



Government Push For Infrastructure Projects

For Prelims: [Infrastructure](#), **Capital Expenditure**, [Digital Divide](#), Types of Investment Models, [Cybersecurity](#), [Digital and Social Infrastructure](#), [Digital India](#)

For Mains: Government Initiatives for Infrastructure Development, Challenges to Infrastructure Development in India, Steps can be Taken for Infrastructure Development in India.

Source: [IE](#)

Why in News?

Recently, the [Cabinet Committee on Economic Affairs](#), led by the Prime Minister has approved **eight National High Speed Corridor projects** under the Public-Private Partnership (PPP) Model.

- These projects are expected to create approximately **4.42 crore mandays of direct and indirect employment**.

What are the Approved Eight National High Speed Corridor Projects?

Corridor Projects	Investment Models
<ul style="list-style-type: none">▪ Agra-Gwalior high-speed corridor▪ Tharad-Deesa-Mehsana-Ahmedabad corridor▪ Guwahati Ring Road	Build-Operate-Transfer (BOT)
<ul style="list-style-type: none">• Nashik Phata-Khed corridor	Hybrid Annuity Model (HAM)
<ul style="list-style-type: none">• Kharagpur-Moregram corridor• Ayodhya Ring Road• Raipur-Ranchi corridor• Kanpur Ring Road	Engineering, Procurement, and Construction (EPC) Model

What are the Various Types of PPP Models?

- **Public-Private Partnership (PPP) Model:** PPP is an arrangement between government and private sector for the provision of public assets and/or public services. PPP allow large-scale government projects, such as roads, bridges, or hospitals, to be completed with private funding.
- **Models of PPP:**

Model	Description
Build-Operate-Transfer (BOT)	A private partner designs, builds, operates (during the contracted period), and transfers the facility

back to the public sector. The private sector finances, constructs, and maintains the project, while collecting revenue from users. **National highway projects by NHAI are a major example of the BOT model.**

<p>Build-Own-Operate (BOO)</p>	<ul style="list-style-type: none"> ▪ In this model, ownership of the newly built facility rests with the private party. On mutually agreed terms and conditions, the public sector partner agrees to 'purchase' the goods and services produced by the project.
<p>Build-Own-Operate-Transfer (BOOT)</p>	<ul style="list-style-type: none"> ▪ In this variant of BOT, after the negotiated period of time, the project is transferred to the government or to the private operator. The BOOT model is used for the development of highways and ports.
<p>Build-Operate-Lease-Transfer (BOLT)</p>	<ul style="list-style-type: none"> ▪ In this approach, the government gives a concession to a private entity to build a facility (and possibly design it as well), own the facility, lease the facility to the public sector, and then at the end of the lease period transfer the ownership of the facility to the government.
<p>Design Build Finance Operate (DBFO)</p>	<ul style="list-style-type: none"> ▪ In this model, the entire responsibility for the design, construction, finance, and operation of the project for the period of concession lies with the private party.
<p>Lease Develop Operate (LDO)</p>	<ul style="list-style-type: none"> • Either the government or the public sector entity retains ownership of the newly created infrastructure facility and receives payments in terms of a lease agreement with the private promoter. It is mostly followed in the development of airport facilities.
<p>Hybrid Annuity Model (HAM)</p>	<ul style="list-style-type: none"> ▪ It is a mix of EPC and BOT-Annuity models. As per the design, the government will contribute 40% of the project cost in the first five years through annual payments (annuity). The remaining payment will be made on the basis of the assets created and the performance of the developer.
<ul style="list-style-type: none"> • Engineering, Procurement, and Construction (EPC) Model 	<ul style="list-style-type: none"> ▪ Under this model, the government covers all costs, including the procurement of materials and construction. Private sector involvement is limited to providing

engineering expertise. A key challenge of this model is the high financial burden on the government.

What is the Government's Road Map for Infrastructure Development?

- **Focus on Public-Private Partnerships (PPP):** Government has emphasised on project development through PPP investment models.
 - This model allows private players to assume investment risks and manage the construction and maintenance of highways.
- **Amendments to Concession Agreements:** Government has amended the **Model Concession Agreement** to make it **more attractive for private investors**, introducing liberal compensation, extended concession periods, and termination payments.
 - The earlier **concession agreement** system featured **fixed compensation, short concession periods, low termination payments, and strict regulatory oversight**, making it less appealing to private investors.
- **Introduction of Construction Support:** A new 'construction support' mechanism will enable the **National Highways Authority of India (NHAI)** to pay up to 40% of the total project cost in ten instalments based on physical progress, enhancing financial viability for private developers.
 - Earlier, NHAI only provided equity support, which led to **cash flow challenges** as developers had to rely heavily on their own funds before project completion.
- **Economic Impact of High Speed Corridor Projects:** The projects aim to boost regional economies, particularly in states like West Bengal and the North East, by improving connectivity and reducing transportation costs.
- **Progress in Highway Construction in India:**
 - The **length of National Highways** has increased from 0.91 lakh km in 2013-14 to **1.46 lakh km** in 2024.
 - The average annual construction of National Highways has increased by about 2.4 times from about 4,000 km in 2004-14 to about 9,600 km in 2014-24.
 - The total **capital investment in National Highways** including private **investment has increased by 6 times** from Rs. 50,000 Crore in 2013-14 to about Rs. 3.1 Lakh Crore in 2023-24.
 - The government has adopted a **corridor-based highway infrastructure development approach** with a focus on consistent standards, user convenience, and logistics efficiency.

Related Infrastructure Development Schemes

- **PM Gati Shakti Scheme:** It aims to ensure integrated planning and implementation of infrastructure projects with focus on expediting works on the ground, saving costs and creating jobs.
- **Bharatmala scheme:** It is a flagship highway development programme launched under the Ministry of Road Transport and Highways.
 - The first phase of Bharatmala, **announced in 2017** and initially set to be completed by 2022, has now had its **deadline extended to 2027-28**.
 - It focuses on enhanced effectiveness of already built infrastructure, multi-modal integration, bridging infrastructure gaps for seamless movement and integrating **National and Economic Corridors**.
- **National Infrastructure Pipeline (NIP):** It is a group of social and economic infrastructure projects to provide world-class infrastructure across the country and improve the quality of life for all citizens.
- **Sagarmala Project:** It was approved in 2015, aims to develop port infrastructure along India's 7,516-km coastline through modernisation, mechanisation and computerisation.
- **Ude Desh Ka Aam Nagrik (UDAN):** This scheme was with the aim to improve air connectivity to remote and regional areas of India, enable common people to access affordable air travel and create employment in the aviation sector.

What are the Challenges to Infrastructure Development in India?

- **Physical Infrastructure:** The construction of physical infrastructure in India faces significant challenges including [land acquisition](#), which often involves complicated resettlement and compensation issues.
 - Additionally, **funding such large-scale projects is difficult** due to **limited government resources** and **private investment hindered** by economic and regulatory obstacles.
 - Furthermore, there is a **lack of technology and expertise** required for executing complex infrastructure developments.
- **Political and Regulatory Risk:** It encompasses various approvals required across the project cycle, community opposition, changes to regulations, and breach of contract terms.
 - In India, **denial of government payments** against contractual agreements is perceived as likely to influence future investment decisions.
- **Geographical Challenges:** India's diverse topography, including mountains, rivers, and coastal regions, presents unique engineering challenges. Additionally, extreme weather conditions, such as [cyclones](#) and [floods](#), can disrupt projects and increase costs.
- **Corruption and Inefficiency:** [Bureaucratic red tape](#), [corruption](#), and lack of transparency often lead to project delays, cost escalation, and suboptimal quality of projects.
- **Policy Inconsistencies:** Conflicting policies and regulations often create an uncertain environment for investors and developers, discouraging private participation.
- **Digital Divide:** India faces challenges in developing its digital infrastructure due to a significant digital divide, particularly in rural areas with limited access to technology and the internet.
 - The rise in technology usage also raises concerns regarding [cybersecurity](#) and **privacy**, necessitating robust regulations and infrastructure.
 - Additionally, the **absence of standardisation and coordination** among various stakeholders in the digital infrastructure sector can impede user experience and stifle growth and innovation.

What Steps can be Taken for Infrastructure Development in India?

- **Investment in Social Infrastructure:**
 - Investing in social infrastructure such as education, public health, and sanitation can enhance workforce productivity, reduce mortality and malnutrition, improve social mobility, and elevate quality of life.
 - These investments support a stronger, more inclusive economy and holistic development.
- **Increased Public-Private Partnerships (PPPs):**
 - The government can partner with the private sector to finance, design, construct, and operate infrastructure projects.
- **Improved Project Planning and Implementation:**
 - The government can streamline project planning and implementation processes to ensure that projects are completed on time and within budget.
- **Implementation of Innovative Financing Solutions:**
 - The government can explore innovative financing solutions, such as [infrastructure bonds](#), to mobilise additional funds for infrastructure development.
- **Encouraging Foreign Direct Investment (FDI):**
 - The government can ease regulations and create a favorable environment for [Foreign Direct Investment \(FDI\)](#) in infrastructure development.
- **Building Human Capital:**
 - To advance infrastructure development, the government should focus on building human capital through investments in job training and apprenticeships, ensuring access to quality education, supporting infrastructure research and innovation, and fostering public-private partnerships. Key schemes to support these initiatives include [Skill India](#), the [National Skill Development Corporation \(NSDC\)](#), and the [Pradhan Mantri Kaushal Vikas Yojana \(PMKVY\)](#).
- **Effective Regulation:**
 - The government can establish and enforce effective regulations to ensure the quality and safety of infrastructure projects.
 - Regulations can establish standards for material quality and workmanship. They

can **also mandate safety requirements**, including fire safety, evacuation plans, and accessibility standards, to ensure the safety of both the public and workers involved in the project.

- Additionally, **independent inspections and testing can help identify and address any issues** before the infrastructure is put into use.

Drishti Mains Question:

Q. What are the obstacles to infrastructure development in India and what actions can be taken to address this?

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q1. 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)

Q2. 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)

Mains:

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