

Indian engineering

TRANSFORMING TRANSMISSION

A 2016 NASA photo of India's electrification. India to become the world's first country to use LEDs for all its lighting needs by 2019 (photograph courtesy NASA)

INDIA HAS 25 INNOVATION CENTRES IN THE COUNTRY AND HAS BEEN RANKED AS THE TOP INNOVATION DESTINATION IN ASIA AND SECOND IN THE WORLD FOR NEW INNOVATION CENTRES



ENGINEERING INDIA'S LARGEST FOREIGN EXCHANGE EARNER

Engineering is the largest segment in Indian industry. It contributes 20% to India's total exports in goods and is its largest foreign exchange earner.

- The sector has a 30.5% weight in India's Index of Industrial Production (IIP).
- 29.9% share of the total investment
- 62.8% share of foreign collaborations

India's industrial sector can be classified into two categories: Heavy engineering – which makes up 80% of the sector with its transport equipment, capital goods and machinery, and Light engineering with its low-tech items like castings, forgings and fasteners and highly sophisticated microprocessor-based control equipment and diagnostic medical instruments.



MSMEs BACKBONE OF INDIAN ECONOMY

- Micro, small and medium enterprises provide employment to over 60 million people. It contributes about 45% of the total manufacturing output and nearly 40% of India's exports.
- India has a significant lead in terms of labour cost per hour over developed countries such as the US and Hong Kong, Taiwan, South Korea and China.
- India stands 12th in production and 8th in the consumption of machine tools in the world (2017 global survey). Of the 1,000 manufacturing units, around 25 large-scale units account for about 70 percent of the turnover and the rest by the MSME sector. The production of machine tools grew by 23% in 2016-17 compared to 2015-16, while consumption grew by 12% during the same period.
- Electronic goods is one of India's fastest growing industries. The demand for electronic goods is increasing at a CAGR of 22 per cent and is expected to reach US\$400 billion by 2020.
- The Indian castings industry ranks second in the world and produces 10 million metric tons (MMT) of various grades of casting. There are about 5,000 castings units, of which 90 per cent can be classified as MSMEs. The Indian castings and forging industry currently produces 13.6 MMT per annum.



India is the third largest producer of coal and steel and fourth largest in iron ore

INDIAN ENGINEERING BRILLIANCE

- India is the third largest producer of coal and steel and fourth largest in iron ore. India is expected to become the second largest steel producing nation in 2018 and its targeted production capacity is 300 million tons by 2025-30.
- India is 26th on the World Bank's Ease of Getting Electricity Index 2017 ranking, a jump of 73 since 2015. India could become the world's first country to use LEDs for all lighting needs by 2019, thereby saving Rs40,000 crore (US\$6.23 billion) on an annual basis and the target is to generate two trillion units (kilowatt hours) of energy by 2019.
- With a production of 1,423 TWh, India is the third largest producer and the third largest consumer of electricity in the world.
- India is now the world's biggest two-wheeler market.
- The Indian automotive aftermarket is estimated to grow at around 10-15 per cent to reach US\$16.5 billion by 2021. It has the potential to generate up to US\$300 billion in annual revenue by 2026, create 65 million additional jobs and contribute over 12 per cent to India's Gross Domestic Product.
- India's export base of engineering goods has shifted from low-value goods to developing countries to high-value goods to developed countries.
- Outsourcing of engineering goods and services, product design, product improvement and maintenance are providing new growth avenues.

CRUCIAL ADVANTAGES OF THE ENGINEERING SECTOR

INDIA'S MANUFACTURING SECTOR HAS THE POTENTIAL TO REACH US\$1 TRILLION BY 2025 AND INDIA IS EXPECTED TO RANK AMONG THE TOP THREE GROWTH ECONOMIES AND MANUFACTURING DESTINATIONS OF THE WORLD BY THE YEAR 2020.



Some factors contributing to the growth of this sector are:



- Developed demand conditions
- Advantages of labour costs
- Growing capabilities of Indian engineering firms
- Availability of raw materials, supplier base and labour pool
- Conducive and stable regulatory mechanisms
- Promotion of special economic zones
- Government's emphasis on the power and construction sectors in the past few years
- Delicensing and removal of tariff protection
- Global manufacturing companies preferring India as an outsourcing destination



ENGINEERING EXPORTS – A SNAPSHOT

- India exported engineering goods worth US\$56.09 billion in April-December 2017-18.
- USA remained the top destination for Indian engineering goods during April-December 2017-18 with exports worth US\$7533.7 million, a growth of 50.65% compared to the same period in the last fiscal.
- Engineering exports to countries like China, Brazil, Vietnam, Germany, Thailand, and South Korea recorded more than 40% growth during April-December 2017-18 as against April-December 2016-17.
- The export of iron and steel increased to US\$8387.76 million in April-December 2017-18, making up more than 14% of India's total engineering exports during the same period.
- 'Motor vehicles and cars' and 'Products of iron and steel' followed next with 10.89% and 8.9% share, respectively.
- As a region, EU retains its top position as an importer of Indian engineering products with 21% share in April-December 2017-18 followed by North America (18%) and 'ASEAN+2' (14%).

KEY TRENDS IN THE ENGINEERING SECTOR

ENTRY OF INTERNATIONAL COMPANIES

- With 100 percent FDI through the automatic route being permitted along with the growth opportunities offered by this market, major international players such as Cummins, ABB and Alfa Laval have entered the Indian engineering sector, thereby increasing the competitiveness of the industry.

MIGRATION TO VALUE ADDED PRODUCTS

- Indian companies have become more quality conscious and are upgrading their technology base to meet global market requirements.
- More than 4,000 firms in the engineering sector have the ISO9000 accreditation. Companies are

increasingly focusing on their R&D and product development efforts.

DIVERSIFICATION OF RISK

- A number of companies in the engineering sector have diversified, either geographically (mainly to West Asian countries) or sectorally.

INDUSTRY 4.0. IN INDIA

- India is moving from automation to autonomy where machines speak with each other. A smart factory, armed with data exchange in manufacturing and the Internet of Things (IoT) is the future and experts are calling it revolution Industry 4.0. Reports say the smart factory industry may touch US\$215 billion by 2025 and that no major economy will be left untouched.

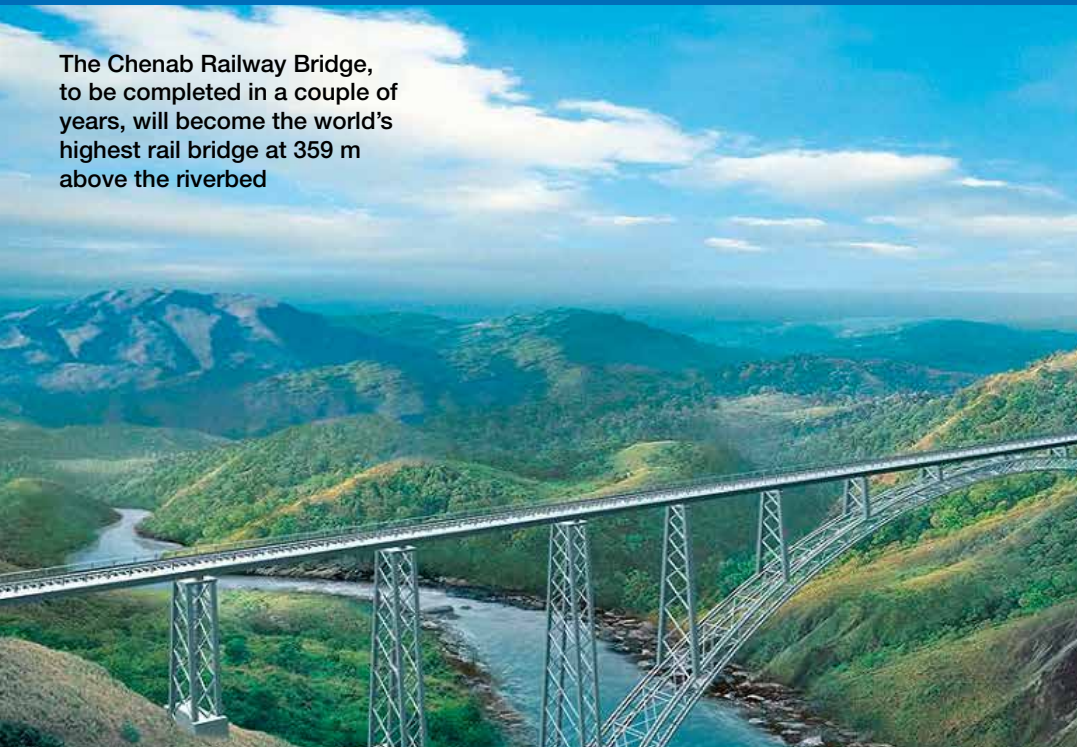


- India's capital good sector is expected to triple in size to Rs 7.5 trillion (US\$116 billion) and add 21 million jobs by 2025.
- Cumulative Foreign Direct Investment (FDI) in India's manufacturing sector reached US\$72.31 billion during April 2000-September 2017.
- The implementation of the Goods and Services Tax (GST) is making India a common market with a GDP of US\$2.5 trillion along with a population of 1.32 billion people.
- India's R&D investments are estimated to rise to US\$77.46 billion by 2017. The number of MNC R&D centres in India has grown at a CAGR of 7.1 per cent from 721 in 2010 to 1165 in 2016.
- India accounts for approximately 4% of the total global electricity generation and contributes 4.43 per cent to the global renewable generation capacity amounting to 2,011 GW in 2016.



India is the world's second-largest producer of two-wheelers and the fourth-largest producer of commercial vehicles

The Chenab Railway Bridge, to be completed in a couple of years, will become the world's highest rail bridge at 359 m above the riverbed



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ENGINEERING THE FUTURE

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