

Series: [Governance in India << Prev](#)

Governance in India: Infrastructure

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- [Introduction](#)
- [A Broken Grid](#)
- [Urbanization and Mounting Needs](#)
- [Financing and Foreign Investment](#)
- [Prospects](#)
- [Resources](#)

Introduction

India's emerging economic power, like that of neighboring China, has been spurred by its momentous growth rates in the past few decades. But years of underinvestment in infrastructure have left the country with poorly functioning transit systems and power grids that have further endangered its slowing economy. Growth slipped from 10.5 percent in 2010 to [4.8 percent in 2013](#), according to the World Bank. Burgeoning trade is putting pressure on India's inefficient ports, and rapid urbanization is straining the country's unreliable electricity and water networks. Bureaucratic red tape and political inertia have thwarted the success of foreign investment partnerships and bruised India's international standing, discouraging further outside investment. Such large-scale failures have raised sharp debate about how the country's infrastructure weaknesses will hamper its economic future as it struggles to recover from a slowdown.

A Broken Grid

India's infrastructure sector has battled decades of dysfunction. Post-independence, the government led a state-centric approach to infrastructure development, building, owning, and managing projects. The system created a host of inefficiencies; after years of unmet demand and growing financial constraints, the

government opened the sector to private investment as part of its economic liberalization in the early 1990s. Yet the success of the reforms has been mixed; private participation has fallen short of expectations, and energy shortfalls have proliferated. The endemic dysfunction has bruised India's international standing and further discouraged direly needed outside investment. India [ranked 85](#) out of 148 for its infrastructure in the World Economic Forum's most recent Global Competitiveness Report. Delhi and Mumbai, its two largest cities, ranked far below other regional capitals like Beijing and Bangkok for infrastructure [in a UN report](#).



Commuters wait for the Delhi metro. (Photo: Jayanta Shaw/Courtesy Reuters)

Power: The chronic electricity shortage is increasingly viewed by the government and international business community as one of the [gravest threats](#) to India's growth. While GDP had grown at around 8 percent until 2010, electricity generation only increased at [4.9 percent a year](#), according to the World Bank. Thermal power—which includes gas, liquid fuel, and coal—accounts for roughly [two-thirds](#) of power generation, with most of it coming from coal. Other sources include hydro, wind, solar, and nuclear.

The electricity sector is dominated by large, government-owned utilities at both national and state levels, and in earlier decades of development, jurisdictional conflicts in the sector sometimes led to inefficiencies in the use of capital, says [Sunila Kale](#), assistant professor at the University of Washington. Institutional boundaries of the energy grid corresponded neatly to those of political constituencies, [Kale writes](#), meaning a close relationship between the government and State Electricity Boards—which generated and distributed power—tied utility power to electoral power. "In the 1960s and 70s, for example, when technologies of power generation were

favoring greater economies of scale, state government were limiting the size of generating units because they were trying to serve their own territories, leading to an inefficient use of capital."

"In India, much of electricity development has been tied to federal boundaries and a political calculus." —Sunila Kale

Today, the national transmission grid is in dire need of investment, and distribution companies, largely state-owned, are financially insolvent. Electricity theft has become common practice, and roughly one-third of the country does not have access to electricity. Two massive [electric-grid failures](#) in mid-2012 deprived almost 650 million people of electricity for days in northern India, raising serious concerns about the government's ability to meet the country's power needs. Dwindling energy resources [exacerbate the problem](#); despite attempts at [power sector reform](#), including the landmark 2003 [Electricity Act](#), experts say [gaps remain](#) between suggested measures—such as privatization of the distribution sector, tariff reform, and anti-theft measures—and their implementation.

Progress in the nuclear sector has lent some hope. In 2008, India signed a historic [civil nuclear deal](#) with the United States that, among other things, promised U.S. assistance to India's civilian nuclear energy program. Delhi also signed similar pacts with Russia and France. The World Nuclear Association says that the country has a "flourishing" and largely [indigenous nuclear power program](#), aiming to supply a quarter of its electricity from nuclear power by 2050. But so far, India has signed only one deal with an American company due to a [liability law](#) in the agreement.

Transport: India's roads haul roughly two-thirds of its freight and 85 percent of passenger traffic. [Only half](#) of the country is paved, and less than a quarter of its national highways meet required standards. The [National Highway Development Programme](#) is the largest active infrastructure program, aiming to upgrade 54,000 kilometers of highways with funding from the World Bank, Asian Development Bank, and the Japan Bank for International Cooperation. The project includes some flagship achievements like the Golden Quadrilateral, which was completed in 2012 and connects the four biggest metropolitan areas of Delhi, Mumbai, Chennai, and Kolkata.

The nation's rail network, the world's fourth largest, has also suffered from deterioration. The government aims to build 25,000 kilometers of new lines by 2020, yet only 1,750 kilometers have been added from 2006 to 2011. In 2009, Indian Railways released its white paper "[Vision 2020](#)," that outlined plans to

build regional high-speed rail projects and modernize rail stations. Its marquee project, the [Dedicated Freight Corridor](#), was first proposed in 2005 and aims to build six freight lines across the country.

Project bottlenecks costs the Indian government at least 2 percent of GDP annually.

But such large-scale projects have encountered myriad setbacks, dominated by the problem of land acquisition. A legacy of colonial rule, the country's 1894 land acquisition law allowed the state unchecked power to appropriate private land for public projects. The powers were widely abused, resulting in fierce resistance by farmers. While a [new land law](#) passed in August 2013 aims to rectify the problem, industry participants [are skeptical](#) about its efficacy. India's [rail budget](#), which is separate from its federal finances, has also become a platform for political opportunism rather than a financial necessity, further hindering progress.

Ports and Airports: India has thirteen major ports and sixty non-major ports that handle 95 percent of the country's external trade by volume and 70 percent by value. They suffer from cumbersome customs procedures and inefficient operation, and new projects face a lengthy list of administrative and environmental clearances that can take up to five years before construction is initiated. [Tariff issues](#) have also severely hampered private investment appetite for the sector, although the [Ports Regulatory Authority Bill](#) of 2011 began to address some of these concerns.

India's aviation sector has also seen significant development in recent years. Passenger and cargo traffic are [projected to grow](#) at more than 15 and 20 percent over the next few years, respectively, according to the Ministry of Civil Aviation. After privatizing airports in Delhi, Mumbai, Hyderabad and Bangalore in 2006, the government decided to introduce private ownership of six more airports in September 2013, allowing bidders to enter a private-public partnership with the state-run Airports Authority of India. But bidding has faced political opposition from labor unions and India's beleaguered airlines. In October 2013, thousands of AAI employees began a nationwide hunger strike to [protest privatization](#).

Urbanization and Mounting Needs

With India's rapid urbanization and burgeoning middle class, the need for better infrastructure is pressing. Some 590 million people— compared to [377 million](#) in 2011—will live in cities by 2030, and could account for 70 percent of Indian GDP, according to a [McKinsey report](#). Yet India's

administrative structure is often insufficient in addressing such demands. It was built to serve two tiers of government—the center and the state—leaving municipalities with chronic capacity constraints, writes [Rajiv Lall](#), executive chairman of the Infrastructure Development Finance Company, one of India's largest infrastructure lending firms. "A recurring cause of dysfunction in urban administration is that state- and national-level agencies with the responsibility for delivering services to municipalities have no accountability to that tier of government," [Lall writes](#).

The country's infrastructure weakness could be draining its growth; project bottlenecks costs the Indian government [at least 2 percent](#) of GDP annually, according to McKinsey. Compounding the trouble is [official corruption](#), which curbs the returns on public-private partnerships; a [UN report](#) found that PPPs in India's roads and power sectors are most prone to graft. Some [estimates suggest](#) that India could suffer a loss of \$200 billion, or around 10 percent of its GDP, in fiscal year 2017 if current trends continue.

Financing and Foreign Investment

Infrastructure was historically financed almost entirely by the public sector, from budgetary allocations and internal resources of public sector infrastructure companies. Today, India faces a hefty [\\$1 trillion](#) price tag for infrastructure spending, with half of that expected to come from private capital. But the country faces an enormous funding shortfall. More recently, regional neighbors have been stepping in to fill the gap. In early 2014, China offered to [finance 30 percent](#) of India's targeted infrastructure plan—an offer that, if accepted, would mark its largest single foreign investment in infrastructure. The move is contentious, however, given Delhi's [fraught history](#) with Beijing; India has in the past refused Chinese investment over national security concerns, particularly in the telecoms and power sectors. It has also [competed with](#) China over growth, juggling an uneasy rapport of rivalry and partnership.

Japan, which has less strained relations with Delhi, has been a [steady investor](#). Two-thirds of the Delhi metro was financed through a loan from Japan International Cooperation Agency, which also funded more than half of the \$.7.7 billion Delhi-Mumbai DFC project. Japan also contributed to the Delhi-Mumbai Industrial Corridor, as well as city road and urban projects. India also partnered with the United States to launch the \$10 billion dedicated [Infrastructure Debt Fund](#) in 2010.

Today, India faces a hefty \$1 trillion price tag for infrastructure spending.

Yet attracting foreign direct investment has proven challenging. Rigid FDI policies had been a significant hindrance until the government liberalized them in 2005, allowing 100 percent FDI in a broad range of sectors and setting up agencies to expedite approvals. The U.S.-India Business Council recently compiled a list of initiatives that included a resolution to outstanding issues around the civil nuclear deal and an [increase in FDI](#) that would help the United States hit its target of \$500 billion per year in bilateral trade. But high inflation and interest rates have recently driven domestic and foreign firms away from long-term projects the country desperately needs. Commercial banks have hit their exposure limits for the sector, and have even been [discouraged from investing further](#) by the Reserve Bank of India.

The private sector invested \$225 billion—or roughly 12 percent of GDP—in India's infrastructure between 2007 and 2012, much of it through PPPs, which have proliferated. Yet these projects have suffered [myriad dysfunctions](#) due to poor structure. In 2013, 3i, which has the world's largest India-dedicated infrastructure fund, exited all its portfolio companies in the country after investments [failed to meet](#) investor expectations. India, which barely has a municipal bond market, also needs to [reform its capital markets](#) to create a source of long-term debt, [experts say](#).

Prospects

India's growth story has often been compared to that of China, which has tapped into domestic savings and foreign investment to build its [vast infrastructure](#). CFR's [Alyssa Ayres](#) notes that India's reforms came a decade later than China's, while others point to the disparity in political systems. "A lot of people point out the difference between democratic and authoritarian structures, and what those do and don't afford," says Kale, who adds that in the case of electricity, the problem is not Indian democracy but Indian federalism. "In China, the electricity sector was initially very centralized, and regional grids corresponded to techno-economic boundaries. In India, much of electricity development has been tied to federal boundaries and a political calculus."

For now, the government has focused on clearing the project jam. In the summer of 2013, a committee formed by Prime Minister Manmohan Singh fast-tracked [regulatory approval](#) to 125 previously stalled projects worth \$64 billion. Research from the Economist Intelligence Unit predicts that infrastructure spending and expansion of the lower middle class will [buoy GDP growth](#) in the next few years, achieving 4.5 percent in 2014 and rising to 5.7 percent by 2017.

"India's been transformed in the last decade; there's no question about that," says Ayres. "But most people in India would feel that there's a lot more to do, and infrastructure is central to creating that twenty-first century India and making sure that it's a place that's accessible for everyone."

Resources

India's Planning Commission details its infrastructure investment plans under the twelfth Five-Year Plan in [this report](#).

Power and electricity specialist Sunila Kale writes about the politics behind India's power failure in this [Foreign Affairs article](#).

This 2013 [Deloitte report](#) addresses India's infrastructure investment gap.

The *New Yorker* delves into the narrative of India's growth story in this [2012 article](#).

India's Federation of Indian Chambers of Commerce and Industry released this [October 2011 report](#) on the country's urban infrastructure.

PwC released a [2013 report](#) on the opportunities and challenges of India's infrastructure.

This [World Bank index](#) gives snapshots of India's infrastructure projects.