



AIIFA

INDUCTION FURNACE NEWSLETTER

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सत्यमेव जयते
Ministry of Steel
Government of India



All India Induction
Furnaces Association

Post Event Report 2022



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28th April, 2022

at

Hotel Shangri-La Eros, New Delhi

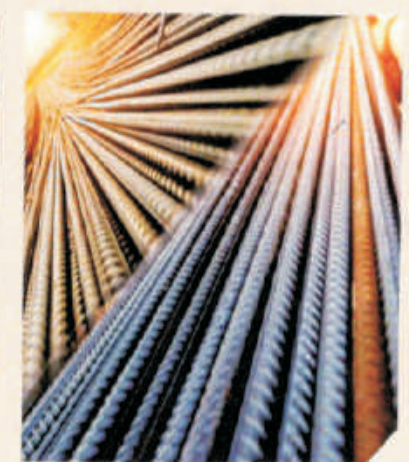
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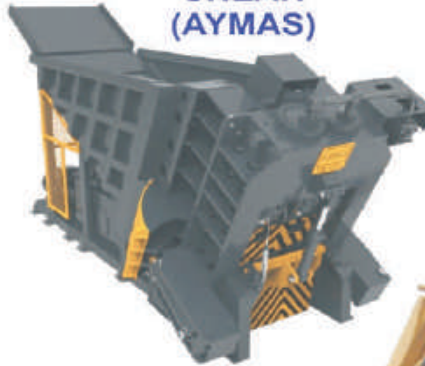


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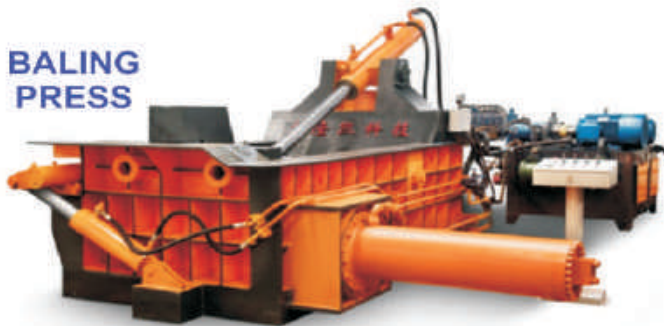


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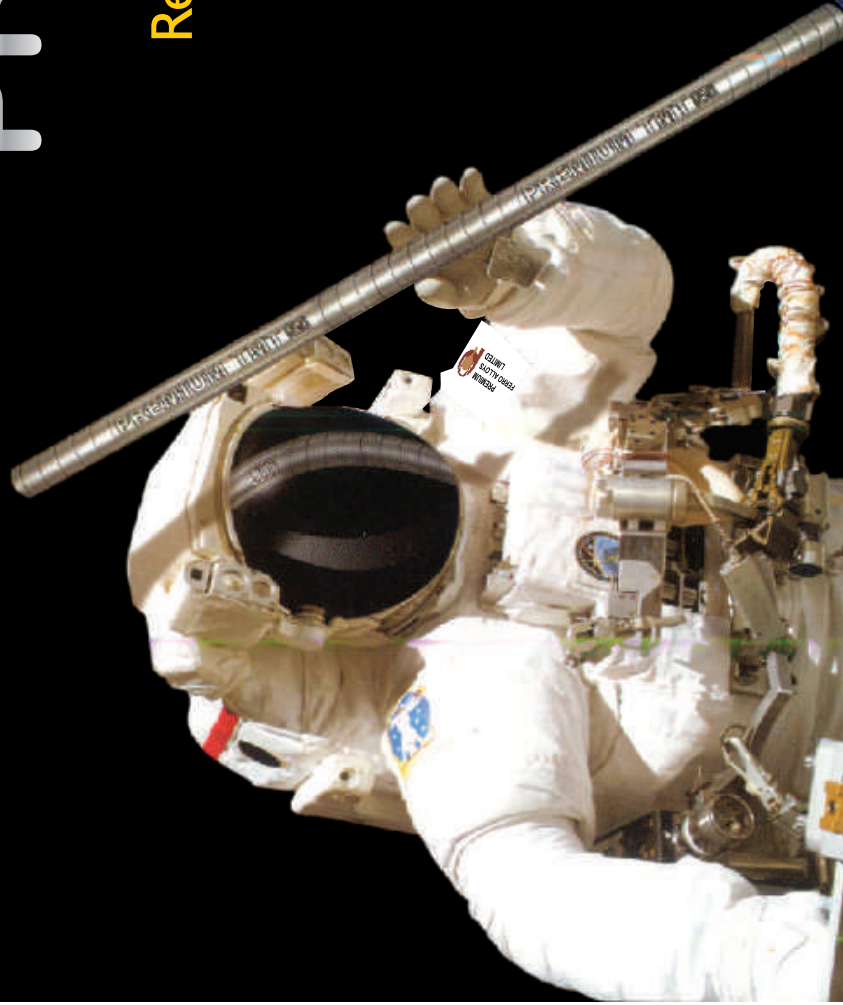
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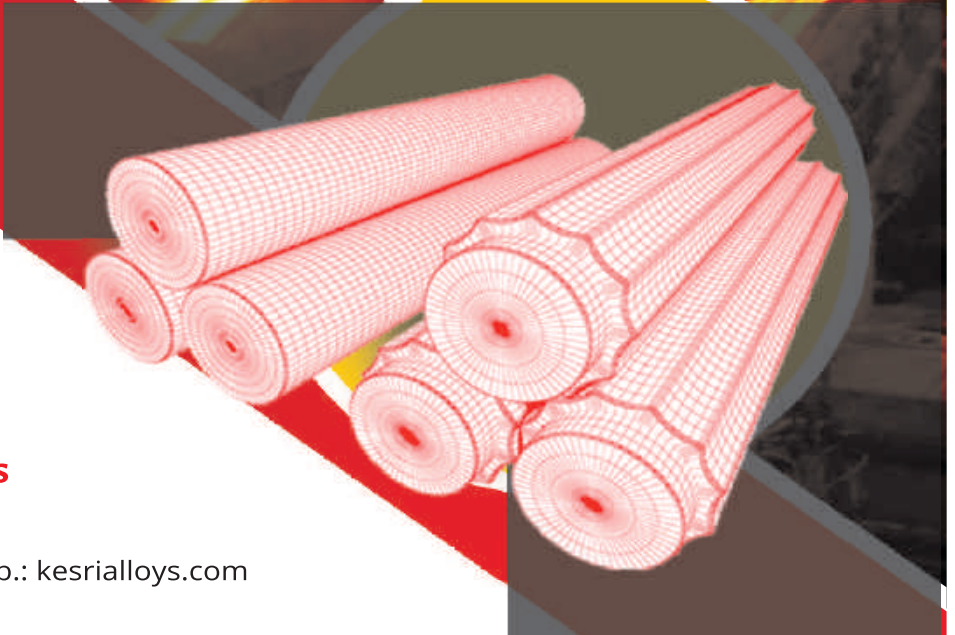
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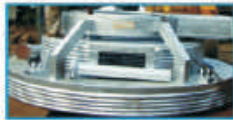
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BACKGROUND

The iron and steel sector are a strategically important sector for the developing economy of India as it contributes **2% to the overall national GDP**. Also, this sector provides abundant opportunities for employment in India. India has already been the **2nd largest producer** of steel in the world. At present, the per capita steel consumption in India is still quite low i.e., around **68kg** as compared to the global average of **208 kg**. This shows that the country has to go in a long way to achieve a reasonable level of steel consumption.

The Indian steel industry is structured in between three broad categories based on route wise production viz. BF-BOF, EAF and IF. BF-BOF route producers have large integrated steel making facilities which utilize iron ore and coking coal for production of steel. Unlike other large steel producers, the Indian steel industry is also characterized by the presence of a large number of small and medium steel producers **who utilize sponge iron, melting scrap and non-coking coal (EAF/IF route) for steelmaking**. There are **285 sponge iron producers** that use iron ore/ pellets and non-coking coal/gas providing feedstock for steel production; **39 electric arc furnaces & 858 induction furnaces** that use sponge iron and/or melting scrap to produce semi-finished steel and **1020 re-rollers** that rolls out semi-finished steel into finished steel products for consumer end use.

The world has seen a massive transformation in the past years due to the COVID 19 pandemic. Lives and livelihoods have been affected tremendously across the globe. The industrial sector has been hit hard and impacts may take years for recovery. The steel sector in India was no exception. While the large-scale industries managed to optimize their resources, the secondary steel sector saw significant losses in terms of productivity and utilization. In addition, the global rise in the fuel price has shattered the industry.

The secondary steel sector showed immense dedication and will power to combat the difficult situation and evolve as a winner. As the world is returning slowly back to normalcy, it is important for the sector to transform for good. The pandemic has also re-affirmed the importance of environment protection and carbon mitigation. As the sector grows, it is important for the industries to adopt environment friendly technologies and adopt a sustainable production line.

Induction Furnace industry has been contributing very significantly in the overall production of steel in the country, both in quantitative terms and as percentage of total steel production. Crude steel production through induction Furnace route has been continuously increasing from about **4.3 MT (16%)** to **22.6 MT (32%)** in **2010-11** and finally to **33 MT (30%)** in **2019-20**. Contribution of the Induction Furnace sector is likely to be significant in years to come in making available quality steel at competitive price to the consumers in different geographical locations in the country.

Since, it has a number of advantages such as **low investment cost, land intensive** as compared to integrated steel producer, **agility to produce various profiles** of steel within a short time span, **low operating Cost**, providing greater **opportunity of employment** in rural areas to prevent un-necessary migration of people towards Metropolitan city etc., Moreover, the main advantage of the induction furnace is a **clean, energy-efficient and well-controllable melting process compared to most other means of metal melting**. Only air pollution occurs and **no water or noise pollution takes place** in induction furnace, therefore, a special thrust is required to be given to look in to the barriers which are coming on the way for increasing the production from this sector.

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Today, the Indian Steel Sector is in a position where continued positive actions in terms of investments and Government interventions bringing it to a position of global leadership yielding accelerated GDP, industrialization and massive employment opportunities.

With such an immense potential to be tapped and with flagship initiatives like Make in India which forms the key impetus for enhanced steel demand across sectors from Infrastructure, Construction, Power & Energy, Defence and Aerospace, the Indian Steel Sector is soon expected to achieve new heights

In the new environment, the industry has to be steered with **appropriate policy support** to ensure that production of steel matches the anticipated pace of growth in consumption. Special emphasis is needed to ensure that the industry follows a sustainable path of development in respect of **environmental friendliness, mineral conservation, quality of steel products, use of technology** and **indigenous R&D efforts** to ensure that the country can, over time, reach global efficiency benchmarks to become a **world leader** in steel production technology, as well as in **production of high-end steel**.

CRUDE STEEL PRODUCTION – BY Process (mt)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Oxygen	35.50	37.60	38.40	42.00	47.50	50.232	48.57	45.08
EAF	18.60	23.12	24.60	28.96	26.42	30.567	28.36	29.40
IF	27.57	28.28	26.79	26.97	29.22	28.392	32.19	29.05
Total	81.67	89.00	89.79	97.93	103.14	109.20	109.37	103.54

Source: JPC

PROCESS ROUTE SHARE IN TOTAL PRODUCTION (%age)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Oxygen	43.50	42.00	42.80	42.90	46.05	46.00	44.40	43.54
EAF	22.80	26.00	27.40	29.60	25.62	28.00	25.93	28.40
IF	33.75	32.00	29.80	27.50	28.33	26.00	29.67	28.06
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: JPC

SPONGE IRON PRODUCTION

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Coal based	20.189	21.889	19.987	23.908	24.053	27.806	30.539	28.201
Gas based	2.683	2.354	2.440	4.854	6.4583	6.899	6.5636	6.1746
Total	22.872	24.243	22.427	28.762	30.511	34.705	37.102	34.376

Source: JPC

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Segment wise production of Secondary Steel Sector 2021-22 (Prov.)					
S. No.	Type of Industry	No. of Working Units	Capacity (MT)	Production (MT) (Apr-Dec)	Capacity Utilization (%)
1	Induction Furnace	833	49.846	24.73	49.61
2	Electric Arc Furnace	27	11.914	7.308	61.34
3	Blast Furnace/BF	4	16.697	11.072	66.31
(1-3)	Crude Steel	864	78.457	43.11	54.95
4	Re-rolling	1098	68.935	30.718	44.56
5	HR Product	10	8.115	4.72	58.16
(4-5)	Finished Steel	1108	77.05	35.438	45.99
6	CR Product	56	12.143	4.471	36.82
7	GP/GC Sheets	16	4.376	2.102	48.03
8	Colour Coated	11	1.286	0.757	58.86
9	Tinplate	2	0.39	0.289	74.10
10	Pipes	100	9.358	2.448	26.16
(6-10)	Value Added Steel	185	27.553	10.067	36.54
11	Sponge Iron	292	35.844	20.452	57.06
12	Pellets	34	55.866	29.284	52.42
(11-12)	Intermediate Raw Materials	326	91.71	49.736	54.23
	Grand Total	2483			50.35

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State-wise Secondary Steel Units 2021-22

Type of Industry	A P	B R	C G	G O A	G J	H R	H P	J H	K R	KL	M P	M H	O D	P B	R J	T N	T L	U P	U K	W B	N / E	U T S	T o t a l	
Induction Furnace	18	12	89	10	72	12	25	21	21	27	13	50	45	112	28	85	27	38	40	37	14	37	833	
Electric Arc Furnace	-	-	4	-	1	3	-	-	-	-	-	7	5	4	-	-	-	-	-	3	-	-	27	
Blast Furnace/BF	1	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	4	
Re-rolling	33	15	139	10	94	8	23	15	17	28	35	87	28	212	49	80	42	73	11	53	12	34	1098	
HR Product	-	-	-	-	3	1	1	-	-	-	-	1	3	1	-	-	-	-	-	-	-	-	-	10
CR Product	-	-	-	-	8	7	1	1	1	-	1	7	3	3	8	1	3	3	-	5	1	3	56	
GP/GC Sheets	-	-	-	-	2	1	-	1	-	-	1	5	1	-	-	-	-	1	-	3	1	-	16	
Colour Coated	-	-	-	-	2	1	-	1	-	-	1	3	1	1	-	-	-	-	-	1	-	-	11	
Tinplate	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	
Pipes	-	-	15	-	21	1	4	-	1	-	-	8	3	24	3	1	3	9	-	1	-	6	100	
Sponge Iron	5	-	71	3	8	-	-	24	38	-	-	8	78	-	-	6	10	4	-	37	-	-	292	
Pellets	-	-	8	-	-	-	-	2	7	-	-	1	10	-	1	-	1	-	-	4	-	-	34	
Grand Total	57	27	326	23	211	34	54	67	87	55	51	177	177	357	89	173	86	128	51	145	28	80	2483	

Angle of Vision of Some renowned Bureaucrat and Government for Secondary Steel Sector at a glance

SHRI RAM CHANDRA PRASAD SINGH, HON'BLE UNION MINISTER OF STEEL, GOVERNMENT OF INDIA



The Induction Furnace route is one of the most cost effective and environment friendly technique for production of clean and green steel because of high yield from metallic feed materials; no electrode cost; no fossils fuel; low investment cost; small space requirement; automatic operation in a simple manner; clean work place and little expenditure on environmental compatibility.

Contribution in total crude steel production of the country by the secondary steel sector are commendable. It is helping to maintain the contribution of steel sector up to 2% in India's GDP. I hope that, the production of steel through this sector would be 75-80 MT by the year 2030 which will fulfil ambitious target of the Government of India for bringing steel production capacity up to 300MT/year.

SHRI FAGGAN SINGH KULASTE, HON'BLE MINISTER OF STATE FOR STEEL AND RURAL DEVELOPMENT, GOVERNMENT OF INDIA



India's economic growth is contingent upon the growth of the Indian steel industry. Consumption of steel is taken to be an indicator of economic development. While steel continues to have a stronghold in traditional sectors such as construction, housing and ground transportation, special steels are increasingly used in engineering industries such as power generation, petrochemicals and fertilizers.

India occupies a central position on the global steel map, with the establishment of new state-of-the-art steel mills, acquisition of global scale capacities by players, continuous modernization and upgradation of older plants, improving energy efficiency and backward integration into global raw material sources.

For steel making, India adopts mix process routes comprising of BOF Route (45% approx. of the total production) and Electric Route (55% approx. of the total production). The electric route further comprises of Electric Induction Furnace with approx. 30% production and Electric Arc Furnace with approx. 25% production.

In the growing steel market, the small and medium enterprise units making steel through Electric Induction Furnace route plays a vital role. Thus, it is important to mention here that these units need to grow exponentially in terms of technological innovations, energy efficiency, quality assurance and production efficiency among others. The presence of these units across different locations and their flexibility in producing a diverse range of profiles within a short span of time with a comparatively lower capital makes them advantageous compared to the bigger steel plants. However, due to inherent characteristics, these units need continuous support in terms of technical assistance and capacity building.

AIIFA is a dynamic industry-oriented association in the secondary steel segment which is successful in projecting the needs of the industry. I extend my best wishes to the association and its members.

SHRI SANJAY KUMAR SINGH, SECRETARY, MINISTRY OF STEEL, GOVERNMENT OF INDIA



As India moves towards a USD 5 trillion economy and builds world class infrastructure, use of stainless steel is bound to multiply. Known for its longevity, formability, and strength, stainless steel is the most cost-effective material on a lifecycle costing basis. Since it's made from recycled scrap using the Electrical route, the metal is a most sustainable choice among other alternatives.

Today, the Indian Steel Sector is in a position where continued positive actions in terms of investments and Government interventions bringing it to a position of global leadership yielding accelerated GDP, industrialization and massive employment opportunities.

With such an immense potential to be tapped and with flagship initiatives like Make in India which forms the key impetus for enhanced steel demand across sectors from Infrastructure, Construction, Power & Energy, Defence and Aerospace, the Indian Steel Sector is soon expected to achieve new heights.

SMT. RASIKA CHAUBE, ADDITIONAL SECRETARY, MINISTRY OF STEEL, GOVERNMENT OF INDIA



Steel have been one of the core drivers of industrialization. As a raw material and intermediate product, production and consumption of steel are widely regarded as indicators of economic progress. The steel industry has always been at the forefront of industrial development and forms the backbone of any economy. Today, India has replaced Japan as the second largest steel producing country, and it is on course to become the second largest consumer of steel globally.

The secondary steel sector, contributing to over 55% of the total value-added steel production in the country, plays an important role in the overall supply chain of steel industry. The sector consists of scattered units across most of the Indian states, provides employment at a large number and supports the country's drive for infrastructure development. However, the sector is vulnerable to cheaper imports and demand fluctuation. The rising price of energy, issues related to quality and increased competition among peers has created a threat for the industry. A large segment of the sector is still unorganized and unaware of latest technological developments and product diversifications.

The electric induction furnace and allied sector has played a significant role in building the country's steel sector. As India is poised to reach a new height of 300 MT steel production by 2030, the secondary steel sector undoubtedly needs to play the most important role. While the sector needs to come forward for larger investments, it is also important for the Government to build the correct ecosystem to boost growth. The public private partnership in this regard will play a significant role towards achieving the country's ambitious target.

SMT. RUCHIKA CHAUDHRY GOVIL, ADDITIONAL SECRETARY, MINISTRY OF STEEL, GOVERNMENT OF INDIA



Steel is crucial for vibrant and developing economy of India. Contributing significantly to the GDP, the steel sector also plays an important role in creating employment for our people. Steel forms one of the prominent materials used across all segments of life and livelihood. The secondary steel sector contributing more than 55% of the total steel production in the country

The world has seen a massive transformation in the past years due to the COVID 19 pandemic. Lives and livelihoods have been affected tremendously across the globe. The industrial sector has been hit hard and impacts may take years for recovery. The steel sector in India was no exception.

The secondary steel sector showed immense dedication and will power to combat the difficult situation and emerged as a winner. As the world is returning slowly back to normalcy, it is important for the sector to transform for good. The pandemic has also re-affirmed the importance of environment protection and carbon mitigation. As the sector grows, it is important for the industries to adopt environment friendly technologies and adopt a sustainable production line.

I hope that, the small and medium enterprise units making steel through the electric/ induction furnace route plays an important role in the overall supply chain of steel in the country.

THE ORGANISERS

All India Induction Furnaces Association (AIIFA) being the premier steel industry association of Electric Induction Furnaces in the world represents a major section of steel units, producing steel through this route. The role of AIIFA is to act as a bridge between the Government and the industry for driving various schemes, participating in the Government's research programs and ensuring capacity enhancement of its units. It also play a vital role to bring various issues of the industry with various related Ministries and concerned Departments and also create awareness of programs and policies of Central/State Government among the members of the association so that their knowledge could be enriched and also could help to adopt latest route of steel making/processing (EIF-Continuous Casting of Steel- Direct Rolling of Hot Billets into finished products) for production of quality steel and also for mitigation of GHG emission. The Association also work hard to enhance the capacity of the industry to compete in the Global Market. The association brings out monthly newsletter featuring important news on iron and steel industry and custom and excise related notification/circulars etc.

Today, the association has over **1000 members** comprising of induction furnace units, rolling mills, casting units, fabricators and manufacturers. With its registered office located in New Delhi, the association has eleven different chapters located at **C**hennai, **H**yderabad, **M**umbai, **I**ndore, **C**uttack, **B**hiwadi, **M**andi **G**obindgarh, **L**udhiana, **G**oa, **K**ashipur and **G**uwahati.

Since last three decade, the association has been conducting national level meets, on yearly basis, to share and discuss the progressive ideas and ways to make the steel industry stronger. The past initiatives,

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taken by the association, in this direction, have made grand success in terms of interacting with the Hon'ble Ministers and top bureaucrats of the concerned Ministries and also acquainted with the policies and program of the Government for achieving 300 million tonne target of steel capacity in India by 2030. The quantitative and qualitative growth of the AIIFA organized national meet is self-explanatory in determining its importance.

Every year on the occasion of National meet, the Association gives the prestigious **AIIFA's Awards** to selected units in recognition of achieving excellence in the areas of Productivity, Quality, Energy Efficiency, Exports, R&D Activities and Overall Entrepreneurship Management, etc. The objective of instituting this award scheme for the Secondary Steel Sector is to give recognition to outstanding performance for their contribution in the national economy. The award is intended to spur these Secondary Sector steel producers to achieve standard of efficiency, quality, safety and economy in their operations.

1. **"Dhatu Rachna Award** shall be given to stand alone Induction Furnace units
2. **"Ispat Rachna Award"** shall be given to stand alone Rolling & Re-Rolling mills
3. **"Ispat Udyog Ratan Award** "shall be given to composite units
4. **"Certificate of Recognition"** shall be given to **recognize initiatives & innovations** which are trendsetters, exemplary and add value to the Secondary Steel Sector.
5. **"ISPAT AGRADOOT"** award shall be given for recognizing trendsetting Innovation in the Secondary steel sector.
6. **"Energy Efficiency Award"**

Like every year, this year also AIIFA successfully presented its 34th national conference to showcase the disruptive and cutting-edge technological innovations in the steel and associated sector which can bring in a big transformation in the operational efficiency, cost-effectiveness and take the whole steel making process to the next level by Electrical route. The idea was to bring forth the innovations which can be co-opted and adopted rather than getting reinvented with intent to channelize the available resources for researching, innovating and achieving the NEW & the NEXT.

The steel industry in India is going through a massive transformation. The concept of stand-alone induction furnace units and stand-alone steel re-rolling mill are slowly disappearing and the different sectors are slowly moving towards a common umbrella. The issues and road-blocks are mostly common to all sub-sectors. For a sustainable future of the steel producing fraternity through electrical route, it is thus important that these sub-sectors come forward and jointly work hand in hand with the Government.

AIIFA's 34th National conference was a unique platform created for strengthening the secondary steel sector and increasing its importance in the country's economy as well as to meet out the global competitiveness. The conference was supported **by JPC, SRTMI, NISST, JSW steel and all leading associations across the country** which shows the unity of Indian Steel Industry to work together to bring steel sector at new heights. **Around 300 dignitaries from steel industry** especially from public sector units, Central Government officials, R&D Institutions related to steel and steel products, rolling mill industries, sponge iron/ DRI producers, Ferro alloys producers, JPC, NISST, SRTMI and other eminent organization/Associations including members of AIIFA from various parts of the country had join this event. The conference was unique in terms of its stature; its vast reach; the industry representations; topics covered and effort to build a road-map for the new India.

**AIIFA's 34th National Conference on
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ABOUT THE CONFERENCE

AIIFA's 34th National Conference was designed under the pertinent theme of **"The Role of Secondary Steel Sector in achieving \$5 trillion economy by 2024 and Government initiatives and support in this context"**. The strong efforts made by the organizers aimed at bringing the entire steel sector under a common umbrella; making consolidated efforts to resolve the critical issues; strengthening the sectoral presence and importance and building foundations for a sustainable future.

The 34th National conference organized by AIIFA was one such opportunity for the entire secondary steel fraternity to come and display strengths and build foundation for a sustainable future.

THE CONFERENCE AGENDA

9:00 – 10:00	REGISTRATION, DISTRIBUTION OF KITS AND WELCOME TEA	
10:00- 12:40	INAUGURAL SESSION	
10:00 – 10:05	Lighting of Inaugural Lamp	
10:05 – 10:15	Welcome Address	Shri Devendra Kumar Agrawal , President, AIIFA
10:15 – 10:30	Theme Presentation	Shri Kamal Aggarwal , Hon. Secretary General, AIIFA
10:30 – 10:35	Release of Handbook on Indian Secondary Steel Sector 2022-23 (A directory of units producing steel through electrical route)	
10:35 – 10:45	Release of AIIFA Annual Memorabilia 2022	
10:45 – 11:05	Announcement of AIIFA Awards -2022	
11:05 – 11:20	Address by Shri Ritesh Maheshwari , Director, MRAI with focus on GST: The key to success of Indian Steel Mission 2030	
11:20 – 11:35	Address by Shri Souvik Bhattacharjya , Associate Director, Integrated Policy Analysis Division, TERI with focus on Imperative of circularity in steel sector	
11:35 – 11:50	Address by Shri Ranjan Bandyopadhyay , Executive Secretary, JPC with focus on Indian steel scenario and usages of scrap	
11:50 – 12:05	Address by Shri R K Paul , Director, NISST with focus on Roadmap of Secondary Steel Sector for vision 2047	
12:05 – 12:20	Address by Shri Vishva Bandhu , Sr. Dy. Director, NISST with focus on Green Steel making in Secondary steel sector- Need of the hour	
12:20 – 12:35	Address by Shri R K Vijayvergia , SRTMI with focus on Present CO2 emissions by coal based DRI units and Road Map to reduce CO2 emission as per Paris agreement	
12:35 – 12:50	Address by Shri Anil Mohindru , Dy. Director (E) and Shri Sandeep Pal Singh , Dy. Director (T), NISST with focus on Role of Energy Audit in improving efficiency and reducing cost of production	
12:50 – 01:05	Question and Answer session	

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01:05 – 01:20	Concluding Remarks by Chairman, Shri Parmjeet Singh, Addl. Industrial Advisor, MoS	
01:20 – 01:30	Vote of Thanks	Shri Gopal Gupta, President Emeritus, AIIFA
	LUNCH BREAK	
07:00 pm to 09:00 pm	GALA DINNER	

THE VENUE



Situated in one of India's largest financial, commercial and business districts, **Shangri-La's - Eros Hotel, New Delhi** is at the beating heart of the bustling capital. Located just a few minutes from the nearest metro station, and a short drive from the Presidential Estate, guests are easily connected to the best of the city. With panoramic views from the Horizon Club, Asian-inspired dining options and luxurious facilities, the hotel provides a peaceful escape for business and leisure travellers alike.

EVENT OBJECTIVE

AIIFA's 34th National Conference on **“The Role of Secondary Steel Sector in achieving \$5 trillion economy by 2024 and Government initiatives and support in this context”** was a unique forum for deliberation between the Government and the Steel fraternity producing steel through the electrical route. The main objectives of the conference were:

- To highlight the current strength and opportunities of the sector
- To brainstorm on key bottle-necks for development in the sector.
- To showcase latest trends, technologies and R&D initiative taken up for the sector.
- To draw a road-map for sustainable development of the sector.
- To stress on the importance of energy efficiency and quality management for the sector.
- To stress on the importance of representing the entire sector under a single umbrella.
- Development of globally competitive steel manufacturing capabilities
- Cost-efficient production and domestic availability of Raw material like Ferrous scrap, iron ore, coking coal and natural gas
- To discuss on ways and means for Enhancement of domestic steel demand.

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THE INAUGURAL CEREMONY

PHOTOGRAPHS OF LIGHTING OF INAUGURAL LAMP



WELCOME ADDRESS

The lamp lighting ceremony was followed by the welcome address delivered by Shri Devendra Kumar Agarwal, President, AIIFA. In his address, Shri Devender Kumar Agarwal welcomed the dignitaries on dais and thanked him, for his gracious presence in the event, has given a new dimension. Shri Agarwal also welcomed all the dignitaries and guests from the various Government departments, R&D institutes, industry, associations, manufacturer and consultants and other steel stakeholders. He underlined that the theme of this year's event was chosen under based on its appropriate meaning in current times.

He said that, in a modern and dynamic economy like India, steel is part of the life of every single Indian and the sector will play an important role in achieving the Government ambitious target of making India a \$5 trillion economy. To drive inclusive economic growth and meet projected targets, the Indian Secondary Steel Industry needs to follow a three-point agenda Foremost, the sector needs to focus on efficient utilization of resources to optimize production and thereby increase the nation's Steel output. This will foster economic development, aid more value creation and generate job opportunities across the value chain. **Secondly**, to focus on quality Steel to be the material of choice for National infrastructure and construction projects. **Finally**, promote 'Make in India' by leveraging domestic capabilities to manufacture engineering products for the domestic and international markets.



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He also said that, "The government is providing support to the steel industry for rapid growth through policy formulation and strict governance. Industry players will have to play their part in demonstrating discipline in capital spends and foresight of investing in the right technologies for expansion. The forces of global trade and sustainability would need to work in sync to execute existing strategic plans, update them basis emerging threats and opportunities which are unique and relevant to India, and draw up a collaborative game plan to nurture the future of a robust and a sustainable steel industry."

Further, he added that, the conference will provide an opportunity to the drivers and stakeholders from the steel industry to discuss on issues and opportunities of the sector. I am hopeful that the deliberations will bring in a positive framework for the industry to work harder for a better future.

Shri Agarwal praised the role of AIIFA and requested AIIFA's executive council to organise such conferences in future also for the benefits of the industry. He ended his speech with very beautiful poem "Ruk gai agar tum to jaoge peechhe".

THE THEME ADDRESS

The welcome address was followed by the theme presentation delivered by **Shri Kamal Aggarwal, Hon. Secretary General, AIIFA**. He said that, India is currently the world's second-largest steel producer with production standing at **120 MT in 2021-22**. As we know that, India's per capital steel consumption at **74kg** is one-third the global average of **225kg**. The low consumption however, indicates huge growth potential for Indian steel industry. Various countries have focused on rapidly increasing their steel consumption in the high growth phase of their economy. Therefore, India has also fixed a target for setting up of 300 million tonne crude steel production capacity by 2030.



In continuation of his speech, he said that, if India is to achieve the goal of being a "**developed nation**", the steel industry must play a crucial role as has been the case with all the major developed countries and **East Asian countries like Japan, South Korea and China**. Growth in steel consumption in a country is typically linked to the economic growth and steel intensity. While growth in GDP is a crucial determinant of growth in overall consumption, steel intensity is the definitive parameter for an economy and determines the growth rate of steel demand vis-à-vis consumption over time. **Creation of steel demand in the country is one of the major tasks to be undertaken in this direction.**

The key focus areas in this direction which needs to be proper care and attention by the government is construction and manufacturing sectors like Rural development, Urban infrastructure, Roads & Highways, Railways etc.

Housing for all is the best ambitious plan of government which provides a huge opportunity for use of steel intensive structures and designs, usage of pre-fabricated and precast steel structures, etc. Hence, Ministry have to take all necessary measures to promote increase usage of steel intensive structures/designs under this plan.

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The "Make in India" initiative is expected to witness significant investments in Construction, Infrastructure, Automobile, Shipbuilding and Power sectors, which will stimulate steel demand. Hence, efforts shall be made to pass on such benefit to the domestic steel producers. Use of cost efficient and competitive '**Indian Made steel**' will pave the way for infrastructure development and construction activities in the country.

RAW MATERIAL SECURITY

Further, he added that, "**Raw Material Security**" is another focus areas in this direction which also needs to be proper care and attention by the government because availability of raw materials at competitive rates is imperative for the growth of the steel industry. Electric Induction Furnace based steel units only use steel melting scrap/sponge iron (substitute of steel scrap) as raw material. The steel scrap is generated during processing of crude steel into finished products in integrated steel plants using raw materials like iron ore, metallurgical coke, lime stone etc. The sponge iron is also a substitute of steel scrap, which produces in rotatory kiln using iron ore and non-coking coal.

FERROUS SCRAP

How far the question is concerned regarding use of Ferrous Scrap, a lot of advantage associated with using of steel melting scrap. For example; considering recycling of **one tonne of steel scrap** saves not only **1.2 tonnes of Iron Ore, 0.7 tonnes of Coal, 0.5 tonnes of lime stone, 287 litres of Oil, 2.3 cubic meters of Landfill, 40% less Water and overall, 58% Reduction in GHG emission** but also saves the **earth from being emptied** of its **precious no replenishable resources**. Hence steel scrap is necessary for producing quality steel in present scenario.

It is estimated that present demand for scrap is **around 30MT** which translates to roughly **20-25% scrap** usage overall. Since about **55% steel** is produced through **EAF and IF**, this usage is low. The scrap usage is low due to no availability of quality scrap and high-power tariff because of which some hot metal is used

in EAF also. The scrap requirement as worked out is **65MT in 2030-31**. This will work out to 22% scrap usage overall. Scrap arising within steel industry (domestic scrap) could be around **25MT**. Hence, **40MT** has to be made available through **collection and recycling and imports**.

Now average yearly import during the last five years is **about 6MT**. We may assume that this will be double in 10 years to 12MT. Main sources of import are USA, Japan, France, Germany, Netherlands, UK and Russia. Total net export by these countries was about 45MT in 2018 (source: www.worldsteel.org). There is little possibility of scrap availability from these countries going up since they have reached certain level of development. At best it may increase to 50MT by 2030.

Further, India is also a signatory to Paris agreement and therefore it is essential to increase the proportion of scrap-based steelmaking to reduce greenhouse gas emission. As per NSP assumption, scrap usage will be around 12% only. With availability of domestic scrap expected to be **25MT** and if import is considered at **12MT**, 28MT has to be internally made available by recycling. This will be a combination of Industrial scrap (Fabrication sites, Engineering & other industries) and obsolete scrap (industrial machinery, domestic appliances, ship breaking, end of life automobiles, home appliances etc.)

In order to ensure availability of sufficient quantities of good quality scrap, it is necessary for establishment of an **organized and environment friendly steel scrap processing units** equipped with **modern steel**

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shredding plants within the country. To promote increased use of scrap based steel-making in the country, efforts will be taken in coordination with Ministry of Power to ensure availability of electricity to the sector.

SPONGE IRON

Regarding the above, he said that, in India, most of the sponge iron producers do not have captive mines of any of the raw materials like hematite, non-coking coal and limestone, which are used for sponge iron production. Therefore, they fully depend upon other agencies to get their raw materials. Now, the major constraints being faced by these industries are high price and non-availability of quality raw material. The right grade hematite of proper size has become scarce and very costly. Most of the high-grade non-coking coal has been earmarked for thermal power plants and only inferior grades like 'F' and 'G' are available, that too, in a limited quantity. Most of the units are producing sponge iron much below their capacity mostly due to want of proper raw materials.

In this context, he suggested that surplus iron ore after meeting the domestic needs should only be exported and make provision for imposing export duty on Pellet also

RESEARCH DESIGN AND DEVELOPMENT

In this context, he said that, "**Product development**" is one of the biggest challenges faced by the Indian steel industry which has given rise to import of most of the value-added products like automotive steel for high end applications, electrical steel (like CRGO & amorphous steel) as well as special steel and alloys for the Power Equipment, Aerospace, Defence and Nuclear applications. Production of these value added, front end, and strategic products should be facilitated through acquisition of foreign technology by setting up of joint ventures, or subsidiaries of foreign companies or by indigenous development. Measures should also be taken to ensure development of all such special steel and alloys to minimize import dependence.

Regarding Trade, he highlighted that, Steel sector should be encouraged to be globally competitive and develop export market for Indian steel products. Such markets where demand for steel is expected to grow will be targeted by the government.

INDUSTRIAL SAFETY AND HEALTH

In this connection, he said that, when we discuss about steel industry to-day, **Industrial Safety and Health** has also to be addressed which concerns every employee working in the industry therefore, it is

continuously required to monitor the safety performance by the government of all its steel companies including those in private sector through periodic reviews. Necessary efforts should be made to encourage the development of clearly defined safety standards and goals to become a zero-accident workplace.

On job training should be provided to employees of the steel companies to enable them to maintain a safe workplace. Since MSME units which cannot afford to conduct such trainings on their own will be facilitated by Steel Research and Technology Mission of India (SRTMI) for organizing the same.

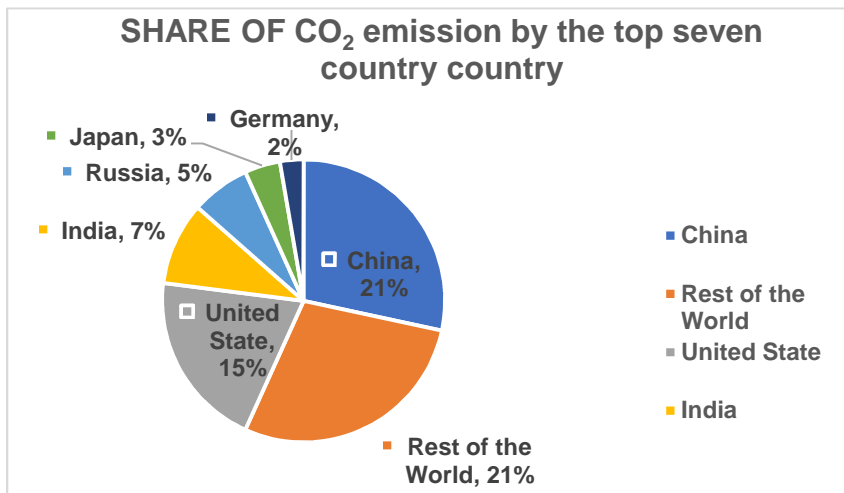
TO PROMOTE CARBON NEUTRALITY

In order to promote **carbon neutrality**, he said that as energy is one of the most important drivers of national economics and therefore of human well-being. Quality adjusted life expectancy has increased in Societies which have enjoyed rising incomes and energy use and that is a convincing indicator of this relationship. On

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the other hand, the energy sector is responsible for by far the largest share of CO₂ emissions. According to International Energy Association (IEA) global energy demand will grow by 55% by 2030. If climate friendly technologies are not used, emissions will have gone up by 50% with consequent impact on global temperature rise and climate change. India is the **3rd largest energy consuming** and **4th largest GHG emitting** nation in the world. The iron & steel sector in India consumes about 20% of total energy consumed in industry and plays significant role in Energy Conservation.

India's proven coal reserves are likely to last 200 years whereas, oil & natural gas will only last for around 30-40 years. However, India is expected to discover enormous deposits of shale gas in its vast shale formations running through Gangetic plain, Assam, Rajasthan, Gujarat. New technology has made the extraction of shale economic, and so India will become major gas producer in coming years.



Since, steel production is a major industrial process sourcing carbon dioxide emission. In steel production process, iron is melted and refined to lower its carbon content. Major and Main steel industries produce steel in bulk tonnage by the process Coke Oven Blast Furnace - Basic Oxygen route where oxygen is combined with the carbon coming from molten pig iron creating carbon dioxide. On an average, 1.9 tonnes of CO₂ are emitted for every tonne of steel produced.

Emission Produced & Discharge Status from Steel Making Units	
<i>BF- BOF Route</i>	2.3 tonnes of CO ₂ per tonne of steel produced
<i>DRI with Gas as Input</i>	1.1 tonnes
<i>Electric Arc Furnace</i>	Almost 0.4 tonnes if Electricity comes from Zero "C" source
<i>Induction Furnace</i>	Produces Almost Nil

However, steel produced from electric induction furnaces in greener ways by scrap melting creates opportunities for making more efficient products, equipment's, structures for different consuming sectors, with smaller ecological footprints in most cost-effective ways. Steel is not only recyclable but it also dissolves in high heat to produce high-quality steel.

Steel production from induction furnace saves about 62% of the energy compared to the conventional steel making units significantly reducing carbon dioxide emissions. Induction furnace steel makers in India pay attention to the entire life cycle starting from sourcing clean raw materials, production of steel in cleaner ways, dispatching products to customer, using steel products after end of life right up to recycling and re-melting to form new steel. Because of such cleaner eco-friendly process without carbon addition during melting, there is no possibility of emission of any harmful gases which are generated from other steel making process like BF+BOF and even EAF where graphite electrodes used for arcing and supply carbon in melt as well as lancing oxygen.

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Government should encourage and support to **setup more Induction furnace units** because any such efforts have a great bearing on the conservations of national resources and also direct impact on reduction of CO2 emissions, which will bring down **Global warming** and save the **Mother Earth**.

Beside this, he also highlighted some major issues (listed below) as being faced by this sector which needs proper care and attention by the Government

ANOMALIES IN GST PROVISION

The total GST collection from the domestic scrap market, the ferrous scrap segment is the largest contributor to the GST collection of the Government. The present share of ferrous scrap in total domestic scrap market is more than 63 % amounting to INR 10,000 crores. Considering the target set in the NSP-2017 and the trend to increase the steel production through scrap, it is anticipated that such amount would increase to INR 35,000 crores by 2030. Therefore, this sector is a significant contributor to the overall GST collections for the Government. Currently some scrap supplier who collects GST from steel producer but does not deposit the same to govt. In such a case the purchaser is penalized for the act of scrap supplier.

We hope that, Ministry of Steel take notice of the above hardships faced by the manufacturers in the secondary steel industry and make a dialogue with concerned Ministry to create a separate HSN code for the ferrous scrap other than industrial scrap and charge duty on steel scrap procure from these sellers on RCM (Reverse Charge Mechanism) basis or brought down GST rate to 5% (2.5% each of CGSTS and SGST) whichever is possible. This measure will go a long way to curb tax evasion, boost revenue and provide relief to bonafide sections of the industry.

PRODUCT	HSN CODE	TAX
Iron ore lumps, fines, Pellets	2601	18%
Sponge Iron	7307	18%
Ferrous Waste and Scrap	7204	18%

STEEL PRICES SPECULATION

	Price as on 01-01-2022	Price as on 11-03-2022	Difference	% Increase
Green Pellet	10,500	14,000.00	3,500.00	25.00%
Pellet Sponge	30,700	43,500.00	12,800.00	29.42%
Billet	48,000	61,000.00	13,000.00	24.50%
Ingot	42,600	59,800.00	17,200.00	28.76%
TMT	42,711	62,211.00	19,500.00	31.34%
Mandi	45,500	63,500.00	18,000.00	28.34%

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Due to speculations being circulated in steel industry the price variations in steel industry have spiked beyond controllable measures (Jan-22 to march-22 variation more than 30% for finished product TMT)

Suggestions

- Empower JPC to start acting like SEBI in share market to control E-platforms releasing market rates, forecasts and speculation on subscription basis so that they can be monitored and price flashes brought in market due to speculations can be controlled.
- Fix the price of iron ore for at least a quarter (JPC to be empowered to release this rate in Public Domain)

Shri Aggarwal concluded his speech by saying that the electrical induction furnace route of steel production is **GREENER** and **COST EFFECTIVE**. Recycling of steel is need of the hour. AIIFA is making all efforts to bring the entire steel fraternity on a common platform so that the ambitious target of 300 MT capacity could be achieved within the time frame

**ADDRESS THROUGH VIDEO CONFERENCING BY THE CHIEF GUEST SHRI FAGGAN SINGH KULASTE,
HON'BLE UNION MINISTER OF STATE FOR STEEL AND RURAL DEVELOPMENT**

मैं यहां देश के द्वितीयक इस्पात उत्पादकों के बीच आकर बहुत ही प्रसन्नता का अनुभव कर रहा हूँ। प्रकाशित होने वाली रिपोर्टों के अनुसार, मुझे विश्वास है और देश में हमारे इस्पात उत्पादकों पर पूरा विश्वास है कि भारतीय इस्पात क्षेत्र, भारत को 5 ट्रिलियन अमेरिकी डॉलर की अर्थव्यवस्था में ले जाने में महत्वपूर्ण भूमिका निभाएगा।

जैसा कि आप जानते हैं, भारतीय इस्पात क्षेत्र जीवंत है और साल-दर-साल आधार पर लगभग 5 प्रतिशत - 6 प्रतिशत की सीएजीआर से बढ़ रहा है। रेल, सड़क, विमानन, गैस पाइपलाइन और आवास सहित सभी क्षेत्रों में सरकार द्वारा की गई नीतिगत घोषणाओं और वैश्विक आपूर्ति-मांग समीकरणों में बदलाव के साथ, इस्पात उद्योग ने रिकॉर्ड उत्पादन और विकास किया है।

विकासशील भारत में स्टील विभिन्न क्षेत्रों से संबंधित अनुप्रयोगों की एक विस्तृत श्रृंखला के लिए महत्वपूर्ण है। वास्तव में,



ऐसे कई क्षेत्र हैं जो मुख्य रूप से इस्पात निर्माण, पूंजीगत सामान, मोटर वाहन, मध्यवर्ती उत्पाद, उपभोक्ता टिकाऊ और रेलवे पर निर्भर हैं।

मेक इन इंडिया कार्यक्रम के उद्देश्य और लक्ष्य के साथ, भारत सरकार खुद को एक विनिर्माण राष्ट्र के रूप में स्थापित करने पर जोर दे रही है। इस लक्ष्य को हकीकत में बदलने के लिए सड़कों, रेलवे लाइनों, इमारतों और पुलों से हर संभव पहलू में बड़े पैमाने पर बुनियादी ढांचे के विकास की आवश्यकता है, जो अंतरराष्ट्रीय मानकों से मेल खा सकते हैं; जो बिना स्टील के फिर से असंभव है।

प्रकाशित शोध रिपोर्ट के अनुसार, यह इंगित करता है कि भारत के इस्पात क्षेत्र में देश के समग्र विकास में योगदान करने की काफी संभावनाएं हैं। वास्तव में, यह एक ऐसी वस्तु है जिसका अर्थव्यवस्था के कई क्षेत्रों में व्यापक अनुप्रयोग है। इसका उपयोग इमारतों के निर्माण, ऑटोमोबाइल के निर्माण, रोजमर्रा के सामान के उत्पादन और पैकेजिंग में किया जाता है। बिजली उत्पादन, पेट्रोरसायन और उर्वरक सहित पैकेजिंग, विनिर्माण और इंजीनियरिंग क्षेत्रों में विशेष स्टील का तेजी से उपयोग किया जा रहा है।

भारत से स्टील का निर्यात उल्लेखनीय रूप से बढ़ रहा है। रिपोर्ट के अनुसार, वर्ष 2011 में स्टील का कुल आयात 6.7 मीट्रिक टन था और वर्ष 2021 में घटकर 4.8 मीट्रिक टन हो गया। हालांकि, वर्ष 2021 में इस्पात निर्यात बढ़कर 10.8 मीट्रिक टन हो गया, जो वर्ष 2011 में केवल 3.6 मीट्रिक टन था।

वैश्विक कीमतों में बढ़ोतरी से हमारे इस्पात उद्योग निर्यात पर अधिक ध्यान दे रहे हैं। मैं यहां यह उल्लेख करना चाहूंगा कि भारत खुद को दक्षिण कोरिया और जापान जैसे देशों में हॉट रोलड कॉइल्स (एचआरसी) के एक प्रमुख निर्यातक के रूप में विकसित कर रहा है। इसके अतिरिक्त, यूरोपीय संघ के बाजार में एचआरसी की बढ़ती कीमत अब निर्यात में उछाल का एक प्रमुख कारक है।

टीएमटी बार की कीमतों में भी कई गुना इजाफा हुआ है। हालांकि, भारत ने विश्व स्तर पर टीएमटी बाजार को नहीं उठाया है। हमें कारणों को देखना चाहिए और कमियों का पता लगाने की कोशिश करनी चाहिए ताकि द्वितीयक इस्पात क्षेत्र भी देश के लिए शुद्ध विदेशी मुद्रा अर्जक में योगदान दे।

आने वाले दिनों में निर्यात उन्मुखीकरण और आकर्षक उत्पादों और बाजारों में उपस्थिति बढ़ाने के लिए सरकार की इस्पात समर्थक पहल, नीति समर्थन, कुशल संसाधन उपयोग के माध्यम से घरेलू इस्पात उद्योग को मजबूत करना, इस्पात उद्योग में स्थायी संचालन प्राप्त करना और अनुसंधान एवं विकास जैसे कदम उठाए जा सकते हैं। भारत के इस्पात उद्योग के उत्थान के लिए महत्वपूर्ण है।

सरकार नीति निर्माण और सख्त शासन के माध्यम से इस्पात उद्योग को तेजी से विकास के लिए सहायता प्रदान कर रही है। उद्योग के खिलाड़ियों को पूंजीगत व्यय में अनुशासन और विस्तार के लिए सही प्रौद्योगिकियों में निवेश करने

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की दूरदर्शिता का प्रदर्शन करने में अपनी भूमिका निभानी होगी। वैश्विक व्यापार और स्थिरता की ताकतों को मौजूदा रणनीतिक योजनाओं को लागू करने के लिए काम करना होगा, उन्हें उभरते खतरों और अवसरों के आधार पर अद्यतन करना होगा जो भारत के लिए अद्वितीय और प्रासंगिक हैं और भविष्य के पोषण के लिए सहयोगी बनें।

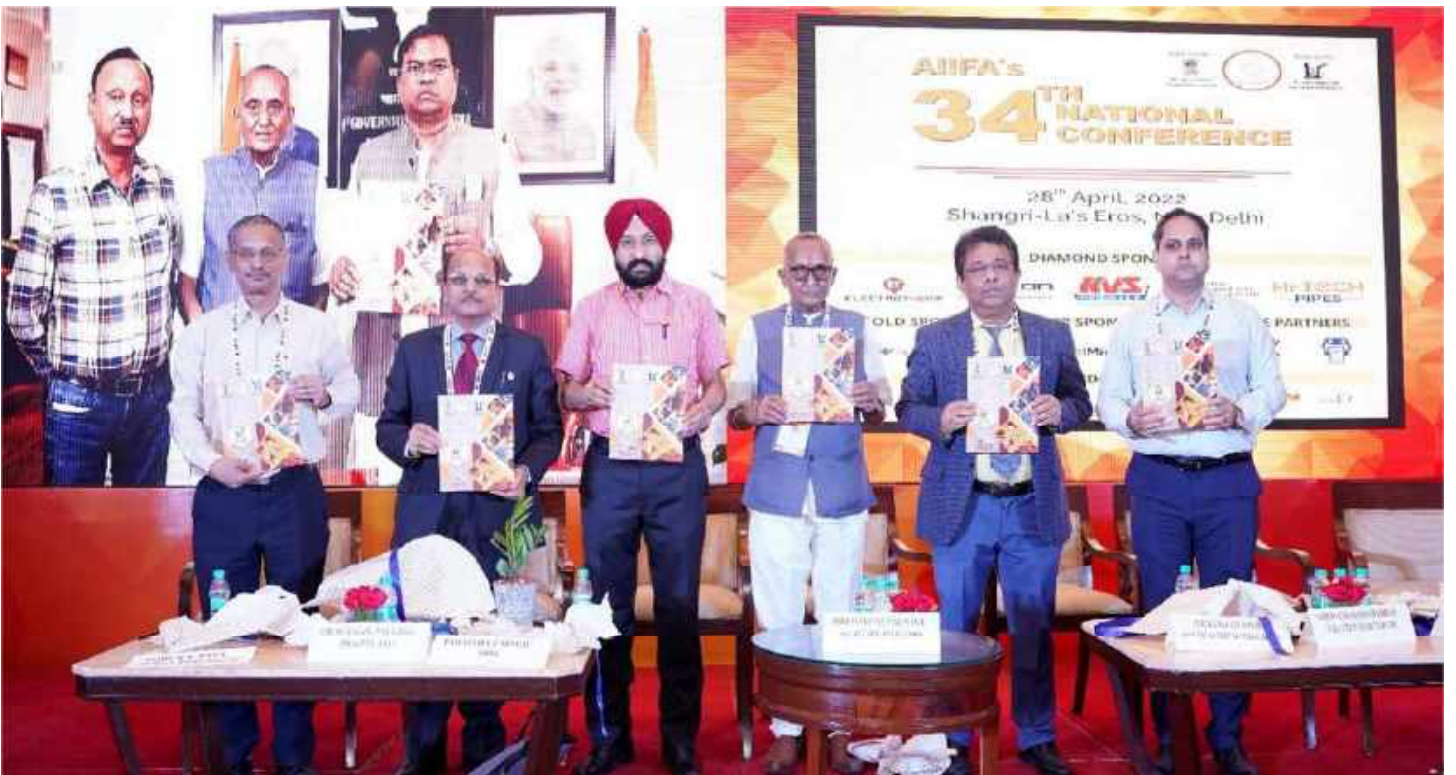
मुझे आमंत्रित करने और मुझे सेकेंडरी स्टील सेक्टर बिरादरी के साथ अपने विचार साझा करने की अनुमति देने के लिए एआईआईएफए को बहुत-बहुत धन्यवाद।



Memento presented to Shri Faggan Singh Kulaste, Hon'ble Minister of State for Steel and Rural Development by Shri Kamal Aggarwal and Shri Pawan Bansal

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RELEASE OF HANDBOOK ON INDIAN SECONDARY STEEL SECTOR 2022-23



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RELEASE OF AIIFA ANNUAL MEMORABILIA 2022



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support in this context"**

ANNOUNCEMENT OF AIIFA AWARDS

The next was announcing of the AIIFA's national awards. It has been a long legacy for AIIFA who have been announcing the annual awards to its member industries in recognition of their overall operational excellence. The prestigious "Dhatu Rachna award" is awarded to Stand-alone induction furnace units in recognition of their overall operational excellence and notable achievement during the past financial year. The "Ispat Rachna award" is awarded to stand alone Rolling and Re-Rolling mills in recognition to overall operational excellence and notable achievement during the past financial year. The "Ispat Udyog Ratan award" awarded to composite units in recognition of their overall operational excellence or any path-breaking work carried out for the benefit of the sector. The "Ispat Agradoot award" is awarded to those units for recognition of trendsetting innovation in the secondary steel sector. The "Energy Efficiency award" is awarded to those units who have taken special efforts to reduce energy consumption while maintaining their production

In addition to the above, this year AIIFA start to give prestigious "Ispat Mitra award" to leading association across the country for its outstanding contribution towards the growth of Indian Secondary Steel Sector.

ISPAT AGRADOOT AWARD 2022



Ispat Agradoot Award presented to Shri Gopal Gupta on behalf of M/s Laxcon Steels Ltd

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Ispat Agradoot Award presented to Shri Ramesh Chand Goyal on behalf of M/s BDG Metal & Power Ltd



Ispat Agradoot Award presented to Shri Ashwani Bhatia on behalf of M/s ARS Steels & Alloy International Pvt. Ltd

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Ispat Agradoot Award presented to Shri Vipul Bansal on behalf of M/s Hi-Tech Pipes Ltd



Ispat Agradoot Award presented to Shri Gouranga Rout on behalf of M/s Electrotherm (India) Limited-Steel Division

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ISPAT UDYOG RATAN AWARD 2022



Ispat Udyog Ratan Award presented to Shri Bharat Bhushan on behalf of M/s Reby Castings Pvt Ltd.



Ispat Udyog Ratan Award presented to Shri K. K. Garg on behalf of M/s Sharu Steels Limited

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Ispat Udyog Ratan Award presented to Shri Sandeep Jain on behalf of M/s Antarctic Industries Ltd



Ispat Udyog Ratan Award presented to Shri S. S. Agarwal on behalf of M/s Premium Ferro Alloy Ltd

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Ispat Udyog Ratan Award presented to Shri Dev Gupta on behalf of M/s Renny Strips (P) Ltd.



Ispat Udyog Ratan Award presented to Shri Amit Kumar Jain on behalf of M/s Kesri Alloys Pvt. Ltd

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ENERGY EFFICIENCY AWARD 2022



**Energy Efficiency Award presented to Shri Dhananjay Parashar on behalf of
M/s Usha Electric Power Pvt Ltd**



**Energy Efficiency Award presented to Shri Harsimarnjeet Singh on behalf of
M/s Osmund Cranes Pvt Ltd**

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**Energy Efficiency Award presented to Shri Rajesh Kabra on behalf of
M/s Raghav Productivity Enhancers Ltd**



Energy Efficiency Award presented to Shri Ambrish Dutta on behalf of M/s Duttason Engineers

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Energy Efficiency Award presented to Shri G. L. Grover on behalf of M/s Vinod Manufacturing Pvt Ltd

MERITORIOUS SERVICE AWARD 2022



Meritorious Service Award presented to Shri Jintendra Singh on behalf of M/s ISC Machines Pvt Ltd

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Women Leadership Award presented to Ms. Monica Bachchan on behalf of Metalogic Projects Management Services Private Limited

ISPAT MITRA AWARD 2022



Ispat Mitra Award presented to All India Steel Re-Rollers Association

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Ispat Mitra Award presented to Steel Manufacturers Association of Maharashtra



Ispat Mitra Award presented to Chhattisgarh Steel Mini Plant Association

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Ispat Mitra Award presented to Material Recycling Association of India



Ispat Mitra Award presented to Cold Rolled Steel Manufacturers Association

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Ispat Mitra Award presented to Sponge Iron Manufacturers Association



Ispat Mitra Award presented to India Led Zinc Development Association

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Ispat Mitra Award presented to Indian Institute of Metal-DELHI CHAPTER



Ispat Mitra Award presented to Indian Refractory Makers Association

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Ispat Mitra Award presented to Alloy Steel Producers Association of India

ADDRESS BY SHRI R K PAUL, DIRECTOR, NISST WITH FOCUS ON ROADMAP OF SECONDARY STEEL SECTOR FOR VISION 2047



The award ceremony was followed by address by Shri R K Paul, Director, NISST. During his address, he said that, after liberalization secondary steel sector came to supplement the gap in steel demand. The sector helped in infrastructure development of the country. EAF had problems with Harmonics, Flickers and weak regional grid. Slowly IF replaced EAFs, which had an added advantage of low CAPEX. When steel scrap was costly and unavailable, sponge Iron replaced it. Now Secondary Steel diversified, produce steel from Iron ore and thermal coal with value added steel.

He also highlighted the Vision and Mission of Secondary Steel Sector during the Amrit Kaal:

VISION

- To attain self-sufficiency where Secondary Steel Sector dominated by value added producer with lowest carbon footprint in line with India's COP 26 commitments.
- To direct steel makers, steel processing units, recycling units to become globally competent, so that they are productively engaged in cost effective, quality compliant, safe and environmentally sustainable production, processing and efficient supply chain activities.
- The focus is to achieve self-sustainable capital growth, and transparent reporting of sustainability parameters namely, GHG, Energy and Water consumption.

MISSION

To provide policy support, environment and hand-holding to secondary steel sector in attaining:

- i. 90% import substitution of steel products.
- ii. Extensive Steel usage in buildings, bridges, mountainous roads and its popularisation
- iii. Raw Material and Energy security to the sector with sustainable supply chain

Support to the Secondary Steel sector in areas of:

- i. Raw material – viz. Iron ore (CLO and pellets), Coal, scrap
- ii. Allocation and securing its supplies
- iii. Cluster wise study to solve resourcing issues to let them flourish
- iv. Energy- To let them acquire Best Available Technologies
- v. Green steel- To let them become
- vi. the best talent to achieve demographic dividend during the *Amrit Kal*
- vii. **In his concluding the speech he also highlighted** pioneer
- viii. Hydrogen: To make green hydrogen available to the sector
- ix. Logistics: To cut down their logistic cost component

Skill development: skilling and attracting the Ultimate vision 2047

- Extensive use of gaseous fuels
- Development of Hydrogen as reductant
- Efficient Melting and heating Furnaces
- Use of recycling technology
- Enhanced resource efficiency

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ADDRESS BY SHRI RANJAN BANDYOPADHYAY, EXECUTIVE SECRETARY, JPC WITH FOCUS ON INDIAN STEEL SCENARIO AND USAGES OF SCRAP



**JPC :
 Evolution
 Milestones**

1954	Constitution. To set guidelines for production, allocation, pricing, distribution of iron & steel materials
1992	Industry de-regulated. JPC emerged as a facilitator for industry in the post-deregulated era (after 1992), focusing on developing a comprehensive and non-partisan databank – the first of its kind in the country – on the Indian iron and steel industry.
2007	Steel deleted from EC Act, 1955.
2008	Through gazette notification. MoS notifies need for continuance of JPC in its present form, in context of its critical database
2017	JPC Apex Committee expanded to include steel producer associations, private sector organizations and other arms of Government

JPC : Today

- Today, JPC is the only institution in the country, officially empowered by the Ministry of Steel, Government of India to collect data on the Indian iron and steel industry.
- JPC is the official data provider for India to global agencies - World Steel Association (on basis of which Indian Steel's rankings are derived) and OECD Global Forum (on Global Steel Excess Capacity).
- Extensive analytical support to Ministry of Steel (Parliament Questions, Standing Committee, Consultative Committee, Annual Report, etc), government policy formulation (NSP, DMIS&P, PLI etc) and formulation of economic parameters of different arms of Government of India like IIP, WPI, GDP, Eight Core Sector Infrastructure Index are the other core uses of the JPC iron and steel database.

Joint Panel Committee

3

Indian Steel Industry at a glance for FY 2021-22 (Prov.)

Sl. No.	Type of Industry	No. of Working Units	Capacity(Prov.) ('000 tonnes)	Production(Prov) ('000 tonnes)	Capacity Utilization (%)
I	Pellets	40	105966	78934	74
II	Sponge Iron	288	49273	39031	79
II	Blast Furnace - Hot Metals	52	84834	78123	92
III. Crude Steel					
1	BOF	18	66695	54177	81
2	Electric Arc Furnace	36	37728	32209	85
3	Induction Furnace	833	49846	33621	67
III	Crude Steel(1-3)	887	154269	120007	78
IV. Crude Steel to Finished Steel Equivalent					
4	Re-rolling	1052	88846	58978	66
5	HR Product	22	59700	54618	91
IV	Crude Steel to Finished Steel Equivalent(4-5)	1074	148546	113596	76
V. Value Added Steel					
6	CR Product	72	28901	20120	70
7	GP/GC Sheets	29	11042	8126	74
8	Colour Coated	18	3641	2520	69
9	Tinplate	5	849	606	71
10	Pipes	105	10748	3981	37

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Indian Steel Industry at-a-glance for OTHERS FY 2021-22 (Prov.)

Sl. No.	Type of Industry	No. of Working Units	Capacity(Prov.) ('000 tonnes)	Production(Prov) ('000 tonnes)	Capacity Utilization (%)
I	Pellets	34	55866	39579	71
II	Sponge Iron	281	34578	27597	80
II	Blast Furnace- Hot Metals	35	13520	8022	59
III. Crude Steel					
1	BOF	4	3177	2065	65
2	Electric Arc Furnace	27	12614	9869	78
3	Induction Furnace	833	49846	33621	67
III	Crude Steel(1-3)	864	65637	45555	69
IV. Crude Steel to Finished Steel Equivalent					
4	Re-rolling	1038	67251	42140	63
5	HR Product	10	8115	6391	79
IV	Crude Steel to Finished Steel Equivalent(4-5)	1048	75366	48531	64
V. Value Added Steel					
6	CR Product	56	12143	6073	50
7	GP/GC Sheets	16	4376	2790	64
8	Colour Coated	11	1286	1014	79
9	Tinplate	2	390	383	98
10	Pipes	101	9418	3439	37

Crude Steel Capacity (in mt)

Route	2017-18	2018-19	2019-20	2020-21	2021-22 (prov)
BOF	55.267	56.975	57.295	57.295	66.695
EAF	40.242	41.284	40.508	40.354	37.728
IF	42.466	43.977	44.496	46.266	49.846
Total	137.98	142.24	142.30	143.91	154.269

- ❖ Electric Route has dominated capacity creation, accounting for 60% of total capacity (avg. last 5 years).
- ❖ Within it, IF Route has led capacity creation, with over 50% share (avg last 5 years).
- ❖ In terms of CAGR growth, BOF has reported robust rate (5.6%) followed by 4.6% of IF while the same for EAF has seen a marginal decline during last 5 years.
- ❖ Such growth rates have helped overall crude steel capacity to grow by 4% during last 5 years.
- ❖ **2021-22 crude steel capacity has exceeded pre-COVID-19 levels as well.**

Crude Steel Production (in mt)

Route	2017-18	2018-19	2019-20	2020-21	2021-22 (prov)
BOF	47.392	49.455	48.573	45.085	54.177
EAF	26.518	28.476	28.367	29.407	32.209
IF	29.221	32.990	32.198	29.052	33.621
Total	103.13	110.92	109.14	103.54	120.007

- ❖ Electric Route has dominated production also, accounting for 60% of total production (avg. last 5 years).
- ❖ Within it, IF Route has led production, with nearly 55% share (avg last 5 years).
- ❖ In terms of CAGR growth, BOF has reported robust rate (5.3%) followed by 4.5% of IF while the same for EAF has seen a marginal rise during last 5 years.
- ❖ Such growth rates have helped overall crude steel production to grow by 4.1% during last 5 years.
- ❖ **2021-22 crude steel production has exceeded pre-COVID-19 levels as well.**

Progression of Steel Industry

Item	2019-20	2020-21	2021-22 (prov.)
Crude Steel Production (in mt)	109.137	103.545	120.007
Finished Steel Production (in mt)	102.621	96.204	113.596
Finished Steel Consumption (in mt)	100.171	94.891	105.751
Per Capita Consumption (in kg)	74.7	70.0	77.2

- ❖ **2021-22 has seen Indian Steel Industry cross pre-COVID-19 levels in all the major reporting parameters, reaching new highs and creating all-time record !**
- ❖ Production and consumption has grown by 4.4% and 4.7% respectively in last 5 years ending 2021-22.

Induction Furnace Industry

Item	2019-20	2020-21	2021-22 (prov.)
No. of Units	858	823	833
Annual Capacity (in mt)	44.496	46.266	49.846
Production (in mt)	32.198	29.051	33.621

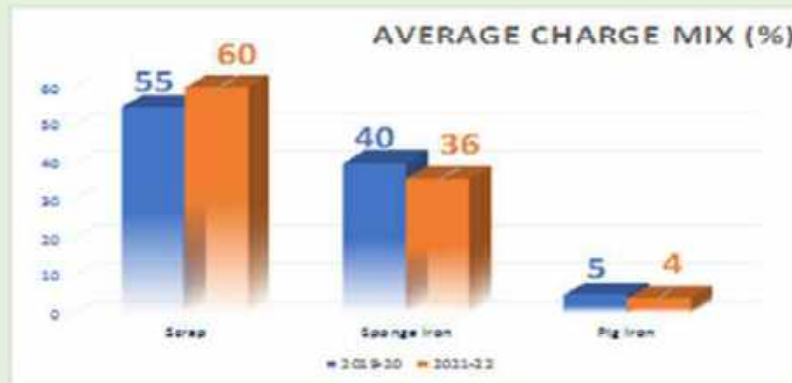
- ❖ With an annual average share of 31% in case of total capacity and nearly 30% in case of total production of crude steel in the last five years, the Indian Induction Furnace Industry continues to be a significant contributor to steel industry's progress.

Sponge Iron Production (in mt)

	2017-18	2018-19	2019-20	2020-21	2021-22 (prov)
Gas Based	6.4583	6.899	6.5636	6.1746	8.866
Coal Based	24.053	27.806	30.539	28.201	30.164
Total	30.511	34.705	37.102	34.376	39.031
Share of Coal Based	78.8%	80.1%	82.3%	82.0%	77.3%

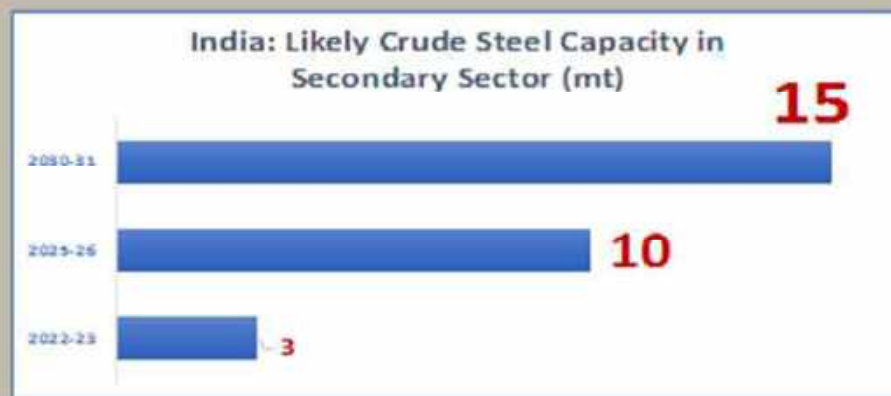
- ❖ In terms of CAGR growth in last 5 years, overall production growth (6%) has seen greater contribution from Gas-based route (13%) compared to the 5% of Coal-based route.
- ❖ However, in volume terms, it is the Coal-based route that dominates domestic sponge iron production, with an annual average share of 80% in total production in last 5 years.
- ❖ 2021-22 has seen Indian DRI industry cross pre-COVID-19 levels by both the routes of production and hence at overall level also !

Charge-Mix



Compiled from Snapshot Survey conducted by JPC, data on Average Charge-Mix indicates shift towards Green Steel between the period, 2019-20 and 2021-22.

Capacity Expansion (Others Sector)



Compiled from Snapshot Survey conducted by JPC, India's Secondary Steel Sector is likely to add a total of 28 million tonnes of crude steel capacity by 2030-31.

JPC Market Price

Fortnightly Market Price Report

Prices of 34 steel items released on a fortnightly basis for Kolkata, Delhi, Mumbai & Chennai

Daily Price

For select steel items along with Iron Ore and Coking Coal released on a daily basis

Dynamic Price

Hourly price updates for Billets, Ingots, TMT, HRC and Scrap collected from clusters like Ghaziabad, Faridabad, Mandi Gobindgarh, Raipur, Raigarh, Jaina, etc.

Further Coverage

We plan to report regular price updated for Ferro Alloy, Manganese Ore, Chrome Ore, etc.

Thank You

Joint Plant Committee

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ADDRESS BY SHRI VISHVA BANDHU, SR. DY. DIRECTOR, NISST WITH FOCUS ON GREEN STEEL MAKING IN SECONDARY STEEL SECTOR-NEED OF THE HOUR

During his address, he said that, the average annual temperature of the earth is rising since the industrial revolution. This is mainly due to the burning of the fossil fuels which increase the emissions of carbon di-oxide (CO₂) in the atmosphere. Prior to the industrial revolution, 280 ppm of the atmospheric air consisted of CO₂, and this has now increased to around 413 ppm.

Iron and steel industry is the single largest sector in terms of total global fossil and industrial emissions, making up around 7 % to 9 % of greenhouse gas (GHG) emissions. The high reliance on coal in the present primary steel production, make goal towards near-zero emissions of CO₂ challenging. Long term solutions are needed to tackle the CO₂ emissions produced during the production of steel. Green steelmaking consists of the use of those processes which result into reduction in CO₂ emissions.

In European Union the breakthrough technologies are being developed under the ULCOS (Ultra-Low CO₂ Steelmaking) program. In Japan the development work is carried out under COURSE50 program involving six steel and engineering organizations. Technologies in India have also penetrated to some extent.

In primary steel making, making green steel will remain a challenge due to imminent use of coke in hot metal production unless there is carbon capture use and storage. But secondary steel sector based on DRI – EAF/IF route offers tremendous opportunities for making green steel and hence contribute significantly to making steel making carbon neutral.



The promise of making green steel in secondary steel sector is largely depending on use of hydrogen in place of coal in sponge iron making. This has become possible in shaft furnaces and pilot plants have been ready in the world. Production of Hydrogen is a challenge and it requires about 40 kWh to produce 1 kg of hydrogen by electrolysis. If this electricity is produced by thermal energy by fossil fuels, the objectives of making green steel would not be met. The source of electricity requires for hydrogen for DRI production has to come from renewable sources. The world has demonstrated this very well and to achieve carbon neutrality, this technology is required to be adopted. However, there are various other alternatives which may emerge in times to come and R&D efforts, more particularly in India for secondary steel sector, needs to be done.

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ADDRESS BY SHRI ANIL MOHINDRU, DY. DIRECTOR (E), NISST WITH FOCUS ON ROLE OF ENERGY AUDIT IN IMPROVING EFFICIENCY AND REDUCING COST OF PRODUCTION



During his address, he said that, many EIF based Melting units of SME sector of steel are still using low-capacity old induction furnaces which consume a lot of energy for melting of steel. Cost of energy in steel production is increasing day by day due to the fast-depleting resources, rising prices of fuels & electricity. Generally, the specific energy consumption varies from 600 to 750 KWH/Ton depending upon the size & type of furnace, operating conditions, scrap mix, auxiliaries etc. The factors for high specific energy consumption includes:

- ❖ Old and obsolete Technology
- ❖ Smaller capacity furnaces
- ❖ Inefficient operating practices and Breakdowns
- ❖ Power Quality
- ❖ Charge mix and Quality of scrap & DRI
- ❖ Radiation losses
- ❖ Auxiliary load

A lot of potential exists in saving of electrical energy in this area which can also help in reducing the GHG emissions to a significant level as overall energy consumed through EIF melting is very high. Some of the suggestions for minimizing specific energy consumption in EIF melting units include the following.

- ❖ Replacement of old and obsolete technology
- ❖ Installation of scrap Preheating Systems
- ❖ Optimisation of Pouring Temperatures
- ❖ Reduction in Radiation Losses
- ❖ Optimization of Charge mix
- ❖ Installation of shredding machine and improved scrap charging
- ❖ Optimized cooling water system
- ❖ Efficiency improvement in auxiliaries - Water pumps, air compressors etc.
- ❖ Installation of Grid connected Solar panels for auxiliary loads
- ❖ R&D efforts

Energy audit is a systematic approach to tackle this issue. NISST can play a major role in undertaking the energy audits in an organised way. NISST has been undertaking energy audits of the different types of industrial units, to help in saving energy and cost reduction.

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ADDRESS BY SHRI R K VIJAYVERGIA, CONSULTANT, SRTMI WITH FOCUS ON PRESENT CO2 EMISSIONS BY COAL BASED DRI UNITS AND ROADMAP TO REDUCE CO2 EMISSION AS PER PARIS AGREEMENT

During his address, he said that, to achieve a climate-safe future as required by the Paris Agreement, there is a need for reaching net-zero emissions by around 2050 and net negative emissions thereafter for every sector including the steel industry. During 1900-2015, it is estimated that ~45 Gt steel was produced leading to emissions of ~147 Gt CO₂-eq. Technical improvements resulted in significant improvements in process efficiency during this period, but was offset by a continuous increase in annual steel production, resulting in net increase in annual emissions. Expected demand expansion may jeopardize steel



industry's prospects for following 1.5 °C emission reduction pathways. To achieve the Paris climate goals, there is an urgent need for rapid implementation of mitigation measures. Commitments have been made at the COP26 global climate change summit by most developed economies setting targets for net-zero carbon by 2050/2060/2070, and many also pledged ambitious 2030 emissions reduction goals.

The Indian steel industry emits around 30% of the total industrial CO₂ emissions in the country. Most emissions come from the about 20 integrated steel plants and about 200 coal based DRI units in India. India's steel production may reach close to 500 million tons over the next three decades from the current level of 120 million tonnes. At the present rate, CO₂ from the Indian steel industry are projected to increase to about 837 million tons over the next three decades from the current level of about 242 million tons. India's steel industry is highly dependent on coal for its energy needs. CO₂ emission intensities of is more than 2.3-2.5 t/tcs, against the world average of 1.89 (2021 figure), but is expected to come down with the latest facilities for expansion to achieve 300 mt capacity. Challenge lies in enhancing steel production, while at the same time minimizing the negative environmental impact of its production.

India is the world's largest producer of DRI, with the coal-based production method accounting for 77.28% of the total DRI production in the country. The DRI industry in India has seen enormous growth, with installed capacity increasing from 1.52 in 1990-91 to around 49.846 mt per annum in 2021-22. Production of sponge iron grew from 0.9 mt in 1990-91 to 39.031 mt in 2021-22. The National Steel Policy of 2017 projects an increase in domestic demand for sponge iron to 80 mt by 2030-31. Sponge iron capacity may increase to 114 mt by 2030-31 with nearly 70% share of coal gas-based plants.

DRI Production in India from coal-based plants was 30.165 mt (77.28% of total), installed capacity was 33.389 mt in 2021-22. DRI – IF Route accounted for Crude Steel Production of 33.621 million tonnes (28% Share) in 2021-22.

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In 2017, India emitted 2162 mt of CO₂, of which 563 mt (~26%) is the industrial contribution. CO₂ emissions from the DRI industry is estimated to be 61.85 mt (11%). Due to the large percentage of DRI production in India, there is an urgent need for emissions reductions in this sector.

Roadmap for Reducing CO₂ Emission in Coal Based DRI Plants should be based on improvement in quality of inputs, efficient use of available resources, utilizing renewable energy, optimizing process

parameters, improving energy efficiency by maximizing waste heat recovery (preheating the kiln feed materials) and incorporation of CCU/S. Considering that the large DRI share is contributed to mainly by small- and medium-scale producers, upscaling of the DRI process and integration with modern heat recovery, renewable energy and energy conservation techniques could likely be the way forward. Improving the collection, transparency and accessibility of energy performance and CO emissions statistics on the iron and steel subsector would facilitate research, regulatory and monitoring efforts. Fundamental investigation / technical literature on the rotary kiln DRI production process is limited in terms of kiln emissions control, process modelling. Supporting fundamental investigation is needed for evolving strategy for controlling the CO₂ emissions from coal based DRI plants.

CCUS is widely accepted as the key bridge from today's fossil energy society to the renewable future. CCUS technology is relatively underdeveloped, and to date, there has been no example of its retrofitting in existing DRI plant. But the concept of developing small module for carbon capture for coal-based plants need strong consideration.

ADDRESS BY SHRI SOUVIK BHATTACHARJYA, ASSOCIATE DIRECTOR, INTEGRATED POLICY ANALYSIS DIVISION, TERI WITH FOCUS ON IMPERATIVE OF CIRCULARITY IN STEEL SECTOR



During his address, he said that, Steel forms the backbone of infrastructure growth and economic development and has played a very important role since India's independence making India self-reliant while creating job opportunities to the millions. At the times of India's independence, India's total steel production was around 1.1 million tonnes and reached around 26 million tonnes recording a compound annual growth of 6.5%. However, between 2000 and 2019, the production reached 111 million tonnes with a CAGR close to 9%. Steel industry contributes around 2% to India's GDP and while employing around 2.5 million people

directly or indirectly. Estimated steel manufacturing capacity is expected to increase from 142 million tonnes to 300 million tonnes by 2030 as reported in India's National Steel Policy of 2017. The production is projected to reach 255 million tonnes representing 85% capacity utilization as against current utilization of 78%.

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Increasingly, environmental concerns are taking centre stage and the Indian steel industry is not immune to this trend. The steel industry is energy-intensive and is the second biggest consumer of energy globally. This leads to a higher carbon footprint and also affects the immediate environment. Further it is extremely resource intensive that includes iron ore, dolomite, limestone, coking coal.

The current sustainability challenge poses an unprecedented opportunity in promoting sustainability through resource efficiency. The availability of scrap in India will also see a sharp increase primarily from "obsolete scrap". Concurrently, with "Make in India" program, the country will also see a steady rise in manufacturing and increased availability of prompt scrap. This will lead to a higher growth trajectory of steel production through the IF/EAF route as compared to the conventional BOF route. Further to meet the stringent environmental norms w.r.t energy and carbon foot print as per Paris Agreement on Climate Change, use of IF may increase over BF/BOF route. Sustainability interventions include, adoption of 6R's i.e Reduce, Reuse, Recycle, Recover, Redesign and Remanufacture and thus improving global competitiveness, reduction in the energy intensity / ton of steel, optimum utilization of natural resources

along product life cycles, recovery of energy (heat, gas), benchmarking of secondary / MSME and prioritization of investments and moving towards Zero Discharge Zero Waste and Zero Harm regime. On an average, production of 1 ton of steel from scrap conserves an estimated 1,030 kg of iron ore, 580 kg of coal, and 50 kg of limestone. Steel scrap recycling also saves the energy.

Other consequential benefits include energy sovereignty, faster meeting of NDC targets, improved trade balance while creating employment opportunities, start-ups and inflow of VC/PE and impact investments. A quick analysis reveals that at more than 60% steel production from IF/EAF route by 2030, will help the industry to save more than 250 million tonnes of CO₂ and almost INR 900 bn of outflow of foreign exchange reserves. At current carbon costs the total monetary benefits is close to US\$ 2 billion.

The idea of resource efficiency is fundamental to the triple-bottom-line concept of sustainability, which focuses upon the economic, environmental and social factors. The Life cycle thinking (LCT) is the key towards addressing every aspect of sustainability, which requires to consider energy, environmental, waste and emissions of products across each phase of its life. The benefits are evident for the usage of scrap as recycled material after the end of useful life, however multiple resource efficiency measures can be applied across each life cycle stage to make the steel sector sustainable. This RE approach will aim to enhance flow of goods and services, in turn rebuild capital, whether it's financial, manufacturing, human, social or natural.

The true benefit of steel recycling can also be better understood based on a comprehensive life cycle assessment across various steel manufacturing routes. TERI is currently undertaking a detailed exercise to assess the impact not only with regard to CO₂ emission but also other environmental issues by quantifying impacts across 18 major impact categories. The key findings is envisaged to bring additional and scientific data and information that will further strengthen the imperative of a bringing complete circularity in Indian steel sector.

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Momento presented to Speaker Shri Ritesh Maheshwari, MRAI



Momento presented to Speaker Shri Souvik Bhattacharjya, TERI

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Momento presented to Speaker Shri Ranjan Bandyopadhyay, JPC



Momento presented to Speaker Shri R. K. Paul, NISST

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Memento presented to Speaker Shri R.K. Vijayvergia, SRTMI



Memento presented to Speaker Shri Vishva Bandhu, NISST

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Memento presented to Speaker Shri Anil Mohindru, NISST



Memento presented to Session Chairman Shri Parmjeet Singh, Addl. Industrial Adviser, MOS

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Memento presented to Special Guest Shri Anil Kumar, PS of Steel Minister of State, MOS



VOTE OF THANKS

The vote of thanks was given by Shri Gopal Gupta, Managing Director, Gopal Group of Industries.

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GALA DINNER



Inaugural speech delivered by Shri Kamal Aggarwal on the occasion of Gala Dinner which was held on 28th April, 2022, at Hotel The Royal Plaza



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Mr. Arpit Singla, Mr. Soumya Roy, Mr. Sanjay Singla, Mr. Shaurya Roy, Mr. Rajesh Bhardwaj**

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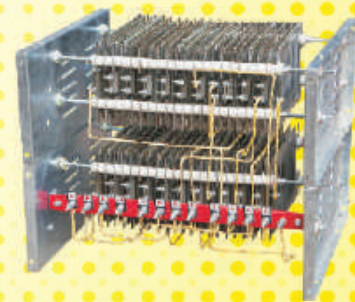
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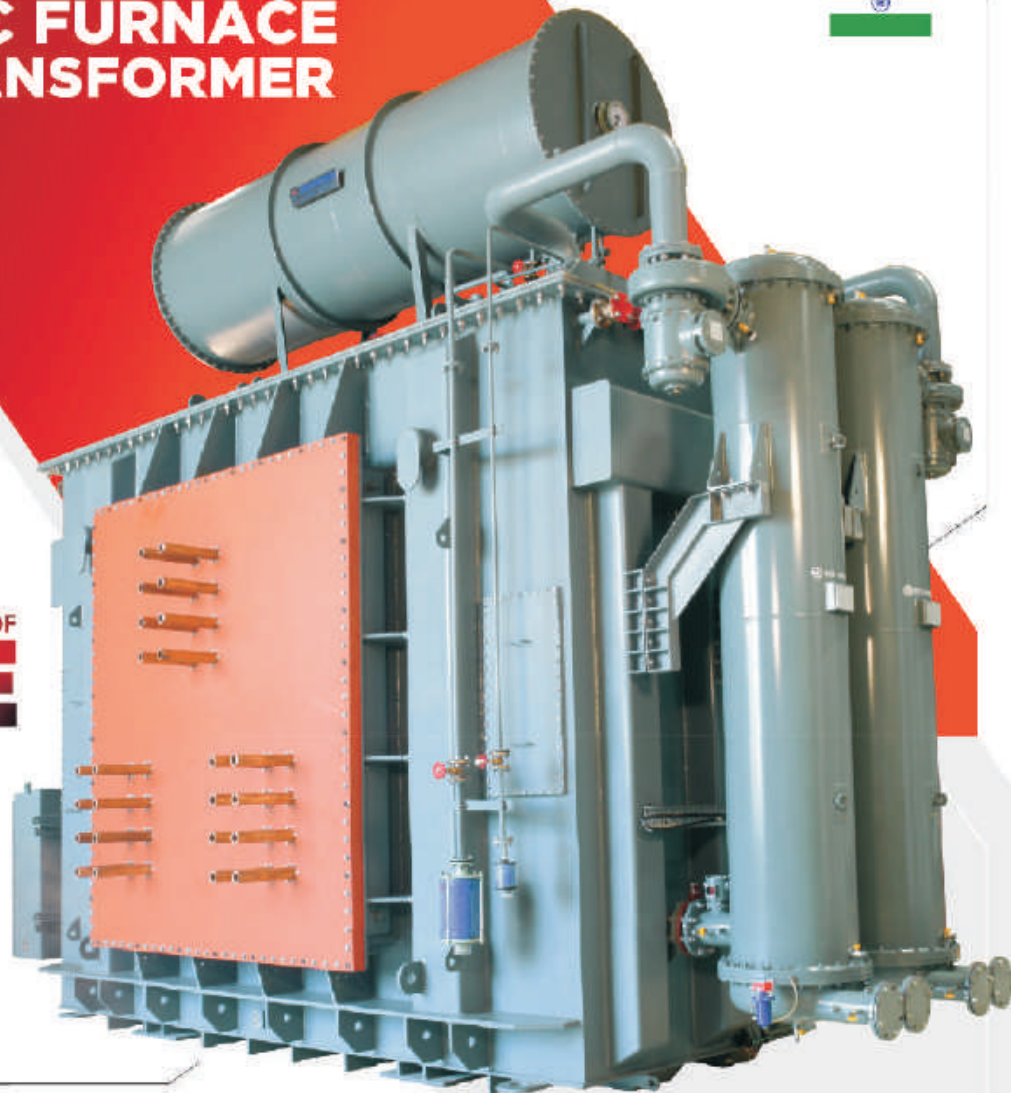


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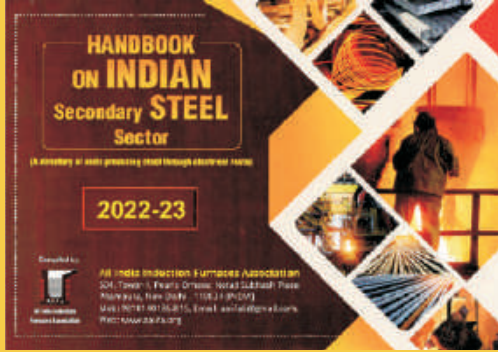
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