economic efficiency.
- **Manufacturing competitiveness:** Industrial corridors, plug-and-play parks and better logistics can strengthen domestic manufacturing and supply chains.
- **Private investment:** Improved infrastructure can create favourable conditions for private investment by reducing business and logistics costs.
- **Regional development:** Roads, railways, airports and digital planning can connect less-developed regions with markets and economic opportunities.
- **Social development:** Housing, tap water and public transport directly improve living standards and access to basic services.
- **Strategic connectivity:** Bridges, tunnels and roads in border areas improve access to strategically important regions.
- **Sustainability:** Electrified railways, metros, waterways and hydrogen-based mobility can support the transition towards cleaner transport.

Source: <https://vajiramandravi.com/current-affairs/indias-infrastructure-transformation/>

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