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(Part- II : Metals & Alloys)

61th Edition

IRON, STEEL & SCRAP AND SLAG

(ADVANCE RELEASE)

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES

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9 Iron, Steel & Scrap and Slag

Iron & steel is decidedly the vital component of a country's economy and is considered pivotal amongst the driving forces of modernisation. The level of per capita consumption of steel is treated as one of the important indicators of socio-economic development and living standards in any country. Steel continues to be the foremost of engineering materials, which is not only environment-friendly but also is recyclable.

The total finished steel (alloy/stainless+non-alloy) production in India has grown from a mere 1.1 million tonnes in 1951 to 113.597 million tonnes (Crude Steel Equivalent) in 2021-22. Out of this, 59.564 million tonnes was Non-Flat steel and the remaining 54.033 million tonnes was Flat steel. The contribution of non-alloy finished steel, alloy finished steel and stainless steel segment is 106.615 million tonnes, 4.170 million tonnes and 2.812 million tonnes respectively. The growth in the Steel Sector in the early decades after independence was mainly in the Public Sector units. However, following the adoption of new economic policy and subsequent deregulation and decontrol of Indian Iron & Steel Sector, the 1990s witnessed accelerated growth in the Private Sector, catapulting its share of finished steel production from 45% in 1992-93 to 84.52% (96.018 million tonnes) in 2021-22.

Steel exports from India began in 1964. Exports in the first five years were mainly as a result of low demand in the domestic Iron and Steel market. Exports subsequently declined due to revival of domestic demand. India once again started exporting steel in 1975 which subsequently registered a slump due to rising domestic demand. Post liberalisation, a rejuvenation in the Steel Sector resulted in large-scale exports of iron and steel. The total finished steel exports reached 13.494 million tonnes in 2021-22, registering a growth of 25.1% over the year 2020-21 while imports have continued the declining trend of recent years and registered a decline of 1.7 % with 4.669 million tonnes in 2021-22 compared to previous year.

Liberalisation of the Indian Steel Sector

At the time of independence in 1947, India had only three steel plants – the Tata Iron & Steel Company, the Indian Iron & Steel Company and Visveswaraya Iron & Steel Ltd and a few electric arc furnace-based plants. In the period till 1947, the viable steel producers in the country that operated with a capacity of about 1 million tonnes was wholly under the Private Sector. The provisions of the economic policy implemented during different phases of time engendered several marked changes in Indian Steel Industry. From meagre one million tonnes capacity status at the time of independence, India has now risen to be the 2nd largest crude steel producer in the world and the largest producer of Sponge Iron. From a negligible global presence, the Indian Steel Industry is now globally acknowledged for its product quality.

The rapid pace of growth of the Industry and the observed market trends called for certain guidelines and framework. Thus, the concept of the National Steel Policy was introduced with the aim to provide a roadmap of growth and development for the Indian Steel Industry. The National Steel Policy (NSP), 2005 was announced in November 2005 as a basic blueprint for the growth of a self-reliant and globally competitive Steel Sector. The long-term objective of the National Steel Policy 2005 was to ensure that India has a modern and efficient Steel Industry of world standards, catering to diversified steel demand. The focus of the policy was to attain levels of global competitiveness in terms of global benchmarks of efficiency and productivity. Then, after a detailed review in 2017, the Government released the National Steel Policy 2017, which laid down the broad roadmap for encouraging long-

term growth for the Indian Steel Industry, both on demand and supply sides by 2030-31, with a vision to create a technologically advanced and globally competitive Steel Industry that which would promote economic growth. At the same time, as a facilitator in the present-day de-regulated, liberalised economic/market scenario, the Government also announced a policy for providing preference to domestically manufactured Iron & Steel products in Government procurement. This policy seeks to accomplish the Hon'ble Prime Minister's vision of 'Make in India' with the objective of nation building and to encourage domestic manufacturing and is applicable on all Government tenders where price bid is yet to be opened. To ensure quality scrap for the Steel Industry, the Government of India came out with a Steel Scrap Recycling Policy in the year 2019 that aims to reduce imports, conserve resources and save energy.

STEEL POLICIES AND INITIATIVES OF THE GOVERNMENT TO BOOST THE STEEL SECTOR

National Steel Policy 2017

NSP 2017 aims to increase focus on expansion of Micro, Small and Medium Enterprises (MSME) Sector, improve raw material security, enhance R&D activities, reduce import dependency and cost of production, and thus develop a technologically advanced and globally competitive Steel Industry that which would promote economic growth eyeing self-sufficiency in production, developing economical steel manufacturing capabilities by facilitating investments and cost-efficient production with adequate availability of raw materials.

With focus on R&D through establishment of institution like Steel Research Technology Mission of India (SRTMI), the technology would be of utmost focus over the next decade and MSME steel plants would be the key drivers to achieve the additional capacity required for India's consumption led growth and improvement in the overall productivity and quality.

The principal objectives that the National Steel Policy 2017 aims to achieve are the following:

a) Build a globally competitive industry.

b) Increase per Capita Steel Consumption to 160 kg by 2030-31.

c) To domestically meet entire demand of high grade automotive steel, electrical steel, special steels and alloys for strategic applications by 2030-31.

d) Increase domestic availability of washed coking coal so as to reduce import dependence on coking coal from ~85% to ~65% by 2030-31.

e) To have a wider presence globally in value added/ high grade steel.

f) Encourage industry to be a world leader in energy efficient steel production in an environmentally sustainable manner.

g) Establish domestic industry as a cost-effective and quality steel producer.

h) Attain global standards in Industrial Safety and Health.

i) To substantially reduce the carbon foot-print of the Steel Industry.

Forecast of Iron & Steel Demand and Production (by 2030-31)

(All values in million tonnes per annum unless stated)

Sl No.	Parameters	Projections 2030-31
(i)	Total crude steel capacity	300
(ii)	Total crude steel demand/production	255
(iii)	Total finished steel demand/production	230
(iv)	Sponge iron demand/production	80
(v)	Pig iron demand/ production	17
(vi)	Per Capita Finished Steel Consumption (in kg)	158

Policy for providing preference to Domestically Manufactured Iron and Steel Products (DMI&SP) Policy in Government Procurement

The Government had introduced DMI&SP Policy on 8th May, 2017 to provide preference to domestically produced iron and steel material in Government tenders. Further, to fine tune this objective, the Policy was revised on 29th May, 2019 and on 31st December, 2020. The policy is envisaged to promote growth and development of domestic steel industry and reduce the inclination to use low quality and low cost (unfairly traded) imported steel in Government funded projects.

Steel Import Monitoring System (SIMS) for import data dissemination

SIMS platform was launched on 16th September 2019 for import consignments started at the Port of Entry w.e.f. 1st November 2019. SIMS registration is fully online and automated without any human intervention and registration number can be obtained by the steel importer after making an online payment of token registration fee prescribed for this purpose. SIMS has enabled the domestic industry to plan their pricing and production strategy and helped the country move towards self-sufficiency in steel making.

Quality Control Orders/BIS

Government has been facilitating supply of quality steel for critical end-use applications such as infrastructure, construction, housing and engineering sector.

Production Linked Incentive (PLI) Scheme

PLI Scheme for domestic production of specialty steel has been approved with an outlay of ₹ 6322 crores by the Cabinet. The five broad categories of Specialty steel, identified under the scheme, are used in a variety of applications including white goods, automobile body and components, pipes for transportation of oil and gas, boilers, ballistic and armour sheets, high-speed railway lines, turbine components, distribution and power transformers. The Scheme has been notified on 29.07.2021 and detailed Scheme Guidelines were published on 20.10.2021.

Decarbonization in Steel Sector

Ministry of Steel is continuously engaging with the stakeholders from the steel industry and the concerned stakeholder Ministries/ Departments such as Ministry of Environment, Forests and Climate Change (MoEF&CC), Ministry of Power, Bureau of Energy Efficiency (BEE), Ministry of New and Renewable Energy (MNRE), NITI Aayog etc to achieve net zero emissions by 2070 .

PM GatiShakti National Master Plan

With the help of Bhaskaracharya Institute for Space Applications and Geoinformatics (BiSAG-N) the infrastructure Ministries have uploaded their rail, road, port networks, etc. on PM GatiShatkti National Portal. Ministry of Steel has onboarded itself on PM GatiShakti Portal (National Master Plan portal) with the help of a mobile application created by BiSAG-N, by uploading the Geo locations of more than 2100 steel units (including big players) from across the country.

Steel Prices

Certain measures were taken by the Government to provide relief from high prices of crucial raw materials and intermediates, which included iron and steel. Accordingly, modifications were made in tariffs on raw materials of steel and other steel products vide notification dated 21.05.2022 whereby Import duty on Anthracite/Pulverized Coal Injection (PCI) coal, Coke and Semi-coke and Ferro-Nickel were reduced to zero. Export duty on Iron ores/ concentrates and iron ore pellets was raised to 50% and 45%, respectively. In addition, 15% export duty was imposed on pig iron and several steel products.

The prices of steel items declined ~15-25% across the board and stabilized consequent to the above measures. Taking in view the concerns of all stakeholders, the said notification has been rescinded vide notification dated 18.11.2022 and status prior to 21.05.2022 has been restored.

Steel Scrap Recycling Policy

The Steel Scrap Recycling Policy (SSRP) was notified in the Gazette of India on 07.11.2019. The Policy provides a framework to facilitate and promote establishment of metal scrapping centres in India for scientific processing and recycling of ferrous scrap generated from various sources including end of life vehicles (ELVs). SSRP works out a model for collection, dismantling and shredding activities in an organized, safe and environmentally sound manner in order to curb pollution and prevent health hazards. The responsibilities of dismantling centre and scrap processing centre, roles of aggregators and responsibilities of the Government, manufacturer and owner are enumerated. SSRP is an enabling Policy with the Ministry of Steel playing the role of a facilitator to establish scrapping eco-system for the entrepreneurs and investors to establish scrap centres in the country. The shredded scrap produced by recycling would be used as raw material for steel making. This will help reduce import dependency of scrap and boost imports substitution. The Policy will help transform the present process of metal recycling from unorganized to organized sector. The ferrous scrap generated through recycling used for production of steel will help in judicious use of valuable natural resources like iron ore, coal and limestone, leading to Resource Efficiencies (RE) and energy savings and reduce GHG emission.

MSTC Limited, a CPSE under the Ministry of Steel, in Joint Venture (JV) with M/s Mahindra Accelo, has set up Mahindra MSTC Recycling Pvt. Ltd. (MMRPL) which has established six (6) Vehicle Scrapping Centres at Greater Noida (UP), Chennai, Pune, Indore, Ahmadabad and Hyderabad. MMRPL has planned to set up more Vehicle Scrapping Centres in the country in near future.

STRUCTURE AND ROLE OF INDIAN STEEL INDUSTRY

The important iron & steel units in India are Steel Authority of India, Rashtriya Ispat Nigam Limited, Tata Steel Group, AM/NS (erstwhile Essar Steel), JSW Steel and Jindal Steel & Power as well as large number of Mini Steel Plants based on Electric Furnaces & Energy Optimising Furnaces (EOF). Besides the steel producing units, there are a large number of Sponge Iron Plants, Mini Blast Furnace units, Hot & Cold Rolling Mills & Galvanising/Colour Coating units which are spread across the country. The Secondary Steel Sector constitutes Electric Arc Furnace/ Induction Furnace, pig iron/sponge iron units, re-rolling units, HR units, CR units, galvanised/colour coated units, tin plate units, wire-drawing units, etc. for producing either semi-finished or finished steel.

The structure of the Indian Steel Industry in 2021-22 along with the production for 2020-21 to 2021-22 is furnished in Table-1. Production during the year 2017-18 to 2021-22 of iron & steel, crude steel, pig iron and total finished steel (Non-alloy + alloy + stainless) by SAIL, TSL Group , RINL, AM/ NS (erstwhile Essar Steel), JSWL, JSPL and other producers along with production of crude steel from oxygen route, electric arc furnace route and induction furnace route reflected in Table-2 along with the production of sponge iron through gas-based & coal-based units. The production of iron & steel by Public and Private Sectors during 2017-18 to 2021-22 is furnished in Table-3. The details on plant-wise capacity and production of hot metal and crude/ liquid steel are listed out in Table-4. The production of crude/liquid steel by BOF and Electric route (EAF/ IF) routes is given in Table-5 . Crude Steel Scenario Region / State -wise covering no. of units, annual capacity and production for the year 2021-22 is shown in Table 6. Prices of steel are provided in Table-7.

Table – 1 : Structure of the Indian Steel Industry, 2020-21 & 2021-22

(Capacity/Production: In million tonnes)

Sector		Total Annual Capacity	2020-21 Production	2021-22 Production	2021-22 % Capacity Utilisation
Crude Steel		**154.062**	**103.545**	**120.293**	**78 %**
(A) Producer-wise					
SAIL, TSL GROUP, RINL, AM/NS, JSWL, JSPL		88.232	65.053	74.875	85 %
Other Producers		65.830	38.491	45.419	69 %
(B) Sector-wise					
Public Sector		26.932	19.515	22.636	84 %
Private Sector		127.130	84.030	97.658	77 %
Hot Metal		**84.834#**	**69.266**	**78.223**	**99.588# %**
Pig iron		**NA**	**4.877**	**6.262**	
Sponge Iron		**49.273**	**34.376**	**39.200**	**79.556 %**
Total Finished Steel (Non alloy + Alloy + stainless)	**Total**	**NA**	**96.204**	**113.597**	
	Total (Non-Flat)		48.725	59.564	
	Total (Flat)		47.478	54.033	
1) **Finished Steel (Non-alloy)**		**NA**	**90.608**	**106.615**	
A) Non-Flat Products		**NA**	**45.157**	54.998	
Bars & Rods			37.171	46.338	
Structural			6.494	7.314	
Rly Material			1.493	1.346	
B) Flat Products		**NA**	**45.451**	**51.617**	
PM Plates			4.246	5.355	
HR Coil/Strip			41.204	46.262	
2) Finished Steel (Alloy)		**NA**	**3.326**	**4.170**	
A) Non-Flat Products		NA	2.990	3.832	
B) Flat Products		NA	0.336	0.337	
3) **Finished Steel (Stainless)**		**NA**	**2.269**	**2.812**	
A) Non-Flat Products		NA	0.577	0.733	
B) Flat Products		NA	1.692	2.078	

Source: *Annual Statistics, 2021-22 of JPC;*

Note *: Finished steel data are reported in terms of Crude Steel Equivalent. This change is due to change in reporting system of JPC as approved by Ministry of Steel and Industry Experts.*

 # : Combine Capacity pig Iron & Hot metal ; Figures rounded off.

Table – 2 : Production of Iron and Steel, 2017-18 to 2021-22

(In '000 tonnes)

Item/producers	2017-18	2018-19	2019-20	2020-21	2021-22(P)
I. Pig Iron : Total	**5728**	**6414**	**5421**	**4877**	**6262**
SAIL, TSL GROUP, RINL, AM/NS, JSWL, JSPL	726	1663	1193	1413	1462
Other Producers	5002	4751	4227	3464	4801
II. Sponge Iron : Total	**30511**	**34705**	**37102**	**34376**	**39200**
Gas based	6458	6899	6564	6175	8866
Coal based	24053	27806	30539	28201	30334
III. Crude Steel : Total	**103131**	**110921**	**109137**	**103545**	**120293**
SAIL, TSL GROUP, RINL, AM/NS, JSWL , JSPL					
Oxygen Route	41747	47412	46735	43947	52515
EAF Units	17639	21295	21647	21106	22359
Other Producers					
Oxygen Route	5645	2043	1838	1138	2070
EAF Route (incl.Corex & MBF / EOF)	8879	7181	6719	8301	8138
Induction Furnaces	29221	32990	32198	29052	35211
IV. Total Finished Steel (Non alloy +Alloy + Stainless)	**126855***	**101287**	**102621**	**96204**	**113597**
SAIL,TSL GROUP , RINL, AM/NS, JSWL, JSPL	69143	61283	61286	55322	65055
Other Producers	57712	40004	41336	40882	48542

Source: *Annual Statistics, 2021-22 of Joint Plant Committee*

Note *: * data as per JPC Annual statistics 2020-21 & As per Previous IMYB's data. It is 95010 thousand tonnes as per New JPC Annual statistics 2021-22. 1. Finished steel data are reported in terms of Crude Steel Equivalent.This change is due to change in reporting system of JPC as approved by Ministry of Steel and Industry Experts;* 2. TSL Group includes Bhushan Steel Limited, Tata Steel Long Products Limited & BMW - Gamharia (Jharkhand) along with TSL plants in Jamshedpur & Kalinganagar.. *Figures rounded off.*

Table – 3 : Production of Iron and Steel, 2017-18 to 2021-22 (By Sectors)

(In '000 tonnes)

Item/producers	2017-18	2018-19	2019-20	2020-21	2021-22(P)
I. Pig Iron : Total	**5728**	**6414**	**5421**	**4877**	**6262**
Public Sector (SAIL+RINL)	364	588	614	669	634
Private Sector (JSWL+JSPL+TSL Group Other Blast Furnace /Corex Unit)	5364	5826	4807	4208	5628
II. Hot Metal: Total	**68016**	**74376**	**73011**	**69266**	**78223**
Public Sector (SAIL+RINL)	21115	23282	22598	21262	24508
Private Sector (JSWL+JSPL+TSL Group/TSL + AM/NS + Other Private Sector)	46901	51095	50413	48004	53714
III. Crude Steel : Total	**103131**	**110921**	**109137**	**103545**	**120293**
Public Sector (SAIL+RINL)	19753	21496	20905	19515	22636
Private Sector (TSL/TSL Group, AM/NS (ESL), JSWL, JSPL + Other BOF + Other EAF+ IF Units)	83378	89425	88232	84030	97658
IV. Finished Steel (Non-Alloy+Alloy+ Stainless): Total	**126855***	**101287**	**102621**	**96204**	**113597**
Public Sector (SAIL+RINL)	17944	16933	16029	13783	17579
Private Sector {TSL/TSL Group + AM/NS (ESL) +JSWL+JSPL+Other Producers}	108911	84353	86593	82420	96017

Source*: Annual Statistics, 2021-22 of Joint Plant Committee ;*

Note *: Finished steel data are reported in terms of Crude Steel Equivalent. This change is due to change in reporting system of JPC as approved by Ministry of Steel and Industry Experts; . * : data as per JPC Annual Satistic 2020-21 & As per Previous IMYB's data.. It is 95010 thousand tonnes as per New JPC Annual statistics 2021-22*

Table – 4 : Capacity and Production of Hot Metal and Crude/Liquid Steel, 2020-21 and 2021-22 (By Principal Producers)

(In '000 tonnes)

Unit	Annual installed capacity		Production			
	Hot metal	Crude/Liquid steel	Hot metal		Crude steel	
			2020-21	2021-22	2020-21	2021-22
Public Sector						
SAIL		20632	16581	18734	15213	17363
Rashtriya Ispat Nigam Ltd (Andhra Pradesh)		6300	4681	5774	4302	5272
Private Sector						
JSW Steel Ltd		23000	14389	16794	14780	18023
TSL Group		20600	17775	19405	17204	19464
AM/NS (Essar Steel Ltd)	84834#	9600	3331	3335	6696	7295
Jindal Steel & Power Ltd		8100	5862	6068	6859	7458
Others		65831	6647	8112	38491	45419
Other BOF		3177	-		1138	2070
Other EAF		11614	-		8301	8138
IF Units		51040	-		29052	35211

Source: *Annual Statistics, 2021-22 of JPC ; # : Combine Capacity pig Iron & Hot metal*

Table – 5 : Production of Crude/Liquid Steel, 2017-18 to 2021-22 (By Route)

(In '000 tonnes)

Route/plant	2017-18	2018-19	2019-20	2020-21	2021-22
All Routes: (A+B) Total	**103131**	**110921**	**109137**	**103545**	**120293**
A. Oxygen Route : Total	**47392**	**49455**	**48573**	**45085**	**54585**
SAIL	14829	16045	15946	15054	17153
RINL	4731	5233	4749	4302	5272
Tata Steel Ltd	12459	-	-	-	-
TSL Group	-	16038	16399	15811	17215
JSPL	-	-	-	-	2495
JSW Steel Ltd	9728	10096	9641	8780	10380
Other Oxygen Route	5645	2043	1838	1138	2070
B. Electric Route: Total	**55739**	**61466**	**60564**	**58460**	**65708**
Electric Arc Furnace	**26518**	**28476**	**28367**	**29407**	**30498**
SAIL	193	218	210	158	210
TSL Group	-	2363	2126	1392	2249
AM/NS (Essar Steel Ltd)	6753	6813	7121	6696	7295
JSW Steel Ltd	6679	6647	6329	6000	7643
Jindal Steel & Power Ltd	4014	5254	5861	6859	4963
Lloyds Steel Ltd	560	518	495	452	681
Jindal Stainless Ltd	1497	1554	1418	1458	1812
Bhushan Steel Ltd	87	-	-	-	-
Bhushan Power & Steel Ltd	2018	2778	2901	3754	2720
Other Electric Arc Furnace	4717	2331	1905	2638	2926
Electric Induction Furnace	**29221**	**32990**	**32198**	**29052**	**35211**

Source *:- Annual statistics 2021-22 of JPC*

Note:- *TSL Group includes Bhushan Steel Ltd, Tata Steel Long Products, TSL Jamshedpur & TSL Kalinganagar, Figures rounded off*

Fig.1: Production of Crude Steel, 2014-15 to 2021-22

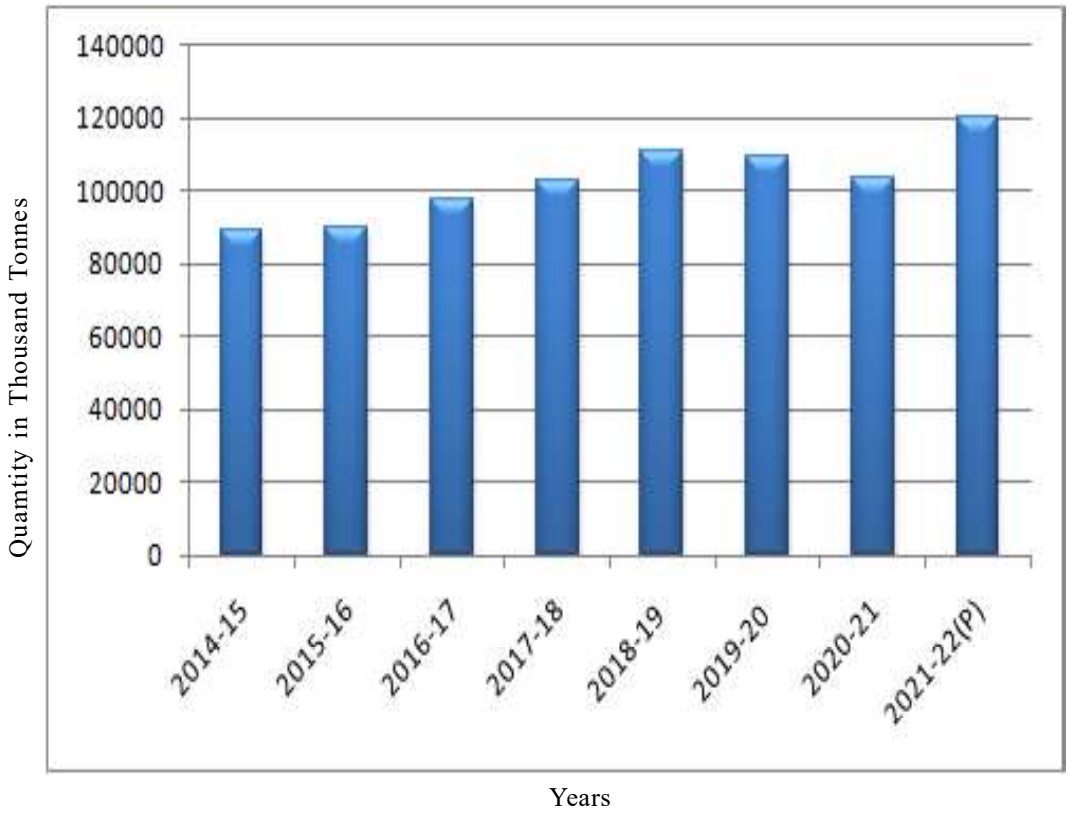


Fig.2:Production of Total Finished Steel, 2014-15 to 2021-22

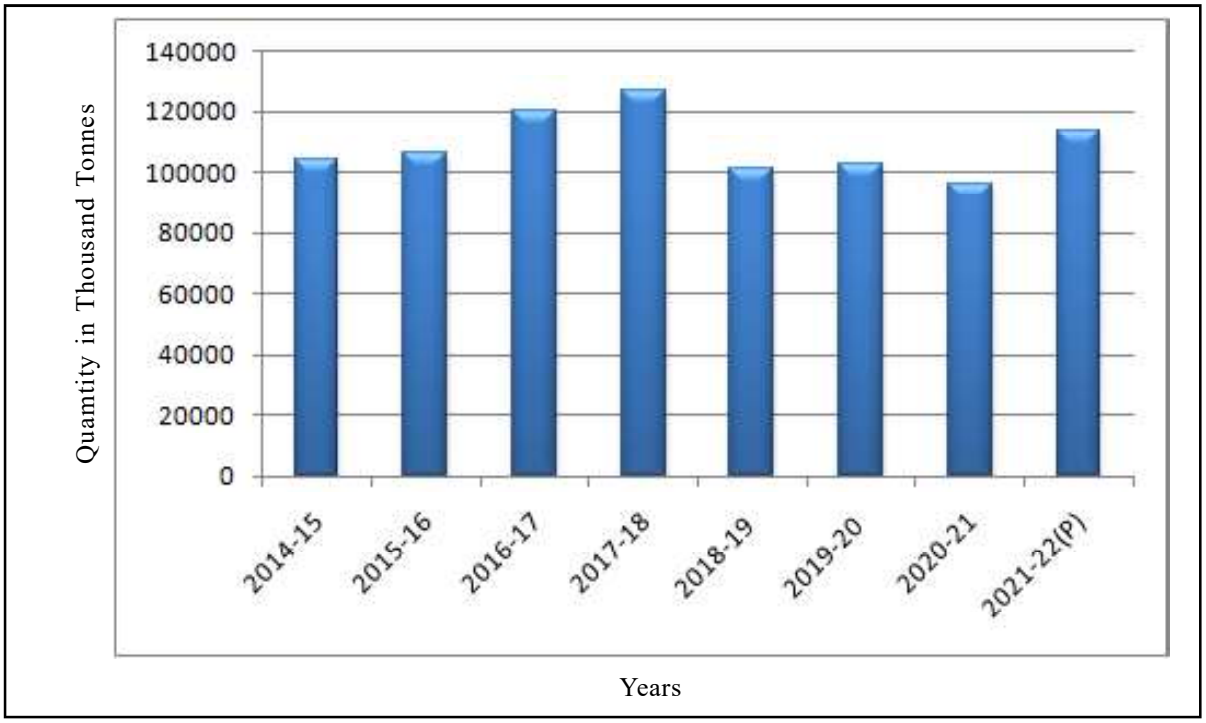


Table-6: Region / State -wise Crude Steel Scenario in respect of No. of Units, Annual Capacity and Production: 2021-22

State	No. of Units				Annual Capacity ('000 tonnes)				Annual Production ('000 tonnes)			
	BOF	EAF	IF	TOTAL	BOF	EAF	IF	TOTAL	BOF	EAF	IF	TOTAL
TOTAL	**18**	**36**	**847**	**901**	**66295**	**36728**	**51040**	**154062**	**54585**	**30498**	**35211**	**120293**
Eastern Region	**9**	**12**	**135**	**156**	**35577**	**9257**	**12941**	**57775**	**32918**	**8199**	**8831**	**49949**
Arunachal Pradesh	-	-	1	1	-	-	72	72	-	-	69	69
Assam	-	-	8	8	-	-	163	163	-	-	108	108
Bihar	-	-	12	12	-	-	812	812	-	-	529	529
Jharkhand	3	1	22	26	17477	1000	2029	20506	15011	684	1399	17094
Meghalaya	-	-	6	6	-	-	201	201	-	-	56	56
Odisha	4	7	46	57	13400	7676	3511	24587	13451	7129	2660	23241
Tripura	-	-	1	1	-	-	30	30	-	-	17	17
West Bengal	2	4	39	45	4700	581	6122	11403	4456	386	3994	8836
Western Region	**2**	**15**	**255**	**272**	**12000**	**23682**	**18586**	**54268**	**5594**	**18604**	**12538**	**36735**
Chhattisgarh	1	5	89	95	7000	6303	7597	20900	4875	4294	5731	14900
Dadra and Nagar haveli	-	-	14	14	-	-	286	286	-	-	253	253
Daman and Diu	-	-	3	3	-	-	50	50	-	-	46	46
Goa	-	-	10	10	-	-	495	495	-	-	407	407
Gujarat	-	2	73	75	-	9750	3762	13512	-	7321	1868	9189
Madhya Pradesh	-	-	13	13	-	-	987	987	-	-	569	569
Maharashtra	1	8	53	62	5000	7630	5409	18038	718	6990	3663	11370

contd...

Table-6:(concld)

State	No.of Units				Annual Capacity('000 tonnes)				Annual Production ('000 tonnes)			
	BOF	EAF	IF	TOTAL	BOF	EAF	IF	TOTAL	BOF	EAF	IF	TOTAL
Northern Region	**0**	**7**	**268**	**275**	**0**	**1609**	**10950**	**12558**	**0**	**1200**	**7630**	**8831**
Delhi	0	0	2	2	0	0	16	16	0	0	5	5
Haryana	0	3	12	15	0	847	209	1056	0	776	165	941
Himachal Pradesh	0	0	26	26	0	0	1740	1740	0	0	1265	1265
Jammu & Kashmir*	0	0	8	8	0	0	189	189	0	0	146	146
Punjab	0	4	113	117	0	762	4744	5506	0	424	3239	3663
Rajasthan	0	0	28	28	0	0	933	933	0	0	621	621
Uttar Pradesh	0	0	39	39	0	0	1606	1606	0	0	1197	1197
Uttarakhand	0	0	40	40	0	0	1512	1512	0	0	991	991
Southern Region	**7**	**2**	**189**	**198**	**18718**	**2180**	**8564**	**29462**	**16072**	**2494**	**6212**	**24778**
Andhra Pradesh	2	0	18	20	6600	0	1912	8512	5567	-	1529	7096
Karnataka	4	1	21	26	11118	2000	1131	14249	9764	2376	906	13046
Kerala	0	0	27	27	0	0	473	473	0	0	325	325
Puducherry(UT)	0	0	10	10	0	0	451	451	0	0	215	215
Tamil Nadu	1	1	86	88	1000	180	2564	3744	742	119	1773	2634
Telangana	0	0	27	27	0	0	2033	2033	0	0	1464	1464

** Jammu & Kashmir,vide enactmentof Jammu & Kashmir Reorganisation Act,2019, is a Union Teritory*

Fig.3: Crude Steel Working Capacity in Different States, 2021-22

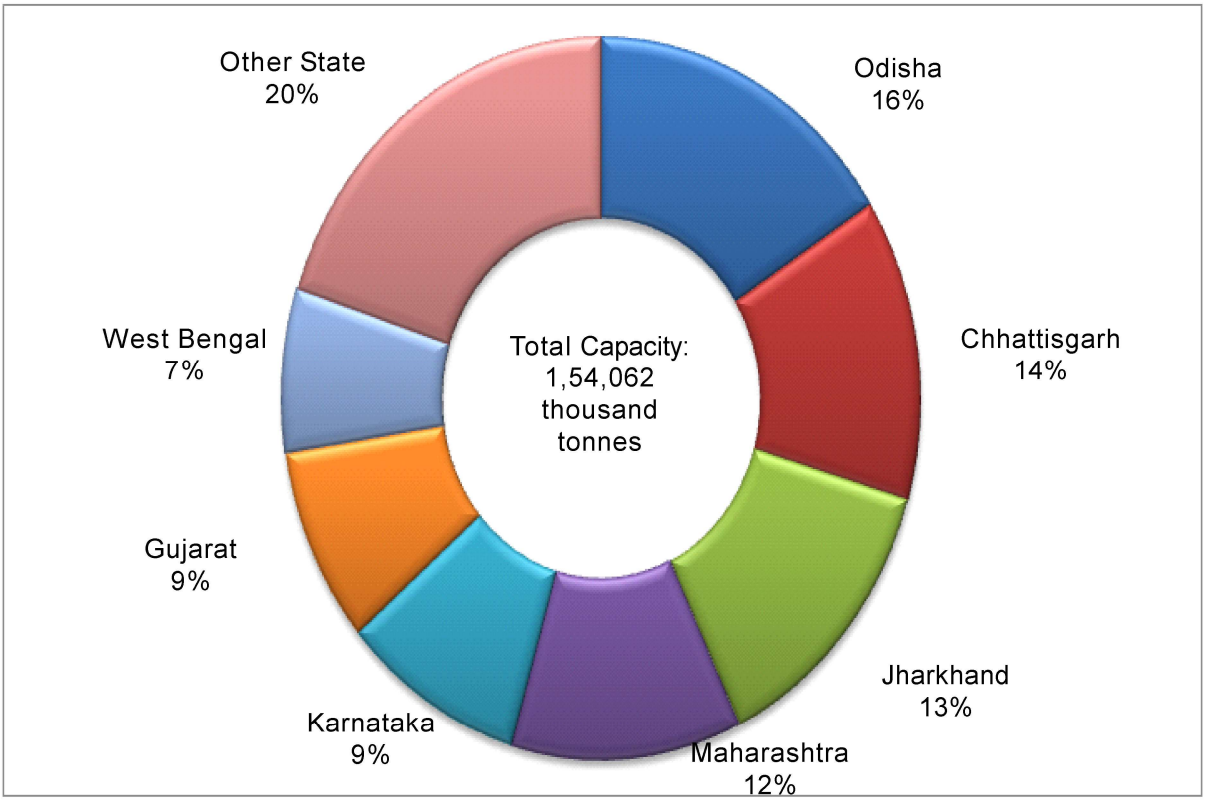


Fig.4: Crude Steel Production in Different States, 2021-22

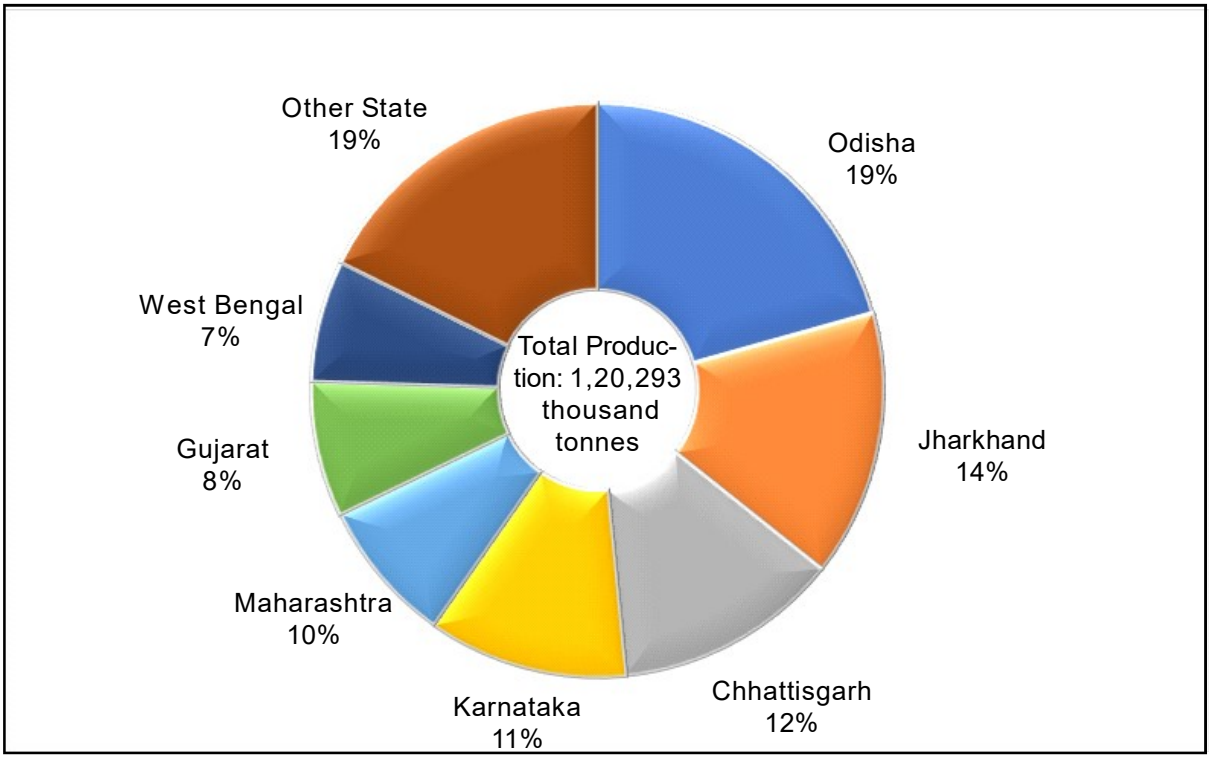


Table – 7: Prices of Steel, 2018-19 to October 2023
(Domestic Markets)

(In ₹ per tonne)

Grade	Market	2018-19	2019-20	October 2023
MS Squares (8 mm)	Delhi	45044	50525	62200
MS Angles (25 x 3 mm)	"	45135	50265	62700
Channels (75 x 40 mm)	"	44827	49560	62400
Joists (150 x 75 mm)	"	44546	51325	60700
Melting Scrap	"	26217	39775	39200
Induction Ingots	"	35698	33517	48200
TMT Bars (local-8 mm)	Mumbai	44998	43838	62000
MS Rounds (8 mm)	"	43658	42258	60000
MS Angles (40 x 6 mm)	"	46071	44619	62000
Joists (150 x 75 mm)	"	44538	42977	59000
Melting Scrap (Foundry G.)	"	-	-	47150
Melting Scrap (Steel G.)	"	-	-	48000
Melting Scrap (CRCA)	"	-	-	44575
Induction ingots	"	36119	33170	47200
Arc Ingots	"	36238	33835	48000
Concast Billet ingots	"	36529	34148	48000
TMT Bars (ISI, 8 mm)	Kolkata	46447	45398	56800
MS Squares (8 mm)	"	45726	44944	55000
MS Angles (25 x 3 mm)	"	45242	44773	61000
Channels (75 x 40 mm)	"	47124	44898	62500
Joists (150 x 75 mm)	"	44633	43079	58000
Induction Ingots	"	36190	33982	48000
Arc Ingots	"	36329	34257	48500
Concast Billet Ingots	"	36433	34444	48000
Induction Ingots (round)	Gobind	35970	31693	47000
Blooms (SAIL, 150 mm)	"	36016	31660	48000
Old Ship Breaking Scrap	"	29510	29126	51000
Melting Scrap (Rolling)	"	33271	28166	40950
MS Rounds (10 mm)	"	45075	43367	51800
MS Squares (8 mm)	"	47033	46018	56000
MS Angles (25 x 3 mm)	"	45313	44051	52000
MS Sponge Iron	"	26529	24566	35000
MS Flat (3 x 20 mm)	"	45300	43339	55000
Pig Iron (Foundry Grade) –A*	Mumbai	-	-	49750
Pig Iron (Foundry Grade) –B**	Punjab	-	-	47125
Pig Iron Steel Grade	Punjab	-	-	41500

Source: *Minerals & Metals Review : November-2023*
A : Low Sulphur/Phosphorus, i.e., 0.09% max. which is used in Critical automotive engine components & specialise casting.*
*B** : High Sulphur/Phosphorus, i.e., above 0.09% which is used in Non-critical castings.*
1. Prices are inclusive of GST. 2. All rates are monthly averages and indicatives.
3. Gobind = Mandi Gobindgarh in Punjab; FG stands for Foundry Grade & SG stands for Steel Grade.
4. MMR Pig Iron & Scrap prices are Basic Rates (Additional 18% GST & Frieght as applicable)

A. Crude Steel

At 120.293 million tonnes (mt) in 2021-22, India's crude steel production increased by 16.2 % as compared to 103.54 million tonnes in 2020-21. Given the above production for 2021-22 and with capacity at 154.062 million tonnes, crude steel capacity utilisation stood at 78% during 2021-22 as compared to 72% of last year. The Crude Steel working Capacity and Capacity Utilisation during the last five years are furnished at Table- 8.

Table- 8: Production and Working Capacity Crude Steel (2017-18 to 2021-22)

(Quantity in million tonnes)

Year	Working capacity	Production	% Utilisation capacity
2017-18	137.975	103.131	75%
2018-19	142.236	110.921	78%
2019-20	142.299	109.137	77%
2020-21	143.914	103.545	72%
2021-22	154.062	120.293	78%

Source: JPC Performance Review Iron & steel 2021-22
Figures rounded off.

With 81 % share, the Private Sector produced 97.658 million tonnes crude steel in 2021-22. In fact, India's crude steel production has been consistently led by the Private Sector in the last five years.

With a 62% share, SAIL, RINL, TSL Group, AM/NS, JSWL & JSPL together produced 74.874 million tonnes of crude steel in 2021-22, while the rest 38% was the share of the other producers during this period.

The following are the two primary routes of crude steel production:

(i) BF/BOF route also called the Oxygen route.

(ii) Electric route comprising of Electric Arc Furnace and Electric Induction Furnace.

Basic Oxygen Furnace (BOF)

Presently, there are around 18 Basic Oxygen Furnace units which are available in the Indian Iron & Steel Sector with a total capacity of 66.295 million tonnes and produced 54.585 million tonnes of crude steel through BOF route in 2021-22 at 82 % of its capacity utilisation.

Electric Arc Furnace (including corex & MBF/ EOF)

Crude steel produced in the Electric Arc Furnace (including corex & MBF/EOF) is mostly by recycling of steel scrap using Electric Arc Furnace (EAF). Electric Arc Furnace units, which are popularly known as mini steel plants, are significantly contributing to the production of steel in the country. Presently, in the Electric Arc Furnaces, there are 36 working units with total capacity of 36.728 million tonnes and produced 30.498 million tonnes crude steel through EAF route in the year 2021-22 at 83 % of its capacity utilisation. The recent developments in EAF technology, viz, to increase oxygen consumption, to reduce power consumption and to reduce tap time have led to increase in metal production. The development of thin slab casting has made EAF route more productive. This route enables slab strips rolling at lesser cost, facilitating production of cheaper strips/ sheets than those that can be achieved through BF/ BOF route.

Induction Furnace (IF)

In case of the Induction Furnace (IF) segment, there are presently 847 IF working units with total capacity of 51.040 million tonnes which produced 35.211 million tonnes crude steel through IF route in 2021-22 at 69 % of its capacity utilisation. These units are better than their EAF counterparts mainly because of their low cost of production and other factors mainly related to local market supply-demand conditions. Over the time, the IF sector has witnessed considerable technological upgradation with better charge-mix of DRI and refining facilities.(Table-6)

An analysis of the production of crude steel through various process routes indicates that the above performance has been contributed largely by the strong trends in growth of the electric route of steel making, particularly the induction furnace route (encouraged by strong growth in sponge iron).This is reflected in Table- 9.

On further analysis of the relative shares of the various routes in total production of crude steel, electric furnace route is dominated by the Induction Furnace route, which has emerged as a key driver of crude steel production in the country (Table- 10).

B. Hot Metal

At 78.223 million tonnes in 2021-22, hot metal production increased by 12.9 % over 2020-21.

With 69 % share, the Private Sector produced 53.714 million tonnes hot metal in 2021-22.

In 2021-22 , with a 90 % share, SAIL, RINL, TSL Group, AM/NS , JSWL and JSPL together produced 70.111 million tonnes, a growth of 12 % as compared to that in 2020-21. The other producers produced 8.112 million tonnes hot metal in the year 2021-22 which also showed a growth of 22 % as compared to that in 2020 - 21.

C. Total Finished Steel (Crude Steel Equivalent)

1. Trend in Production of Total Finished Steel

In the year 2021-22, the production of finished steel, measured in terms of crude steel equivalent, stood at 113.597 million tonnes showing a growth of 18 % over last year.

With a 85% share, the Private Sector produced 96.017 million tonnes finished steel equivalent in 2021-22 while 15 % (17.579 million tonnes) was the share of the Public Sector during this period. In fact, India's production of finished steel has been consistently led by the Private Sector in the last five years.

With a 57% share, SAIL, RINL, TSL Group, AM/NS, JSWL, JSPL taken together produced 65.055 million tonnes of finished steel in 2021-22 while other producers shared rest 43% (48.542 million tonnes) during the period. In fact, the trend of last five years ending 2021-22 indicates that India's production of total finished steel is driven by these six producers taken together.

Non-alloy Finished steel production during this period was 106.615 million tonnes, while 4.170 million tonnes and 2.812 million tonnes were those of alloy and stainless steel, respectively.

An analysis of the broad divisions in terms of the total production of finished steel reflects the following —

- Contribution of the Non-alloy Finished Steel Non-flat Segment stood at 54.998 million tonnes.
- While that of the Non-alloy Finished Steel flat Segment stood at 51.617 million tonnes.
- Contribution of the Alloy Steel Non-flat Segment stood at 3.832 million tonnes.
- While that of the Alloy Steel Flat Segment stood at 0.337 million tonnes.
- Contribution of the Stainless Steel Non-flat Segment stood at 0.733 million tonnes.

Table- 9 : Crude Steel Production — By Process

(million tonnes)

Process Route	2017-18	2018-19	2019-20	2020-21	2021-22
BOF	47.392	49.455	48.573	45.085	54.585
EAF	26.518	28.476	28.367	29.407	30.498
IF	29.221	32.990	32.198	29.052	35.211
Total	**103.131**	**110.921**	**109.137**	**103.545**	**120.293**

Source : *Performance Review Iron & Steel 2021-22, JPC*

Table- 10 : Percentage wise Process route share in total Production

Process Route	2017-18	2018-19	2019-20	2020-21	2021-22
BOF	46	44	45	44	46
EAF	26	26	26	28	25
IF	28	30	29	28	29

Source : *Performance Review Iron & Steel 2021-22, JPC*

• While that of the Stainless Steel Flat Segment stood at 2.078 million tonnes.

Analysing by segments within this broad group, it can be noted that —

• In the Non-flat, Non-alloy Segment, production of bars & rods stood at 46.338 million tonnes while production of Structural and Rly. Materials 7.314 million tonnes and 1.346 million tonnes respectively.

• For the Flat Non-alloy Segment, the production of Plate Mill Plates stood at 5.355 million tonnes while production of HR Coil/Strip stood at 46.262 million tonnes.

• In the Non-flat, Alloy Steel Segments, the overall production of all items stood at 3.832 million tonnes.

• Flat alloy Steel production stood at 0.337 million tonnes.

• In the Non-flat, Stainless Steel Segment, the overall production of all items stood at 0.733 million tonnes.

• Flat Stainless Steel production stood at 2.078 million tonnes.

2. Trends in Consumption of Total Finished Steel

Finished Steel consumption stood at 105.752 million tonnes in 2021-22 as compared to 94.891 million tonnes during 2020-21, showing a growth of 11.4 %. Data on overall consumption of total finished steel (non-alloy + alloy + stainless) during the last five years is provided in Table-11 which indicates a steady growth in domestic steel consumtion during this period, barring only 2020-21 when pandemic-included slump took a toll on domestic consumption of finished steel. Table-12 highlights the growth pattern yoy alongwith percentage share of domestic total finished steel consumption in terms of non-alloy, alloy & stainless in the year 2020-21 and 2021-22. Table-13 highlights the growth pattern yoy along with share of domestic total finished steel consumption, in terms of its two broad components – flat steel and non-flat/long steel – in 2020-21 and 2021-22. Both these components include non-alloy, alloy and stainless steel constituents as well.

Table-14 shows detailed consumption data for major categories of finished steel in 2021-22 over 2021-22 in terms of crude steel equivalent of finished steel as per the present reporting system.

Table – 11 : Total Finished Steel Consumption (Non-alloy + alloy + stainless steel) (Crude Steel Equivalent) (2017-18 to 2021-22)

(In '000 tonnes)

Year	Total Finished Steel Consumption	% yoy change
2017-18	90706	7.9
2018-19	98708	8.8
2019-20	100171	1.5
2020-21	94891	-5.3
2021-22	105752	11.4

Source : Performance Review Iron & Steel 2021-22, JPC

Table- 12 : Total Finished Steel Consumption - Non-alloy / alloy / stainless steel wise Crude Steel Equivalent (2020-21 to 2021-22)

(In '000 tonnes)

ITEM	2020-21		2021-22		% yoy Change
	Qty	% share	Qty	% share	
Total Finished Steel (Non alloy+ alloy + stainless)	**94891**	**-**	**105752**		**11.4**
Non-alloy Finished Steel	88667	93.4	98194	93	10.7
Alloy Finished Steel	3833	4	4514	4	17.8
Stainless steel	2392	2.6	3044	3	27.2

Source : Performance Review 2021-22, JPC

Table- 13 : Total Finished Steel Consumption— Non - flat/Flat wise
Crude Steel Equivalent (2020-21 to 2021-22)
(include non-alloy + alloy + stainless)

(In '000 tonnes)

ITEM	2020-21		2021-22		% yoy Change
	Qty	% share	Qty	% share	
Total Finished Steel (Non Flat+ Flat)	**94891**		**105752**		**11.4**
Non-Flat Finished Steel	51354	54.1	58780	55.6	14.5
Flat Finished Steel	43537	45.9	46972	44.4	7.9

Source : Annual Statistics 2021-22; JPC, Performance Review 2021-22 JPC

Table – 14 : Detailed Consumption for Major Categories of Total Finished Steel in 2020-21 over 2021-22
(Crude Steel Equivalent)

(In '000 tonnes)

Item	**2020-21**	**2021-22**	**% yoy Change**
Total Finished Steel (Non-alloy + Alloy + Stainless)	**94891**	**105752**	**11.4**
1. **Finished Steel (Non-alloy)**	**88667**	**98194**	**10.7**
a) Non-Flat Products	**47789**	**53639**	**12.2**
Bars & Rods	39679	45142	13.8
Structural	6562	7078	7.9
Rly Material	1548	1419	-8.3
b) Flat Products	40878	44555	9
PM Plates	4242	4651	9.6
HR Coil/Strip	36635	39903	8.9
2. Finished Steel (Alloy)	**3833**	**4514**	**17.8**
a Non-flat Products	3099	3543	14.3
b) Flat Products	734	971	32.3
3. **Finished Steel (Stainless)**	**2392**	**3044**	**27.3**
a) Non-flat Products	466	572	22.7
b) Flat Products	1925	2472	28.4

Source : Annual Statistics 2021-22; JPC

Fig.5: Total Finished Steel Consumption, 2017-18 to 2021-22

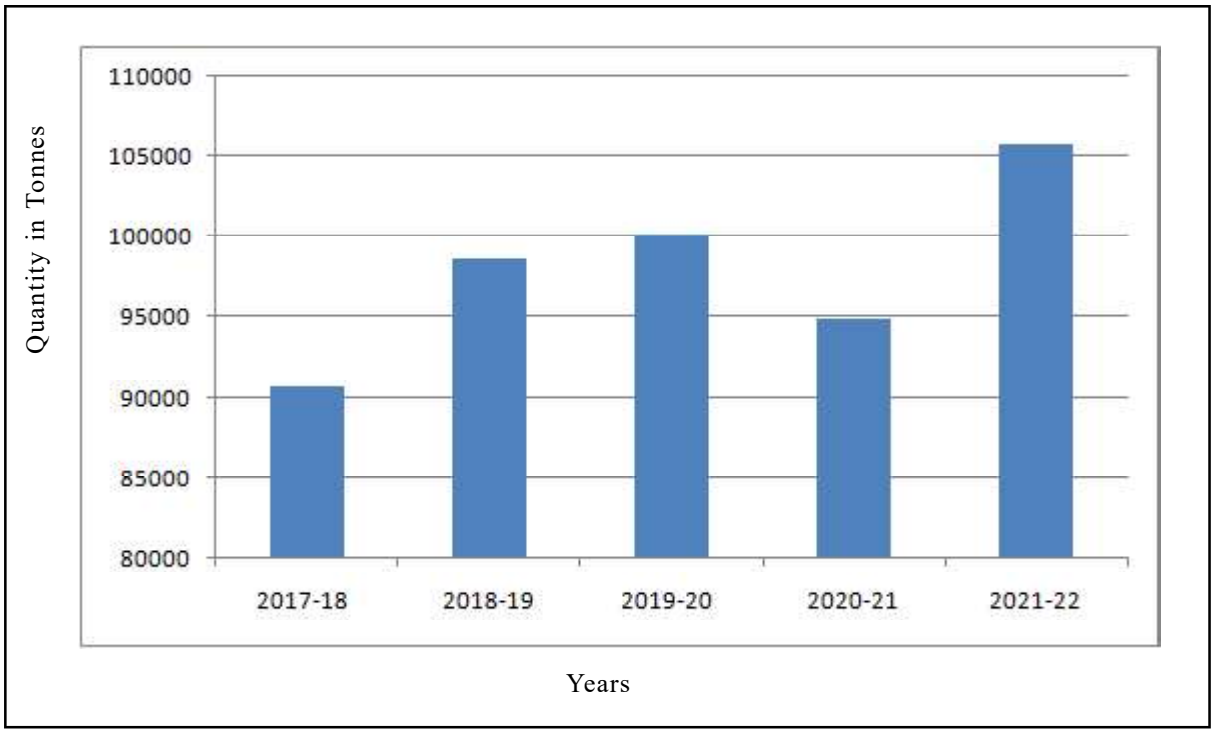
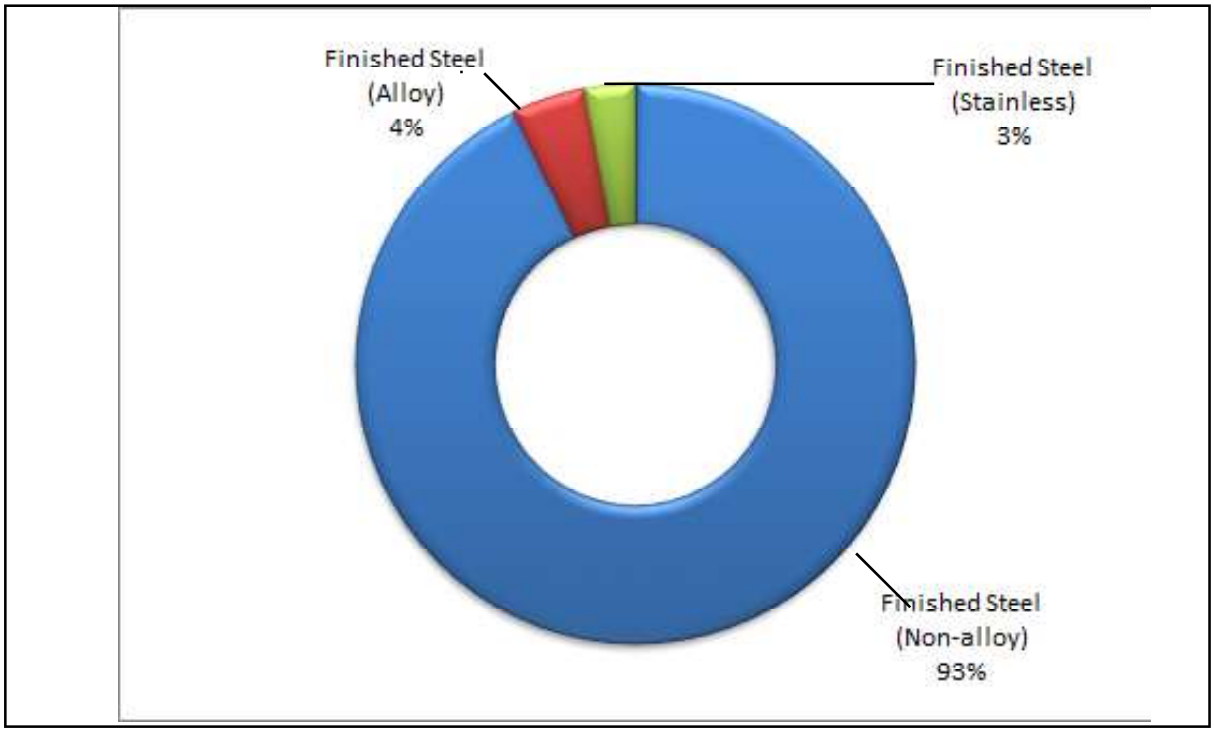


Fig.6: Total Finished Steel Consumption — Non-Alloy/Alloy/Stainless steel wise Crude Steel Equivalent 2021-22



D. Pig Iron

Pig iron is a product in solid (lumpy) form obtained upon solidification of Hot Metal in Pig Casting Machine. It is called Pig or Pig Iron because of its typical humpy shape. It is a basic input for making iron casting, which finds application in industrial and other sectors of economy. Pig iron is one of the basic raw materials required by the Foundry & Casting Industry for manufacturing various types of castings for the engineering section. In advanced countries pig iron is also used as a partial substitute of melting scrap in the charge mix of Electric Arc Furnaces. Pig Iron is mainly classified into two grades, ' Basic Grade' used for making steel and ' Foundry Grade' used for manufacturing iron castings. Domestic production of pig iron lags behind and is not in tandem with the demand. Efforts were, therefore, made to increase pig iron manufacturing facilities in the Secondary Sector. Production of pig iron in merchant units in the Secondary Sector got its first major boost in 1992. Thereafter, the growth of this Sector accelerated greatly as Foundry-grade pig iron fast became the preferred raw material for the quality conscious foundries.

The working capacity of hot metal & pig iron during 2021-22 was reported as 84.834 million tonnes. The location and capacity of principal pig iron/ hot metal as well as State-wise capacity and production of hot metal and pig iron units are furnished in Table- 15 & Table- 16, respectively. The domestic production of pig iron was at 6.262 million tonnes in 2021-22, a growth of 28.4 % as compared to the production of 4.877 million tonnes in the last year.

As a result of various policy initiatives taken by the Government, the Private Sector showed considerable interest in setting up new pig iron units, especially in the post-liberalised period. This has resulted in drastic change in the contribution of Private Sector producers. With 90 % share, the Private Sector (5.628 million tonnes, up by 33.7 % over 2020-21) led pig iron production in 2021-22, with the average share of the Sector at 90% in the last five years ending 2021-22. The share of Public Sector in 2021-22 was about 10 % (0.634 million tonnes, down by 5 % over previous year).

With a 77 % share, the Other Producers (4.801 million tonnes, up by 38.6% over 2020-21) led pig iron production in 2021-22 while the rest 23 % was the share contributed by SAIL, RINL, TSL Group, AM/NS(Essar Steel), JSWL, JSPL taken together.

E. Sponge Iron

India is the largest producer of sponge iron in the world. Sponge iron means porous iron produced by direct reduction (DR) process which may be either gas-based or coal-based. This is a solid-state reaction process (i.e., solid-solid or solid-gas reaction) by which removable oxygen is removed from the iron ore, using coal or reformed natural gas as reductants, below the melting and fusion point of the lump ore or agglomerates of fine ore. The external shape of the ore remains unchanged. Due to removal of oxygen, there is about 27 to 30 per cent reduction in weight, a honey combed microstructure remains which Sponge Iron (means solid porous iron, lumps/ pellets, with many voids filled with air). It is also known as Direct Reduced Iron (DRI).

During early 1990s, Sponge Iron Industry was specially promoted to provide an alternative to steel melting scrap which was increasingly becoming scarce. The installed capacity of sponge iron has also increased over the years from 1.52 million tonnes in 1990-91 to 49.273 million tonnes in 2021-22. The total number of working units is 288 out of which 284 are coal-based units and 4 are gas-based units. The DRI operating capacity got increasingly built up during 2015-16 to 2021-22. At 39.2 million tonnes in 2021-22, India's sponge iron production was up by 14% over that of 2020-21.

Over the years, the coal-based route has emerged as a key contributor to overall production and its share increased from 63% in 2004-05 to about 77.4% (30.334 million tonnes, up by 7.5%) of total sponge iron production in the country in 2021-22, with the average share of the Route at 80% in the last five years ending 2021-22. State-wise capacity and production of sponge iron are reflected in Table- 17.

Indian Iron & Steel Industry at a glance for all types of Industry covering the No. of working Units , Working Capacity and their Production is furnished in Table- 18.

Table – 15 : Location and Capacity of Principal Pig Iron Units

(In thousand tonnes)

Sl.No.	Plants/unit	Location	Capacity
1.	Adhunik Metaliks Ltd, Odisha	Odisha	70
2.	Ankit Metal and Power Ltd	West Bengal	12
3.	Aparant Iron and Steel Pvt. Ltd	Goa	125
4.	Arcelor Mittal Nippon Steel India Ltd, Surat	Gujarat	3490
5.	Arjas Steel Pvt Ltd (Gerdau Steel)	Andhra Pradesh	300
6.	Atibir Industries Co. Ltd. (Unit Ii)	Jharkhand	600
7.	B R G Iron and Steel Co. Pvt. Ltd	Odisha	120
8.	Balmukund Sponge and Iron Pvt. Ltd	Jharkhand	40
9.	Bhushan Power and Steel Ltd, Odisha	Odisha	2500
10.	Electro Steels Ltd, Jharkhand	Jharkhand	1450
11.	Electrosteel Castings Limited, Khardah	West Bengal	250
12.	Electrotherm (India) Ltd	Gujarat	277
13.	Ispat Damodar Ltd	West Bengal	15
14.	J S W Steel Ltd, Salem (Siscol)	Tamil Nadu	1000
15.	J S W Steel Ltd, Vijaynagar	Karnataka	12000
16.	Jai Balaji Industries Ltd West Bengal Unit-3	West Bengal	429
17.	Jai Balaji Industries Ltd West Bengal Unit-4	West Bengal	81
18.	Jai Balaji Industries Ltd - I	West Bengal	30
19.	Jayaswals Neco Inds Ltd	Chhattisgarh	650
20.	Jindal Steel and Power Ltd, Chhattisgarh	Chhattisgarh	2125
21.	Jindal Steel and Power Ltd, Odisha	Odisha	3200
22.	Jsw Ispat Special Products Ltd, Raigarh	Chhattisgarh	613
23.	Jsw Steel Ltd, Dolvi	Maharashtra	3500
24.	K I C Metaliks Ltd	West Bengal	165
25.	Kalyani Steels Ltd	Karnataka	480
26.	Kirloskar Ferrous Inds Ltd	Karnataka	385
27.	Kohinoor Steels Ltd	Jharkhand	48
28.	Makers Casting India Pvt Ltd	Jharkhand	2
29.	Mideast Integrated Steels Ltd	Odisha	460
30.	Narsingh Ispat Ltd	Jharkhand	83
31.	Neelachal Ispat Nigam Ltd	Odisha	1099
32.	Neo Metaliks Ltd	West Bengal	188
33.	Niranjan Hi- Tech Ltd.	Jharkhand	15
34.	Rashmi Metaliks Limited	West Bengal	170
35.	SAIL–Bhilai Steel Plant	Chhattisgarh	3925
36.	SAIL–Bokaro Steel Plant	Jharkhand	4360
37.	SAIL– Durgapur Steel Plant	West Bengal	1802
38.	SAIL– Iisco Steel Plant	West Bengal	2500
39.	SAIL–Rourkela Steel Plant	Odisha	4400
40.	SAIL–Visveswaraya Iron And Steel Ltd, Bhadrabati	Karnataka	118
41.	Sathavahana Ispat Ltd	Andhra Pradesh	240
42.	Satyam Ferro Tech Ltd	Jharkhand	30
43.	Shyam SEL and Power Ltd, Jamuria	West Bengal	60
44.	SLR Metaliks Ltd	Karnataka	240
45.	Sree Metaliks Ltd	Odisha	36
46.	Sri Kalahasthi Pipes Limited (Lanco)	Andhra Pradesh	300
47.	Suraj Products Ltd	Odisha	24
48.	Swati Concast and Power Pvt Ltd	Jharkhand	43
49.	Tata Metaliks Ltd, West Bengal	West Bengal	600
50.	Tata Steel BSL Ltd, Odisha	Odisha	3919
51.	Tata Steel Long Products Limited	Jharkhand	650
52.	Tata Steel Ltd, Jamshedpur Works	Jharkhand	9600
53.	Tata Steel Ltd, Kalinganagar Works	Odisha	3000
54.	Uttam Galva Metallics Ltd	Maharashtra	600
55.	Vedanta Limited	Goa	625
56.	VISA Steel Ltd	Odisha	225
57.	VIZAG Steel Plant	Andhra Pradesh	6300

Source : JPC

Table-16 : State-wise Capacity and Production of Hot metal and Pig Iron (2021-22)

(In '000' tonnes)

State	No.of working Units	Working Capacity	Annual Production	
			Hot metal	Pig Iron
Jharkhand	8	16835	17084	496
Odisha	11	17954	17692	1250
West Bengal	13	6852	6112	1697
Andhra Pradesh	4	7140	6467	470
Karnataka	5	13223	12774	1041
Tamil Nadu	1	1000	1048	21
Chhattisgarh	4	8238	8314	442
Goa	1	625	474	789
Gujarat	2	3767	3458	5
Maharashtra	3	9200	4799	52
Total	**52**	**84834**	**78223**	**6262**

Table-17: State-wise Capacity and Production of Sponge Iron (2021-222)

(In '000' tonnes)

State	No.of working Units	Working Capacity	Annual Production
Total	**288**	**49273**	**39200**
Western Region	**90**	**21044**	**16666**
Chhattisgarh	69	9284	8217
Goa	3	221	217
Gujarat	9	8027	6151
Maharashtra	9	3512	2080
Eastern Region	**135**	**21273**	**17188**
Jharkhand	24	3443	2431
Odisha	76	12508	9675
West Bengal	35	5323	5082
Northern Region	**4**	**537**	**385**
Uttar Pradesh	4	537	385
Southern Region	**59**	**6419**	**4961**
Andhra Pradesh	5	761	438
Karnataka	38	4643	3784
Tamil Nadu	6	528	342
Telangana	10	487	397

Source : *Annual Statistics 2021-22; JPC*

Table- 18: INDIAN IRON & STEEL INDUSTRY at a GLANCE : 2021-22

Sl. No.	Type of Industry	No. of Working Units	Working Capacity ('000 tonnes)	Production ('000 tonnes)
I	**Pellets**	**40**	**105966**	**79021**
II	**Sponge Iron**	**288**	**49273**	**39200**
III	**Blast Furnace(Hot Metal & Pig Iron)**	**52**	**84834**	**78223(Hot Metal)**
				6262(Pig iron)
IV	**Crude Steel (1-3)**	**901**	**154062**	**120293**
	1 BOF	18	66295	54585
	2 Electric Arc Furnace	36	36728	30498
	3 Induction Furnace	847	51040	35211
V	**Finished Steel (Crude Steel to Finished Steel Equivalent)**			
	4 Re-rolling (Non Flat & Flat)	1053	92736	60590 (Non Flat)
				3230(Flat)
	5 HR Product(PM Plate & HR Coils)	22	60075	49777
VI	**Value - added steel**			
	6 HR Product (HR Sheets & HSM Plates)	22	60075	3060
	7 CR Product	72	28483	20603
	8 GP/GC Sheets	29	11442	8126
	9 Colour Coated	18	3641	2541
	10 Tin plate	5	849	606
	11 Pipes	106	10823	3898

Source : Annual Statistics 2021-22; JPC

IRON & STEEL SCRAP

Iron & steel scrap is one of the essential requirements for manufacture of steel in Mini-steel Industry. It is also consumed by some major steel plants. Scrap, especially from the Ship Breaking Industry supplies substantial quantity of re-rollable steel as well as steel scrap for the Iron & Steel Industry and Secondary Sector, such as, Micro, Small & Medium Enterprises (MSME). Other form of scrap, i.e., end-of-life cycle scrap or obsolete scrap get generated in large quantities and form substantial reserves of scrap that could be efficiently put to use. Iron scrap is available in the country in the form of pressed bundles, a mixture of used steel components (called as a commercial scrap), turnings & borings and heavy melting scrap. These are generated by industries of all sectors like automobiles, railways and engineering workshops.

The collection and processing of scrap in an organised manner is undertaken by a few units in the country. In the local market, scrap is supplied by dealers who in turn arrange to have scrap collected manually or through sub-dealers.

The consumption of scrap is mainly reported by Induction Furnace & Electric Arc Furnace units, Integrated Steel Plants and Alloy Steel & Foundry industries. Scraps are used in the Steel Sector after recycling. There is a worldwide trend to increase steel production using scrap as the main raw material because recycling of scrap helps in conservation of vital natural resources besides other numerous benefits. The use of every ton of scrap shall save 1.1 ton of iron ore, 630 kg of coking coal and 55 kg of limestone.

There shall be considerable saving in specific energy consumption also as the same will reduce from around 14 MJ/Kg in BF/BOF route to less than 11 MJ/ Kg in EAF/IF route, i.e. savings in energy by 16- 17%. It also reduces the water consumption and GHG emission by 40% and 58%, respectively. Recycling scrap helps in conservation of energy as remelting of scrap requires much less energy than production of iron or steel from iron ore. Also, the consumption of iron and scrap by remelting reduces the burden on landfill disposal facilities and prevents the accumulation of abandoned steel products in the environment. It increases the availability of semi-finished material, which otherwise would have to be produced using the ore. Thus, it helps in conservation of natural resources.

Ship Breaking

Ship breaking has been a major source of scrap generation. Ship breaking activities are carried out at various places on the Indian coast, the largest concentration being in the West coast. Private entrepreneurs handle the task of ship breaking in India. It is a labour-intensive job, and in India, it is a cost-efficient activity.

The NGO Shipbreaking Platform is a global coalition of environmental, human and labour rights organisations working to promote safe and environmentally sound ship recycling practices. The coalition quickly evolved from being a European Platform to a global one, including NGOs based in the major shipbreaking countries, such as, India, Bangladesh, Pakistan and Turkey. It now has 18 member organisations and six partners in 12 countries. The Platform is recognised by United Nations agencies, the European Union and leading media outlets as the preeminent international civil society advocacy organisation on ship recycling.

Currently there are 153 plots at Alang where ageing ships are beached to be broken down. Alang is currently equipped to recycle 400-450 ships a year. On an average it has been producing 3.5 million tonnes of steel annually from recycling about 200 ships.

The Government of India, Ministry of Ports, Shipping and Waterways has notified recycling of Ships Act, 2019 to provide for the regulation of recycling of ships by setting certain international standards and laying down statutory mechanism for enforcement of such standards. The Government has also decided to accede to the Hong Kong International Convention for Safe and Environmentally Sound Recycling of Ships, 2009. Accordingly, India has acceded to Hong Kong International Convention for Safe and Environmentally Sound Recycling of Ships, 2009 on 28th November, 2019. This Act restricts and prohibits the use or installation of hazardous materials, which applies irrespective of whether a ship is meant for recycling or not.The Act imposes a statutory duty on ship recyclers to ensure safe and environmentally sound removal and management of hazardous waste from ship. Further , accession to Hong Kong Convention by India and enactment of Recycling of Ships Act, 2019 will raise the profile of Indian Ship Recycling Industry as being environment- friendly and safety conscious and would go a long way in consolidating India's position as market leader.

MSTC Ltd

(Formerly Metal Scrap Trade Corp. Ltd)

MSTC Limited was incorporated as “Metal Scrap Trade Corporation Limited”, under the provisions of the then Companies Act, 1956 on September 9, 1964 at Kolkata for regulating export of ferrous scrap from India. The status of the Company underwent a change in February 1974 when it was made a subsidiary of Steel Authority of India (SAIL). In the year 1982-83, the Corporation was converted into an independent PSU under administrative control of Ministry of Steel. It was the channelising agency for import of carbon steel melting scrap, sponge iron, hot briquetted iron and re-rollable scrap till February 1992.

Presently, the Company has diversified mainly into providing e-auction /e-procurement services. Under this segment, the Company undertakes disposal of ferrous and non-ferrous scrap arisings, surplus stores, condemned plants, minerals, Agri & forest produce etc. from Public

Sector Undertakings and Government Departments including private companies. The Trading Division is engaged in import as well as domestic sourcing of bulk industrial raw material for actual users as well as traders. This Division looks after sourcing, purchase and sale of industrial raw materials like low ash metallurgical coke, HR coil, naphtha, crude oil, coking coal, steam coal, line pipes etc. on behalf of customers across steel, oil & gas, power sectors under Private and Public Sector. It also undertakes trading of items within the country in competition with any other private trader.

Ferro Scrap Nigam Ltd (FSNL)

FSNL is a wholly owned subsidiary of MSTC Ltd under the Ministry of Steel. The Company undertakes the recovery and processing of scrap from slag and refuse dumps in the nine steel plants at Bhilai, Bokaro, Burnpur, Durgapur, Rourkela, Visakhapatnam, Dolvi, Duburi and Haridwar and also at Rail Wheel factory Bengaluru. The scrap so recovered is returned to the steel plants for recycling disposal and the Company pays processing charges on the quantity recovered at varying rates depending on the category of scrap. Scrap is generated during iron & steel making and also in the rolling mills. In addition, the Company provides steel mill services, such as, scarfing of slabs, handling of BOF slag, etc.

SLAG — IRON & STEEL

Slag is a by-product generated during manufacturing of pig iron and steel. It is produced by action of various fluxes upon gangue materials within the iron ore during the process of pig iron making in blast furnace and steel manufacturing in steel melting shop. Primarily, slag consists of calcium, magnesium, manganese and aluminium silicates and oxides in various combinations. The cooling process of slag is responsible mainly for generating different types of slags required for various end-use consumers. Although the chemical composition of slag may remain unchanged, physical properties vary widely with the changing process of cooling.

In an integrated steel plant, 2-4 tonnes of wastes (including solid, liquid and gas) are generated for every tonne of steel produced. The major wastes produced in integrated steel plants (ISP) include BF iron slag. Steel slag accounting for nearly more than half a tonne gets generated for each tonne of steel produced in ISPs. Among all the solid/liquid wastes, slags generated at iron making and steel making units are in such a large quantities that management of slag has become a critical component of steel production. Over the last few years, with better understanding of slags, its functions and improvements in process technologies have led to a significant reduction in the volume of slag generated. At the same time, the re-use of iron and steel has led to a significant reduction in the environmental impact of these by-products. The slag produced at blast furnace during pig iron manufacturing is called blast furnace slag. The slag produced at steel melting shop is known as steel slag. Slag output obtained during pig iron and steel production is variable and depends mainly on composition of raw materials and type of furnace. Typically, for ore feed containing 60 to 65% iron, blast furnace (BF) slag production ranges from about 300 to 540 kg per tonne of pig or crude iron produced, whereas in steel making 150 to 200 kg per tonne of slag is generated per tonne of liquid steel. Lower grade ores yield much higher slag fractions, sometimes as high as one tonne of slag per tonne of pig iron produced. Steel slag output is approximately 20–30% by mass of the crude steel output in the country.

Ferro Scrap Nigam Ltd (FSNL), a wholly owned subsidiary of MSTC Ltd renders its specialised services of scrap and slag management to plants at SAIL-Rourkela, Burnpur, Bhilai, Bokaro, Durgapur, Bhadravati, Salem, RINL-Visakhapatnam, NINL-Duburi, BHEL-Haridwar, RWF (Rail Wheel Factory) -Bengaluru, Air India-Mumbai and Essar- Hazira.

Table – 19 : Plant-wise Capacity of Iron and Steel Slag in the Country

Steel Plant	Capacity ('000 tpy)
Bhilai Steel Plant, Durg, Chhattisgarh	2675
Bokaro Steel Plant, Bokaro, Jharkhand	7884
Rourkela Steel Plant, Rourkela, Odisha	1570
Durgapur Steel Plant, Durgapur,West Bengal	566
IISCO Steel Plant, Burnpur, West Bengal	400 kg/THM*
Visvesvaraya Iron & Steel Plant, Bhadravati, Karnataka	400 kg/THM*
Rashtriya Ispat Nigam Ltd, Visakhapatnam, Andhra Pradesh	1440
IDCOL Kalinga Iron Works Ltd, Barbil, Odisha	53
JSW Steel Ltd, Ballari, Karnataka	NA
Tata Steel Ltd, Jamshedpur, Jharkhand	2100
Visa Steel Ltd, Kalinganagar, Odisha	175
Neelachal Ispat Nigam Ltd Kalinganagar, Odisha	-

Blast Furnace Slag

In the blast furnace, the slag floating over molten pig iron (hot metal) is flushed out in slag pot and then sent to slag granulating plant or to cooling pits.

Depending upon the cooling process, three types of slags are generated, namely, air-cooled slag, granulated slag and expanded slag.

Air-cooled slag is produced by allowing the molten slag to cool under atmospheric conditions in a pit. Under slow cooling conditions, escaping gases leave behind porous and low-density aggregates with special physical properties, making it suitable for many applications. When formed under controlled cooling, the slag tends to be hard and dense, making it especially suitable for use in ready-mixed concrete, concrete products, road bases and similar applications in construction.

Granulated slag is produced by quenching the molten slag by means of high-pressure water jets. Quenching prevents crystallisation, thus resulting in granular, glassy aggregates. This slag is crushed, pulverised and screened for use in various applications, particularly in cement production because of its pozzolanic characteristics.

Steel plants utilise cold slag for internal consumption and also for outside sale. The slag after cooling is crushed and used as road metal and railway ballast. Granulated slag produced in steel plants is also sold outside to cement plants. Slag application also reduces the overall cost of production of cement.

Expanded slag is formed through controlled cooling of molten slag in water or water with combination of steam and compressed air. Formation of steam and other gases enhances the porosity and vesicular nature of slag, resulting in light weight aggregate suitable for use in concrete. However, expanded slag is not produced at any domestic iron and steel plant.

Another product made from blast furnace slag is mineral wool/slag wool. Cooled slag for this purpose is melted and poured through an air stream or a jet of dried stream of other gases to produce a spray of molten droplets or the same is also formed by passing the melt through a perforated or fast-spinning disc. The droplets, elongate to long fibres, are collected mechanically and layered. The material has excellent thermal insulation properties.

The five different slags generated at various points of the steel-making process are described below:

***HMT Slag*:** This slag is primarily generated after de-siliconisation or de-phosphorisation treatment. It has high content of silica and lime. Sometimes it also contains BF slag.

***HMDS Slag*:** This is the raked slag at the de-sulfurisation station. These slags are poorly mixed composites of spilled BF slag, spent and/or unreacted de-sulphurisation agents, lime fines and trapped droplet of hot metal and raked iron.

***LD Slag*:** These slags are a well mixed aggregate of FeO, lime, silica and MgO generated at the LD converter. They are in the form of di-calcium and tri-calcium silicates. These slags also contain free lime and metal, which create problems due to expansion characteristics.

***Steel Slag*:** These slags vary in composition with respect to the varied treatment. The common steel slags are fused calcium aluminates with less than

2% (FeO + MnO). These readily crumble to dust due to allotropic phase transformation at lower temperatures and are difficult to manage.

***SGP Slag*:** LD slag is subjected to granulation through a quenching technology adopted at JSW, which houses the first of its kind in India. Due to sudden quenching of the molten slag, contraction of metal and slag occurs and results in good separation of metal and slag. Adequate granulation takes place and leads to good stability of the final slag. Process can be described as an accelerated ageing process that reduces the free lime content. As a result of rapid cooling, it generates more glassy structure than the BOF slag. Removal of free lime also confirms its volumetric stability.

Steel Slag

BOF slag, commonly known as steel slag, is another waste from Iron & Steel Industry. It has shown potential for use as a raw mix component up to 10% in the manufacture of cement clinker. Steel slag can also replace granulated blast furnace slag up to 10% in the manufacture of Portland Slag Cement. Steel slags are produced at steel melting shop during steel manufacturing. To produce steel, removal of excess silicon and carbon from iron is achieved through oxidation by adding limestone and coke. The steel slag contains higher amount of iron and its physical characteristics are similar to air-cooled iron slag. The LD slag is cooled, crushed and screened. The fines are utilised in sinter making and lumps are charged in the blast furnace.

The iron content is the major basic difference between BF slag and steel slag. In BF slag, FeO is around 0.70%, whereas in case of steel slag, the total iron content varies from 16 to 25%.

JSW Steel has set up a unique BOF slag granulation plant, producing slag with lower free lime content and is vigorously pursuing the matter with BIS. JSPL has set up a plant to produce around 4.0 lakh brick products/day by utilising fly ash and slag generated from integrated steel plant.

Uses of Slag

Slag, based on their types, has different uses. The air-cooled BF slag is crushed, screened and used mainly as road metal and bases, asphalt paving, track ballast, landfills and concrete aggregate. The expanded or foamed slag binds well with cement and is used mainly as aggregate for light weight concrete. However, it is not produced by domestic steel plants. Granulated BF slag is used as a pozzolanic material for producing portland slag cement. It is also used for soil conditioning. BF slag is used in making mineral wool for insulation purposes.

Steel slag has found use as a barrier material remedy for waste sites where heavy metals tend to leach into the surrounding environment. Steel slag forces the heavy metals to drop out of solution in water run off because of its high oxide mineral content. Steel slag has been used successfully to treat acidic water discharges from abandoned mines.

Slags are useful alternative raw material for clinker production and such use can reduce a cement plant's fuel consumption and overall emission of carbon dioxide per tonne of cement.The granulated slag obtained from various steel plants is dried in slag dryer. The clinker is ground in ball mill with 40–50% dry slag and 6% gypsum. The resultant product is portland slag cement. Portland blast furnace slag cement contains up to 60% ground granulated slag from steel production processes.

Slag cement has low heat of hydration, low alkali aggregate reaction, high resistance to chlorides and sulphate and it can substitute the use of 43 and 53 grades of ordinary Portland Cement. For other consuming sectors like road making, landfilling and ballasting, the cooled slag is crushed by machines or broken manually by hammers into smaller pieces and supplied to the various end-use consumers. The utilisation of SMS (particularly LD) slag is limited due to its (i) Phosphorous content (ii) high free lime content and (iii) higher specific–weight.

TRADE POLICY

As per the notified Export-Import Policy incorporated under the Foreign Trade Policy (FTP) for 2015-20, the imports of primary forms of pig iron, spiegeleisen, sponge iron, ferroalloys, stainless steel, remelting scrap, as also the semi-finished products of iron, non-alloy steel or stainless steel (such as flat-rolled products, bars, rods, coils and wires), primary and semi-finished forms of other alloy-steels, etc. are unrestricted. Similarly, the exports are also allowed freely.

WORLD REVIEW

The world production of pig iron in 2021 was about 1,443 million tonnes which increased marginally by about 2 % as against 1,418 million tonnes in 2020. China (60%), India (8%), Japan (5%), Russia (4%), Republic of Korea (3%) and Iran, Brazil, Germany & USA (2 % each) , were the main producers of pig iron including sponge iron and direct reduced iron (DRI) (Table-20).

The world crude steel production in 2021 marginally increased by about 3% to 1,915 million tonnes from 1,863 million tonnes in 2019. China was the top producer accounting for 54% of world's crude steel production, followed by Japan & India (5% each), USA, Russia & Republic of Korea (4% each), and Turkey, Germany & Brazil (2% each) (Table-21).

Exports

In terms of value, exports of iron & steel (total) increased by 66 % to ₹ 2,03,435 crore in the year 2021-22 from ₹ 1,22,510 crore in the previous year. Iron & Steel exports in 2021-22 comprised mainly of Semi-finished Steel (including Steel Ingots) with ₹ 87,497 crore (43%) and Finished Steel Including Cold Rolled Sheet with ₹ 60,774 crore (30%) and Other Finished Steel, NES with ₹ 46,463 crore (23%). Other items together accounted for the remaining 4% exports. In terms of value, exports of iron & steel in the year 2021-22 were mainly to USA (12%), Italy (8%), Belgium & UAE (6% each), Nepal & Vietnam (5% each), Turkey (4%) and China, UK & Germany (3% each) (Tables- 22 to 32).

While in terms of quantity, the exports of Pig and Cast Iron including Spiegeleisen increased by 11 % to 1,251 thousand tonnes in 2021-22 from 1,124 thousand tonnes in the previous year. Exports were mainly to China (27 %), USA (21 %), followed by Taiwan (9%), Turkey & Oman (8% each) (Table- 33)

However, in terms of quantity, the exports of slag (dross, etc.) in 2021-22 increased by 90 % to about 290 thousand tonnes from 153 thousand tonnes in the previous year. Exports were mainly to Philippines (51%), Vietnam (23%), Malaysia (14%), and Nepal & China (4 % each) (Table-34).

Imports

Like exports, the total of value of imports of iron & steel in 2021-22 increased by 40% to ₹ 1,15,950 crore from ₹ 82,638 crore in the previous year. Iron & steel imports in 2021-22 comprised mainly of finished Steel Including Cold Rolled Sheet with ₹ 40,043 crore (34%), Scrap with ₹ 32,351 crore (28%), Other Finished Steel, NES with ₹ 23,966 crore (21%) and Semi-finished Steel including Ingots with ₹ 11,688 crore (10%). Other items together accounted for the remaining 7% imports. In terms of value, the imports in 2021-22 were mainly from China & Republic of Korea (18% each) followed by Japan (8%), UAE (6%) and USA (5%) and (Tables- 35 to 45) .

Similarly, in terms of quantity, the imports of Pig and Cast Iron (including Spiegeleisen) increased by 18% to 44 thousand tonnes in 2021-22 from 37 thousand tonnes in the previous year. Imports were mainly from South Africa (25%), China (12%), Germany(8%), Sweden (7%), Taiwan & Thailand (6% each) and USA (5%) (Table-46).

In terms of quantity, the imports of slag increased by 11 % to 95 thousand tonnes in 2021-22 from 85 thousand tonnes in the previous year. Imports were mainly from Rep. of Korea (84%) and Japan & Oman (7% each) (Table-47).

Table – 20 : World Production of Pig Iron (By Principal Countries)

(In tonnes)

Country	2019	2020	2021
World Total	**1383000000**	**1418000000**	**1443000000**
China	809365000	888976100	868600000
India	111574000	101400000	116600000
Japan	74907006	61600469	70344478
Russia	51200000	52000000	53900000[e]
Korea Rep. of	47521000	45359000	46440000
Iran	31000000	33300000	32500000
Brazil	30901000	29655000	28500000
Germany	25400000[e]	25500000[e]	26200000
USA	22301000	21700000	23400000[e]
Ukraine	20055900	20238000	21200000
other countries	159094862	138109553	155621107

Figures rounded off ;

***Source**: BGS, World Mineral Production, 2017-2021*

** India's production of Pig Iron during 2019-20, 2020-21 and 2021-22 was 54,21,000 tonnes, 48,77,000 and 62,62,000 tonnes, respectively.*

***Note:** The data in this table include sponge iron and direct reduced iron (DRI),where these have been separately identified.*

Table – 21 : World Production of Steel Crude (By Principal Countries)

(In tonnes)

Country	2019	2020	2021
World Total	**1857000000**	**1863000000**	**1915000000**
China	996342000	1064766800	1032790000
Japan	99284114	83186485	96032787
India(d)	102058000	95122000	93800000[e]
USA	87761200	72732100	85800000[e]
Russia	73740141	74600000[e]	77850000[e]
Korea, Rep. of	71411000	67082000	70418000
Turkey	33743100	35810300	40360000
Germany	39667000	35658000	40000000
Brazil	32569000	31415000	36039400
Italy	23190000	20379000	24413000
Other countries	297534411	282067772	317057982

Figures rounded off;

***Source:** BGS, World Mineral Production, 2017-2021,*

** India's production of crude steel during 2019-20, 2020-21 and 2021-22 was 1,09,137,000 tonnes, 1,03,545,000 and 1,20,293,000 tonnes, respectively.*

(d) Years ended 31st March following that stated.

Table – 22 : Exports of Iron & Steel (Total)
(By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**	**1225105321**	**	**2034353812**
USA	**	119370682	**	245606335
Italy	**	75130322	**	155462318
Belgium	**	48319029	**	126461596
UAE	**	63799755	**	121686163
Nepal	**	76806887	**	110497157
Vietnam	**	77714158	**	106986718
Turkey	**	12013136	**	79020874
China	**	152007711	**	66437021
UK	**	27046766	**	57639929
Germany	**	32998105	**	54252017
Other countries	**	539898770	**	910303684

Figures rounded off

Table – 23 : Exports of Iron & Steel (Finished Steel Including CR Sheet)
(By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**6108963**	**358432755**	**6798430**	**607736761**
USA	129635	24633704	377390	64019634
Belgium	294746	22484302	587246	61891663
Nepal	1077289	36877715	1086071	51728527
Italy	159829	15666462	484039	49801439
China	1206831	35099422	594831	30481803
UAE	187626	14960010	271528	26356053
Poland	93425	8374030	187303	23966389
Spain	105414	8968412	203577	23728126
UK	97037	7266223	229289	22136783
Indonesia	226448	9358946	330708	20090307
Other countries	2530683	174743529	2446448	233536037

Figures rounded off

Table – 24 : Exports of Iron & Steel (Steel wire) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**169631**	**25750975**	**250944**	**48353501**
USA	21538	4032087	40286	9590759
Netherlands	16695	2861241	21835	5182686
Germany	6419	1369530	10687	2806086
France	8978	1650759	11418	2717725
Italy	5479	1089365	9487	2498473
Turkey	10125	1672341	10467	2326751
UAE	8516	986881	15878	1816494
Russia	7986	1551073	6196	1663773
Brazil	3191	637435	8550	1409291
UK	3792	715614	5681	1362339
Other countries	76912	9184649	110459	16979124

Figures rounded off

Table – 25 : Exports of Iron & Steel (Other Finished Steel, NES) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**	**340587784**	**	**464631364**
USA	**	85605428	**	143329003
Germany	**	20652426	**	29428809
UK	**	16687853	**	24120806
UAE	**	15912729	**	19267085
Netherlands	**	9508219	**	16449086
Italy	**	9220254	**	12922196
Canada	**	8511984	**	11531486
Australia	**	7362939	**	11026880
Saudi Arabia	**	9595069	**	10767560
Bangladesh	**	7434064	**	9519129
Other countries	**	150096819	**	176269324

Figures rounded off

Table – 26 : Exports of Iron & Steel (Semi-finished Steel Including Steel Ingot) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**12577510**	**480956813**	**13492292**	**874972590**
Vietnam	2244954	73639866	1688207	102256201
Italy	1109787	49058758	1301053	89333448
UAE	781766	31056671	1090106	73511960
Turkey	62201	6171542	1062348	67724283
Belgium	386942	20451813	689151	56128203
Nepal	762992	28207151	689218	38078439
China	3973874	113757925	719299	31759110
Hong Kong	331957	11557452	576524	28547341
U S A	24593	4308672	340953	24818390
Sri Lanka	292628	10255726	474376	23273864
Other countries	2605816	132491237	4861057	339541351

Figures rounded off

Table – 27 : Exports of Iron & Steel : Alloy Steel (Granules) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**422**	**29056**	**678**	**45269**
UAE	121	5349	162	9295
Taiwan	99	4152	144	7857
Oman	-	-	75	5077
Portugal	14	2384	20	3660
Nepal	11	693	37	3484
Saudi Arabia	15	830	45	3141
Bangladesh	33	2359	36	2569
USA	23	7579	1	2155
Malaysia	27	1221	28	1721
Nigeria	27	1641	29	1569
Other countries	52	2848	101	4741

Figures rounded off

Table – 28 : Exports of Iron & Steel: Alloy Steel (Powder) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**4**	**1760**	**129**	**66798**
China	++	140	40	33558
Turkey	1	839	58	18931
Taiwan	1	163	14	6565
UAE	-	-	10	4236
Bangladesh	-	-	4	2340
Indonesia	2	544	2	920
Israel	-	-	++	79
Czech Republic	++	22	++	73
Kenya	-	-	1	42
Thailand	-	-	++	26
Other countries	++	52	++	28

Figures rounded off

Table – 29 : Exports of Iron & Steel (Scrap) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**25613**	**649151**	**11492**	**941199**
Sweden	1368	208921	2223	566603
Bhutan	20609	244302	6246	156385
Germany	25	1445	622	81272
Brazil	413	42620	459	55592
Oman	25	723	468	14365
Singapore	1217	14997	620	11024
Nepal	114	5421	134	8659
Malaysia	987	22423	168	7369
UAE	189	72586	57	7361
Thailand	182	7965	88	5872
Other countries	484	27748	407	26697

Figures rounded off

Table–30 : Exports of Iron & Steel (Sponge Iron) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**524566**	**11248671**	**789189**	**25256226**
Bangladesh	278459	5983287	401223	12770585
Nepal	161972	3556579	343687	10956055
Bhutan	68390	1268552	34786	1107956
Madagascar	1761	41479	2746	110402
USA	274	44545	585	96447
Thailand	2002	41929	2492	81267
Sri Lanka	1376	33098	1530	49242
Malaysia	4674	114303	1307	39297
Korea	123	23370	93	16104
Kenya	2271	67416	387	12403
Other countries	3264	74113	353	16468

Figures rounded off

Table – 31 : Exports of Iron & Steel (Stainless Steel) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**12889**	**3197360**	**16901**	**4444268**
USA	1250	285639	6774	2154252
UAE	545	189237	1684	238708
France	350	657506	77	225170
Saudi Arabia	289	115661	401	192157
Nigeria	2239	344675	768	169611
Bangladesh	4025	370134	1322	122338
Thailand	50	35882	12	90708
Zambia	92	24229	211	77677
Nepal	154	15684	407	71827
Italy	223	95339	124	67629
Other countries	3672	1063374	5121	1034191

Figures rounded off

Table–32 : Exports of Iron & Steel Material (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**70062**	**4250996**	**92907**	**7905836**
USA	6147	450033	18487	1595684
Belgium	3143	395078	12758	1144327
Italy	++	92	8439	838475
Korea	-	-	4924	623987
UAE	11471	612288	5057	474579
Turkey	9020	414925	6579	447316
Brazil	11306	535792	7556	362402
Thailand	520	30582	4956	314487
Qatar	4118	174490	4339	302449
Puerto Rico	6688	362413	2927	205315
Other countries	17649	1275303	16885	1596815

Figures rounded off

Table – 33 : Exports of Pig & Cast Iron (Including Speigeliesen) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**1123792**	**30155194**	**1250907**	**49495194**
China	637214	15383161	332396	12410756
USA	215373	6803201	265667	10992715
Taiwan	7539	291501	107933	4101134
Turkey	36498	1322513	97324	3915008
Oman	85799	1897118	97299	3615115
Korea	786	45414	73223	2776330
Bangladesh	88895	2468097	60924	2451345
Thailand	7451	229210	51628	2153968
Italy	20	2672	48015	1925182
UAE	16498	641140	36325	1635781
Other countries	27719	1071167	80173	3517860

Figures rounded off

Table – 34 : Exports of Slag (Dross etc. from Iron and Steel Exc. Granulated) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**152818**	**951045**	**289895**	**2753273**
Philippines	88000	655043	148500	1721372
Vietnam	23600	153353	65828	531037
Malaysia	23858	81107	41040	380681
China	1166	6747	11032	77124
Angola	362	2750	1595	19055
Nepal	12672	30075	12750	18722
Bangladesh	-	-	9000	4165
South Africa	750	6129	100	689
Mozambique	99	553	31	270
Senegal	-	-	13	107
Other countries	2311	15288	6	51

Figures rounded off

Table - 35 : Imports of Iron & Steel (Total) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (**)	Value (₹'000)	Qty (**)	Value (₹'000)
All Countries	**	**826381853**	**	**1159500736**
China	**	153661953	**	210209567
Korea	**	140136092	**	208888470
Japan	**	67911395	**	96870320
UAE	**	36377761	**	65196125
USA	**	43110658	**	53370197
Indonesia	**	14321897	**	52145651
Germany	**	32042498	**	43803504
Singapore	**	27885974	**	39360812
Vietnam	**	26444970	**	29312311
Malaysia	**	24673252	**	28863142
Other countries	**	259815403	**	331480637

Figures rounded off

Table – 36 : Imports of Iron & Steel (Finished Steel Including CR Sheet) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**3123084**	**281364644**	**3186329**	**400431501**
China	908307	76871110	915194	111065196
Korea	722938	56701936	758990	79176258
Japan	485725	44102605	595076	63724629
Indonesia	52344	6555312	202840	42683436
Germany	40058	8009947	44167	9986483
Vietnam	113528	9260800	55068	8517831
UK	9486	1741594	9186	6845797
Russia	51417	4460400	47055	6774443
USA	54558	6017647	34416	6559580
Hong Kong	21966	1495505	88568	6430966
Other countries	662757	66147788	435769	58666882

Figures rounded off

Table – 37 : Imports of Iron & Steel (Steel Wire) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**151105**	**15473255**	**149312**	**21164209**
China	58769	5436942	61878	8285680
Korea	22503	2150814	34119	3991246
Japan	5316	1727262	7852	2638152
Malaysia	22717	1780729	14872	1525865
Vietnam	8655	649393	8299	816738
Germany	973	464100	1381	644970
France	3041	337048	3151	402955
Thailand	6459	539811	3670	392756
Indonesia	2998	311196	2946	375702
USA	902	301207	402	351310
Other countries	18772	1774753	10742	1738835

Figures rounded off

Table – 38 : Imports of Iron & Steel (Other Finished Steel, NES) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (**)	Value (₹'000)	Qty (**)	Value (₹'000)
All Countries	**	**187149323**	**	**239661220**
China	**	60848505	**	75763884
Korea	**	15497795	**	21717882
Japan	**	13033669	**	19056216
Germany	**	14015783	**	18519560
USA	**	10867738	**	12660918
Thailand	**	8001613	**	11707848
Italy	**	7273790	**	9650488
Malaysia	**	4189760	**	8135758
Vietnam	**	6720669	**	7839347
Singapore	**	7585258	**	7756839
Other countries	**	39114743	**	46852480

Figures rounded off

Table – 39 : Imports of Iron & Steel (Semi-finished Steel Including Steel Ingots) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**1848059**	**97340310**	**1504120**	**116884064**
Korea	1179765	55092241	1094507	73920037
Japan	89374	5702327	83853	7625663
China	114215	6814712	79532	7197291
Belgium	80463	5001515	60440	4924708
Sweden	7071	1852028	8997	3653638
Italy	25706	2017162	32296	3326105
Taiwan	8963	1447116	12983	2954699
Indonesia	24230	1037560	36140	2553811
France	50000	3841671	27308	2517746
Germany	12234	1481362	11780	1946044
Other countries	256038	13052616	56284	6264322

Figures rounded off

Table – 40 : Imports of Iron & Steel: Alloy Steel (Granules) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**17284**	**1015659**	**18629**	**1463023**
France	5870	317289	7232	512053
Germany	1414	110734	2338	283644
Thailand	1968	101633	2944	203630
China	3044	168417	2457	159373
Spain	1728	99971	1130	81938
Taiwan	960	53109	910	66631
Turkey	234	11922	688	45316
Netherlands	492	38994	405	35705
Japan	104	22244	134	27309
Belgium	7	6388	25	25357
Other countries	1463	84958	366	22067

Figures rounded off

Table-41: Imports of Iron & Steel: Alloy Steel (Powder) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**2596**	**590464**	**3450**	**911990**
UK	233	146086	271	202067
China	600	102983	572	150019
Canada	528	45771	1376	136002
Japan	67	90538	23	88167
Germany	747	87770	449	68197
Sweden	147	17250	485	63686
USA	95	35846	113	60279
Netherlands	58	45837	61	57271
Belgium	28	6119	67	46558
Singapore	3	6396	7	31251
Other countries	90	5868	26	8493

Figures rounded off

Table-42 : Imports of Iron & Steel (Scrap) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**5393385**	**213404783**	**4976246**	**323514680**
UAE	874594	29380968	1209633	57704441
U S A	621408	24833165	452657	32684436
Singapore	377204	14622849	335279	27567740
Malaysia	186401	11925230	147033	17546814
Netherlands	110936	8339788	121286	15460688
UK	544678	14918210	260957	12295941
Korea	72761	4769675	96179	10637963
Canada	180010	7329732	158457	10139970
Thailand	84608	7068178	70544	8763085
Germany	96537	6264725	65355	7835374
Other countries	2244248	83952263	2058866	122878228

Figures rounded off

Table-43 : Imports of Iron & Steel (Sponge Iron) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**68343**	**1315159**	**37451**	**1088387**
South Africa	30222	604310	33500	981032
UAE	9509	245709	1264	37539
Egypt	23281	350321	1199	25742
Canada	21	466	654	18921
Singapore	780	16346	525	11743
U K	-	-	5	4712
Ukraine	-	-	156	4374
Kuwait	-	-	148	4106
Hong Kong	-	-	++	181
U S A	++	9	++	37
Other countries	4530	97998	++	++

Figures rounded off

Table – 44 : Imports of Iron & Steel (Stainless Steel) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**39876**	**7480309**	**32950**	**7510586**
China	15264	2313116	14226	3181341
Vietnam	11757	2241642	10649	2371136
Italy	4123	1055086	3734	634300
UAE	583	71286	972	256192
Germany	150	109746	201	141990
USA	934	173251	259	131126
Belgium	342	414539	233	116626
Korea	1089	88820	1163	112272
Japan	628	136155	323	107230
Netherlands	506	99141	88	69361
Other countries	4500	777527	1102	389012

Figures rounded off

Table–45: Imports of Iron & Steel Material (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**385727**	**21247947**	**526903**	**46871076**
Korea	115886	5824150	216038	19329450
Taiwan	149993	6129693	173862	12770556
China	15967	1062758	40118	4379897
Germany	19262	1498319	49402	4377242
Vietnam	55950	3797203	23773	3577630
Belgium	1968	153732	8737	652659
Japan	1924	302698	3752	450469
Singapore	4579	367983	3339	335135
France	2114	210221	2291	228480
Thailand	26	3125	1020	153689
Other countries	18058	1898065	4571	615869

Figures rounded off

Table-46 : Imports of Pig & Cast Iron (Incl. Speigeliesen) (By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**36920**	**3368526**	**43732**	**4890464**
China	6399	679636	5173	937226
USA	1642	271021	2073	479720
Japan	421	262244	609	406711
South Africa	4597	159502	10947	396939
Germany	3777	347360	3552	380879
Sweden	424	54239	2873	341196
UK	529	197121	1311	281385
Italy	1236	184092	1284	223641
Thailand	2884	158436	2801	215966
Taiwan	3577	153425	2866	188405
Other countries	11434	901450	10243	1038396

Figures rounded off

Table – 47 : Imports of Slag
(Dross etc. from Iron and Steel exc. Granulated)
(Steel Wire)
(By Countries)

Country	2020-21 (R)		2021-22 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	**84962**	**592855**	**94710**	**540217**
Korea	30579	174241	80000	456582
Japan	53102	405024	6357	42003
Oman	-	-	6750	38526
Nepal	281	461	1502	1863
Poland	-	-	69	1056
Bangladesh	-	-	32	179
USA	++	17	++	7
UAE	-	-	++	1
Bhutan	996	12373	-	-
Spain	4	467	-	-
Other Countries	++	272	-	-

Figures rounded off

FUTURE OUTLOOK

Steel is one of the most important products of the modern world and of strategic importance to any industrial nation from construction, industrial machinery to consumer products; steel finds its way into a wide variety of applications.

Steel is a de-regulated sector, Government acts as a facilitator, by creating conducive policy environment for development of the steel sector. Government of India has notified National Steel Policy, 2017 which envisages development of a technologically advanced and globally competitive steel industry that provides environment for attaining self-sufficiency in steel production by providing policy support and guidance to steel producers. National Steel Policy covers all aspects of steel sector such as steel demand, steel capacity, raw material security, infrastructure and logistics, Research & Development (R&D) and energy efficiency.

The Indian steel industry ended 2021-22 on a buoyant note, with leading growth parameters bouncing back to pre-COVID levels and growth rates firming up encouragingly. Be it crude steel, sponge iron, finished steel-data released by JPC indicated that supported by a robust policy framework/ guidance and helped to a large extent by the inherent strength of the industry itself. The lndian steel industry crossed the pre-COVID-19 levels in almost every sphere of operation in 2021-22, a commendable feat indeed. Not only that,the year also saw the industry retain all its global rankings intact - be it the largest sponge iron producer, the 2nd largest crude steel producer or even the 2nd largest finished steel Consumer. At the end of 2021-22, operating under the New Normal, the Indian steel industry is on a stable footing, with the spread of the pandemic controlled to a great extent through rigorous focus on testing and vaccination.

As per World Steel Association, in 2022, the world crude steel production reached 1885.4 million tonnes (MT). World Steel Association in its Short-Range Outlook, October 2023 forecasts that steel demand will grow by 1.8% in 2023 and reach 1,814.5 MT after contracting by 3.3% in 2022. In 2024, steel demand will see a further increase of 1.9% to 1,849.1 MT. India is the second largest producer of crude steel. China was world's largest crude steel producer in 2022 (1018.0 MT) followed by India (125.3 MT), Japan (89.2 MT) and the USA (80.5 MT). Per capita finished steel consumption in 2022 was 221.8 kg for world and 645.8 kg for China. The same for India was 86.7 kg in 2022-23.