

STEEL : SHAPING THE FUTURE

ISA STEEL CONCLAVE 2022

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CONCLAVE PROCEEDINGS SUMMARY REPORT

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About ISA

Established in August 2014, the Indian Steel Association (ISA) is the voice of the Indian steel industry. Its 17 members – 7 executives (all major steel players of India are executive members of the ISA), 8 affiliates, and 2 associates – together account for 65% of the crude steel production in India. Members include both public sector companies such as the Steel Authority of India (SAIL) and Rashtriya Ispat Nigam Ltd, and private sector heavyweights such as JSW Steel, Tata Steel, Jindal Steel and Power and ArcelorMittal Nippon Steel India.

The ISA interacts closely with the Ministry of Steel and other ministries and government departments. Apart from bringing together the industry bigwigs on a common platform, the association drives growth of the sector through innovation and collective approach. As a not-for-profit society, it has been entrusted with the responsibility of communicating the viewpoints of its constituents to all stakeholders. The ISA is, therefore, at the forefront of all deliberations pertaining to public and regulatory policy, raw materials, international trade, logistics, environmental concerns, technology, and other aspects of steelmaking.

The association is also an affiliate member of the World Steel Association (WSA) and regularly collaborates with the global body for organisation of events and taking part in other key meetings with international partners. The vision of the ISA is to create the best possible environment, both at home and internationally, for production of Indian steel and provide an unflinching commitment to quality, productivity, competitiveness, innovation and sustainability.



Snapshot

The ISA organised the third edition of its annual ISA Steel conclave under the theme, Steel: Shaping the Future, on November 21 and 22, 2022. The Conclave was supported by the Ministry of Steel, Government of India, with the Hon'ble Union Minister of Civil Aviation and Steel, Shri Jyotiraditya M Scindia, as chief guest.

The Conclave drew participation from industry leaders, steel companies, miners, traders, government dignitaries, consultants, research firms, banks and the media. The objective was to understand ways to produce low carbon steel in India and the challenges faced while doing the same. The event came against the backdrop of the recent removal of export duties on steel products as well as iron ore, which was welcomed by the entire iron and steel industry.

The event was attended by over 325 participants and 50+ speakers, including top government officials, prominent industry leaders and stakeholders from the steel, iron ore, coal, construction and infrastructure sectors. The event also saw the participation of the current and designate secretary of the steel ministry, apart from a number of officials from the steel industry; a panelist from WSA; Mr Burkhard Dahmen, chairman of the managing board and CEO, the SMS group; and other senior officials from the steel and associated industry.

The inaugural session was opened by Mr Dilip Oommen, president of the ISA, CEO of ArcelorMittal Nippon Steel India, and executive vice-president of ArcelorMittal. The event took off after a hiatus of two

years because of the pandemic. As the world reeled under the devastating impact of Covid, Mr Oommen highlighted how these two years turned out to be the best period for the iron and steel industry in India. The domestic steel industry became more efficient and learnt how to market indigenous steel products across the globe.

This was followed by addresses from Mr Sajjan Jindal, chairman, the JSW group; Mr TV Narendran, CEO & managing director, Tata Steel Ltd; and Ms Soma Mondal, chairman, SAIL. The keynote address was given by Shri Jyotiraditya M Scindia. He spoke about how the Indian steel industry emerged stronger and more resilient from the pandemic. Shri Scindia said steel is the foundation of any economy, and all developed economies have focused on it as the core driver of industrialisation. He also spoke about how India has become the second-largest producer and consumer of steel.

The inaugural session ended with the launch of the event knowledge paper, 'Pathway to a Low-Carbon Emission Steel', jointly developed by CRISIL Ltd, the knowledge partner for the event, and ISA.

The opening session was followed by 10 enlightening sessions over 2 days that covered growth challenges for the Indian steel industry, sustainability, and emerging technologies; along with sessions on raw materials and logistics. Overwhelming participation and enriching discussions made the event a resounding success.





Dignitaries and key speakers

Chief guest: Shri Jyotiraditya M Scindia, Hon'ble Union Minister, Ministry of Civil Aviation and Steel, Government of India

Guest of honour: Shri Piyush Goyal, Hon'ble Union Minister, Ministry of Commerce and Industry, Ministry of Consumer Affairs, Food and Public Distribution, and Ministry of Textiles, Government of India. Leader of House in Rajya Sabha

Key speakers and panel members

- Mr Dilip Oommen, president, ISA, and CEO, ArcelorMittal Nippon Steel India, and executive vice-president, ArcelorMittal
- Mr Sajjan Jindal, chairman, JSW Group
- Mr T V Narendran, CEO and managing director, Tata Steel Ltd
- Ms Soma Mondal, chairman, SAIL
- Mr Atul Bhatt, chairman and managing director, Rashtriya Ispat Nigam Ltd
- Mr Bimlendra Jha, managing director, Jindal Steel & Power
- Mr Abhyuday Jindal, managing director, Jindal Stainless Ltd
- Mr Alok Sahay, secretary-general & executive head, ISA
- Ms Hetal Gandhi, director, CRISIL Research
- Shri Nagendra Nath Sinha, secretary, Ministry of Rural Development, Government of India
- Mr Sanjay Kumar Singh, secretary, Ministry of Steel
- Dr Sanjeev Ranjan, secretary, Ministry of Ports, Shipping and Waterways
- Smt Rasika Chaube, financial advisor (defence service), Ministry of Defence, Government of India
- Smt Ruchika Chaudhry Govil, additional secretary, Ministry of Steel, Government of India
- Shri M Nagaraju, additional secretary, Ministry of Coal
- Dr Srikar K Reddy, joint secretary, Ministry of Commerce and Industry, Government of India
- Mr Abhijeet Narender, joint secretary, Ministry of Commerce & Industry
- Shri S P Singh, joint secretary (IAHE & Logistics), Ministry of Road Transport and Highways
- Shri Tapan Majumdar, additional DGFT, Ministry of Commerce and Industry, Government of India
- Dr Ashok Kumar, deputy director general, Bureau of Energy Efficiency

- Mr Jayant Acharya, deputy managing director, JSW Steel Ltd
- Mr Chanakya Chaudhary, vice-president, corporate services, Tata Steel Ltd
- Mr VS Chakravarthy, director (commercial), SAIL
- Mr Sanjiv Paul, vice-president, safety, health & sustainability, Tata Steel Ltd
- Mr Amarendu Prakash, director-in-charge (Bokaro steel plant), SAIL
- Mr Hrishikesh Kamat, chief procurement officer, ArcelorMittal Nippon Steel India
- Mr Prabodha Acharya, chief sustainability officer, JSW Group, JSW Steel Ltd
- Mr P K Murugan, head (Vijay Nagar plant), JSW Steel Ltd
- Mr Andrew Purvis, director – sustainable manufacturing, WSA
- Mr Rajeev Singhal, vice-president, steel marketing & sales, Tata Steel Ltd
- Mr Ranjan Dhar, chief marketing officer, AMNS India
- Mr S Seetharaman, partner, Sarvada Legal
- Mr Ashish Gupta, chief executive officer, ESL Steel Ltd
- Mr Paramjeet Singh, additional advisor (technical division), Ministry of Steel
- Mr Pankaj Saxena, director (PP), Dedicated Freight Corridor Corporation of India Ltd (DFCCIL)
- Shri Surya Prakash Karri, Head- engineering research & development centre, L&T Construction
- Mr Anil Jauhri, former CEO, National Accreditation Board for Certification Bodies
- Dr Mukesh Kumar, senior adviser, JSP Advisory Group
- Dr Bhaskar Chatterjee, CEO, Anil Agarwal Foundation
- Mr Manoranjan Ram, vice-president and head, sales & marketing, Danieli India
- Mr Arun Kumar Agrawal, director (technical), MECON Ltd
- Mr Sridhar Krishnamoorthy, managing director, Arjas Steel Pvt Ltd
- Mr Haitham Al Omairi, commercial manager, SOHAR Port & Freezone
- Dr G V Sarath Kumar, lead - materials, Ashok Leyland
- Ms Nishtha Mukherjee, general manager, iron ore and steel vertical, SteelMint
- Mr Dhruv Gupta, partner, Lumiere Law Partners
- Mr Ashutosh Satapathy, practice expert, McKinsey & Company
- Mr Nadeem Ahmed, associate partner, McKinsey & Company
- Mr Brajesh Chhibber, partner, McKinsey & Company
- Mr Madhur Bansal, partner, McKinsey & Company
- Mr Rajat Gupta, senior partner, McKinsey & Company

Inaugural session

Welcome address: Mr Dilip Oommen, president, ISA, and CEO, ArcelorMittal Nippon Steel India, and executive vice-president, ArcelorMittal

Chief guest: Shri Jyotiraditya M Scindia, Hon'ble Union Minister, Ministry of Civil Aviation and Steel, Government of India

Key speakers

- Mr Sajjan Jindal, chairman, JSW Group
- Mr T V Narendran, CEO and managing director, Tata Steel Ltd
- Ms Soma Mondal, chairman, SAIL
- Mr Atul Bhatt, chairman and managing director, Rashtriya Ispat Nigam Ltd
- Mr Abhyuday Jindal, managing director, Jindal Stainless Ltd
- Ms Hetal Gandhi, director, CRISIL Research
- Mr Alok Sahay, secretary-general & executive head, ISA

Lighting of the lamp by Shri Jyotiraditya M Scindia



Session highlights

The leaders of the steel industry, along with Shri Jyotiraditya M Scindia, highlighted the challenges that the domestic steel industry faced during the pandemic years, and also due to the recent volatility in the global markets. The session also underlined how the industry emerged stronger during Covid through innovation, exploring and building of ties in the international market, and focusing on the domestic market.

The importance of the steel industry cannot be emphasized enough: steel is the backbone of development for all major economies, including Europe, the USA, Japan and Korea. It will remain so for the next few decades, and how India navigates through these evolving times will determine its growth trajectory over the next quarter century.

The marquee event took place amid a slew of positive developments, including the elimination of export duties and the passing of the free trade agreement (FTA) by the Parliament of Australia. On behalf of the entire iron and steel industry, the ISA thanked the Government of India, the Ministry of Finance, as well as the Ministry of Steel for the historic decision.

India's calculated approach towards controlling inflation in the face of global supply chain disruption has reshaped global dynamics, with India emerging as the world's growth engine. The domestic steel industry has been one of the drivers, becoming a global supply chain partner for various auto, solar panel and capital goods manufacturers across the world. The Indian steel industry should continue its focus on the 'Make in India for the World' mantra.

While exports remain crucial, the domestic market will remain the key focus area for all steel producers. India is set to witness its second consecutive year of growth in steel demand surpassing GDP growth, driven by continued focus on infrastructure development. India is largely a consumption-led economy, unlike several developed nations that are investment-led. This is about to change and would alter steel consumption

patterns in the future, with steel demand leading GDP growth rates. To ensure the dominance of Indian steel in the world markets, ISA, in its dialogues with the Ministry of Commerce, highlighted the need to have the initiative, 'melt and pour', included in the rules of origin stipulation in India's FTA agreements with the UAE and Australia. The same would likely be included in expected FTA agreements with the EU, the UK, and Canada. The importance of removing trade barriers, such as tariff rate quotas, with the UK and the EU was also emphasized.

The industry, along with the Government, must pledge to put in place a strong policy foundation based on the 3 Cs: commitment, collaboration and confidence. This will lead India into the next era of growth, where it becomes one of the most powerful economies.

The steel industry in India has made rapid progress, thanks to policy reforms that have increased domestic capacity and production as well as per capita consumption by nearly 50% in the last eight years. The Government continues to support the industry through schemes such as Production-linked Incentive (PLI), which will help cut down imports into India. The scheme will not only enhance the Make in India brand but also generate employment for thousands.

The biggest challenge facing the domestic steel industry is the individual and collective responsibility to advance lower emission steel production, which will help India achieve its Net-Zero target. The ISA conclave provided a platform to share ideas on India's pursuit of steel decarbonisation.

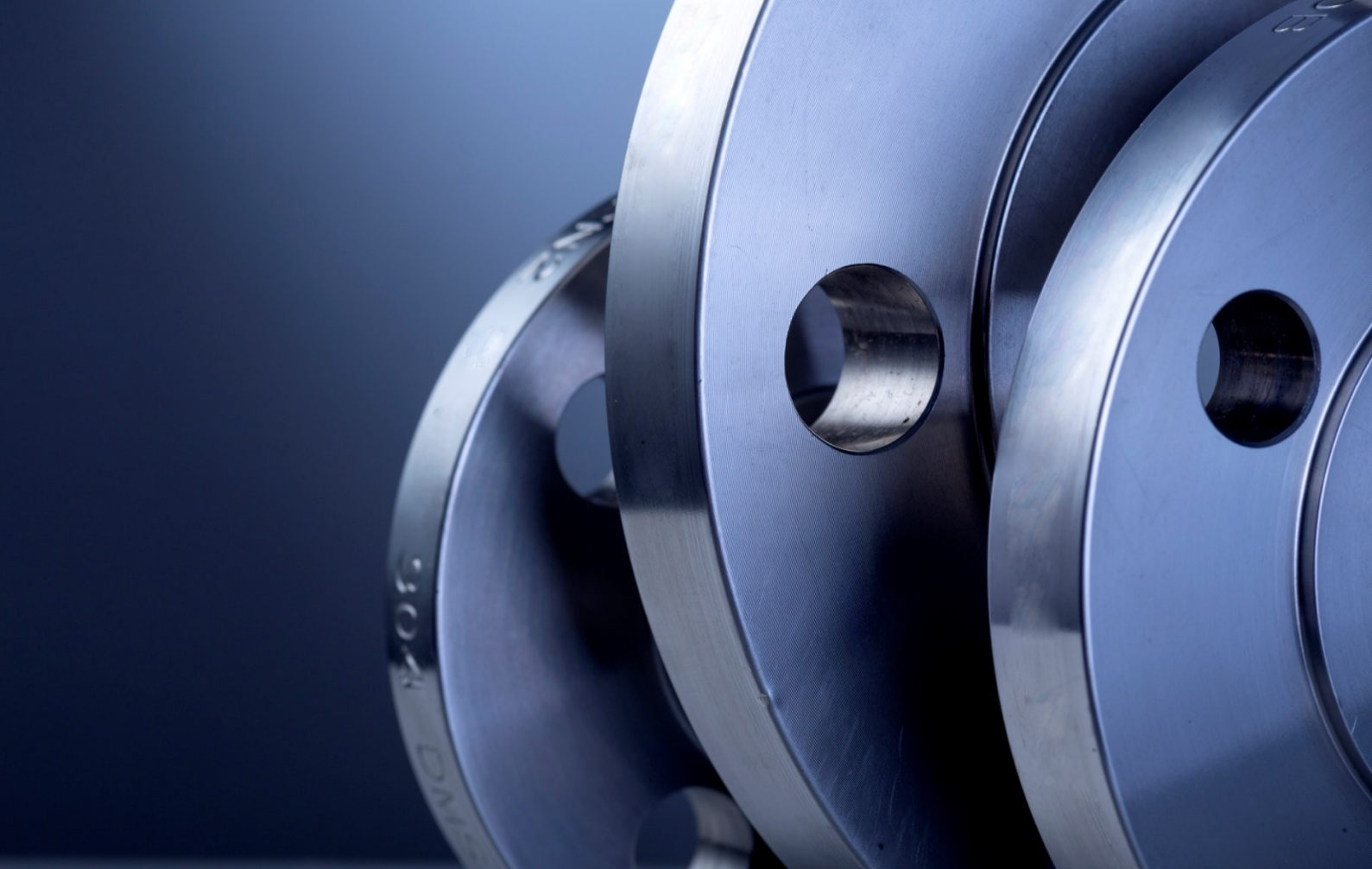
Climate change and sustainability issues will emerge as key areas of importance for the steel industry, to address which focus must be on infrastructure and logistics. Moreover, India must focus on creating alternative technologies (in the Indian context) to produce low-emission steel, which would ensure that cost of production remains low and the entire value chain is not disrupted. The Make in India initiative will also attract foreign companies to invest in research and development in India.

Key takeaways

SI No	Description
1	Growth of the domestic steel industry is critical to the progress of the overall economy. The steel industry remained resilient during the pandemic: India witnessed substantial steel exports, which provided a major boost to the economy.
2	Domestic market will remain the key focus area for the industry in the long run. However, the industry will also continue to concentrate on the export market.
3	Steel players must unite to battle climate change.
4	Sustainability has become the key mantra for all major industries, including steel. The Indian steel diaspora must look at new and emerging technologies while building on its existing capacities to ensure the industry can develop as a global manufacturing hub even when carbon tax is in place.

Release of knowledge paper by chief guest and eminent speakers





International trade competitiveness

The session provided insights into the challenges the industry faces in the export market, and how leading players will navigate these. It helped the audience understand the strategy the players will adopt going forward, along with policy support required to ensure the continued competitiveness of Indian steel in the global markets.

Session chair: Mr S Seetharaman, partner, Sarvada Legal

Panel participants

- Mr Jayant Acharya, Deputy managing director, JSW Steel Ltd
- Smt Ruchika Chaudhry Govil, additional secretary, Ministry of Steel, Government of India
- Dr Srikar K Reddy, joint secretary, Ministry of Commerce and Industry, Government of India
- Shri Tapan Majumdar, additional DGFT, Ministry of Commerce and Industry, Government of India
- Mr Rajeev Singhal, vice-president – steel marketing & sales, Tata Steel Ltd

Eminent speakers deliberating on the trade competitiveness of India



Session highlights

The session began with the challenges that India faces in the global market. Indian steel mills have often highlighted the need for a competitive playing field in the international market. Furthermore, India is already facing several difficulties on the trade front, such as structural cost disadvantage in the form of substantial logistics and finance costs and higher duties, which add around \$100 to the total cost. Moreover, with Europe set to introduce a carbon border tax soon, Indian steel mills will lose whatever little cost advantage they have. The industry expects support from the Government in the form of policy measures to reduce costs to ensure the continued competitiveness of the steel industry globally.

Another difficulty arises with the key raw material, iron ore. Although India has abundant iron ore, a large part of it is low grade. Its geographical spread also presents a challenge in terms of the cost incurred to beneficiate low grade ores or transport high grade ores to different parts of the country.

Globally, the steel industry is in surplus, with capacity of over 2.4 billion tonne (BT) per annum compared with production of around 1.9 BT. Furthermore, most of the

steel surplus nations (China, Japan, and Korea) are in the vicinity of India, which makes it a natural choice for them to export surplus given robust demand in India.

Steel producers are also rallying with the Indian Government for the implementation of effective trade measures. Countries such as Japan and Korea have kept non-trade barriers in place to restrict imports of steel, whereas majority of India's import volume comes from them. Sound measures will ensure trade with these economies benefits both sides.

While the Indian steel industry is well-equipped to cater to domestic demand given its plentiful iron ore reserves, young manpower and strong local markets, it should use these advantages to ensure steady exports. Exports become more important as capacities are added in blocks and demand growth is gradual; exports ensure healthy utilisation levels.

The fact that Indian steel producers supply to Japanese and Korean automakers in India validates the quality of steel produced here. This encourages domestic steel makers to export their products.

To ensure a continued rise in domestic production and curtail imports, the Government of India introduced the PLI scheme that was revamped multiple times to

accommodate several grades. The Government has also taken steps to assure other economies that India is adding steel capacities to cater to domestic demand and not flood the global markets.

The Government believes because domestic capacity is expected to reach 300 million tonne per annum (MTPA) by 2030, exports will increase from the current

10-15% to 20-25%. New FTAs that are being signed will ensure this as they are quite comprehensive and would benefit India significantly in the long run.

The session concluded with highlights of how the Government is stepping up to eliminate the challenges faced by the steel industry.

Key takeaways

SI No	Description
1	Despite developing world-class products, Indian steel mills face many challenges in the domestic and global markets.
2	One of the key challenges in the domestic market is the higher cost structure for steel producers that arises from substantial logistics and finance costs and higher duty structure.
3	Globally, India faces non-trade barriers from economies such as South Korea and Japan. Continued dialogue with the governments of these countries can bring about a solution.
4	While new capacities are being added to cater to the rising domestic demand, exports will remain a key focus area in the longer run. Exports are likely to increase from the current 10-15% to over 20% by fiscal 2023.

Mr Jayant Acharya, deputy managing director, JSW Steel Ltd





Growth and challenges in the Indian steel sector

The panel discussion highlighted the present and upcoming challenges of the Indian steel industry and the steps that are being taken by steel producers to counter these. It also focused on the outlook on steel demand growth from the medium- and long-term perspectives. The industry stalwarts and members of the ministry deliberated on the steps needed to ensure steady demand growth in the long run and how decarbonisation can be tackled without compromising growth.

Session chair: Mr Sanjay Kumar Singh, secretary, Ministry of Steel

Moderator: Mr Rajat Gupta, senior partner, McKinsey & Company

Panel participants

- Mr Jayant Acharya, deputy managing director, JSW Steel Ltd
- Mr Bimlendra Jha, managing director, Jindal Steel & Power
- Mr Ranjan Dhar, chief marketing officer, AMNS India
- Mr Chanakya Chaudhary, vice-president, corporate services, Tata Steel Ltd

- Mr V S Chakravarthy, director commercial, SAIL

Session highlights

India has come a long way in the past 75 years. The next 25 years of growth on the back of the steel industry will shape its future. The steel sector can contribute immensely as India becomes a developed nation.

Over 60% of domestic steel demand comes from the construction and infrastructure segments. Despite rapid growth in recent years, per capita consumption in India is still below 80. In the medium- and long-term, India has to increase its per capita consumption twofold and fourfold, respectively. This will be driven by rapid infrastructure development.

The country has seen many new applications for new grades of steel, especially in the automotive and renewable energy spaces that have huge potential. Steel producers are looking at policies affecting the steel industry as well as downstream opportunities to produce and market their products.

As steel players continue to add capacity to support demand, another parameter to keep in mind is India's target to achieve Net-Zero target by 2070. The key challenge in this arises from the smaller and mid-sized



steel producers who account for close to 40% of the overall steel produced in the country. To achieve system-wide decarbonisation, the industry must work

closely not only with one another but also with academic institutions around the world.



Decarbonisation is a theme that is likely to play across sectors, of which the most vulnerable will be cement, which is much more difficult to mitigate than steel. Because of the inherent properties of the material as well as the process of manufacturing it, cement will continue to emit large amounts of carbon dioxide. As countries take up the decarbonisation cause, cement will fall out of favour as a material of choice for building and construction. Steel, being more versatile in nature, will emerge as an alternative and open up new avenues for demand.

While decarbonisation poses challenges in the long run, the main short-term issue is raw material crunch. India is yet to generate enough scrap to meet the demands of the steel industry. With steady capacity additions, imports will continue to fulfil the demand for scrap. Rapid decarbonisation will further limit the availability of scrap in the global markets, thus impacting domestic steel producers. Similarly, lower investment in coking coal mining is expected to limit the availability of coking coal in the longer run, posing a challenge for domestic steel producers who import over 90% of their requirements. While the coking coal mission will alleviate some concerns, high dependence on seaborne coking coal is here to stay.

Another significant challenge will be in the field of technology, which is growing exponentially. The industry cannot predict which new technology will replace the current one five years from now. Hence, the industry must assimilate technology within the system to reap its dividends. Technological development will not only help produce green steel in a shorter time but also introduce new demand avenues, especially in the building and construction space.

The panel equivocally stated that while the demand momentum will continue over the medium term, a plethora of challenges will continue to plague the sector. Of the many issues, decarbonisation will be the toughest to tackle. Only through policy support and collaboration between producers and end users can decarbonisation be achieved, which will help the country accomplish its Net-Zero target by 2070.

Key takeaways

SI No	Description
1	Steel demand from India will continue to grow at a healthy pace given low current steel intensity at ~78 kg compared with the global average.
2	India has a young fleet of BF-BOF (blast furnace/blast oxygen furnace) plants, and the new capacity announcements of 50-60 MT for this decade are through the BF-BOF route. The typical life of a BF-BOF plant is 30-40 years, which can be extended to 60-70 years with relining. Hence, the BF-BOF mode will be difficult to phase out.
3	In the near term, there is an option to abate 20-25% of CO ₂ through energy efficiency and process management. Integrated players will aim to lower coke rate to reduce emissions, which will lower demand for coking coal.
4	Hydrogen technology development, logistics of raw material transportation, reliance on global equipment suppliers are some of the challenges currently being faced by the domestic steel industry in its greenification journey.
5	While scrap availability is a global problem, there are several India-specific challenges to it. 1. Limited standard way to collect and process scrap inside the country 2. Scrap materials are difficult to transport and will require innovative ways to move and aggregate
6	De-integrated steel making at a global level can be done by transporting iron ore to countries rich in natural gas or hydrogen, as against the common practice of setting up steel plants near iron ore and coal mines.
7	Key solutions/ideas: 1. For all upcoming investments in capacity building, economic sense must be exercised considering climate change, and factors such as carbon pricing must be incorporated 2. Technology development across the spectrum, especially in hydrogen and CCUS (carbon capture, utilisation and storage), along with improving existing facilities of furnaces and beneficiation plants are essential to reducing emissions 3. PLI for various manufacturing equipment would not only boost domestic manufacturing but also aid development of indigenous technologies



Sustainability in steelmaking

Though the industry has taken the necessary measures towards sustainable steelmaking, it needs to be more aggressive in its approach and have government backing to achieve these steps. The session discussed the need to establish standards for the classification of low carbon emission steel. The panel deliberated on the technology enhancements required to meet the standards, need for policy intervention and challenges in achieving the mentioned targets.

Session chair: Ms Ruchika Chaudhry Govil, additional secretary, Ministry of Steel, Government of India

Session co-chair: Dr Ashok Kumar, deputy director general, Bureau of Energy Efficiency

Senior moderator: Mr Kunwar Singh, partner, McKinsey & Company

Panel participants

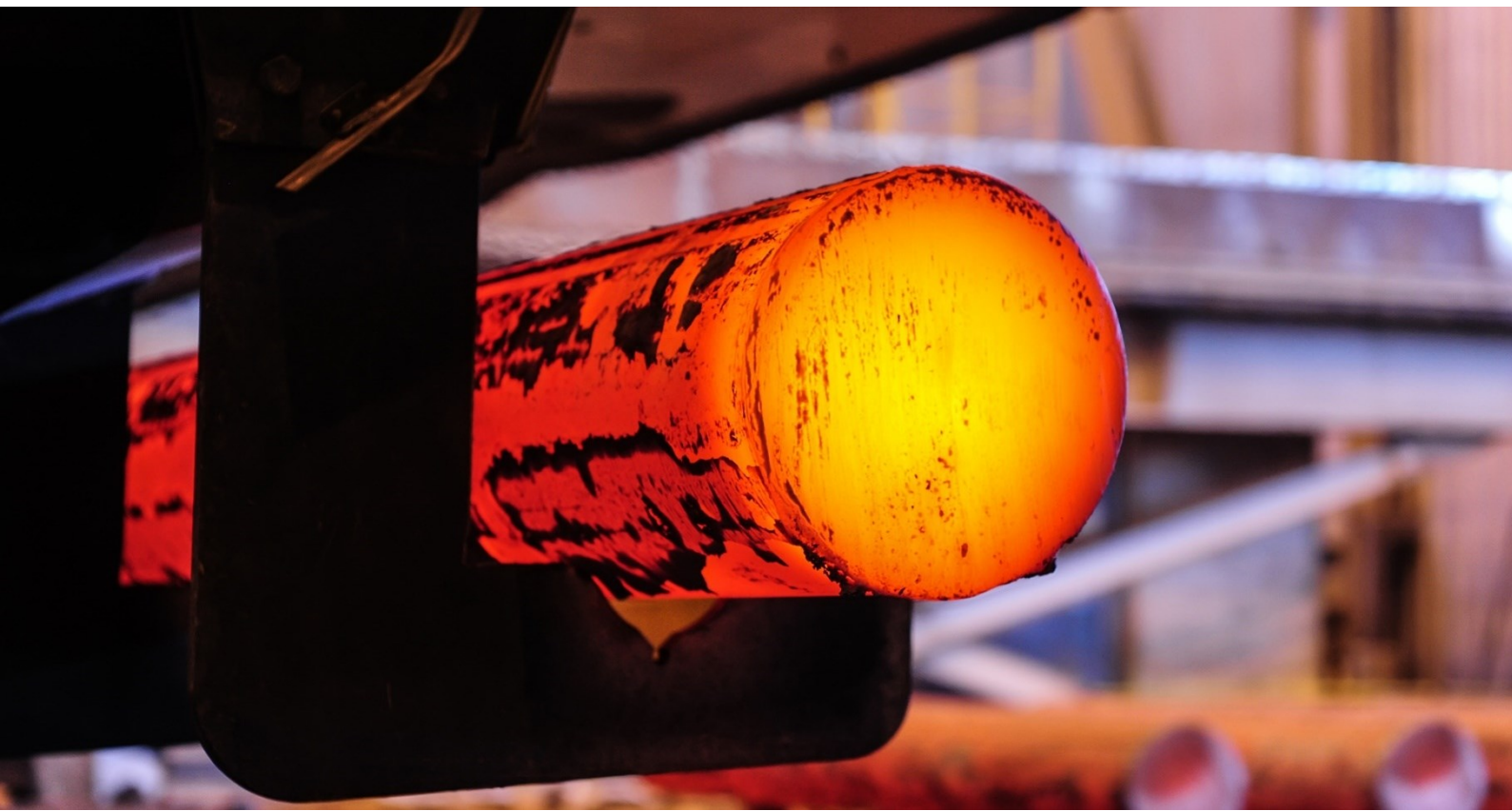
Mr Andrew Purvis, director – sustainable manufacturing, WSA

Mr Sanjiv Paul, vice-president, safety, health and sustainability, Tata Steel Ltd

Mr Prabodha Acharya, chief sustainability officer, JSW Group, JSW Steel Ltd

Mr S Seetharaman, partner, Sarvada Legal

Mr Rajat Gupta, senior partner, McKinsey & Company



Session highlights

The commitment made by the Government during COP26 will pave the way for all major industries in India, including steel. The current geopolitical shift and energy crisis in parts of the world have made the need for transition to green steel even more pertinent. Most forums these days discuss green steel rather than only steel—this is a much-needed step that reflects the changing mindset of the stakeholders.

The journey forward for steel is not an easy one. While absolute emissions for the industry will rise over the medium term, the emission intensity will have to be reduced. The steel industry has to look at all avenues, especially in the carbon capture and storage (CCS) and carbon capture and utilisation (CCU) spaces, to ensure the targets are met.

India as well as international forums will have to prioritise having a taxonomy for green steel. Steel production takes place through various routes, and the first thing to be determined is the setting of scope to arrive at the intensity of carbon emissions. Another issue confronting the industry is the wide range of production processes available and the varying carbon intensity associated with them. Understanding the challenges associated with each process and the maximum possible carbon intensity reduction based on the available technology are pertinent before a taxonomy is set for the industry.



The steel industry in India is set to grow at a healthy pace until 2070; this would result in the industry becoming 7-8 times larger than present levels, which means 80-90% of the sector is yet to be set up. Over the next two decades, the industry is set to quadruple. The young fleet of BF-BOF in the country and more set to be added will pose major challenges over the medium term. Since the maximum abatement of carbon emissions based on current technology in the BF-BOF route is only 25%, India will have to look at other available technologies, such as scrap-electric arc

furnace (EAF) and hydrogen-direct reduced iron (DRI)-EAF, to reduce emissions.

The approach to decarbonising the steel sector depends on how the technology evolves to bring down the cost of deep decarbonisation within viable limits. Green hydrogen-based DRI, molten oxide electrolysis and CCU/CCS are all well-known technologies in this space. Decarbonising will be driven by enabling a regulatory environment in the form of various policies. The various stakeholders must come together to arrive at an India-specific solution.

As for the solutions available, scrap blending would be the easiest and most cost-effective way of reducing emission intensity. Steel producers must also focus on increasing scrap blending. With global demand expected to witness only moderate growth and scrap availability set to improve marginally in the domestic market, increasing scrap usage should be an area of focus. Furthermore, as highlighted on multiple occasions during the event, coking coal supply will be limited in the longer run, driving prices higher. Thus, increasing scrap usage would not only lead to lower emission intensity but would also bring down the overall cost of production.

To ensure higher cost competitiveness of green steel, other avenues can be explored in the interim. Since production via newer technologies will not be cost

effective, a carbon tax or a carbon market would level the playing field. The EU Emissions Trading System (EU ETS) is a highly successful model of a carbon market or carbon trading that can be replicated in the Indian market to ensure faster transition to low-carbon steel.

Overall, steel players consider decarbonisation of the steel industry to be an opportunity in the near term. Though there is no long-term technological visibility, the players have a good understanding of the current technologies. Efforts to reduce carbon intensity will also make the system efficient, reducing the overall cost of production.

Key takeaways

Sl No	Description
1	While there are challenges to decarbonising the Indian steel industry, there are solutions as well. The easiest short-term solutions would include use of natural gas and biomass. Use of biogas is feasible and can be implemented immediately without major challenges. Augmentation of CCS/CCUS along with steel capacities should be explored over the medium term. Hydrogen-based steelmaking is a viable option for decarbonising the steel industry in the longer run.
2	While a blanket carbon tax in India will hamper exports from the domestic market, the Government can adopt a methodology similar to EU ETS, which can be helpful in the country's decarbonisation as well.
3	Despite continued emphasis on using scrap, there is a global shortage; this will result in dependence on iron ore over the medium term.
4	In the longer run, while a shift to hydrogen-based steelmaking is likely, water availability would be an area of concern
5	Land requirement is another challenge in green hydrogen production as solar panels take up huge space. However, this provides an opportunity for technology to evolve in the renewable space, where more compact solar panels can replace current ones.



Sustainability in steel – consumer perspective

Session chair: Ms Rasika Chaube, financial advisor (defence service), Ministry of Defence, Government of India

Moderator: Mr Madhur Bansal, partner, McKinsey & Company

Panel participants

- Mr Surya Prakash Karri, head – engineering research and development centre, L&T Construction
- Mr Anil Jauhri, former CEO, National Accreditation Board for Certification Bodies
- Dr G V Sarath Kumar, lead - materials, Ashok Leyland
- Mr Brajesh Chhibber, partner, McKinsey & Company



Session highlights

The past sessions highlighted decarbonisation challenges faced by the steel industry. One of the key challenges was increase in cost, which the manufacturers had to pass on to consumers to ensure business continuity. The session intended to understand the views of the end consumers and their support in decarbonising the industry.

While the steel industry is under pressure to reduce emissions, end users shoulder the responsibility of production through greener ways. This can happen

only when the broader material manufacturing sector, such as steel and aluminium, is able to decarbonise. Steel producers are expected to produce steel with particular emission levels to cater to these end users.

The auto sector is making early moves towards decarbonisation. Automakers such as Ford and Mercedes-Benz have pledged to achieve Net-Zero emissions within the next two decades and have partnered with suppliers to use or produce low carbon emission steel. India can follow the example of European automakers who require steel mills to produce greenhouse gas emission certificates.

Globally, over 70% of emissions are from end-user industries (scope 3 emissions), and most international auto manufacturers are setting targets to reduce scope 3 emissions by almost 50%, which will have a bearing on steel producers. There has been a push from various governments, especially the United Kingdom and the Netherlands, to measure scope 3 emissions and encourage increased usage of sustainable materials. Carbon pricing policies, such as carbon ETS markets and the Carbon Border Adjustment Mechanism, are also being implemented by regulators. These factors will drive green steel demand to 200 MT by 2030, which would be 10% of global steel demand.

The Indian Government must look at two sets of regulations to ensure easier transition to low-carbon steel. The first would be a technical regulation based on health, safety and environmental standards, as agreed upon in the WTO TBT (Technical Barriers to Trade) agreements. The second would be voluntary standards, which would be market-driven.

For technical regulations, the Government must look at international standards and practices that are more stringent. This would help domestic exports in the long run and must be sector-agnostic. All key exporting sectors, such as pharmaceuticals, steel and seafood, must be included. For voluntary standards, the National Standard Bodies – BIS (Bureau of Indian Standards) – must develop a strong connection with the industry and establish a standard that buyers or end users can ask for.

Regulatory pressure is required in order to drive sustainability in India, especially among corporations. Because of the lack of technical regulations in India, the authorities must examine the regulations imposed by governments in developed economies. Globally,

customer demand is a key driver of change, and hence a regulatory push is needed from the consumer side as well. Most importantly, the Government should lead the way in implementing change by acquiring more eco-friendly, sustainable materials.

Consumers had their own views on generating demand for green steel. First, steel producers must collaborate with all stakeholders to drive the transition to sustainable steel. Second, steel mills as well as end users must assess and adopt clean technologies without compromising on cost or quality. Third, the environment, social and governance (ESG) requirement to meet shareholder expectations would further drive the greenification agenda. Fourthly, digitisation is a must across sectors as it would lead to significant savings in emissions or energy consumption. Lastly, a supply push is needed for higher acceptance of green steel. Material must be made widely available for end-user consumption.

The Ministry of Steel is cognisant of these challenges and is working towards a policy document to draw a roadmap for mandating emission reduction for the industry. The main objective is to create a definition of 'green steel' or 'low-carbon emission steel' that would be suitable for the Indian context but have acceptance globally. The Ministry is looking at both supply-side changes and demand-side drivers to ensure the offtake of green steel is not hampered. Supply-side challenges include plant size, the types of production technology used (BF-BOF, coal-DRI, NG-DRI), geographic mix and scrap shortage. On the demand side, the public procurement policy is set to drive the transition, and the Ministry of Steel is in touch with other ministries to ensure this is implemented.



Key takeaways

SI No	Description
1	Globally, steel consumers have strong scope 3 targets and are asking for low-carbon steel; for example, auto sector players, including Ford, Mercedes and Volvo, are looking for Net-Zero CO ₂ emissions by 2050.
2	Most vehicles going electric will need lightweight high strength steel (1,500 megapascals).
3	The governments of several European countries have mandated green steel procurement in public infrastructure.
4	Indian consumers are highly price sensitive so demand for green steel is likely to take time. Hence, demand pick-up could be a challenge without policy support.
5	Exports for green steel could be the first driver of demand.
6	Customers need to have ESG goals; steel consumers need to educate end users about the importance of decarbonisation.



SA steel conclave
21-22 November, 2022
The LaLiT, New Delhi

Steel recyclability makes it a key material for sustainable development.

The major end-use industries include:

- Construction (35 %)
- Automotive (18 %)
- Mechanical engineering (14 %)
- Metal goods (14 %)

Steel = alloy (Iron, Carbon etc.) ; 2500 types of steel

Two basic methods of steel Production:

1. Primary route: From virgin iron
2. Secondary route: From scrap

As with most materials, the world is going to need to rely mainly on primary sources (iron ore) beyond 2050.

Global steel demand outlook, without taking into account additive manufacturing or behavioural circular economy trends.

Source: Climate Action Report 2 (2021)

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Futuristic technologies in steelmaking

The steel industry has been investing heavily to arrive at the right technology for producing low carbon emission steel or green steel. The session highlighted the key technologies in the market, challenges in their scaling up, cost implications of the new technologies and their relevance in the Indian context.

Session chair: Dr Mukesh Kumar, senior adviser, JSP Advisory Group

Panel participants

- Mr Amarendu Prakash, director-in-charge (Bokaro steel plant), SAIL
- Mr Manoranjan Ram, vice-president and head of sales and marketing, Danieli India
- Mr Paramjeet Singh, additional advisor (technical division), Ministry of Steel





Session highlights

As per the vision of the Ministry of Steel, steel production will increase from around 120 MTPA to 220-240 MT by 2030 and 427 MT by 2047, which will require large-scale capacity additions. Continued capacity additions cannot take place without understanding the implications of climate change. All future capacity additions need to be planned with the green agenda in mind.

The pathway to low-carbon steel in India will have three stages. In the first stage, the industry needs to focus on improving the prevalent technologies, which have the potential to reduce emissions by up to 30% in some cases. This can be achieved by improving the quality of raw material through beneficiation, energy efficiency measures, recovery of all waste heat, process digitisation and adoption of green power.

Over the next two stages, there should be increased focus on scrap blending, which can reduce overall emissions by up to 20%. However, availability of scrap will remain an area of concern on domestic as well as global levels. In the longer run, the advent of breakthrough technologies such as green hydrogen-based DRI, CCUS and molten oxide electrolysis will help reduce emissions.

Technology and policy should be developed as per the Indian context. Across the globe, there is a lot of focus on one type of scrap; however, this will not hold true for all developing economies, with steel demand being way higher than overall scrap generation. Even

globally, overall scrap generation is one-third of total crude steel production, indicating a worldwide shortage. Thus, ironmaking will be essential to the Indian context over the next 2-3 decades until India becomes a circular economy and starts generating enough scrap to meet the demand of the steel industry.

India has an abundance of iron ore, and thus, BF-BOF will continue in the near term. As a result, the emphasis should be on reducing the intensity of emissions in both existing and future blast furnaces. Despite the use of best practises (the best available technology), average carbon dioxide emissions will remain high at 1.7-1.8 tonne of CO₂ per tonne of crude steel (tCO₂/tcs). This presents an opportunity to large integrated steel producers in India, whose average emissions are higher at 2.2–2.5 tCO₂/tcs. Moreover, for all expansion plans, the producers can go ahead with BF-EAF (electric arc furnace), which will help reduce emission intensity.

Steel production has always been an energy-intensive business. Indian steel producers have been taking various steps to reduce energy consumption, as that would augur well for the industry's triple bottom line of planet, people and profit. Reducing energy consumption, moving forward with deep decarbonisation and producing green steel are all aligned with the triple bottom line.

The industry has taken steps to decarbonise over the past decade and will continue to do so. However, there are challenges to the rapid reduction of emission intensity. The steel industry is extremely capital

expenditure (capex)-heavy, and it would be difficult to abandon current facilities for low-emission ones. The only solution for players would be to augment emission reduction tolls at their existing facilities. For newer expansion, the industry should focus on the best available technology to keep emission intensity under check.

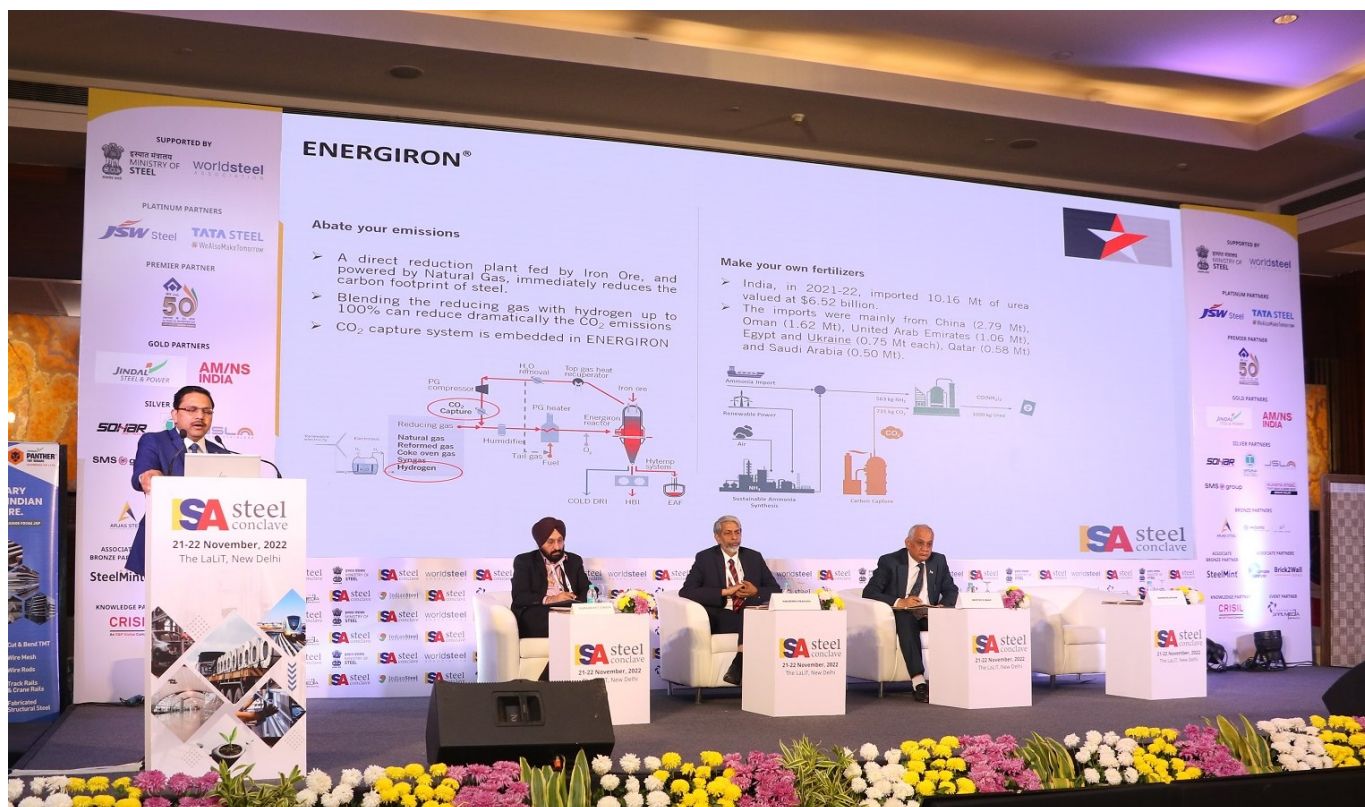
Although the primary players have taken massive strides in emission reduction, the secondary sector, comprised of smaller, unorganised players, has been left behind. Secondary players use coal-based DRI and induction furnaces to produce steel, and accounted for around 30% of the total production in India as of fiscal 2022. In India's journey from 154 MTPA capacity to 300 MTPA by 2030, a part of the capacity addition will come in from secondary players. Unlike primary players, smaller players cannot undertake a large-scale

decarbonisation process, and thus, cluster-level development of secondary steel players would be required.

While there are multiple challenges and risks involved in the identification and adoption of newer technologies, the panel agreed that all steps taken by the industry should have the goal of decarbonisation in mind. For the steel industry to achieve decarbonisation, there needs to be policy support and collaboration among all steel producers as well as tie-ups with academia and research institutes, not only in India but across the globe. Overall, the panel is hopeful the industry will eventually catch up with technology, making decarbonisation easier in the long run.

Key takeaways

Sl No	Description
1	Domestic steel producers would be adding a significant amount of capacity over the next 25 years to reach a production target of ~427 MT by 2047. The current capacities are less than a third of those that would be in place in 2047. Hence, all capacity additions must be done keeping the future in mind.
2	Steel mills should immediately shift their focus to increasing scrap blending, which has the potential to reduce emissions by up to 20% without any incremental capex.
3	As technologies evolve in the longer run, steel mills must be well-placed for early adoption of these technologies, as that would help India achieve its Net-Zero target.
4	The unorganised secondary sector cannot be left behind and must move in tandem with the larger players. Since smaller players cannot undertake large-scale decarbonisation, they need cluster-level solutions.



Enhancing raw material security for the Indian steel sector

Raw material availability and proximity to the plant are of critical importance to all sectors, especially heavy industries such as steel and cement. Availability and quality of raw material determine the success of the steel industry. The panel discussed the challenges concerning raw materials, be it iron ore, coking coal or scrap, and shared its views on the steps needed to ensure raw material security in the longer run.

Session chair: Mr M Nagaraju, additional secretary, Ministry of Coal

Moderator: Mr Ashutosh Satapathy, practice expert, McKinsey & Company

Panel participants

- Dr Mukesh Kumar, senior adviser, JSP Advisory Group
- Mr P K Murugan, head (Vijay Nagar plant), JSW Steel Ltd
- Mr Hrishikesh Kamat, chief procurement officer, ArcelorMittal Nippon Steel India
- Ms Nishtha Mukherjee, general manager, iron ore and steel, SteelMint



Session highlights

India is blessed with rich reserves of iron ore and coal, which have been the pillars of the domestic iron ore and steel industries. While the quantity and quality of iron ore have grown to meet the needs of the domestic industry, the story of coking coal is different. Although India produces over 50 MT of coking coal, the net usable grade after washing is less than 5 MT.

To address the issue of high import dependence on coking coal, the Government came up with the 'coking coal mission' to increase domestic production of coking coal. Furthermore, 10 coking coal blocks with capacity of more than 21 MTPA have been auctioned in the last two years and are expected to begin production by 2026-2027 according to coal ministry estimates. More coking coal blocks are set to be auctioned over the medium term.

Technology is gaining traction in the coking coal space. To ensure higher usability of high-ash domestic coking coal, Coal India Ltd, under the ownership of the Ministry of Coal, is setting up nine coking coal washeries. Most of these washers will be stamp charge, which can use domestic high-ash coking coal. The Ministry also insisted that the steel makers look at the coal gasification route as India has ample thermal coal, and using the coal-gasification technology would reduce dependence on imported coal, which in turn

would help players as well as the Government manage the account deficit.

Despite increased domestic coal availability, metallurgical coal imports of India are expected to exceed 100 MT by 2030 as BF-BOF capacity expands. However, the share of imports will decline from current levels, largely on account of the coking coal mission.

While India has an abundant supply of iron ore, the availability of high-grade ore will be a concern. In the longer run, demand for high-grade DR pellets will outpace the demand for steel. The Government and mining authorities should also focus on increasing the availability of high-grade ore, especially in the eastern states of Chhattisgarh and Odisha.

India has sufficient reserves to meet the expected rise in demand and production. Exploration, however, is needed in the longer run, as ironmaking would continue to be the primary source for steel.

Gradually, the grade of iron ore is reducing from >62% Fe to less than 58% Fe on average. Similarly, the share of lumps is decreasing. Players must invest in the beneficiation and pelletisation/sintering processes to continue using domestic iron ore. Higher investments in research and development are required to understand how lower-grade iron ore can be used to manufacture



DR-grade pellets, which will limit investments in beneficiation plants in the long run.

While the Government as well as steel companies are taking various steps to ensure raw material security, several challenges remain. The National Steel Policy, introduced in 2017, targeted steel capacity of 300 MT by 2030. However, capacity additions have been slow, which will lead to a sharp shortfall by 2030. Thus, the Government needs to come up with an actionable plan to achieve its target.

However, there are several opportunities as well. As highlighted earlier, the coking coal mission will lead to higher supply of domestic coking coal and lower dependence on imports. Along with stamp-charge ovens, players must adopt newer technologies, such as dry beneficiation followed by wet washing, to get higher yield of coal.

Overall, collaborative action backed by strong government policy will ensure raw material security for the industry in the long run.

Key takeaways

SI No	Description
1	BF-BOF will continue to dominate the steel landscape in India, and the dependence is set to increase further amid most of the planned capacity additions. Thus, dependence on coking coal shall continue.
2	There are many challenges with respect to utilising domestic raw materials. Of the coking coal produced in India, less than 10% goes to washeries for usage in the steel industry; the rest is used by the power sector because of the high ash content. Similarly, the quality of iron ore is decreasing, and impurities such as alumina and silica are rising.
3	To reduce the problem of high dependence on imported coking coal, new washeries are set to be commissioned under Coal India Ltd, which will start production from 2024-2025, adding 14-15 MT of coking coal.
4	Similarly, in the iron ore space, investments are required by government entities to beneficiate low-grade iron ore, which is available in abundance in India.



Indian steel industry: global outlook

The session discussed the prospects of the global steel industry and how India can benefit even amid disruptions. The Minister of Commerce also highlighted how the foreign policies put in place by the Government will aid the Indian steel industry in the long term. Furthermore, it was deliberated how India would become a global growth engine over the next two decades.

Guest of honour: Shri Piyush Goyal, Union Minister of Commerce and Industry, Ministry of Consumer Affairs, Food & Public Distribution and Ministry of Textiles, Government of India; Leader of House in Rajya Sabha

Key speakers

- Mr Dilip Oommen, president, ISA, CEO, ArcelorMittal Nippon Steel India, and executive vice-president, ArcelorMittal
- Mr T V Narendran, CEO and managing director, Tata Steel Ltd
- Ms Soma Mondal, chairman, SAIL
- Mr Jayant Acharya, deputy managing director, JSW Steels Ltd
- Mr Bimlendra Jha, managing director, Jindal Steel & Power
- Mr Alok Sahay, secretary-general & executive head, ISA

Session highlights

The Indian Government has been focusing on improving global trade relations to boost exports. To this end, the Australian parliament passed an FTA between Australia and India that will eliminate duties on the import of coking coal (key raw material in the steel manufacturing process) and the export of steel and steel products, thereby easing input cost pressures and opening up new opportunities for Indian players. Additionally, the Government of India plans to remove additional duties imposed by Australia on the export of IT services. The 'melt and pour' provision of the FTA ensures only steel produced in Australia can be imported into India. Also, the FTA between India and the UK, which was delayed due to political instability, is under discussion with various stakeholders and trade participants.

Duty increases on steel and raw material exports to control price inflation, bring price stability, and maintain the momentum of the Indian economy with support from the domestic steel industry had the desired effect; duty has thus been removed. The steel industry also has a significant share in total export earnings. Despite a duty setback in fiscal 2022, removal of duty should boost exports in the fourth quarter of fiscal 2023 and help regain market share. With capex and investments lined up, India may capture the growth potential of the domestic market and achieve its aspirational target under the 2017 National Steel Policy of 300 MT of crude steel capacity by 2030. India has already become the second-largest steel producer (from fourth-largest) in the last few years. Per capita steel consumption of India remains way below the global average and leaves significant headroom for growth.



Coking coal, a raw material with huge carbon footprint, is an obstacle for the industry. Research collaboration between Indian technological institutes and the steel industry to find alternative solutions will help deal with this problem and reduce dependence on other geographies. The Indian steel industry has already started various projects and initiatives to reduce its carbon footprint in the manufacturing process.

Government spending on infrastructure projects has increased rapidly over the years: in the last eight years, expenditure on railways has increased more than sixfold; new airports are being built and their numbers have nearly doubled; inland waterways are being developed and ports have significantly increased capacity with enormous potential for further expansion. Furthermore, the evolution of the automobile market is reflected in changing consumption patterns, technological advancement leading to efficiently functioning vehicles, and EVs and hydrogen coming into the picture. All these factors will keep steel demand robust over the years.

Key takeaways

Sl no	Description
1	Indian industries face various export challenges, especially in the form of non-tariff barriers. The Government is focusing on developing comprehensive trade agreements to limit these problems.
2	The steel industry is highly dependent on imported coking coal. With global coking coal supply likely to become scarce over the years, the industry must use technological interventions to tackle this challenge.
3	India aims to become the largest steel producer in the world (it is currently the second-largest), backed by growing demand and continued capacity additions.





Steel logistics (railways, ports, inland waterways, roads and slurry pipelines)

The panel discussion highlighted the need to bring down logistics cost and provide transportation solutions to support the steel industry. Multiple projects by ministries and government entities are under implementation across various modes to support the growing demand.

Session chair: Dr Sanjeev Ranjan, secretary, Ministry of Ports, Shipping and Waterways

Moderator: Mr Nadeem Ahmed, associate partner, McKinsey & Company

Panel participants

- Mr S P Singh, joint secretary (IAHE & logistics), Ministry of Road, Transport & Highways
- Mr Ashish Gupta, CEO, ESL Steel Ltd
- Mr Pankaj Saxena, director (PP), DFCCIL
- Mr Haitham Al Omairi, commercial manager, SOHAR Port & Freezone

Session highlights

Capacity expansions (both greenfield and brownfield) over the next decade will concentrate on the eastern and southern parts of India. Though consistent demand from the infrastructure sector should keep growth distributed evenly across these regions, this needs to be supported by logistics. India spends 14-16% of GDP on logistics, significantly higher than other geographies (with an average of 11% for BRICS nations). The current modal mix of 60-70% road and 30-40% rail may change with new waterways and slurry pipelines coming up.

The Government has launched various policies, such as the PM Gati Sakti National Master Plan, Dedicated Freight Corridors, and National Logistics Policy to address last-mile connectivity, multi-modal transportation-related hurdles, and improve efficiency through digitisation. It plans to build 35 multi-modal logistics parks (MMLP), a subset of the Bharatmala project, to include a variety of value-added services. These MMLPs would be connected to national highways and waterways and provide necessary transportation infrastructure for the steel industry.



Waterways are a more logical solution to reduce carbon footprints than rail and road, which currently dominate. Although key ports have added 663 MTPA of capacity over the last five years, the major steel mills are not located near the ports. Hence, inland waterways are being developed for efficient movement of goods. The ongoing Jal Marg Vikas project, which aims to provide a cheap and minimal carbon footprint fairway between Varanasi and Haldia (covering Uttar Pradesh, Bihar, Jharkhand and West Bengal), could significantly help steel players concentrated in eastern India. Terminals under the project have been developed at Haldia, Sahabganj and Varanasi. This

project should provide cheaper and easier access to the eastern domestic market as well as the Haldia Port for the import and export of raw materials and finished goods.

The optimal use of a steel manufacturing facility is to utilise the maximum amount of its available space to produce steel. Thus, logistics providers can act as an extension of steel units by lending their infrastructural storage capacity at different legs of the supply chain. This will help India achieve its aspirational target of 250 MT of crude steel production, while also debottlenecking some storage constraints.

Key takeaways

Sl no	Description
1	Steel players and the Government should focus on developing a multi-modal mix along with a distribution hub for transport of steel and raw materials as it would significantly save cost
2	Government-backed infrastructure projects, especially towards road and rail connectivity, will make the supply chain thrive and tackle the supply-demand concentration
3	Dependency on road transport (which is 60-70%) is set to decrease amid rail network enhancements, additional rakes, and faster speed of cargo trains.
4	With the advent of digital sales and operations planning, supply chain and logistics control towers, and transport management systems, steel manufacturers are increasing transparency, improving service levels and reducing costs.
5	India is endowed with a long coastline, which has several public and private ports meeting the surging demand from the steel Industry. While steel players do not need to focus on captive ports, it could benefit in terms of lower inbound cost.



Aatmanirbharta in steel

The discussion highlighted the raw material and market-related challenges India faces to become *aatmanirbhar*, most importantly for speciality steel. The panel also enunciated the need to not just expand capacity but also import technology, and support the expansion and indigenisation of capital goods procurement for installation of these capacities.

Session chair: Dr Bhaskar Chatterjee, CEO, Anil Agarwal Foundation, and former secretary-general, ISA

Session co-chair: Mr Abhijeet Narender, joint secretary, Ministry of Commerce & Industry

Session co-chair: Mr Amarendu Prakash, director-in-charge (Bokaro steel plant), SAIL

Panel participants

- Mr Arun Kumar Agrawal, director (technical), MECON Ltd
- Mr Sridhar Krishnamoorthy, managing director, Arjas Steel Pvt Ltd
- Mr Dhruv Gupta, partner, Lumiere Law Partners

Session highlights

Growth in the Indian economy necessitates parallel growth across multiple sectors. One of the pillars of self-reliance, as outlined by the prime minister, is infrastructure. To achieve this goal, it is imperative that a similar idea of self-reliance resonates in allied industries, one of which is steel.

The three mantras of *aatmanirbharta* are value addition, local for global, and 'Make in India for the World'. For the steel sector, self-reliance would mean raw material security, domestic production of various speciality steels, design and manufacturing of critical equipment, technology, and innovation management. Speciality steel, which accounts for about 18% of total production, is one such category that necessitates extra effort. A PLI scheme launched to cater to the speciality steel space would increase capacity to around 42 MTPA in different segments from the current 17-18 MTPA.

From production point of view, steel has its own challenges. We still rely on few technologies from the west. The dream of 300 MT of installed capacity would need about 150 MT of capacity addition. It is estimated that \$18-20 billion of equipment would be imported for this, besides sourcing \$400-500 million of spares. As steel plants with modern technologies can be installed by a select few vendors, the focus should also be on importing these technologies and indigenising the capital goods procurement for the installation of these capacities.

Furthermore, raw material security for doubling capacity needs increased focus. India has about 33 BT of iron ore resources. However, only 5 BT is classified as reserves. Additionally, most of the magnetite deposits are located within the eco-fragile zones of the Western Ghats, rendering conventional exploration methods unviable. Also, clarity on raw material procurement and clearance from the statutory bodies are the need of the hour. With the launch of the Parivesh portal, the Indian Government has already taken a step in this direction.

More than 85% of the coking coal requirement is fulfilled via imports. The current capacity addition plans would increase our dependence on other regions as Indian coking coal reserves are not suitable for the steel manufacturing process due to their high ash content. Bringing the ash content to acceptable levels leads to substantially high yield loss. Coking coal price volatility in the global market also increases margin pressure on steel mills. Coke dependency can partially be reduced by improving PCI (pulverised coal injection) blast temperature, agglomerated burden percentage, top pressure, and auxiliary fuel injection. Apart from coke, India also imports steel scrap. Finished steel production via scrap would reduce the carbon footprint and bring India closer to the global average CO₂ emission per tonne of finished steel.

India needs to protect the domestic steel industry from the dumping of cheap imports. Currently, the country has FTAs with 15 countries, with a few more under discussion. Except for China, basic customs duty is almost negligible for a majority of the exporting

countries, denying any protection to the domestic industry. India needs trade remedy measures to ensure protection if imports start troubling the domestic industry. The Government of India removed all trade remedies in 2021-2022 to protect steel consumers from price inflation. However, the same is not the case for Indian exports in many geographies, such as the US,

the UK, and the EU, where they suffer from import-related tariffs. Due to its initial stage, speciality steel would need continued support and protection from cheap imports from Korea, Japan and China. While the PLI scheme does provide some relief, it may not be sufficient.

Key takeaways

SI no	Description
1	The Indian steel industry will benefit from the v scheme, with capacity in the specialty steel grade set to double over the next three years. This would not only reduce imports but boost exports.
2	Steel capacity is set to double over the next eight years as per the National Steel Policy. Presently, most of the equipment is imported, which not only leads to a higher import bill but also limits domestic production.
3	Importing manufacturing technologies and producing all large equipment (catering to the steel industry) in-house will boost demand for steel in India.



Valedictory session

The session summarised all the issues highlighted during the two-day conclave. It also covered the global supply chain dynamics and its impact on the Indian steel industry.

Closing remarks by:

- **Ms Hetal Gandhi**, director, CRISIL Research
- **Ms Soma Mondal**, chairman, SAIL

Address by:

- **Mr Nagendra Nath Sinha**, secretary, rural development, Government of India

Vote of thanks by:

- **Mr Alok Sahay**, secretary-general & executive head, ISA



Session highlights

Implementation and removal of export duty for steel and its raw material is a good indicator of proactive involvement of the Government of India to support the domestic steel industry. To further strengthen the presence of India globally, the Government needs to focus on charting the path to decarbonisation of the steel industry, in consultation with all the stakeholders.

The sessions discussed the current state of decarbonisation and the journey that India is experiencing, investing in technologies that provide an optimal balance between decarbonisation and the goal of 300 MT crude steel capacity; along with the challenges that the sector is facing.

The economy and the steel industry are on a growth trajectory, with India becoming the second-largest producer of steel. From being a net importer of steel, India has become a net exporter in the last few years. However, the journey to *aatmanirbharta* is long. The sessions also discussed the imperative steps needed to achieve *aatmanirbharta*.

India would continue to depend on the ironmaking process to produce crude steel. While emissions will continue, efforts to reduce it and improve the current processes would shape the future of the domestic steel industry. Therefore, the answer to decarbonisation would not be one, but many.

As there is no definitive answer, even at the global level, collaboration of steel mills and research institutions could result in better solutions than those currently available. Along with developing efficient technologies, India should also focus on creating carbon trading markets and methods beyond reducing emissions for decarbonisation, such as CCUS.

Global supply chain dynamics, raw material value chain, logistics and the various issues faced by the industry were discussed. Iron ore and coking coal are among the most crucial raw materials. Iron ore availability is not a hurdle for India. However, while evaluating ore quality we should also focus on the impurities present, apart from the Fe content, to ensure availability and consistent use of right mix. Coking coal remains a key area of concern as India imports more than 90% of its requirement, and short-term supply chain disruptions will continue to keep coking coal prices volatile. The Government has initiated steps to ensure availability of coking coal, such as auctioning of 11 mines that can supply coking coal and FTA with Australia. From a raw material point of view, investment in the Australian market to ensure coking coal availability and investment in the right technology for usage of domestic coking coal will remain key monitorables for the steel sector.

The session ended with Mr Alok Sahay thanking all the honourable ministers and participants from ministries and stakeholders from different parts of the value chain.



Notes

About Indian Steel Association

The Indian Steel Association (ISA) is the voice of India's robust and growing steel industry. ISA came to life to create a conducive environment for steel production in the country and has since worked towards representing the interests of the Indian steel ecosystem both nationally and at international forums. As a not-for-profit society, ISA proudly shoulders the responsibility of communicating the views of its constituents to all stakeholders in the steel production supply chain. It remains at the forefront of all policy deliberations and contributes to decision-making in public and regulatory policy, raw material sourcing, global trade, technology, environmental concerns, and the entire gamut of issues related to steel making, steel consumption and steel usage.

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