

4. Three-Year PPP Project Pipeline – Economy

Recently, the Department of Economic Affairs (DEA) has unveiled a three-year Public Private Partnership (PPP) project pipeline aimed at streamlining infrastructure development across India

Infrastructure Investment in India- Scale, Models, and Challenges

India's infrastructure strategy has evolved into a comprehensive, multi-institutional framework aimed at supporting high-growth aspirations, improving competitiveness, and achieving inclusive development. The National Infrastructure Pipeline (NIP) and associated financing models form the backbone of this approach.

Scale and Scope of the Infrastructure Pipeline – According to the Ministry of Finance, the infrastructure pipeline currently includes 852 projects across Central Infrastructure Ministries, States, and Union Territories. The total estimated investment exceeds ₹17 lakh crore, reflecting the scale of India's infrastructure ambitions. Projects are spread across critical sectors

1. Transport- roads, railways, ports, airports, logistics hubs
2. Energy- power generation, transmission, renewable energy
3. Water management- irrigation, drinking water, wastewater treatment
4. Urban infrastructure- housing, metro rail, smart cities
5. Social infrastructure- healthcare, education, digital connectivity

The pipeline is designed to crowd-in private investment, improve inter-sectoral coordination, and ensure predictable project flow.

Evolution of Infrastructure Financing in India

Pre-liberalisation phase

1. Infrastructure investment relied largely on budgetary allocations and public sector undertakings.
2. Fiscal constraints limited scale and efficiency.

Post-1991 liberalisation reforms

1. Opening of infrastructure sectors to private participation through Public-Private Partnerships (PPPs).
2. Focus on leveraging private capital, technology, and managerial efficiency.

Institutional innovations

1. National Infrastructure Pipeline- Long-term project visibility and investment planning.
2. National Investment and Infrastructure Fund- Mobilising domestic and foreign institutional capital.
3. National Bank for Financing Infrastructure and Development- Addressing long-term infrastructure financing gaps through a dedicated Development Finance Institution (DFI).

Major Infrastructure Investment Models

Public-Private Partnership (PPP) Model – Involves shared responsibility between the public and private sectors in financing, construction, operation, and maintenance. Widely used in highways, airports, ports, and urban water supply. Aims to improve efficiency, reduce fiscal burden, and accelerate project delivery.

Key PPP Sub-models

Build-Operate-Transfer (BOT)

1. Private entity builds and operates the asset for a concession period before transferring it back to the government.
2. Common in toll-based road and transport projects.

BOT-Annuity

1. Government pays fixed annuities to the private developer after project completion.

2. Reduces traffic and revenue risk for private players.

Hybrid Annuity Model (HAM)

1. Combines EPC and BOT features.
2. Typically, 40% of project cost is paid by the government during construction, while the remaining 60% is mobilised by the private developer.
3. Widely adopted in national highway projects to revive private participation.

Engineering, Procurement, and Construction (EPC) Model – Government bears full financial responsibility, while execution is outsourced to private contractors. Suitable for strategic or low-revenue projects. Reduces private sector risk and ensures timely completion.

Infrastructure Investment Trusts (InvITs) and REITs – Pooled investment vehicles that allow monetisation of operational assets. Enable participation by pension funds, insurance companies, and foreign investors. Help recycle capital and deepen infrastructure capital markets.

Asset Monetisation and Hybrid Models – Implemented through the National Monetisation Pipeline. Focuses on leasing brownfield assets (roads, power transmission, pipelines) to private investors for a defined period. Generates upfront revenue for reinvestment in new infrastructure without outright privatisation.

Supporting Mechanisms for PPPs

Viability Gap Funding (VGF) Scheme

1. Financial support for economically necessary but financially unviable projects.
2. Implemented by the Department of Economic Affairs to attract private investment in social and regional infrastructure.

Model Concession Agreements (MCAs)

1. Standardised contracts developed by NITI Aayog.
2. Reduce legal ambiguity, improve risk allocation, and enhance investor confidence.

National PPP Policy Frameworks

1. Institutional support through units such as the Private Investment Unit in the Department of Economic Affairs.
2. Focus on project appraisal, contract management, and dispute resolution.

Key Concerns and Structural Challenges

Financial and Funding Constraints

High capital intensity– Infrastructure projects require large upfront investment with long gestation periods, discouraging risk-averse investors.

Stressed banking sector– High NPAs, especially in PSBs, due to stalled and delayed infrastructure projects.

Limited long-term finance– Inadequate participation of pension funds and insurance funds leads to excessive dependence on bank lending.

Issues in PPP Design and Implementation – Several PPP projects failed due to weak project structuring and ineffective dispute resolution mechanisms.

Risk allocation problems–Private players often bear risks related to land acquisition, regulatory approvals, and demand uncertainty.

Over-optimistic projections– Inflated traffic and revenue estimates result in post-construction financial distress.

Contractual disputes– Ambiguous concession agreements lead to frequent litigation and stalled projects.

Land Acquisition and Environmental Bottlenecks – Prolonged land acquisition due to legal disputes, rehabilitation challenges, and local opposition. Delays in environmental clearances and litigation, especially in mining, road, and power sectors.

Regulatory and Policy Uncertainty – Fragmented institutional landscape involving multiple ministries and levels of government. Frequent policy changes, tariff renegotiations, and retrospective actions undermine investor confidence. Weak and under-resourced sectoral regulators reduce predictability.

Governance and Institutional Weaknesses – Poor project preparation, inadequate feasibility studies, and weak technical assessments. Allegations of corruption and lack of transparency in bidding and approvals.

Operation and Maintenance (O&M) Deficits – Excessive focus on asset creation rather than lifecycle maintenance. Poor O&M practices reduce asset quality, service delivery, and long-term returns. Urban infrastructure such as water supply and sewage systems are particularly affected.

Conclusion

India's infrastructure investment framework has expanded significantly in scale and sophistication, supported by diversified financing models, institutional reforms, and asset monetisation strategies. While PPPs, InvITs, and DFIs have strengthened capital mobilisation, persistent challenges related to finance, governance, land acquisition, and regulatory certainty remain. Addressing these structural constraints through better risk-sharing, robust project preparation, stable policy regimes, and strengthened institutions is essential to ensure sustainable and high-quality infrastructure-led growth.

Source- <https://www.newsonair.gov.in/centre-creates-three-year-ppp-project-pipeline-worth-rs-17-lakh-crore-rupees-as-announced-in-budget-2025-26/>