FICCI

INDIA CHEM 2024

Deloitte.



Empowering process plant machinery, pumps & valves industry in India

Knowledge report



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MESSAGE

Shri Jagat Prakash Nadda,
Hon'ble Union Minister for Health and Family Welfare and Chemicals & Fertilizers

India Chem 2024



India has recently become the fifth-largest economy in the world, and is expected to become 3rd largest in few years' time. The Chemical and Petrochemical sector will form an integral part of this growth, considering that there are more than 80,000 essential chemicals that make up the building blocks and raw materials for several downstream industries such as textiles, paper, paints, soap and detergents, pharmaceuticals, agrochemicals, construction and automotives. With the current annual output of Rs. 18 lakh crores, the sector in India is expected to grow at the rate of 10% in the coming years. It will play a critical role in realising our goal of 'Viksit Bharat@ 2047'.

Our Government has undertaken significant reforms to enhance the ease of doing business. Initiatives like 'Make in India' aim to foster growth of domestic manufacturing, attracting investments, and accelerating exports. PM Gati Shakti -National Master Plan is a digital platform which maps the multi-model infrastructure spanning seven engines of growth, that is roads, railways, ports, airports, waterways, mass transport systems, and the logistics infrastructure in the entire country. This shall significantly boost growth and global competitiveness of Indian Industry.

As we aim for a Viksit Bharat by 2047, Chemicals and Petrochemicals sector will be instrumental in our journey. The industry also needs to come up with robust R&D initiatives focusing on sustainable and innovative practices as also development of new technologies and materials. Integration of Circular Economy Principles to ensure sustainability from production to disposal and developing technologies for converting waste plastics and other chemical wastes back into useful chemicals are the need of current times. Indian industry needs to be committed to adoption of sustainable practices, decarbonization and circularity, given our pledge for Net-Zero emissions by 2070.

I complement the Department of Chemicals and Petrochemicals, as also FICCI for organizing India Chem 2024 and Ernst and Young for coming out with this knowledge paper. These efforts will undoubtedly result in informed deliberations towards growth of the chemical and petrochemical sector.

I extend my best wishes for the successful organization of India Chem 2024.

(Jagat Prakash Nadda)

October 16th 2024
New Delhi

राज्य मंत्री
स्वास्थ्य एवं परिवार कल्याण
व रसायन एवं उर्वरक
भारत सरकार
MINISTER OF STATE
HEALTH & FAMILY WELFARE
AND CHEMICALS & FERTILISERS
GOVERNMENT OF INDIA

अनुप्रिया पटेल
ANUPRIYA PATEL

Message



I am glad to see this knowledge report, brought out by Ernst & Young on the occasion of India Chem 2024, being organised by the Department of Chemicals and Petrochemicals in partnership with FICCI. The theme chosen for the 13th edition of India-Chem 2024 is '**Advantage Bharat : Indian Chemical and Petrochemicals paving the way for future**' could not have been more appropriate, as the Indian industry is well placed to not just spearhead Indian economy, but to also strengthen the global supply chains in this critical sector.

India, today is the 6th largest producer of chemicals in the world and 4th largest in Asia. India accounts for about 3% of the world's global chemical sales. India is the 2nd largest manufacturer and exporter of dyes as also the 2nd largest exporter of agrochemicals globally. The share of this sector in the Global Value Addition of the manufacturing sector was 9.5% during FY 2022-23. Indian Chemical industry contributed 7% to the India's total exports value, with a share of Rs. 3.70 lakh crores worth of exports for FY 2023-24.

There are several economic factors that are contributing towards 'Advantage Bharat', such as its expanding middle class, which offers significant market potential. Further, rising incomes in India have fuelled higher demand for various types of consumable products in diverse sectors, such as textiles, automobiles, pharmaceuticals, paints and pigments, soaps and detergents and construction materials, all of which use chemicals. India also has one of the largest skilled manpower in the world with about 1.3 Lakh Startups registered in the country, making it one of the biggest startup ecosystems in the world.

India is well positioned to easily fulfil the basic expectations of an investor with a politically stable governance, a highly competitive labour force and power costs, reduced corporate income tax rates and 100% FDI through automatic route, which has encouraged multinational corporations to establish manufacturing plants, R&D centres and joint ventures in India. India has already attracted an investment of about Rs. 1 lakh crore in the Chemical sector over the last decade.

I am sure that the knowledge report shall significantly contribute to the deliberations at this event. I look forward to the outcome of these discussions, which I am sure will strengthen the Chemical industry, not just in India but, globally as well.

I wish the event a great success!

(Anupriya Patel)

October 14, 2024
New Delhi

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सत्यमेव जयते

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रसायन और उर्वरक मंत्रालय
रसायन और पेट्रोरसायन विभाग
Secretary
Government of India
Ministry of Chemicals & Fertilizers
Department of Chemicals & Petrochemicals



14th October, 2024

MESSAGE

I'm glad to see that on the occasion of India-Chem 2024, Ernst and Young have come out with this timely knowledge report with the theme of 'Catalysing India's Chemicals and Petro chemicals: Strategies for Global Integration and Growth'.

The theme of the report is in perfect harmony with the theme chosen for the biennial event as it enters its 13th edition, which is "Advantage BHARAT: Indian Chemicals and Petrochemicals paving the future".

The well-developed Indian Chemical sector is evidenced by the fact that it contributes 9.5% of the gross value addition of the manufacturing sector in the country.

The Government has, over the years, taken up several measures to support and promote the industry, such as the implementation of 'Petroleum, Chemical and Petrochemical Investment Regions' in a cluster-based approach with common infrastructure and support services to promote the development of the sector in an integrated and environmentally friendly manner. Our 3 PCPIR regions of Gujarat, Odisha and Andhra Pradesh have attracted a cumulative investment of Rs. 2.43 lakh crore and have generated employment for about 3.7 lakh persons so far, with 824 units getting commissioned.

With the objective of bolstering Research and Develop development efforts in the sector, we have also commissioned 13 Centres of Excellence in the Petrochemical sector and have expanded these by recently adding 5 more Centres of Excellence. The scope of these centres has also been expanded to include research in the chemical sector.

With the growth of this sector, it is extremely important to be sensitive to the needs for safety practices. Department has designed a Disaster Management module for conducting training programs for close to 2400 Major Accident Hazard Units on safe handling of hazardous chemicals at work place and reducing risk associated with them. 48 such safety training programs will be conducted, in industrial clusters across the country over next 5 years. Nearly, 5000 employees will be accordingly trained on chemical safety management as a result.

I hope this paper shall assist the industry in moving forward in a sustainable and environment friendly manner by making full use of technological advancements and building global value supply chains in partnership with international industry corporates.

(Nivedita Shukla Verma)

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FOREWORD



I am delighted to warmly welcome all exhibitors, attendees, and valued stakeholders to the 13th India Chem 2024, taking place from October 17th to 19th, 2024, at Mumbai's Bombay Exhibition Centre. India Promach is the nation's premier event for the Chemicals and Petrochemicals sectors, and this gathering is a significant platform for the Process Plant Machinery Sector, a sector vital to the India's industrial development.

To achieve the vision of 'Viksit Bharat' set by our Hon'ble Prime Minister, Shri Narendra Modi, positioning India as a global manufacturing leader is crucial. The Process Plant Machinery Sector, which serves as a cornerstone for various industries, is uniquely placed to drive this initiative forward. The Process Plant Equipment Roundtable offers an invaluable platform for stakeholders ranging from manufacturers and end-users to contractors, service professionals, and policymakers to engage in productive discussions and collaboration. Our aim is to create an ecosystem that not only strengthens India's Process Plant Machinery Sector but also elevates its global competitiveness.

I am also confident that the discussions among our distinguished professionals will inspire innovation and encourage the MSMEs to seize the opportunities available within this sector. Together, we can contribute significantly to realizing the vision and embark on this journey, embracing collaboration and innovation.

Rama Kirloskar
Chairperson- FICCI Capital Goods Committee
Joint Managing Director - Kirloskar Brothers and
Managing Director - Kirloskar Ebara Pumps Ltd

FOREWORD



The chemical and petrochemical industry is a cornerstone of India's economic landscape, characterized by its knowledge intensity and significant capital investment. This sector is crucial for meeting essential needs and enhancing the quality of life, encompassing a wide range of products, including basic chemicals, petrochemicals, fertilizers, paints, and pharmaceuticals.

As a vital contributor to the economy, the chemical industry plays a significant role in various downstream sectors such as textiles, agriculture, healthcare, and infrastructure. It supports the nation's industrial and agricultural development by providing essential building blocks for numerous applications, from everyday consumer goods to specialized industrial products.

In the previous fiscal year (2023-2024, up to December 2023), total production reached 40,508 thousand metric tons, with the petrochemical segment alone producing 31,046 thousand metric tons. This sector not only fuels various downstream industries—such as textiles, pharmaceuticals, and packaging—but also plays a crucial role in emerging sectors like healthcare, automotive, and information technology.

As we delve into this report, titled “Advantage BHARAT: Indian Chemicals and Petrochemicals Paving the Future,” we reflect on the immense growth potential and strategic advantages that the Indian CPC industry possesses. The government's proactive initiatives aimed at improving the Ease of Doing Business (EoDB) are fostering a more favorable investment landscape, further catalyzing growth in this vital sector.

In the coming years, as we embrace innovation and sustainability, the Indian chemical and petrochemical industry is well-positioned to not only meet domestic demands but also compete on a global scale. The commitment to building a self-reliant and resilient economy will drive us toward a future filled with opportunities.

I extend my best wishes for a successful India Chem 2024 and am excited about the prospects that lie ahead for our industry.

Manoj Mehta
Senior Director & Head
Chemicals & Petrochemicals
FICCI





CHAPTER 1

India's strong focus on manufacturing and capital goods



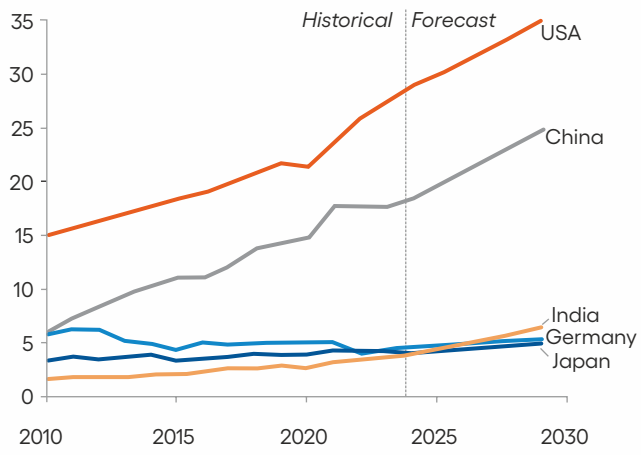
CHAPTER 1

India's strong focus on manufacturing and capital goods

Indian economy

India is one of the world's most dynamic economies, serving as a thriving hub for manufacturing, services and technology. Driven by rapid urbanisation, an expanding consumer base and widespread digital adoption, the Indian market continues to grow steadily. In 2023, India was the world's fifth-largest economy, with a Gross Domestic Product (GDP) of **US$3.6 trillion.**[1] Within the next five years, it is projected to become the third-largest economy globally, surpassing Japan (US$4.9 trillion) and Germany (US$5.3 trillion).[1] However, in terms of GDP per capita, other developed countries will be ahead of India.

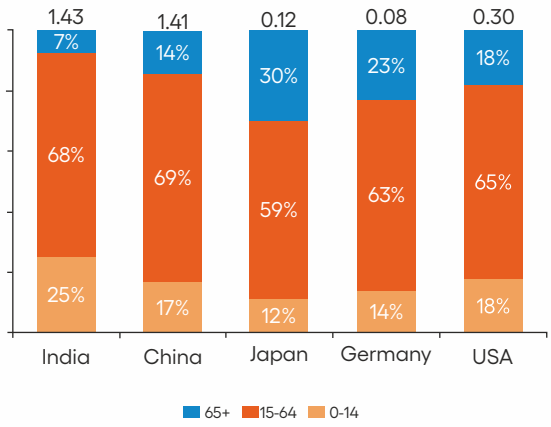
Gross Domestic Prodcut [in US$ trillion]



Source: International Monetary Fund (IMF), Deloitte analysis

This economic growth is expected to be driven by the vast consumer base and rising household incomes. For instance, India's population is expected to grow from 1.4 billion to 1.6 billion over 2023–47, recording an increase of >200 million.[3] Similarly, the number of Indian adults earning at least US$5,000 annually is on track to nearly double to around 880 million over 2023–33.[2] Another indicator of favourable demographics is the average age of Indian population. Among the top 5 economies, India has the largest proportion of young and working-age individuals (under 64 years old), at ~93 percent, compared with China's ~86 percent or Japan's ~70 percent.[3]

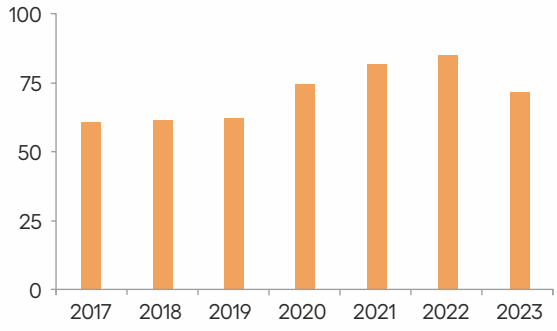
Population [Age group as % of total population in billion]



Source: World Bank, Deloitte analysis

India's gross capital formation nearly doubled from US$821 billion in 2017 to US$1.2 trillion in 2023,[4] reflecting strong investor confidence and the impact of government efforts to enhance the business climate. The growth highlights India's ongoing commitment to strengthening domestic manufacturing and attracting foreign investment. Notably, Foreign Direct Investment (FDI) inflows into India increased by 18 percent, from US$60 billion in 2017 to US$71 billion in 2023.[5]

Total FDI inflows from FY2014 to FY2023 [in US$ billion]

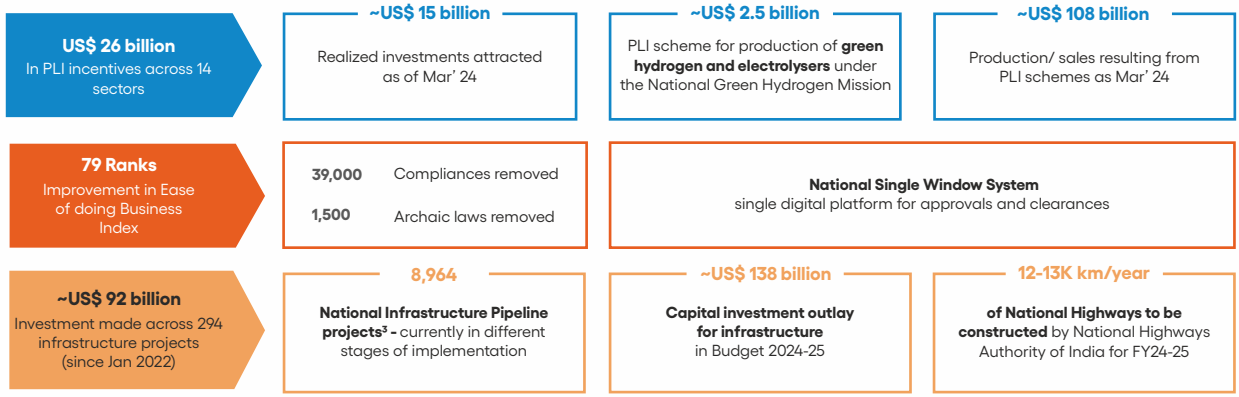


Source: DPIIT - Ministry of Commerce and Industry, Deloitte analysis

This growth shows a robust interest from investors outside India in the country's economic prospects.

Manufacturing focus

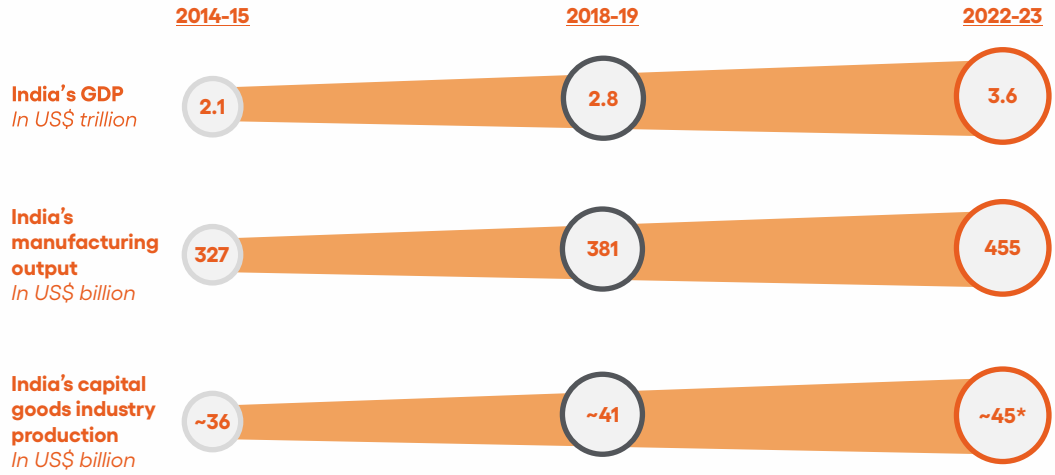
The Indian government has outlined its long-term vision to transform the country into a developed country by 2047 as "Viksit Bharat". This vision focuses on key areas for improvement, including economic growth, social development, sustainability, technological advancement and human capital enhancement. The government aims to achieve a GDP of US$30 trillion and a per capita income of US$18,000–20,000 by 2047.[6]



Source: Press Information Bureau (PIB), Ministry of New & Renewable Energy (MNRE), Indian Brand Equity Foundation (IBEF), India.Gov, India Infrastructure, Deloitte analysis

A key strategy for realising this vision is the focused development of India's manufacturing sector. The government has recently implemented several initiatives to enhance the business environment. Aatmanirbhar Bharat Abhiyaan and Make in India are flagship government initiatives aimed at enhancing India's manufacturing capabilities and promoting self-sufficiency. Under the Make in India initiative, the government seeks to transform India into a global manufacturing hub by facilitating investment, fostering innovation and improving the ease of doing business across sectors. The Aatmanirbhar Bharat initiative complements this vision by emphasizing self-reliance through local production and reducing import dependency. Additionally, schemes such as Production Linked Incentives (PLI) scheme, which incentivises domestic manufacturing in key sectors such as advanced battery chemicals, pharmaceuticals for manufacturing Key Starting Materials (KSM) and Active Pharmaceutical Ingredients (APIs) and speciality steel by providing financial rewards for achieving production targets, is expected to enhance India's competitiveness in global markets and reduce reliance on imports.[7]

The capital goods sector, in turn, supports the manufacturing sector, which provides essential equipment and technology that drives production efficiency and innovation. The sector has grown from US$ 36 bn to US$ 45 bn over FY15-FY23. It serves as the backbone for key industries such as chemicals and energy, enabling them to improve their global competitiveness.



*Source: IMF, World Bank, PIB, Ministry of Heavy Industries, Deloitte analysis *Estimated figures for India's capital goods production for FY23 based on FY22 and FY24 figures*





CHAPTER 2

Strong tailwinds to support growth of end-use industries



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CHAPTER 2

Strong tailwinds to support growth of end-use industries

Chemicals Industry

Currently, India is **the sixth-largest**[8] chemical producer in the world, accounting for about 3 percent of global chemical production and ~13 percent of its total exports. The Indian chemical industry is valued at US$220 billion and is expected to reach US$300 billion by 2030 and US$1 trillion by 2040. The chemical industry is pivotal in the Indian economy, contributing about 7 percent to the GDP.[12] The Indian chemicals industry can be divided into the following sub-groups:

- **Bulk chemicals:** These are large-scale, high-volume, low-value products that support various downstream chemical industries. They are mainly classified into alkali, organic and inorganic chemicals.
- **Petrochemicals:** These are derived from fossil fuels, including oil & gas and even coal with naphtha or natural gas as the major feedstock.
- **Speciality chemicals:** These are high-value, low-volume products derived from basic chemicals and designed for specific applications. They include categories such as surfactants, colourants, flavours, fragrances, textile chemicals and agrochemicals.
- **Fertilisers:** These materials provide essential nutrients for plant growth and can be organic, inorganic, natural or synthetic. They are broadly classified into nitrogenous, phosphate, potassium and complex fertilisers.
- **Others:** This includes intermediates, biotech and pharmaceuticals.

Some key trends in the chemical industry mentioned below can create opportunities for process plant equipment players.

1. Europe is at the forefront of transitioning towards a sustainable economy. It plans to institutionalise the Carbon Border Adjustment Mechanism (CBAM) tool to fairly account for carbon emitted during the production of carbon-intensive goods imported by the European Union (EU) and to encourage cleaner industrial production in non-EU countries. This is pushing the chemical industry to adopt sustainable solutions.
2. Rising trade tensions between the United States of America (USA) and China are driving decoupling, particularly visible in chemical sectors. This will likely result in more international players exploring India as an alternative (China +1) to diversify and de-risk their supply chains.
3. There has been an increased focus on green chemicals, which is experiencing significant growth due to increasing regulations, a shift towards sustainable manufacturing and investments in green technologies. Many Indian chemical companies are expanding their eco-friendly chemical portfolios.[9 10 11]

Petrochemicals Industry

The petrochemical industry plays an important role within the chemical sector with ~19 percent market share (as of 2021).[12] Various government initiatives, including the "Make in India" campaign and the establishment of Petroleum, Chemicals and Petrochemicals Investment Regions (PCPIRs) are enhancing the sector's potential by attracting foreign investments and improving infrastructure. Regarding production capacity, ~80 percent of the petrochemical capacity in India is integrated with petroleum refineries. This integration ensures a steady feedstock supply for petrochemical production, giving India a competitive edge.[13]

The petrochemical sector in India is changing rapidly due to emerging trends focused on high value-added products, sustainability and new technologies. These trends are expected to deliver new focus areas for the process plant equipment players.

1. Focus on the petrochemical sector through government initiatives such as Make in India, National Petrochemical Policy and the establishment of PCPIRs. PCPIRs are expected to attract more than US$420 billion in investments during 2020–35.

2. Indian petrochemical companies are focusing on high margins by investing in the production of high value-added products[14] (speciality derivatives such as Linear Low-Density Polyethylene (LLDPE), acrylic acid and polyols)[15] [16] and focusing on feedstock diversification (led by ethane volumes from the US).[17]

3. Adopting new production technologies, such as crude-to-chemicals processes, is anticipated to enhance efficiency and reduce costs across the petrochemical value chain. Major India-based energy companies have already expressed interest in crude-to-chemicals.[18] [19] [20]





Oil and Gas Industry

India's oil and gas industry expects a rapid increase in refining production capacity and consumption in line with the country's growing economy. As of 2024, India's refining capacity is ~254 million tonnes per annum (MMTPA),[21] with more investments in new refinery projects planned. India is also enhancing its domestic oil output through initiatives such as the Open Acreage Licensing Policy (OALP), which encourages private sector participation in exploration activities.

Meanwhile, the process plant equipment sector is poised to capitalise on significant opportunities due to recent developments in India's oil and gas industry, driven by the following key trends:

1. Focus on natural gas: India is targeting 17,500 Compressed Natural Gas (CNG) stations and 120 million[22] Piped Natural Gas (PNG) connections by 2030. To supplement this, it plans to expand the current national gas grid of 17,000 km by laying down an additional 15,000 km of gas pipeline grid.[23 24]

2. Oil refining growth: New refinery projects will help India increase its refining capacity to 450 MMTPA by 2030.[21]

3. Focus on biofuels: Major refining companies are increasingly focusing on biofuels.[25 26] This is primarily in response to government initiatives such as mandatory ethanol blending for motor spirit (from 11 percent to 20 percent[27] by Ethanol Supply Year (ESY) 2025-26) and sustainable aviation fuel.[28]

4. Diversification into green hydrogen: Government investment and policy support are driving the development of green hydrogen, with a target of achieving 5 million metric tonnes (MMT) by 2030.[29] This is enabling major Oil & Gas (O&G) players to diversify into green hydrogen.[30 31 32]





CHAPTER 3

India's robust and growing process plant equipment, pumps and valves industry



CHAPTER 3

India's robust and growing process plant equipment, pumps and valves industry

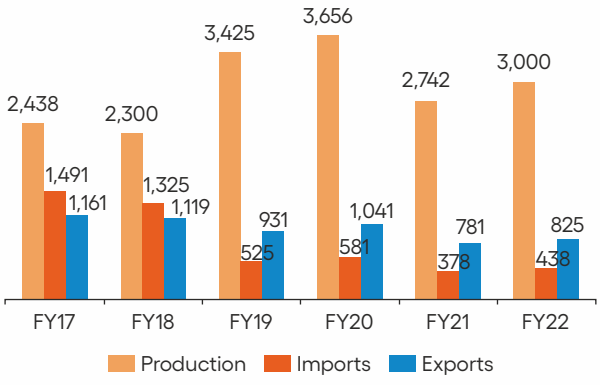
Process plant equipment sector

The global process plant equipment market is projected to grow from an estimated US$95 billion in 2024 to US$119 billion by 2029.[33] This reflects a steady Compound Annual Growth Rate (CAGR) of 4.6 percent during 2024–2029. The sector includes products such as regenerators, evaporators, crystallizers, tubular reactors, towers, columns, shell and tube heat exchangers, pressure vessels and centrifuges. The Asia-Pacific region is expected to be the fastest-growing market globally, driven by rapid industrialisation, infrastructure development and increasing end-use demand. However, North America continues to dominate as the largest.[33]

India's process plant equipment sector is experiencing robust growth, driven by rising demand from industries such as chemicals, petrochemicals and oil & gas. Its focus on expanding industrial infrastructure and advancing energy security has placed this sector at the forefront of economic development. With increasing investments in digital technologies and modernisation of manufacturing processes, the sector is evolving to meet domestic and global industrial needs, positioning India as a growing hub for advanced process plant equipment.

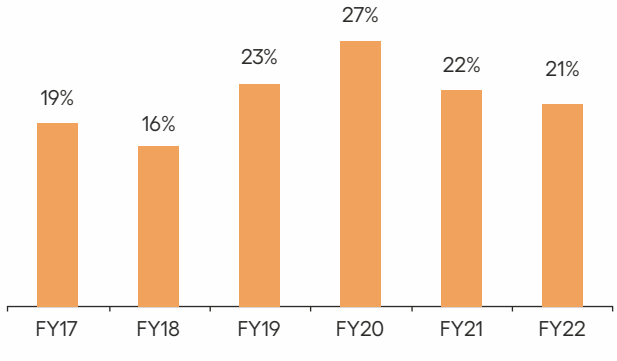
According to the Ministry of Heavy Industries (MHI) annual report, the Indian process equipment market is valued at US$3 billion and holds about 3 percent of the global market share.[34] The sector has experienced robust growth, with production increasing by 1.2 times from FY17 to FY20.[34] From FY21 to FY22, demand rebounded by 12 percent. India has a net export position in this segment, with **US$825 million in exports, compared with US$438 million in imports.**[34]

Process plant equipment [in US$ million]



Source: Ministry of Heavy Industries, Deloitte analysis

As % share of overall capital goods [in %]



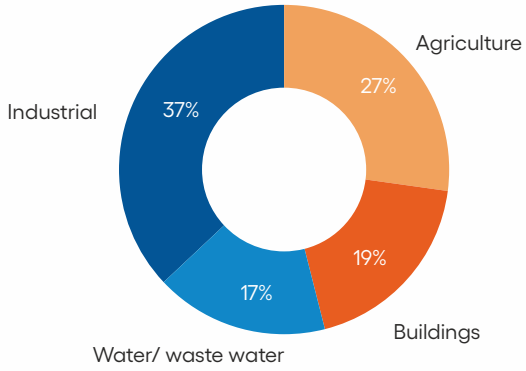
Source: Ministry of Heavy Industries, Deloitte analysis

Pumps

The global pump market reached US$60 billion in 2023. There are three main types of pumps: Centrifugal, rotary and reciprocating displacement. Centrifugal pumps dominate the market with ~50 percent share, while rotary and reciprocating pumps account for 16 percent and 13 percent, respectively.[35] Strong industrialisation in emerging economies such as China, Brazil and India is driving demand for pumps across applications, including water supply, wastewater treatment, manufacturing processes and agriculture.

In 2022, the Indian pump market was ranked sixth globally, accounting for 3 percent of the global pump consumption, behind China, the US, Canada, Germany and Russia. It is also the second-largest market in the APAC region.[36]

Indian end-use sectors [in %]



Source: Care ratings, Indian Pump Manufacturers Association (Business Today), Deloitte analysis

The pump consumption in India was ~US$2.1 billion in 2022.[36] Rapid urbanisation, increased industrial activity and greater government spending on agriculture and infrastructure sectors contribute to increasing pump demand.

The agriculture sector is one of the largest end-users of pumps in India due to its reliance on irrigation for crop production. This dependence reflects a high dependency on surface water resources in rural areas, which leads to a growing need for efficient and reliable pumps to ensure food security and enhance agricultural productivity.

The building segment relies on pumps for various applications, such as pressure boosting, water supply, borewell supply and chilling towers. Therefore, pumps are anticipated to witness strong growth in line with the expected expansion of the Indian construction sector.[37]

Pumps are essential for the efficient transport and treatment of wastewater, enabling the movement of sewage and industrial effluents to treatment facilities and processing various types of municipal and industrial wastewater, sewage, effluent, transport and treatment, stormwater, drainage and dewatering.[38] The government has outlined multiple initiatives such as Namami Gange, Swacch Bharat and Smart City Initiative, each focusing on wastewater processing.[39]

Several industrial activities, such as fluid movement in manufacturing, chemical production and energy generation, rely heavily on pumps. Their efficiency is crucial for optimising operations and maintaining consistent production across industries. Hence, the pump market is expected to follow strong growth in the industrial sector. Currently, the industrial sector accounts for 37 percent of the market.[40 41]

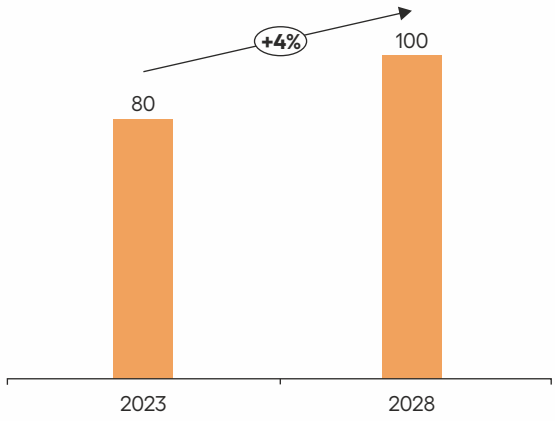
In 2023, India exported pumps worth US$1.3 billion and imported pumps worth US$1.4 billion per the Department of Commerce.[42] The Indian pump market is highly fragmented, with many small and midsized players (more than 800).[43]

As Indian manufacturers focus on both domestic and international markets, exports have become increasingly significant, particularly in sectors such as oil and gas, agriculture and wastewater management. Hence, high-technology exports are expected to gain traction, supported by a diverse product range and increasing capability of players.

Valves

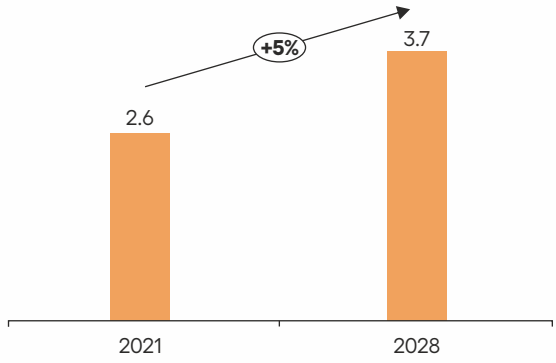
The global industrial valves market size was estimated at US$80.4 billion in 2023 and is projected to reach US$99.8 billion by 2028 at a CAGR of 4.4 percent.[44] Asia Pacific accounted for the largest share of the overall industrial valves market in 2022 driven by urbanisation and the demand for advanced water treatment.

Global industrial valves [in US$ billion]



Source: Meson Valves

Indian industrial valves [in US$ billion]



Source: Meson Valves

The Indian industrial valves market was valued at US$2.6 billion in 2021 and is projected to reach US$3.7 billion by 2028 at a CAGR of 5.2 percent.[44] Oil and gas exploration activities in offshore areas and rising energy demand contribute significantly to the market's growth. Expansion of nuclear power plants and oil refineries is expected to further boost market growth. Increasing pipeline installations (plans to add 15,000 km of natural gas grid) and demand for pipeline monitoring and control from a central location also positively affect the market. Industrial valves are being increasingly adopted in sewage pumps, sewage treatment plants and other

applications, further fuelling the market's growth.[44] Key industry drivers include the Make in India initiative (attracted foreign investment, boosted local manufacturing and increased exports) and a surge in power consumption.[44]

According to the Department of Commerce, in 2023, India exported valves worth US$271 million and imported valves worth US$358 million.[45] India is the second-largest exporter of valves in Asia Pacific, after China, and accounts for about 5 percent of the global valve exports.[46]

India's high-technology valve exports are positioned for growth due to innovative manufacturing practices and increasing global demand. However, overcoming competitive pressures and ensuring compliance with international quality standards will be critical.





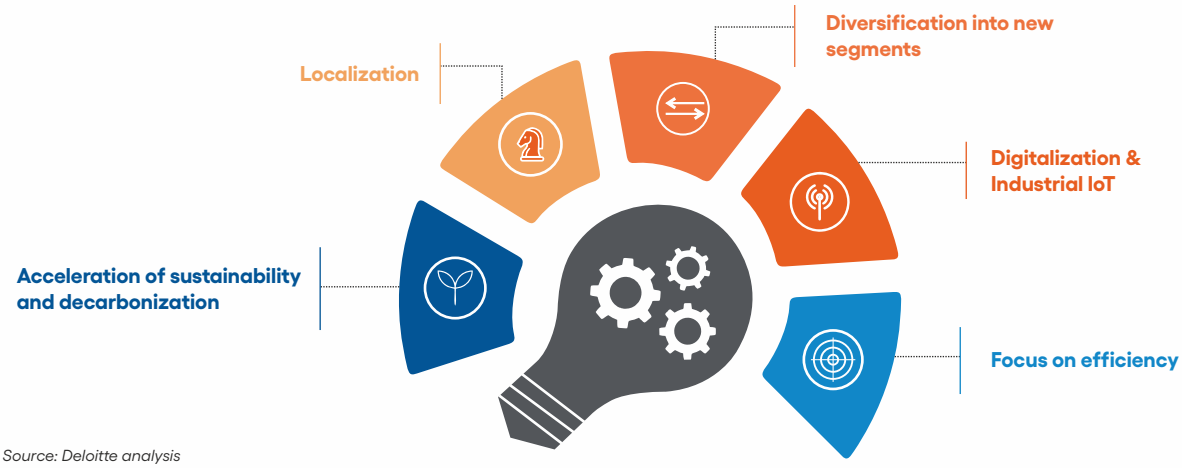
CHAPTER 4

Key market themes to monitor going forward



CHAPTER 4 Key market themes to monitor going forward

The process plant equipment, pumps and valves industry is undergoing multiple changes due to internal and external transformations.



Source: Deloitte analysis

The following are some key trends and themes identified across multiple companies in India:

Acceleration of sustainability and decarbonisation

The global growth of sustainable solutions has led to focus on two major areas:

1. Energy-efficient equipment
2. Energy transition leading to sustainable solutions in new areas

Clean energy has become a major focus for energy players. This is part of the global transition towards sustainability. Even India has updated its Nationally Determined Contribution (NDC), according to which the target to reduce the emissions intensity of its GDP has been enhanced to 45 percent by 2030 from the 2005 level, and the target on cumulative electric power installed capacity from non-fossil fuel-based energy resources has been enhanced to 50 percent by 2030. This has led to an increased demand for energy-efficient process equipment.

Additionally, there is a strong push for green hydrogen, for which the Indian government has set a production target of 5 MMTPA by 2030. This is expected to decarbonise sectors heavily reliant on fossil fuels, including refineries and fertilisers. This is fuelling the demand for new innovative process equipment for green hydrogen, such as valves and pumps.[47]

Similarly, there is a high focus on solar pumps due to India's KUSUM scheme, which targets increasing use of solar-based pumps (installing 14 lakh stand-alone solar pumps in off-grid areas and solarising 35 lakh grid-connected agriculture pumps).[48]

Localisation

Many countries are undertaking strong localisation initiatives to ensure end-use players prefer locally made products. These take up the form of preferential support for domestic manufacturers or ensuring commitment from government players towards local products.

For example, the US has instituted the Build America, Buy America (BABA) Act, establishing a domestic content procurement preference for all federal financial assistance obligated for infrastructure projects after 14 May 2022. Hence, companies with existing footprints in the US have gained a strong advantage.[49]

Similarly, a major O&G player in Saudi Arabia, in line with Saudi Vision 2030, launched a localised content initiative in 2015. A major Indian player has launched a factory in Saudi Arabia as part of this initiative.[50]

Diversification into new segments

The industry is witnessing significant demand from emerging sectors. For instance, a leading player has emphasized a strategic focus on offshore Liquefied Natural Gas (LNG) initiatives.[51] Similarly, another prominent pump manufacturer has reported heightened interest in critical areas such as firefighting systems and life sciences applications. The market for industrial pumps is also robust, driven by demand from Vande Bharat trains and locomotives (pumps for cooling power electronics and lubrication).[52] Additionally, there is a growing demand for desalination plants and wastewater treatment solutions.[53] [54]

Another noteworthy growth area is the nuclear power sector, where the government plans to increase capacity threefold from 7,480 Megawatts (MW) in 2023 to 22,480 Megawatts (MW) by 2032. The introduction of innovative technologies, such as Small Modular Reactors (SMRs), is also expected to contribute to this demand. Other emerging sectors with significant potential include defence and marine applications.[55] [56] [57] [58]

Digitalisation and Industrial Internet of Things (IIoT)

There is a growing emphasis on solutions that support real-time and remote equipment monitoring, driving increased plant modernisation. Companies have started incorporating digital technologies such as Industrial Internet of Things (IIoT) and sensors into their products to provide real-time data on performance metrics, wear analysis and optimisation insights. Multiple players in India have started focusing on the Pump-as-a-Service model, which provides remote troubleshooting and maintenance services through predictive maintenance. These lead to lower operational costs and downtime for end customers.[59] [60] There is a strong focus on delivering digital-led specialised services; hence, process equipment, pump & valve companies can utilise this opportunity.

Companies are also focusing on 3D manufacturing initiatives to reduce development time and enable faster delivery of products/parts to customers.[61] [62] This presents another digital-led opportunity for players to integrate digital manufacturing practices into their operations.

Focus on efficiency

Many manufacturers have launched efficiency initiatives to improve delivery times and optimise inventory. For instance, many companies establish new service centres and warehouses to expedite deliveries.[63] [64] [65]

Similarly, a leading pump manufacturer introduced a program that enables dealers to perform product customization and testing at their own locations, reducing the need for stocking inventory.[66]







CHAPTER 5

Ecosystem interventions required to drive growth



CHAPTER 5 Ecosystem interventions required to drive growth

The Indian process equipment and allied industries, including pumps and valves, have made significant strides in recent years. However, there are still many core areas which need attention to further drive the domestic industry's growth and competitiveness.

First, domestic players have limited access to advanced technology, particularly in automation and core product innovation. As global industries increasingly move towards higher sustainability and digitalisation, the demand for technologically advanced products is bound to surge. Considering the top-tier technology is predominantly controlled by foreign players, e.g., from Germany and Italy, Indian players may face more stiff competition going forward. Second, the rigid Past Track Record (PTR) requirements during tender bid submission leads to certain concerns. This condition mandates a proven track record, which disproportionately disadvantages Indian companies which lack prior experience executing similar projects. As a result, Indian companies with the potential to innovate and develop new products are discouraged from focusing on new product lines since the domestic market prioritises tried-and-tested technologies. Third, Indian manufacturers face competition from countries with Free Trade Agreements (FTAs) such as South Korea, Malaysia and Japan. This affects the local industry's ability to compete in the Indian market. Finally, Indian exporters face significant hurdles in the form of non-tariff barriers when exporting to developed markets. This creates an uneven playing field, where Indian manufacturers struggle to export while facing high import competition.[67]

To address these areas, the government should first establish a clear well-defined, long-term roadmap for key end-use sectors so companies are able to make right investment decisions.[67] Several supporting interventions could help overcome the above-mentioned hurdles. First, a strategic intervention would be facilitate joint ventures with foreign firms and ensuring such partnerships prioritise technology transfer for Indian players. In the long term, the government should enable the Indian Research & Development (R&D) ecosystem so that Indian companies can besscome technology leaders. Second, government should focus on relaxing PTR requirements for Indian companies that demonstrate substantial R&D capability and encourage end-use players to adopt a more progressive approach to procurement. Third, the government should incentivize higher localisation of critical equipment through strategic funding and policy support. The risks for end-users could be addressed by adopting comprehensive testing protocols and enabling extended warranties to build confidence in newly developed products. Fourth, government-to-government discussions should be undertaken to enable more balanced trade of capital goods between both countries.

By implementing these strategic interventions, the government can not only increase the competitiveness of Indian manufacturers but also position the country as a global leader in the process equipment and allied industries.[67]





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