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CBAM'S IMPACT

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**EXCLUSIVE MEMBER SECTION AT**

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An exclusive member's section has been introduced on EEPC India's website. The User ID and Password has been sent to members on their email ID that is on record with EEPC India. If any member has not received it, please contact EEPC India at: eepcho@eepcindia.net.

The email IDs of some members are not available with EEPC India. Please provide your email ID at eepcho@eepcindia.net so that we can mail the details to you. It is also recommended that all members view their details in the Member's Directory on EEPC India's website and verify their email ID.

All members are also requested to provide mobile numbers of key contact persons over email. This will enable EEPC India to send important alerts and messages on SMS.

LETTER BOX

EXCEPTIONAL SITE ASSESSMENT VISIT

Comprehensive audit report identifying areas of improvement

I hope this email find you well. I wanted to take a moment to express my heartfelt appreciation for the exceptional site assessment visit. Your comprehensive audit report not only identified areas of improvement but also provided valuable recommendations to enhance our ESG control. We sincerely appreciate the time and effort you dedicated to the auditing process. Your meticulous approach and commitment to excellence demonstrate your unwavering commitment to your profession.

Once again thank you for your exceptional work as assessor for site assessment, Specially thanks to EEPC team. We look forward to continuing our partnership and benefitting from your expertise in the future.

Valmik Kharmate

GETTING NOC FROM MINISTRY OF STEEL

Thanks for your support. We got the NOC from Ministry of Steel and the cargo is cleared from custom.

Suresh Darak

President - Exim and Indirect Taxation
Welspun Corp Ltd.

(The above letter was sent to us by Mr Darak as we helped Welspun Corp Ltd get the required NOC from the Ministry of Steel. A big achievement indeed!)

NOTIFICATIONS

- 1. Notification No. 39/2024-25:**
Alignment of the RoDTEP Schedule with changes in the Customs Tariff Act, effective from October 1, 2024 .
- 2. Public Notice No. 27/2024-25:**
Introduction of the procedure for filing the Annual RoDTEP Return (ARR). Exporters claiming RoDTEP benefits must file an ARR by March 31 of the next financial year .
- 3. Public Notice No. 26/2024-25:**
Expansion of the list of items covered by the Global Authorization for Intra-Company Transfer (GAICT) of SCOMET items/software/technology .
- 4. Trade Notice No. 21/2024-25:**
Electronic submission of Appendix 4H .
- 5. Trade Notice No. 20/2024-25:**
Clarification on the import and re-import of "Exhibits and Samples has been undertaken.
- 6. Trade Notice No. 19/2024-25:**
Clarification on RCMC requirements for post-export remission-based schemes under FTP 2023



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Message from EEPC India's New Chairman



EEPC India's new Chairman Mr Pan-kaj Chadha has a special message for you all!

Hello Friends and all esteemed members of EEPC India.

It is indeed an honour for me to be associated with you all as the Chairman of EEPC India and let us all together make this council reach newer heights through our joint effort. As part of my future vision, I would like all of you to contribute

and participate in ideation and policy making that will take our Council forward so that we can be part of every business and trade policy making forum of India and abroad. Our country is now at a sunshine juncture where the world is looking at us and we should all take opportunity of this success story to increase our base across the globe through sustainable policies and proposals. This will not just help in the growth of EEPC India members, but will further help our nation to progress along the growth trajectory and make a mark in the global circuit.

I thus urge you all to write to us, to participate in all our upcoming events and be a part of this growth journey that will. Let us celebrate as one big family in the years to come!



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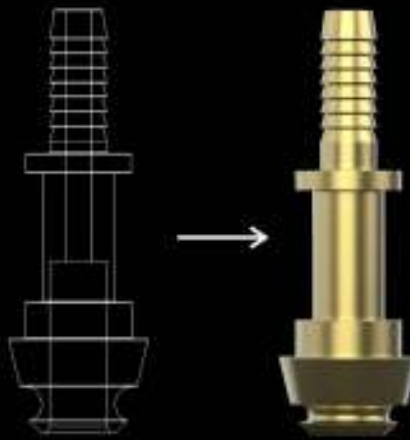


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SPOTLIGHT

EU'S CBAM A NEW CHALLENGE FOR INDIA'S ENGINEERING EXPORTS

BOLD STEPS BY EUROPEAN UNION WITH INITIATIVES LIKE CARBON BORDER ADJUSTMENT MECHANISM

GREENER & MORE SUSTAINABLE FUTURE



Sustainable engineering plays a pivotal role in shaping a future where environmental preservation and economic prosperity go hand in hand. By integrating principles of efficiency, environmental responsibility, and social awareness, innovators are propelling us towards a more sustainable world. Amidst global efforts to combat climate change, the European Union (EU) has taken bold steps with initiatives like the Carbon Border Adjustment Mechanism (CBAM), aimed at aligning trade practices with environmental imperatives.

Principles of Sustainable Engineering

Efficient resource utilization, minimal environmental impact, social responsibility, lifecycle perspective, and collaboration constitute the bedrock of sustainable engineering. Guided by these principles, efforts are directed towards designing systems and processes that not only meet current needs but also safeguard the interests of future generations.

Role of CBAM in Transition to Sustainability

To further ensure sustainable practices, the European Union (EU) has introduced CBAM, which aims to reduce carbon emissions. In a world increasingly conscious of the urgent need to combat climate change and sustainability, EU has set its sights on an ambitious target: **reducing net greenhouse gas emissions by at least 55% by the year 2030, compared to 1990 levels.**

Achieving this ambitious goal hinges on the reform and expansion of the EU Emissions Trading System (ETS), a cornerstone of the EU's climate

policy. Under the ETS, a limited supply of emission permits is either auctioned or allocated to polluting industries, with these permits subsequently traded on a dedicated market. This mechanism not only puts a price on emissions but also provides a powerful incentive for industries to adopt low-carbon technologies. However, this shift towards cleaner practices can potentially lead to higher costs for sectors operating under the ETS, causing them to move their carbon-intensive operations to regions with less stringent environmental regulations—a phenomenon known as **“carbon leakage.”**

To address this challenge, the EU currently employs a strategy involving the allocation of free allowances—essentially, granting a limited number of emissions permits to sectors

deemed highly vulnerable to carbon leakage. This approach is designed to prevent distortions in competitiveness for EU producers in both domestic and international markets. However, free allowances have come under criticism for potentially undermining the EU’s emission reduction efforts and running counter to the EU’s ultimate target of achieving net-zero emissions by 2050.

As part of its **‘Fit for 55’** policy package, the EU is now embarking on a transition away from free allowances in favour of CBAM. CBAM will essentially extend the carbon pricing model used within the EU ETS to emissions associated with production of imported goods destined for the EU market. This will be done unless the exporting country already enforces a comparable carbon pricing

mechanism. Discussions surrounding export rebates are also ongoing, to refund allowance costs for EU-produced goods exported to international markets. This approach seeks to ensure that EU industries remain competitive on the global stage while adhering to stringent climate policies.

After months of negotiations, the European Parliament and EU Council have reached a historic agreement on CBAM, set to take effect on October 1, 2023. CBAM represents a significant stride towards equalizing the carbon costs faced by EU products operating under the ETS and their imported counterparts, reinforcing the EU’s commitment to leading the charge in the fight against climate change on the international stage.

Paris Agreement to CBAM Regulation: Advancing Climate Goals



The Paris Agreement, hailed as a landmark international treaty on climate change, was adopted in 2015. This global accord, endorsed by a remarkable 195 signatories as of June 2023, set the stage for nations to collectively address the urgent challenge of limiting greenhouse gas (GHG) emissions. Yet, within the framework of the Paris Agreement, countries retained the flexibility to define their own climate ambitions, albeit within certain boundaries. Consequently, some regions and jurisdictions committed to more aggressive carbon reduction targets than others.

Europe, long regarded as a pi-

ioneer in climate protection and a driving force behind global environmental initiatives, has consistently aspired to set the gold standard in combating climate change. With an unwavering commitment to becoming the world's first climate-neutral continent by 2050, Europe unveiled the ambitious European Green Deal in 2019, formally adopted in 2020. This comprehensive strategy comprises an array of tax and non-tax policy measures meticulously designed to chart a course toward the 2050 climate neutrality objective.

In September 2020, the European Union (EU) took a momentous step by announcing its intention to reduce emissions by a formidable 55% by 2030, compared to 1990 levels. To translate this ambitious target into reality, the European Commission introduced a series of legislative proposals in July 2021, bundled under the banner of the "Fit for 55 packages." These proposals were specifically crafted to facilitate the acceleration of GHG emissions reduction across various sectors, including climate, transport, land use, energy, and taxation.

One pivotal component of the EU's strategy to align its climate goals with concrete actions is the Carbon Border Adjustment Mechanism (CBAM). CBAM represents a proactive response to the challenges posed by climate change, serving as a bridge between the EU's commitment under the Paris Agreement and the practical measures required to reduce emissions. By imposing carbon pricing on imported goods and establishing a level

playing field for carbon costs, CBAM exemplifies the EU's resolve to lead by example in the global fight against climate change.

What are Embedded Emissions?

The concept has been developed to reflect as much as possible the way in which emissions are covered by the EU ETS as if the CBAM goods were produced in the EU. The EU ETS requires operators to pay a price for their own ("direct") emissions. However, if they consume electricity, they also experience the CO₂ costs included in the price of electricity they purchase ("indirect emissions"). The same applies to the input materials needed for their production process, and which may be supplied by an EU ETS installation. These so-called precursors therefore contribute to the CO₂ costs the EU ETS installation faces. The "embedded emissions" are defined in parallel to the emissions causing CO₂ costs in the EU ETS: they consider the direct and indirect emissions of the production process as well as the embedded emissions of precursors. The scope of the CBAM is principally related to the rules of the EU ETS and therefore has differences to other methods for calculating product carbon footprints such as the "GHG Protocol" or ISO 14067¹.

https://taxation-customs.ec.europa.eu/system/files/2023-08/CBAM%20Guidance_EU%20importers_O.pdf

CBAM Phases

The CBAM will be Rolled Out in Four Phases:

Phase 1

CBAM's 27 months transition period has started from 01 October 2023. During the same, exporters would not need to pay any tax but share details of carbon content of steel and aluminium with EU importers.

Phase 2

From January 2026, exporters will start paying CBT on aluminium, steel and other covered products.

Phase 3

From 2026-2034, new products will be gradually brought under the CBT ambit.

Phase 4

From 2034 onwards, all the goods and materials imported into the EU will be taxed under the CBAM.



Affected Products

There are some new rules that will first apply to goods imported into the European Union (EU) from countries outside the EU. These rules are for products that create a lot of pollution, like certain things in the cement, electricity, fertilizers, aluminium, iron, steel, and hydrogen industries. It also includes some things that are used to make these products, like certain parts for iron, steel, and aluminium. These rules don't apply to products coming from countries that are part of the EU Emissions Trading System, like Iceland, Norway, Liechtenstein, Switzerland, and a few other small places.

But in the future, by the year 2030, the EU plans to make these rules apply to all industries that are part of the EU emissions trading system.



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ALUMINIUM



HYDROGEN

This is the current list of engineering goods covered by CBAM according to the classification of these goods in the Combined Nomenclature :

Iron and Steel	Aluminium
72 (except 7202 and 7204), 7301, 7302, 7303 00, 7304, 7305, 7306, 7307, 7308 (excluding prefabricated buildings of heading 9406)	7601, 7603, 7604, 7605, 7606, 7607, 7608, 7609a



Impact on Indian Steel and Aluminium Sector

IMPACT ON STEEL

Indian steel production emits approximately 2.6 tonnes of CO₂ per tonne of steel, higher than the global average of 1.85 tonnes. India's steel sector is said to account for about 12% of the country's total carbon dioxide (CO₂) emissions. The CO₂ emissions intensity of Indian steel production is higher than the global average, primarily due to the reliance on Blast Furnace-Basic Oxygen Furnace (BF-BOF) routes and coal-based direct reduced iron (DRI) production. Approximately 45-50% of India's crude steel is produced through the BF-BOF route. This method involves converting iron ore into molten iron in a blast furnace, which is then refined into steel in a basic oxygen furnace.

Electric Arc Furnace (EAF) and Induction Furnace (IF) routes are used to produce steel from scrap. These methods are generally less carbon-intensive compared to the BF-BOF route because they primarily use

scrap metal as raw material, which requires less energy to melt and refine. Approximately 55-60% of India's crude steel is produced using the EAF and IF routes. The EAF route has the potential for lower emissions if powered by renewable energy sources.

The Indian government has been promoting the use of scrap through various initiatives, such as the National Steel Policy, which aims to increase the availability and use of scrap in steel production.

This higher emission rate means Indian steel exporters will face significant CBAM taxes, increasing their production costs. With higher costs, Indian steel products may become less competitive in the European market, potentially leading to a decrease in demand.

Indian steel producers, government bodies, and other stakeholders may need to collabo-

rate to mitigate the impacts of CBAM. Transitioning to more sustainable practices and technologies will be essential for the Indian steel industry to reduce its carbon footprint and align with global climate goals.

IMPACT ON ALUMINIUM

The aluminium production process is energy-intensive, particularly the electrolytic reduction of alumina to aluminium in smelters, which consumes large amounts of electricity. In India, a significant portion of the electricity used in aluminium production comes from coal-fired power plants, which results in high carbon emissions. Upgrading smelting technologies to more energy-efficient and less carbon-intensive options is a critical strategy being pursued by the industry.

The industry may need to accelerate its decarbonization efforts, adopting cleaner technol-

ogies and practices to reduce emissions and comply with CBAM requirements

The Indian government has introduced various policies and initiatives to encourage the reduction of carbon emissions, including the Perform, Achieve, and Trade (PAT) scheme, which targets improvements in energy efficiency across several industries, including aluminium.

Transitional phase - new reporting rules

On 17 August 2023, the Commission published the implementing regulation regarding the CBAM reporting regulations during the transitional phase.

REPORTING OBLIGATIONS

The first reporting period for CBAM is Q4 2023, starting on

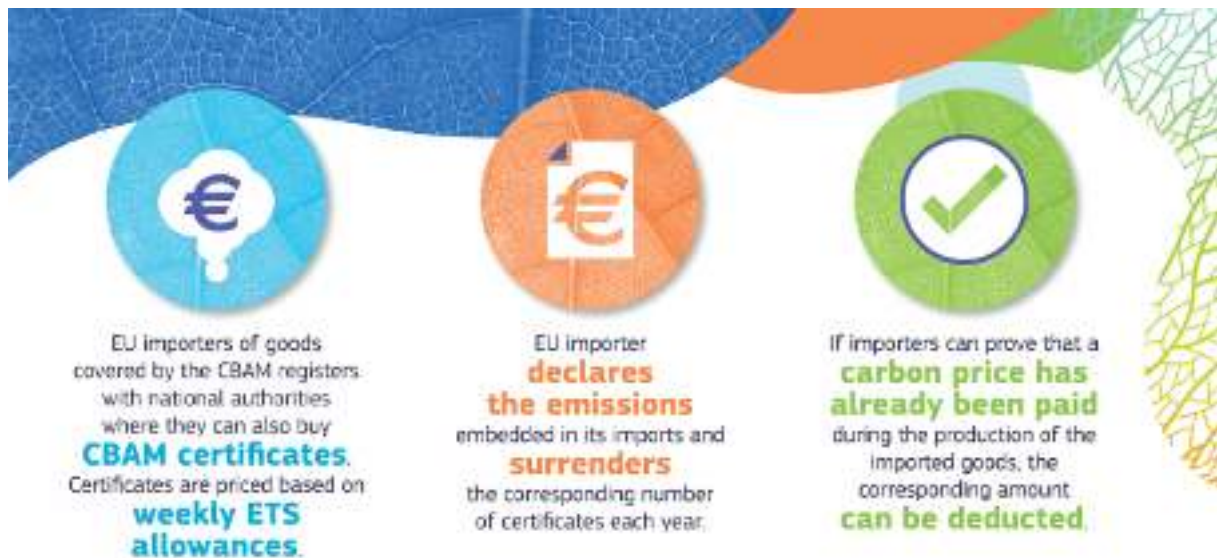
1 October 2023. The report for the first reporting period must be submitted no later than 31 January 2024. The last CBAM report of the transitional period, which is the report to be submitted for Q4 2025, should be submitted by 31 January 2026.

Within those reports, importers must, inter alia, report the following:

- The type of goods as identified by their CN code.
- The quantity of imported goods, the direct and indirect emissions embedded in them (calculated pursuant to specific methods, see below).
- Any 'carbon price' already paid abroad for the emissions, including the carbon price paid for any precursor material embedded in the final product.

- The country where a carbon price is due.
- The country of origin of imported goods.
- The identity and location of the installations where the goods were produced.
- The production routes used for the manufacturing of the goods (and associated production parameters) as defined in the implementing regulation.

The report must be submitted to the CBAM Transitional Registry, which will be managed by the Commission. The CBAM Transitional Registry will be a standardised and secure electronic database containing a trader portal through which importers can submit the quarterly CBAM reports. Both the local competent authorities and the Commission will have access



²<https://taxnews.ey.com/news/2021-1436-european-commission-releases-proposal-for-a-carbon-border-adjustment-mechanism>

³<https://economictimes.indiatimes.com/industry/indl-goods/svs/metals-mining/explainer-impact-of-cbam-on-indian-steel-industry/printarticle/106148551.cms>

⁴<https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1725448>

to this portal and its data. According to official discussions between the Commission and Member States, this platform will be an additional module of the Economic Operator Registration and Identification (EORI) system (i.e., one of the EU's customs systems). Once a report is submitted, it

can only be amended or corrected until two months after the end of the relevant reporting quarter. In derogation from this general rule, the CBAM reports for the first two reporting periods may be amended or corrected until the submission deadline for the third CBAM report (i.e., Q2 2024), which is 31

July 2024.

The penalty for non-compliance, incorrect, or incomplete filing of a CBAM report shall be set by the individual Member State but must be between EUR 10 and EUR 50 per ton of unreported embedded emissions.

HOW WILL CBAM WORK?

Once fully in place as of 2026, the CBAM will work as follows :



EU importers of goods covered by the CBAM will need to buy CBAM certificates. The price of the certificates will be calculated depending on the weekly average auction price of EU ETS allowances expressed in € / tonne of CO₂ emitted.



If importers can prove, based on verified information from third country producers, that a carbon price has already been paid during the production of the imported goods, the corresponding amount can be deducted from their final bill.



The EU importer must declare by 31 May each year the quantity of goods and the embedded emissions in those goods imported into the EU in the preceding year. At the same time, the importer surrenders the number of CBAM certificates that corresponds to the amount of greenhouse gas emissions embedded in the product

Navigating Uncertainties with Government Support

As the Carbon Border Adjustment Mechanism (CBAM) takes centre stage on the global trade platform, the Indian engineering sector, notably the iron and steel and aluminium industries, faces critical challenges and opportunities. Being among the key export destinations, the European Union (EU) introduces a pivotal dimension to the industry's international trade landscape, one that necessitates strategic considerations and collaborative efforts between industry stakeholders and the Indian government. Some of the recommendations and measures proposed by EEPC India to safeguard the interests of the Indian engineering sector in the context of CBAM are furnished below:

Financial Support for Energy Audits

Conducting energy audits is essential for understanding and reducing carbon emissions. However, these audits come at a significant cost, totalling approximately 15 Lakhs. This includes consultancy fees of around 10 Lakhs and certification body costs of around 5 Lakhs. EEPC India had proposed that a substantial portion of this cost, specifically 50%, be reimbursed to Micro, Small, and

Medium-sized Enterprises (MSMEs) under the Market Access Initiative (MAI) Scheme. This financial support can make the transition to cleaner production practices more accessible for smaller businesses.

Carbon Emissions Disclosure in Steel Production

It is crucial to recognize that a substantial portion of carbon emissions occurs during the raw material stage of production, particularly in the steel industry. It was proposed that the government mandate all steel manufacturers, whether in the primary or secondary sector, to include carbon emission data in their product test certificates. This transparency will provide a more accurate representation of the environmental impact of products.

Monitoring Mechanism and MSME Deferment

It is understood that, as of October 1, 2023, European importers above a certain threshold are required to participate in the CBAM monitoring mechanism, with smaller importers scheduled to join later. We need to verify the accuracy of this information and explore the possibility of seeking a deferment of three years for our MSME exporters along similar lines. This deferment can provide MSMEs with additional time to prepare for and adapt to the new regulations without undue burden.

Aligning Existing Taxes with CBAM

Acknowledging the absence of a specific carbon tax in India, it

is imperative that the country adapts to the changing trade dynamics catalysed by CBAM. To align with CBAM principles and level the playing field, EEPC India proposes that India officially designates existing import and excise duties on petroleum products, natural gas, and GST on coal, steel, and aluminium, among others, as carbon taxes for steel and aluminium products. This strategic move will bolster Indian exporters' competitiveness and compliance with international carbon pricing measures.

FTAs with Consideration of Carbon Border Tax (CBT)

The engineering sector, particularly in India, enjoys duty-free access to key markets like Korea and Japan under Free Trade Agreements (FTAs). However, the introduction of high CBT rates in countries like the EU threatens to undermine the benefits of existing FTAs, potentially forcing Indian exporters to navigate dual taxation and eroding the duty-free privileges. To safeguard the industry's interests, EEPC India recommends that India incorporates CBT considerations as a top agenda item in ongoing FTA negotiations, notably with the United Kingdom and the European Union. By doing so, India can ensure that the advantages of FTAs are preserved in the face of evolving climate-conscious trade policies.

In conclusion, the European Union's recent regulations on carbon emissions present a new challenge for Indian companies exporting engineering goods

to the EU. This adds to the already difficult situation faced by the exporting community, given the ongoing pandemic, geopolitical tensions, and economic slowdowns. With the EU being a major market for India's engineering products, particularly steel and aluminium, the introduction of these regulations may increase costs and intensify competition for Indian exporters. To mitigate these impacts, the Government of India has adopted a multi-faceted approach that encompasses policy and regulatory measures, industry-specific initiatives, international engagement, and capacity building. Key strategies include the National Action Plan on Climate Change (NAP-CC) and the Perform, Achieve and Trade (PAT) scheme, both aimed at enhancing energy

efficiency and promoting renewable energy adoption.

India has set ambitious targets for renewable energy capacity, aiming to achieve 175 GW by 2022 and 450 GW by 2030. The promotion of solar, wind, and other renewable energy sources is intended to reduce dependence on fossil fuels and lower carbon emissions across various sectors, including aluminium and steel. The promotion of green hydrogen and increased use of scrap in production processes further illustrate India's commitment to reducing industrial carbon footprints. Additionally, India is actively participating in international trade negotiations to ensure fair treatment of its exports under CBAM and is exploring carbon pricing mechanisms to incentivize

low-carbon technologies.

While India does not have a nationwide carbon pricing mechanism, there are discussions and pilot projects to explore the feasibility of carbon pricing. Implementing carbon pricing can help industries internalize the cost of carbon emissions and drive investments in low-carbon technologies. With major research and development investments and advanced technologies, the industry is now preparing to meet the global sustainability standards. By aligning with global climate goals and fostering innovation, the Indian steel and aluminium industries can transform these challenges into opportunities, paving the way for a greener, more resilient future.



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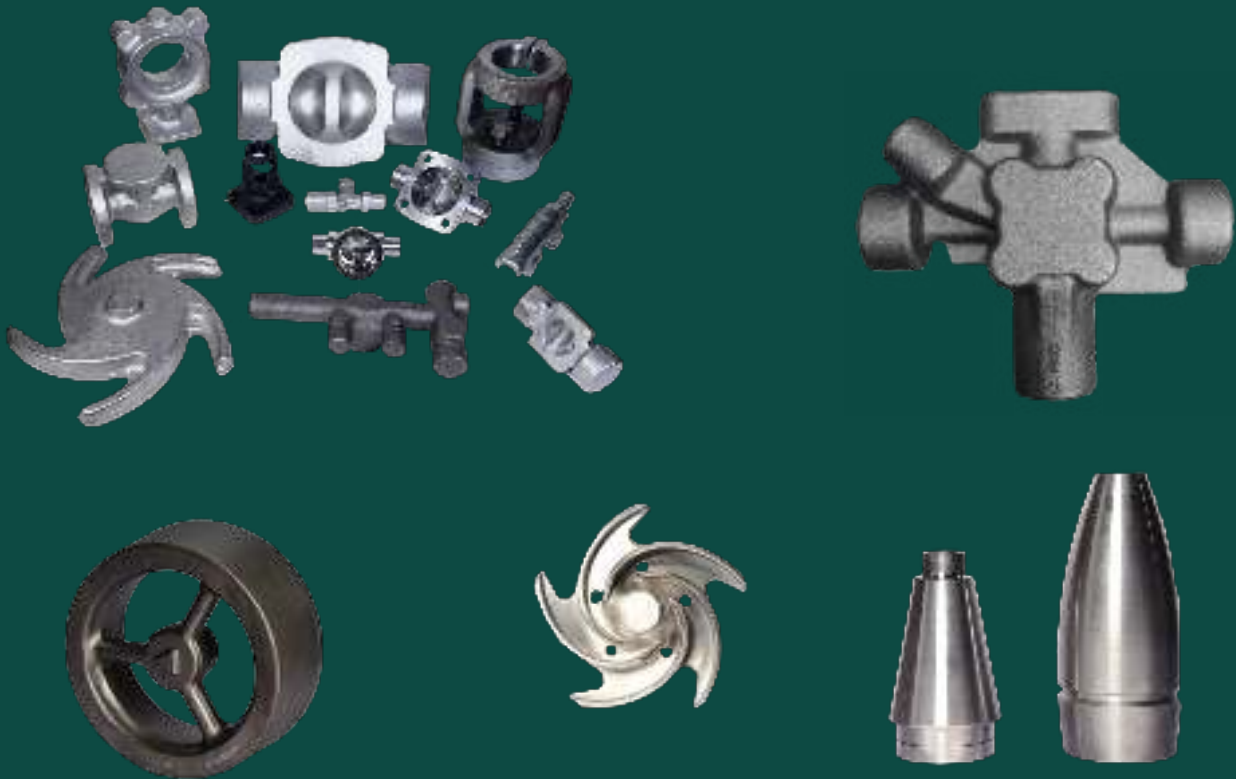


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OUR MEGA ANNUAL EVENT

less Turns 12

27th, 28th, 29th
November 2024

VENUE
Chennai Trade Centre

THEME

Smart Sustainable Engineering

Under the aegis of

Department of Commerce, GOI

Host State - Tamil Nadu

Supported by - Ministry of Heavy Industries, Ministry of Micro Small and Medium Enterprises, GOI

Steel Forum Partner

TataSteel Ltd

Subcontracting Partner

SUBCON Show Birmingham

B2B E - Commerce Partner

L & T Sufin

International Pavilions

- JIMEX, Jordan
- Ministry of Industry and Trade, Czech Republic, MSV Brno
- INNOPROM, Russia
- Subcontracting and Partnership Exchange, Cameroon (SPX-CMR)





EPEC India's annual event - IESS (International Engineering Sourcing Show), turns 12! IESS was born with an inbuilt commitment and promise to promote, assist and handhold MSMEs to showcase their engineering goods to their overseas counterparts. EPEC India, for decades, has played a lead role in building the Brand India image by organising exhibitions around the globe.

Over the past decade, IESS facilitated as an intersection for over 3,400 Indian Exhibitors, 86000 + global visitors, orchestrating over 7,000 precise B2B engagements, fostering endur-

ing international trade relationships, 150 + seminars with 750 + speakers, symbolising a melting pot of ideas and innovation, showcasing 150+ engineering product categories, reflecting India's manufacturing versatility. IESS has showcased around 38 Global Sourcing Meets from 14 countries illustrating India's commitment to International Trade; Country Specific and State Specific Pavilions alongside Industrial Technology organisations crafting a vibrant exhibition tapestry. We held 23 Vendor Development Meets from 28 Indian organisations that acted as a catalyst for a public-private synergy.

ACHIEVEMENTS OF IESS OVER LAST 10 YEARS

Meeting point for

3,400 Indian Exhibitors
86000+ Global Visitors

7,000

Precise B2B
Engagements

150+
Seminars with
150+ Speakers

150+
Engineering
Product Categories

38 Global Sourcing
Meets from
14 countries

23 Vendor
Development Meets
from
28 Indian
Organisations

OUR PARTNERS: IESS XII 2024

This 5th IESS in Chennai and seventh time in Tamil Nadu will witness IESS for the second time in one calendar year and for the fifth time in Chennai and seventh time in Tamil Nadu- over November 27-28-29 at Chennai Trade Centre.

- Under the aegis of Department of Commerce, Ministry of Commerce and Industry, Government of India
- Host State - Tamil Nadu
- Supported by Ministry of Heavy Industries; Ministry of Micro Small and Medium

Enterprises, Government of India

- Partner States - Karnataka, Madhya Pradesh and Uttarakhand
- Focus State: Odisha, Haryana, Gujarat, UP and West Bengal
- Steel Forum Partner - Tata Steel
- B2B E- Commerce Partner: L&T Sufin
- Subcontracting Partner: SUBCON 2025, Birmingham.
- International Pavilions:
 - » JIMEX, Jordan
 - » Ministry of Industry and Trade, Czech Republic, MSV Brno
 - » INNOPROM, Russia
 - » Subcontracting and Partnership Exchange, Cameroon (SPX- CMR)

10,000 Hosted Trade Visitors, around 300 Delegates from over 40 nations, Country/State Sessions, Sessions on Manufacturing Start Ups, Tech Talks, Smart Manufacturing Workshops, Global Sourcing Meets, Exporters Troubleshooting Clinic and much more



State.

- **2014 IESS IV Mumbai** (16-18 December 2014): Around 300 exhibitors, 390 delegates 7,200 visitors. Poland as the partner country and Gujarat as the Partner State.
- **2015 IESS V Mumbai** (24-26 November 2015): Around 300 exhibitors, 410 delegates 8,500 visitors with Uttar Pradesh as the Partner State.
- **2017 IESS VI Chennai** (16-18 March 2017): Around 305 exhibitors, 430 delegates, 9,200 visitors. Russia as the Partner Country, Chennai as Host State, Flanders as Focus Region, 1st Time Tech Pavilion
- **2018 IESS VII Chennai** (8-10 March 2018): 320 exhibitors, 445 delegates, over 10,000 visitors. Czech Republic as the Partner Country, Chennai as Host State, Uttar Pradesh and Haryana as Partner States, West Bengal as the Focus State, Flanders as Focus Region.
- **2019 IESS VIII Chennai** (14-16 March 2019): 346 exhibitors, 450 delegates, over 12,000 visitors. Malaysia as the Partner Country, Chennai as Host State, Uttar Pradesh as Partner State, Madhya Pradesh, Uttarakhand and Jharkhand as Focus States, Flanders as Focus Region.
- **2020 IESS IX** -- First time in Tier II City Coimbatore (March 4-5-6, 2020): Over 410 exhibitors, around 400 delegates, over 10,000 visitors. Malaysia as the Partner Country for the second time, Tamil Nadu as the Host State, Flanders from Belgium as Focus Region and Uttar Pradesh as Partner State - each having their 4th presence and

EXPECTED OUTCOME OF IESS XII

IESS XII edition brings to us four Industry Verticals under four Product Group Heads - Subcontract India, Innovation India, Watteg India and Industromech India - covering over 100 Engineering products to be at display over the three days of the event.

Three Days would witness close to 50 stalwarts from leading leagues including TATA Steel, Jaguar and Land Rover (JLR), Arcelor Mittal Nippon Steel (AM/NS), IIT Madras, CMTI, GeM, National Institute of Design (NID), E Mobility Society - SSEM; Largest Industrial Fair in Russia - INNOPROM 2025; WACA - Global On-Demand Manufacturing & Supply Chain Solutions Company), around

SUCCESS STORIES OF PREVIOUS EDITIONS PROVE IESS SUPER JOURNEY (2012-2024)

- **2012 IESS I in Mumbai** (22-24 March 2012)
- Around 300 exhibitors, 350 delegates, 6200 visitors, Canada as the partner country, Maharashtra as the partner state.
- **2013 IESS II in Mumbai** (14-16 March, 2013): Around 300 exhibitors, 360 delegates 6,800 visitors with Czech Republic as the partner country.
- **2014 IESS III Mumbai** (22-24 January 2014): Around 300 exhibitors, 380 delegates, 7,000 visitors COMESA Region as the partner country and Karnataka as the Partner

Haryana, Jharkhand, Uttarakhand, West Bengal, Madhya Pradesh, Karnataka, Himachal Pradesh, Gujarat and Jammu Kashmir were the Focus States /UTs. Department of Heavy Industry, Ministry of MSME and Department of Atomic Energy also supported the event. Office of Principal Scientific Adviser to the Government of India was associated with the show.

- **2023 IESS X** (March 16-17-18): Coinciding with India's G20 Presidency, the tenth edition of EEPC India's engineering sourcing show saw around 350 Exhibitors displaying over 149 Products under 5 Verticals to around 300 prospective buyers from across the globe and around 10,000 visitors and a unique feature of Exporters Clinic where exporters queries were dealt on the spot. Tamil Nadu as the Host State - 5th time, Madhya Pradesh, Jharkhand, Himachal Pradesh, Uttarakhand, Jam-

mu & Kashmir as Focus States and UT for the second time, Flanders as the Focus Region for the 4th time; and the Ministry of Heavy Industries, and Department of Scientific and Industrial Research (DSIR), Department of Atomic Energy, National Institute of Design, Governments of Odisha, West Bengal and UP with ODOP scheme, confirmed their support. Tata Steel was the Steel Forum Partner, Bright India group was the Logistics Partner, Union Bank was the Banking Partner, Metalogic was the Conference Partner and 360 TF was the Trade Finance Partner.

- **2024 IESS XI** (March 4-5-6) in Coimbatore: Had 192 buyers from 33 countries and 295 Indian Exhibitors displaying over 149 Products under 5 Verticals. 5722 contacts were made, with an average of 34 contacts per exhibitor and 71% of these were new contacts. A total of 147 orders

were booked valued at USD 5.19 million and 727 enquiries were generated of worth USD 20.5 million. Nearly 65% of the respondents were able to appoint their distributor agents during the show. 83% of the respondents rated quality of business visitors as excellent. 90% of the exhibitors praised the quality of the seminars. B2B matchmaking between overseas buyers and domestic sellers were successful where over 2200 One to One meetings were conducted. The sample feedback from overseas buyers revealed 93% of them rated the products viewed and also business done and generated by them as excellent and 98% were fully satisfied with the B2B meeting arrangements and 99% with the overall event and 92% buyers and 98% Indian exhibitors would like to again participate in future IESS and other EEPC India events.

FOUR PRODUCT GROUP HEADS



SUBCONTRACTING work to qualified partners continues to be an effective strategy for achieving growth in the engineering industry. Buyers and suppliers from all industry sectors need subcontracting partners to exchange and main-

tain international benchmark capabilities to remain competitive in a global market. Members of EEPC, particularly those from the MSME sector, would get a stellar opportunity for inclusive growth in SUBCONTRACT India

- Aluminium, Copper and its products
- Casting products & Forging
- Components & parts for Industrial application

- Galvanized Wires, Stainless Steel Wire Mesh
- Industrial Fastener
- Industrial Springs, Spring Coils
- Latches, locking systems and operating elements
- Machined components
- Measuring Instruments, Transducers, Meters, Data Recorder, Calibrators
- Precision Turned Component

- Semi-finished and finished components (Ferrous & Non-ferrous)
- Sheet metal components, fabrication & forming
- Steel & Cast Iron Castings, Steel Bars, Rods, Structures
- Steel Fittings & Flanges
- Steel Mills equipment and supplies
- Steel Wires, Coils, Bars, Pipes and Tubes

- Systems/sub-assemblies

Composites Mouldings and Materials

- Resin Transfer Moulding (RTM), Injection Moulding, Compression Moulding, Pultrusion
- Engineering Plastics & Moulded Parts

Raw Materials

- Material for production of

industrial parts in the form of sheets, coils, bars, tubes, wires

- Enamelled Winding Wires

Testing, Measuring and Analytical Equipment

- Mechanical and Electrical testing Components
- Quality control and analytical equipment.

INNOVATION INDIA 2024

INNOVATION India focuses on engineering start-ups, industrial technologies, technology transfer and promotion in the global market. With eminent technology providers, CSIR Labs, NID, IITs and other similar institutions presenting their capabilities, this platform would go a long way in boosting innovative entrepreneurship. The main purpose of INNOVATION India is not just to present solutions and inventions but also to forge meaningful business connections and collaborations for the growth of innovation ecosystems across globe.

- Advanced Composites
- Advanced Manufacturing & Industrial Internet of Things (IIoT)
- Advanced Materials Technology
- Aerospace Technologies, Electronics and Systems
- Air Pollution Control
- Augmented Reality

- Carbon Reduction Technologies
- Defence & Aerospace Technologies
- Drones Manufacturing & Industrial Applications
- E Mobility
- Frugal Innovations
- Green Manufacturing/Technology
- Healthcare and Medical Technologies
- Hydrogen Fuel Mobility
- Industrial Design & Simulation Testing
- Innovative Product Start ups
- New Science and Technology Initiatives & Policy Research
- Occupational Health and Safety Technologies
- Other R&D & Technologies

for Engineering Manufacturing

- Precision Mechanical Systems
- Product Design & Development
- Prototype Design and Simulation Testing
- R&D Services & Facilities
- Rapid Prototyping, Machining & Tooling
- Renewable Energy Technologies
- Research Labs & Academic Research Institutes
- Robotics & Mechatronics
- Smart Manufacturing
- Solid and Hazardous Waste Management
- Start-ups & Innovators

WATTEG INDIA 2024

WATTEG India is an initiative in connecting India's fast-growing energy and electrical sector with the regional and global requirements particularly in view

of rapid urbanization and industrial growth. This premier platform focuses to combine the energy and electrical sectors with its allied equipment industries into a sustainable energy transition. With the right mix of traditional and renewable energy, both for transmission, distribution, WATTEG aims to achieve

the motto of the event “#Smart-SustainableEngineering.

- Conductors
- Control Panels
- Electric Motors
- Electrical Cables & Wires
- Electrical Insulation Materials
- Electrical Power Tools
- Electrical Transmission & Distribution Equipment

- Engine Dynamo Meters & Accessories
- Generators & Diesel Engines
- Industrial and Domestic Batteries
- Lights and Fittings
- Lugs, Cable Rings
- Panel Boards
- Refrigeration and Air Conditioning

- Renewable Energy- Wind, Solar, Small Hydrocarbon, Biogas etc.
- Smart Home Appliances
- Stampings
- Switchgears
- Transformers
- Turbines and Parts
- Winding Wires



INDUSTROMECH India include a diverse range of industrial machines, equipment, accessories and devices which are part of larger industrial and manufacturing projects. With more than 10000 domestic visitors, INDUSTROMECH would provide an unique opportunity to Indian engineering industry to be a part of global and regional value chain.

- Blowers and Fans
- Chemicals & Petrochemicals Industry
- Clean & Waste Management
- Construction
- Cutting Tools
- Dairy Industry
- Electroplating and Galvanising
- Extrusion products
- Fabrication
- Fasteners & Accessories
- Furniture, Fixtures and Fittings
- Hand/Power Tools & Accessories
- Heat Treatment
- Heavy Engineering

- Hoists, Cranes & Accessories
- Hydraulic Press & Hydraulic Cylinder
- Hydraulic Systems & Pneumatics Systems
- Industrial Boilers and Furnace
- Industrial Cooling Towers, Systems and Heat Exchangers
- Industrial Electronics
- Industrial Humidification Systems and Fans
- Industrial Packaging Equipment Machinery & System
- Logistics Equipment & System
- Machine Tools and Accessories
- Material Handling Equipment & Storage Systems
- Metal & Metallurgical Equipment, Technology

- Metal Working Machines & Accessories
- Moulds & Dies Production Machinery & Accessories
- Pipes and Tubes
- Precision Engineering and Turned Components
- Pumps, Valves and Parts
- Steel Rolling Mills
- Tea & Coffee Processing
- Textile Mills
- Welding & Cutting Equipment & Accessories
- Wood and Plywood
- Industry Services
- Safety equipment and products, maintenance equipment
- Engineering Consultancy, Services-Consultancy and Project Management
- Outsourcing product development

**A MARKET
OVERVIEW
OF THE
BASE PRODUCTS
AT IESS**

SUBCONTRACTING

Subcontracting (or ancillarisation) is an important feature of modern organization of manufacturing industry. India embarked upon the path of economic liberalisation from 1991 onwards, although trade sector liberalisation started in the middle of the 1980s.

One of the crucial aspects of economic liberalisation is freeing the industrial sector from industrial licensing for a majority of industries. The issue of subcontracting arises for two main reasons - one is that large-scale industries reap the benefits of a small permanent labour force through subcontracting, which helps them to adjust the fluctuating demand more easily. Secondly, subcontracting may also prove to be an opportunity for the small-scale sector to face global competition through their association with some large-scale industries, national or foreign. Subcontracting, otherwise known as contract manufacturing or private manufacturing, is the process of outsourcing either a part or all of your manufacturing to an external company. The rule of third-party manufacturing comes in to process under Subcontracting. There are plenty of reasons behind the issue that includes:

- a) increasing production
- b) allocating capital more efficiently
- c) responding to sudden demand spikes
- e) reducing labour costs

Employing external manufacturing through subcontracting can increase the output of the product without the added risk of a large debt. A manufacturer can prefer to think of subcontracting as a stepping stone in the process of accumulating the capital required to build more in-house production capacity. There are plenty of factors that you need to consider when it comes to subcontracting.

Subcontracting Process:

1. Quality standards need to be established and agreed upon.
2. The next step is to iron out important logistical details, such as coordinating the production schedules for instance.
3. Then the manufacturer needs to track inventory levels and follow the manufacturing operations across multiple locations, including the manufacturers' partner's warehouse — these can prove challenging without the right tools.
4. Last, but not the least, the manufacturer needs to set up quality control checks for the finished products from the subcontractor.

Benefits of Subcontract Manufacturing:

- No overhead in setting up new manufacturing facilities
- Often cheaper since the subcontractors can produce the goods at a lower cost
- Easier to scale up or scale down production in response to demand
- Frees up resources to focus on core competencies

Disadvantages of Subcontract Manufacturing:

- Lesser control over the process of manufacturing
- Higher coordination and quality control overheads
- Other softer overheads such as invoicing and accounting

Thus, Subcontracting is practiced by various industries. For example, manufacturers who

make a number of products from complex components subcontract certain components and package them at their facilities. In case of engineering section, subcontracting takes place in different stages of production, varying from the path of supplying the raw materials to the final stage of production.

INDIA'S ASTRONOMICAL POTENTIAL AS A MANUFACTURING HUB

India's manufacturing sector reached a 16-year high in March, with the HSBC Manufacturing Purchasing Managers' Index (PMI) rising to 59.1, driven by strong increases in output, new orders, and job creation across various goods sectors. India has the capacity to export goods worth US\$ 1 trillion by 2030 and is on the road to becoming a major global manufacturing hub.

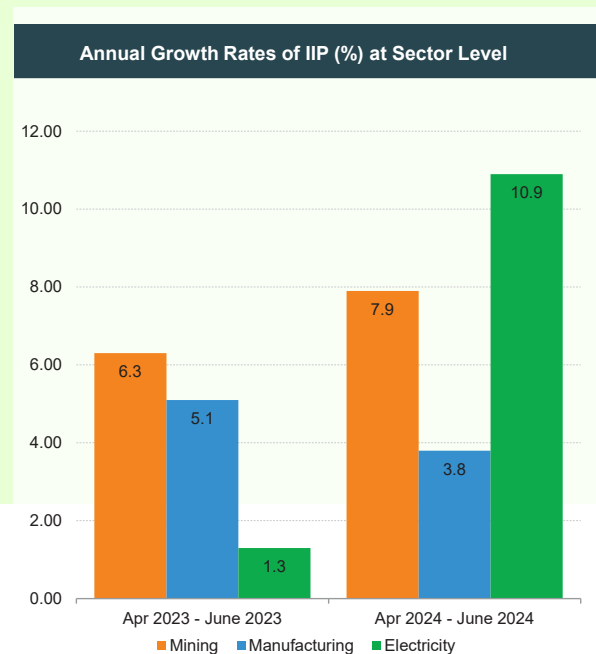
With 17% of the nation's GDP and over 27.3 million workers, the manufacturing sector plays a significant role in the Indian economy. Through the implementation of different programmes and policies, the Indian government hopes to have 25% of the economy's output come from manufacturing by 2025.

India now has the physical and digital infrastructure to raise the share of the manufacturing sector in the economy and make a realistic bid to be an important player in global supply chains. A globally competitive manufacturing sector is India's greatest potential to drive economic growth and job creation this de-

Some Encouraging Pointers

- India is gradually progressing on the road to Industry 4.0 through the Government of India's initiatives like the National Manufacturing Policy which aims to increase the share of manufacturing in GDP to 25 percent by 2025 and the PLI scheme for manufacturing which was launched in 2022 to develop the core manufacturing sector at par with global manufacturing standards.
- FDI in India's manufacturing sector has reached US\$ 165.1 billion, a 69% increase over the past decade, driven by production-linked incentive (PLI) schemes. In the last five years, total FDI inflows amounted to US\$ 383.5 billion.
- India is planning to offer incentives of up to Rs. 18,000 crore (US\$ 2.2 billion) to spur local manufacturing in six new sectors including chemicals, shipping containers, and inputs for vaccines.
- India's mobile phone manufacturing industry anticipates creating 150,000 to 250,000 direct and indirect jobs within the next 12-16 months, driven by government incentives, and

increased global demand. Major players like Apple and its contract manufacturers, along with Dixon Technologies, are expanding their workforce to meet growing production needs.



cade. Due to factors like power growth, long-term employment prospects, and skill routes for millions of people, India has a significant potential to engage in international markets. Several factors contribute to their potential. First off, these value chains are well positioned to benefit from India's advantages in terms of raw materials, industrial expertise, and entrepreneurship. Second, they can take advantage of four market opportunities: expanding exports, localising imports, internal demand, and contract manufacturing. With digital transformation being a crucial component in achieving an advantage in this fiercely competitive industry, technology has today sparked creativity. Manufacturing Sector in India is gradually shifting to a

more automated and process driven manufacturing which is expected to increase the efficiency and boost production of the manufacturing industry.

WHY SUBCONTRACT MANUFACTURING BUYERS NEED TO ATTEND IESS

IESS would bring together the Global Procurers under the same roof with intensive 'Sourcing Meets' - Global Sourcing Meets, Sessions on Manufacturing Start ups. This makes it a must attend event for subcontract manufacturing buyers from all industry sectors, to source suppliers, benchmark capabil-

ities, and secure contracts in order to remain competitive in a global market. The event will help identify, procure and benefit from the low-cost advantage of MSMEs in machining, sheet metal working, engineering, material development, design, prototyping, screw cutting, surface treatment, testing etc. As a platform for tier 2-3 precision engineers and component suppliers to showcase their strengths to OEM's and Tier 1 manufacturers.

INNOVATION & TECHNOLOGY

India ranks third among the most innovative lower-middle-income economies in the world. Rising per capita income in India will bring a boom in R&D investment in the country with multiple foreign players shifting R&D bases to India. R&D investment and multiple government policies have helped Indian companies overcome tight competition with affordable products internationally. India plans to move forward with developing its science and technology sector by collaborating with other countries. India has active bilateral science and technology

(S&T) programs of cooperation with more than 45 countries, including dedicated programs for Africa, ASEAN, BRICS, EU and neighbouring countries. In 2021, India also collaborated with Denmark and agreed to a five-year plan to implement a green strategic partnership for enhancing partnerships in various areas, including science and technology.

India is aggressively working towards establishing itself as a leader in industrialization and technological development. Significant developments in

the nuclear energy sector are likely as India looks to expand its nuclear capacity. Moreover, nanotechnology is expected to transform India's pharmaceutical industry. The agriculture sector is also likely to undergo a major revamp with the government investing heavily in a technology-driven green revolution. The Government of India, through the Science, Technology and Innovation (STI) Policy-2013, among other things, aspires to position India among the world's top five scientific powers.



Industry Contacts

- National Academy of Sciences
- Indian Science Congress Association
- Indian National Science Academy
- Indian Academy of Sciences
- Department of Science and Technology
- Indian National Academy of Engineering

Major Indian States for Science and Technology

- | | |
|---------------|------------------|
| • Maharashtra | • Tamil Nadu |
| • Gujarat | • Telangana |
| • NCR | • Andhra Pradesh |
| • Karnataka | • Madhya Pradesh |

6 PLATFORMS LAUNCHED

- ASPIRE (Automotive Solutions Portal for Industry Research & Education): Developed by the International Centre for Automotive Technology (ICAT)
- SanRachna: Bharat Heavy Electricals Limited (BHEL)
- TechNovuus: Automotive Research Association of India (ARAI)
- HMT TechPort: Hindustan Machine Tools Limited (HMT)
- KITE (Knowledge Integration for Technology Enrichment): IIT-Madras
- DRISHTI (Design, Research and Innovation by Harvesting Science and Technology for Industries) Central Manufacturing Technology Institute (CMTI), Digital Technologies

GOVERNMENT INITIATIVES TO PROMOTE SCIENCE & TECHNOLOGY

- In the Interim Budget 2024-25, the government announced corpus of Rs. 1 lakh crore (US\$ 12 billion) to promote Innovation and StartUps coupled with a new scheme for Deep Tech StartUps in Defence.
- In 2023, The National Quantum Mission (NQM) was launched with a budget of ~US\$ 726 million (Rs. 6003.65 crore) spanning from 2023-24 to 2030-31 aimed at fostering scientific and industrial R&D in Quantum Technology, propelling India's leadership in Quantum Technologies & Applications.
- In October 2023, Union Minister Dr. Jitendra Singh launched state-of-art latest National Survey Network; the nationwide "Continuously Operating Reference Stations" (CORS) Network that will be operated by the Survey of India. The Survey of India has set up more than 1,000 CORS stations across India.
- Launching National Policy on Research and Develop-

ment and Innovation in Pharma-MedTech Sector in India and Scheme for promotion of Research and Innovation in Pharma MedTech Sector (PRIP) in September 2023.

- The Indian Space Policy-2023: It was approved by the Cabinet Committee on Security on April 6, also permits non-government entities (NGEs) to offer national and international space-based communication services, through self-owned, procured or leased geostationary orbit (GSO) and non-geostationary satellite orbit (NGSO) satellite systems. NGSO is a reference to low earth orbit or medium earth orbits that are home to satellites providing broadband internet services from space.
- The policy also encourages NGEs to establish and operate ground facilities for space object operations, such as telemetry, tracking and command (TT&C) Earth Stations and Satellite Control Centres (SCCs).
- In 2023, Strengthening, Upscaling & Nurturing Local Innovations for Livelihood (SUNIL) Pro-

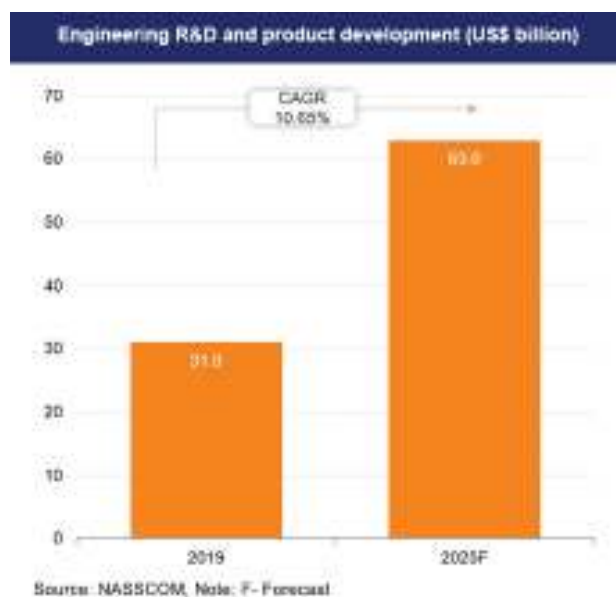
gramme, Technology delivery & enterprise creation model for improving the efficiency of the livelihood system. Technology interventions for Addressing Societal Needs (TIASN), Capacity Building of Community-based organizations (CBOs), NGOs, Knowledge Institutions (KI) & Social Start-ups.

Some Encouraging Pointers

- The engineering R&D and product development market in India is forecast to post a CAGR of 12% to reach US\$ 63 billion by 2025, from US\$ 31 billion in 2019.
- As per the Economic Survey 2022, India's gross domestic expenditure on R&D (GERD) as a percentage of GDP stood at 0.66%.

International Pavilions

- JIMEX, Jordan
- Ministry of Industry and Trade, Czech Republic, MSV Brno
- INNOPROM, Russia
- Subcontracting and Partnership Exchange, Cameroon (SPX- CMR)



- 143,695 startups (as of August 2024) from 350 startups in 2014. India has witnessed an investment of over Rs. 1,000 crore (US\$ 120.21 million) in Space Startups in the last nine months between April to December 2023.
- India's gross expenditure on R&D (GERD) as a percentage of GDP has remained stagnant at around 0.7% for about a decade, lower than Brazil (1.16%), South Africa (0.83%) and others.
- IT spending in India will grow 10.7% YoY to reach US\$ 124.6 billion in 2024, as forecasted by Gartner. India's bioeconomy was valued at US\$ 137 billion in 2022 and aims to achieve US\$ 300 billion mark by 2030.
- In FY21, the science and technology sector added 1,497,501 employees, becoming India's top employment generator.
- Under the Interim Budget 2024-25, the government announced an allocation of Rs. 8,029 crore (US\$ 966 million) to the Department of Science and Technology and Rs. 16,604 crore (US\$ 2 billion) to the Ministry of Science and Technology.

In the Interim Budget 2024-25, the government announced corpus of Rs. 1 lakh crore (US\$ 12 billion) to promote Innovation and StartUps coupled with a new scheme for Deep Tech StartUps in Defence. According

to Commerce and Industry Minister, Mr. Piyush Goyal, the Indian patent office has granted the "highest" number of 41,010 patents till November 15th, 2023.

The Indian Patent Office has crossed the one lakh mark for the first time this year, with 1,01,311 patents being granted by the department between March 15, 2023, to March 14, 2024, reflecting the government efforts to enhance the intellectual property rights framework.

India is ranked in 7th position in terms of Resident Patent Filing activity in the world. In India, there are more than 1,580 Global Capability Centres (GCCs), where companies can outsource their product development and receive product engineering services, with the GCC market size crossing US\$ 46 billion (as of FY23). These GCCs are home to some of the largest companies, many of which have their largest or second-largest R&D centres located in the country.

Accenture offers a framework for assessing the economic effect of AI for selected G20 countries in its latest AI research studies and forecasts that AI will raise India's annual growth rate by 1.3% by 2035. India's National Artificial Intelligence Strategy prepared by NITI Aayog outlined a way forward to harness the potential of Artificial Intelligence (AI) in different fields. State University Research Excellence (SERB-SURE) to create a robust R&D ecosystem in state universities and colleges; Fund for Industrial Research Engagement (SERB-FIRE) to support research and development to

solve critical problems that are relevant to industries in a public-private partnership mode.

ENERGY & ELECTRICALS

The Government of India has de-licensed the Electrical Machinery industry and has allowed 100% foreign direct investment (FDI) in the sector. EEPC India, under the aegis of Ministry of Commerce and Industry, Government of India, has identified the Electrical Machineryes & Equipment sector as one of the four focus sectors under 'Brand India Engineering.' 'Brand India Engineering' is an initiative being implemented by EEPC India under the aegis of the Ministry of Commerce and Industry, Government of India, in close cooperation with the industry to enhance Indian engineering exports, by highlighting and showcasing Made in India products and their capabilities in the global market. The initiative involves a 360-degree approach in promoting the branding of Indian engineering products. It is expected to catapult India's status in engineering capabilities, by highlighting India's competitiveness, credibility & service commitments in engineering sector.

India Brand Equity Foundation (IBEF), a Trust established by the Department of Commerce, Indian Electrical & Electronics Manufacturers' Association (IEEMA) and EEPC India are steering the campaign in coordination with national associations & industry stakeholders in



Source: DGCI&S, Government of India

the Electrical Equipment sector.

ELECTRICAL MACHINERY EXPORTS ON THE RISE: ENCOURAGING STATISTICS

India's exports of Electrical Machinery and Equipment rose to USD 14.3 billion in 2022-23 from USD 5.3 billion in 2013-14 with a CAGR of 11.6%. The following diagram depicts the year-on-year growth in India's export of elec-

trical machinery & equipment.

Fig. 2: India's Export of Electrical machinery & equipment (US\$ billion).

Sub sector wise Generator ranks occupies 11.1% of India's total export of Electrical machinery as on 2022-23. Turbines share 2.2% of export basket followed by Cables & Conductors (8.8%) and Transformers (5.7%) during the same. The other segment of Electrical machinery and

equipments barring Generation equipments and T&D equipments, which have remarkable export prominence are Turbo jets and converters. The 'other' segment though not very vast in size consists mainly of MSME players, catering the global market. India's export of HS code 841112 (TURBO-JETS OF A THRUST>25 KN) and HS code 85044090 (STATIC CONVERTERS) were 18.8% and 5.6% respectively in 2022-23.

India's global export of Electrical Machinery - Sub Sector wise

Values in US\$ million	Sub-Sectors	2018-19	2019-20	2020-21	2021-22	2022-23
Generation Equipment	Boiler	460.9	482.4	239.4	189.0	212.93
	Turbine	445.0	440.0	453.3	384.2	308.48
	Generator	1064.7	1027.3	984.2	1550.2	1593.49
T&D Equipment	Transformers	564.1	539.8	501.1	688.2	821.5
	Capacitors	132.8	114.0	119.6	150.4	153.38
	Switch gear	98.5	114.3	137.1	147.3	162.83
	Cables & Conductors	669.8	909.2	702.0	969.6	1264.39
	Transmission lines	277.8	326.4	329.9	270.1	511.32
	Energy Meters	90.9	51.9	38.0	46.0	43.26
	Others	7143.8	7873.6	6831.5	8365.5	9262.2

Source: DGCI&S, Government of India

India's top five export destination in the last 3 years sub sector wise. USA ranks as the numero uno destination of India's export of Generation Equipments, importing almost 26 percent of India's export of the same in 2022. The share of other top nations are Germany (6.1%), Poland (4.2%), France (4.0%), and Spain (3.7%).

Values in US\$ million	Generation Equipment		
Top 5 Export Destinations of India	2020	2021	2022
World	2879.0	3800.0	4212.0
USA	943.4	1007.7	1077.1
Germany	158.0	255.4	258.9
Poland	43.4	254.2	176.1
France	90.1	129.2	166.5
Spain	28.8	76.4	157.6

Source: ITC Trade Database

In case of Transmission & Distribution (T&D) equipment also USA ranks as the numero uno destination of India's export of the same, importing 26 percent of India's export of the T&D equipment. The shares of other top nations are UK (5.8%), Bangladesh (5.6%), Germany (4.1%) and UAE (3.8%).

Values in US\$ million	T & D Equipment		
Top 5 Export Destinations of India	2020	2021	2022
World	2909.1	3733.5	4739.4
USA	456.4	783.2	1228.9
UK	135.4	216.3	273.5
Bangladesh	145.3	114.0	263.7
Germany	107.4	155.6	196.1
UAE	153.1	147.4	180.6

Source: ITC Trade Database

Global major suppliers of Electrical machinery & equipments in the world market and viz-a-viz India's rank in 2021 sub sector wise Indian electrical and machinery equipment boasts of a diversified, matured and strong manufacturing base backed by a robust supply chain. Rugged performance design of equipment to meet tough network demand and presence of major foreign players, either directly or through technical collaborations with Indian manufacturers is a testimony of unique advantages India holds in this sector. With state-of-the-art technology in most sub-sectors at par with global standards, Indian electrical equipment is exported globally. The major export products are Rotating Machines (Motors, AC Generators and Generating Sets) & Parts, Switchgear and Control gear, Transformers & Parts, Cables, Industrial Elec-

tronics, Boilers & Parts, and Transmission Line Towers etc. The following tables show the rank of India as a global supplier of Generation equipment and T&D equipment in 2022.

Values in US\$ billion	Generation Equipment	
Rank	Exporters	2022
	World	153.3
1	China	29.8
2	USA	17.1
3	Germany	14.2
4	Japan	8.3
5	Italy	8.3
6	Mexico	6.1
7	UK	5.2
8	France	4.9
9	India	4.2

Source: ITC Trade Database

Values in US\$ billion	Generation Equipment	
Rank	Exporters	2022
	World	153.3
1	China	29.8
2	Germany	14.2
3	Mexico	8.3
4	USA	8.3
5	Hong Kong, China	6.1
6	Japan	5.2
7	Italy	4.9
8	Korea, Republic of	4.2
9	Poland	3.7
10	Türkiye	3.0
11	Viet Nam	2.8
12	Czech Republic	2.5
13	Spain	2.2
14	France	2.0
15	Netherlands	1.8
16	Romania	1.6
17	Singapore	1.4
18	Taipei, Chinese	1.2
19	India	1.0

Source: ITC Trade Database

INDUSTRIAL MACHINERY & EQUIPMENT

India's Capital Goods manufacturing industry serves as a strong base for its engagement across sectors such as Engineering, Construction, Infrastructure and Consumer goods, amongst others.

The engineering sector is the largest of the industrial sectors in India. It accounts for 27% of the total factories in the industrial sector and represents 63% of the overall foreign collaborations. Demand for engineering sector services is being driven by capacity expansion in industries like infrastructure, electricity, mining, oil and gas, refinery, steel, automobiles, and consumer durables. India has a competitive advantage in terms of manufacturing costs, market knowledge, technology, and innovation in various engineering sub-sectors. India's engineering sector has witnessed remarkable growth over the last few years, driven by increased investment in infrastructure and industrial production. The engineering sector, being closely associated with the manufacturing and infrastructure sectors, is of huge strategic importance to India's economy.

The development of the engineering sector of the economy is also significantly aided by the policies and initiatives of the Indian government. The engineering industry has been de-licensed and allows 100% foreign direct investment (FDI).

Additionally, it has grown to be the biggest contributor to the nation's overall merchandise export. The Capital Goods sector contributes to 12% of India's manufacturing output and 1.8% of GDP. Market valuation of the capital goods industry was US\$ 43.2 billion in FY22. Imports of Electrical Machinery in India increased to US\$ 11.38 billion in FY23. The Indian electrical equipment industry comprises of two broad segments, Generation equipment (boilers, turbines, generators) and Transmission & Distribution (T&D) and allied equipment like transformers, cables, transmission lines, etc. The sector contributes about 8% to the manufacturing sector in terms of value, and 1.5% to overall GDP. Incentives for capacity addition in power generation will further increase the demand for electrical machinery.

The Index of Industrial Production (IIP), in absolute terms, is projected to be 141.6 in September 2023 as against 133.8 in September 2022. The electrical equipment market share in India is expected to increase by US\$ 33.74 billion from 2021 to 2025 at a CAGR of 9%. The domestic electrical equipment market is expected to grow at an annual rate of 12% to reach US\$ 72 billion by 2025. In FY21, India's heavy electrical equipment production stood at Rs. 168,949 crore (US\$ 21.15 billion). Production of generation equipment (boilers, turbines and generators) in India is estimated to be around US\$ 5.7 billion by 2022. The electrical machinery/equipment segment grew nearly 90% with shipments jumping

to Rs. 13,606 crore (US\$ 1.6 billion) in April-July 2022 from Rs. 7,202 crore (US\$ 869 million) in the year-ago period.

INDIA'S ENGINEERING GOODS EXPORTS COVERING IMPORTANT MACHINERIES

- The Indian textile machinery industry was expected to touch the US\$ 6 billion mark by 2022. India's textile machinery exports registered a growth of 21.4% to US\$ 762.15 million in the first nine months of 2022.
- The market size of the Plastic machinery sector stood at US\$ 0.5 billion.
- The market size of the process plant equipment sector stood at US\$ 3.7 billion.
- In 2021, the production data of Earthmoving and Mining Machinery stood at US\$ 3.5 billion.
- Foundry industry has a turnover of approx. US\$ 19 billion with export approx. US\$ 3.1 billion.
- There are 750-800 domestic Medical Devices manufacturers in India, with an average investment of US\$ 2.3-2.7 million and an average turnover of US\$ 6.2-6.9 million.
- The Indian industrial fasteners market is expected to reach a value of Rs. 460 billion by 2023 expanding at a CAGR of ~9.6% from 2018.
- India steam boiler systems market size is expected to reach nearly US\$ 22.56 billion by 2027 with the CAGR of 4.63% during the forecast period.
- The India generator sets mar-

ket is expected to grow at a CAGR of more than 5% over the period of 2020-2025.

- The India power transformer market is expected to rise at a CAGR of more than 3% during the forecast period of 2020-25.
- Indian switchgear market is projected to grow at a CAGR of over 15% through 2023, on account of rising development across residential, commercial and industrial end-use sectors.
- India's automotive industry is worth more than US\$ 222 billion, contributes 8% of the country's total export, ac-

counts for 7.1% of India's GDP and is set to become the 3rd largest in the world by 2030.

- Indian auto components industry, which accounts for 2.3% of India's GDP currently, is set to become the 3rd largest globally by 2025. According to the Automotive Component Manufacturers Association of India, the auto-components industry of India is expected to grow by 10-15% in FY24, which would be driven by both domestic and export market demand.
- The Indian agricultural equipment market reached a value of Rs. 1,023.2 billion (US\$ 12.3

billion) in 2022. India's farm equipment market is likely to grow to US\$ 18 billion by 2025.

- The Indian machine tools market size reached US\$ 1.4 Billion in 2022 and is expected to reach US\$ 2.5 billion by 2028, exhibiting a growth rate (CAGR) of 9.4% during 2023-28.
- The Indian automated material handling (AMH) market was valued at US\$ 1,353.8 million in 2020 and is expected to go up to US\$ 2,739.34 million by 2026 at a CAGR of 12.7%.

Some Encouraging Pointers

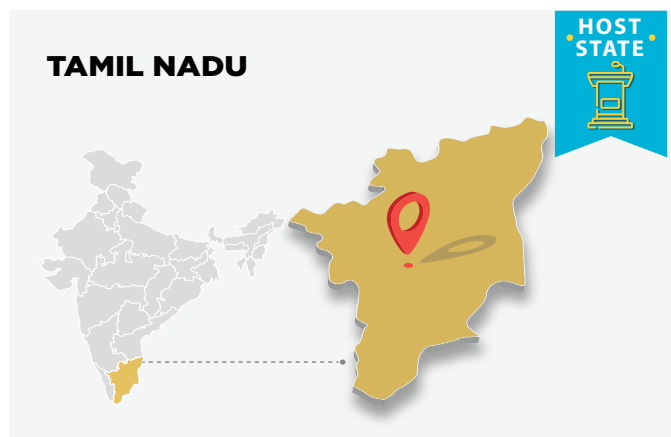
- In FY21, India's heavy electrical equipment production stood at Rs. 168,949 crore (US\$ 21.15 billion). The electrical equipment market is forecasted to grow at 12% CAGR to reach US\$ 72 billion by 2025 from US\$ 48-50 billion in 2021. The electrical equipment export market is forecasted to reach US\$ 13 billion by 2025, from US\$ 8.62 billion in 2021.
- Indian machine tool pro-

duction and consumption were estimated at Rs. 6,602 crore (US\$ 879.38 million) and Rs. 12,036 crore (US\$ 1.6 billion), respectively, in FY21, while exports stood at Rs. 531 crore (US\$ 66.48 million).

- The boiler industry's market size stood at US\$ 146 million in 2019 and is expected to grow at a CAGR of 6% to reach US\$ 194 million by 2025. Export of boilers stood at US\$ 106.53 million between April-November 2020, with around 72 million units exported.

- The market size of high voltage switchgear (including panels) and low voltage switchgear (including panels) stood at Rs. 4,793 crore (US\$ 679.95 million).
- In FY23, the exports of engineering goods from India have been estimated to stand at US\$ 107.04 billion.
- In FY22, India exported engineering goods worth US\$ 111.63 billion, a 45.51% increase YoY. India exports engineering goods mostly to the US and Europe, which account for over 60% of the total exports.

The Indian engineering sector is of strategic importance to the economy owing to its intense integration with other industry segments. The sector has been de-licensed and enjoys 100% FDI. With the aim to boost the manufacturing sector, the government has relaxed the excise duties on factory gate tax, capital goods, consumer durables and vehicles.



Tamil Nadu is the fourth-largest state of India. Located on the southern coast of India, Tamil Nadu is surrounded by Andhra Pradesh on the north, Karnataka and Kerala on the west, Indian Ocean on the south, and Bay of Bengal on the east.

Tamil Nadu has a diversified manufacturing sector and features among the leaders in several industries like automobiles and auto components, engineering, pharmaceuticals, garments, textile products, leather products, chemicals, plastics, etc. It ranks first among the states in terms of the number of factories and industrial workers. At current prices, Tamil Nadu's gross state domestic product (GSDP) is estimated to be Rs. 28.3 trillion (US\$ 341.79 billion) in 2023-24 and increase at a CAGR of 11.66% between 2018-19 and 2023-24.

In 2020-21, the tertiary sector contributed 54.33% to the state's Gross State Value Added (GSVA) at current prices, followed by the secondary sector at 32.72%. According to De-

partment for Promotion of Industry and Internal Trade (DPIIT), cumulative FDI inflows in the state amounted to US\$ 10.93 billion between October 2019 and March 2024. In September

2021, the UAE-based DP World announced an investment of Rs. 2,000 crore (US\$ 271.68 million) to establish numerous projects in Tamil Nadu. These projects include a container terminal, cold storage and seafood processing zone, free trade zone with an integrated rail siding, minor port in the Eastern Coast of Tamil Nadu and inland container depots in Erode, Karur and Tiruppur.

In July 2021, Tamil Nadu exchanged 35 memorandums of understanding (MoUs) with a cumulative investment of Rs. 17,141 crore (US\$ 2.33 billion) and employment opportunities for 55,054 people. These investments are in the fields of power plants, electronics, auto components, industrial parks, IT/ITeS services, food processing, footwear, pharmaceuticals, and textiles.

Between the second quarter and third quarter of FY21, the state received new investments of ~Rs. 61,000 crore (US\$ 8.3 billion). Of this, some key private investments included Rs. 4,629

crore (US\$ 631 million) solar photovoltaic modules project by SunEdison Energy India; Rs. 2,500 crore (US\$ 341 million) lithium-ion batteries project in Tiruvallur by Lucas-TVS, and a Rs. 2,300 crore (US\$ 314 million) plant being set up by Daimler India Commercial Vehicles at Oragadam.

Total merchandise exports from the state stood at US\$ 40.65 billion in FY23, and US\$ 43.56 billion in FY24. The state exported key items such as Engineering Goods, Electronic Goods, Ready-made garments of all textiles, Cotton Yarn/Fabs/Madeups, Handloom Products, Leather and Leather Manufactures, Petroleum Products, Organic and Inorganic Chemicals. Tamil Nadu has a well-developed infrastructure with an excellent road and rail network, three major ports, 15 minor ports, and eight airports across the state providing excellent connectivity.

As of FY24, the state had a total installed power generation capacity of 39.80 GW.

Thermal power contributed 16147.04 MW to the total installed power generation capacity, followed by renewable power (20032.73 MW), hydro-power (2178.20 MW) and nuclear power (1448.00 MW).

Private sector, with a capacity of 26069.60 MW, was the biggest contributor to the total installed power generation capacity in Tamil Nadu, followed by state utilities (7144.98 MW) and central utilities (6591.39 MW).

BRIEF ON IESS PARTNER STATES

Karnataka is located in the south of India. It is surrounded by the Arabian Sea on the west, Goa on the northwest, Maharashtra on the north, Andhra Pradesh on the east, Tamil Nadu on the south-east, and Kerala on the south-west.

According to an EXIM Bank report, by 2024-25, Karnataka's merchandise exports can reach US\$ 35.3 billion, and software and services exports can reach US\$ 150 billion.

Karnataka has a vibrant automobile, agro, aerospace, textile and garment, biotech, and heavy engineering industries. The state has sector-specific Special Economic Zone (SEZs) for key industries such as IT, biotechnology, engineering, food processing and aerospace. Karnataka is the IT hub of India & home to the fourth-largest technology cluster in the world.

Karnataka boasts of diverse flora and fauna and a 320 km natural coastline, which makes it a nature tourist's paradise.

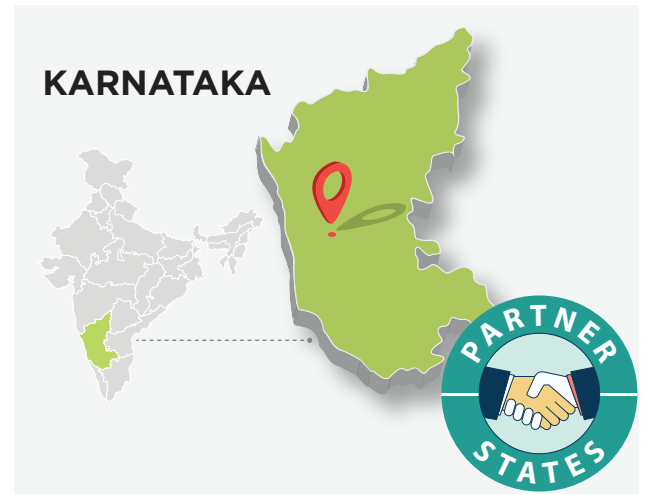
Karnataka offers a wide range

of fiscal and policy incentives for businesses under the Karnataka Industrial Policy 2020-25, with simplified procedures for investment.

In September 2017, the government of Karnataka passed the 'Karnataka Electric Vehicle and Energy Storage Policy 2017.'

In June 2021, the Karnataka government amended the policy to offer more impetus to the electric mobility sector. As per the amendment, a 15% subsidy was announced on capital expenditure on land value (fixed value assets up to a maximum limit of 50 acres of land).

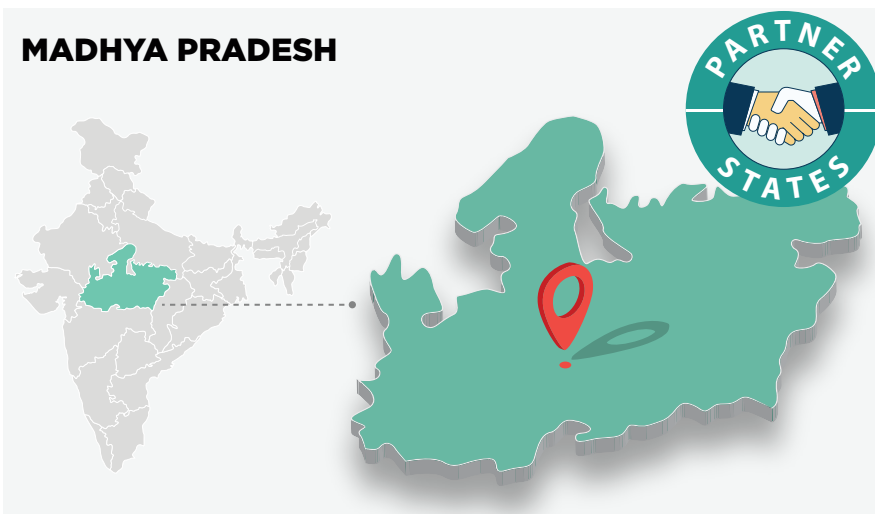
As of May 2024, the state had an installed power generation capacity of 33,389.69 MW. Of this, central utilities contributed 4364 MW, private utilities (20179 MW), and state utilities (8,845



MW). Of the total installed power generation capacity, 10,761 MW was contributed by thermal power, followed by nuclear (698.00 MW), renewable power (18,298 MW) and hydropower (3,631 MW).

As per the State Budget 2024-25, Rs. 23,100 crore (US\$ 2.77 billion) was allocated for the energy sector. Out of this, Rs. 12,786 crore (US\$ 1.53 billion) was allocated to provide subsidies to Karnataka Power Transmission Corporation Limited.

MADHYA PRADESH



Madhya Pradesh is growing as a solar power hub with the Rewa solar power project (new 750 MW solar power plant) and an upcoming 600 MW floating solar energy project at Omkareshwar Dam on the Narmada River. Madhya Pradesh is located in central India. The state is bound on the north by Uttar Pradesh, on the east by Chhattisgarh, on the south by Maharashtra, and on the west by Gujarat and Rajasthan. It is among the fastest growing states in the country. At

current prices, the Gross State Domestic Product (GSDP) of Madhya Pradesh was estimated at Rs. 13.87 trillion (US\$ 166.31 billion) in 2023-24.

Net State Domestic Product (NSDP) of Madhya Pradesh was estimated to be about Rs. 12.42 trillion (US\$ 148.92 billion) in 2023-24. Between 2015-16 and 2023-24, the state's NSDP increased at a CAGR of about 12.44%. Madhya Pradesh is rich in natural resources - fuel, minerals, agriculture, and biodiver-

sity. It is also the only diamond producing state in the country. Diamond production in the state stood at 38,437 carats in 2018-19.

Madhya Pradesh offers distinctive monetary and strategy/policy incentives for organizations under the Industrial Promotion Policy-2014 other than strategies/policies for information technology (IT), biotechnology, tourism, and special economic zone (SEZs). To pull in investors and promote entrepreneurs, the

State Government has selected TRIFAC, an agency that encourages a single window system, for speedy approvals of different clearances and consents.

Exports from the state stood at US\$ 7.88 billion in FY24. In FY24, exports of cotton yarn stood at US\$ 982.5 million. According to the Department for Promotion of Industry and Internal Trade (DPIIT), cumulative FDI inflow in Madhya Pradesh was valued at US\$ 553.49 million between October 2019-March 2024.



Under the Vision 2030, the processing capacity of horticulture produce will be enhanced from 7.5% to 15% of the total horticulture production by 2030.

Uttarakhand is located in the foothills of the Himalayan mountain range. The state shares borders with China (Tibet) in the north, Nepal in the east, and inter-state boundaries with Himachal Pradesh in the west and northwest and Uttar Pradesh in the south. It has almost all agro-geo climatic zones, which provide commercial opportunities for floriculture and horticulture. The state is home to more than 175 species of rare medicinal, aromatic & herbal plants. The state has

proximity to the national capital, Delhi, a leading market of the country and excellent connectivity with neighboring states. Uttarakhand has abundant natural resources due to hills and forests. Its agro-climatic conditions support horticulture-based industries. The vast water resources available in the state are also favorable for hydropower.

Uttarakhand is one of the fastest growing states in India, thanks to the massive growth in capital investment arising from conducive industrial policy and gener-

ous tax benefits.

The state offers a wide range of benefits in terms of interest incentives, financial assistance, subsidies, and concessions. Uttarakhand has a robust social and industrial infrastructure, virtual connectivity with over 39,000 km of road network, two domestic airports, 345.23 km of rail routes.

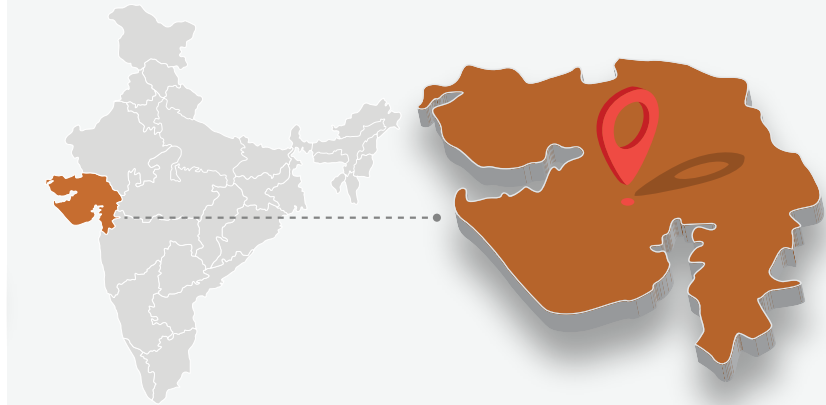
As of May 2022 (Upto December), 30 Industrial Entrepreneurs Memorandums (IEMs) worth US\$ 209.30 million) have been filed in Uttarakhand.

BRIEF ON IESS FOCUS STATES

Gujarat is the fourth-largest state in milk production in India with a share of 7.56% of the total milk production in the country and consists of 19,522 cooperative milk societies in the state. Gujarat is located on the western coast of India and has the longest coastline of 1,600 kms among all the states in the country. The state shares its borders with Rajasthan, Madhya Pradesh, Maharashtra, and the Union Territories of Daman and Diu and Dadra and Nagar Haveli. The Arabian Sea borders the state on the west and the southwest. Gujarat is one of the leading industrialized states in India. Gujarat is considered the petroleum capital of India due to presence of large refining capacity set up by private and public sector companies. In 2022-23, Gujarat contributed 8.6% to India's GDP.

The state is the world's largest producer of processed diamonds, accounting for 72% of the world's processed diamond share and 80% of India's diamond exports. With a contri-

GUJARAT



[focus]
STATES

bution of 65 to 70% to India's denim production, Gujarat is the largest manufacturer of denim in the country and the third largest in the world. There are 42 ports, 17 domestic airports and 3 international airports. There are 106 product clusters and 60 notified special economic zones (SEZs). Large scale investment is expected in Gujarat as part of the US\$ 90 billion Delhi-Mumbai Industrial Corridor (DMIC).

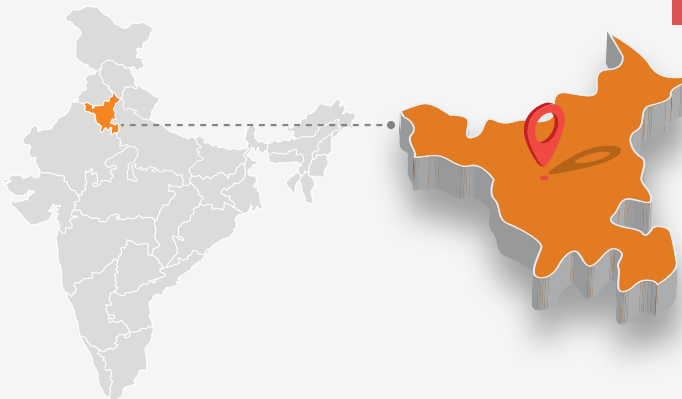
Ahmedabad is India's first UNESCO World Heritage City of Gu-

jarat which has been included in the list of the "World's 50 Greatest Places of 2022" by Time Magazine.

The first IFSC (International Financial Services Centre) in India has been set up at the Gujarat International Finance Tec-City (GIFT City) in Gandhinagar.

In 2022-23, the secondary sector contributed 42.90% to the state's GSDP (at current prices), followed by tertiary (37.3%) and primary (20.09%) sectors.

HARYANA



[focus]
STATES

Haryana is the third-largest exporter of software and one of the preferred destinations for IT/ITeS facilities in India. Haryana is among the northernmost states in India and is adjacent to Delhi, the national capital of India. It is surrounded by Uttar Pradesh in the east, Punjab in the west, Himachal Pradesh in the north, and Rajasthan in the south. The state surrounds the national capital city, New Delhi, from three sides. Historically a rural state, Haryana

today is a well-developed industrial state.

The state is one of India's largest automobile hubs and accounts for two-thirds of passenger cars, 50% of tractors and 60% of motorcycles manufactured in the country. The state has also emerged as a base for the knowledge industry, including IT and biotechnology. Haryana is the third-largest exporter of software and one of the preferred destinations for IT/ITeS facilities.

As per the advance estimates for 2024-25, the state's GSDP at current prices has been estimated at Rs. 12,16,044 crore (US\$

145.11 billion). The state's GSDP (in Rs.) expanded at a CAGR of 9.39% between 2015-16 and 2024-25.

The State Government of Haryana has been committed to creating a progressive business environment. The state offers a wide range of fiscal and policy incentives for businesses under the Industrial and Investment Policy, of 2011. Haryana ranked the third best state in the country under ease of doing business in the Business Reforms Action Plan 2017. As of October 2020, the state had seven exporting Special Economic Zones (SEZs).

Recent Developments

- Merchandise exports from Haryana reached US\$ 12.06 billion in FY20, US\$ 11.60 billion in FY21 and US\$ 15.55 billion in FY22. It eventually reached at US\$ 17.66 billion in FY24.
- According to the Department for Promotion of Industry and Internal Trade (DPIIT), cumulative Foreign Direct Investment (FDI) inflows in Haryana stood at US\$ 1.91 billion in FY24 and was US\$ 9.73 billion between October 2019-March 2024.

The state is home to a large number of MSME units.

The state is amongst the top ten states accounting for the highest number of MSME enterprises. Odisha is located in the eastern region of India. The state shares its borders with West Bengal on the north-east, Jharkhand on the north, Andhra Pradesh on the south, Chhattisgarh on the west, and the Bay of Bengal on the east.

At current prices, the state's gross state domestic product (GSDP) was estimated to be Rs. 8.65 trillion (US\$ 103.84 billion) in 2023-24. Odisha's GSDP is expected to increase at a CAGR of 11.92% between 2016-17 and 2023-24.

According to the DPIIT, cumulative FDI inflows in the state stood at US\$ 168.55 million between October 2019-March 2024.

Odisha has emerged as the key state with regard to the mineral and metal-based industries. In 2019-20[^], Odisha contributed



to the largest share (43.0%) of mineral production (by value) in India. The value of minerals produced in the state reached Rs. 87,086 crore (US\$ 10.78 billion) in 2021-22.

Odisha has a well-developed social, physical, and industrial infrastructure, and the state government has undertaken several infrastructural projects to further promote overall develop-

ment. The state's infrastructure includes well-connected road and rail networks, airports, ports, power, and telecom.

Total merchandise exports from Odisha stood at US\$ 11.93 billion in FY24. Iron ore, iron & steel and aluminium & aluminium products accounted for a majority share in the overall exports from the state.

BRIEF ON IESS PARTNER & FOCUS STATES

Key Sectors

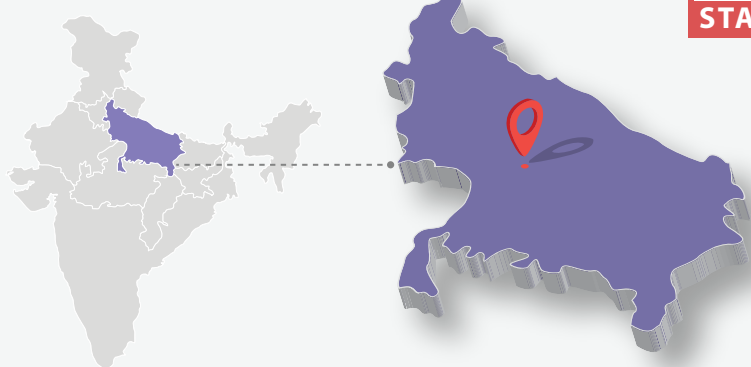
- Under the State Budget 2023-24, Rs. 27,593 crore (US\$ 3.31 billion) was allotted to the Education, Sports, Arts, and Culture. Out of which Odisha Adarsh Vidyalaya programme and Mo School Abhiyan has been allocated Rs. 842 crore (US\$ 101.08 million) and Rs 805 crore (US\$ 96.64 million), respectively
- As of March 2024, Odisha had a total installed power generation capacity of 8,124.91 MW, of which 1,964.21 MW was under the central utilities, 3,840.52 MW (under state utilities) and 2,320.18 MW (under private sector). Of the total installed power generation capacity, 5,291.21 MW was contributed by thermal, 2,163.22 MW by hydro, and 670.48 MW by renewable energy.
- Under the State Budget 2023-24, Rs. 4,906 crore (US\$ 588.9 million) was allotted to the Urban development out of which Rs. 996 crore (US\$ 119.57 million) has been allocated towards the AMRUT scheme and Rs. 300 crore (US\$ 36.01 million) has been allocated towards new city development.
- In State Budget 2023-24, Odisha allocated 7.6% of its total expenditure on health, (higher than the average allocation for health by other states 6.3%), 7.1% on rural development (higher than the average allocation for rural development by other states 5.7%) and 7.7% on roads and bridges (higher than the average allocation by states 4.5%).
- As of July 2022, the state had five operational, five notified and seven formally approved SEZs.
- In 2021-22*, the total production of horticulture crops in the state was expected to be 13,062.98 thousand tonnes and the area under production was 1,463.76 thousand hectares. In 2021-22*, the total production of vegetables and fruits was estimated at 9,523.71 thousand tonnes and 2,782.05 thousand tonnes, respectively.
- In 2021-22, 3,898,770 domestic tourists and 3,153 foreign tourists visited Odisha.
- Odisha's industries are based mainly on the natural resources available in the state. It carries more than 35% of the country's natural resources. The state has significant reserves of iron ore, bauxite, nickel, coal, etc. Hence, it is an attractive destination for mineral-based industries. In March 2021, ArcelorMittal-Nippon Steel India and the Odisha government signed a MoU to establish a 12 MT integrated steel plant in the state, with an investment worth Rs. 50,000 crore (US\$ 6.88 billion).
- In Union Budget 2021, Odisha allocated 6.4% of its total expenditure on health, (higher than the average allocation for health by other states (5.5%), 7.5% on rural development (higher than the average allocation for rural development by other states (6.1%) and 7.8% on roads and bridges (higher than the average allocation by states (4.3%).
- In the Maritime India Summit 2021, the government announced to establish Odisha as the hub of maritime trade.

Uttar Pradesh has the biggest railway network in the country with a railway density of 40 km which is double the rail density of the India. Uttar Pradesh is the most populous state in India with a population of more than 200 million people. Uttar Pradesh shares its borders with Nepal on the north, the Indian states of Uttarakhand and Himachal Pradesh on the

northwest, Haryana, Delhi and Rajasthan on the west, Madhya Pradesh on the south, Chhattisgarh and Jharkhand on the southeast, and Bihar on the east. In August 2022, Uttar Pradesh revealed the draft of its Solar Energy Policy-2022, which indicates that the state has a goal of producing 16,000 MW of renewable energy by 2026-27. Uttar Pradesh is the largest pro-

ducer of food grains in India and accounted for about 17.83% share in the country's total food grain output in 2016-17. Food grain production in the state stood at 49,903.1 thousand tonnes in 2016-17 and 51,252.7 thousand tonnes in 2017-18. Major food grains produced in the state include rice, wheat, maize, millet (bajra), gram, pea and lentils.

UTTAR PRADESH



Pulses production in the state stood at 2.56 million tonnes in 2020-21*. Production of vegetables stood 29,940.09 thousand MT in 2021-22*.

The state offers a wide range of subsidies, policy and fiscal incentives as well as assistance for businesses under the Industrial and Service Sector Investment Policy, 2004 and Infrastructure and Industrial Investment Policy, 2012. The state has well-drafted, sector-specific policies for IT and biotechnology. The new Uttar Pradesh Civil Aviation Promotion Policy 2017 was brought to promote investment and trade in Uttar Pradesh and to promote tourism while increased road connectivity along with air connectivity will create more employment avenues.

In 2019, 147 investment intentions worth Rs. 16,799 crore (US\$ 2.40 billion) were filed in Uttar Pradesh.

In 2020, the state government rolled out the New Electronics Manufacturing Policy, 2020 and Uttar Pradesh Startup Policy, 2020, to promote the local manufacturing and new startups in the state.

Uttar Pradesh Tourism

Uttar Pradesh is a favored tourist destination in India with Taj Mahal, one of the eight wonders of the world, located in Agra. The state witnessed rise in tourist arrivals, with 320 million tourists arriving in 2023, and is expected to grow further. The opening of the Ram temple in Jan 2024 significantly increases religious tourism in Uttar Pradesh. According to Jefferies, the Ram temple is projected to attract at least 100 million visitors annually. Additionally, Uttar Pradesh government is also established the UP-Ecotourism Development board. The key objective of the initiative is to promote the state's rich legacy of forests and wetlands to increase tourist footfall while creating jobs for those living around the natural heritage.

Economy of Uttar Pradesh

At current prices, the gross state domestic product (GSDP) of Uttar Pradesh is estimated to be Rs. 24.99 trillion (US\$

300.01 billion) in 2024-25. The GSDP is expected to increase at a CAGR of 9.05% from 2018-19 to 2024-25. As of March 2024, Uttar Pradesh had an installed power generation capacity of 31,426.33 MW. Of this, 7,908.20 MW was from state utilities, 14,773.20 MW (private utilities) and 8,744.93 MW (central utilities). Thermal power contributed 22,517.26 MW to the state's total installed power generation capacity, followed by 3,424.02 MW (hydro-power), 289.48 MW (nuclear power) and 8,619.59 MW (renewable power), as of March 2024. According to Department for Promotion of Industry and Internal Trade (DPIIT), cumulative FDI inflow in Uttar Pradesh stood at US\$ 1,634.97 million between April 2000-March 2024. Merchandise exports from Uttar Pradesh reached US\$ 20.57 billion in FY24 v/s US\$ 21.68 billion in FY23. Electronic goods were the leading export category with 22% share of state exports in 2023-24.

Industries in Uttar Pradesh

Uttar Pradesh is the largest producer of food grains in India and accounted for about 17.83% share in the country's total food grain output in 2016-17. Prime Minister, Mr. Narendra Modi laid the foundation stone and dedicated to the nation multiple development projects worth over Rs. 19,150 crores (US\$ 2.30 billion) in Varanasi, Uttar Pradesh. According to the state government, as many as 1,500 projects worth more than Rs. 70,000 crore (US\$ 9.03 billion) are planned to be launched in Uttar

BRIEF ON IESS PARTNER & FOCUS STATES

Pradesh's third groundbreaking ceremony to be held in June 2022. Some of these major projects are:

- Adani Group's project worth around Rs. 4,900 crore (US\$ 631.86 million).
- Hiranandani Group's two data centres in Noida with an investment of Rs. 9,100 crore (US\$ 1.17 billion).
- Microsoft's Rs. 2,100 crore (US\$ 270.85 million) software development centre.
- Dalmia Group's Rs. 600 crore (US\$ 77.38 million) cement manufacturing plant in Mirzapur, Hamirpur.

Recent Developments in Key Sectors

- In October 2022, Minister of Road Transport and Highways, Mr. Nitin Gadkari, announced new projects worth Rs. 7,000 crore (US\$ 8.5 billion) for Uttar Pradesh.
- In October 2022, Chief Minister Mr. Yogi Adityanath said that from the following academic year, all colleges and institutions in Uttar Pradesh will offer medical and engineering programmes in Hindi.
- In the State Budget 2024-25:
 - » In the State Budget 2024-25, Rs. 40,686 crore (US\$ 4.8 billion) has been allocated for the development of roads and bridges. Of this, Rs. 668 crore (US\$ 80.19 million) is allocated for road transportation.
 - » As per the State Budget 2024-25, Rs. 45,832 crore (US\$ 5.5 billion) has been allocated to the energy sector. Out of this, Rs. 16,400

crore (US\$ 1.97 billion) is allocated for power subsidies. Rs. 1,800 crore (US\$ 216 million) grants have been allocated to UPPCL for tariff subsidy to private tubewell consumers.

- » As per State Budget 2024-25, a total amount of Rs. 23,744 crore (US\$ 2.85 billion) has been allocated towards Urban Development. Out of this, Rs. 2,674 crore (US\$ 321.01 million) has been allocated for grants towards the creation of capital assets under PM Awas Yojana (Urban).
- » In the State Budget 2024-25, the state Government allocated Rs. 1,00,335 crore (US\$ 12.05 billion) towards Education, Sports, Arts, and Culture. Out of this, Rs. 1,856 crore (US\$ 222 million) is allocated towards primary education under Samagra Shiksha Abhiyan.
- » As per State Budget 2024-25, Rs. 42,774 crore (US\$ 5.13 billion) was allocated to the health and family welfare sector.
- 41,336 food processing units will be established/upgraded in 2022 under the Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme.
- With the help of the state government's Food Processing Industries Policy 2017 (revised), the government has planned to set up 375 large food processing units in 2022.
- In May 2022, Amity University in Noida, Uttar Pradesh, signed an MoU with the Tourism & Hospitality Skill Coun-

cil (THSC), with the aim to train the students in the field of tourism, travel, hospitality and aviation by different campuses of Amity University, through the implementation programmes under this MoU.

- Uttar Pradesh has now become home to the country's first-ever 'Amrit Sarovar' which was inaugurated in Rampur district in May 2022. It is one of the 789 ponds which the Uttar Pradesh government will develop. Nearly Rs. 60 lakh (US\$ 77,384.88) were spent in the creation of this water body.
- In June 2021, Uttar Pradesh receives a record investment of Rs. 4,074 crores (US\$ 554.24 million) in food processing.
- The tourism administration of Uttar Pradesh is planning to develop a helicopter taxi service to connect the state's most popular locations, as of September 2021.
- Uttar Pradesh has capacity to produce 4,248.76 MW of renewable energy. The state Government has set an objective of annual addition for production capacity of solar energy to 2,000 MW.
- In June 2021, Greenply Industries announced that it will invest around Rs. 75 crore (US\$ 10.30 million) to set up a plywood and allied products manufacturing unit at Sandila Industrial Area in Hardoi, Uttar Pradesh.
- In May 2021, Uttar Pradesh government announced that it would spend US\$ 1 billion to buy COVID-19 vaccine.

- In January 2021, the state government announced its plan to build 1,038 new Ganga aarti platforms along the river in Bijnor and Ballia districts.
- Uttar Pradesh accounts for strong demand for fertilisers on account of the high availability of acreage coupled with the large size of the state.

West Bengal is situated in eastern India and shares its borders with Jharkhand, Bihar, Odisha, Sikkim, and Assam. The state also shares international borders with Bangladesh, Bhutan, and Nepal. The Bay of Bengal is in the south of West Bengal.

West Bengal, India's sixth largest state in terms of economic size, has a projected Gross State Domestic Product (GSDP) of Rs. 18.8 trillion (US\$ 227.05 billion) in 2024-25. The average annual GSDP is estimated to increase at 10.5% from 2023-24BE.

In FY24 the total exports from the state stood at US\$ 11,684.64 million. West Bengal exported key items such as Engineering Goods and Gems and Jewellery.

During 2018-19, the state produced a total of 1.85 million tonnes of fish.

West Bengal is the second largest tea-producing state in India and is home to the globally acclaimed Darjeeling tea variety. West Bengal is the largest producer of rice in India. Rice production for the state totalled 13.32 million tonnes in 2021-22.

Its location advantage makes the state a traditional market for eastern India, the Northeast, Nepal, and Bhutan. It is also a strategic entry point for markets in Southeast Asia. The cost of operating a business is lower in Kolkata than in other metropolitan cities.

West Bengal has abundant natural resources of minerals and suitable agro-climatic conditions for agriculture, horticulture, and fisheries. It is in vicinity to mineral rich states like Jharkhand, Bihar, and Odisha.

Of the total installed power capacity, 8763.34 MW was contributed by thermal power, 1396.00 MW by hydropower and 640.93 MW by renewable power.

Between October 2019-March 2024, FDI inflows in West Bengal stood at US\$ 1,609.67 million.

West Bengal ranked eleventh among Indian states on ease of doing business and reforms implementation according to a study by the World Bank and KPMG.



It offers excellent connectivity to the rest of India in terms of railways, roadways, ports, and airports.

As of March 2024, West Bengal had a total installed power generation capacity of 10,800.27 MW, of which 5,997.95 MW was under state utilities, 2,955.98 MW under private sector and 1,846.34 MW under central utilities.

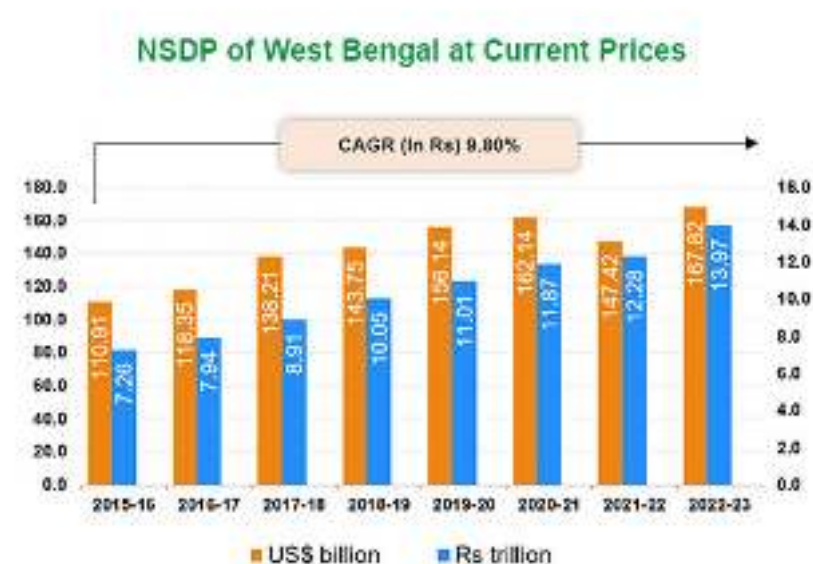
Key Sectors

- In June 2022, various Indian Railways projects to the tune of Rs. 254 crore (US\$ 30.83 million) were launched in West Bengal's Hooghly district.
- HDC Bulk Terminal Ltd (HBTL), a wholly owned subsidiary of Adani Ports and Special Economic Zone Limited (APSEZ), has signed

BRIEF ON IESS PARTNER & FOCUS STATES

the Concession Agreement with Syama Prasad Mookerjee Port, Kolkata (SMPK) for mechanization of Berth no. 2 at Haldia Port.

- In August 2022, a Special Food Processing Fund of Rs. 2,000 crore (US\$ 242.72 million) was set up with National Bank for Agriculture and Rural Development (NABARD) to provide affordable credit for investments in setting up Mega Food Parks (MFP) as well as processing units in the MFPs.
- Tea production in West Bengal stood at 418.84 million kg in FY23.
- In 2021, domestic tourist arrivals in the state were 243.25 million and foreign tourist arrivals had crossed over 0.34 million.
- In FY22, total exports of iron and steel from West Bengal stood at US\$ 1,851.38 million, which was 13.32% of the total exports.
- In FY23 total exports of iron and steel from West Bengal stood at US\$ 1,579.03 million, which was 12.39% of the total exports.
- The State Budget 2022-23 seeks to provide relief to the tea industry by exempting rural employment cess and waiving agricultural income tax in FY 2022-23.
- GAIL, its JV company Bengal Gas Co and Hindustan Petroleum Corporation Ltd's will invest Rs. 17000 crore (US\$ 2.2 billion) in various CNG



Note: Exchange rates used are averages of each year
Source: MOSPI

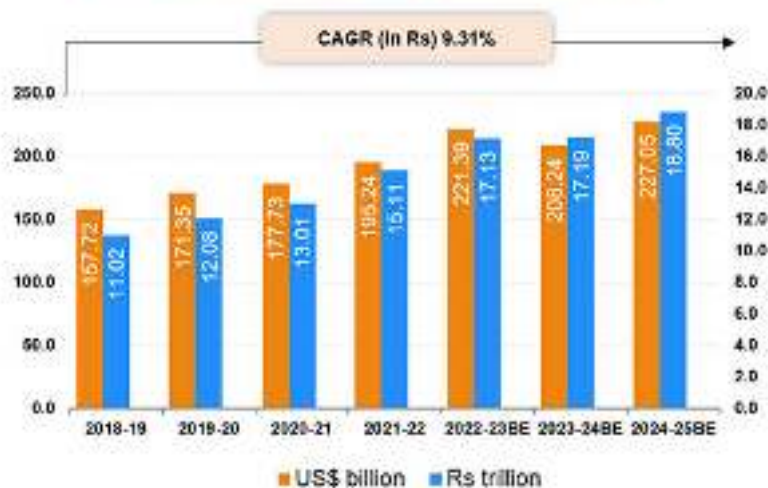
projects in West Bengal over the next five years.

- ONGC will invest Rs. 1,500 crore (US\$ 193.85 million) over the next 3-4 years for gas exploration at Ashoknager in North 24 Parganas district of West Bengal.
- West Bengal has allocated 16.8% of its total expenditure for education in 2022-23. This is higher than the average allocation (15.2%) for education by all states (as per 2021-22 Budget Estimates).
- In State Budget 2024-25 Rs. 22,620 crore (US\$ 2.73 billion) has been allocated to Agriculture and Allied Activities of which Rs 5,800 crore (US\$ 700.48 million) has been allocated for finan-

cial support to Krishak Bandhu and Rs 1,200 crore (US\$ 144.93 million) has been allocated for crop insurance

- As per State Budget 2024-25 Rs. 47,470 crore (US\$ 5.73 billion) has been allocated for Education, Sports, Arts, and Culture of which Rs 18,029 crore (US\$ 2.18 billion) has been allocated for assistance to non-government secondary schools and Rs 7,732 crore (US\$ 0.93 billion) has been allocated for assistance to non-government primary schools.
- In 2018-19, West Bengal remained the second largest producer of potato in India, accounting for about 24.31% of the country's potato out-

GSDP of West Bengal at Current Prices



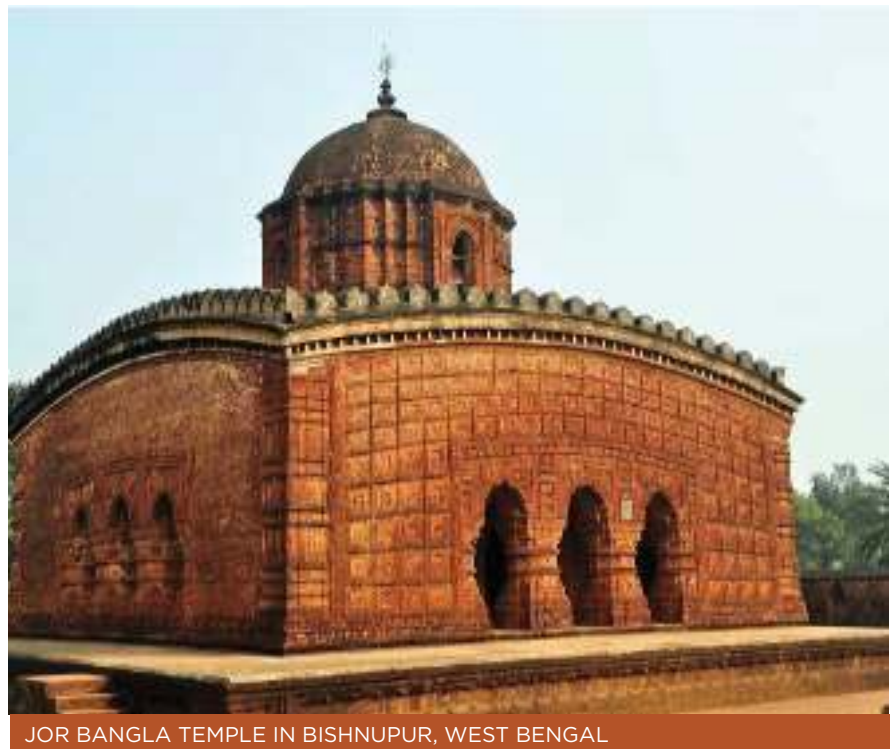
Note: Exchange rates used are averages of each year BE- Budget Estimate
Source: MOSPI

cubic metres in 2020-21*.

- Total export from IT sector from the state was estimated at Rs 22,897 crore (US\$ 3.28 billion) in 2018-19. The State Government introduced West Bengal Information Technology and Electronics Policy 2018 which envisages West Bengal as one of the leading states in India in the IT, ITes, ICT and ESDM sectors. In August 2021, the State IT Minister Mr. Partha Chatterjee, as part of the state's plan to position West Bengal as an IT hub, earmarked another 100 acres of land for its Silicon Valley Tech Hub.

put. The state's potato production stood at 13.78 million tonnes in 2018-19.

- As of October 2020, West Bengal had 21 SEZs; of this, seven were operational, five were notified, seven were formally approved and two had in-principle approval.
- As per State Budget 2021-22, the government has allocated Rs. 183.51 crore (US\$ 25.35 million) for development of the IT and Electronics Department in West Bengal.
- Moreover, the state is also a key producer of petroleum and petrochemicals. Production of natural gas in the state^ reached 534 million



JOR BANGLA TEMPLE IN BISHNUPUR, WEST BENGAL

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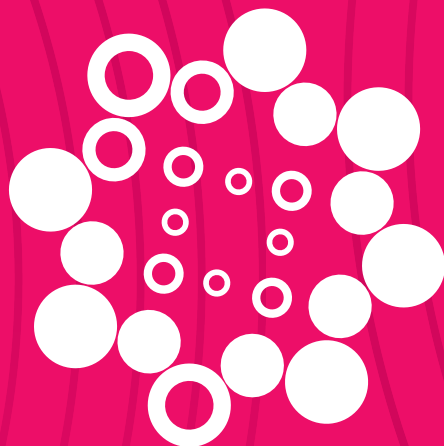
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- ☐ Connect SMEs/SMIs with the national and multinational large companies
- ☐ Make visible the technical capacities of the subcontractors and help them obtain contract within the framework of project and join the chain value of large companies

SECTORS COVERED

- | | |
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| ☐ Mechanical Engineering | ☐ Plastic and Rubber |
| ☐ Civil Engineering | ☐ Mine |
| ☐ Electrical Engineering | ☐ Transport |
| ☐ Textile | ☐ Telecommunication |
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CHANGE OF GUARD AT EEPC INDIA

20 NOVEMBER 2024

Mr Pankaj Chadha takes over as Chairman of EEPC India



Mr Arun Kumar Garodia Sir - our immediate past Chairman was welcoming Mr Vimal Anand, Joint Secretary, Department Of Commerce, Ministry of Commerce and Industry, Government of India with a shawl



Pankaj Chadha _____

National, November 20: Mr Pankaj Chadha, Managing Partner at Jyoti Steel Industries, today took over as Chairman of the Engineering Export Promotion Council of India (EEPC India), the apex body of engineering exporters sponsored by the Ministry of Commerce and Industry, Government of India.

He succeeds Mr Arun Kumar Garodia who held the position of Chairman for two years.

EEPC India has been the face of Indian engineering exports for the last 69 years and is often regarded by the Union Ministry of Commerce and Industry as a model export promotion council (EPC).

Prior to becoming the Chairman, Mr Chadha served as Senior Vice Chairman of EEPC India.

Speaking on his new role, Mr Pankaj Chadha



Mr Pankaj Chadha, Chairman, EEPC India is welcoming Mr Vimal Anand, JS, DOC, GOI with a memento



Mr Pankaj Chadha, Chairman, EEPC India handing over the photobook to Immediate Past Chairman, Mr Arun Kumar Garodia and Mr Vimal Anand, JS, DOC, GOI and Mr Adhip Mitra, Executive Director & Secretary, EEPC India seen

said, “We have set a goal of reaching \$300 billion of engineering goods exports by 2030, and a roadmap for the same is already in place. We will make an all-out effort to achieve the target and work towards making India a global hub for engineering goods. EEPC India has for decades been acting as an interface between the engineering industry and the government. We will continue to play this important role and deliver results proactively.”

As an industry leader, Mr Chadha has held several important positions in the past, including the post of Chairman of EEPC Western Region. He was a member of the Padmanabhan Committee

which was constituted by the Reserve Bank of India (RBI).

His company, Jyoti Steel Industries, is currently exporting Steel/Stainless Bars/Wires to over 45 countries of the world with an export revenue of approximately Rs. 350 crores. It is one of the largest exporters in the SME sector from EEPC India.

Mr Chadha was one of the youngest Chartered Accountants of his time, passing the examination at the age of only 21 years on his first attempt. He did his Bachelor of Commerce from the famous Sydenham College of Commerce and Economics in Mumbai.

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*ECA: Acronym for Emerging Corporate Accounts

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HOT ROLLED COILS

TATA
STEEL
STEEL
COLD ROLLED COILS

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STEEL
STEEL
HOT ROLLED COILS

Galvano
WAVE ROLLER
MAINTENANCE EQUIPMENT

GalvaReS

Galvanova

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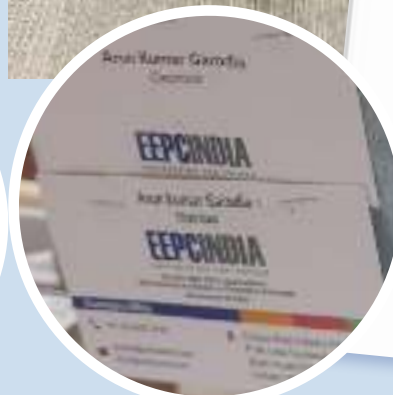
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DIGITAL SOLUTIONS

FELICITATING EEPC INDIA MEMBER - PARTNER 'TATA STEEL'

MR YVS NARENDRAN
TATA STEEL MD & CEO,
FELICITATED BY Mr
C H Nadiger, Regional
Director (WR) and Ms
Neetu Singh,
Sr Deputy Director,
EEPC India Mumbai

EEPC India family congratulates EEPC India member Tata Steel Ltd - CEO and MD, Mr T V Narendran on being elected as the Chair of world steel for the 2024/2025 period with a bouquet presented by EEPC India Regional Director (WR), Mr C H Nadiger and EEPC India Senior Deputy Director, Ms Neetu Singh. Mr Narendran reciprocated with a personalised letter to EEPC India Chairman, Mr Arun K. Garodia



EEPC INDIA CHAIRMAN AS GUEST OF HONOUR

NATIONAL CENTRE FOR EXPORT PROMOTION,
KOLKATA, 25th OCTOBER 2024



EEPC India Chairman, Mr Arun Kumar Garodia addressing at the Inauguration of National Centre for Export Promotion (NCEP) at IIF as Guest of Honour

Ms Vandana Yadav
Managing Director,
WBIDC as the Chief
Guest

Mr Ravi Sehgal
Past President IIF and
Chairman, NCEP, IIF
(far left at the head table)

Mr Sanjay Budhia
Chairman, CII National
Committee on Exports
(second from right at the head
table)
as the Guest of Honour

Mr Navneet Agarwal
President, IIF and Dy
Regional Chairman (ER),
EEPC India
(far right at the head table)
also seen



CURTAIN RAISER PRESS CONFERENCE ON IESS XII

NOVEMBER 12, 2024 IN CHENNAI



Mr Arun Kumar Garodia
Chairman, EEPC India is seen
addressing the media
(3rd from right)

Mr Raman Raghu
Regional Chairman (SR),
EEPC India
(2nd from right)

Mr Shashi Kiran Lewis
Dy Regional Chairman
(SR), EEPC India
(far right)

Mr Adhip Mitra
Executive Director
& Secretary, EEPC India
(second from left)

Mr J V Raja Gopal Rao
Regional Director (SR),
EEPC India
(far left)

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- Supported by Ministry of Heavy Industries; Government of India
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- Focus State: Odisha, Haryana, Gujarat, UP and West Bengal
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- Subcontracting Partner: SUBCON 2025, Birmingham.
- International Pavilion Partners:
 - » JIMEX, Jordan
 - » Ministry of Industry and Trade, Czech Republic, MSV Brno
 - » INNOPROM, Russia
 - » Subcontracting and Partnership Exchange, Cameroon (SPX- CMR)

INTERACTION ON 1ST DAY OF MACH & TOOLS SAUDI AND GULF 4P, 2024

WITH CHIEF GUEST OF THE EXHIBITION

(BEING HELD OVER NOV 18-21, 2024)

Ibrahim Al-Sheikh

Chairman of the National
Industrial Committee of the
Council of Saudi Chambers



Mr Sunny Bose

Sr Deputy Director, EEPC India
(in black) was present

INAUGURATION AND TOUR OF INDIA PAVILION OF HIS EXCELLENCY

DR. SUHEL AJAZ KHAN,
AMBASSADOR OF INDIA
TO SAUDI ARABIA

MR SUNNY BOSE
SR DEPUTY DIRECTOR
EEPC INDIA

NOVEMBER 19, 2024



INDIA PAVILION AT GULFOOD MANUFACTURING 2024

NOVEMBER 5 - 7, 2024 | VENUE - DUBAI, UAE



Mr Satish Kumar Sivan, Consul General of India in Dubai, inaugurated and toured the India Pavilion, Gulfood Manufacturing on Tuesday, November 5, 2024. Mr. B. G. Krishnan, Consul (Economic, Trade, Commerce & Education), Consulate General of India in Dubai was seen. Ms Varsha Baria, Assistant Director, EEPC India Mumbai Office present

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COMPANY PROFILE: Kostwein India Company Pvt. Ltd is the subsidiary company of the Kostwein group and Truetzschler India Pvt Ltd. Our company has been incorporated in 2009 in India and our registered office and plant is Situated in Ahmedabad, Gujarat, we are engaged in manufacturing and export of liquid filling and food Packaging Machineries modules and its spares and parts for our globally recognized customer brands Tetra Pak, Bosch, these machineries are mainly supplied to the Dairy, Beverages and food industries worldwide. these machineries are manufacturing adhering best quality with upgraded technology and supplying these machineries to all over in the International Market and our machineries are well accepted by the market.

MISSION: The Customer and our employees are the focus of our business. The concentration of all employees on value-adding processes creates customer benefits and guarantees Sustainable growth and Harmony with the environment.

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VISION: In the Build-to-Print business, we aim to deliver to our customers - world market leaders in machine industry – the highest quality with the shortest lead times and the best life cycle costs worldwide.

VALUES:



BUSINESS POLICY: The EFQM model serves as a guardrail model to implement our vision of being **the best partner in the build-to-print business for global world leaders** in various industries of mechanical engineering. On the way to World Class Manufacturing with the motto “-better – faster – more cost-effective – all together- “With a focus on the highest quality, shortest lead time and best life-cycle cost, worldwide

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- Certificate acc.
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Peter.schlagbauer@kostwein.at

INTERVIEW



Mr Arun Kumar Garodia with Indian Prime Minister, Mr Narendra Modi; Greek Prime Minister, Kyriakos Mitsotakis (in between Mr Modi and Mr Garodia) on August 25, 2023 in Greece

OUTGOING EEPIC INDIA CHAIRMAN MR ARUN KR GARODIA SPEAKS ABOUT INDUSTRY CHALLENGES AND HOW EEPIC INDIA PLAYS AN IMPORTANT ROLE IN POLICY MAKING

Q:
What according to you are the challenges that the Engineering Industry is facing today and how do you think these challenges can be solved? How Indian Engineering Industry is doing compared to the rest of the world?

A:
There is a downturn in the entire world today and we find a global volatility in all the countries this year, specially the Western Hemisphere as well as the Gulf countries where we have big businesses. Meanwhile, the Chinese demand due to their real estate slowdown substantially is affecting overall supply of engineering goods. This has created a geo-geographical imbalance.

Once upon a time China was 'Factory of the World,' so they were exporting largely and importing some items as well. Geopolitical tensions are impacting areas like Logistics which is very critical for business, specially export and import, that is done along sea routes. Russia and Ukraine crisis is impacting a lot and going for almost 3 years now. Israel-Hamas crisis added fuel to the fire. Houthis are creating blockage of Red Sea and an impact is there on the EXIM cargo, which instead of going down Red Sea has now to go down Cape of Good Hope, that adds to the logistics, transit time is 2 weeks more and freight charges has shot up like anything. Then there is issue of inflation and forex crisis all over the world.

Inflation persists even in developed countries like US, Europe, where it is shooting up. Forex crisis in African countries, in Bangladesh etc are staring and since they are import based economies, they are in great distress.

Then there is huge volatility in raw material prices and we have significant concerns about that. To top it is skill shortage. Skilled labourers are needed in all industries and because of popular govt schemes, many people are not coming to work, they are living in their native areas resulting in big shortage of skilled labourers in the market. Sustainability is a big problem, though sustainable practices are very important. Finance plays a major role along with raw materials and logistics. I would suggest finance for MSMEs should be made available on easy terms for exporters and this is vital for their existence too as well as growth of engineering business.

Take for example Section 43B(h) of Income Tax Act, which says any supplies from MSMEs one has to pay then within 45 days. As this section has been inducted, during this year's tax returns, one will find a big outflow of cash, leading to cash crisis. Exporters cannot survive if credit term is not extended, although govt has taken many schemes and measures but this credit is important.

Global protectionist policies are also a big damper. Section 232 Tariff imposed by earlier Trump regime of USA for those ex-

porting steel or steel products. Stainless steel, steel, aluminium, had a special rate of duty, Steel 25 percent when anybody imports in US, Aluminium 10 percent, anyone importing from India and so on. Similar was Tariff Rate quota, a protectionist policy of European Union. They put up safeguard duties on steel and stainless steel imports into EU. India has been given a quota quarterly and over all quantity fixed annually also. And the quota has to be cleared within that year, if due to logistic delay, one quarter quota does not reach on time or berths are not available in European ports, then it cannot be carried forward to the next quarter. So Indians are finding it very difficult.

Despite all this, India is making huge progress and we have a stellar performance. As per October data this year for consecutive 6 months we have a growth of exports specially in Engineering sector, huge jump of 39 percent growth on engineering exports compared to 2023. Thanks to the Steel Policy formulated 3 yrs ago with all stakeholders including EEPC's suggestions along with launch of Green Hydrogen Mission, the growth has been phenomenal for India.

Q:
Tell us about the proudest milestones of EEPC India's 70-year-journey.

A:

- Founded in September 1955, we started off with 10 million US dollars in export and now in 2023-24 it has reached to around 209 billion US dollars

in export. So this multifold increase reflects our great achievement.

- We have celebrated our silver, golden, diamond jubilee years and we started this time with inauguration of Platinum Jubilee in Delhi.
- We have been declared as the Role Model Council of India among various councils and not just once but several times I have heard from different ministers, including Commerce Minister praising us.



During last few years, I am honoured to say that as EEPC Chairman I joined the CEO delegation led by PM to Athens, where we had a bilateral meet with their counterparts, industry and finance ministers, we had our External Affairs Minister Mr Jaishankar, and Ajit Doval attend along with 7 CEOs chosen. I as Chairman of EEPC India, was one of the CEOs chosen. We got speaking slots, and was greatly applauded when we spoke about engineering exports.

- On how to promote big businesses, we spoke extensively and an outcome of that was Bharat Mobility Global Expo. Anything related to mobility is part of it. EEPC is the coordinating agency and within 3 months we had to pull off this big event, taking the whole of Bharat Mandapam in New Delhi, and it was a big success inaugurated by Hon'ble Prime Minister. He motivated us. He had lots of appreciation for the mobility sector. Next event is coming up in January and all 3 centres in New Delhi covering over 2 million sqft has been taken over. It is the 2nd largest show in the world as far as mobility is concerned, and in 2026 we plan to make it world's largest event overtaking China's Shanghai event.
- EEPC got chance to participate in G20 meet when their delegates came to India and we could discuss our views. We also were part of the B20 celebrations for business meet.

Q:
What strategies are in place to achieve the 300 billion dollar engineering export target by 2030?

A:
So long we enjoyed 25 percent export share. This target has been set in 2030 to 1 trillion dollar in engineering sector. That has gone to 30 per cent. We have done better than expectation so we are role model council. Hon'ble Commerce Minister

launched a strategy paper. But we said unless we can take India's global export share from 1.2-1.3 per cent to 3-4 percent, we cannot bring in the target

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”

our business in these nations. Then we think of diversification to newer horizons like African countries, ASEAN countries and Latin America. We have to focus and serve the existing customers and solidify on them first.

When we talk about trade creation, we should also talk about innovation and quality improvement and invest in that. Our Hon'ble PM spoke of Zero Defect/ Zero Effect, we have to create huge sustainable volumes, to achieve big targets but we have to meet the stringent needs of the international market. Like delivery on the right time, right quality of the product, right packaging etc. In 2026, the EU will start imposing import penalties on CBAM situation. That needs to be taken into account.

In case of engineering products so long we had been importing raw materials like CRGO, electrical grade steel, alloy steel etc but under 'Make in India PIL scheme,' these raw materials will be manufactured in India now. We can use them for our own production, thus we get a scope to stop import of these raw materials and save a huge foreign

exchange, then a few years down the line we can start exporting these raw materials too. This will give us huge benefits both ways.

Then we have to keep in mind the MSME Carbon Mechanism Tax, energy audits, for which lakhs of rupees have to be paid. So we have to emphasize on capacity building, upgrading technology, create awareness on international standards not for just global markets but also for local markets. We do not have Free Trade Agreements (FTAs) with Chile, Peru, Columbia, Brazil, Australia, but we can get into these non-traditional markets to capitalize our business. Very soon an agreement will come with the Russian bloc countries like Russia, Belarus, Armenia, Kazakhstan, Kyrgyzstan, that will help us do business here. These countries have a sanction from US, so they have all started sourcing from India. We have FTAs with Australia, now we need countries like New Zealand, Polynesia. We need diversification of product portfolio as well like into new sectors like EV components, EV vehicles, renewable energy components, silicon cells, automation systems, digital engineering solutions etc. For this, huge investments are required in Research & Development for taking over the global technology.

Q:
What impact do initiatives like Bharat Mobility and IESS have on Indian Engineering exports?

A:

Bharat Mobility has extended over two years now and this 2nd edition is going to be huge. Earlier we had Society of Indian Automobile Manufacturers, Automotive Component Manufacturers Association of India, Auto Tyre Manufacture Association, Drone Association, Metal Recycler Association, NASSCOM, we have brought major players



At the launch of EEPC India's Platinum Jubilee Celebrations with Hon'ble Union Minister of Commerce and Industry, Shri Piyush Goyal on November 6, 2024, at Vanijya Bhavan, New Delhi

Global branding is important and EEPC is promoting it in a big way through exhibitions, digital marketing, Made in India, and more publicity to sell.

of Steel associations as well. In 2025 Bharat Mobility show we have brought Urban Mobility Show, Cycle Show, we have added all these, From Paddle to EV cycles, Indian Construction Equipment Manufacturing Association, Construction making machinery which are very



What is your message to members of EEPC?

I suggest more value addition, maintain quality to remain in global market, scale up capacity as the whole world is today looking at India, you become Factory of the World and not China. Put up a right price with reasonable margin, not huge margin, explore new markets and do not leave the current markets, but solidify your presence there. If you are a part of value chain industry your customer will be yours and work as per their needs.

expensive and now are being made in India. In this edition of Bharat Mobility a huge number of launches will take place. Even the Auto Show has been merged. We are expecting an extensive crowd with 500,000-700,000 visitors worldwide.

Q: What is your message to the next Chairman?

A: Try to push the unfinished agenda whatever was raised during my time like MTT, Merchanting Trade Transaction Merchanting Trade, a part of foreign Trade Policy and GIFCT. MTT could ensure huge growth. I also initiated two major shipping hubs on west and east coast of India. During G20 meet, the Hon'ble Prime Minister announced the rail and sea corridor, and a deep sea port announced on west coast with an investment of 80k crore at Wadhawan, 160 km from Mumbai. This was a policy I raised. This will be a big gain to India and will start in Mumbai, go

to UAE, Europe etc. India will get well connected, logistic cost will go down drastically, the transit time will be faster and business will go up tremendously. This will be a big gain to India. We need to maintain a very good and cordial relationship with all stakeholders, from various ministries we work with to media, they are good friends as well and have a cordial relation with all EEPC members as well.

Q: As Chairman how did you enjoy your journey?

A: I have enjoyed it passionately, I have given back to the society and through my career as EEPC chairman, the council has given me huge opportunity. Before being the Chairman, I was Vice Chairman, Senior Vice Chairman also and I was given big opportunities, was sent to various ministries, I could exchange my views. Almost 5-6 years in the senior position and it is a great journey for me.

(Interviewed by Saheli Mitra)



As EEPC India Chairman & Chairman of the Advisory Committee, Bharat Mobility Global Expo, Mr Garodia welcomes Hon'ble Minister of Commerce, Government of India, Mr Piyush Goyal to the Curtain Raiser programme, on January 5, at Vanijya Bhawan, New Delhi



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Manish Kumar is Manager-Fittings, Haldia Works, Electrosteel Castings Limited

ANNEALING TREATMENT: HOW TO IMPROVE MECHANICAL PROPERTIES OF DUCTILE IRON CONTAINING EXPLODED NODULES

There was an era when correction of exploded nodules were almost impossible through heat treatment. Carbide can be corrected easily by heat treatment and slow cooling over phase change temperature. Required mechanical properties can be regained in case of some % of carbide in ductile iron. This exercise involves the methodology on how the mechanical properties of ex-

ploded nodules can be regained to a large extent. In hypereutectic nodular cast irons, primary precipitation of graphite may lead to graphite flotation in thick section castings. Graphite degeneracy ie. exploded graphite is often associated with this flotation and it appears as precipitates where the nodular form is replaced by star-like or flower-like shape. The exploded graphite develops after the pri-

mary spheroidal nodules have reached some tens of microns in diameter. Once nodules explode, properties of the ductile iron deteriorate almost at half of its actual value. Major properties of ductile iron are known for high strength, high ductility, and low hardness with respect to cast iron containing high carbon. This study aims to regain the lost mechanical properties by designing a suitable heat

treatment cycle.

What is exploded nodule?

Exploded nodule means deteriorated nodules of the ductile iron from circular to faded. It decreases mechanical property of the ductile iron. Extent of the exploded nodules may be different which will deteriorate mechanical properties of ductile iron accordingly. Exploded nodules generally come for hypereutectic phase (> 4.2% of C_{eq})

Reasons for Exploded Nodules

- High carbon equivalent (High carbon, High silicon contain) above hypereutectic point
- High temperature
- High rare earth metal content

Why is Heat Treatment carried out?

Heat treatment of ductile iron is carried out for different purposes, based on mechanical properties and requirements. For stress relieving, cold work treatment is carried out over 510-675°C. Normalising 870-940°C,

Hardening 840°C. Annealing is done generally at 820°C with a soaking time of 1 hour.

In case of derogation of nodule to exploded, mechanical properties also go off. To meet the standard mechanical properties of ductile iron, it needs to be rejected. Correction of mechanical properties generally do not come through Heat Treatment (Annealing) because microstructures cannot be changed much through annealing. Phase transformation occurs only for carbide structures.

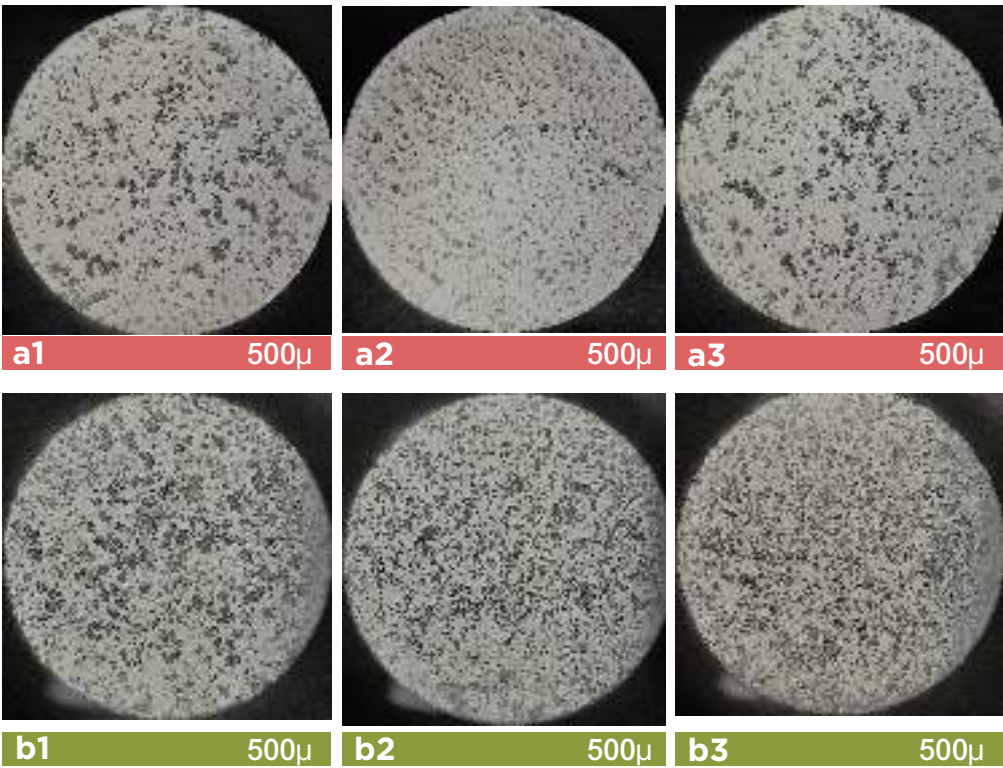


Fig 1: Microstructures of exploded nodules ductile iron before annealing (a) Unetched and (b) Etched

Table-1: Mechanical properties of typical exploded nodules before annealing

Sample dimensions		Mechanical properties	
Gauge length, mm	Gauge diameter, mm	UTS, Mpa	% Elongation
30	6.0	247	2.5
60	12.0	312	3.4

Trials & Experiments

Annealing of deteriorated nodules conducted over the soaking time of 1 hr on 820°C. Below results favours our assumptions.

Heat treatment cycle: Heat treatment of the ex-

ploded nodules samples were conducted over soaking temperature of 820°C for 1 hr. Figures 2(a) & (b) represent the change of temperature with time.

Graphical Representation :

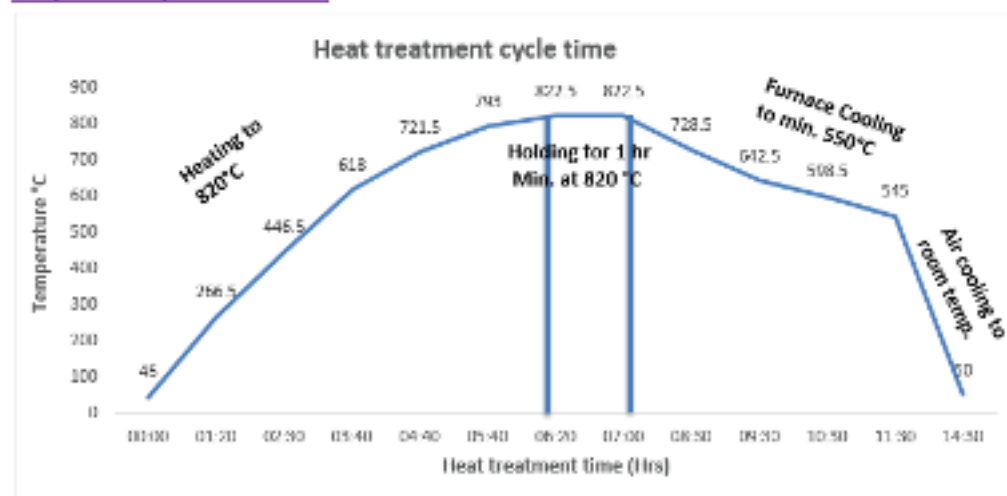


Fig 2(a):

Heat treatment cycle for 820°C soaking temperature for 1 hr trial

Graphical Representation :

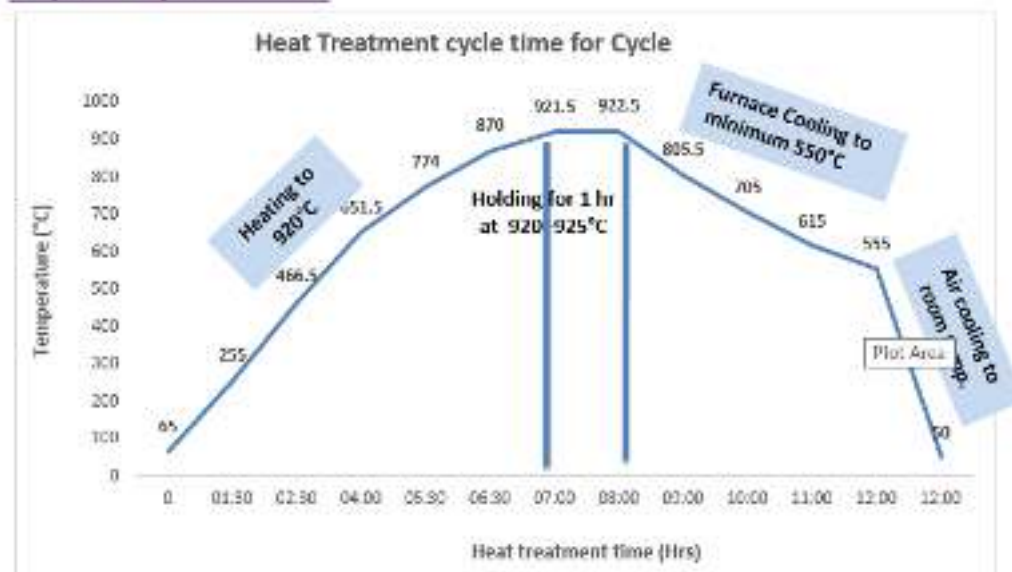


Fig 2(b):

Heat treatment cycle for 920°C soaking temperature for 1 hr trial

Sample dimensions		Mechanical properties at 820oC HT		Mechanical properties at 920oC HT	
Gauge Length, mm	Gauge Diameter, mm	UTS, Mpa	% Elongation	UTS, Mpa	% Elongation
30	6.0	355	6.0	432	9.0
		426	14.7		
60	12.0	278	4.0	448	7.3
		357	5.0	473	8.5

Microstructure of the samples was checked through optical microscope, below are the results after treatment. Most of the samples were not ok. Photograph of one of these is given in Fig 3.

Microstructure

Fig 3:

Microstructures after heat treatment at 820 °C for 1 hr;
(a) Unetched and
(b) Etched

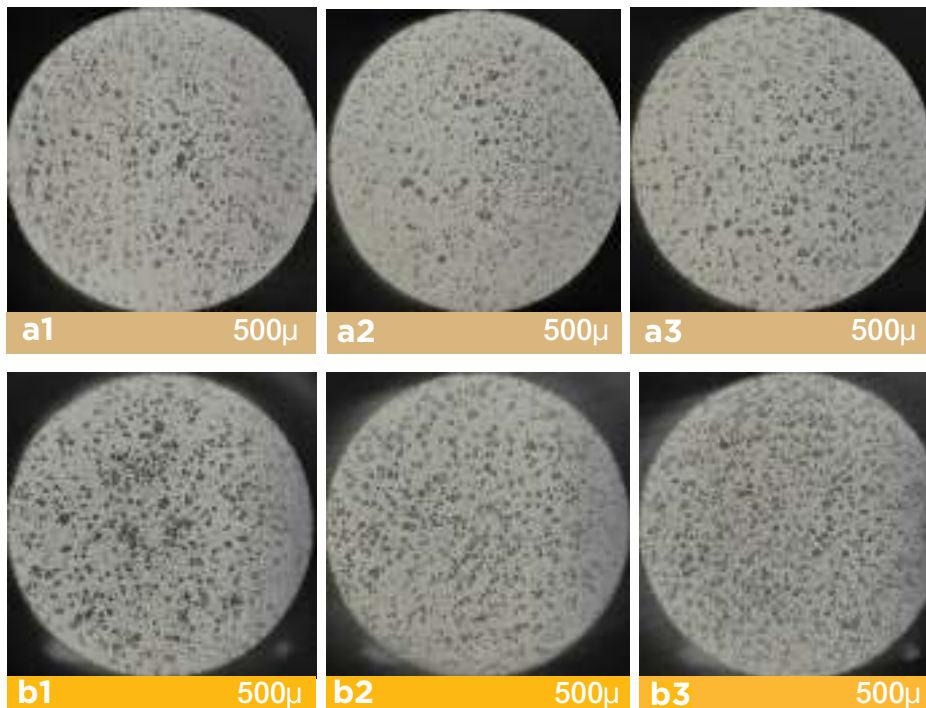
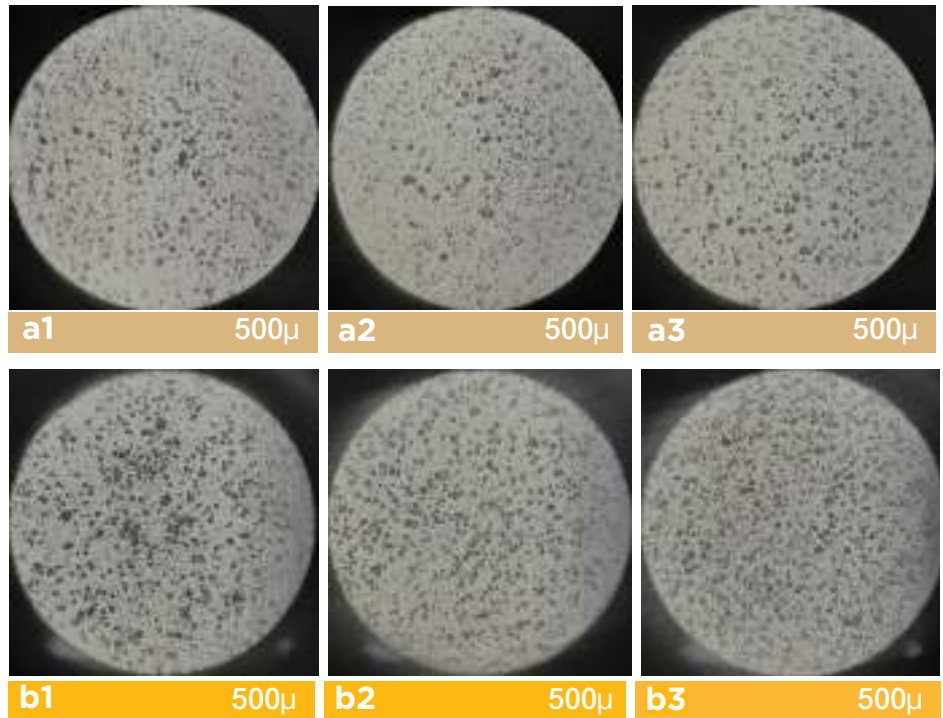


Fig 4:

Microstructures after heat treatment at 920 °C for 1hr;
(a) Unetched and
(b) Etched

Table-3:

Microstructures of pre and post annealing heat treatment of exploded nodules at 820°C and 920°C

Specimen No	Item No	Wt/Pcs in kg	Graphite Morphology before and after heat treatment (HT)		
			Before annealing	H. T. at 820°C	H. T. at 920°C
1	01H13A	34.5	Exploded	Ok	
2	05H51C	64	Exploded	Exploded	OK
3	01H14A	65.45	Exploded	Exploded	OK
4	06H28B	130	Exploded	Exploded	OK
5	07H15A	130	Exploded	Exploded	OK
6	04H30C	39.24	Exploded	Exploded	OK
7	05H07A	33	Exploded	Exploded	OK
8	05H23B	37	Exploded	Exploded	Exploded
9	05H06A	172	Exploded	Ok	
10	05H09A	172	Exploded	Exploded	OK
11	04H28B	172	Exploded	Exploded	OK
12	04H34C	172	Exploded	Exploded	OK

- Annealing of deteriorated nodules conducted over the soaking time of 1 hr on 920°C
- Heat treatment of the same sample of trial No 1 is conducted over the soaking temperature of 920°C under below cycle time (Fig No 2).
- Microstructure of heat-treated samples are below, most of the samples has become ok now (shown in Table-4).

Microstructure

Mechanical properties of heat-treated samples are now ok with respect to minimum requirement of elongation of 5% and tensile strength 420Ma.

Results

90% of the material got ok after 2nd time annealing on 920°C Soaking temperature.

Conclusions

Lost Mechanical properties of exploded ductile iron can be regained to a large extent. Faded level of microstructure of ex-

ploded nodules can be reduced to some extent for desired mechanical properties. Required soaking temperature is 920°C and time is 1hr.

References

1. Callister's Material science and engineering.
2. Roxana Ghergu, Lena Magnusson Aberg, Jacques Lacaze, A possible mechanism for the formation of exploded graphite in nodular cast iron.
3. Sukomal Ghosh, National Metallurgical Laboratory, Jamshedpur, Heat Treatment of Cast Irons.
4. Daniel de Oliveira Fernandes

- 1,* , Carla TatianaMota Anflor 1 , Jhon Nero Vaz Goulart 1 and Besim Baranoğlu 2. Nodular Cast Iron GGG40, 60, 70 Mechanical Characterization from Bars and Blocks Obtained from Brazilian Foundry.
5. Radosław Winiczenko, Mieczysław Kaczorowski, Andrzej Skibicki, The microstructures, mechanical properties, and temperature distributions in nodular cast iron friction-welded joint.
6. Keivan Amiri Kasvayee's Microstructure and deformation behaviour of ductile iron under tensile loading.
7. Lab reports.



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ENGINEERING TRADE ANALYSIS FOR OCTOBER 2024

India’s engineering exports in October 2024 was at its highest in fiscal 2024-25 with a robust 38.5 percent year-on-year growth

Trade Flow	Export figures (in US\$ billion)				Growth (%)	
	Oct-2023	Oct-2024	Apr - Oct2023-24	Apr –Oct2024-25	Oct-2024 over Oct-2023	Apr-Oct 2024-25 over Apr-Oct 2023-24
Engineering exports	8.08	11.19	61.50	66.59	38.53%	8.27%
Overall merchandise exports	33.43	39.20	244.51	252.28	17.23%	3.18%
Share of engineering (%)	24.16%	28.72%	25.15%	26.75%	---	---
Service Exports	28.05	34.02	191.97	215.98	21.28%	12.51%

Source: Compiled from data by DGCI&S and Quick Estimates published by the Government of India

Indian engineering exports continued its growth run for the sixth straight month to October 2024 and this time the growth was at an unprecedented high of 38.5 perecnt over Oct 2023 driven by exceptionally high growth in exports of Aircraft, spacecraft and parts; and Ships, boats and floating structures. For the first time in fiscal 2024-25, Indian engineering exprts crossed USD 10 billion mark and stood at its highest of this fiscal. Exports of Iron and steel turned positive for the first time in fiscal

2024-25 while Electric machinery, Industrial machinery and automobile also supported this high growth of overall engineering exports by showing noticeable increase in exports.Cumulativeexports during Apr-Oct 2024-25 also recorded 8.27 percent growth over the same period last fiscal. Share of engineering in over-all merchandise exports was at an impressive 28.72 percent in October 2024 and at 26.75 percent on a cumulative basis.

HIGHLIGHTS

- Indian engineering exports continued its growth run for the sixth straight month to October 2024 and this time the growth was at an unprecedented high of 38.5 percent over Oct 2023. For the first time in fiscal 2024-25, Indian engineering exports crossed USD 10 billion mark and stood at its highest of this fiscal.
- In October 2024, engineering exports went up to USD 11,190.84 million from a much lower USD 8,078.48 million in the same month last fiscal.
- Cumulative engineering exports during April-October 2024-25 was recorded at USD 66,585.89 million as against USD 61,499.68 million during the same period of the last fiscal, registering an increase of 8.27 percent.
- According to the Quick Estimates of Department of Commerce, Government of India, share of engineering in India's total merchandise exports in October 2024 rose to 28.72 percent from 28.41 percent in September 2024, 27.20 percent in August 2024 and 26.60 percent in July 2024. Cumulative share stood at 26.75 percent during April-October 2024-25.
- In October 2024, 33 out of 34 engineering panels witnessed positive year-on-year growth. Only exports of Office equipment declined by merely 1%.
- On a cumulative basis, 27 out of 34 engineering panels recorded positive growth and remaining 7 engineering panels including Iron and Steel, some non-ferrous sectors including Copper, Aluminium and Zinc products, and Office Equipment recorded negative growth during April-October 2024-25.
- Region wise, North America and European Union remained India's topmost destinations for engineering exports with share of around 21% and 17% respectively, in India's total engineering exports. Highest growth was registered by ASEAN (137%), WANA (57%) and EU (41%) in October 2024
- In cumulative terms, all regions experienced growth barring Sub-Saharan Africa (-1%) and Oceania (-8%)
- Among the top export destinations, rise in cumulative terms was noticed in USA, UAE, Singapore, Saudi Arabia, Germany, etc.

Overall Engineering Exports vs Engineering Exports Excluding Steel Segment

(Values in USD Million)

Trade Flow	Export in Oct 2023	Exports in Oct 2024	Growth (%)	Exports in Apr-Oct 2023-24	Exports in Apr-Oct 2024-25	Growth (%)
Overall engineering exports	8078.48	11190.84	38.53	61499.68	66585.89	8.27
Engineering exports excluding Iron and Steel	7439.92	10364.23	39.31	54629.95	61152.46	11.94

Source: DGCI&S, Govt. of India

Observation: Excluding the export of iron and steel, engineering exports recorded a higher growth both on a monthly as well as cumulative basis as shown in the table above. Exports of Iron and Steel however secured 29.4 percent year-on-year growth in October 2024 but continued to decline on a cumulative basis and dropped by 20.91 percent year-on-year during April-October 2024-25.

ENGINEERING EXPORTS: MONTHLY TREND

The monthly engineering figures for 2024-25 vis-à-vis 2023-24 are shown below as per the latest DGCI&S estimates:

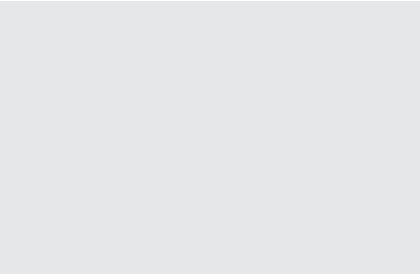


Table 1: Engineering Exports: Monthly Trend in 2024-25
(Values in USD Million)

Month	2023-24	2024-25	Growth (%)
April	8949.36	8366.65	-6.51
May	9300.62	9818.00	5.56
June	8515.72	9193.63	7.96
April-June	26765.71	27378.28	2.29
July	8720.30	8959.50	2.74
August	9048.65	9332.19	3.13
September	8886.54	9725.08	9.44
July-September	26655.49	28016.78	5.11
October	8078.48	11190.84	38.53
April-October	61499.68	66585.89	8.27

Source: DGCI&S, Govt. of India

TOP 25 ENGINEERING EXPORT DESTINATIONS IN OCTOBER 2024

We now look at the export scenario of the top 25 nations that had highest demand for Indian engineering products during October 2024 over October 2023 as well as in cumulative terms during April-October 2024-25 vis-à-vis April-October 2023-24. The data clearly shows that top 25 countries contribute 75.8% of total engineering exports.

Table 2: Engineering exports country wise (Values in USD Million)

Countries	October 2023	October 2024	Growth (%)	April-October 2023-24	April-October 2024-25	Growth (%)
U S A	1387.7	1612.4	16%	10121.9	10706.6	6%
UAE	348.3	825.2	137%	3043.7	4540.4	49%
SINGAPORE	184.0	1236.9	572%	1889.9	3154.8	67%
SAUDI ARABIA	397.7	379.9	-4%	2605.8	2990.4	15%
GERMANY	342.1	392.8	15%	2431.9	2451.9	1%
U K	301.7	311.4	3%	2117.5	2189.2	3%
MEXICO	247.1	251.4	2%	1830.6	2141.3	17%
TURKEY	228.9	249.3	9%	1682.2	1903.6	13%
ITALY	192.8	333.9	73%	2155.7	1817.5	-16%
CHINA	213.2	220.3	3%	1441.8	1559.8	8%
KOREA RP	169.8	268.5	58%	1570.0	1554.7	-1%
SOUTH AFRICA	190.0	215.3	13%	1342.0	1387.0	3%
JAPAN	141.7	197.8	40%	1030.1	1359.5	32%
BRAZIL	172.5	219.7	27%	1176.8	1317.2	12%
NEPAL	162.8	200.3	23%	1338.1	1294.3	-3%

Contd. to next page

Countries	October 2023	October 2024	Growth (%)	April-October 2023-24	April-October 2024-25	Growth (%)
FRANCE	169.6	238.7	41%	1245.1	1289.8	4%
INDONESIA	122.9	178.0	45%	1700.5	1265.5	-26%
BANGLADESH	166.9	172.4	3%	1303.1	1195.6	-8%
THAILAND	166.1	173.2	4%	1080.2	1169.6	8%
NETHERLAND	137.3	148.6	8%	1175.6	1093.0	-7%
MALAYSIA	176.4	139.7	-21%	1087.8	851.4	-22%
VIETNAM	106.2	151.0	42%	684.2	848.3	24%
BELGIUM	102.0	123.6	21%	918.1	837.4	-9%
SPAIN	95.2	111.0	17%	882.8	803.6	-9%
RUSSIA	109.7	121.9	11%	773.0	757.5	-2%
Total engineering exports to top 25 countries	6032.8	8473.2	40%	46628.4	50479.8	8%
Total engineering exports	8078.5	11190.8	39%	61499.7	66585.9	8%

Source: DGCI&S

REGION WISE INDIA'S ENGINEERING EXPORTS

The following table depicts region wise India's engineering exports for April-October 2024 as compared to April-October 2023.

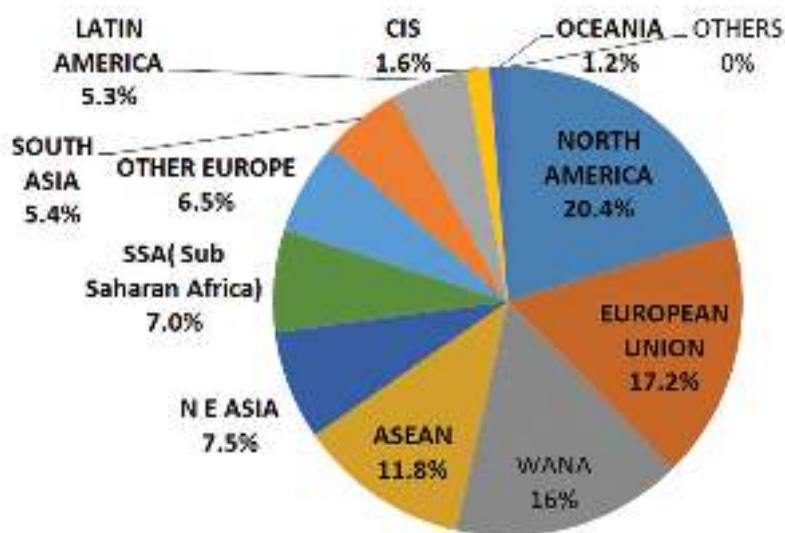
Table 3: Region wise engineering exports in April-October 2024-25 vis-à-vis April-October 2023-24 (Values in USD Million)

Countries	October 2023	October 2024	Growth (%)	April-October 2023-24	April-October 2024-25	Growth (%)
NORTHAMERICA	1729.9	1976.6	14%	12631.7	13557.8	7%
EUROPEAN UNION	1373.1	1932.9	41%	11454.4	11468.9	0%
WANA	1100.2	1730.7	57%	8439.2	10624.5	26%
ASEAN	822.8	1950.3	137%	6927.5	7868.1	14%
N E ASIA	583.3	776.7	33%	4571.1	5016.9	10%
SSA(Sub Saharan Africa)	695.9	752.2	8%	4733.4	4687.1	-1%
OTHER EUROPE	552.2	612.9	11%	4011.7	4338.7	8%
SOUTH ASIA	483.6	567.5	17%	3483.5	3600.9	3%
LATIN AMERICA	471.7	581.8	23%	3398.7	3507.6	3%
CIS	134.8	177.6	32%	945.8	1080.2	14%
OCEANIA	127.5	124.8	-2%	886.3	812.0	-8%
OTHERS	3.5	6.9	95%	16.6	23.0	39%
Grand Total	8078.5	11190.8	39%	61499.7	66585.9	8%

Source: DGCI&S

Note: Myanmar has been included in ASEAN and not in South Asia, since ASEAN is a formal economic grouping.

Fig 1: Region-wise shares of India's engineering exports during April-October 2024-25



PANEL WISE INDIA'S ENGINEERING EXPORTS

In this section we look at the Engineering Panel wise exports for the month of October 2024 vis-à-vis October 2023 as well as the cumulative exports for April-October 2024-25 vis-à-vis April-October 2023-24. These are indicated in the tables below.

Table 4: Panel-wise Export Analysis for April-October 2024-25 vis-à-vis April-October 2023-24

Product panels	October 2023	October 2024	Growth (%)	April-October 2023-24		Growth (%)
Ferrous						
Iron and Steel	638.6	826.6	29%	6869.7	5433.4	-21%
Products of Iron and Steel	788.2	912.4	16%	5673.3	5712.6	1%
Sub Total	1426.8	1739.0	22%	12543.0	11146.0	-11%
Non-ferrous						
Copper and products	202.0	253.7	26%	1389.1	1306.9	-6%
Aluminium and products	546.1	637.5	17%	4164.3	3883.2	-7%
Zinc and products	59.9	78.6	31%	450.1	426.0	-5%
Nickel and products	13.3	19.8	49%	100.6	107.5	7%
Lead and products	72.9	74.5	2%	381.1	496.0	30%
Tin and products	0.8	1.6	106%	8.7	12.9	47%
Other Non-Ferrous Metals	64.5	79.2	23%	432.4	503.3	16%
Sub Total	959.6	1144.9	19%	6926.4	6735.8	-3%
BRAZIL	172.5	219.7	27%	1176.8	1317.2	12%
NEPAL	162.8	200.3	23%	1338.1	1294.3	-3%

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Table 4: Panel-wise Export Analysis for April-October 2024-25 vis-à-vis (Contd.)
April-October 2023-24

Product panels	October 2023	October 2024	Growth (%)	April-October 2023-24	April-October 2024-25	Growth (%)
Industrial Machinery						
Industrial Machinery like Boilers, parts, etc.	46.7	77.7	67%	414.8	485.7	17%
IC Engines and Parts	305.7	363.6	19%	2157.7	2208.6	2%
Pumps of all types	99.5	145.1	46%	804.1	903.9	12%
Air condition and Refrigerators	127.6	179.1	40%	958.9	1094.0	14%
Industrial Machinery for dairy, food processing, textiles etc.	664.1	730.8	10%	4640.6	4796.3	3%
Machine Tools	64.3	71.9	12%	429.4	464.6	8%
Machinery for Injecting moulding, valves and ATMs	201.1	244.3	21%	1433.2	1605.9	12%
Sub Total	1508.9	1812.5	20%	10838.7	11559.0	7%
Electrical Machinery						
Electrical Machinery	1002.9	1262.1	26%	7206.1	8229.3	14%
Automobile and auto component						
Motor Vehicle/cars	659.3	772.6	17%	4930.2	5153.3	5%
Two and Three Wheelers	223.4	286.6	28%	1537.2	1831.2	19%
Auto Components/Part	643.3	718.1	12%	4411.9	4808.1	9%
Auto Tyres and Tubes	239.1	257.1	8%	1605.8	1768.6	10%
Sub Total	1765.2	2034.3	15%	12485.2	13561.3	8.6%
Aircrafts and related products						
Aircrafts and Spacecraft parts and products	131.4	666.5	407%	808.1	3092.2	283%
Ships Boats and Floating products and parts						
Ships Boats and Floating products and parts	72.8	1092.1	1400%	2238.5	3015.7	35%
Miscellaneous engineering products						
Medical and Scientific instruments	196.8	251.5	28%	1387.2	1589.9	15%
Railway Transport	37.7	44.2	17%	186.5	197.9	6%
Hand Tools & Cutting Tools	76.7	96.9	26%	540.8	600.0	11%
Bicycle & Parts	29.1	35.6	23%	212.1	224.0	6%
Cranes Lifts & Winches	95.4	96.6	1%	572.8	658.8	15%
Office Equipment	31.2	31.0	-1%	197.2	171.8	-13%
Other Construction Machinery	236.0	258.5	10%	1680.2	1782.4	6%
Prime Mica & Mica Products	2.4	2.6	8%	23.1	17.5	-24%
Project Goods	0.1	0.4	501%	2.0	1.5	-24%

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Table 4: Panel-wise Export Analysis for April-October 2024-25 vis-à-vis (Contd.)
April-October 2023-24

Product panels	October 2023	October 2024	Growth (%)	April-October 2023-24	April-October 2024-25	Growth (%)
Miscellaneous engineering products (Contd.)						
Other Rubber Product Except Footwear	141.6	158.4	12%	962.7	1033.5	7%
Other Misc. Items	364.0	463.8	27%	2689.1	2969.4	10%
Total engineering exports	8078.5	11190.8	38.5%	61499.7	66585.9	8.27%

Reasons for Decline (As per April-October 2024-25):

1. Iron and Steel and Products of Iron and Steel: - Insights:

- During April-October 2024-25, India's exports of Iron and Steel deteriorated by 21% vis-à-vis same period last fiscal, while Products of Iron and Steel witnessed growth to the extent of 1% during the same period, after continuous decline for many months.
- Indian steel HRC exports remained sluggish this week as global market sentiments weakened further. Indian offers to the Middle East (ME) remained largely stable amid competitive quotes from China. Furthermore, a recent deal between China and the Middle East further pressured Indian exports. In contrast, European offers continue to be affected by weak regional demand.
- India's HRC offer to Middle East: Indian HRC export prices to the Middle East (ME) continued to remain stable for the week at \$560/t CFR, as per sources. Chinese HRC export prices to the Middle East fell by \$10/t w-o-w to \$520-525/t CFR UAE against \$530-535/t CFR UAE last week amid active trade.
- India's HRC offer to EU: India's HRC export offers to Europe (S275, 3mm) continued to remain range-bounded at \$590-595/t CFR Antwerp (\$540-545/t FOB, east coast India). Indian steel mills' export offers failed to gain traction in the European market due to high prices relative to domestic rates and EU trade restrictions. The unfavourable US dollar-euro exchange rate further increased import costs. In the EU, domestic HRC prices

remained flat amid sluggish trading, with market participants uncertain about the market's direction for Q1CY'25.

- Overall outlook: Chinese steelmakers continue to be highly competitive, offering lower prices and actively seeking export markets. This poses a significant challenge for Indian exporters. The global economic outlook remains sluggish, with geopolitical tensions contributing to concerns about overall steel demand and potential impacts on Indian exports.

2. Non-Ferrous Sector (Copper, Aluminium, Zinc)

Copper: decline of 6% in April-October 2024

- Copper exports have increased in October 2024 by 26%. If this trend continues, we will see a revival in copper exports for the fiscal 2024-25
- The 6% decline in cumulative terms can be attributed to the declining copper exports in the previous months
- The decline was a result of
 - » global price volatility: In September global copper prices showed volatility – trended downwards in the beginning of September 2024 before gaining on growing anticipation of a rate cut by the US Federal Reserve which was came through on 18 September
 - » Increase in domestic demand especially the EV sector: The Ministry of Mines projects that the demand for copper in India, particularly from the EV sector, will increase by 1.7 million tonnes by 2027. The per capita copper consumption in India is also expected-

ed to rise from the current level of 0.6 kg to 1 kg in the coming years.

» Closure of Vedanta's Sterlite copper plant

3. Aluminium: decline of 7% in April-October 2024

- Aluminium exports have increased in October 2024 by 17%. If this trend continues, we will see a revival in Aluminium exports for the fiscal 2024-25
- The 7% decline in cumulative terms can be attributed to the decline in Aluminium exports in the previous months
- The decline was a result of
- Restrictive trade policies and geopolitical tensions including Section 232 and U.S. Tariffs, U.S. Anti-Dumping Duties on Aluminium Extrusion Products
- The Indian aluminium exports also face discrimination in market access in ASEAN countries and even our neighbouring markets: In the ASEAN region, countries like Malaysia have imposed high Most Favoured Nation (MFN) duties ranging from 25% to 30% on tariff lines between 7604 to 7608, severely limiting exports from India's down-

stream aluminium industry, which predominantly comprises MSMEs. Similarly, Indonesia has placed downstream aluminium products under the Sensitive Track, further restricting market access.

- India's aluminium exports also face discriminatory practices in neighbouring countries such as Bangladesh. In April 2023, Bangladesh reclassified aluminium billets under HS code 76012090 to 76012000, removing them from the South Asian Free Trade Area (SAFTA) agreement and imposing a 5% Basic Customs Duty (BCD) on imports from India. This change has increased the cost of exporting aluminium billets to Bangladesh, affecting trade volumes.
- Fluctuation in global aluminium prices
- Rising domestic demand

4. Zinc: decline of 5% in April-October 2024

- Zinc exports have increased in October 2024 by 31%. If this trend continues, we will see a revival in zinc exports for the fiscal 2024-25. The cumulative decline can be attributed mainly to the rising demand for Zinc in the domestic market.

ENGINEERING EXPORTS - STATE-WISE ANALYSIS

State wise engineering export performance

The table below indicates the exports from top Indian states. It is evident from the table that almost 93.7 % of India's exports is contributed by the listed 12 states. Within this almost 56.1 percent of exports is done by Maharashtra, Tamil Nadu and Gujarat together.

Table 5: Top state wise engineering export performance - April-September 2024-25

(Values in USD Million)

Top States	April-September 2023-24	April-September 2024-25	Growth%	%Share in India's Eng Export	Remark
Maharashtra	11378.8	11155.0	-2.0%	22.9%	93.7 % share covered by top 12 states
Tamil Nadu	8473.0	8702.7	2.7%	17.9%	
Gujarat	7075.6	7497.0	6.0%	15.4%	
Karnataka	3376.5	3439.7	1.9%	7.1%	
Telangana	828.4	3228.8	289.7%	6.6%	
Odisha	3447.2	2812.3	-18.4%	5.8%	
Andhra Pradesh	2749.3	2542.5	-7.5%	5.2%	
Uttar Pradesh	2094.1	2147.9	2.6%	4.4%	

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Table 5:Top state wise engineering export performance – April-September 2024-25 (Contd.)

(Values in USD Million)

Top States	April-September 2023-24	April-September 2024-25	Growth%	%Share in India's Eng Export	Remark
West Bengal	1649.9	1682.3	2.0%	3.5%	93.7 % share covered by top 12 states
Madhya Pradesh	911.1	942.2	3.4%	1.9%	
Rajasthan	1557.6	757.4	-51.4%	1.6%	
Haryana	3321.1	749.1	-77.4%	1.5%	

Source: NIRYAT portal

- Top 12 states constitute over 93.7 % of India's engineering Exports. Karnataka retained its performance, maintaining 4th position, Odisha moving down to 6th position while Telangana moving up to 5th position and Haryana down to 12th position during the fiscal April-September 2024-25 compared to the same period last fiscal.
- Major negative growth witnessed in states like Maharashtra, Odisha, Andhra Pradesh, Rajasthan and Haryana during April-Sep 2024-25 compared to the same period last fiscal.
- Maharashtra being the highest state in terms of Engineering Goods exports is leading by US\$ 2452.4 million from Tamil Nadu(Second Highest State) for the period of April-Sep 2024-25

INDIA'S REGION WISE ENGINEERING EXPORTS

In terms of region, western region which includes industrial states like Maharashtra and Gujarat is the front runner in terms of exports with 38.3 per cent share. Tamil Nadu from the Southern Region has retained its export performance and it ranked second after Maharashtra, while Gujarat and Karnataka ranked third and fourth during April-September 2024-25.

Table 6: Region wise exports from India (Values in USD Million)

Region	April-Sep 2023-24	April-Sep 2024-25	Growth%
EASTERN REGION	6117.7	5356.3	-12.4%
NORTHERN REGION	11187.1	4554.8	-59.3%
SOUTHERN REGION	15987.1	18435.8	15.3%
WESTERN REGION	20242.2	20376.6	0.7%

Source: NIRYAT portal

Note: The total engineering exports given in the above table is taken from NIRYAT as per the latest available data and may not tally with the total engineering exports as given by DGCI&S.

CORRELATION BETWEEN MANUFACTURING PRODUCTION AND ENGINEERING EXPORTS

Engineering forms a considerable part of the broader manufacturing sector and the share of engineering production in overall manufacturing output is quite significant. As exports generally come from what is produced within a country, some correlation between man-

ufacturing production growth and engineering export growth should exist. We briefly look at the trend in manufacturing growth as also engineering export growth to see if they move in tandem. It may be mentioned that manufacturing has 77.63% weightage in India's industrial

production.

Engineering export growth and manufacturing output growth moved in the same direction in as many as nine out of twelve months in each of the fiscal years 2019-20 and 2020-21. During fiscal 2021-22,

engineering export growth and manufacturing growth moved in the same direction in seven out of twelve months while in each of fiscal 2022-23 and 2023-24, as many as 10 out of 12 months saw engineering exports and manufacturing output moved in the same direction.

The first two months of fiscal 2024-25 also saw manufacturing output growth and engineering exports growth moving in the same direction. April 2024 saw engineering exports declined from a growth in Mar 2024 and manufacturing output growth decelerated. The month of May 2024 witnessed just the opposite. Engineering exports bounced back to growth path and manufacturing output growth accelerated. Then June, July and August 2024 however saw both moved in the opposite direction. June and August 2024 saw higher engineering export growth but lower manufacturing growth in comparison to the previous month while July 2024 just witnessed the reverse. September 2024 again saw both moving in the same direction by securing higher growth.

The link between these two may not be established on a monthly basis, but a positive correlation may be seen if medium to long term trend is considered.

Table 7: Engineering exports growth vis-à-vis manufacturing growth from April 2022

Months/ Year	Engg. Export Growth (%)	Manufacturing Growth (%)
April 2023	-7.52	5.5
May 2023	-4.25	6.3
June 2023	-11.12	3.5
July 2023	-6.91	5.3
August 2023	7.66	10.0
September 2023	6.50	5.1
October 2023	6.99	10.6
November 2023	-3.48	1.3
December 2023	9.82	4.6
January 2024	4.20	3.6
February 2024	15.90	4.9
March 2024	10.66	5.9
April 2024	-6.51	4.2
May 2024	5.56	5.1
June 2024	7.96	3.5
July 2024	2.74	4.4
August 2024	3.13	1.1
September 2024	9.44	3.9

(Source: Department of Commerce and CSO)

IMPACT OF EXCHANGE RATE ON INDIA'S EXPORTS

How did the exchange rate fare during October 2024 and what was the recent trend in Re-Dollar movement? In order to get a clearer picture of the recent Re-Dollar trend, not only we

took the exchange rate of October 2024, but also considered monthly average exchange rate of Rupee vis-à-vis the US Dollar for each month of fiscal 2023-24 and 2024-25 till October

2024 as per the latest data published, as mere one-month figure does not reflect any trend. The following two tables clearly depicts the short-term trend:

Table 8: USD-INR monthly average exchange rate in 2024-25 vis-à-vis 2023-24

(As per latest data released by FBIL)

Monthly Average Exchange Rate (1 USD to INR)			Year-on-Year Change (%)	Direction	Month-on-Month Change (%)	Direction
Month	2023-24	2024-25				
April	82.02	83.41	1.69	Depreciation	0.49	Depreciation
May	82.34	83.39	1.28	Depreciation	-0.02	Appreciation
June	82.23	83.47	1.51	Depreciation	0.10	Depreciation
July	82.15	83.59	1.75	Depreciation	0.14	Depreciation
August	82.79	83.89	1.33	Depreciation	0.36	Depreciation
September	83.05	83.81	0.92	Depreciation	-0.10	Appreciation
October	83.24	84.02	0.94	Depreciation	0.25	Depreciation

Rupee depreciation vis-à-vis the US Dollar continued in the new fiscal 2024-25 on a year-on-year basis and again depreciated on a month-on-month basis in October 2024. Rupee remained under pressure through most of the month due

to appreciation of USD over the month, coupled with equity outflows by foreign portfolio investors from Indian stock market and strong dollar demand from local importers. Geopolitical tensions in the Middle East, and worries over recession in

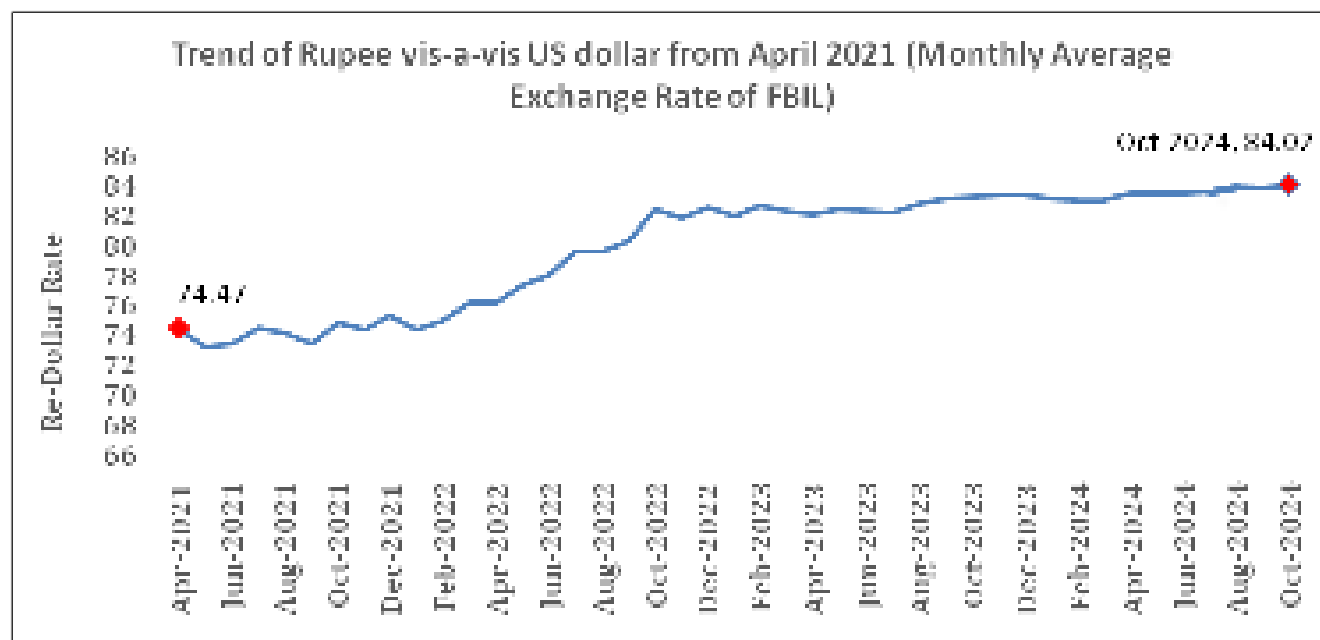
the US also weighed on rupee. US dollar strengthened due to rising uncertainties around just concluded US presidential election, along with a reduced likelihood of interest rate cuts by the Federal Reserve.

Table 9: USD-INR monthly average exchange rate in 2023-24 vis-à-vis 2022-23

(As per latest data released by FBIL)

Monthly Average Exchange Rate (1 USD to INR)			Year-on-Year Change (%)	Direction	Month-on-Month Change (%)	Direction
Month	2023-24	2024-25				
April	76.17	82.02	7.68	Depreciation	-0.33	Appreciation
May	77.32	82.34	6.49	Depreciation	0.39	Depreciation
June	78.04	82.23	5.37	Depreciation	-0.13	Appreciation
July	79.60	82.15	3.20	Depreciation	-0.10	Appreciation
August	79.56	82.79	4.06	Depreciation	0.78	Depreciation
September	80.23	83.04	3.50	Depreciation	0.30	Depreciation
October	82.34	83.24	1.09	Depreciation	0.24	Depreciation
November	81.81	83.30	1.82	Depreciation	0.07	Depreciation
December	82.46	83.28	0.99	Depreciation	-0.02	Appreciation
January	81.90	83.12	1.49	Depreciation	-0.19	Appreciation
February	82.61	82.96	0.42	Depreciation	-0.19	Appreciation
March	82.29	83.00	0.86	Depreciation	0.05	Depreciation

Fig 2: Trend of Rupee vis-a-vis US dollar from April 2020
(Monthly Average Rate of FBIL has been considered)



ANALYSIS OF INDIA'S ENGINEERING IMPORTS

India's Engineering imports during October 2024 were valued at US\$ 13374.5 million compared to US\$ 12624.1 million in October 2023 registering a positive growth of 5.9 percent in dollar terms. All the engineering panels barring Transport equip-

ment witnessed an increase in import during October 2024 compared to October 2023.

The share of engineering imports in India's total merchandise imports in October 2024 was estimated at 13.4 percent,

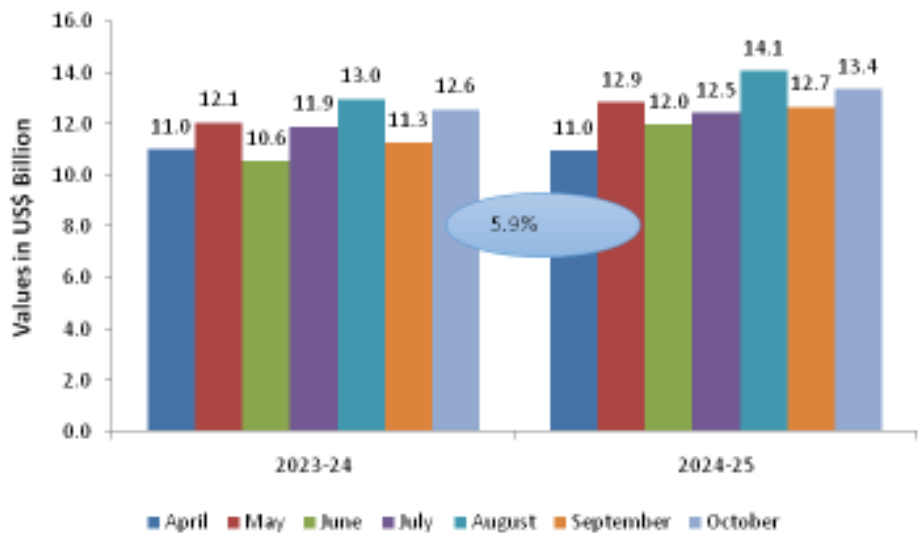
higher than that of October 2023 which was estimated at 12.6 %. The figure below depicts engineering imports for October **2024 compared to October 2023**.

Table 10: India's engineering imports in April-October 2024-25 vis-à-vis April-October 2023-24

Values in US\$ MN	October '23	October	Growth (%)	April-October 2023	April-October 2024	Growth (%)
India's Engineering Imports	12624.1	13374.5	5.9%	82589.1	88550.8	7.2%

Source: Quick Estimates, MoC

Fig 3: Monthly Engineering Imports for April-October 2024-25 vis-a-vis April-October 2023-24



TREND IN ENGINEERING TRADE BALANCE

We now present the trend in two-way yearly trade for the engineering sector for the 2024-25 depicted in the table below:

Table 11: Monthly Trend in Engineering Trade Balance for the current FY 2024-25

(US\$ Billions)

Trade Flow	April	May	June	July	August	September	October
Engineering Export	8.7	10.0	9.4	9.0	9.4	9.8	11.2
Engineering Import	11.0	12.9	12.0	12.5	14.1	12.7	13.4
Trade Balance	-2.3	-2.9	-2.6	-3.5	-4.7	-2.9	-2.2

Source: DGCI&S, EEPC India Analysis

CONCLUSION

The Indian engineering exports recorded another remarkable performance for the 6th month in the current fiscal with a Y-o-Y growth of 38.5% in October 2024 and 8.2% in April-October 2024. It needs to be mentioned here that after a considerable number of months, October 2024 also recorded positive growth in exports of ferrous and

non-ferrous metals including iron and steel, copper, aluminium and zinc which otherwise recorded negative growth in the previous months. This performance despite the growing global uncertainties and shifting trade policies is commendable.

In its latest Global Trade Outlook and Statistics (October

2024), WTO revised its forecast for global merchandise trade for 2024 to 2.7% which is slightly better than the previous 2.6%. The update for 2025 however is revised down to 3% from the previous 3.3%. The growth in trade will be mainly contributed by the rising demand in ASEAN countries rather than the West. The WTO further mentions the

current trade trend has indicated rising trade volume and flate trade values – an incation towards decline in export and import prices. The WTO expects that lower inflation will boost consumer spending, while lower interest rates should raise

investment spending by firms. The risks to merchandise trade mainly remains similar to previous months including geopolitical tensions, regional conflicts and policy uncertainty.

The results and the recent WTO

updates indicates the existing volatility of the global markets and the engineering industry's performance will depend on the intitiaves of both the industry and the government.

ENGINEERING PRODUCT PANELS – COUNTRY-WISE ANALYSIS

We now analyze the performance of some of the important products for the fiscal April-October 2024-25 vis-à-vis April-October 2023-24. We have taken the major panels and computed the top importers to get an idea of the current trade pattern.

Engineering Product Panel - Country matrix

(US\$ Billions)

Product panels	Top 5 nations	Apr-Oct 2023-24	Apr-Oct 2024-25	Growth
Iron and Steel	Italy	981.6	688.8	-30%
	Nepal	545.9	429.3	-21%
	UAE	380.2	384.3	1%
	Belgium	347.7	321.5	-8%
	UK	217.8	309.9	42%
Products of Iron and Steel	U S A	1603.0	1710.3	7%
	UAE	329.4	436.3	32%
	Saudi Arab	290.6	375.4	29%
	Germany	264.8	269.3	2%
	UK	213.6	211.7	-1%
Industrial Machinery	USA	2125.6	2407.7	13%
	UAE	458.9	552.0	20%
	Germany	598.5	537.1	-10%
	China	415.5	500.3	20%
	Thailand	477.2	457.4	-4%

Source: DGCI&S, EEPC India Analysis

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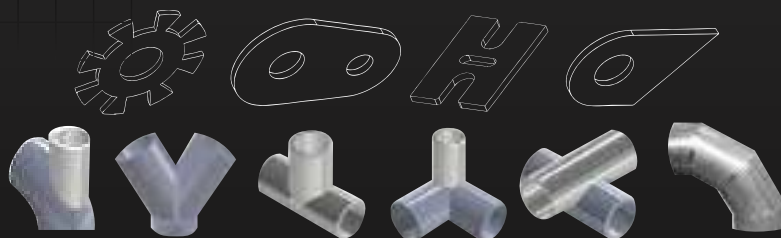
Engineering Product Panel - Country matrix (Contd.)

(US\$ Billions)

Product panels	Top 5 nations	Apr-Oct 2023-24	Apr-Oct 2024-25	Growth
Automobiles (Motor Vehicles/Cars and Two and Three Wheelers)	Saudi Arab	935.4	928.6	-1%
	Mexico	674.2	829.9	23%
	South Africa	770.7	802.8	4%
	Japan	110.5	446.6	304%
	UAE	305.5	414.8	36%
Non-Ferrous metals	USA	849.2	831.0	-2%
	Korea RP	731.8	560.2	-23%
	Turkey	127.3	447.7	252%
	Saudi Arab	639.4	421.1	-34%
	China	287.1	373.8	30%
Electrical Machinery and Components	USA	1417.2	1602.2	13%
	Singapore	599.0	922.2	54%
	UK	592.3	614.3	4%
	Germany	434.7	535.9	23%
	Korea RP	217.4	441.8	103%
Aircrafts and Space crafts	UAE	12.4	938.9	7461%
	Saudi Arab	1.5	351.2	22905%
	France	108.3	303.4	180%
	Turkey	60.7	236.5	290%
	Czech Republic	3.0	206.6	6868%
Ships, Boats and Floating Structures and parts	Singapore	606.4	1567.8	159%
	UAE	485.9	611.1	26%
	Indonesia	556.2	262.3	-53%
	USA	52.6	250.8	376%
	Sri Lanka	234.7	126.4	-46%
Auto Components (including Auto Parts and Auto Tyre)	USA	1357.7	1367.2	1%
	Brazil	289.0	368.3	27%
	Germany	326.1	359.3	10%
	Turkey	319.3	302.6	-5%
	Mexico	263.2	288.8	10%

Source: DGCI&S

- In April-October 2024, Italy, Nepal and UAE ranked as the top importers of Indian Iron and Steel, while the USA, UAE and Saudi Arabia lead in import of 'Products of Iron & Steel.'
- The USA stood out as the primary importer of Indian 'Industrial machinery,' making up 21% of India's global exports in this category, followed by UAE and Germany with 5% and 5% shares, respectively.
- Saudi Arabia, Mexico and South Africa were top three importers of India's Automobiles during April-October 2024 in India's global exports respectively over April-October 2023.
- USA, South Korea and Turkey were the top three importers of India's Non-ferrous metals and products' during April-October 2024 whereas USA, Singapore and UK were the three top importers of Indian Electrical Machinery & Components during the same period.
- UAE, Saudi Arabia and France were the top three importers of India's Aircrafts and Spacecraft during April-October 2024 in India's total global exports of the product followed by Turkey and Czech Republic.
- Singapore, UAE and Indonesia became the largest importer of ships, boats and floating structures followed by USA and Sri Lanka. While for the auto components' product group, USA remained the top importer in April-October 2024 followed by Brazil, Germany, Turkey and Mexico.




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EEPC INDIA CALENDAR OF EVENTS

All events subject to change

Name of the Event	Date	Place	Product sectors
International Engineering Sourcing Show (IESS - XII)	27 - 29 November, 2024	Chennai	Engineering, Multiple-products
Automechanika Dubai	10 - 12 December, 2024	Dubai, UAE	Auto component and accessories
Arab Health	27 - 30 January, 2025	Dubai, UAE	Medical Device & Supplies
Bharat Mobility Global Expo 2025	17 - 22 January 2025	New Delhi	Automobiles, components, Electric vehicles, Tyres, Urban mobility , Technology & Innovative solutions
Nepal Medical Expo	27 Feb - 01 Mar, 2025 (Tentative)	Kathmandu, Nepal	Medical Devices, Lab instruments, Healthcare



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