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## Country Report: India

### Transportation Infrastructure

The Republic of India is a federal republic and is organized into 28 states and seven federal territories. With influences from classic Indian, Middle Eastern and colonial European political and cultural structures, modern India is governed by a president, who is elected through an electoral college comprised of parliament members and the state legislatures, and a prime minister; a bicameral legislative branch selected through both election and presidential appointment; and supreme court and a legal system that includes personal law codes that apply to Muslims, Christians and Hindus (Source: CIA World Fact Book: <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>).

The government structure of India creates a unique division of power, especially for transportation issues. The presidency is generally a ceremonial office, which acts at the direction of the prime minister and the ministries. Of the 33 cabinet ministry positions, several ministers are directly charged with overseeing various sectors of the country's transportation infrastructure. These include the Ministry of Railways, which oversees state-run Indian Railways, transporting 18 million passengers and more than 2 million tons of freight daily and comprising approximately 15 percent of the government's budget; the Minister of Road Transportation and Highways; and the Minister of Shipping. Among the seven ministers of state with independent charges, there is a Minister of Civil Aviation, and among the 38 ministers of state, there are ministries of railways, road transportation and highways (two ministers currently), and shipping (Sources: Government of India: <http://www.india.gov.in/>; and CIA World Fact Book: <https://www.cia.gov/library/publications/world-leaders-1/world-leaders-i/india.html>).

### Transportation

#### Air

In 2009, India boasted approximately 350 airports; 250 runways are paved while 99 are unpaved (Source: CIA World Fact Book: <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>). The Indian Ministry of Civil Aviation is responsible for establishing national policies and programs for the development and regulation of civil aviation and for devising and implementing the orderly growth and expansion of civil

air transport. As a part of this mission, the ministry oversees airport facilities, air traffic services and carriage of passengers and goods by air (Source: Ministry for Civil Aviation: <http://civilaviation.nic.in/>). In its 2008-2009 annual report, the ministry discusses several infrastructure development and capital investment initiatives that would lead to greater connectivity for civilian passengers, as well as ease of trade for cargo transport.

The Indian government also operates a helicopter service to support the oil sector in exploration efforts, offer an alternative means for transportation in hilly areas, and to support the travel and tourism industry. In 1995, India created the airports authority, which currently manages 124 airports—12 of which are international, overseeing, among other things, design development and maintenance of passenger terminals, as well as development and management of cargo terminals.

## **Rail**

India's rail system is comprised of approximately 50,000 kilometers of broad gauge and 1,000 kilometers of narrow gauge (Source: CIA World Fact Book: <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>).

Overseen by Minister Mamata Banerjee, this ministry has 44 divisions. Freight is one of the major sources of income for India Railways (Source: India Railways: <http://www.indian-rail.gov.in/>). In a December 2009 report, NOVONOUS indicated rail freight in India will increase at a 10 percent growth rate from 2007 to 2012. When presenting the ministry's budget to Parliament earlier this year, India Railways identified improving the loading of coal, iron ore, cement, fertilizers and grains, as well as preparing to increase transportation of automobiles and other new traffic streams and encouraging private investment in specialized rolling stock, were among the priorities for the state run railroad system (Source: <http://www.andhranews.net/India/2009/July/3-Indian-railway-15069.asp>).

## **Road**

According to statistics from 2006, India maintained the second largest roadway infrastructure in the world as it managed a total of 3,316,452 kilometers, including 200 kilometers of expressways (Source: CIA World Factbook: <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>). The Ministry of Road Transportation is responsible for developing policies for Road Transport, National Highways and Transport Research with a view to increasing the mobility and efficiency of the road transport system in the country. Minister Kamal Nath currently heads the ministry. Nath served as Commerce & Industry Minister from 1999 to 2004 and was responsible for developing India's first comprehensive Foreign Trade Policy in 2004, establishing a policy focused on both exports and employment. He was successful in tripling India's foreign trade within this period and engineering a seven-fold increase in FDI in-flows to India (Source: Ministry of Road Transport and Highways: <http://www.morth.nic.in/>).

The ministry has two divisions, the Roads wing and the Transport wing.

### **The Roads wing:**

- Plans, develops and maintains National Highways in the country.
- Extends technical and financial support to State Governments for the development of state roads and the roads of inter-state connectivity and economic importance.
- Evolves standard specifications for roads and bridges in the country.
- Serves as a repository of technical knowledge on roads and bridges.

### **The Transport wing administers:**

- Motor Vehicle legislation,
- Administration of the Motor Vehicles Act, 1988
- Taxation of motor vehicles,
- Compulsory insurance of motor vehicles,
- Administration of the Road Transport Corporations Act, 1950,
- And promotion of Transport co-operatives in the field of motor transport.
- Evolves road safety standards in the form of a National Policy on Road Safety and by preparing and implementing the Annual Road Safety Plan.
- Collects, compiles and analyses road accident statistics and takes steps for developing a Road Safety Culture in the country by involving the members of public and organising various awareness campaigns.
- Provides grants-in-aid to Non-Governmental Organisations in accordance with the laid down guidelines.

Source: Ministry of Road Transport and Highways: <http://www.morth.nic.in/>

## **Water**

Of India's 14,500 kilometers of river ways, 5,200 kilometers of the rivers and 485 kilometers of canal infrastructure is suitable for mechanized vessels (Source: CIA World Factbook - <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>).

India recognizes the need for efficient maritime transportation in the trade industry. The Department of Shipping is responsible for administering various aspects of the maritime trade, including shipbuilding and ship-repair, major ports, national waterways, and inland water transport. The shipping ministry reports a 50.5 percent increase in traffic at the major ports from the 2003/2004 year to 2007/2008. The major ports managed include: Chennai, Cochin, Ennore, Jawaharlal Nehru, Kolkata, Haldia, Kandla, Marmugao, Mumbai, New Mangalore, Paradip, Tuticorin and Visakhapatnam.

Historically, investment in the ports, have been made by the State mainly because of the large volume of resources required, long gestation periods, uncertain returns and various externalities, both positive and negative, associated with this infrastructure. However, more recently, India has attempted to seek private sector involvement (Source: India Ministry of Shipping: <http://shipping.gov.in/>).

India operates nine ports of entry, located in Chennai, Haldia, Jawaharal Nehru, Kandla, Kolkata (Calcutta), Mormugao, Mumbai (Bombay), New Mangalore and Vishakhapatnam (Source: CIA World Factbook - <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>).

## Transportation Overview

Table 1: Infrastructure Statistics

<b>Mode</b>	<b>Components</b>	<b>Statistics</b>
<b>Railways</b>	Total	63,327 km
	Broad Gauge	49,820 km 1.676-m gauge (17,786 km electrified)
	Narrow Gauge	10,621 km 1.000-m gauge (135 km electrified)
		2,886 km 0.762-m gauge and 0.610-m gauge (2007)
<b>Highways</b>	Total	3,316,452 km (includes 200 km of expressways)(2006)
<b>Waterways</b>	Total	14,500 km (5,200 km on major rivers and 485 km on canals suitable for mechanized vessels (2008))
<b>Pipelines</b>	Condensate gas	2 km
	Liquid petroleum gas	2,156 km
	Gas	6,061 km
	Oil	7,678
	Refined products	6,876 (2008)
<b>Major ports</b>	Major Ports	9 (Chennai, Haldia, Jawaharal Nehru, Kandla, Kolkata (Calcutta), Mormugao, Mumbai (Bombay), New Mangalore, Vishakhapatnam)

<b>Mode</b>	<b>Components</b>	<b>Statistics</b>
<b>Merchant Marine</b>	Total ships	501
	Bulk ships	102
	Cargo ships	241
	Carriers	1
	Chemical tanker	19
	Container	13
	Liquefied Gas	18
	Passenger	3
	Passenger/Cargo	11
	Petroleum Tanker	92
	Roll-on/roll-of cargo	1
	Foreign owned	12
	Registered in other countries	61 (2008)
	<b>Airports</b>	Total
Paved Runways		Total: 250
		Over 3,047 m: 20
		2,438 to 3,047 m: 56
		1,524 to 2,437 m: 76
		914 to 1,523 m: 84
Under 914 m: 14 (2009)		
Unpaved Runways		Total: 99
		2,438 to 3,047 m: 2
		1,524 to 2,437 m: 8
	914 to 1,523 m: 42	
	Under 914 m: 47 (2009)	

(Source: CIA World Fact Book: <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>)

## Current Infrastructure Overview

India has 349 airports (250 paved), 63,327 kilometers of railways, 3,316,452 kilometers of highways (includes 200 km of expressways), and 7,467 kilometers of waterways.

## Investment in Infrastructure

“India’s transportation sector has not been able to keep pace with rising demand and is proving to be a drag on the economy. Major improvements in the sector are therefore required to support the country’s continued economic growth and to reduce poverty.” – World Bank (Source: <http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859~pagePK:141137~piPK:141127~theSitePK:295584,00.html>). India is in the middle of its “Eleventh Plan” (2007-2012), or its eleventh five-year plan, during which is proposed \$US494 billion of infrastructure investment. This amount of capital expenditure would increase infrastructure investment’s share of GDP to 9 percent from 5 percent in 2006-2007. The Indian government plans to invest US\$320 billion dollars to upgrade ports, railroads, highways and airports over the next 15 years. Meanwhile, the Indian government plans to invest US\$20.38 billion in the infrastructure sector in the next two years. The Eleventh Plan seeks to create a growth rate of 9 percent; India predicts it will rely on public-private partnerships to complete its goals.

Ports: The government has specifically identified 276 projects to invest in ports, requiring investment of US\$12 billion. India seeks to double its ports capacity to 1,500 million tons.

Airports: India seeks private investment to develop more than 300 airstrips and airports. The Civil Aviation Ministry plans to develop 35 Greenfield airports by 2010 by investing US\$35 billion. In 2008, India invested US\$5 billion in airport infrastructure, which is projected to increase to US\$9 billion by 2013.

Railroads: India is increasing its investment in railroads 21 percent over 2008-2009, sinking US\$7.91 billion into Indian railways. A major investment of US\$5.6 billion is expected in the western and eastern rail corridors of India. India also seeks to deal with increasing demand for freight transport by constructing a freight railway system.

Roads: Transport Minister Mr. Kamal Nath says Indian roads require a US\$12.36 billion investment in the next three years. India plans to complete Eleventh Plan investment of about US\$93 billion.

Rural Infrastructure: US\$85.53 billion of the Eleventh Plan expenditures are to be spent on rural infrastructure. The goal is to target roads, bridges and irrigation to increase farm to market access and better facilitate agricultural activities. (Source: India Brand Equity Foundation: [http://www.ibef.org/artdispview.aspx?art\\_id=24728&cat\\_id=131&in=39](http://www.ibef.org/artdispview.aspx?art_id=24728&cat_id=131&in=39))



Train Routes in India (<http://www.mapsofindia.com/maps/india/india-railway-map.htm>)

## Movement

### Goods Transport

Transportation of goods in India is multimodal, including rail and road and even on people's heads or by rickshaw. Today, over 60% of India's freight travels on roads. Railroad is also a major goods carrier, with more than 2 million tons of freight a day carried on rail. Much of India's long distance transport of goods happens on rail, but, according to the World Bank, India will need to invest heavily in its railroads to increase capacity and overcome current capacity limitations. Ports play a key role in transporting petroleum products, coal and ore, as well as in container transport, moving 650 million tons in 2006-2007, which was an increase of 14% from 2005-2006. Airports moved about 1.5 million tons of cargo between 2006-2007, with an increase of more than 10% from the previous year, and increased air

cargo transport has placed a tremendous strain on air freight capacity, with air cargo traffic expected to increase beyond 3.3 million tons by 2010. (Source: World Bank, Transportation: India, Key Challenges –<http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859~pagePK:141137~piPK:141127~theSitePK:295584,00.html>)

## **Passenger Transport**

In India, roads are the predominant mode on which Indians move today, facilitating 85% of passenger transportation. Railroads are also vital to Indian transportation of passengers, carrying 17 million passengers in 2007. India's airports carried 96 million travelers in 2006-2007, an increase of 31.4% from 2005-2006. Air passenger traffic is expected to exceed 100 million passengers by 2010. The Delhi and Mumbai airports carry about 40% of Indian air traffic, and capacity is strained. Another key challenge to passenger transport is a lack of good roads in rural India, where the majority of India lives. (Source: World Bank, Transportation: India, Key Challenges – <http://www.worldbank.org.in/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/INDIAEXTN/0,,contentMDK:22354859~pagePK:141137~piPK:141127~theSitePK:295584,00.html>)