

INDIA's INFRASTRUCTURE



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New Delhi, India

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Overview

India is the second fastest growing economy. Infrastructure is a major sector that propels overall development of the Indian economy.

The infrastructure sector has become the biggest focus area of the Government of India. Under Union Budget 2018-19, US\$ 92.22 billion was allocated to the sector.

India has one of the largest road networks in the world, spanning over a total of 5.5 million kms. Over 64.5 per cent of all goods in the country are transported through roads, while, 90 per cent of the total passenger traffic uses road network to commute. During FY2018-19, Government of India allocated Rs.71,000 crore (US\$ 10.97 billion) for development of national highways across the country.

The Indian Railways is among the world's largest rail networks. Indian railways has a massive network comprising a track length of about 115,000 km with 2,617 passenger trains and 7,421 freight trains each day from 7,349 stations plying 23 million travelers and 3 million tones (MT) of freight daily. India's railway network is recognized as one of the largest railway systems in the world under single management.

India is the third largest producer & third largest consumer of electricity in the world, with the installed power capacity reaching 344.69 GW by end of year 2018. The country also has the fifth largest installed capacity in the world.

The 7517 km long Indian coastline has 12 major ports and 200 non-major ports of which one third are operational. Indian Ports are the gateways to India's international trade by sea and are handling over 95% of foreign trade.

The civil aviation industry in India has emerged as one of the fastest growing industries in the country during the last three years. India is currently considered the third largest domestic civil aviation market in the world. India is expected to become the world's largest domestic civil aviation market in the next 10 to 15 years.

The oil and gas sector is among the eight core industries in India and plays a major role in influencing decision making for all the other important sections of the economy.

India is witnessing significant interest from international investors in the infrastructure space. Many global companies are keen on collaborating with India on infrastructure, high speed trains, renewable energy and developing smart cities.

Roads & Highways

Introduction

India with a total road network of 5.5 mn comprises of national & state highways and urban & rural roads. National highways account for 2% of the total road network and carry over 40% of total traffic.

The construction of highways reached 9,829 km during 2017-18, with an all-time high average pace of 27 km per day. This represents 20% growth over 2016-17, when 8,231 km of highways were constructed. During 2017-18, 17,055 km road length was awarded as against 15,948 km in the previous year. The construction of national highways entailed an expenditure of \$ 18 bn during 2017-18.

India has a well-developed framework for Public-Private-Partnerships (PPP) in the highway sector. Asian Development Bank ranked India at first spot in PPP operational maturity and also designated India as a developed market for PPPs.

Updates & Investment Opportunities

The Government of India (GoI) is planning to expand the national highway network to over 200,000 km. The Government launched the Bharatmala Pariyojana, which aims to build 66,100 km of economic corridors, border and coastal roads, and expressways to boost the highway network. It is envisaged that the program will provide 4-lane connectivity to 550 districts, increase the vehicular speed by 20-25% and reduce the supply chain costs by 5-6%. The first phase of the program will bring in \$ 82 bn investments by 2022 for the development of 34,800 km of highways.

After NHDP Bharatmala Pariyojana is a new umbrella program for the highways sector focused on optimizing the efficiency of freight and passenger movement by bridging critical infrastructure gaps. Key areas for the development are economic corridors, inter-corridors and feeder routes, border and international connectivity roads, coastal and port connectivity roads and Greenfield expressways and national corridor efficiency improvement.

On the basis of projects tracked by India Infrastructure Research 25 tunneling projects spanning 61 km are under construction while 75 projects spanning 338 km have been planned in the road and highways sector. In addition. Four tunnel project spanning 16 km are currently stalled. The upcoming projects offer a construction opportunity of Rs. 507 billion – Rs 676 billion for the tunneling sector. A state-wise analysis indicated that the maximum opportunity is offered by Jammu & Kashmir with 21 projects (148km), followed by Maharashtra with 15 projects (89 km) and Himachal Pradesh with 22 projects (51 km).



The government plans to invest \$ 22.4 bn towards road infrastructure in the North-East region of India during 2018-2020.

The market for roads and highways is projected to exhibit a CAGR of 36.16% during 2016-2025, on account of growing government initiatives to improve transportation infrastructure in the country. Almost half (742) of the 1,531 PPP projects awarded in India until March 2018 were related to roads.

The highways sector in India has been at the forefront of performance and innovation. The government has successfully rolled out over 60 projects worth over \$ 10 bn based on the Hybrid Annuity Model (HAM). HAM has balanced risk appropriately between private and public partners and boosted PPP activity in the sector.

Asset recycling, through the toll-operate-transfer (ToT) model has been taken up by the National Highways Authority of India (NHAI) for 100 highways. The first bundle of 9 highways with an aggregate length of about 680 km was monetized successfully for an investment of \$ 1.45 bn.

National Highway Development Project (NHDP) is a 7 phase project amounting to US\$ 60 billion. The projects aims to widening, up gradation and rehabilitation of 47,054 kilometres of national highways.

Railways

Introduction

India has the world's third-largest railway network under single management. The Indian Railways is among the world's largest rail networks. The Indian Railways route length network is spread over 115,000 km, with 12,617 passenger trains and 7,421 freight trains each day from 7,349 stations plying 23 million travelers and 3 million tones (MT) of freight daily.

Indian Railways to manufacture semi high-speed, 160 kmph "world-class" train under Make in India initiative, comprising 16 fully air-conditioned coaches. The new train will be manufactured at half of the import cost, at the Integral Coach Factory, Chennai, Tamil Nadu.

With eight metro rail networks spread over a length of 370 kilometers (km) and over two dozen metro projects lined up, India's metro rail network is expanding at a fast pace.

The Indian Railways and UNESCO signed an agreement, for setting up a rail link between neighboring countries like Bhutan, Nepal, Bangladesh and Myanmar.

Updates and Investment Opportunities

As per India infrastructure Research, an ambitious pipeline of projects entailing a total investment of over Rs. 4.65 trillion has been envisaged through PPPs. With respect to Dedicated Freight Corridors, three new corridors have been planned for implementation on a PPP basis. These are the 2,328 km East-West corridor at an estimated cost of \$ 22.1 billion, the 2,327 km North-South corridor at an estimate cost of \$22.9 billion and the 114 km East Coast Corridor at an estimated cost of \$10.25 billion.

Around Rs 875 billion worth of opportunities in station redevelopment and commercial development around stations has been anticipated under IR's Station Redevelopment Programme. Also around 1 GW of solar power capacity has been planned on a PPP basis by 2021.

To facilitate the running of trains at speeds of 350 kmph, IR is developing high speed rail (HSR) corridors along with Diamond Quadrilateral. The proposed HSR lines span over 8,000 km and are at various stages of conceptualization are: Mumbai Ahmedabad corridor, Delhi-Amritsar, Delhi-Chennai and Chennai-Mysore and Mumbai-Kolkata corridors.

To improve rail connectivity in Northeast region, central government is executing 15 new rail line projects, with a length of 1397 km, at a cost of over Rs. 552 billion. In addition six line doubling projects (482 km) are being undertaken at a cost of over Rs. 92 billion. A total of 1448 km lines in Assam, 12 km in Arunachal Pradesh and 2 km in Mizoram have been sanctioned for electrification.



India Railways is collaborating with Russian Railways to work on 575-km long stretch between Secunderabad and Nagpur, which would allow the trains to run at speeds of more than 200 km/hr

In order to develop three new arms of Dedicated Freight Corridor (DFC) in the various regions of the country, Indian government is planning to invest Rs 3,30,000 crores (\$50.98 billion). Also, Indian Railways is planning to invest in order to adopt European Train Control Systems (ETCS) which will help in the development of the infrastructural facilities.

Power

Introduction

Power is one of the most critical components of infrastructure crucial for the economic growth and welfare of nations. The existence and development of adequate infrastructure is essential for sustained growth of the Indian economy.

India's power sector is one of the most diversified in the world. Sources of power generation range from conventional sources such as coal, lignite, natural gas, oil, hydro and nuclear power to viable non-conventional sources such as wind, solar, and agricultural and domestic waste. Electricity demand in the country has increased rapidly and is expected to rise further in the years to come. In order to meet the increasing demand for electricity in the country, massive addition to the installed generating capacity is required.

The country's total installed capacity across all sources stood at 344 GW. A major proportion 58 percent of the installed capacity is accounted by coal-based power plants followed by renewable with a share of 19 percent. Hydro follows next with a share of 13 percent and the balance is accounted for by gas, diesel and nuclear power plants.

Updates and Investment Opportunities

Over the past couple of years, several government schemes have been introduced in the power sector with the aim of ensuring 24x7 quality and reliable power supply to all. Some of the government schemes are— Saubhagya for providing electricity to every willing house hold in rural and urban areas, UDAY scheme to improve the operation performance of their discoms, the Integrated Power Distribution Scheme (IDPS) for twin distribution scheme, Deendayal Upadhaya Gram Jyoti Yojana (DDUGJY) for improving transmission and distribution network in urban and rural area, the National Smart Grid Mission (NSGM) for promoting smart grid initiative and UJALA for national LED distribution.

The Government of India plans to start as many as 10,000 solar wind and biomass power projects in next five years, with an average capacity of 50 kilowatt per project, thereby adding 500 megawatt to the total installed capacity.

Govt. plans to invest Rs. 2.6 trillion during 13th Plan Period. This includes an investment of Rs. 300 billion in the transmission system at the 220 kV voltage level and below. Almost Rs. 1.6 trillion would be made in inter-state transmission projects while another Rs. 1 trillion would be made in inter-state transmission project.

Ports

Introduction

India has 12 major ports and about 200 non-major ports. Under the National Perspective Plan for Sagarmala, six new mega ports will be developed in the country.

The Government of India has allowed foreign direct investment (FDI) of up to 100 per cent under the automatic route for projects related to the construction and maintenance of ports and harbors. Ports sector in India has received a cumulative FDI of US\$ 1.64 billion between April 2000 and June 2018. A 10-year tax holiday is extended to enterprises engaged in the business of developing, maintaining, and operating ports, inland waterways, and inland ports. The government has also initiated National Maritime Development Programme (NMDP), an initiative to develop the maritime sector with a planned outlay of US\$ 11.8 billion.

Updates and Investment Opportunities

The Sagarmala program launched by Government of India aims to promote Port-led development and provide infrastructure to transport goods to and from ports in a quick, efficient and cost-effective manner. Under the program, 542 projects estimated investment of over Rs. 8 trillion, have been identified for implementation over the next 20 years.

The Indian government plans to develop 10 coastal economic regions as part of plans to revive the country's Sagarmala (string of ports) project. The zones would be converted into manufacturing hubs, supported by port modernization projects, and could span 300–500 km of the coastline. The government is also looking to develop the inland waterway sector as an alternative to road and rail routes to transport goods to the nation's ports and hopes to attract private investment in the sector.

Under the Sagarmala Program, the government has envisioned a total of 189 projects for modernization of ports involving an investment of Rs 1.42 trillion (US\$ 22 billion) by the year 2035.

The declaration of 106 waterways as national waterways and the launch of the Jal Marg Vikas Project were the major initiatives taken for Inland waterways Transport development and improvement. Govt. of India and World Bank signed a \$ 375 million loan agreement to develop India's first modern IWT fairway on the Ganga river between Varanasi and Haldia Port.

Jawaharlal Nehru Port Trust the country's major container port is swiftly moving towards becoming one of the top 10 container ports in the world. In order to become hub port on the western coast JNPT is building infrastructure capabilities. JNPT has initiated the development of four dry ports – Wardha, Jalna, Nashik, and Sangli.

According to India Infrastructure Research, 21 non-major ports (Astaranga Port, Azhikkal Port, Bepore Port, Bhavanapadu Port, Chudamani Port, Dahej Port, Devbhumi Dwarka commercial port, Jalna port,



Machilipatnam port, Nargol port, Ponnani port, Rewas port, Riverline port on Mahanandi river, Subarnekhya port, Sarar and Tajpur port, Tadadi port, Vijaydurg port, Vizhinjam port, Wardha port, Yogayatan port) involving an investment of more than Rs. 875 billion have been planned. Upon completion, these projects are expected to add over 645 million tones of capacity.

The development of domestic cruise tourism is a relatively new phenomenon in the country. The government has taken several initiatives towards making India a cruise destination. Six major ports located in Mumbai, Goa, Cochin, New Mangalore, Tuticorin and Chennai are being developed as world-class cruise terminals.

Civil Aviation

Introduction

India's domestic aviation market has become the third largest in the world and the overall civil aviation market in India is all set to become the world's third largest by 2020. By 2020, passenger traffic at Indian airports is expected to increase to 421 million.

As of May 2018, 588 airplanes were in-service in the fleet of Indian airlines. It is further expected to grow to 1,100 planes by 2027.

The Government of India has launched regional connectivity scheme named UDAN (Ude Desh ka Aam Nagrik) to make flying affordable for common man.

Updates and Investment Opportunities

Airport Authority of India is going to invest Rs 15,000 crore (US\$ 2.32 billion) in 2018-19 for expanding existing terminals and constructing 15 new ones. It has opened airport sector to private participation, six airports across major cities are being developed under the PPP model. The Airports Authority of India (AAI) aims to bring around 250 airports under operation across the country.

Airport Authority of India initiate third round to further enhance regional connectivity in the country. In addition, Airport Authority of India is likely to introduce the concept of seaplanes in the subsequent rounds of bidding.

Besides enhancing regional connectivity, there are also plans for extending the scope of the scheme to international flights (International UDAN). Assam government has request AAI to include international flights under the purview of the scheme.

AAI has chalked out a capital expenditure plan of over Rs. 25 billion to modernize and augment air navigation service (ANS) infrastructure in the next five years. In order to provide safe, secure and efficient ANS, AAI has leased/rented telecommunications infrastructure from various service providers. However, monitoring and controlling the activities of these multiple service providers pose difficulties for AAI. To resolve this issue, it is planning to set up futuristic telecommunication infrastructure.

Central government is planning to build another six greenfield airports on the PPP model in Tamil Nadu, West Bengal, Maharashtra, Uttar Pradesh and Bihar.

India plans to increase the number of airports to 250 by 2030 to cater to growing leisure and business travel. Country will become the third largest aviation market in terms of passengers by 2026.

India's aviation industry is expected to witness Rs. 1 lakh crore (US\$ 15.52 billion) worth of investments in the next five years.

Oil and Gas

Introduction

India is the third largest oil consumer in the world, is likely to rise to 335 mtpa by 2030 and about 10 per cent of the world energy is estimated to be consumed by it by 2035.

India's oil production reached 35.68 Mt in 2017-18 . As of 2017, the country had 600 million metric tones (MMT) of proven oil reserves. India had 1.2 trillion cubic meters of proven gas reserves at the end of 2017 and produced 31.83 bcm of gas in FY18 which is expected to rise and reach 36 bcm^ by 2021.

IOCL operates a 13,391 km network of crude, gas and product pipelines, with a capacity of 1.896 mbpd of oil and 9.5 mmscmd of gas.

Updates and Investment Opportunities

India's 23 refineries make its refining capacity the fourth largest in the world. The government now aims to make the country the refinery hub of the world by creating integrated refinery petrochemical complexes. It is expected that brownfield expansion would add 120 mtpa and Greenfield projects would add 69 mtpa of capacity.

The Ministry of Petroleum and Gas has announced new 'Marginal Field Policy', which aims to bring into production 69 marginal oil and gas fields with 89 million tones or Rs. 75000 crore (US\$ 11.18 billion) worth of reserves, by offering various incentives to oil and gas exporters such an exemption from payment of oil cess and customs duty on machinery and equipment.

Govt is planning to build three new LNG terminals at Ennore, Kakinada and Dharma Ports on the east coast. Private players also express interest in setting up LNG terminals. These are the Chhara and Kutch LNG terminal in Gujarat, Karikal terminal in Tamil nadu , Dharma terminal in Odisha and Dighi terminal in Maharashtra.

The Government of India is in the process of identifying at least 50 potential blocks of 100 sq km and above to given to companies for bringing private investment in the mineral exploration sector. The Ministry of Petroleum and Natural Gas has put up for comments a draft policy, to opt for revenue-sharing model while auctioning future oil and gas blocks for exploration to private companies, compared to production-sharing mode earlier in order to make the process more transparent and market-oriented.