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ERA OF PROTECTIONISM: HOW INDIAN FOUNDRY EXPORTS NEED TO GEAR UP

— Madhumita Mookerji

Indian foundry units engaged in exports are staring at an uphill road fraught with non-tariff obstacles, especially since 80% of these fall in the MSME category. The way ahead will involve taking a re-look at costing, systems and process, usage of power and redefining of benchmarks. But this entire journey may involve time, effort and funding activities. Foundry Frontier takes a look:

Dumping duties, CBAM, certifications key non-tariff barriers

Tech upgrades, regulatory compliance, sustainability steps needed

The global trade environment is undergoing a significant transformation. For decades, international trade expanded under the broad framework of multilateral agreements and tariff reductions championed by institutions such as the World Trade Organization. However, the past decade has witnessed a clear shift toward protectionist policies, with countries increasingly relying on non-tariff barriers to safeguard domestic industries.

For Indian foundries, which have steadily built a reputation as reliable suppliers of high-quality castings across sectors such as automotive, machinery, construction equipment and railways, this changing trade landscape presents both challenges and opportunities. India's casting industry has developed strong export markets in regions such as Europe and North America. However, these markets are also among the most active in implementing new regulatory and compliance frameworks aimed at protecting domestic industries, reducing carbon footprints and ensuring product traceability.

The rise of trade Defence measures, sustainability regulations and stringent certification requirements means that exporting foundries must now navigate a far





more complex global marketplace. Measures that once focused primarily on tariffs are now increasingly being replaced by technical regulations, environmental rules and administrative procedures that can restrict market access. Two of the most prominent regulatory developments affecting exporters today are anti-dumping actions and carbon-related trade measures. For instance, the European Union's Carbon Border Adjustment Mechanism (CBAM), introduced under the climate policy framework of the European Commission, is expected to fundamentally reshape how carbon-intensive products are traded globally. In addition, certifications relating to product quality, sustainability and supply-chain transparency are becoming increasingly critical in global trade. Buyers are demanding higher levels of compliance, traceability and environmental accountability from their suppliers. Against this backdrop, Indian foundries must adapt quickly to maintain and expand their presence in global markets. The ability

to comply with evolving regulations, reduce carbon footprints and maintain internationally recognised certifications will be key determinants of competitiveness in the coming years.

Kinds of non-tariff barriers

Non-tariff barriers (NTBs) have become one of the most significant tools used by countries to regulate trade and protect domestic industries. Unlike tariffs, which are straightforward taxes on imports, NTBs take the form of regulatory requirements, trade defence measures, environmental policies and certification standards that exporters must comply with before entering foreign markets.

For exporting foundries, these barriers can significantly influence costs, compliance requirements and market access. Three key categories of non-tariff barriers that are increasingly affecting Indian foundry exports include anti-dumping measures, carbon border adjustments and certification requirements.

□ Anti-dumping measures

Anti-dumping duties remain one of the most widely used protectionist instruments in global trade. Governments impose such duties when they believe that imported goods are being sold in their markets at prices lower than their fair value, thereby harming domestic industries.

“Very high import duties have been

imposed on us -- close to 10% higher than even China's in some cases: for instance, aluminium castings. But where Section 232 is concerned, all of us are more or less on the same footing and that gives us some breather in that area," rued a source, adding that China and India are at par but in terms of power switching and non-ferrous castings, India is at a 10% disadvantage currently in the US post-the trade deal between China and the US.

In recent years, trade disputes and geopolitical tensions have led to a rise in anti-dumping investigations across sectors, including steel, aluminium and metal castings. Foundry products, particularly those used in automotive and industrial equipment, have increasingly come under scrutiny in major markets.

The United States and the European Union are among the most active users of anti-dumping measures. Investigations typically involve detailed assessments of export prices, production costs and market conditions in the exporting country. If authorities determine that dumping has occurred and that it has caused injury to domestic producers, duties may be imposed that significantly increase the cost of imports.

For Indian foundries, the implications are substantial. Anti-dumping duties can quickly erode the price competitiveness of

exports and disrupt long-established trade relationships. Moreover, defending an anti-dumping case requires extensive documentation, legal expertise and financial resources.

Foundries exporting to markets such as the United States must therefore closely monitor trade developments and maintain transparent cost structures. Strong documentation of production costs, pricing mechanisms and supply-chain data can help companies respond effectively in the event of investigations.

Additionally, diversification of export markets is becoming an important strategy. Over-dependence on a single region can expose exporters to sudden policy changes or trade defence actions.

Industry associations and export promotion bodies also play a crucial role in supporting exporters during anti-dumping investigations by coordinating responses, providing legal assistance and engaging with government authorities.

"The US and Europe are the two largest markets for exports. However, in the last five years, the world has become more inward-looking. Every country is now looking at protecting its own industry... Europe is very aggressive on anti-dumping duties on various imports, including from India," said a source.

Carbon Border Adjustment Mechanism (CBAM)

One of the most transformative developments in global trade policy is the introduction of carbon-related border taxes. The most prominent among these is the Carbon Border Adjustment Mechanism introduced by the European Union.

CBAM is designed to prevent carbon leakage — a situation where companies relocate production to countries with less stringent climate policies. Under this mechanism, imports of certain carbon-intensive goods into the EU must account for the carbon emissions generated during their production.

While the initial phase of CBAM currently covers sectors such as steel, aluminium, cement, fertilisers and electricity, its scope could expand over time to include downstream products and components that incorporate these materials.

For foundries exporting cast components made from iron and steel, the implications could be significant. Even if castings themselves are not directly covered in the early stages, the carbon footprint of raw materials such as pig iron, scrap and alloys will increasingly come under scrutiny.

Exporters will need to provide detailed emissions data for their production processes. This requires the implementation

of robust monitoring, reporting and verification systems within manufacturing facilities.

Compliance with CBAM also demands greater transparency in energy consumption, raw material sourcing and production processes. Foundries that rely heavily on coal-based electricity or inefficient melting technologies may face higher compliance costs.

On the other hand, companies that invest early in energy-efficient technologies, renewable power sources and cleaner production processes could gain a competitive advantage.

Indian foundries that proactively measure and reduce their carbon footprints will be better positioned to meet the expectations of global buyers who are increasingly prioritising sustainability in their supply chains.

Certifications and compliance standards

In addition to trade defence measures and environmental regulations, certification requirements have become a critical aspect of international trade. Many global buyers now insist on internationally recognised quality, environmental and sustainability certifications as a prerequisite for doing business.

For foundries, certifications related to quality

management, environmental responsibility and occupational safety are often essential for accessing export markets.

For instance, automotive and engineering companies frequently require suppliers to maintain globally recognised quality management systems. Environmental certifications are also becoming increasingly important as companies seek to reduce the environmental impact of their supply chains.

Furthermore, traceability requirements are expanding as regulators and customers demand greater transparency regarding raw material sourcing and manufacturing processes.

Compliance with these standards requires systematic documentation, process control and continuous monitoring of manufacturing operations. While obtaining certifications can involve initial investments in training, auditing and system upgrades, the long-term benefits include improved operational efficiency, higher product quality and stronger credibility in global markets.

Foundries that fail to meet these requirements risk losing access to premium export markets where buyers are increasingly focused on responsible sourcing and sustainable production practices.

In many cases, certification requirements are closely linked to broader sustainability initiatives and climate policies. As global supply chains evolve, compliance with these frameworks will become an integral part of doing business internationally.

As per some foundry owners, initially ISO 9000 was good enough. Gradually, the Research Design and Standards Organization (RDSO) certifications also helped. For MSME units, the Government of India's MSME Sustainable (ZED) certification is a supportive tool if they want to work with global leaders like John Deere, Kubota and others which insist on environmental certifications, HR matrix on training, child labour etc. The Foundry Informatics Centre (FIC) within The Institute of Indian Foundrymen (IIF) helps units in getting the ZED certification.

When the European Norms (EN) for technical standards for products were evolved, the entire concept aimed at achieving standardized norms which were to be followed by all European nations. However, today, protectionism has ensured that if a unit wants to export to say Germany, it has to certify itself from the local institute there. "If you want to export to the UK, you will need to certify yourself on the same standard being propagated by the local institute there. This means, the Indian unit will need to keep getting audits done, keep spending a lot of money and only then

can it get access to those countries otherwise not, even if your product is compliant and of good quality,” a foundry source informed.

“Certifications have become a non-tariff barrier for exports in most countries... Moreover, several countries are issuing new certifications in a way that the local industry there will enjoy a different set of requirements in that certification while the import industry has a different criteria,” informed a source.

“So even if your product is good and compliant, you still need to get the certification from that country's specific institute to be eligible to sell there and this is becoming widely prevalent,” the source warned.

Outlook

The rise of protectionism and non-tariff barriers is reshaping the global trade landscape in fundamental ways. For Indian foundries engaged in exports, the traditional model of competing primarily on cost is no longer sufficient.

Success in the future will depend on a combination of technological modernisation, regulatory compliance and sustainability initiatives.

Investment in energy-efficient melting technologies, automation and digital monitoring systems can help foundries improve productivity while reducing

emissions. Adoption of renewable energy sources and waste-heat recovery systems can further strengthen environmental performance.

Equally important is the ability to track and report production data in line with international regulatory requirements. As carbon accounting becomes a central element of global trade, foundries must develop the capability to measure and verify their emissions accurately.

Market diversification will also play a key role in mitigating risks associated with trade defence measures and policy changes in specific regions. Exploring emerging markets in Asia, the Middle East and Latin America can provide new opportunities for growth.

Collaboration between industry stakeholders, government agencies and export promotion bodies will be essential in helping the sector navigate the evolving regulatory environment.

The Indian foundry industry has already demonstrated resilience and adaptability over the years. With the right strategies and investments, it can continue to strengthen its position in global markets despite the growing complexities of international trade. In an era defined by sustainability, compliance and transparency, the foundries that embrace change and invest in future-ready capabilities will emerge as winners in the global marketplace.

OPERATION EPIC FURY: POSSIBLE IMPACT ON INDIAN FOUNDRIES

— Madhumita Mookerji

As geopolitical tensions escalate in West Asia amid the US-Israel war with Iran, and what has been termed Operation Epic Fury by the US, the closure of the Strait of Hormuz is emerging as a major economic risk for global industry. Rising freight, energy prices, and raw material volatility—along with export uncertainty—could place significant pressure on margins if the crisis prolongs.

Hormuz closure is more about cost inflation, less about supply disruption

Energy, raw materials, exports in line of fire, shipping a huge casualty

The developing conflict involving Iran, the US, and Israel, and the potential disruption emerging from the closure of the Strait of Hormuz could affect Indian foundries through four major channels: freight disruption, energy costs, raw material prices, and export demand. Since foundries are highly energy-intensive and some of their inputs are linked to global supply chains, the impact could be significant if the crisis persists.

A couple of days into the US-Israel conflict



with Iran, the latter closed the Strait of Hormuz, the narrow mouth of the Persian Gulf, through which one-fifth of the global oil cargo passes. This trade lifeline is bordered in the north by Iran, and is a conduit for oil and gas supplies from Saudi Arabia, Kuwait, Iraq, Qatar, Bahrain, the United Arab Emirates and Iran with most of that fuel cargo going to Asia. Naturally, any crisis in the Strait of Hormuz is highly disruptive for the oil trade.

At the time of writing this article, as per news reports and social media posts, most carriers had suspended all bookings into the Persian Gulf, indicating that the conflict was widening and impacting shipping extensively.

1) Freight and shipping disruptions

Freight increases are intrinsic energy and raw material price triggers. Speaking to Foundry Frontier, Mr Ravi Sehgal, Chairman, The National Centre for Export Promotion (NCEP), IIF, said: "Freight disruption is the major casualty of the war - space availability, frequency of vessels are going to be disrupted and rising fuel cost will cause freights to go up. Movement to the Gulf will halt for some time and shipments to the US and Europe will become more expensive."

The Strait handles around 20% of global oil shipments, making it the world's most important energy shipping route.

Due to the conflict:

- Tankers are anchoring or avoiding the region.
- Marine insurers are raising war-risk premiums by up to 50% at the time of writing this article. Insurance costs for a \$100- million oil tanker have jumped from around \$250,000 to around \$375,000 per voyage.
- Some ships are re-routing or delaying cargo movements.

Impact on foundries

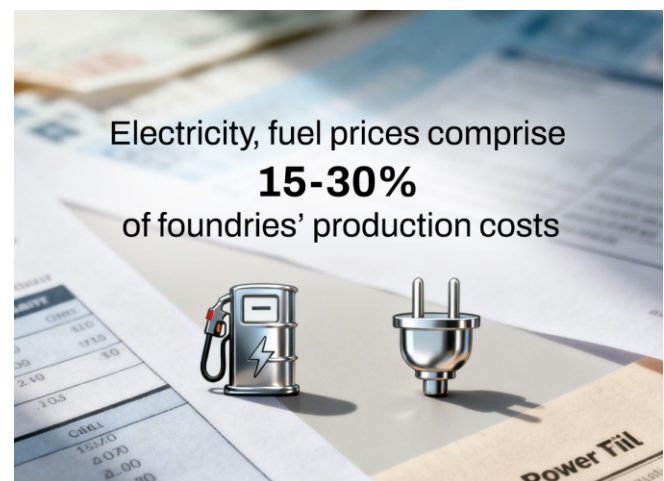
Freight increases will affect raw materials like:

- Scrap imports
- Ferro alloys
- Metallurgical coke

Mr Navneet Agarwal, immediate past-President of IIF and the current Deputy Regional Chairman (Eastern Region) of EEPCC, extrapolated: "In terms of freight, most of the shipping lines have surcharges and have stopped accepting shipments to the main ports in the Middle East. We expect this to continue for some time until there is stability in the region. Even the closure of the Red Sea again has put a lot of pressure on shipments to Europe where the freights again have been increased and the transit times have gone up once more. I think, the shipping lines will continue to increase freight if the conflict keeps going up."

2) Energy cost shock-biggest immediate impact

The biggest impact of this war for foundries will be the energy costs. Indian foundries are extremely sensitive to electricity and fuel prices, which typically account for 15-30% of their production costs.



- Nearly 50% of India's crude oil imports (about 2.5–2.7 million barrels per day) pass through the Strait of Hormuz.
- The current conflict has already pushed oil prices sharply higher, with fears these could exceed \$90–\$100/barrel if the disruption persists.

What this means for foundries

- **Higher electricity tariffs:** Power plants dependent on imported fuels (LNG, oil and thermal coal) will pass on the escalated costs to end-users.
- **Rising fuel costs:**
 - ✓ Furnace oil
 - ✓ Diesel for generators
 - ✓ Transportation fuel
- **Higher coke, coal freights**
Even if ferrous scrap or pig iron prices remain stable, energy inflation will compress foundry margins.

Mr Navneet Agarwal explained: “Increase in prices of oil and freight is going to have a negative repercussion on our energy cost. India imports a lot of coal from countries like Indonesia and Australia and, due to the war, this is getting disrupted and will create a pressure for increased pricing.”

Mr Ravi Sehgal said: “Energy costs will certainly be affected due to shortage and price rise of imported oil.”



3) Raw material cost pressures

The conflict may tighten supply of several industrial commodities. “Raw materials prices would be affected less but prime manufacturers will take advantage of the situation. Ferro alloys would rise steeply,” Mr Sehgal observed.

Manganese ore and ferro silicon, which are imported into India within the ferro alloy family, are used in foundries for steel production. Manganese often acts as a de-oxidiser and desulphuriser, to increase strength, toughness and anti-erosion properties. Ferro silicon is also used as a de-oxidiser as well as an inoculant to improve fluidity and graphitisation.

Likely price impacts

- Coking coal freight costs will increase
- Scrap volatility will creep in if shipping lanes tighten
- Pig iron imports will be impacted - especially from the Middle East and CIS routes

Even if the raw material supply itself is not blocked, logistics cost inflation will ensure a price push-up.

“Scrap was being imported from the Middle East and that has again come to a standstill. However, I think India is self-reliant in a lot of raw materials and I hope that these costs should not go up,” Mr Agarwal suggested, on a note of positivity.

4) Export market uncertainty

“In terms of export demand, it will be very difficult to fulfil the demand for the GCC countries due to the ongoing crisis and shipping disruption. The economy in the GCC countries will definitely have some effect, but we are unable to understand what the effect will be. However, it will be a negative effect for sure,” indicated Mr Agarwal.

India's foundry exports' comprise about 3 million tonnes (mnt) of the 12 mnt produced. Castings are mainly shipped to Europe, the US and the Middle East.

Higher freight and insurance could raise



export costs by \$30-\$70/tonne in some cases, depending on the route.

However:

- Around 13% of India's non-oil exports depend on trade routes linked to the Strait of Hormuz.
- Gulf economies are important buyers of Indian manufactured goods.

Possible outcomes

- ✓ Shipping delays will affect delivery schedules
- ✓ Exporters will experience working capital stress
- ✓ There will be a demand slowdown if global manufacturing weakens due to energy inflation

“Export demand in the Gulf will be seriously disrupted. Buyers in other areas would be more guarded and restricted in buying,” opined Mr Sehgal.

5) Currency and inflation effects

If oil prices spike:

- ✓ India's import bill will rise sharply
- ✓ Rupee will weaken
- ✓ Inflation will increase

For foundries this means:

- ✓ Costlier imported scrap and alloys
- ✓ Higher interest rates (if inflation rises)
- ✓ Pressure on domestic demand in auto and engineering sectors

6) Sector-specific risk for foundries

Foundries that are most exposed:

- ✓ Export-oriented casting exporters
- ✓ High-power induction furnace units
- ✓ Scrap-based foundries

Relatively less exposed:

- ✓ Domestic pig-iron-based foundries
- ✓ OEM-linked captive casting units

7) Short-term vs long-term impact

Short term (1-3 months):

- ✓ Oil price spike
- ✓ Freight premiums will rise
- ✓ Export shipment will be delayed

Medium term (3-12 months):

- ✓ Energy inflation
- ✓ Weakening global manufacturing demand
- ✓ Margin pressure on casting exporters

Worst-case scenario:

If the strait remains blocked for weeks, analysts warn of major global supply shocks and industrial slowdown in Asia.

Donald Trump has said the war may last around four weeks.

For Indian foundries, the Hormuz crisis is less about direct supply disruption and more about cost inflation -- especially power, fuel, and freight.



BALANCING GROWTH, RAW MATERIAL VOLATILITY & GLOBAL PRESSURES

— Madhumita Mookerji

Located in northern Karnataka, Belagavi - historically known as Belgaum - has evolved into one of India's most prominent foundry clusters, housing around 120-150 units, largely MSME, specialising in grey iron and ductile iron castings. Supported by a strong ecosystem of skilled manpower, machining capabilities, and proximity to major OEM hubs, the cluster supplies components to sectors ranging from automotive and tractors to Defence and infrastructure. However, rising raw-material volatility, supply chain disruptions, and growing ESG expectations are increasingly shaping the cluster's sourcing strategies and operational dynamics.

Foundry Frontier explores:

Belgaum Foundry Cluster (BFC) is evolving into globally competitive casting hub

Raw material volatility, ESG pressures reshape sourcing strategies

Belagavi, also known as Belgaum or Venugram or the bamboo village, boasts a rich history dating back to the 12th century. It served as a key fort city



under several dynasties, including the Chalukyas, Vijayanagara and Bahmani as well as the Marathas. Later, under the British, it became a major cantonment and, in the post-Independence era, was incorporated into the state of Karnataka.

Today, Belagavi is a major Indian foundry hub, known as the "Hydraulic capital of India," featuring thousands of small and medium enterprises (SMEs). The cluster developed significantly in the late 20th century, actively evolving from traditional casting methods to advanced, automated, and export-oriented units, particularly specialising in Grey Iron and Ductile Iron castings.



The **Belgaum Foundry Cluster** consists of approximately 120-150 units, largely in the MSME category. Induction furnace capacities typically range from 300-kgs to 10 tonnes. Annual turnovers vary widely, from INR 10-20 crore for smaller units to INR 300-500 crore and above for the larger integrated foundries, with most operating in the INR 25-150-crore turnover range.

Production matrix

- 1) 5-8% above 1,000 t/month
- 2) 10% up to 1,000 t/month,
- 3) 10-15% up to 500 t/month, and
- 4) Balance, below 500 t/month.

“The foundries here mostly produce grey cast iron and ductile iron components catering to almost all sectors such as aerospace, pumps, tractors, diesel engines, Railways, Defence, compressors, machine tools, road construction equipment, automotive and general engineering,”

informed a Belagavi-based source.

Key products include gearbox and clutch housings, axle housings, brake components, hydraulic and engine-related castings such as engine blocks and engine heads, and structural parts for off-highway equipment.

“This specialisation emerged due to proximity to major original equipment manufacturers (OEMs) and tier-1 manufacturing hubs such as Mumbai, Pune-Chakan, Kolhapur, Hubli-Dharwad and Bengaluru, availability of skilled foundry manpower built over generations, a strong machining and fabrication eco-system, competitive cost structures, and efficient road and rail connectivity to western ports like Mumbai and Goa,” explained an official from a Belgaum-based foundry.

Belgaum also possesses good rail and road networks, and foundries here can easily supply castings to large OEMs.

Raw materials and inputs required

The principal metallic raw materials required by the Belgaum foundry units include pig iron, mild steel scrap, cast iron scrap, foundry returns, ferro-alloys (ferro silicon, ferro manganese), magnesium treatment alloys, and inoculants. Non-metallic inputs include fluxes (limestone, fluorspar), refractories (silica and high-alumina), sand binders (phenolic urethane, furan, sodium silicate), sand additives, and process chemicals.

OEMs demand tight chemistry control, low phosphorus and sulphur, controlled residual elements such as copper and tin, consistent mechanical properties, metallurgical cleanliness, and full heat-wise traceability.

Increasingly, buyers are also expecting “environmental, social and governance” (ESG) compliance, sustainability disclosures, and responsible sourcing practices.

Raw material sourcing

Pig iron: Pig iron for the Belgaum cluster is sourced predominantly from domestic sellers, with Kirloskar Ferrous Industries and Vedanta being the principal suppliers.

Domestic pig iron accounts for around 90-95% of total pig iron consumption. Very few foundries import scrap with imports used only marginally during supply tightness or price arbitrage situations.

Scrap: Scrap sourcing is more mixed. Approximately 70-75% of it is procured domestically from regional and inter-state scrap markets, while 25-30% is imported, mainly from the Middle East, Africa, and select Asian countries, routed through JNPT (Mumbai) and Mormugao (Goa) ports.

Ferro alloys are largely sourced domestically, especially from producers in Odisha and Andhra Pradesh, as well as from Bhutan while refractories, binders, and specialty chemicals are partially imported, primarily

from China and Southeast Asia, with standard consumables sourced domestically.

Supply chains for pig iron and ferro-alloys are relatively stable, though exposed to power costs, mining regulations, and periodic supply constraints. Scrap supply is the most volatile, driven by global demand, currency movements, freight rates, and import-export policies. Supply chains for binders, chemicals, and refractories show moderate stability, influenced by import dependence and geopolitical developments affecting supplier countries.

Sourcing challenges

Short-term challenges include:

- ✓ Price volatility in scrap and alloys,
- ✓ Inconsistent scrap quality,
- ✓ Logistics delays at ports, freight cost fluctuations,
- ✓ Working-capital pressure due to rapid price movements,
- ✓ Spike in raw material prices,
- ✓ Supplier dominance over some raw materials -- like pig iron,
- ✓ Raw material price volatility,
- ✓ Lengthening of working capital cycles due to delayed payments from customers, and
- ✓ Shortage of skilled manpower.

Long-term challenges include:

- ✓ Dependence on imported scrap,
- ✓ Tightening environmental regulations

affecting suppliers

- ✓ Increasing ESG compliance requirements from global OEMs,
- ✓ Energy-linked ferro-alloy pricing,
- ✓ Exposure to geopolitical trade disruptions,
- ✓ No cluster development for common raw material depot,
- ✓ Collective purchase mechanisms still underdeveloped,
- ✓ Competing with China while aiming to meet global buyer expectations,
- ✓ Absenteeism during agricultural seasons hits production planning.

Mitigation strategies

Foundries are adopting long-term and quarterly supply contracts, diversifying suppliers, investing in in-house scrap segregation and spectrometer-based quality control, optimising charge mix and alloy consumption, and improving inventory planning and yield management.

Larger players are also investing in renewable energy, recycling of returns, digital procurement systems, and ESG-aligned sourcing frameworks.

Skill development centres are also coming up while automation is on the rise.

That apart, long-term contracts with raw material suppliers and exploring of alternate raw materials are also the need of the hour.

Macro factors governing raw-material pricing, availability

“Export demand, supplier dominance,

supply versus demand, coke prices, fuel prices, forex fluctuations, etc all govern raw material pricing and availability,” informed Sadanand D. Humbarwadi, Honorary Secretary, Belgaum Foundry Cluster.

He added, raw-material pricing is influenced by global metal prices, Chinese demand and export policies, the INR-USD exchange rates, international freight and bunker fuel costs, import duties, GST structure, and domestic mining and power tariffs. “These factors transmit quickly to the Belgaum cluster, often within two to six weeks, while OEM price revisions lag, resulting in temporary margin pressures,” he further said.

Geological factors impacting local availability, key input costs

Except for the major raw materials, alloys and consumables are procured locally. Depending upon the origin of the material, the cost varies due to factors like distance, demand and availability.

“The Belgaum region has no local iron-ore or alloy mineral deposits, making the cluster fully dependent on inter-state sourcing. Limited regional scrap generation increases reliance on external and imported scrap markets,” observed Mr Humbarwadi. Environmental sensitivities and groundwater constraints in mining regions indirectly affect the availability and cost of raw materials supplied to the cluster.

Geopolitical influences

Recent influences include China-led supply controls on alloys, shipping disruptions due to geopolitical conflicts, port congestion, anti-dumping measures, and emerging carbon-related mechanisms such as CBAM in export markets. Export-oriented ductile iron foundries and high-precision component manufacturers within the cluster are the most exposed to these developments.

Domestic market dynamics versus export demand

Domestic demand anchors volume; exports anchor quality and pricing discipline. Clusters closer to OEMs behave like manufacturing extensions of customers. Clusters tied to infra and government behave like commodity processors, with raw

materials as the main margin lever.

Export exposure acts as a buffer against seasonal demand volatility but increases sensitivity to forex, geopolitics, and regulations.

Domestic OEM demand from automotive, tractors, infrastructure, and construction equipment sectors drives bulk raw-material purchases and short-term planning, often influenced by seasonal cycles. Export demand requires longer planning horizons, stricter quality standards, and more stable sourcing strategies, pushing foundries toward consistency and traceability rather than spot buying.

Raw material pricing scenario

Raw-material pricing is highly volatile, particularly for scrap and ferro alloys. Formal financial hedging is limited; most foundries rely on inventory buffering, short-term contracts, and frequent price reviews. Scrap is largely procured on a spot or short-cycle basis, while pig iron and alloys are typically sourced through monthly or quarterly contracts.

Outlook on the Belgaum cluster

Rounding off, Mr Humbarwadi said: “We are hopeful that by utilizing facilities provided by BFC, we will march ahead to improve castings' quality, enhance productivity and grow in exports, in order to make the Belgaum foundry industry world-class and internationally competitive.”



Sourcing: Foundries primarily source ferrous scrap, pig iron, alloys and other inputs such as coke and refractories. Many of these continue to be vulnerable to supply chain disruptions, geopolitical tensions, and export/import policy changes. Sourcing is expected to become more structured and diversified, with higher reliance on imported scrap and digital supplier qualification.

Demand: Focus on India being China + 1, demand will increase. Demand is likely to grow at a moderate but steady pace, with increased emphasis on ductile iron and value-added castings.

Pricing: Pricing will always remain a challenge amid global continued volatility. Pricing volatility is expected to remain structural.

Challenge mitigation: Can be achieved through automation, digital procurement, environmental compliance, and workforce up-skilling. Mitigation efforts will focus on yield improvement, recycling, alloy optimisation, AI-driven process control, and stronger ESG-aligned procurement practices.



