



P.L.RAJ IAS & IPS ACADEMY

Building Bureaucrats Since 2006

3. Infrastructure At the Core of India's Development – Economy

Over the past decade, India has accelerated infrastructure creation across transport, housing, water, energy, logistics, and digital networks.

1. Infrastructure development has emerged as key driver of economic growth, connectivity, and social inclusion enabling broad-based development.
2. Strategic investments across multiple sectors have transformed India's development landscape positioning it for sustained growth.

1.Transport and Connectivity Infrastructure

Railway Transformation

1. Major Railway Bridges including Chenab Bridge (2025), Anji Khad Bridge (2025), Pamban Bridge (2025), and Bairabi–Sairang (2025) enhance connectivity in challenging terrain.
2. Railway Budget increased from ₹32,000 crore (2014-15) to ₹2.78 lakh crore (2026-27) reflecting massive investment scaling.
3. Rail Electrification expanded from 20% (2014) to 98.6% (March 2026) reducing emissions and improving efficiency.

Road and Highway Expansion

1. National Highways expanded by 61% to 1.46 lakh km providing comprehensive road network connectivity across regions.
2. 3,644 km of expressways operational enabling fast freight movement and passenger transport reducing journey times.

Airport Infrastructure Growth

1. Operational airports increased from 74 (2014) to 165 (2026) bringing air connectivity to previously underserved regions.
2. UDAN scheme connected 95 airports benefiting 1.64 crore passengers making air travel affordable and accessible.
3. Operationalisation of GAGAN in 2015 established world's first equatorial Satellite-Based Augmentation System (SBAS) enhancing navigation accuracy and flight safety.

2.Maritime and Logistics Infrastructure

Port Capacity Expansion

1. Port capacity nearly doubled to 1,726 MMTPA enhancing cargo handling capacity for trade and commerce.
2. National Waterways expanded from 5 to 111 providing alternative transport routes reducing road congestion and costs.
3. India's rank in World Bank Logistics Performance Index improved from 54 (2014) to 38 (2023) reflecting enhanced logistics efficiency.

3.Water Infrastructure and Access

Jal Jeevan Mission Progress

1. Rural tap water coverage increased from 17% (2019) to about 82% (2026) providing household water access to majority of rural population.

2. Progress in irrigation, river rejuvenation, and river-linking projects like Ken–Betwa enhancing water security and agricultural productivity.

Energy Security and Clean Power

Power Generation and Access

1. Installed power capacity increased from 248 GW to 533 GW more than doubling generation capability.
2. Power shortages reduced from 4.2% to 0.03% virtually eliminating power deficits and ensuring reliable supply.
3. India became world's 3rd-largest clean energy producer advancing renewable energy transition.
4. Nearly 2.86 crore households electrified under Saubhagya scheme providing universal electricity access.

Clean Cooking Fuel Expansion

1. LPG coverage increased from 55.9% to 107.2% indicating near-universal access and multiple connections per household.
2. PM Ujjwala Yojana expanded clean cooking access to poor households with over 33 crore LPG consumers nationwide reducing indoor air pollution.

4.Digital Infrastructure and Connectivity

Internet and Broadband Expansion

1. Internet connections rose from 25 crore to over 100 crore reflecting four-fold increase in digital connectivity.
2. Broadband connections reached nearly 100 crore providing high-speed access for digital services and e-commerce.
3. As of 2026, 5G services available in 99.9% of districts with about 85% population coverage enabling cutting-edge digital applications.

5.Challenges in Infrastructure Development

Financing and Land Constraints

1. Large infrastructure projects require massive investments creating pressure on public finances and increasing dependence on private capital.
2. Delays due to land acquisition disputes, rehabilitation concerns, and lengthy approval processes increase project costs and timelines.

Environmental and Regional Concerns

1. Infrastructure expansion can lead to ecological degradation, deforestation, biodiversity loss, and displacement of communities requiring careful mitigation.
2. Development remains uneven with northeastern, hilly, and remote regions lagging behind.

Urban Infrastructure Stress and Maintenance

1. Rapid urbanization has outpaced development of transport, housing, water supply, and waste management systems.
2. Inadequate maintenance reduces efficiency and lifespan of infrastructure assets.

Climate and Disaster Risks

1. Extreme weather events, floods, cyclones, and heatwaves pose increasing risks to infrastructure resilience requiring climate-resilient design.

6.Way Forward

1. **Strengthen Public-Private Partnerships** – Leverage private sector efficiency and resources through well-structured PPP frameworks.
2. **Accelerate Environmental Clearances** – Streamline approval processes through transparent mechanisms balancing development and environmental protection.
3. **Promote Climate-Resilient Infrastructure** – Design and build infrastructure resilient to climate impacts and extreme weather events.
4. **Enhance Maintenance Systems** – Establish systematic maintenance and asset management ensuring long-term infrastructure efficiency.
5. **Improve Last-Mile Connectivity** – Focus on underserved regions ensuring inclusive infrastructure development.

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