

Annual Report

2017-18



सत्यमेव जयते

Ministry of Steel
Government of India





ANNUAL REPORT
2017-18



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Government of India

CONTENTS



Chapter	Page No.
I. Highlights	2
II. Organisational Structure and Functions of Ministry of Steel	9
III. Steel Policies and their Impact	12
IV. Major policy change assisting Secondary Steel Sector	14
V. Production and Consumption of Steel	15
VI. Public Sector	25
VII. Private Sector	35
VIII. Technical Institutes under the Ministry of Steel	40
IX. SRTMI and Research	44
X. Steel and its Uses-Arenas and New Products	52
XI. Promotion of Steel Usage	66
XII. Energy, Environment Management and Climate Change	69
XIII. Development of North-Eastern Region	80
XIV. International Cooperation	82
XV. Development of Information Technology	84
XVI. Safety	90
XVII. Welfare of Weaker Sections of Society	96
XVIII. Vigilance	99
XIX. Grievance Redressal Mechanism	105
XX. Divyang and Steel	109
XXI. Progressive Use of Hindi	111
XXII. Empowerment of Women	117
XXIII. Corporate Social Responsibility	121
XXIV. Implementation of the Right to Information Act, 2005	130
Annexures	133



CHAPTER-I

HIGHLIGHTS

1.1 Trends and Developments in Steel Sector

- India is currently the world's 3rd largest producer of crude steel and is expected to become the 2nd largest producer of crude steel in the world soon.
- India is the largest producer of direct reduced iron (DRI) or sponge iron in the world.
- The country is also the 3rd largest consumer of finished steel (83.5 million tonnes in 2016) in the world preceded by China (681.0 million tonnes in 2016) and the USA (91.6 million tonnes in 2016) [source: world steel association].
- Capacity for domestic crude steel production expanded from 97.024 million tonnes per annum (million tonnes) in 2012-13 to 128.277 million tonnes per annum in 2016-17, a CAGR growth of 7% during this five year period.
- Crude steel production grew at 5.71% annually (CAGR) from 78.415 million tonnes in 2012-13 to 97.936 million tonnes in 2016-17.
- During January-December 2017, the country's crude steel production crossed the 100 million tonne (million tonnes) mark for the first time in history, reaching 101.371 million tonnes (provisional; source: JPC), a growth of 6.18% over same period of 2016.
- The steel sector contributes to over 2% of the country's GDP and employs around 25 lakhs employed in steel/allied sectors.
- During April-December 2017-18 (provisional; source: JPC), the following is the industry scenario as compared to same period of last year:
 - a. Production of crude steel was at 75.642 million tonnes, a growth of 4.8% compared to same period of last year. SAIL, RINL, TSL, ESSAR, JSWL & JSPL produced 43.534 million tonnes during this period, which was a growth of 6.8% compared to last year. The rest amounting 32.108 million tonnes was the contribution of the Other Producers, which was a growth of 2.1%, compared to last year.
 - b. Pig iron production for sale was 6.934 million tonnes (a decline of 0.5% compared to last year), after accounting for own consumption/IPT. The Private Sector accounted for 96% of the same, the rest 4% being the share of the Public Sector.
 - c. In case of total finished steel (non-alloy + alloy/stainless):
 - ❖ Production for sale stood at 79.049 million tonnes, a growth of 5.3% compared to last year.
 - ❖ Exports stood at 7.606 million tonnes, a growth of 52.9% compared to last year.
 - ❖ Imports stood at 6.097 million tonnes, a growth of 10.9% compared to last year.
 - ❖ India was a net exporter of total finished steel.
 - ❖ Consumption stood at 64.867 million tonnes, a growth of 5.2% compared to last year.

Data on production for sale, consumption, import and export of total finished steel (alloy + non-

alloy) and production of crude steel for the last five years and April-December 2017-18 (provisional) are shown in the table below:

Table 1.1: Production of Finished Steel (alloy/stainless +non-alloy) and Crude Steel
(in million tonnes)

Item	2012-13	2013-14	2014-15	2015-16	2016-17	April-December 2017-18*
Finished Steel						
Production	89.621	95.577	100.681	102.904	115.91	86.699 (1.4)
Imports	7.925	5.45	9.32	11.712	7.227	6.097 (11.0)
Export	5.368	5.985	5.596	4.079	8.243	7.606 (52.9)
Consumption	73.483	74.096	76.992	81.525	84.042	64.868(5.2)
Crude Steel						
Production	78.415	81.694	88.98	89.791	97.936	75.642(4.8)

Source: JPC; * Provisional; Figures in bracket () indicate % change over same period of last year

- Growth in the production of eight core industries (percent) is as given below in the table. It may be seen that during the current financial year, for the period, April-November, 2017-18, the index has registered a growth of 3.9 percent, with the production of steel registering growth of 7.2 percent

Table 1.2: Growth in the Production of Eight Core Industries (per cent)

Sector	Weight	2015-16	2016-17	April-November 2017-18
Coal	10.3	4.8	3.2	1.5
Crude Oil	9.0	-1.4	-2.5	-0.2
Natural Gas	6.9	-4.7	-1.0	4.4
Refinery products	28.0	4.9	4.9	3.6
Fertilizers	2.6	7.0	0.2	-1.1
Steel	17.9	-1.3	10.7	7.2
Cement	5.4	4.6	-1.2	0.6
Electricity	19.9	5.7	5.8	4.9
Overall Index	100	3.0	4.8	3.9

Source: Department of Industrial Policy and Promotion

1.2 Major Initiatives taken/achievements by the Ministry of Steel during the year

- Ministry of Steel has rolled out two national landmark policies-(i) National Steel Policy 2017 and (ii) Policy on Preference to Domestically Manufactured Iron and Steel Products.
- Ministry of Steel in association with the steel industry put up its Steel Pavillion at India International Trade Fair 2017 with the theme 'Startup India Standup India' where several items of steel and mining sector were showcased.
- The Union Minister for Steel, Shri Birender Singh launched a dedicated e-portal for online sales of steel products by RINL through MSTC Metal Mandi, in North Eastern Region of the country, in New Delhi on July 20, 2017.
- Ministry of Steel has got its presence in various social media platforms such as Facebook, Twitter, MyGov etc.
- To provide information and facilitate investment, an Investment Facilitation Cell is functional in the Ministry, details of which have also been placed on the Ministry's Website.



Shri Birender Singh, Union Minister for Steel inaugurating the Steel Pavillion at India International Trade Fair-2017 at Pragati Maidan, New Delhi.

- Hon'ble Vice President of India Shri M. Venkaiah Naidu launched digital dashboard of Ministry of Steel, which is designed to provide consolidated data of the activities in the Indian Steel Industry as well as global data on real-time basis and reduce dependence on manually sorted data.
- Jharkhand football team comprising of SAIL Football Academy (SFA), Bokaro cadets won the prestigious 58th International Subroto Mukherjee Cup Football Championship-2017.
- E-Rashtriya Kisan Agri Mandi(E-RaKAM) : An online trading portal e-RaKAM has been developed and launched by MSTC for sale of Agricultural & Horticultural produces. The portal was inaugurated



Hon'ble Vice President Shri M. Venkaiah Naidu launched Digital Dashboard of Ministry of Steel in Hyderabad on 08.12.2017



Union Minister for Steel Shri Birender Singh and Minister of State for Steel with the U-17 football team that won the Subroto Cup.

on 1st August, 2017 by Hon'ble Steel Minister and Hon'ble Minister for Consumer Affairs, Food & Public Distribution. It's a remarkable foray by MSTC in the agricultural sector in collaboration with CRWC. It will connect farmers directly with consumers. The different agri produces, viz., Toor Dal, Urad Dal, Moong Daal etc are sold through this portal.

1.3 Major Expansion/Acquisitions/ Joint Ventures by CPSEs

1.3.1 Steel Authority of India Ltd. (SAIL)

- Steel Authority of India Ltd. has undertaken Modernisation & Expansion of its Integrated Steel Plants at Bhilai, Bokaro, Rourkela, Durgapur & Burnpur and Salem Steel Plant at Salem. In the ongoing Modernisation & Expansion, the Crude Steel capacity is being enhanced from 12.8 Million Ton to 21.4 Million Ton per annum. The indicative investment for this is about Rs.61,870crore. In addition, Rs.10,264 crore has been earmarked for modernization and expansion of SAIL mines.
- Cumulative expenditure for various Modernisation & Expansion packages till November, 2017 has been Rs.66,731crore including expenditure of Rs.3,173 crore during the Financial Year 2017-18 (till Nov'17).
- Expansion of Salem Steel Plant, Rourkela Steel Plant, IISCO Steel Plant, Durgapur Steel Plant and Bokaro Steel Plant has been completed. The new facilities are under operation and production ramp-up.
- At Bhilai Steel Plant, Rail Welding Line, Ore Handling Plant Part-A, 2nd Sinter Machine in Sinter Plant-3, Coke Oven Battery -11 and Universal Rail Mill are in regular operation. Hot-trial of Bar Mill has started. Balance facilities of Steel Melting Shop-III are at advanced stages of completion.



e-RaKAM portal for selling agri produce was inaugurated on 01-08-2017 by Hon'ble Steel Minister Shri Birender Singh and Hon'ble Consumer Affairs, Food & Public Distribution Minister Shri Ram Vilas Paswan.



1.3.2 Rashtriya Ispat Nigam Ltd. (RINL)

- Modernization & up-gradation to 7.3 Mtpa is completed, with the commissioning of additional Caster in SMS-2 in Dec'17. The revamp of Sinter Machine-2 is planned in 2018-19. The units are under advanced stage of stabilization & ramp up.

1.3.3 NMDC Ltd.

- NMDC is setting up a 3.0 MTPA Greenfield Integrated Steel Plant at Nagarnar, Bastar District in Chhattisgarh. Construction work for the project is in progress and as on date around 90.59% of civil work, 79.01% structural erection, 60.36% equipment erection have been completed as on 31st Dec'17. The progress has picked up momentum since then in the last Quarter.
- NMDC is in the process of expanding its business through forward integration in both Greenfield and Brownfield through following projects:
 - ❖ 1.2 MTPA Pellet Plant at Donimalai in Karnataka
 - ❖ 2.0 MTPA Pellet Plant at Nagarnar along with 2.0 MTPA Ore Processing Plant at Bachelu interconnected by a Slurry Pipeline System between Bachelu and Nagarnar in Chhattisgarh.

1.4 Highlights of CPSEs during 2017-18

1.4.1 Steel Authority of India Ltd. (SAIL)

- Sales turnover of Rs.26,297 crore in the first Six months of the Financial Year 2017-18, which is higher by 16.30% as compared to corresponding period of last year (CPLY).
- Net worth of the Company was Rs.36,009 crore as on 31.03.2017.

1.4.2 Rashtriya Ispat Nigam Ltd. (RINL)

- Achieved Sales turnover of Rs. 11,395 Crs with a growth of 30% over CPLY.
- Registered total saleable steel sales of 31.86 lakh tonnes with a growth of 19%.
- Achieved growth of 15% over CPLY in Saleable Steel production.
- Growth achieved in other major production areas also, with a growth of 13% in Hot Metal, 15% in Crude Steel, 23% in Finished Steel, 17% in Value Added Steel and 25% in captive power generation.

1.4.3 NMDC Ltd.

- Production of iron ore during 2017-18 (upto Dec'17) was 24.23 million tonnes.
- Domestic sales of NMDC during 2017-18 (upto Dec'17) was 23.85 million tonnes.
- Export sales of NMDC during 2017-18 (upto Dec'17) was 1.79 million tonnes.
- Total Sales during 2017-18 (upto Dec'17) was 25.64 million tonnes.
- NMDC has earned profit before tax of Rs. 2809 crores (upto Sep'17) during the year 2017-18.

Offer For Sale of equity shares of NMDC Ltd.:

The President of India, acting through and represented by the Ministry of Steel, Govt of India (Promoter) have offered sale of equity shares NMDC Ltd. through Stock Exchange mechanism on 09.01.2018 & 10.01.2018 of 7,95,54,641 equity shares of the company aggregating to 2.52% of the total paid-up capital of the company @ Rs.153.50 aggregating to at sum of Rs.1,224.53 crores. After the Offer for sale by the Government of India the holding of the promoter (GOI) now stands at 229,15,71,551 Equity Shares of Rs.1/- each aggregating to 72.42% of the total paid-up equity Share Capital of the Company.

The offer was in accordance with the requirements of Clause-5(b) of the SEBI Offer for Sale of Shares Circular and there has been very good response in both the categories of non-retail / institutional and retail category being 1.87 and 5.40 times respectively. The Notice seeking subscription by the investors in retail and non-retail category was released in all major newspapers and also on the websites of the

Stock Exchanges and had an overwhelming response from the investors and the Govt. could garner an amount of Rs.1,224.53 crores in a short span of two days through the Offer for Sale route of equity shares in Stock Exchange mechanism.

Diamond Jubilee Year:

NMDC Limited is India's single largest iron ore producer, incorporated in 1958, holds several global certifications vouchsafing for its high quality standards. NMDC has witnessed an amazing performance and has set the stage for a bigger and better performance. As the global demand for steel is on a spiraling rise, the company is all poised to take giant strides to meet future needs.

NMDC has entered into its 60th year of existence on 15th November, 2017 and to commemorate its 60 Years of Excellence is celebrating its "Diamond Jubilee Year". The Diamond Jubilee Year celebrations started off with inaugural function organized on 8th December, 2017 at Hyderabad wherein the Chief Guest was Hon'ble Vice President of India Shri Venkataiah Naidu and the function was presided by Hon'ble Union Minister of Steel Shri Choudhary Birender Singh in presence of Guests of Honour Dr. Raman Singh, Hon'ble Chief Minister of Chhattisgarh and Shri Vishnu Deo Sai, Hon'ble Minister of State for Steel, Minister of State for Science & Technology, GOI and Ministers of Telangana and Andhra Pradesh State Governments; Ministry of Steel and NMDC Officials besides all other Stake holders.

The programme was well received and appreciated by one and all. To keep up the same zeal and interest of all stakeholders of NMDC, it is proposed to organize various activities during the Diamond Jubilee Year like Cultural & Music Programmes, Knowledge Series, Seminars & Conferences, Promotion of Sports, Celebrating Special Days etc.

1.4.4 MOIL Ltd.

- MOIL Ltd. produced 8.29 lakh tonnes (prov.) of manganese ore during 2017-18 (upto Dec'17).
- The total income of the company was Rs. 1058.37 crore (prov.) during 2017-18 (upto Dec'17).
- The Profit Before Tax of the company was Rs. 441.60 crore (prov.) during 2017-18 (upto Dec'17).
- The Profit After Tax was Rs. 288.77 crore (prov.) during 2017-18 (upto Dec'17).
- MOIL has paid dividend of Rs.146.51 crore for the financial year 2016-17.

1.4.5 MSTC Ltd.

- MSTC has developed online Draw System at NIC (National Informatics Centre) Server for Oil Manufacturing Companies (IOCL, HPCL & BPCL) for selection of winner in allocation of new LPG distributorship to bring more transparency and accountability in the selection process. MSTC conducted training programme and was extended technical help at the sites i.e. District Magistrate offices where draws have taken place. Till Dec, 2017, MSTC conducted 1802 events (Online draw) successfully in 22 States.
- MSTC has developed a unique portal for Indian Oil Corporation Limited for export of finished products of their refineries. The tender-cum-forward auction portal has been developed where product export cycle can be completed through the single software package.
- First time e-auction conducted for grant of mining blocks for extraction of gravel & Sand from the mines in Uttar Pradesh. As a ground work MSTC trained buyers, sellers and Govt. officials in far flung areas of Uttar Pradesh amid resistance from traditional beneficiaries. The effort of MSTC could overcome the hurdles and could auction successfully mining blocks for extraction of gravel & Sand. 206 nos. LOI issued covering 41 districts up to December'17 out of the e-auctions conducted by MSTC.
- E-Auction from North East: In a remarkable achievement MSTC has taken initiative to bridge the gap of direct market access, logistics and coordination among various agencies for rural farming communities of flung areas of North East. MSTC conducted e-auction successfully ginger crops of Nagaland and Pineapple from Tripura.
- E-Auction of Mineral Blocks: MSTC successfully conducted e-Auction and allocated total 33 blocks for major minerals like Limestone (17), Iron ore (10), gold(2), diamond(1), manganese(1), bauxite(2). Total number of blocks allocated till date is 33 respectively. Likewise more than 450



Minor Mineral Blocks (Sand, Low Grade limestone, Dolomite, Clay, Flagstone, Stone Boulder, Granite etc.) was auctioned from States like Chhattisgarh, Uttar Pradesh & Rajasthan.

- E-Auction of Red Sanders, Timbers & Forest Produces: MSTC conducted Global e-Tender cum e-Auction (TCA) for sale of Red Sanders from Andhra Pradesh Forest Development Corp. Ltd. (APFDCL) and of Red Sander was sold fetching a value Rs 209 Cr. for 1013 MT. E-tender cum auction also conducted for 52 Tonnes of seized red sanders of Karnataka fetching Rs 6.40 crore. MSTC is conducting e-Auction of timbers, Sandalwood and other forest produces from Forest department of Karnataka, AP and Kerala.
- MSTC's DEEP (Discovery of efficient electricity price) portal is aimed at bringing uniformity in the procurement process being followed by various DISCOMs in the country and helps in cutting electricity procurement bills. MSTC has successfully conducted 67 online events till Dec'2017 and the Distribution companies of 15 States are availing this service. In addition the events for Flexible Coal Scheme under DEEP were held for Maharashtra and Gujarat.
- MSTC has successfully conducted the e-bidding for 2nd phase of UDAN (Ude Desh Ka Aam Nagrik), a regional connectivity scheme and received huge Nos. of bids from various Airlines. UDAN is the initiative of Government of India for providing financial subsidy to interested airline operators who will operate to connect the underserved / unserved airports to promote air connectivity between the smaller cities / towns with big cities.
- MSTC has developed portal for Coal Bidding under SHAKTI (Scheme for Harnessing and Allocating Koyala Transparently in India): MSTC has developed a portal for SHAKTI, a scheme for bringing more transparency and fairness in governance of power sector. Under this Scheme the private Independent Power Producers (IPPs) having long term PPAs but with inadequate FSA shall participate in the bidding process to choose the source, grade & quantity of coal from the bouquet of offerings by Coal India Limited. MSTC has successfully conducted the first event when 27mMT of coal was allotted to the ten winners.
- MSTC has conducted Global e-Procurement event for procurement of imported Thermal Coal for TANGEDCO (Tamilnadu Generation and Distribution Corporation Limited) which has resulted substantial savings for the Power Company and also ensure quality supply of Coal.
- MSTC developed, an e-organic bazaar portal(web application with three stage bidding facility) in association with APEDA (Agriculture and Processed Food Products Export Development Authority) for online sale of organic produce. The e-portal was launched in November'17 by Hon'ble Union Minister of Agriculture and Farmers Welfare.

1.4.6 MECON Ltd.

As per audited accounts, the company has incurred losses (PBT) to the tune of Rs. 88.14 crores and the loss after tax of Rs. 83.84 crores during the FY 2016-17. The net worth of MECON as on 31.03.2017 is Rs. 151.37 crores.

1.4.7 KIOCL Ltd.

- During 2017-18, KIOCL has achieved the highest cumulative production of 17.00 LT till December,2017.
- Cumulative sales upto December,2017 stood at 17.64 LT.
- PBT upto December,2017 stood at Rs.28.18 crore.

CHAPTER-II

ORGANISATIONAL STRUCTURE AND FUNCTIONS OF THE MINISTRY OF STEEL

2.1 Introduction

The Ministry of Steel is under charge of the Minister of Steel. The Ministry is responsible for planning and development of iron and steel industry, development of essential inputs such as iron-ore, limestone, dolomite, manganese ore, chromites, ferro-alloys, sponge iron etc. and other related functions. Details of the subjects allocated to the Ministry may be seen in Annexure-I. The list of Minister-in-charge and the officers down to the level of Deputy Secretary is given in Annexure-II.

2.1.1 Key Functions of the Ministry of Steel

- Development of Steel Plants in Public and Private Sectors, the re-rolling industry and ferro-alloys.
- Policy formulation regarding production, distribution, pricing of iron & steel and ferro alloys.
- Development of iron ore mines in the public sector and other ore mines like manganese ore, chrome ore, limestone and other minerals used in the iron and steel industry (but excluding mining lease or matters related thereto).
- Providing a platform for interaction of all producers and consumers of steel in the country.
- Identification of infrastructural and related facilities required by steel industry.
- Overseeing the performance of 7 PSUs, their subsidiaries and one Special Purpose Vehicle.

2.1.2 Allocation of Responsibilities

The Ministry of Steel has a Secretary, Additional Secretary & Financial Adviser, 4 Joint Secretaries, 3 Directors, 3 Deputy Secretaries, 1 Joint Director (OL) and other supporting officers and staff as on 31.12.2017. The Ministry also has an Economic Adviser, a DDG (Statistics) and a Chief Controller of Accounts. A Technical Wing, under the charge of Additional Industrial Adviser, gives advice in respect of technical matters besides discharging some secretariat work of technical nature like Research and Development Scheme.

2.2 Key Divisions/Sections in the Ministry

SAIL, MFH, Projects and International Cooperation, Steel Development (Institutes), Technical Division, NMDC, Raw Materials, Trade and Taxation, Industrial Development, MECON, RINL, Bird Group, Board Level Appointments, KIOCL, MOIL, Budget and Finance, Economic Division, Statistics Division.

2.3 Other Related Organs of the Ministry of Steel

2.3.1 Joint Plant Committee (JPC)

Accredited with ISO 9001: 2015 certification, Joint Plant Committee (JPC) is the only institution in the country, which is officially empowered by the Ministry of Steel / Government of India to collect data on the Indian iron and steel industry, resulting in the creation and maintenance of a complete databank on this industry.

JPC is headquartered at Kolkata with four regional offices in New Delhi, Kolkata, Mumbai and Chennai, engaged in data collection while the Economic Research Unit (ERU) at New Delhi serves as a wing of JPC to carry out techno-economic studies and policy analysis. JPC is headed by a Joint Secretary to Government of India, Ministry of Steel as its Chairman and has representatives from SAIL, RINL, Tata Steel and Railway Board as its Members.



The four Regional Offices of JPC play a pivotal role in close association with the headquarter at Kolkata:

- Collection of production, stock and raw material data from the producers.
- Collection of import and export data from the custom houses.
- Collection of domestic market prices.
- Regular follow-up/monitoring and related liaison activities with industry.
- Visit to defaulting steel producing units for on-spot data collection.
- Active role in field level collection during segment surveys.
- Organizational support to seminars/exhibitions including Ministry of Steel events like the Steel Consumers' Council meetings, steel pavilion at IITF.

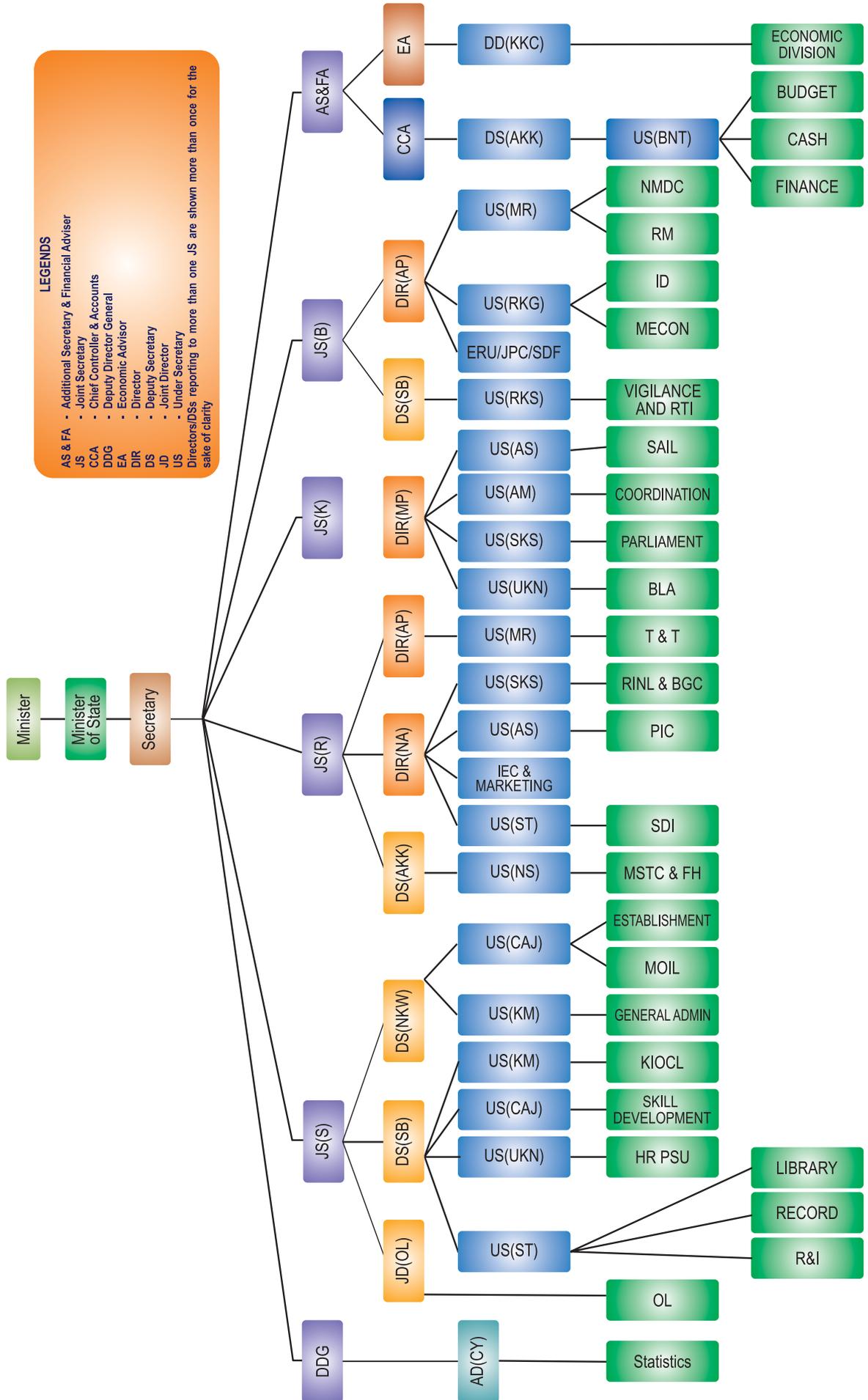
2.3.2 Economic Research Unit

Research support, forecasting exercises and examination of policy matters/techno-economic studies are provided by the New Delhi based Economic Research Unit of JPC. The ERU also functions as the Secretariat to the prestigious Prime Minister's Trophy and the Steel Minister's Trophy.

2.4 List of Public Sector Units under the administrative control of the Ministry of Steel

Sl. No.	Name of the Company	Headquarters	Subsidiaries
1.	Steel Authority of India Ltd.	Ispat Bhawan, Lodi Road, New Delhi - 110003	SAIL Refractory Co. Ltd. Post Bag No. 565 Salem-636005 (TN)
2.	Rashtriya Ispat Nigam Ltd.	Administrative Building, Visakhapatnam - 530031 (Andhra Pradesh)	Bird Group of Companies AG 104, Saurav Abasan 2nd Floor, Sector II, Salt Lake City, Kolkata-700091
3.	NMDC Ltd.	Khanij Bhawan, 10-3 -311/A, Castle Hills, Masab Tank, Hyderabad-500028 (Andhra Pradesh)	J&K Mineral Development Corporation Ltd., 143-A, Gandhi Nagar, Jammu-180004 (J&K)
4.	MOIL Ltd.	MOIL Bhawan, 1-A, Katol Road, Nagpur-440013 (Maharashtra)	
5.	MSTC Ltd.	225-C, Acharya Jagdish Chandra Bose Road, Kolkata-700020 (West Bengal)	Ferro Scrap Nigam Ltd., FSNL Bhawan, Equipment Chowk, Central Avenue, Bhilai-490001 (Chhattisgarh)
6.	MECON Ltd.	MECON Building, Ranchi-834002 (Jharkhand)	
7.	KIOCL Ltd.	II Block, Koramangala Bengaluru-560034 (Karnataka)	

ORGANISATION CHART OF THE MINISTRY AS ON 31.12.2017





CHAPTER-III

STEEL POLICIES AND THEIR IMPACT

The Government has recently rolled out two national landmark policies

(i) National Steel Policy 2017; and

(ii) Policy on Preference to Domestically Manufactured Iron & Steel Products.

National Steel Policy 2017

NSP 2017 aims to increase focus on expansion of 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 promotes economic growth" eyeing self-sufficiency in production, developing globally economical steel manufacturing capabilities by facilitating investments and cost efficient productions with adequate availability of raw materials.

With focus on R&D through establishment 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 the India's consumption led growth and improvement in the overall productivity and quality.

Expected impact / outcome of NSP 2017

a) India to be world leader in energy efficiency and sustainability

Ministry of Steel, in association with suitable agency, will constantly monitor techno-economic performance of all the steel plants within the country vis-à-vis the global best practices. Transfer of technology for production of automotive steel and other special steels will be facilitated by helping set up JV's with global leaders.

b) Cost-effective and quality steel destination

Thirty Seven (37) steel products have already been notified under the mandatory quality certification mark scheme of BIS. Efforts will be made to bring in additional steel products, which are used in critical end-use applications, under the mandatory scheme to ensure protection of human health, environment and safety.

c) Attain global standards in Industrial Safety & Health

The Ministry is coordinating with steel companies to ensure that on the job trainings on maintaining a safe workplace are provided to employees of the steel companies.

d) Substantially reduce the Carbon foot-print of the industry

In order to address the environment related issues, the Ministry is facilitating the formation of a forum to chalk out best practices and is also focusing on development of a Waste Management Plan for the industry.

e) Domestically meet the entire demand of high grade automotive steel, electrical steel, special steels and alloys.

Policy on Preference to Domestically Manufactured Iron & Steel Products (DMI&SP)

The Government has introduced the Policy on preference to DMI&SP in Government tenders. The policy mandates for domestic value addition of 15% on the imported input steel to be eligible for big ticket public procurement in steel. The policy encourages the downstream companies to set up capacities



for steel products which were otherwise getting directly imported in the past, leading to substantial outflow of valuable Forex.

Objective of this policy is to provide a level playing field for the domestic manufacturers and not to encourage inefficient practices.

- The policy mandates to provide preference to DMI&SP in government procurement for its own use and not with a view to commercial resale.
- The policy is applicable to all such projects and procurements, where the aggregated estimated value of the "iron & steel products" is either INR 50 crores or more.
- DMI&SP has been defined as those iron and steel products, in which a minimum value addition of 15% has taken place domestically.

The policy is envisaged to promote growth and development of domestic steel Industry under 'Make in India'.

Impact of the DMI&SP Policy:

The policy has been well appreciated by the Industry players and the standing committee has taken several critical decisions and made clarifications, which are updated and uploaded on the Ministry's website from time to time.

The Policy has provided and is expected to provide significant forex savings to the Indian Economy besides developing domestic capability for import substitution.



CHAPTER-IV

MAJOR POLICY CHANGE ASSISTING SECONDARY STEEL SECTOR

Secondary steel sector which are mainly the downstream re-rolling mills, small steel plants, sponge iron plants, etc, have gained major boost through national policies like NSP 2017 and the Policy on preference to DMI&SP. Apart from that, the recent **amendment in the GFR 2017** to include Life Cycle Cost Analysis while formulating DPR of the construction and infrastructure projects and the **Quality Control Orders** promulgated by the Government, have also encouraged the sector to produce quality steel products in order to counter the cheap imports from the neighboring countries. Waiver of import duty on Nickel has provided a major relief to the Alloy/Stainless steel producers. Rationalisation of the import duty on Natural Gas by 50% has also given a major impetus to Gas based DRI units.

The details of the GFR Amendment and the Quality Control Orders, are as below -

(i) Inclusion of Concept of Life Cycle Cost in GFR Amendment

- "Principle of Life Cycle Cost has been included in the Rule 136 (1) (iii) of the new General Financial Rules (GFR), 2017".
- The use of steel has a major bearing on the life of the project which in long run is going to reduce the Life Cycle Cost.
- There might be several projects in which the initial cost comes out to be slightly higher, but in the long run, the overall cost for the project comes down - depending on the factors such as material, quality, repairs needed, the time for setting up the projects, etc.

All these projects are going to add on to the inventory of the national assets, thus by using steel, India will be creating the long term national assets with low cost keeping in mind the Life Cycle Cost concept.

(ii) Quality Control Orders

These Quality orders seek to facilitate the adoption of quality standards and mandatory quality certification by producers and users. Recently the Steel and Steel Products (Quality Control) Order and Stainless Steel (Quality Control) Order that mandates Bureau of Indian Standards certification for certain products was introduced. Through this the policy aims to establish India as a cost-effective and quality steel destination by bringing more and more number of steel products, which are used in critical end-use applications, under the certification mark scheme of BIS. Thirty Seven (37) steel products have already been notified under the mandatory quality certification mark scheme of BIS. Efforts will be made to bring in additional steel products, which are used in critical end-use applications, under the mandatory scheme to ensure protection of human health, environment, and safety.

CHAPTER-V

PRODUCTION AND CONSUMPTION OF STEEL

5.1 Introduction

At the time of independence in 1947, India had only three steel plants - the Tata Iron & Steel Company, the Indian Iron and Steel Company and Visveswaraya Iron & Steel Ltd and a few electric arc furnace-based plants. The period till 1947 thus witnessed a small but viable steel industry in the country, which operated with a capacity of about 1 million tonne and was completely in the private sector. From the fledgling one million tonne capacity status at the time of independence, India has now risen to be the 3rd largest crude steel producer in the world and the largest producer of sponge iron. As per official estimates, the Iron and Steel Industry contributes around 2 per cent of the Gross Domestic Product (GDP). From a negligible global presence, the Indian steel industry is now globally acknowledged for its product quality. As it traversed its long history since independence, the Indian steel industry has responded to the challenges of the highs and lows of business cycles.

5.1.1 The rapid pace of growth of the industry and the market trends called for certain guidelines and framework. Thus was born the concept of the National Steel Policy, with the aim to provide a roadmap of growth and development for the Indian steel industry. The National Steel Policy (NSP) 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. With passage of time and continued growth in the domestic steel industry, it was felt that the NSP 2005 needs to be in sync with changing times. Accordingly, after a detailed review, the Government has released the National Steel Policy 2017, which has 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 promotes economic growth. At the same time, as a facilitator in the present-day de-regulated, liberalized economic/market scenario, the Government has also announced a policy for providing preference to domestically manufactured iron & steel products in Government procurement. This policy seeks to accomplish 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.

5.2 Production, Consumption and Growth of Steel

5.2.1 Indian Steel Sector has brought a new hope in Indian economy considering production of steel product as well as employment generation. Vast productions of steel products lead to expansion of export of steel products reducing import dependence which made India a net exporter in current period. The table below shows the trend in production for sale, import, export and actual consumption of finished steel (alloy/stainless + non-alloy) in the country for the last five years and April-December 2017-18:

Table 5.1 a: Trend of Finished Steel (alloy/stainless+non-alloy) in Last Five years

(in million tonnes)

Description	2012-13	2013-14	2014-15	2015-16	2016-17	April-December 2017-18*
Production for Sale	81.681	87.675	92.156	90.981	101.81	79.049
Imports	7.925	5.45	9.32	11.712	7.227	6.097
Export	5.368	5.985	5.596	4.079	8.243	7.606
Actual Consumption	73.483	74.096	76.992	81.525	84.042	64.868

Source: JPC; * Provisional



- Production for sale of total finished steel (alloy /stainless+ non-alloy) stood at 101.805 million tonnes during 2016-17, as against 81.681 million tonnes in 2012-13, an average annual (CAGR) growth of 6%.
- Export of total finished steel (alloy/stainless + non-alloy) during 2016-17 stood at 8.243 million tonnes against 5.368 million tonnes in 2012-13.
- Import of total finished steel (alloy /stainless + non-alloy) during 2016-17 stood at 7.227 million tonnes against 7.925 million tonnes in 2012-13.
- Domestic actual consumption of total finished steel (alloy /stainless + non-alloy) stood at 84.042 million tonnes in 2016-17 as against 73.483 million tonnes in 2012-13, growing at a CAGR of 3.4% during the last five years.
- India became a net Exporter of total finished steel in 2016-17 as well as during April-December 2017-18.

Table 5.1 b: Balance sheet of availability of alloy and Non-alloy steel during last five years
(in million tonnes)

Description	2012-13	2013-14	2014-15	2015-16	2016-17	April-December 2017-18*
(A) Production						
Non-Alloy Steel	83.732	87.888	92.112	94.618	107.414	79.353
Alloy Steel	5.889	7.689	8.569	8.285	8.496	7.346
Total	89.621	95.577	100.682	102.903	115.910	86.699
Share of Alloy Steel	6.57%	8.04%	8.51%	8.05%	7.33%	8.47%
(B) Import						
Non-Alloy Steel	6.253	4.299	6.754	8.718	5.366	4.553
Alloy Steel	1.672	1.151	2.567	2.994	1.860	1.544
Total	7.925	5.450	9.320	11.712	7.226	6.097
Share of Alloy Steel	21.09%	21.12%	27.54%	25.56%	25.74%	25.32%
(C) Export						
Non-Alloy Steel	4.756	5.508	4.906	3.475	7.584	6.873
Alloy Steel	0.612	0.477	0.689	0.604	0.658	0.733
Total	5.368	5.985	5.596	4.079	8.242	7.606
Share of Alloy Steel	11.40%	7.97%	12.32%	14.81%	7.98%	9.64%
(D) Balance of Trade						
Non-Alloy Steel	-1.497	1.210	-1.847	-5.243	2.218	2.320
Alloy Steel	-1.060	-0.674	-1.877	-2.390	-1.202	-0.811
Total	-2.557	0.536	-3.725	-7.633	1.016	1.509
(E) Consumption						
Non-Alloy Steel	67.621	67.994	70.236	73.469	76.969	59.115
Alloy Steel	5.861	6.102	6.758	8.055	7.073	5.753
Total	73.482	74.096	76.994	81.524	84.042	64.868
Share of Alloy Steel	7.98%	8.24%	8.78%	9.88%	8.42%	8.87%

Source: JPC; * Provisional



- Production of both alloy and non-alloy steel has an increasing trend during last 5 years while contribution of alloy steel in total finished steel production increased from 6.57% in 2012-13 to 7.33% in 2016-17.
- Balance of trade in finished steel product shows a change in "favourable balance" in 2016-17 from "unfavourable balance" of previous years due to increase of export of non-alloy steel besides decrease of import of it.
- Share of Alloy and Non-alloy steel in total consumption of finished steel remain somewhat same during last five years.

5.2.2 Crude steel production has shown a sustained rise in last five years along with capacity. Data on crude steel production, capacity and capacity utilization during the last five years and April-December 2017-18 is given in the table below.

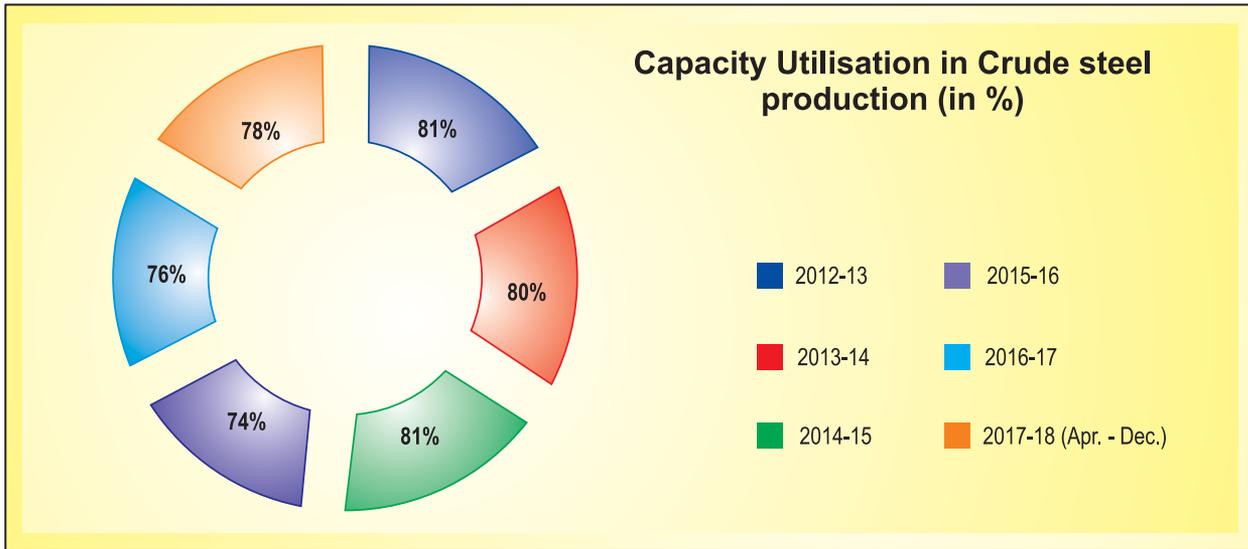
Table 5.2: Trend of Crude Steel Production in last five years

(in million tonnes)

Year	Working Capacity	Production	% Utilisation
2012-13	97.024	78.415	81%
2013-14	102.26	81.694	80%
2014-15	109.851	88.98	81%
2015-16	121.971	89.791	74%
2016-17	128.277	97.936	76%
April-December 2017-18*	130.08^	75.64	78#

Source: JPC; * Provisional; ^full-year figure, #pro-rata, based on annual capacity data

- Crude steel production grew at 5.71% annually (CAGR) from 78.415 million tonnes in 2012-13 to 97.936 million tonnes in 2016-17.
- Such growth in production was driven by capacity expansion, from 97.024 million tonnes in 2012-13 to 128.277 million tonnes in 2016-17, a CAGR growth of 7% during this five year period.



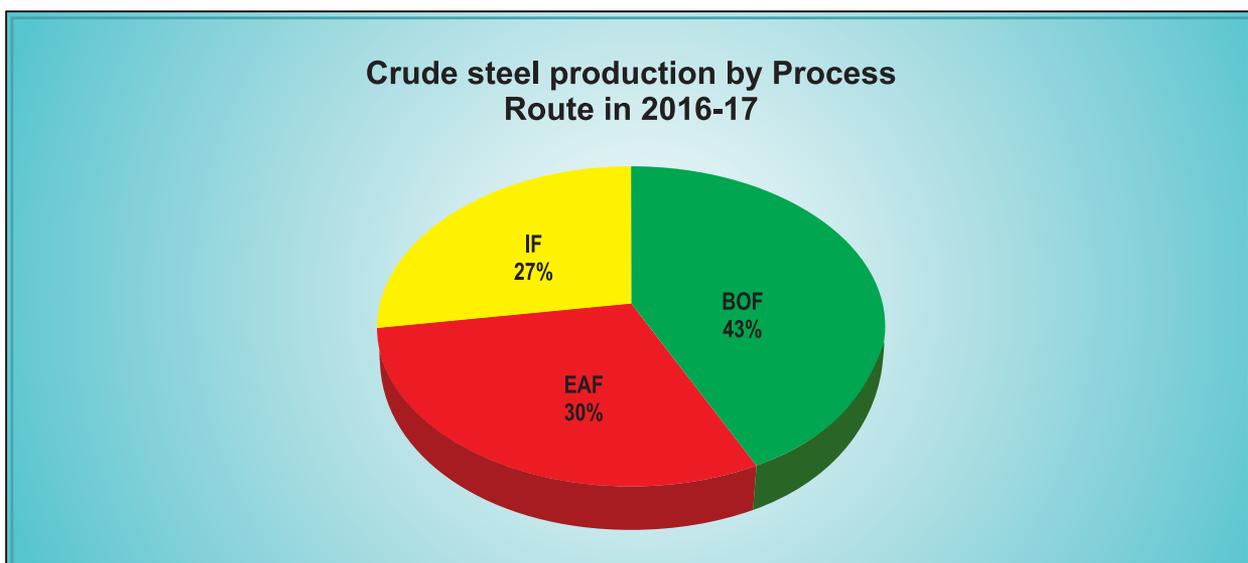
5.2.3 The above crude steel performance has been contributed largely by the strong trends in growth of the Electric Arc Furnace of steel making which accounted for 30% of total crude steel production in the country during both 2016-17 and April-December 2017-18 (prov) and has emerged as a key driver of crude steel production. The shares of the different process routes along with production of crude steel during last five year are shown in the table below along with data for April-December 2017-18 (prov):

Table 5.3: Trend in Crude Steel Production by Process Route

(in million tonnes)

Year	Basic Oxygen Furnace (BOF)	Electric Arc Furnace (EAF)	Induction Furnace (IF)	Total
2012-13	33.349 (43%)	19.382 (24%)	25.685 (33%)	78.416 (100%)
2013-14	35.522 (43%)	18.593 (23%)	27.579 (34%)	81.694 (100%)
2014-15	37.571 (42%)	23.125 (26%)	28.283 (32%)	88.979 (100%)
2015-16	38.395 (43%)	24.599 (27%)	26.796 (30%)	89.79 (100%)
2016-17	42.002 (43%)	28.962 (30%)	26.972 (27%)	97.936 (100%)
April-December 2017-18*	32.629 (43%)	22.881 (30%)	20.132 (27%)	75.642 (100%)

Source: JPC; * Provisional; Figures in bracket () indicate % share in total production



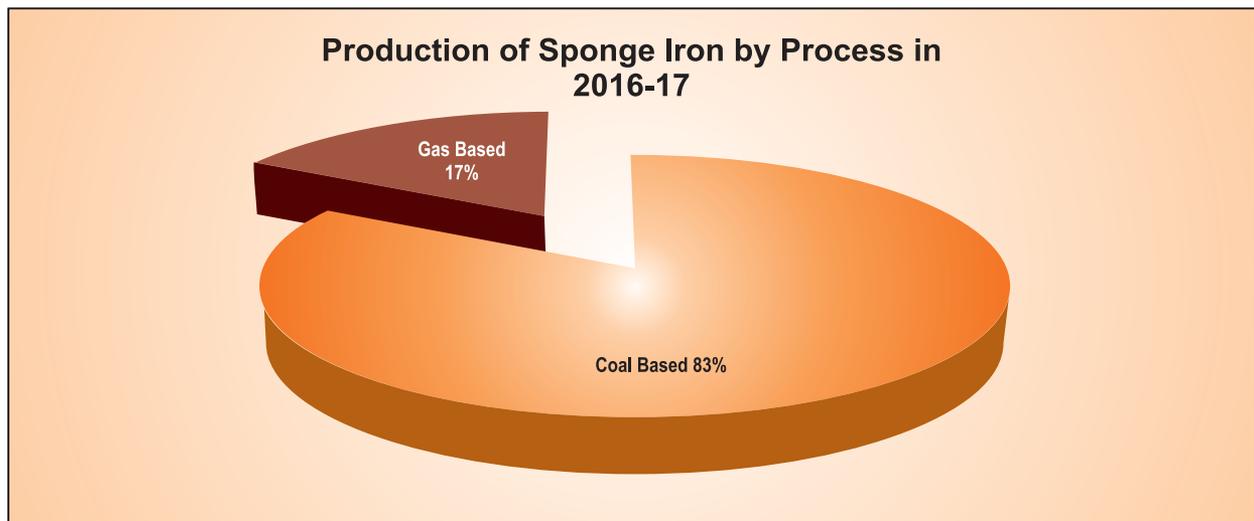
5.2.4 Sponge iron is produced through direct reduction of iron ore in the solid state, used in making steel through the secondary route. India is the largest producer of sponge iron with a host of coal based units, located in the mineral-rich states of the country. Over the years, the coal based route has emerged as a key contributor and accounted for 83% of total sponge iron production in the country in 2016-17 and 76% during April-December 2017-18 (prov). Capacity of sponge iron production has also increased over the years and stood at 46.01 million tonnes in 2016-17. The table below shows route wise production of sponge iron in the country for the last five years and April-December 2016-17 (prov):

Table 5.4: Trend of Production of Sponge Iron in Last Five years

(in million tonnes)

Year	Coal based	Gas based	Total
2012-13	19.067 (83%)	3.94 (17%)	23.007 (100%)
2013-14	20.189 (88%)	2.683 (12%)	22.872 (100%)
2014-15	21.889 (90%)	2.354 (10%)	24.243 (100%)
2015-16	19.987 (89%)	2.44 (11%)	22.427 (100%)
2016-17	23.908 (83%)	4.854 (17%)	28.762 (100%)
April-December 2017-18*	14.030 (76%)	4.540 (24%)	18.570 (100%)

Source: JPC; * Provisional; Figures in bracket () indicate % share in total production



5.2.5 Pig iron is an intermediary product and used for further processing to produce steel. With the increase in demand for the long steel in the market, the demand for Pig iron also increased leading to establishment of many pig iron manufacturers in private sector. This reduced the necessity of importing pig iron and also made India a net exporter of pig iron. The private sector contributed in 94% of total production of pig iron in 2016-17 and 96% during April-December 2017-18 (prov). The availability of pig iron is given in the table below for the last five years and April-December 2017-18 (prov):

Table 5.5: Trend of Pig Iron Production in Last Five years

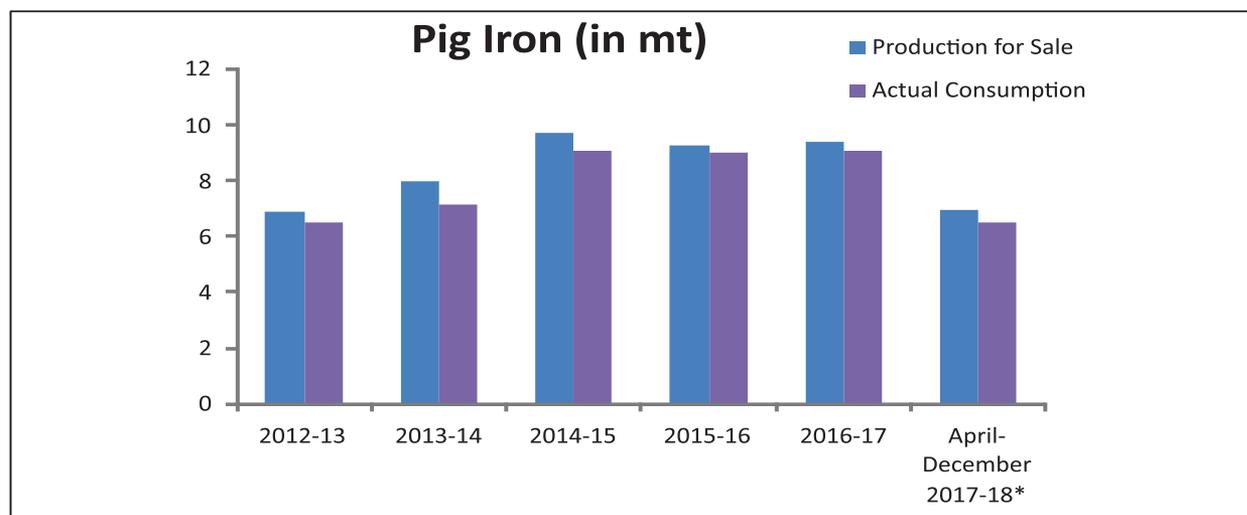
(in million tonnes)

Description	2012-13	2013-14	2014-15	2015-16	2016-17	April-December 2017-18*
Production for Sale	6.870	7.950	9.694	9.228	9.388	6.934
Imports	0.021	0.034	0.023	0.022	0.034	0.012
Export	0.414	0.943	0.540	0.297	0.387	0.427
Actual Consumption	6.500	7.110	9.057	9.021	9.040	6.524

Source: JPC; * Provisional



- Production for sale of Pig iron stood at 9.388 million tonnes during 2016-17, as against 6.870 million tonnes in 2012-13, an average annual (CAGR) growth of 6%.
- Export of total Pig iron during 2016-17 stood at 0.387 million tonnes against 0.414 million tonnes in 2012-13.
- Import of total Pig iron during 2016-17 stood at 0.034 million tonnes against 0.021 million tonnes in 2012-13.
- Domestic actual consumption of total Pig iron stood at 9.040 million tonnes in 2016-17 as against 6.500 million tonnes in 2012-13, growing at a CAGR of 9% during the last five years.
- India was a net Exporter of Pig iron during last 5 years.



5.3 Global ranking of Indian Steel

World crude steel production stood at 1691.2 million tonnes during January - December 2017, an increase of 5.29% over same period of 2016 as per data released by the World Steel Association.

Chinese crude steel production reached 831.7 million tonnes during this period, a growth of 5.69% over same period of 2016. China remained the largest crude steel producer in the world, accounting for 72% of Asian and 49% of world crude steel production during January - December 2017.

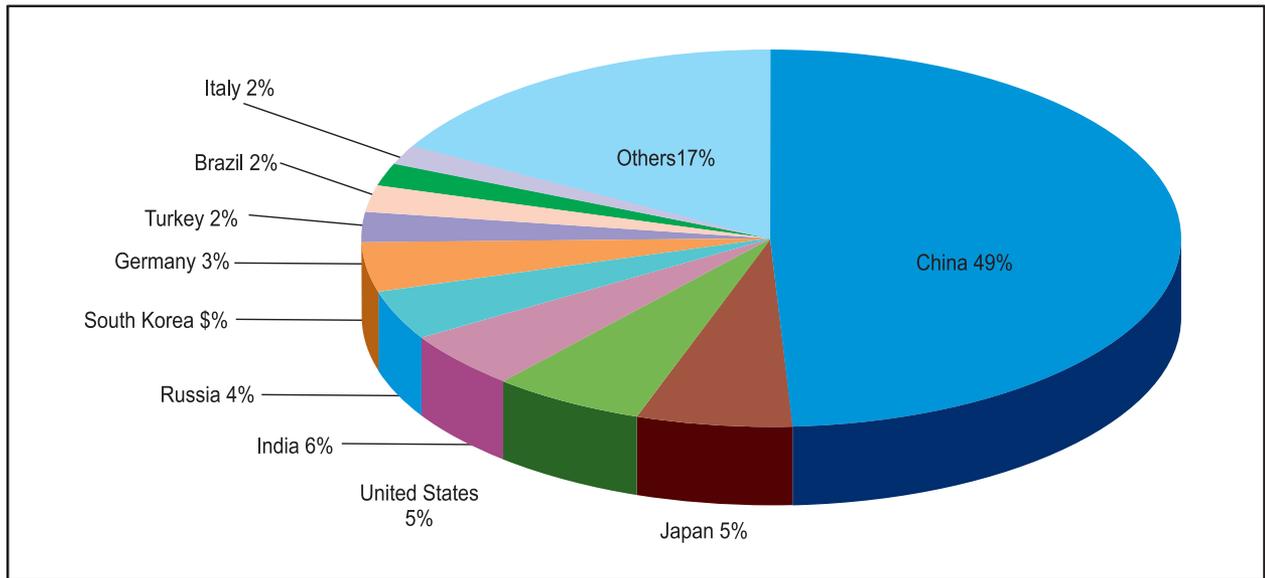
India was the 3rd largest crude steel producer during 2017 and recorded a production of 101.4 million tonnes with growth of 6.18% over 2016, accounting for 9% of Asian and 6% of world crude steel production during January - December 2017.

Table 5.6: The Largest Steel Producing Countries in 2017

(in million tonnes)

Rank	Country	2017	2016	% Growth	% Share
1	China	831.700	786.900	5.69%	49.18%
2	Japan	104.700	104.800	-0.10%	6.19%
3	India	101.400	95.500	6.18%	6.00%
4	United States	81.600	78.500	3.95%	4.82%
5	Russia	71.300	70.500	1.13%	4.22%
6	South Korea	71.100	68.600	3.64%	4.20%
7	Germany	43.600	42.100	3.56%	2.58%
8	Turkey	37.500	33.200	12.95%	2.22%
9	Brazil	34.400	31.300	9.90%	2.03%
10	Italy	24.000	23.400	2.56%	1.42%
	Top 10 countries	1632.909	1583.789	3.10%	96.55%
	Total 66 countries	1691.200	1606.300	5.29%	100.00%

Source: worldsteel



5.4 Trends in Production: Performance of Private/Public Sector

The following tables highlights the contribution of the public and private sector in crude steel production and finished steel production in the country during the last five years and April-December 2017-18 (prov):

Table 5.7 a: Performance of Public & private sector in Crude Steel Production

(in million tonnes)

Sector	2012-13	2013-14	2014-15	2015-16	2016-17	April-December 2017-18*
Public Sector	16.482	16.777	17.205	17.92	18.456	14.387
Private Sector	61.933	64.917	71.775	71.871	79.48	61.255
Total	78.415	81.694	88.98	89.791	97.936	75.642
% Share of Public Sector	21%	21%	19%	20%	19%	19%

Source: JPC; * Provisional

- Expansion of private sector in steel making industry increases the contribution of private sector gradually in crude steel making.
- Public sector is contributing 19% both in 2016-17 and April-December 2017-18.

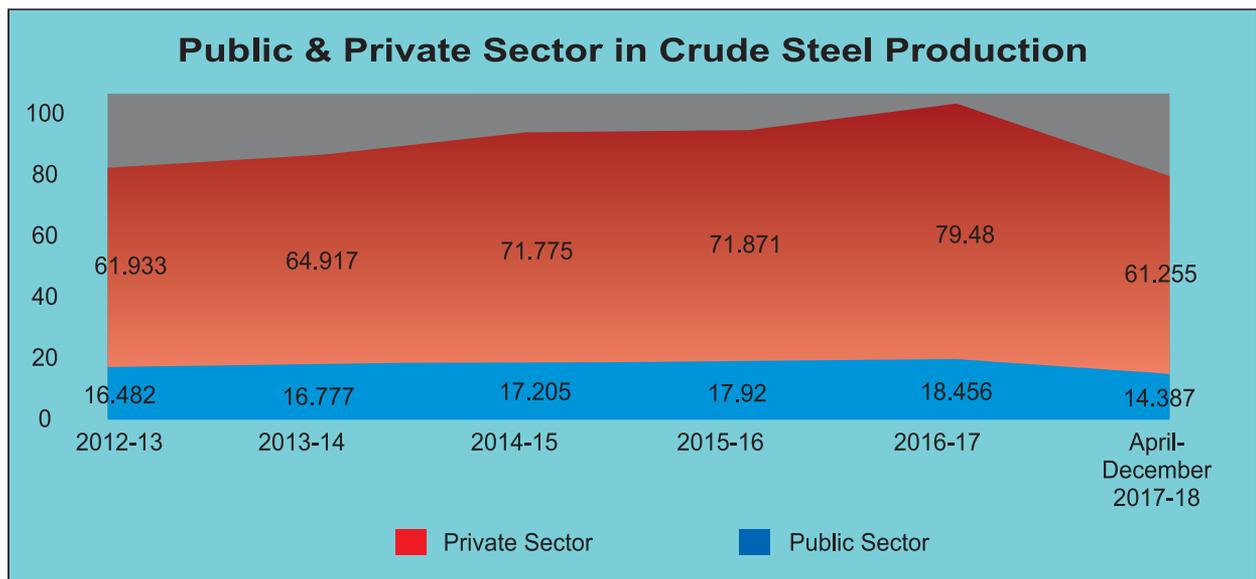


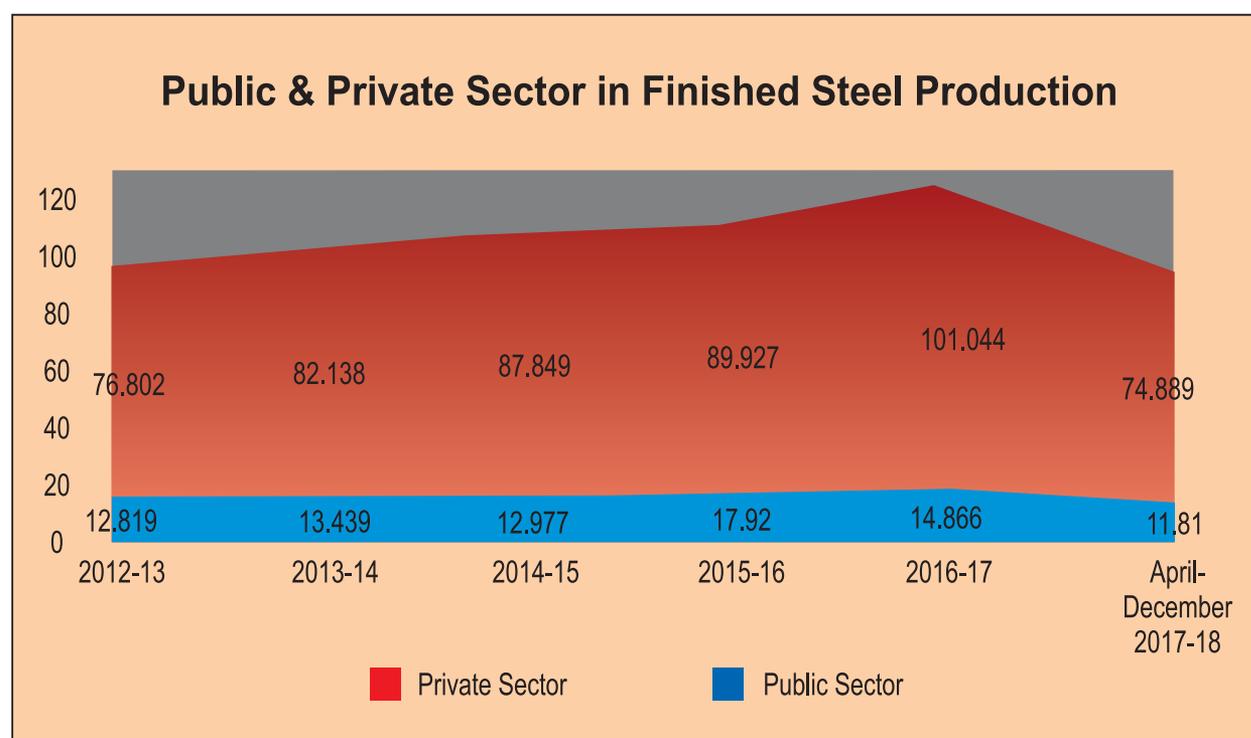


Table 5.7 b: Performance of Public & private sector in Finished Steel Production
(in million tonnes)

Sector	2012-13	2013-14	2014-15	2015-16	2016-17	April-December 2017-18*
Public Sector	12.819	13.439	12.832	12.977	14.866	11.81
Private Sector	76.802	82.138	87.849	89.927	101.044	74.889
Total	89.621	95.577	100.681	102.904	115.91	86.699
% Share of Public Sector	14%	14%	13%	13%	13%	14%

Source: JPC; * Provisional

- Public sector is contributing 13-14% in finished steel production during last five years and 14% in April-December 2017-18.



5.5 Steel: Key facts in "April-December 2017-18"

Following tables is showing steel at a glance during April-December 2017-18.

Table 5.8: Indian Steel Scene – April-December 2017-18*

(in million tonnes)

Item	Description	April-December 2016-17	April-December 2017-18*	% Growth
Finished Steel	Production	85.517	86.699	1.38%
	Imports	5.495	6.097	10.96%
	Export	4.975	7.606	52.88%
	Consumption	61.662	64.868	5.20%
Crude Steel	Production	72.208	75.642	4.76%
	Capacity Utilization (%)	75%	78%	4.00%

Source: JPC; * Provisional

Table 5.9: Capacity of Indian Iron and Steel industry in 2016-17

Segment	Number of units	Capacity (million tonnes)
Blast Furnace	58	79.19
EAFF	48	37.81
IF	1126	39.62
BOF	17	50.85
Sponge Iron	320	46.01
Re-rolling	1166	61.99
Hot Rolled Flat Products	28	55.82
Cold Rolled Flat Products	70	25.76
GP/GC	24	7.15
Colour Coated	16	2.76

Source: JPC; * Provisional

Table 5.9 is showing capacities of the various segments of the Indian iron and steel industry during the year 2016-17.

In addition to rank of 3rd largest producer of crude steel at global level in 2017, India has also played a crucial role in the production of sponge iron/direct reduced iron (DRI) in world. Courtesy a mushrooming growth of coal-based sponge iron units in key mineral-rich pockets of the country, domestic production of sponge iron increased rapidly, enabling the country to achieve and maintain the number one position in the global market. With a series of mega projects, either being implemented or at the proposal stage, which once operational will rephrase the structure of the steel industry and its dynamics; and a domestic economy carrying forward the reform process further, the future of the Indian steel industry is definitely optimistic. The data pertaining to production, consumption, import, export etc. of steel sector are at Annexure III-XI.

5.6 Plan outlay for the 12th Five Year Plan (2012-2017)

For the 12th Five Year Plan (2012-17), the Planning Commission has approved total outlay of Rs. 91174.64 crores (i.e. Internal and Extra Budgetary Resources (I&EBR) of Rs. 90974.64 crores and Gross Budgetary Support (GBS) of Rs. 200.00 crores.

(Rs. in crores)

Sl.No.	Name of the PSUs	12th Plan (2012-17) Approved Outlay		
		I&EBR	GBS	Total
A.	Central Sector Scheme			
1	Steel Authority of India Ltd.	45000.00	0.00	45000.00
2	Rashtriya Ispat Nigam Ltd.*	13373.00	0.00	13373.00
3	Hindustan Steelworks Con. Ltd.	0.00	0.00	0.00
4	MECON Ltd.	25.00	0.00	25.00
5	MSTC Ltd.	105.00	0.00	105.00
6	Ferro Scrap Nigam Ltd.	60.00	0.00	60.00
7	NMDC Ltd.	27872.17	0.00	27872.17
8	KIOCL Ltd.	3080.00	0.00	3080.00
9	MOIL Ltd	1459.47	0.00	1459.47
	Total (A)	90974.64	0.00	90974.64



B.	Centrally Sponsored Scheme			
1	Promotion of Research and Development in Iron & Steel Sector			
1(i)	Ongoing R&D Scheme	-	48.00	48.00
1(ii)	Development of Technology or Cold Rold Grain Oriented (CRGO) Steel Sheets and other value added steel products (new components)	-	150.00	150.00
1(iii)	Development of innovative iron/steel making Process/Technology (new projects under existing scheme)	-	2.00	2.00
	Total (B)	-	200.00	200.00
	Grand Total (A+B)	90974.64	200.00	91174.64

* OMDC Ltd. and BSLC Ltd. were constituents of erstwhile Bird Group of Companies, which have become subsidiary PSUs of RINL and their figures have been clubbed with RINL.

5.7 Role of the Ministry of Steel

The pre-deregulation phase has seen the Ministry of Steel in the key role of a regulator which was essential, given the operating economic conditions, the limited presence of industry and the scarcity of key raw material for steel-making at home. Through skilful and judicious decisions on allocation and pricing and formulating related policy measures, the Ministry of Steel had played an important role in taking the steel industry forward in this phase.

In the post-deregulation period, the role of the Ministry of Steel has primarily been that of a facilitator for the Indian steel industry, being responsible for the planning and development of the iron and steel industry, development of essential inputs such as iron ore, limestone, dolomite, manganese ore, chromites, ferro alloys, sponge iron, and other related functions. In its present day role, the Ministry of Steel is extending all possible support for the development of the Iron and Steel Industry in the country, in matters like:

- Facilitating expedited growth of steel capacity investments through active coordination and formulation of right policy directives. An Inter-Ministerial Group (IMG) is functioning in the Ministry of Steel, under the Chairmanship of Secretary (Steel) to monitor and coordinate major steel investments in the country.
- Providing linkage for raw materials, rail movement clearance etc. for new plants and expansion of existing ones.
- Facilitating movement of raw materials other than coal through finalisation of wagon requirements and ensuring an un-interrupted supply of raw materials to the producers.
- Regular interactions with entrepreneurs proposing to set up new ventures, to review the progress of implementation and assess problems faced.
- Identification of infrastructural and related facilities required by the steel industry, and coordination of infrastructure requirement of steel sector with the concerned Ministries/Department.
- Promoting, developing and propagating the proper and effective use of steel and increasing the intensity of steel usage, particularly in the construction sector in rural and semi urban areas, through "Institute for Steel Development and Growth (INSDAG)".
- Encouraging research and development in the steel sector: In India, substantial R&D in Iron and Steel sector is currently being carried out by the leading steel companies which have accompanished some significant work in the areas of raw material beneficiation, agglomeration and product development. However, in general, major focus of R&D is limited to day to day operations and hence, lacks disruptive innovation. India's R&D investment in steel sector is limited not only in absolute terms but also as percentage of turnover. Steel Ministry is facilitating R&D in the sector through the establishment of Steel Research and Technology Mission of India (SRTMI). The initiative is aimed to spearhead R&D of national importance in iron & steel sector, utilizing tripartite synergy amongst industry, national R&D laboratories and academic institutes.

CHAPTER-VI

PUBLIC SECTOR

6.1 Introduction

There are 07(Seven) Central Public Sector Enterprises (CPSEs) under the administrative control of Ministry of Steel. Further, there are 04 (four) subsidiary CPSEs. Detailed overview of these CPSEs and their subsidiaries is as under:

6.2 Steel Authority of India Ltd. (SAIL)

The Steel Authority of India Limited (SAIL) is a company registered under the Indian Companies Act, and is a Central Public Sector Enterprise (CPSE). It has five integrated steel plants at Bhilai (Chhattisgarh), Rourkela (Odisha), Durgapur (West Bengal), Bokaro (Jharkhand) and Burnpur (West Bengal). SAIL has three special and alloy steels plants viz. Alloy Steels Plant at Durgapur (West Bengal), Salem Steel Plant at Salem (Tamil Nadu) and Visvesvaraya Iron and Steel Plant at Bhadravati (Karnataka). SAIL has also several units viz. Research and Development Centre for Iron and Steel (RDCIS), Centre for Engineering and Technology (CET), Management Training Institute (MTI) and SAIL Safety Organisation (SSO) all located at Ranchi, Central Coal Supply Organisation (CCSO) located at Dhanbad, Raw Materials Division (RMD), Environment Management Division (EMD) and Growth Division (GD) all located at Kolkata, and SAIL Refractory Unit at Bokaro. Chandrapur Ferro Alloy Plant, (CFP) is located at Maharashtra. The Central Marketing Organisation (CMO), with its headquarters at Kolkata, coordinates the countrywide marketing and distribution network of the Company. The SAIL Consultancy Division (SAILCON) functions from New Delhi.

6.2.1 Capital Structure

The Authorized Capital of SAIL is Rs. 5000 crore. The paid up capital of Company is Rs. 4130.53 crore as on 31.12.2017, out of which 75% is held by the Government of India and the balance 25 % by the Financial Institutions, GDR holders, Banks, Employees, Individuals etc.

6.2.2 Financial Performance

The Company recorded turnover of Rs.26,297crore in the first Six Months of the Financial Year 2017-18. The post-tax net loss was Rs.1,340crore for the first Six Months of the Financial Year 2017-18. The Company has not paid any dividend for the Financial Year 2016-17.



Hon'ble Prime Minister Shri Narendra Modi inaugurating the Steel Processing Unit of SAIL at Kangra, Himachal Pradesh



6.2.3 Production Performance

The details of actual production are as under:

(million tonnes)

	2016-17	2017-18 (Apr-Nov'17)
Hot Metal	15.7	10.4
Crude Steel	14.5	9.8
Saleable Steel	13.9	9.3

6.2.4 Raw Materials

During 2017-18(April-December, 2017), likely production of iron ore, fluxes and raw coal from SAIL captive mines and collieries is about 19.56 million tonnes, 1.46 million tonnes and 0.52 million tonnes respectively.

SAIL has fulfilled the requirement of iron ore for its Steel Plants from its captive mines by producing 26.44 million tonnes during 2016-17. The production of fluxes from captive mines during 2016-17 was 2.083 million tonnes. During 2016-17, raw production in captive collieries of SAIL was 0.74 million tonnes.

6.2.5 Manpower

The Manpower Strength of SAIL as on 1st April, 2017 was 82964. The Manpower strength of SAIL as on 01.12.2017 was 78742 (Executive 12067 / Non-Executive 66675), achieving reduction of 4222 manpower during the year 2017-18 (upto November, 2017).

6.3 Rashtriya Ispat Nigam Ltd. (RINL)

Rashtriya Ispat Nigam Limited (RINL), a Navratna PSE, is the corporate entity of Visakhapatnam Steel Plant - the country's first shore-based integrated steel plant at Visakhapatnam, Andhra Pradesh. RINL completed Expansion to 6.3 Mtpa capacity. Modernization and up gradation to 7.3 Mtpa has also been completed with the commissioning of additional caster in SMS-2 in Dec'17. Stabilization of the units is in progress for ramping up the production progressively. RINL employed 17458 regular employees as on 31.12.2017.



Panoramic view of 6.3 MTPA shore based integrated Vishakhapatnam Steel Plant,RINL.

The Company is having one subsidiary, viz. Eastern Investment Limited (EIL) with 51% shareholding, which in turn is having two subsidiaries, viz. M/s Orissa Mineral Development Company Ltd (OMDC) and M/s Bisra Stone Lime Company Ltd (BSLC).

RINL, with an exclusive product mix of longs is one of the largest producer of "Bars and Rods" in the country. The products of RINL include Rebars, Wire Rods, Rounds, Structural, Blooms & Billets and Pig Iron and the company also markets the resultant by-products like coal chemicals (Ammonium Sulphate, Benzol products etc.) and Slag. RINL products are known for its quality.

6.3.1 Financial Performance

The company has recorded turnover of Rs.11395 crore (provisional) up to December, 2017 in the current financial year. The company has reported Loss after tax of Rs.979 crore (provisional) upto Dec.17 in 2017-18. The company has not paid dividend in 2016-17.

6.3.2 Production Performance

The physical performance in terms of production of Crude Steel and Finished Steel is given below:

Item	2016-17	2017-18		Annual Growth
		Actual (Apr-Dec)	Forecast (Jan-Mar) *	
Crude Steel (000t)	3962	3371	1378	20%
Saleable Steel (000t)	3847	3187	1313	22%

* Estimated

Value Added steel production stood at 26.13 lakh tonnes (Apr'17 to Dec'17), - a growth of 17% over CPLY.

6.4 NMDC Ltd.

NMDC Limited is a "Navratna" public sector company under the Ministry of Steel, Government of India, primarily engaged in the business of exploring minerals and developing mines to produce raw materials for the industry. It is also expanding its activities towards steel making and other value added products.

Incorporated on November 15, 1958, NMDC has been actively contributing to development of the nation for five decades and grown from strength to strength on its journey to nation building. From a single-product-single-customer company, NMDC has grown to be a major iron ore supplier to the domestic steel industries. NMDC is also doing exploration and prospecting works for high value minerals like diamond in Andhra Pradesh and gold in Tanzania.

NMDC operates the large mechanized iron ore mines in the Country at Bailadila (Chhattisgarh) and Donimalai (Karnataka). The Diamond Mine of NMDC is situated at Panna (Madhya Pradesh). Sponge Iron Unit of NMDC is situated at Paloncha, Andhra Pradesh.

NMDC is setting up a 3.0 MTPA Greenfield Integrated Steel Plant at Nagarnar, Bastar District in Chhattisgarh. Construction work for the project is in progress and as on date around 90.59% of civil work, 79.01% structural erection, 60.36% equipment erection have been completed as on 31st Dec'17. The progress has picked up momentum since then in the last Quarter.

NMDC is in the process of expanding its business through forward integration in both Greenfield and Brownfield through following projects:

- 1.2 MTPA Pellet Plant at Donimalai in Karnataka
- 2.0 MTPA Pellet Plant at Nagarnar along with 2.0 MTPA Ore Processing Plant at Bacheli interconnected by a Slurry Pipeline System between Bacheli and Nagarnar in Chhattisgarh.

NMDC is also in the process of augmenting its production & evacuation capacities by installing the following additional infrastructure facilities:

- Construction of 5th Screening line in existing Screening Plant -II and up-gradation of downstream Conveyor at Kirandul Complex, Bailadila, Chhattisgarh.



Panoramic view of NMDC Iron Ore Mines, BIOM, Chhattisgarh.

- Construction of 5th Screening line in existing Screening Plant and up-gradation of downhill conveyor system at Deposit-5, Bachel Complex, Bailadila, Chhattisgarh.
- Installation of 12.0 MTPA Screening Plant-III at Kirandul Complex, Bailadila, Chhattisgarh.
- Installation of 7.0 MTPA Screening & Beneficiation Plant-II at Donimalai Complex, Karnataka.
- Doubling of Kirandul - Kothavalasa Rail line between Kirandul - Jagdalpur (150.46 km) and Jagdalpur - Ambagaon (25 km) through Railways.

6.4.1 Capital Structure

The Authorized share capital of the company is Rs.400 crores. The paid up equity share capital is Rs.316.39 crores as on 31.12.2017, out of which 74.9% is held by the Government of India and the balance 25.1% by the financial institutions/banks/individuals/employees etc.

6.4.2 Financial Performance

The Company recorded turnover of Rs.5263 crore in the financial year 2017-18 upto Sep'17. The post-tax net profit for the year was Rs 1814 crore. The Company has paid final dividend @ 100% of paid up equity capital for the year 2016-17 during 2017-18.

6.4.3 Production Performance

The details of the actual production are given below:

Items	2016-17	2017-18 (upto Dec'17)
Iron ore (in MT)	34.01	24.23
Diamonds (in carats)	35636	28107

6.4.4 Manpower

The Manpower strength of NMDC as on 31.03.17 was 5572 and as on 31.12.17, it was 5438.

6.5 MOIL Ltd.

MOIL is a Schedule "A" Miniratna Category-I Company. It was originally incorporated as Manganese Ore (India) Limited in the year 1962. Subsequently, name of the Company was changed from Manganese Ore (India) Limited to MOIL Limited during the Financial year 2010-11.

MOIL is listed on National Stock Exchange and Bombay Stock Exchange. During the year, the Company completed Buyback of shares after which the current shareholding of Govt. of India, Govt. of Maharashtra and Govt. of Madhya Pradesh is 56.21%, 4.56% and 4.81% respectively. Rest 34.42% shares are held by the public.

MOIL produces and sells different grades of Manganese Ore. They are:-

- High Grade Ores for production of Ferro manganese
- Medium grade ore for production of Silico manganese
- Blast furnace grade ore required for production of hot metal and
- Dioxide for dry battery cells and chemical industries.

MOIL has set up a plant based on indigenous technology to manufacture 700 MT per annum capacity of Electrolytic Manganese Dioxide (EMD). This product is used for the manufacture of dry battery cells. EMD produced by the Company is of good quality and well accepted by the market. A Ferro manganese plant having a capacity of 10,000 MT per annum was also set up in 1998 by MOIL for value addition.

In order to promote non-conventional energy resources, MOIL has installed 4.8 MW Wind Energy Farm at Nagda Hills and 15.2 MW Wind Farm at Ratedi Hills, Distt. Dewas in Madhya Pradesh.

6.5.1 Capital Structure

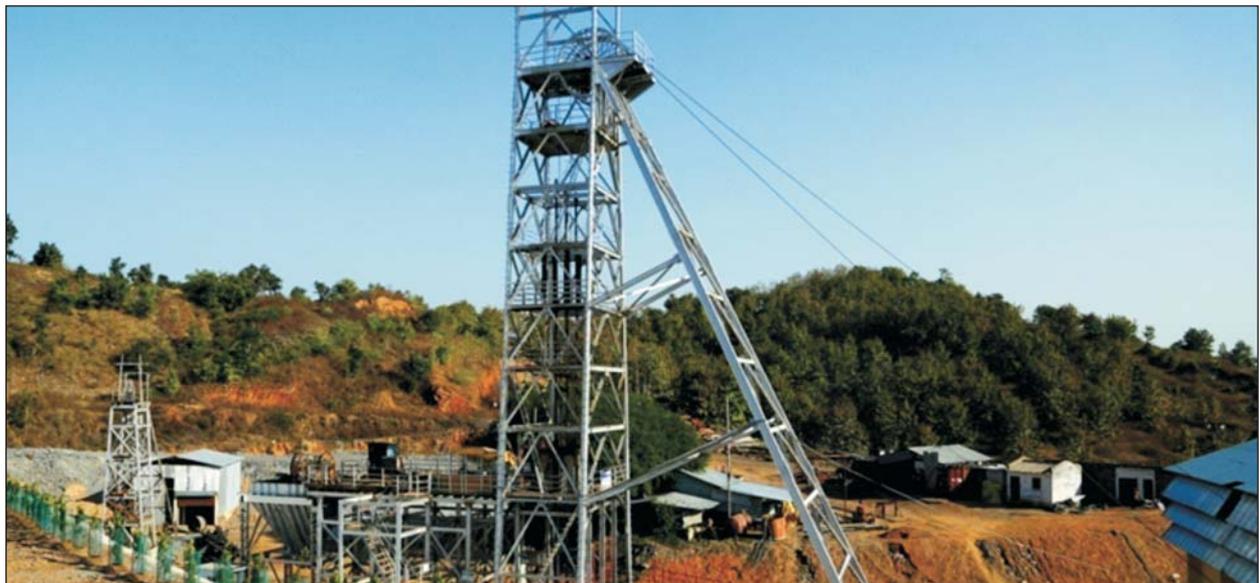
The Authorized and Paid-up Capital of the Company are Rs. 300,00,00,000 and Rs. 266,37,56,080 respectively, as on 31st Dec., 2017.

6.5.2 Financial Performance

The total turnover and profit after tax of the Company during the year 2016-17 was Rs. 989.84 Crores and Rs. 305.83 Crores respectively. The Company has paid a dividend of Rs. 146.51 crore in 2016-17.

6.5.3 Production Performance

Items	2016-17	2017-18 (upto Dec.17) (Unaudited)
Production		
a) Manganese Ore(tonnes)	1004845	829491
b) E.M.D. (MT)	731	634
c) Ferro Manganese (MT)	9950	7959



Vertical shaft at MOIL, Munsar Mine.



6.6 MSTC Ltd.

MSTC Limited formerly known as Metal Scrap Trade Corporation Limited was set up in September 1964 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 the Ministry of Steel. It was the canalizing agency for import of carbon steel melting scrap, sponge iron, hot briquetted iron and re-rollable scrap till February 1992. It was also the canalizing agency for import of old ships for breaking, Import of such items were decanalized and put under OGL with effect from August 1991.

6.6.1 Activities of the company

E-commerce - Under this segment of business, MSTC acts as a standalone and neutral e-commerce service provider to various Central / State Government Departments and other private entities to ensure transparent and fair sale and purchase business. MSTC has evolved as the only PSU under this segment of business and grown to become the largest Government company in India in e-Commerce sector in B2B & B2C segment.

E-commerce includes disposal of Scrap, sale of Coal, Ferro Manganese Ore, Iron Ore, Baryte, Chrome Ore, Human Hair, etc. through forward e-auction and purchase of goods, service contracts by buyers through e-procurement. The list of Principals includes Ministry of Defence, PSUs like Indian Oil Corporation. Ltd., Oil & Natural Gas Corpn. Ltd, State Electricity Boards, Bharat Sanchar Nigam Ltd, Hindustan Petroleum Corpn. Ltd etc. Tirupati Tirumala Devasthanam (TTD). The mode of disposal includes tenders, auction, e-Auction and for procurement e- Tender, e-Reverse Auction etc. Prime products for principals who want to sell their products are sold by MSTC through e-Sale. Besides, MSTC also sells coal from Coal India Ltd., Singareni Coalfields Ltd, Jharkhand State Mineral Dev. Corpn. Ltd., Ferro Manganese and Manganese Ore from Manganese Ore India Ltd. and Barytes for Andhra Pradesh Mineral Development Corpn. Ltd. to name a few.

MSTC has developed software for various prestigious projects and flagship schemes introduced by Govt. of India viz.

- E-auction for allocation of Coal Linkages for non-regulated sector viz. sponge iron & steel, cement, captive power plants etc. through auction-based process as per Government policy to ensure transparency in distribution system.
- National portal for e-Auction of Mining Leases and Composite Licenses for various State Governments in consultation with Ministry of Mines.
- National portal for e-bidding for power procurement which has been named as Discovery of efficient electricity price (DEEP).
- Regional Connectivity Scheme popularly, UDAN (Ude Desh ka Aam Nagrik).
- Comprehensive e-bidding platform for allocation of Discovered Small Oil & Gas Blocks on behalf of Directorate General of Hydrocarbons (DGH).
- Centralised Public Procurement Portal for e-Procurement of material for Steel PSUs.

In order to promote transparency in Government purchases, MSTC is providing e-Procurement service to various Central / State Government Departments and Public Sector Undertakings.

Trading - MSTC is engaged in Import and domestic trade of mainly bulk industrial raw material for actual users. This division looks after sourcing, purchase and sales of industrial raw materials like Heavy Melting Scrap, Low Ash Metallurgical Coke, HR Coil, Naphtha, Crude Oil, Coking Coal, Steam Coal etc. on behalf of purchasers in secondary steel sector & petrochemical sector.

To reduce dependency on traditional trading business which is fraught with risks, MSTC has taken up business with 110% BG for procurement of materials by the clients.

Recycling- MSTC envisages a clean and swachh India by recycling. MSTC formed a joint venture company with Mahindra Intertrade Ltd under Mahindra & Mahindra Group of companies. This JV has moved forward to setup organized recycling and shredding of End of Life vehicles and white goods in an environmentally sound manner following the laid down guidelines by CPCB and MOEF.

6.6.2 Capital Structure And Share Holding Pattern

As on 31.03.2017, the Authorized Capital of the company is Rs. 50.00 crore and paid up Capital is Rs.17.60 crore. Bonus share was issued at 1:1 in 2016-17. Further, as approved in the AGM during 2016-17, Bonus Share has been issued at 1:1 in 2017-18, thereby, rising paid up capital to Rs.35.20 crore.

The share holding pattern of the company is as below.

Sl. No.	Name of Share holder	% of Holding
1.	Government of India	89.85
2.	Others	10.15
	Total	100.00

6.6.3 Financial Performance

(Rs. in Crore)

Items	2016-17	2017-18* (estimated)
Turnover	1428.69	1300.00
Operating Profit	98.03	103.17
Profit before tax	96.61	100.17
Profit after tax	65.43	65.47

* Provisional

6.7 Ferro Scrap Nigam Ltd. (FSNL)

FSNL is a wholly owned subsidiary of MSTC Ltd. with a paid up capital of Rs.3200 lakhs. FSNL is rendering its specialized services of Scrap & Slag management to plants throughout India. The main objective of FSNL is to generate "Wealth from Waste" by recycling Slag & Scrap generated during Iron & Steel making process as a waste. FSNL is not only saving country's valuable mineral resources but also contributing to protect the environment. In addition, the company is also providing Steel Mill Services such as Scarfing of Slabs, Hot Slag Pit Management and Custodian Services, etc. FSNL is also providing services for Valuation of Plant & Machineries/Scrap/Surplus, movable & immovable materials/properties.

FSNL is a multi locational company having its Registered & Corporate office at Bhilai-Chhattisgarh and presently providing services at SAIL - Rourkela, Burnpur, Bhilai, Bokaro, Durgapur, Bhadravati, Salem, RINL-Vishakhapatnam, NINL-Duburi, BHEL-Hardiwar, RWF-Bengaluru & Air India- Mumbai.

6.7.1 Physical Performance

Items	2016-17	2017-18 (Apr-Dec 2017)
Recovery of scrap (lakh metric tonne)	26.43	23.39
Market Value of Production (Rs. in crores)	2325.74	2058.68

* Provisional



6.7.2 Financial Performance

(Rs. in Lakhs)

Items	2016-17	2017-18* (Apr-Dec)
Total Turnover i.e, Service charge realised including misc. Income, etc.	32829.77	22868.98
Gross Margin Before Interest & Depreciation	4766.07	3035.47
Interest & Depreciation	1144.38	905.70
Profit Before Tax	3621.69	2129.77

* Provisional

6.8 MECON Ltd.

MECON Limited, a Miniratna CPSE under Ministry of Steel, is one of the leading multi-disciplinary Design, Engineering, Consultancy and Contracting organization in the field of Metals and Mining, Power, Oil & Gas, Infrastructure, Refineries & Petrochemicals, Pipelines, Roads & Highways, Railways, Water Management, Ports & Harbors, General Engineering, Environmental Engineering and other related/ diversified areas with extensive overseas experience. MECON provides full range of services required for setting up of Greenfield and Brownfield projects from Concept to Commissioning including Turnkey execution. MECON is an ISO:9001-2008 accredited company and is registered with International Financial Institutions like the World Bank, Asian Development Bank, African Development Bank, European Bank of Reconstruction & Development and United Nations Industrial Development Organization. MECON has collaboration agreements with leading International organizations for gaining requisite resources for enhancement of its cutting edge technology.

MECON has successfully delivered / delivering landmark projects of National importance like Second Launching Pad at Shriharikota, India's first indigenous launching pad at Satish Dhawan Space Centre, SHAR; Integrated Engine Testing Facility in Mahendragiri for performing static tests on semi cryogenic propulsion system for ISRO; Specialized blast proof and protected underground structure and specialized EMP protected over ground structure for BEL; Setting up of Pilot Plant for the development of production technologies for CRGO steel; Integrated infrastructure for New Helicopter Facility for HAL; Modernization of Indian Naval Aircraft Yards at Goa & Kochi for Indian Navy; Forged Rail Wheel Plant for RINL; State of Art Campus for Nalanda University, IIT Indore, Geo-Technical Centrifuge Facility at IIT Bombay (the 6th of its kind in the world), funded by DST, DRDO & Ministry of HRD; Asia's biggest coal handling facility from harbor to power plant with belt conveyor system of 11 kms for TNEB; Project Seabird of Indian Navy (India's 1st Ship repair facility) are to name a few.

MECON has also strengthened its footprint in International market by providing World Class Design, Engineering & Consultancy Services for about 130 Projects in different countries.

6.8.1 Financial Performance

The company recorded a turnover of around Rs.42.93 crores during the FY 2016-17 which is about 8% more than previous year. However, during FY 2016-17 the company could not make any profit. Further, slow post recovery development and nominal growth in steel sector have impacted the company's Net Worth too, which stands at Rs.151.37 crores as on 31.03.2017.

6.9 KIOCL Ltd.

KIOCL Limited, a flagship Company under Ministry of Steel, Government of India was established on 02.04.1976 with an objective to mine & beneficiate low grade magnetite iron ore at Kudremukh Iron Ore mine in Chickmagalur District of Karnataka State. KIOCL Limited is presently engaged in Pelletization and conferred with the "Mini-Ratna-category-I" status in 1999 under schedule-A & accredited with ISO-9001:2008, ISO-14001:2004 and compliant with OHSAS: 18001:2007.

Government of India holds 98.99% of its equity. The Company has a capacity to produce 3.50 million tonnes of Iron Oxide Pellets and 2.16 Lakhs tonnes of Pig Iron annually. The Company has its captive



Flagging off of Pellet Shipment to Japan under Make in India programme by KIOCL

berth and ship-loading facilities at Mangalore. Company depends mainly on NMDC & other private source for raw materials viz. iron ore to feed to its Pellet Plant.

6.9.1 Production Performance

For the year 2017-18, a production target of 17.50 Lakh tonnes of Pellets has been fixed. Target set for despatch upto December, 2017 is 12.00 Lakh tonnes. Actual production upto December, 2017 is 17.00 Lakh tonnes of Pellets representing 142% achievement of the target.

6.9.2 Financial Performance

An overview of the performance of KIOCL during the year 2017-18 upto December, 2017 together with estimate thereof and actuals for the previous year is as follows:

(Rs. in Crore)

Particulars	2016-17	2017-18		
		April to December, 2017	January to March, 2018 (Estimated)	Total
Revenue from Operations	929.36	1206.68	353.09	1540.30
Profit Before Tax	31.22	28.18	6.49	34.67
Profit After Tax	47.93	18.43	4.24	22.67

6.10 EIL, OMDC and BSLC

EIL, a subsidiary of RINL, is a Non Banking Financial Company and the holding company of OMDC and BSLC. EIL, BSLC and OMDC became PSU's w.e.f. 19.03.2010.



(a) Eastern Investment Limited (EIL)

Financial Performance

(Rs. in Crore)

Description	2016-17	2017-18 (Apr-Dec)
Income	1.69	0.90
Expenditure	0.52	0.28
Profit After Tax(PAT)	0.85	0.48

(b) The Orissa Minerals Development Company Limited (OMDCL)

OMDC is one of the oldest mining company of Iron ore. OMDC mines are located in the tribal dominated area of Keonjhar District, Odisha. Mines are presently not operational due to ongoing litigations.

The Authorized as well as Paid up Capital of the Company is Rs. 0.60 Crore.

Financial Performance

(Rs. in Crore)

Description	2016-17	2017-18 (Apr-Dec)*
Other Income	63.176	42.96
Profit After Tax (PAT)	5.86	2.09

*Provisional

(c) The Bisra Stone Lime Company Limited (BSLC)

BSLC operates on lease of limestone and dolomite in Sundargarh District of the State of Odisha. The Authorized Capital of the company is Rs. 87.50 Crore and Paid up Capital is Rs. 87.29 Crore.

Physical Performance

(in tonnes)

Description	2016-17	2017-18 (Apr-Dec)*
Production		
Dolomite	0.48	0.35
Limestone	0.00024	-
Despatch		
Dolomite	0.48	0.36
Limestone	-	-

*Provisional

Financial Performance

(Rs. in Crore)

Description	2016-17	2017-18 (Apr-Dec)*
Income	36.53	26.93
Profit/Loss After Tax (PAT)	(-)17.74	(-)14.45

*Provisional

CHAPTER-VII

PRIVATE SECTOR

7.1 Introduction

The private sector of the Steel Industry is currently playing an important role in production and growth of steel industry in the country. The private sector units consist of both large scale steel producers on one hand and relatively smaller and medium scale units such as Sponge Iron Plants, Mini-Blast Furnace Units, Electric Arc Furnaces, Re-rolling Mills, Cold-rolling Mills and Cooling Units on the other. They contribute substantial value addition in terms of quality, innovation and cost effectiveness.

7.2 The leading steel producers in the private sector are given in the table below :

Sl. No.	Name of Steel Company	Existing Capacity in million tonnes
1	2	3
1.	JSW Steel Ltd.	18.00
2.	Tata Steel Ltd.	13.00
3.	Essar Steel India Ltd.	10.00
4.	Jindal Steel and Power Ltd	8.6
5.	Electrosteel Steel Ltd.	1.88
6.	Jindal Stainless Ltd.	1.00
7.	Jindal Stainless (Hisar) Ltd.	0.78

Note: Source of col. 3 is JPC.

7.3 JSW Steel Ltd.

JSW Steel is one of India's leading integrated steel manufacturers with a capacity of 18 MTPA. It is one of the fastest growing companies in India with a footprint in over 100 countries. With state-of-the-art manufacturing facilities located in Karnataka, Tamil Nadu and Maharashtra, it is recognized for its innovation and quality.





JSW offers a wide gamut of steel products that includes Hot Rolled, Cold Rolled, Bare & Pre-painted Galvanized & Galvalume®, TMT Rebars, Wire Rods and Special Steel.

JSW Steel continues to enhance its capabilities to meet the rapidly changing global market needs. JSW has entered into technological collaboration with JFE Steel Corp, Japan to manufacture high strength and advanced high strength steel for the automobile sector. JSW Steel has also entered into a joint venture with Marubeni-Itochu Steel Inc. Tokyo, to set up a state-of-the-art steel processing centres. To strengthen its global network, the Company has also acquired a Pipe and Plate making steel mill in Baytown, Texas in USA. By end of next decade, JSW Steel aims to produce 40 million tons of steel annually.

7.4 TATA Steel Ltd.

Tata Steel Group is the 11th Largest Global Steel Producer with an annual crude steel delivery of 23.88 Million tonnes globally in FY17; having manufacturing operations in 26 countries and services in over 150 countries. Tata Steel's annual crude steel capacity across Indian operations is nearly 13.00 MTPA. The Company also set up second Greenfield steel plant in the eastern state of Odisha; commissioning the first phase of 3 MTPA capacity in 2016. Tata Steel Kalinganagar plant has started its commercial production in June 2016. Tata Steel was awarded the PM's Trophy for best integrated steel plant for the year 2014-15 and 2015-16. Tata Steel has also been awarded "World's Most Ethical Companies" for the year 2017, under the category Metals, Minerals and Mining by Ethisphere Institute, USA.



7.5 Essar Steel India Ltd.

Essar Steel India is one of India's leading integrated steel producers with an annual production capacity of 10 MTPA supported by a 20 MTPA pellet facility. The state-of-the-art facilities comprise iron making, steel making and downstream facilities, including a cold rolling mill, a galvanizing and pre-coated facility, a steel-processing facility, an extra-wide plate mill and 3 pipe mills with coating facilities. Essar is the largest pellet producer in India with a capacity of 14 million tons and another six million tons pellet capacity under completion.

Essar Steel has wide range of flat steel products that include Hot Rolled, Cold Rolled, Galvanized, Colour-Coated products, extra wide plates and pipes. It caters to a wide section of industrial segments that include auto, ship building, white and yellow goods, general engineering, power plants, hydrocarbon industry, pipe making, defence among others. Essar Steel is the leading supplier of steel to the Indian Defence sector with grades like DMR 249A, ARMAPRO 500, DMR 1700, CDA99, SPADE, Jackal etc.



Aerial view of 8 MTPA Iron Ore Beneficiation Plant at Dabuna



Essar Steel - Plate Mill at Hazira, Gujarat

7.6 Jindal Steel and Power Ltd.

Jindal Steel and Power Limited is one of India's Primary & Integrated Steel producers and largest business conglomerates with significant presence in core infrastructure sectors including steel, power and mining.

Under the 'Make In India' Vision, Jindal Steel and Power Ltd. (JSPL) has successfully completed Angul Greenfield project with installation of a 4 Million Tonne Per Annum (MTPA) Blast Furnace, the largest ever built in India. The 2 Million Tonne DRI Plant is fuelled by World's largest Coal Gasification Plant to produce Syngas from swadeshi high ash coal. With a 5 MTPA Steel Melting Shop, Angul Steel Complex also comprises of a 1.2 MTPA Plate Mill manufacturing India's widest plates of upto 5 metre width and 1.4 MTPA Bar Mill produces a wide range of Jindal Panther TMT Rebars.

JSPL's Product Range: From the widest flat products to a whole range of long products, JSPL's offer a product portfolio that caters to markets across the steel value chain.





7.7 Electrosteel Steel Ltd.

Electrosteel Steels Ltd.'s integrated steel plant has been set up in Bokaro District, Jharkhand. It is the first greenfield plant after the formation of the State. It is producing some high value-added products i.e., Ductile Iron Pipes, sophisticated grades of Wire Rods etc. It is exporting some of its products to neighbouring countries.



7.8 Jindal Stainless Limited (JSL) :

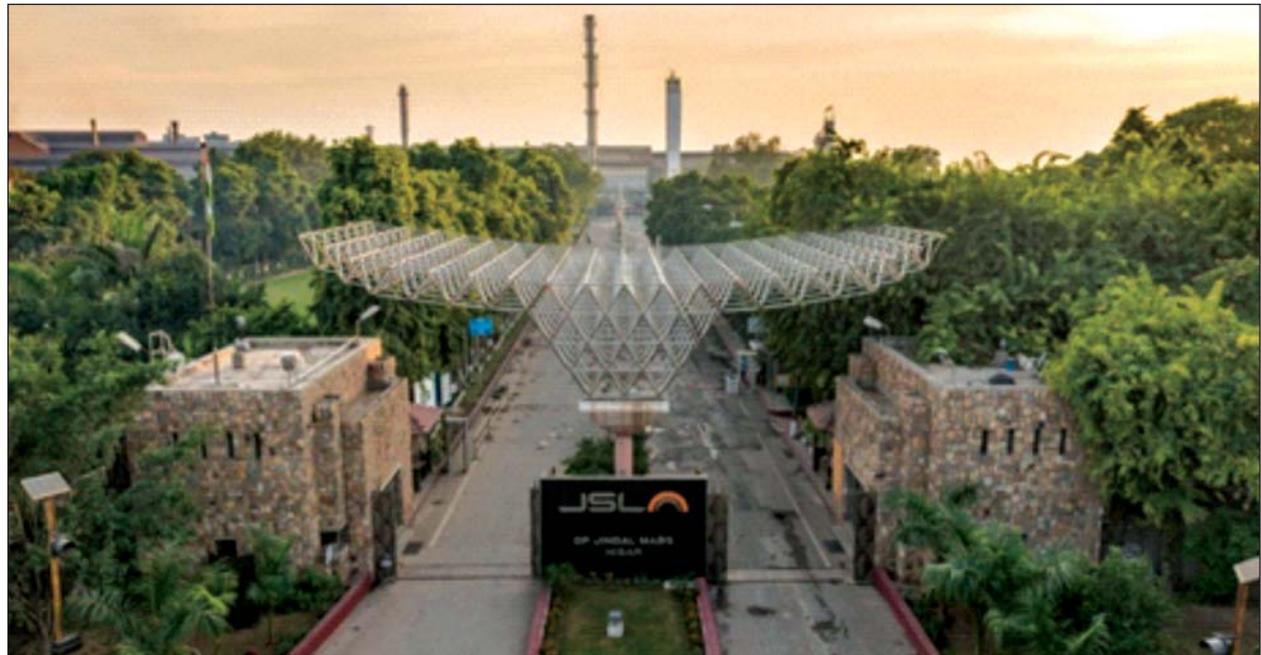
Jindal Stainless Limited (JSL), is one of the largest integrated manufacturers of stainless steel in India with a capacity of 1.00 MTPA. The Jajpur plant is capable of producing unique and wide range of products both in terms of grades and dimensions. Hot Rolled Plates and Coils of 1650mm width and minimum thickness of 2mm in all grades of stainless steel can be produced as per the customers demand. Also, Cold Rolled Coils of minimum thickness of 0.3mm with maximum width of 1650mm can be achieved based on customers' need.





7.9 Jindal Stainless (Hisar) Ltd.

Jindal Stainless (Hisar) Limited (JSHL) has a fully integrated stainless steel plant with a capacity of 0.78 MTPA. It is also the world's largest producer of stainless steel strips for razor blades and India's largest producer of coin blanks, serving the needs of India and international mints. JSHL's specialty product division caters to the high-end precision and specialty stainless steel requirements of reputed Indian and International customers. The product range includes Slabs & Blooms, Hot Rolled Coils, Strips, Plates, Coin Blanks, Precision Strips and Cold Rolled Coils.





CHAPTER-VIII

TECHNICAL INSTITUTES UNDER THE MINISTRY OF STEEL

8.1 Introduction

Efforts are being made to constantly upgrade the technical skills of the workforce in the Steel Sector. The following institutes set up for the purpose deserve a mention for their worthwhile role and contribution:

8.2 Biju Patnaik National Steel Institute (BPNSI)

Based on the concept plan developed by a task force set up by the Ministry of Steel, a decision was taken to set up a National Steel Institute (NSI) at Puri, as a Training-cum-Service-cum-Research & Development Centre. The Institute is registered under the Societies Registration Act and started functioning from January 1, 2002. BPNSI was established to help the domestic secondary steel industry to keep up with the rapid transformation which the global and Indian steel industries have been undergoing. The Cabinet had on February 20, 2004 approved the setting up of BPNSI at Puri as a full-fledged institute with capital funding from JPC. In view of achieving the target of 300 MTPA by 2030-31, it is proposed that BPNSI will be functioning under the umbrella institute Steel Research & Technology Mission of India (SRTMI) to conduct Research and Innovation in the Steel Industry along with its Training and Skill Development Programs.

A two tier structure is envisaged for the Institute. There will be a main campus for high end research activities involving innovation and out-of-box-thinking. Main campus would be connected to a set of Satellite campuses located in various industry clusters. Activities in the Satellite Campuses would include Skill Development, Consultancy and low to mid-level Research. Satellite Campuses would be governed and guided by the Main Campus. The Satellite Campuses along with the Main Campus would be functioning under the umbrella institute SRTMI.

8.3 National Institute of Secondary Steel Technology (NISST)

NISST is working jointly with MSME for undertaking cluster development programme in Foundries, Steel Making and Rolling Technologies. SMEs of steel sector appreciate and feel the laudable contribution of this Institute. NISST focuses its activities and efforts keeping in view the National Steel Policy.

Need for Human Resource Development and Technology Upgradation in the Secondary Steel Sector comprising steel melting units with Electric Arc Furnace (EAF) or Induction Furnaces (IF) and Rolling units has been felt since long. In 1984 an Advisory Committee on Steel Rolling Industries set up by the Ministry of Steel, Government of India also expressed the same need. Accordingly, National Institute of Secondary Steel Technology was set up as a registered society on 18th August, 1987 under the Chairmanship of the then Development Commissioner for Iron & Steel and presently Joint Secretary, Ministry of Steel, with the following aims and objectives:

Aims and Objective of the NISST

- To provide trained technical manpower to the secondary steel sector through short-term and long-term courses and to update their knowledge base.
- To bring awareness about the State of Art Technology by holding Seminars, Workshops and Symposia.
- To provide various industrial services and testing facilities.
- To extend consultancy services to industries in terms of solving technological problems, improving energy efficiency and reducing pollution levels.
- To conduct Research, Development & Design work in frontier areas for providing updated technology to this sector.

- To organize for documentation and information retrieval services to the industry.
- To provide a platform for interaction between industry and educational as well as research institutions.

The following areas of secondary steel sector are under the purview of the Institute:-

- Electric Arc and Induction Furnace
- Ladle Refining
- Rolling Mills (Hot & Cold)
- Direct Reduced Iron Units

During the year 2016-17, the Institute achieved milestones and took initiatives as outlined below:

- Memorandum of Agreement was signed between NMDC & NISST for conducting Training & Skill Development of Land Losers of NMDC Iron & Steel (NISP), Nagarnar, Chhattisgarh. The training has commenced w.e.f 1st October, 2016 at NISP, Nagarnar, Chhattisgarh.
- The Institute has obtained accreditation of National Accreditation Board for Testing and Calibration Laboratories (NABL) for its laboratories at Mandi Gobindgarh. The laboratories at Mandi Gobindgarh, Punjab has also been awarded recognition by Bureau of Indian Standards (BIS) to undertake 15 tests for specific products as per the Indian Standards related to Iron & Steel for three years from 25.10.2016 to 24.10.2019.
- Metallurgical and mechanical testing has been conducted for various Govt. agencies/ constructors/ service providers on regular basis.
- Is continuously providing technical support to the secondary steel sector to improve quality, yield, value addition and cost reduction to meet the challenges.
- Human Resource Development activities are being continuously undertaken to improve knowledge and skill of the employees of the secondary steel sector through modular courses/in-house training programme. Conducted in House Training Programme in M/s Jindal Shadeed Iron and Steel Plant in Sohar, Oman.
- Has conducted courses in two Trades namely "Forging-Black Smithy for beginners" and "Grinding-Machinery for beginners" at Patna & Rohtas, sponsored by CII under skill development programme with IIM Kolkata. Total 124 candidates attended the course and certificates are being awarded to the successful candidates.
- Organized Seminars, in-house trainings, Safety Awareness Programmes and Workshops for the steel industry covering different parts of the country.
- Organized "National Conference of Secondary Steel Producers - Make in Steel for Make in India" at New Delhi.
- Conducted two days National Seminar on "Make in Steel for Make in India-Perspectives for Iron and Steel Industry" on 27th & 28th April 2017 at Kolkata for Iron and Steel Sector in collaboration with KATM.
- Conducted one day State Conference on "Make in Steel for Make in India-Perspectives" on 6th October 2017 at Jaipur for Iron and Steel Sector in association with Rajasthan Steel Chamber.
- NISST has been empanelled by Bureau of Energy Efficiency for conducting energy audits through its qualified and registered energy auditors. Energy audits of industries and buildings are being carried out with suggestive measure for energy conservation in the service to the nation. Conducted M&V and Baseline Audits in both Primary and Secondary Steel Sector Units.
- NISST also represents in various BIS standardization committees for formulation/modification of different standards related to steel products. NISST is also member of various Technical Committees of Ministry of Coal and Ministry of Steel.



- NISST is a leading Technical Member of North East Industrial and Investment Promotion Policy (NEIIPP) 2007 to consider Central Capital Investment Subsidy (CCIS) claims under DIPP.
- The institute also undertakes R&D projects on product, process and technology development. It has completed two such projects in the past and one on project on "Computer Simulation and e-Demonstration of Reheating Furnaces" is presently being carried out.

The Institute keeps a close co-ordination and liaison with all Secondary Steel Sector units of the country and their associations to help them in the areas of environmental control, energy conservation, productivity improvement, skill development and problem solving for their overall growth and development to achieve the targets as envisaged in the National Steel Policy.

8.4 Institute for Steel Development & Growth (INSDAG)

- INSDAG was promoted by Ministry of Steel and Major Steel Producers of India in line with Steel Construction Institute, UK to promote steel intensive structures in construction and to disseminate steel related information through seminars, workshops, organizing training programmes and bringing out publications.
- The total membership base comprising of Architects, Structural Engineers, Designers, Fabricators, academic Institutions and students (Architects & Civil Engineering) apart from steel producers is 463 as on 31.12.2017 including 300 student members.
- During the year INSDAG published two technical books (a) Gudiebook on Steel in Application (for Students), (b) Efficient Usage of Structural Steel for Professionals & Students and (c) several reports & papers on steel promotion.
- Organized steel campaign in rural areas by training the local engineers, architects and masons on the benefits of steel usage and promote best practices using reinforcement bars and other commonly used steel products. Details are given in the table below :

Financial Year	No. of Programs	Organized by	No. attended
2015 - 2016	6	SAIL	615
2016 - 2017	7	SAIL, RINL	578
2017 - 2018	3	SAIL, RINL	180

- Developed designs of model Rural Houses, Culverts, Anganwari Panchayat Hall, Community Toilet, etc. with steel. INSDAG has brought out brief publications on the designs of such structures in rural areas and translated in vernacular languages in Hindi, Telegu and Bengali and distributed to panchayats of all States.
- INSDAG developed prototypes of low cost houses with tubular steel frames and ferro-cement panels as walls and roofs in West Bengal, Maharashtra and Tripura. Cost of such houses would be Rs.850/- per sq ft. The prototype of this model house has been installed at NIRD Hyderabad recently.
- To give further impetus on capacity building in rural areas in terms of fabrication, INSDAG is coordinated with Deptt. of Micro & Small Scale Enterprises & Textiles, Govt. of West Bengal to develop Common Facility Centre (CFC) in 6 Districts of West Benal (Coochbehar, Darjeeling, Siliguri, Maldah, Paschim Medinipur & Purba Medinipur). 30 more CFCs are identified for further development. INSDAG Carried out Diagnostic Study Report (DSR) and Detailed Project Report (DPR) at initial phase. Hand holding support for setting up Industrial clusters is now being imparted to selected centres.
- Annual all India Student Competition for Students of Engineering Colleges, one for Civil & Structural students and another for Architecture students on different themes of making steel based structures. For Civil Competition 2016-17 - Theme : "Inter State Bus Terminal (ISBT) for Smart City" and or Architecture Competition 2016 - Theme : "Elevated Cycle Track". INSDAG also conducts all India

Competition for Professionals every year for any iconic steel structures designed and constructed last one year.

- Conducting courses / lectures of different topics on steel related subjects covering technicians and decision makers. Training module for structural design as per latest BIS Codes for professionals and faculties
 - ❖ To provide introductory and advanced training in steel use.

During 2017-18 about 67 professionals and faculties have been trained.

- Interacting with Academic Institutes both Government and Private Engineering Colleges by delivering class room lectures, sponsoring steel based project work and jointly organizing conferences and seminars.

Total number of workshops held during the year :

Sl.	College / Institution	Participants	No. of Workshop
1	Camellia Institute of Technology	Mechanical / Civil	3
2	Netaji Subhas Engineering College	Mechanical / Civil	1
3	IEST, Shibpur	Metallurgy	4
4	Faculty of Engineering & Technology, Jadavpur University	Mechanical	1
5	Goa Engineering College	Civil	1

- INSDAG was involved for 5 Customers Awareness Programmes organized by RINL to address steel construction among professionals at Jalandhar, Nasik, Amrabati, Faridabad and Dehradun.
- INSDAG as a member of BIS is continuously assessing the requirement of new Codes and also updating the old ones to make steel based construction competitive.
 - ❖ Draft IS 808 (Dimension of Hot Rolled Steel Beam, Column, Channel and Angle Sections) is submitted to BIS.
 - ❖ Revision IS 11384 - Code of Practice for Composite Construction for General Construction has been taken up. Part of the draft has been submitted to CED 38 for comments.
 - ❖ IS 801 (Cold Formed Steel) draft submitted to BIS. BIS has informed that IIT Madras along with an expert panel is preparing the final draft of the code.
 - ❖ INSDAG is working on revision of three important codes such as IS 11587 (Weathering Steel), IS 15103 (Fire Resistant Steel) and IS 15962 (Seismic Resistant Steel).
- INSDAG is participating actively in MTD 4 & MTDC of BIS Committee to formulate standards on wrought steel products, long and flat steel products.
- INSDAG has been pursuing technical work for M/s Tata Steel Limited and M/s JSW Steel Limited on GI Wires prospects and growth in Indian market and performance evaluation of pre-coated steel sheets.



CHAPTER-IX

SRTMI AND RESEARCH

R&D in the Indian Steel sector is carried out mainly by the steel plants, R&D laboratories and academic institutions. India's R&D investment in steel sector is limited not only in absolute terms but also as percentage of turnover which is 0.05 - 0.6% as against up to 1% in leading steel companies abroad. Ministry has been pursuing the Indian steel companies to gradually enhance their R&D expenditure to at least 1% of their turnover by 2020.

9.1 Ministry of Steel is supplementing R&D efforts in the steel industry in India to step up R&D investment and also to address problems & issues being faced by the industry. The details are given below:

9.1.1 R&D with financial assistance with Government fund.

- The Government started a new scheme with Plan Fund support viz. "Promotion of R&D in Iron and Steel Sector", during the 11th Five Year Plan, to pursue R&D projects on national importance concerning the Iron & Steel Sector with particular reference to beneficiation of iron ore, coal, production of quality steel in induction furnace, development/production of CRGO electrical steel and any other projects of national importance. The Scheme was continued in the 12th Plan and has been further continued in the 14th Finance Commission period (2019-20).
- Under the scheme so far 26 R&D projects have been approved with a total cost of Rs. 221 crore with approved financial assistance of Rs. 161 crore from Ministry of Steel.
- So far 7 projects completed and the remaining are in progress. Through the completed projects, processes/ technologies have been developed in laboratory/ pilot scale for beneficiation & agglomeration of iron ore & coal for the benefit of the iron & steel sector.
- Process has also been developed in laboratory scale for production of low Phosphorus steel in laboratory scale Induction Furnace, for which industrial trials are being carried out. Further, feasibility of smelting reduction of iron ore/fines using hydrogen plasma has been explored in laboratory/ pilot scale.
- Through this scheme Ministry of Steel is also supporting R&D projects being pursued under the Impacting Research, Innovation and Technology (IMRINT) Scheme of Ministry of Human Resource Development (MHRD). So far 3 R&D projects with total cost of Rs. 11.04 crore with financial assistance of Rs. 5.52 crore (50%) from Ministry of Steel have been approved.

9.1.2 R&D with financial assistance from SDF:

- Under the Scheme with financial assistance from SDF, R&D projects are pursued by reputed Research Laboratories, Academic Institutions & Industries, for basic/ fundamental research as well as applied research i.e. to find out ways to solve the technological problems being faced by the industry.
- Under this scheme so far 91 R&D projects have been approved with a total cost of Rs. 950 crore with SDF contribution of Rs. 536 crore. Out of the approved projects, 55 projects have been completed and 24 projects are in progress. 12 projects have been stopped after mid course review.
- The R&D projects include basic/ fundamental research as well as applied research i.e. to find out ways to solve problems being faced by the industry. Research results of several R&D projects have already been implemented by plants under SAIL and in Tata Steel, resulting in improvement in productivity, reduction in energy consumption and pollution etc.
- 3 R&D projects of Uchhatar Avishkar Yojana of MHRD have also been approved with total cost of Rs. 10.09 crore with 25% funding from SDF.

9.2 Several capacity building initiatives have also been taken up viz. supporting Steel Chair Professor & Scholarships Scheme, Centre of Excellences, Steel Research & Technology Mission of India (SRTMI) etc. to promote human resource development and R&D in Indian steel sector, with financial assistance from Steel Development Fund.

9.2.1 Steel Research and Technology Mission of India (SRTMI)

Ministry of Steel has taken full cognizance of the technological scenario in Indian Steel Industry and has initiated a fresh move for preparation of a comprehensive blue print for promotion of R&D in Iron & Steel Sector in India. To bring in all the stake-holders into one platform and promote steel research on themes of critical and vital national importance, an institutional platform called "**Steel Research and Technology Mission of India**" has been established with an objective to spearhead R&D of national importance in iron & steel, creating state-of-art facilities to conduct cutting-edge research, develop expertise & skill development, manage human resources and bolster a tripartite synergy amongst industry, national R&D laboratories and academic institutes.

In order to boost innovation in the steel sector (future technologies), a time bound action plan will be evolved under the aegis of SRTMI to enhance the R&D expenditure of Indian steel CPSEs. The Ministry through SRTMI will also encourage corporates in steel sector, private and public sector alike, to direct certain sums from their profits towards continuous industry collaborative research. Apart, they would also be encouraged to set up their own steel technology centres and steel sector oriented research and education wings at universities in order to focus on technology based solutions for development of high quality, low cost steel products and to build greater interface between academia, R&D institutions and industry.

Product development is yet another challenge 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, Defense and Nuclear applications. Production of these value added, front end, and strategic products will be facilitated through acquisition of foreign technology by setting up of joint ventures, or subsidiaries of foreign companies or by indigenous development. Measures will also be taken to ensure development of all such special steel and alloys to minimize import dependence.

Indian steel industry is currently importing technology & critical equipment and Systems for steel plants. Hence, necessary efforts will be made under the aegis of SRTMI to raise the level of R&D and acquire best in class manufacturing capabilities to develop all these equipment and systems.

Besides undertaking specific R&D projects, SRTMI will also endeavour to develop necessary expertise and skill for human resource development as well as to support Information Education and Communication (IEC) needs in steel sector for its long term and its sustenance.

By constitution, SRTMI is an Industry driven initiative wherein, Ministry of Steel IS A facilitator as one of its member. SRTMI is to be governed and administered by a Governing body comprising the steel CEO's, domain experts and a representative of Ministry of Steel. The executive functioning of SRTMI is to be carried out by a full time Director who will be assisted by a suitable / appropriate supporting structure.

SRTMI has been registered under Societies Registration Act on 14th October, 2015 with its registered office in New Delhi and Director has already been appointed on 1st January, 2018.

9.2.2 Centre of Excellences at IITs with financial assistance from SDF:

- Major initiative has been taken to setup Centre of Excellences in leading academic Institutions in the country, to create world class research facilities with the main focus to encourage R&D and also promote human resource in the field of metallurgy required for the industry, academia and research laboratories.
- The fund is given from the SDF for initial setting up of the centre and its running cost for initial five years. The fund for building & related infrastructure is provided by the institutes.
- So far, one centre is operational at IIT Kharagpur with a total approved cost of Rs.20.26 crore (SDF Rs 16.20 crore and balance contribution from DST). Another centre is being set up at IIT Bombay with a total cost of Rs 33.06 crore (100% SDF). Creation of a third centre at IITBHU with a total cost of Rs. 30.98 crore (100% SDF) and fourth center at IIT Chennai with a funding of Rs. 35.55 crore have been approved.



9.2.3 Chair Professor and Scholarships Scheme with financial assistance from SDF:

- This innovative scheme has been launched with an aim to address the problem of shortage of faculties in academic institutes and also to attract students towards studying Metallurgical Engineering.
- The Scheme provides financial assistance from SDF to appoint Chair Professors and to provide scholarships to undergraduate students of Metallurgy for each Institute teaching Metallurgical Engineering.
- Scholarship scheme has presently been implemented in 16 institutes and Chair Professors have been appointed in 13 institutes.

9.2.4 Statement of Expenditure from Government Fund and Steel Development Fund (SDF) for the above schemes during last 3 years

(Rs Crore)

Sl.No	Year	Government Fund	SDF
1	2015-16	10.26	18.21
2	2016-17	15.00	18.13
3	2017-18 (upto Dec 2017)	14.00	25.65

9.3 R&D by Steel Companies

9.3.1 Steel Authority of India Limited (SAIL)

Research & Development Centre for Iron & Steel (RDCIS) is pursuing 82 R&D projects in the current year 2017-2018, out of which 60 projects are scheduled for completion by March, 2018. These projects provide technological inputs to SAIL Plants/ Units with thrust on cost reduction, value addition, quality improvement and development of new products. The Centre has filed 4 patents and 8 copyrights during April to November, 2017. As many as 35 technical papers were published and 54 papers were presented during the period (Apr-Nov'17).

R&D Efforts and Achievements

Cost Competitiveness / Quality Improvement

- Introduction of coated tuyere in BF # 4, RSP
- Improvement in cast quality of slabs from Caster #1 & 2 of SMS-II, RSP
- Production of special quality slabs for export and value added plates through new Plate Mill, RSP
- Development of an advanced process control system for COB #3 & 4, BSL
- Implementation of an information system for streamlining of inventory at CRM 1 & 2 complex, BSL
- Development of refractory plastic mass for RHF, SRU
- Exploring use of air cooled BF slag in construction of rigid concrete pavement in RDCIS complex
- Development of a laboratory for industrial robotics, RDCIS
- Development of Texture in CRNO Steel, RDCIS
- Designing of heat transfer laboratory to simulate secondary cooling of continuous caster, RDCIS
- Studies on effect of membrane processes on quality improvement of biologically treated discharge water for in-plant closed loop recycling, RDCIS

Development & Commercialization of New Products

RDCIS plays a lead role in the product development activities of SAIL. The criteria for selection of products for development are significant demand, ready market, good contribution margin, and plant capability. RDCIS, in close association with the SAIL Plants, developed the following products during April-December, 2017

- API X70 plates
- IS 2062 E250 C plates
- IS 2062 E410 C plates
- Al-killed CC Blooms for IS 2062 E 410
- IS 2062 E 350 /350/410 BR WPB 160 x 4.5 / 6 mm
- IS 2879 Electrode Quality
- SAE 1008 Wire Rods
- IS 2062 E 250 Structural
- IS 2062 E 350 Structural

Expenditure on R&D

(Rs. in crore)

Year	SAIL's Turnover	R&D Expenditure			% of Turnover
		Capital	Revenue	Total	
2014-15	50627	32.14	232.06	264.20	0.52
2015-16	43337	50.78	226.22	277.00	0.64
2016-17 (Apr-Dec)	49180	77.83	261.60	339.43	0.69

Patents filed: 7

9.3.2 Rashtriya Ispat Nigam Limited (RINL)

R&D initiatives are directed towards meeting the present and future requirements of the plant. The R&D initiatives during the year (up to Dec., 2017) are given below:

- Development of thermo-mechanically treated bars having improved corrosion and seismic resistance.
- Utilization of fly ash pellets as Ladle & Tundish covering compound.
- Optimization of Aluminum consumption in steel refining process in SMS-2
- Identifying causes for crack development in billets and rounds during hot rolling
- Re-design of emergency containers for slag/steel dumping to eliminate the need of refractory lining

Expenditure on R&D

(Rs. in Crore)

Year	Actual Expenditure	Expenditure as % of Turnover
2014-15	33.09	0.28
2015-16	21.74	0.18
2016-17	23.52	0.18
2017-18 till Dec., 17	7.14*	0.06*

* Provisional



9.3.3 NMDC Ltd.

NMDC has its own R&D Centre extending technological support to their existing operating mines, other organizations in India and abroad. The Centre is committed to maintaining its excellence in undertaking product and technology development missions related to ore and minerals through continual improvement in process performance for enhanced customer satisfaction.

R&D efforts and initiatives:

- Improvement in screening efficiency by 11% operating projects
- Feasibility of filtration of tailings generated from iron ore processing & associated issues related to their transportation and stacking (Phase -4).
- Feasibility study on production of TiO₂ sponge from ilmenite by using hydrogen gas as reductant and smelting (Phase-1).

Expenditure on R&D

(Rs. in Crore)

Year	Turnover	R&D Expenditure			
		Capital	Revenue	Total	% of Turnover
2014-15	12356.41	1.33	17.16	18.49	0.15
2015-16	6457.27	0.85	16.79	17.64	0.27
2016-17	8829.64	1.46	18.84	20.30	0.23
2017-18 till Dec., 17	7650.00 (Provisional)	5.03	13.57	18.60	0.24

9.3.4 MECON Limited

R&D efforts and achievements:

- Design and Development of 4,250 m³ Blast Furnace (LOHA 4250)
- Improved 1.0 MTPA Coke Oven Battery with 49.8 m³ hot oven volume(ANGARA 7.1)
- Design and Development of 1.2 Mt/yr Pellet Plant
- Design and Development of 5.0 M. Tall Coke Oven Batteries
- Ozone Monitoring at Seven AAQ Locations in and around - Bokaro Steel Plant (BSL) SAIL, Bokaro and at Eight AAQ Locations in and around - Uranium Corporation of India Limited, Mosabani-Jaduguda, Singhbhum district, Jharkhand.
- Development of New suspension system for Basic Oxygen Furnace vessel.

Patents filed: 4

Expenditure on R&D

Year	Turnover (Rs. in Crore)	R&D Expenditure (Rs. in Crore)	% of R&D Expenditure w.r.t. Turnover
2015-16	317.28	2.96	0.93
2016-17	342.93	1.83	0.53
2017-18 up to Dec, 2017	237.40*	1.23*	0.52*

* Provisional

9.3.5 Manganese Ore India Limited (MOIL)

MOIL has carried out R & D activities to improve the safety and productivity in the mines by introducing modern technology with CSIR-R&D Laboratory, Academic and R&D institutions of the country. Major activities are:

- Ventilation reorganization studies for deeper levels to improve the faceventilation and productivity of underground sections of Gumgaon Mine.
- Modified Stope design to increase mineable reserve for exploitation.
- Mechanized stopping operation support systems at Ukwa Mine.
- Mill tailings of Malanjkhad Copper Projects for hydraulic stowing operation at Ukwa Mine.
- Collaborative research program for slope stabilization with National Institute of Technology, Raurkela for Slope Monitoring Instruments.

Expenditure on R&D

(Rs. in Crore)

Year	Expenditure on R&D	% of Turnover
2014-15	6.00	0.72
2015-16	7.33	1.16
2016-17	4.68	0.47
2017-18 Apr-Dec,17 (Prov.)	6.99	0.75

9.3.6 KIOCL Ltd.

- Modification of grinding process circuit at beneficiation plant.
- Usage of low chrome grinding media.

Year	Turnover (Rs. in Crores)	R & D Expenditure (Rs. in Crores)	R & D Expenditure (% of turnover)
2017-18 (April to December, 2017)	1206.68	-	-
2016-17	929.36	-	-
2015-16	205.57	0.17	0.08
2014-15	628.84	0.26	0.04

9.3.7 Tata Steel Limited (TSL), Jamshedpur

Tata Steel Ltd. has its own R&D centre at Jamshedpur pursuing basic & applied research in different areas relevant to iron & steel including raw materials like iron ore, coal etc.

New Product Development: Developed Hot Rolled Dual Phase (DP) Steel (characterised by high-strength and high-formability) with a minimum 600 MPa strength (DP 600) by using advanced thermo-mechanical Platform products.

Process Technology Highlights: Developed a new process to use high siliceous gangue material in the sinter using a locally sourced material as flux; thereby reducing consumption of imported flux by 5.5 kg/tonne with no adverse impact on sinter quality.



R&D Initiatives:

- For utilisation of low-grade chromite ores for sustaining standard concentrate production, a new method of operational philosophy established in the chromite ore beneficiation plant at Sukinda.
- Increase in clean coal production from reflux classifier by changing the feed regime and rectifying machine related issues at West Bokaro Washery #3.
- Utilisation of BF slags as flux in chromite pelletising along with improvement in pellet property.
- Reduction in water consumption (0.2 m3/tcs) in Jamshedpur Steel Works through multiple recycling of water in high temperature processes.
- 5% use of non-coking coal in Haldia Met Coke to minimise blend cost and reduce import of coal.

Expenditure on R&D

(Rs. in crore)

Year	R&D Expenditure	% of Turnover
2014-15	134	0.32
2015-16	129	0.34
2016-17	145	0.27

Patents filed: 78

9.3.8 JSW Steel Ltd.

Vijayanagar works

Some of the major R&D facilities created & commissioned in 2017-18 are listed below:

- Elutriation column for dry beneficiation
- Pilot scale pressure filter set up
- FEM metal forming software
- MODSIM software
- Automatic mounting and polishing machine

R&D Works Carried Out during 2017-18

- Completed R&D projects relating to process, energy and product optimization and 3 technology development projects.
- Planned R&D projects for process improvements, energy optimization and product customization.
- Initiated collaborative projects with academic institutions namely NITK- Surathkal, IITBand BASF Germany R&D.
- Summary of R&D Investment

R&D Expenditure

(Rs. in crore)

Year	R&D Expenditure	% of Turnover
2013-14	22.04	0.074
2014-15	17.44	0.055
2015-16	8.06	0.029
2016-17	19.30	0.055

Patents filed: 11

Dolvi Works

- Initiated collaborative R&D projects with academic institutions namely IIT Madras, IIT Kanpur and CSIR-NEERI.

R&D Expenditure:

(Rs. in crore)

Year	R&D Expenditure	% of Turnover
2014-15	1.44	0.014
2015-16	1.97	0.031
2016-17	2.23	0.017

Patents filed: 3

Salem Works

- Initiated collaborative project with academic institution namely SONA college of Engineering, Salem.

R&D Expenditure:

(Rs. in crore)

Year	R&D Expenditure	% of Turnover
2014-15	2.85	0.083
2015-16	3.20	0.12
2016-17	3.75	0.115

9.3.9 Bhushan Steel Limited

Bhushan Steel has tied up with IIT Bombay for optimization of High Carbon, 75Ni8, 75Cr1 & C76 steel grade w.r.t end applications of the product after cold rolling and heat-treatment.

R&D Initiatives:

- Developed ASTM A36 (20 mm) for pipe making.
- Developed BSK46 grade: A high strength micro-alloyed grade for Auto component in sizes 4.5/5.8x1250
- Developed corrosion resistance steel grade IRSM 41 in size 8.0x1380mm for railway wagon

9.3.10 Essar Steel India Limited

The R&D unit is located at Hazira, Surat, Gujarat inside the factory premises of Essar Steel India Ltd.

R&D Initiatives:

- Development of Hot forming B44 Grade for Agricultural Machinery
- Pressure vessel quality plates with thickness >90-95mm with stringent PWHT condition
- Development of homogenous armor steel plates as per MIL-DTL-12560J (MR) for Indian defence applications
- Development of heavy plates in Q&T products for eg. 537 Cl2 (>90-95mm)
- Development of 50CrV4 Grade for Auto Application- (Springs & Clutch Plates for passenger & Commercial Vehicles)
- Modelling of Corex Melter Gasifiers (In collaboration with IIT Kharagpur)
- Development of CFD model for ladle to predict the ladle superheat



CHAPTER-X

STEEL AND ITS USES-ARENAS AND NEW PRODUCTS

10.1 Use of Steel in Roads [Steel Crash Barriers & Continuously Reinforced Concrete Pavements (CRCP)]

10.1.1 Steel Crash Barriers

What is safety barrier?

Roadside safety barriers		Median safety barriers
Preventing vehicle at embankments and protecting roadside obstacles	Preventing vehicle veering off the sharp curve	Provided all through the length to restrict out-of-control vehicles jumping across the median

[IRC - SP : 84 - 2014 Manual of Specifications & Standards for Four laning of Highways through Public Private Partnership]

Road side safety barriers

To be provided at:

- Along all embankments with height 3 m or more
- Along all curves having radii upto 450 m including transitions and 20m farther before and after the curve
- Wherever permanent objects cannot be removed

Common roadside obstacles

- Bridge pier, roadside abutments and railing ends, roadside rock mass, culverts, pipes and headwalls, cut slopes, retaining walls, lighting supports, traffic signs and signal supports, trees and utility poles

Median safety barriers

To be provided at:

- Narrow Medians : Out-of-control vehicles jumping across the narrow medians causing head on collision
- Fixed objects on Narrow Medians



Types of Crash Barriers

Semi Rigid	Rigid	Flexible
a) W-beam type steel barriers b) Three beam type steel barriers	Concrete crash barriers	Wire rope fencing



Different Crash Barriers - Comparison

RCC (Rigid type)	Steel (Semi-rigid Type)	Wire (Flexible Type)
No damage in collisions	Remain functional after moderate collisions	No damage
No maintenance	Frequent maintenance	Minimum maintenance with minimum cost
High initial cost	Moderate initial cost	Moderate cost with complicated installation
Psychological shyness of drivers to keep away from the safety barrier - Least	Great	Moderate
To be provided at Bridges/ ROBs and to shield important objects	Along the highway (not over major and minor bridges)	Along the highway (not over major and minor bridges)



Steel Crash Barrier

Current Codal Provision

- Code (IRC SP 84) is silent on minimum width of median for requirement of Crash Barriers
- However, the code is very specific on locations of Road Side Barriers

Provision in UK code

A safety barriers must be provided on dual carriageway roads where the width of the central reserve (median) measured between opposing edges of carriageway road markings (or kerb faces where no markings) is 10 m or less. Where the central reserve is wider than 10 m, the design organisation must assess the need of safety barriers.

(Clause 3.57 of TD 19/16 Chapter 3, Part 8, Volume 2, Section 2 - Criteria and Guidance for the Provision of Permanent Safety Barriers)

Recommendation

- Steel crash barriers shall be provided along the median / central reserve all along as practiced in all advanced countries
- Median barriers are even more required as the speed limit for most of the highways is going up
- Necessary changes shall be incorporated in the relevant IRC Standards



10.1.2 Continuously Reinforced Concrete Pavements

Roads do more than mere providing connection between towns and villages. They pave the way for increased commerce, trade and prosperity. It is often said that a country pays for its roads whether it has them or not. It only pays more if it does not have them. The choice of the flexible or rigid type pavement becomes an important factor for National Highways and Expressways Development due to scarce resources & huge requirement of funds.

Highways should be of concrete because

- Durable - More than 30 years life
- Concrete actually hardens over time and gain strength
- Concrete pavements frequently outlast their designed life expectancy and traffic loads
- All materials required are indigenously Available
- Fuel savings 10-20% compared to bitumen pavements
- Life Cycle Costs (LCC) are Very Low Due to Reduced Maintenance and Fuel Saving
- Vehicle Operating Costs (VOC) are Very Low Due to Smooth Concrete Surface

Types of Concrete Roads

- Joined Plain Concrete Pavement (JPCP)
 - ❖ Transverse joints spacing @ 4m to 5m for unreinforced slab and it may go upto 15m in case of reinforced concrete slabs to control cracks
 - ❖ Periodic Maintenance of Joints is required. LCC is low Compared to bitumen roads
- Continuously Reinforced Concrete Pavement (CRCP)
 - ❖ It is a jointless concrete pavement sufficiently reinforced to control cracking, which can stretch any length except of terminal ends like bridge abutment.
 - ❖ Maintenance is virtually eliminated except for longitudinal joints and terminal joints

CRCP HAS ALL THE GOOD QUALITIES OF JPCP IN ADDITION TO THE ADVANTAGES OF

- Jointless smooth concrete riding surface
- Has long term overall value even compared to JPCP - lowest LCC
- Reduces motorist and worker exposure to safety hazards since minimal maintenance and fewer repairs are required
- Environmentally friendly construction

FUNCTION OF REINFORCEMENT

- Holds crack tight
- Facilitate load transfer across cracks
- Provides Stiffness by restraining end moment
- Substantially improves the strength of pavement

REINFORCEMENT IS ASSET TO CRCP

- Reinforcement substantially improves the excellent product concrete
- Steel reinforcement reduces the rate of cracking and thus increases the life of pavement
- Provision of steel reinforcement increases the effective slab thickness
- A well-constructed and designed reinforced slab outperforms a well-constructed plain concrete slab

CRCP THICKNESS

- Long term pavement performance (1991 survival analysis) studies made by Federal Highway Authorities, USA indicate that
 - ❖ There was very similar performance of 10" JRCP and 8" CRCP with respect to ESAL's (Equivalent Static Axial Loads)
 - ❖ The 10" CRCP actually has carried 2.1 times ESAL that 10" JRCP (with skin reinforcement) has carried
- The load transfer coefficient J (ability of a concrete pavement structure to transfer a load across joints and cracks) of CRCP is favourable compared to that of JPCP. Hence lower concrete slab thickness required in CRCP compared to JPCP.

PERFORMANCE OF CRCP

- CRCP is quite common abroad particularly in USA and Europe in view of its long maintenance free life and benefits on life cycle cost (LCC) basis over both normal flexible as well as plain concrete pavement without reinforcement. In the state of TEXAS
 - ❖ 85% of the concrete pavement on the inter-state system in CRCP
 - ❖ Over 55% of the primary and secondary system is also CRCP
- The Long-Term Pavement Performance programme, a 20-year study of in-service pavements across North America, has shown that CRCP's original, smooth-riding surface is maintained over time, sustaining the ride comfort for motorists.

SAFE TRANSPORTATION WITH CRCP

Best Visibility - Concrete reflects light, increasing visibility and savings on street lighting costs. During summer, riding over flexible pavement causes difficulties due to bitumen sticking to the tyres. Visibility also gets affected due to shining appearance of flexible pavement.

Reduced wet spray - Concrete never ruts. There is NO risk of water accumulating in ruts.

Best traction grip & Reduction in accidents - Concrete pavements are easily "roughed up" during construction to create a surface that provides superior traction and reduced accidents. Ease in driving with reduced mental tension and overall improvement in quality of driving.

Smoothness most important issue for users - Smoother pavements create safer, more comfortable transportation surfaces.

10.2 Use of Slag in the Roads & Pavements

Solid Waste Generated from Iron & Steel Industries

Iron & Steel is the driving force for economic progress of any country and therefore, management of waste products generated in Iron & Steel plants is of vital necessity particularly solid wastes. Presently, the production of solid wastes per tonne of production of steel is 1.2 tonne in India compared to 0.55 tonne of that practicing in abroad due to inferior quality of raw materials.





Solid Waste produced from Iron & Steel Industries

Sources Major	Solid wastes
Blast furnace	Slag
Steel melting shop	Slag (BOF), dust, refractory, sludge
Electric arc furnace	Slag (EAF), dust, refractory
Induction furnace	Slag, dust, sludge, refractory
Captive thermal power plant	Fly ash
Iron ore mines	Iron ore tailings
Coke Oven	Coke dust, Coke Sludge
Rolling Mill	Mills Scale

Major shares of these wastes consist of blast furnace (BF) slag and basic oxygen furnace (BOF) slag. Out of total solid wastes generated in the steel plant in India, around 63% are dumped in open space which creates ecological problems because of their hazardous nature. Collection, transportation and dumping of wastes are very expensive and a large area of land needed.

Besides potential health hazards, vegetation damage, unpleasant odors, land fill settlement, ground water pollution, air pollution and global warming are the effects of land filling of solid wastes generated from Iron & Steel industries. Every integrated steel plants have their captive thermal power plants which also produce a by-product namely Fly ash, another hazardous fine dust. If these solid wastes are not properly utilized, it is bound to cause huge revenue loss, environmental degradation and ecological imbalance.

Granulated BF slag may be used for cement production and other value added products. Ground granulated blast furnace slag (GBFS) is also used as a mineral additive for concrete production and substitutes for cement. Efforts are now being made to use GBFS in geo-polymer for construction purpose. The BOF slags are suitable material for the base and sub-base layer of road because of the hard characteristics. Investigation on the mineralogy and physical properties of BOF slag have shown that it would make an excellent road stone. The BOF slag of various ages has been used in the construction of the wearing course of several works and public roads. Nippon slag Association in Japan is researching converter slag utilization in port and harbor construction and the use of EAF oxidizing slag as concrete aggregate.

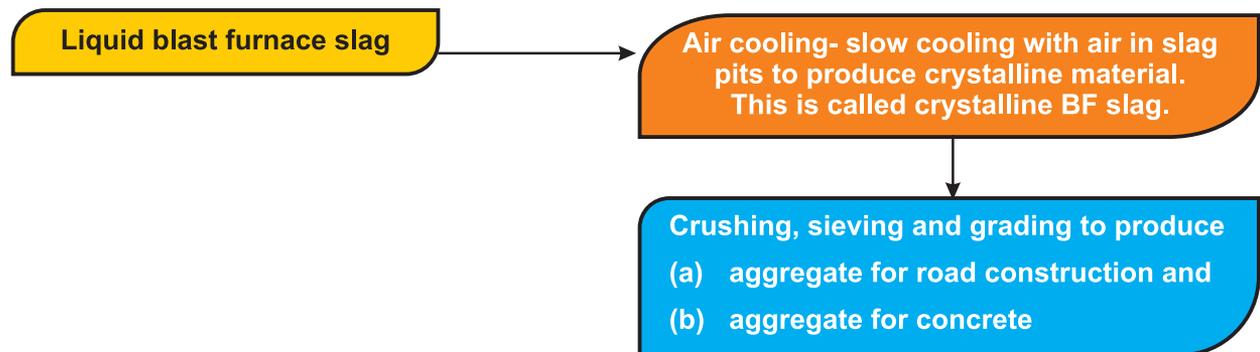


Steel slag and application areas

BF slag Type	Characteristics	Application
Air- cooled BF slag	<ul style="list-style-type: none"> *Hydraulic property *No-alkali-aggregate reaction *Thermal insulation and sound absorption effects when made in fibre form *Has oxide components suitable for ceramic body formulation (SiO₂, Al₂O₃, CaO, MgO) 	<ul style="list-style-type: none"> *Road base coarse material *Coarse aggregate for concrete *Raw material for rock wool
Granulated BF slag	<ul style="list-style-type: none"> *Strong latent hydraulic property when ground *Low Na₂O, K₂O *Latent hydraulic property, light weight, large angle of internal friction, large water permeability etc.) 	<ul style="list-style-type: none"> *Raw material for Portland BF slag cement, blending material for Portland cement, concrete admixtures *Raw material for cement clinker (replacement for clay) *Materials for civil engg. Work, ground improvement material (back fill, earth cover, embankment, road sub grade.
BOF and EAF slag	<ul style="list-style-type: none"> *Hard, wear resistant *Hydraulic property *Large angle of internal friction *FeO, CaO, SiO₂ components *Fertilizer components 	<ul style="list-style-type: none"> *Aggregate for asphalt concrete *Base course material *Material for sand compaction piles *Raw material for cement clinker *Fertilizer and soil improvement.
LD Slag	<ul style="list-style-type: none"> *Greater wear resistance *Better Adhesion *Greater Stability & reduced wear 	<ul style="list-style-type: none"> *Concrete & Asphalt Aggregate *Road bases & sub bases *Soil stabilization.

Aggregate for Road Construction

The technology is illustrated in the diagram where, the crystalline BF slag can be graded into different size fraction by crushing, sieving and grinding and used as aggregate for road construction and concrete for civil construction.



Steel slags have been utilized successfully both as bound and unbound layers of pavement structures. Steel slag is also used as aggregate either in bound surface layers of pavements or in unbound sub-base or base layers of roads. Several studies in the literature have shown the satisfactory performance of steel slag when used in road bases and sub-bases. Skid resistance is a measure of the minimum force at which a tire prevented from rotation slides on the pavement surface. Development of sufficient skid resistance is an important requirement of road safety. In this regard, steel slag is a favorable



aggregate for bound asphalt applications as steel slag aggregates are angular and have a very rough surface texture. BF & BOF slag mixtures hardens by carbonic and/or hydraulic reactions without a binder like cement or bitumen. Both BF and BOF slags are widely used in USA, Japan, Australia and Europe more than 20 years for highways and runways.

Asphalt pavement with steel slag aggregate (BOF & EAF slag)

Steel slag is an expansive aggregate often added when high frictional properties are required, as in Hot Asphalt surface courses, particularly when good quality aggregate is scarce. Steel slag however, may contain free lime and magnesia which can react with water and cause the slag to expand. The conventional way to control the tendency to expand is to weather the steel slag aggregate in stockpiles until the potentially expansive system stabilize. The length of time for stocking depends on the local temperature and rainfall and on the degree of air moisture saturation throughout the year and may range from 3-12 months. Most high way department require at least 6 months for the ageing or curing of steel slags. After curing, steel slag can serve as a valuable secondary aggregate.

10.3 Use of Steel in Building

Composite Construction

- Construction of housing is not sufficient to cater demand in metro cities.
- Need of Fast Track construction technology is felt to attain desired goals.
- Steel/Steel-Concrete composite construction is the solution.
- It saves 25-30% construction time.
- Lesser burden on borrowed capital & generation of early revenue is ensured.
- Vertical expansion needs Earthquake & Storm resistant buildings.
- Composite option is cost-effective in Direct Construction Cost (about 8-10% over conventional RCC), Net Construction Cost, Life Cost make it more cost effective.

Composite Design Concept

- Concrete is weak in tension but its capacity in resisting compression is very high.
- Steel is capable of taking lot of tensile force whereas its capacity in carrying compression is highly influenced by global buckling of the member and sometimes local buckling of the components of the member due to its geometrical properties.





- In composite construction these two different materials are tied together by the use of shear studs at their interface having lesser depth and thereby saving material cost considerably.
- The coefficient of thermal expansion of both concrete and steel being nearly same, differential thermal stresses are not induced in the section under variation of temperature.



Unique Benefits of Composite Construction

- Most effective utilization of materials viz. concrete in compression and steel in tension.
- Steel can be deformed in a ductile manner without premature failure and can withstand numerous loading cycles before fracture. Such high ductility of steel leads to better seismic resistance of the composite section.
- Steel component has the ability to absorb the energy released due to seismic forces.
- Ability to cover large column free area. This leads to more usable space. Also, speedy construction facilitates quicker return on the invested capital.
- Faster construction by utilizing rolled and/or pre-fabricated components. Also speedy construction facilitates quicker return on the invested capital.
- Quality of steel is assured since it is produced under controlled environment in the factory. Larger use of steel in composite construction compared to RCC option ensures better quality control for the major part of the structure.
- Cost effective based on Life Cycle Cost Analysis because usually steel structures can be maintained easily and less frequent repairs are required for steel structures.
- Steel is more durable, highly recyclable and environment friendly. So sustainable structures could be constructed using more steel in it.
- Keeping span / loading unaltered, smaller structural steel sections are required compared to non-composite construction. Therefore reduction in overall weight of the composite structure compared to the RCC construction results in less structural and foundation costs.
- Cost of formwork is lower compared to RCC construction.
- Cost of handling and transportation is minimized because major part of the structure can be fabricated in the workshop.
- Steel and Steel-Concrete composite construction is more resistant against accidental loads as compared to RCC construction.
- Composite sections have higher stiffness and hence experience less deflection than the non-composite steel sections.

Few Landmark Steel Buildings in India

ICICI REGIONAL HEADQUARTERS, GACHIBOWLI, HYDERABAD

- Built-up area of 4 lacks Sq ft
- Total floors - 3B + 4 Podium + 12 Typical floors
- Typical grid is 10.9 x 10.6m
- Deck slab 170 mm including Comflor 80 to span 3.55m between secondary beams designed with composite action - spanning 10.9 m.
- Overall structural depth is 785 mm



- Columns of 8 to 12 m height were erected to expedite construction.
- About 30,000 MT structural steel was used in this building.

FOUR SEASONS HOTEL, WORLI, MUMBAI

- The tallest hotel building in India
- Good example of Composite Construction using structural steel up to service floor

SUNSHINE TOWER, DADAR, MUMBAI

- Height - 175 Mts
- Composite Construction
- Steel Supplied by Corus
- Square Columns along Periphery - 500mm X 500mm-Specially Imported from Japan
- Architectural Expression of Simplicity and Elegance
- Diagonal Bracings for Stability against Wind and Earthquake Forces

KINGFISHER TOWERS, BENGALURU

- Original Plot Dimensions reproduced at Terrace Level
- Cantilevered landscaped terrace supported on inclined box-type steel struts
- Steel girders in podium to support floating columns above to accommodate maximum car parks
- MEP Services diverted at intermediate levels

A typical Life Cycle Cost (LCC) study on a G+5 Stoyered Building (Plinth Area - 3672 Sqm) between RCC and Steel Concrete Composite Construction

Reference: IS 13174 (Part 2) : 1994

Present Worth (PW) Method estimating 20 Years life with 12% Discounting Factor

(Amount in Rs.)

Block	Item	RCC Building (Construction period 18 Months)		Steel Composite Building (Construction period 12 Months)	
		Estimated Cost	Present Worth	Estimated Cost	Present Worth
I	Initial Capital Cost	128,002,624	128,002,624	129,133,642	129,133,642
II	Interest on Borrowed Capital (20 years factor is upfw 7.4694)	70,349,528	525,468,764	68,259,501	509,857,515
III	Annual Rental Income (20 years factor is upfw 7.4694)	-360,967	-2,696,210	-364,157	-2,720,033
IV	Salvage Value (20 years factor is pwf 0.1037)	6,400,131	663,694	-5,872,964	-609,026
V	Annual Service Charge and Repairs (20 years factor is upfw 7.4694)	543,391	4,058,805	129,134	964,551
	Total		655,497,677		636,626,648

Annualised Cost (AC) Method estimating 20 Years life with 12% Discounting Factor

(Amount in Rs.)

Block	Item	RCC Building (Construction period 18 Months)		Steel Composite Building (Construction period 12 Months)	
		Estimated Cost	Present Worth	Estimated Cost	Present Worth
I	Initial Capital Cost (20 years annualised factor is 1/upfw 0.1339)	128,002,624	17,139,551	129,133,642	17,290,995
II	Interest on Borrowed Capital (20 years pfw for each year to arrive at pw and then annualised factor is 1/upfw 0.1339)	70,349,528	5,014,416	68,259,501	4,951,816
III	Rental Income	-360,967	-360,967	-364,157	-364,157
IV	Salvage Value (20 years annualised factor is 1/upfw 0.1339)	6,400,131	88,869	-5,872,964	-81,549
V	Annual Service Charge and Repairs (Annual recurrence thus constant)	543,391	543,391	129,134	129,134
	Total		22,425,259		21,926,238

Source: HSCL Study

Assumptions

1. The initial cost estimate for RCC Building is based on DPAR 2012 and the same for Steel Composite Structure is based on Budgetary Offer received from Technology Provider and DPAR 2012.
2. All other values / coefficients are assumed / considered / calculated suitably based on relevant IS code and present market conditions.

STEEL INTENSIVE LOW COST HOUSING

- Framing : Steel SHS Sections
- Panels : 15mm thick Ferro Cement Panels in walls & roofs.
- Schemes : Can be fitted into all Government schemes including Pradhan Mantri Awas Yojana.



Cost: Rs.700 - 750/- per sq. ft. including standard finishes (excluding septic tank / leach pit / bio-digester).



10.4 Use of Steel in Bridges

Application / Potential of Steel Bridges and Road Over Bridges

Introduction

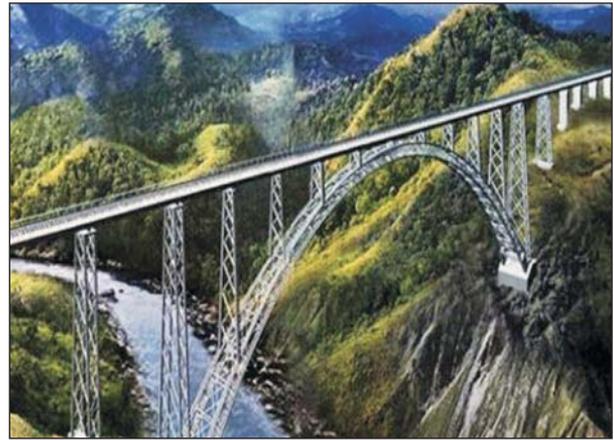
- It is often observed that steel based structures, including bridges have life span more than that of concrete structures and many examples exist within our country itself.
- Any bridge, steel or concrete, designed and built as per the provision of the IRCs, the longevity is expected to be well over 120 years.
- Unfortunately, decision makers and experts tend to be ignorant on expected life of steel bridges.
- PSC or RCC bridges (for Railways as well as for road bridges in urban flyovers and ROB's) have exhibited failure and distress, whereas, with required maintenance the steel bridges are still going strong.

Why Steel Bridges

Description	PSC Structure	Steel Bridges
Completion Time	Years of time spent on construction	Within a few months
Earthquake Resistant	Difficult to design	Suitable and easy to design
Flexibility and Accuracy	Difficult to get large span and complex structures	Easy to design, fabricate and erect
Floor Carpet Area	Wastage due to huge columns	Savings due to slender columns
Dead Weight	Huge weight coming on to the foundations	Reduced weight, savings (High Strength to Weight Ratio)
Aggregate Consumption	More resulting in huge storage space, untidy premises, huge water consumption in curing	Less Resulting in easy to work atmosphere - Green buildings (Less Energy consumption, less noise)
Labour	Huge labour required - Providing labour huts and other facilities is a cumbersome activity	Few skilful labour only required

Advantages of Steel over Concrete

- For a given span and a given load, the depth of the superstructure or the bridge-girder will be less for steel girders compared with that of concrete girders.
- Level of a bridge is always fixed by the level of its underside based on certain criteria like minimum height of the underside above High Flood Level (HFL) for any water crossing or minimum height above any road or rail crossing, therefore less depth of girder means lower finished height of the working level.
- Less length and height of the approach way, leading to significant savings in overall cost of the entire system.
- Dead Load of Steel Bridge will be less compared to that of Concrete -
 - ❖ Requiring less size (Fewer piles), cost of piers and foundations
 - ❖ Less Seismic effect on the entire bridge system leading to faster construction and better performance during Earthquake
- Requires much less capacity cranes for erection.
 - ❖ Therefore less hindrance
 - ❖ Greater (Safety) during construction



- Extensive prefabrication.
 - ❖ Leads to higher quality control
 - ❖ Better long-term performance
- Reduced site operations.
 - ❖ Leading to better and integrated planning between factory and site operations
 - ❖ Reduced space requirements at site causing faster construction
 - ❖ Less imposition on site environment.
- Use of high strength steel in bridges.
 - ❖ Further reduces dead load and depth of structure
 - ❖ Eases transportation and erection causing less overall cost of facilities
- Longer painting cycles.
 - ❖ With Modern durable corrosion resistant paints, maintenance of steel structure can be done in a predictable manner with better planning and resource allocation
- Continuous Structural systems for steel structures.
 - ❖ Lead to continuity
 - ❖ Allow reduced number of bearings
 - ❖ Ensure higher durability

Durability of Steel

- Versatile application as popular construction material for buildings, bridges, flyovers, pipelines etc.
- Cost Effective (Considering Life Cycle Costs).
- Easy to protect from environmental corrosion.
- Green, Sustainable, Consumes less water, minimum traffic disruptions.
- Modern durable high performance protective coatings are available which, when used appropriately, allow extended maintenance intervals and improved performance.
- Paint systems applied depend on both environmental conditions and desired life of the structures.

DIFFERENT TYPES OF BRIDGES

- Beam Bridges
- Cantilever Bridges
- Arch Bridges
- Suspension Bridges
- Cable Stay Bridges
- Truss Bridges



Few Examples of long serving steel bridges

1. Hardinge Bridge over River Padma in Bangladesh - 100 years.
 - ❖ Celebrating centenary year in 2016
 - ❖ Still has life span of 25 years
2. Rabindra Setu (Howrah Bridge) - 73 years.
 - ❖ Inaugurated in 1942 / 1943
 - ❖ This bridge is a landmark for even tourists coming to Kolkata.
3. Brabourne Road Flyover in Kolkata - 46 years.
 - ❖ This bridge was inaugurated in 1970
 - ❖ Carries the entire traffic load from Kolkata to Howrah on a daily basis
4. Pamban Bridge at Rameshwaram - 102 years.
 - ❖ Situated in the second most corrosive region in the world

Few other bridges

- Mokameh Bridge in Bihar.
- Road-cum-rail Bridge across river Brahmaputra at Guwahati.
- Road-cum-rail Bridge across river Godavari at Rajahmundry and numerous others.

Road Flyovers

- Most of the urban flyovers in Kolkata have come up in steel based construction.
- New Delhi has also started building many such flyovers in steel.

ROB's

- Railways has made a legislation that all ROB's, which are under their purview will be in steel based construction.

Composite Bridges for Urban Flyovers and ROB's

- Typical sectional configurations ----
 - ❖ I-sections for spans up to 20m - 25m
 - ❖ Box sections for spans above 30m.
- In urban areas, for flyovers acting as grade separators.
 - ❖ Box girders are more appropriate than I-girders for the obligatory span(s)
 - ❖ Reverse is true for the viaduct spans

Advantages of Steel Concrete Composite Construction

- Most economic utilization of materials viz. concrete in compression and steel in tension and shear.
- High ductility of steel material leads to better seismic resistance and fatigue of the composite section.
- Composite sections have higher stiffness and hence experience less deflection than non-composite steel sections.
- Cost of Steel concrete composite option based on Life Cycle Cost Analysis is competitive compared with that of all concrete or non-composite structures.

Plate girders

- Economical for spans above 20m up to 30m, with use of lighter sections in mid-span regions.

Box Girders

- Obligatory spans of a grade separator is generally to the tune of 35-50 metres - steel-concrete composite box girder system suits best for these spans.

- These have been used aplenty in grade separators and flyovers in Kolkata and they have been found to be performing much better than standard PSC box girder.

Advantages Box Girders

- Ensure shallower depth for a given span.
- Shallower depth in turn will ensure less height and length of approach way, hence less cost of the approach way for a fixed clear height below bottom of super-structure of the bridge girder.
- Provide better aerodynamic shape.
- Provide less surface for wind due to reduced depth.
- Closed shape of girder will provide smooth and aesthetically pleasing structure.

Factors considered for LCCA

- Design
- Construction
- Maintenance
- Demolishing
- Vibration: All composite road bridges built in Kolkata (About 15 numbers) and Delhi (About 6 nos.) are a testimony to the fact that Vibration of these bridges is within the prescribed limit as per serviceability limit state.
- Temperature control: The notion that steel bridges are warmer and will emit heat to the atmosphere has been found to be incorrect as have been seen in Kolkata and New Delhi, where there are both PSC flyovers as well as Composite flyovers. Major heat resistance to steel is achieved by various paints available in the market today.
- Maintenance: Various life cycle cost analyses as carried over by INSDAG in its many studies have indicated that the overall maintenance cost of steel bridges for the entire design life is much less than PSC bridges. Moreover the total life cycle of steel bridge is much more than that of concrete bridges.

Use of High Grade Steel

- Use of High grade steel in bridge design can drastically reduce the consumption of steel
- In general RDSO/Railway approved bridges (Composite Girders and Open Web weld through types) are only designed in E 250 grade (i.e Min. Yield Strength of 250 Mpa)
- Bridges under Dedicated Freight Corridor (DFCC) and NHAI are being designed with high grade steel
- In Open web welded type structures, all the tension cords (Top, Bottom and Verticals) are designed with E 350 grade whereas other members are designed with E 250 grade to optimize the steel quantity
- Few bridges are already designed with E 410 grade e.g. Bogiebeel Bridge in Assam on Brahmaputra River & Chenab Bridge in Jammu

Cost Effectiveness Continuous Composite Bridges (Ref. INSDAG Publication INS/PUB/081 published in February 2006)

- Cost Estimate for superstructure of - 3 Span continuous (30m - 35m - 30m) 3 lane steel concrete composite bridge - Rs.13172/sq m.
- Superstructure cost estimate of 5 Span continuous segmental PSC Girder - 2 lane dual carriage way without footpath - Rs.14947 / sq m.
- The superstructure cost of Steel Option is cheaper by Rs.1775/sq m i.e. 11.88%.
- Rate of increase of Steel Price is lower than that of cement price during 2006 to 2016 as per WPI. Hence cost advantage as shown may be even higher in current context.



CHAPTER-XI

PROMOTION OF STEEL USAGE

11.1 Promotion of Domestic Steel Consumption

It is observed that growth of steel consumption in India has taken place mostly at the urban segment where lots of developmental activities are taking place. On the other hand despite rapid increase in agricultural production in India, coupled with developments in the quality of rural life, the level of rural steel consumption has not been significant. Institute for Steel Development and Growth (INSDAG) has taken up a good number of activities/initiatives to enhance steel consumption and to create the awareness for more usage of steel in rural areas.

11.2 Study for Assessment of Steel Demand in Rural India

In pursuance of the recommendations of the Parliamentary Standing Committee on demands for grants of the Ministry (PSC), the Ministry of Steel carried out a survey/ study through the Joint Plant Committee (JPC) to assess the demand for steel in rural India. The JPC submitted the final Report of this survey in July, 2011. The survey had come out with findings regarding average per capita consumption of finished steel in rural areas, trends of consumption of steel and future projections of steel in rural India. The survey collected the data for the purpose of analysis for the three years i.e. 2006-07, 2007-08 and 2008-09 and assessment of rural steel demand for the periods 2011-12, 2016-17 and 2019-20. The average per capita consumption of finished steel in rural India was assessed at 9.78 kg. during the period 2007 to 2009, which is estimated to increase to around 12 kg. in 2020 based on increased penetration of steel products. This growth would be powered mainly by construction activities, largely at the household level but also by purchase of items such as items for professional use, furniture and vehicles. It is also expected that the demand for household items would decrease over the years. The major reason for the same is increasing replacement of steel by plastic for some of the major contributing items of that category. The survey has also made recommendations for enhancing the consumption of steel in rural India such as shift in type of housing structure, re-looking steel design for various applications, investment in community structures, small and medium steel products manufacturing, highlighting advantages of steel, increasing aesthetics of steel, improving logistics & supply chain for steel and addressing steel quality issues.

During the current year, a fresh pan-India study on the domestic rural steel demand has been taken up by JPC under the aegis of the Ministry of Steel. The objective of the study is to understand the drivers for steel demand and arrive at an assessment of the demand for steel in the modern-day rural India. It would also examine the prevalent perception / attitude towards steel use in rural India and the extent of a possible shift towards (greater) use of steel therein. Assessment of prevalent trends in supply pattern of different items of steel in the Indian rural market, by examining the supply side comprising of rural level manufactures and retailers would also be a part of the study to arrive at a complete picture. Currently, the draft report has been submitted which has been taken up for examination.



Meeting of the Steel Consumer' Council held on 16th June 2017 under Chairmanship of Shri Birender Singh, Union Minister for Steel.

11.3 Steps taken by SAIL to promote Usage of Steel

Promotion for increased usage of steel in the country in the face of low per capita consumption of steel has assumed significance for the steel industry in the recent past. SAIL has accorded due priority in this area and has initiated several steps, some of which are as under:

- Engaging in various promotional activities while undertaking sales through its dealer network through wall paintings showing availability of different products, sponsoring of events inculcating knowledge about steel amongst youth, distributing Product brochures/ technical literature to customers & participation in fairs and exhibitions highlighting various usages of steel.
- Supplying the requisite steel for installation of the iconic giant Stainless Steel charkha at the National Charkha Museum in Connaught Place, Delhi.
- Initiating a campaign "SAIL Steel – Gaon ki Ore", the theme of which is to conduct rural workshops in order to educate rural masses on benefits of steel usage and to create awareness about Branded SAIL Products.
- Organizing visits of Architects/Designers to the new Mills at Durgapur and IISCO Steel Plants. These visits have been followed up with technical presentations on usage of Parallel Flange Sections to project customers, designers and consultants.
- Imparting knowledge through seminar conducted at various locations to promote "Steel based Designs & Construction" and spread awareness on usage of products from the new Mills. SAIL has also been at the forefront in organizing two Regional conferences in association with Ministry of Steel on Promotion of Steel Usage.
- Exploring opportunities for marketing downstream products such as color coated products, Crash Barriers, Ready to use Re bars etc. by engaging external agencies by converting input material for value addition and segment diversification.
- In a bid to strengthen efforts in promoting increased usage of steel, SAIL formed a senior level committee which had extensive interactions with key functionaries of various Project Executing Authorities, Ministries, consultants, designers, and experts in the Government of India. Principal stakeholders in the steel consuming departments of Government of India like Ministry of Road Transportation & Highways, Rural Development, Defence, Railways, Border Fencing and Aviation were called upon to share information related to steel and its usages, its availability etc.
- SAIL along with INSDAG and HSCL has been interacting with practicing consultants to develop cost comparison on Life Cycle Cost Analysis (LCCA) basis and detail comparative benefits of steel structures vis-à-vis concrete structures. Efforts are on to develop standardized design of steel intensive building & bridges for various span lengths to be used in bridges on highways.



Eastern Region Customers' meet organized by Central Marketing Organisation, SAIL.



- In order to promote low cost houses in rural areas, presentations along with prototype designs have been made to key officials of Rural Development ministries of various states. A presentation has also been made on steel usage and product solutions from new mills of SAIL to working level officials at CPWD Headquarters.

11.4 Rashtriya Ispat Nigam Ltd. (RINL)

RINL Products are marketed through 24 Branch Sales Offices including own stockyards & Consignment Agent Stockyards under 5 Regional Offices (North, West, South, East & Andhra) for marketing its products all over the country. With a view to extend the outreach in the proposed capital region development of Andhra Pradesh (Amaravati), RINL has opened a stockyard at Vijayawada. Ex-Plant dispatches are also facilitated, wherever the customers are desirous of the same.

In addition to the above, RINL has a large distribution network of Retailers and Rural Dealers spread across the country.

Measures taken to improve promotion of steel usage:

- The Rural Dealership scheme has been improved by providing Freight Subsidy, Secured Interest Free Credit, Cash & Carry, and Incentives for Product Promotion etc. With these series of measures, the number of dealers during 2017-18, Apr'17 - Dec'17 increased from 417 to 475 and their lifting was 50% higher over CPLY.
- RINL is working on the concept of e-Retail with an objective to increase penetration in the north-eastern region and Jammu & Kashmir. In order to leverage the potential of on-line sales, RINL has already appointed e-retailers at Visakhapatnam
- RINL is focusing on widening the range of products and enriching the product mix. Besides, focus is also on increasing the customer base aggressively, in all the market segments, covering urban, semi-urban and rural sectors.
- For enhancing customer satisfaction by way of supply of "Ready to use" products of TMT Re-bars at project sites of construction / infrastructure, RINL is in the process of appointment of processing agents for processing TMT Rebars in line with the requirements of the project customers.
- For promotion of steel usage in semi-urban & rural areas, promotion campaigns are made through: Meet of Architects, Builders & Construction Engineers (ABC Meets), Workshops on Good Construction Practices (Mason Meet), Special Steel Customers Meet & Meeting of Original Equipment Manufacturers (OEMs).
- The meeting of RINL Rural Dealers from across the country was held at Visakhapatnam in the month of June 2017, wherein the requirements / aspirations of Rural Markets are discussed and based on the feedback RINL has initiated necessary action.
- Brand promotion has been carried out through Brand Ambassador, PV Sindhu, the first Indian Silver Medalist in Badminton in Olympics.
- Rural Area advertisements are made through State Transport Corporation buses and DD Kisan TV Channel. RINL has also tied up with FM Radio and FM Gold Radio for its product promotion.
- Ruralsales@vizagsteel.com has been introduced to improve the communication between rural dealers and RINL for projecting any suggestions / difficulties.
- in order to increase outreach of its products, RINL created a separate logistics & planning cell for exploring end to end logistics and Multi Modal Transportation System(MMTS) which includes movement through coastal shipping. During the year 2017-18, Multi Modal Transportation Agency has been appointed for coastal movement of VSP products from its plant to three destinations viz Kochi, Ahmedabad and Mumbai, on end to end logistics basis.

11.5 MSTC Ltd.

MSTC by organized and transparent process of e-Auction of scrap promotes recycling of steel and other materials. This saves energy and reduces carbon emissions and promotes sustainable development in the country.

MSTC launched an e- shopping mall, MSTC METAL MANDI "M3", which is a virtual market place for B2B & B2C for sale and purchase of iron, steel and Non Ferrous products (and semi- finished products) especially for small and medium sector manufacturers. Already a good number of reputed Sellers & Buyers have been registered on the portal and started transacting business.

CHAPTER-XII

ENERGY, ENVIRONMENT MANAGEMENT AND CLIMATE CHANGE

12.0 Introduction

Environment management and energy efficiency constitute an important benchmark for evaluation of a company. The Ministry of Steel, through various schemes and regulations, is facilitating reduction in energy consumption and emission of environment pollution in steel plants. Some of the steps /initiatives being taken by the Ministry of Steel through various forums and mechanisms are:

12.1 Government Initiatives

12.1.1. National Action Plan on Climate Change (NAPCC)

National Action Plan for Climate Change (NAPCC) has been launched in 2008 to address the Challenge at national level. NAPCC outlines 8 National Missions, one of them being the National Mission for Enhanced Energy Efficiency (NMEEE). Perform Achieve & Trade (PAT) is the flagship scheme under NMEEE. PAT is a market based mechanism through certifications of energy savings which could be traded. PAT has become effective from April 2012.

Total Energy Consumption in India in 2010 was estimated at around 450 Million Tonnes of Oil equivalent (Mtoe) of which around 135 Mtoe i.e. approx 30% was accounted for by the Industrial Sector. The Energy Consumption in Iron and Steel Sector accounted for nearly 33.7 Mtoe i.e. 25% of the total energy consumption in the Industrial Sector.

During PAT Cycle-I, (2012 - 2015), 67 Designated Consumers (DCs) in Iron & Steel Sector with total Energy Consumption of 25.32 Million toe were covered which works out to 45% of total Energy Consumption in the Steel Sector.

Under PAT Cycle-II (2016-19), 71 Designated Consumers in Iron & Steel Sector have been notified by Ministry of Power. The share of Energy Consumption in respect of the 71 DCs works out to 72% of total energy consumption in the steel sector.

Further, under PAT Cycle-III (2017-2020), 29 new Designated Consumers (DCs) in Iron & Steel Sector have been notified.

12.1.2 Promotion of Energy Efficiency in SME Sector:

UNDP-GEF-MoS Project: "Energy Efficiency in Steel Re-rolling Mills" (2004-2013):

The project has been completed and implemented. It has facilitated low carbon technologies in 34 steel re-rolling mills (model units) to bring down energy consumption and reduce GHG emissions by 25-50%. This has helped in replication of the energy efficient technological interventions in many other steel re-rolling mills.

UNDP-MoS-AusAID Project: Up scaling "Energy Efficient Production in Small Scale Steel Industry in India" (June 2013-June 2016)

Aims to further replicate energy efficiency in steel re-rolling mills and expand the interventions to other SME Sector like induction furnaces. The project is completed covering 300 mini steel mills (inclusive of 5 Induction furnace units) are covered in II phase at the investment of 50 Crore from private sector against Rs. 20 crore of funding from Ministry of Steel, AusAid and UNDP.

12.1.3 NEDO Model Projects for Energy Efficiency Improvement.

Government of Japan through Ministry of Economy Trade & Industry provides funds i.e. as Overseas Development Aid (ODA) under its Green Aid Plan (GAP) through Department of Economic Affairs in GOI for setting up of energy efficient, environment friendly projects known as Model Projects in various sectors including steel. These projects are routed through and managed by NEDO (New Energy &



Industrial Technology Development Organisation), Japan. Ministry of Steel is coordinating the projects undertaken in the iron & steel sector. So far the following three projects have been commissioned, two at Tata Steel and one project at RINL.

- BF Stove Waste Heat Recovery: Completed at Tata Steel
- Coke Dry Quenching: Completed at Tata Steel
- Sinter Cooler Waste Heat Recovery: Completed at Rastriya Ispat Nigam Limited.

Further, two MoUs for two more Model Projects (i) Regenerative Burner System for reheating furnaces at Rourkela, SAIL and (ii) Energy Monitoring and Management System at ISP Burnpur, SAIL have been signed for implementation.

12.1.4 Iron & Steel Slag Utilization

The major wastes produced in integrated steel plants include BF Iron Slag and Steel Melting Shop (SMS) Slag accounting for nearly more than half a tonne for each tonnes of steel produced in ISPs. Most of the steel plants are utilising 100% of the iron slag produced (mostly in cement making and some portion as aggregate, both of which are permitted in BIS or IRC Standards Specifications) while others are closer to reach the 100% utilization.

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. To resolve these issues, Ministry of Steel has constituted a Task Force for promotion and utilization of Iron and Steel Slag. The subject matter is also being monitored by NITI Aayog.

12.1.5 Nationally Determined Contributions (NDCs) for Indian Steel Industry

Government of India has submitted its commitment to reduce the emissions intensity of its GDP by 33 to 35 percent by the year 2030 from the level of the year 2005. Further the Government of India is asignatory to the Parris declaration thereby reaffirming its commitment for reduction of GHG emission and adapt to the impact of the climate change. Accordingly, Ministry of Steel has been pursuing the steel companies to take necessary action to reduce GHG emission in line with the commitments submitted by the Government.

12.2 Initiatives of Steel Companies

12.2.1 Steel Authority of India Limited (SAIL)

Energy Management

Specific Energy Consumption (Gcal/tcs) during the last 3 years:

Plant	2015-16	2016-17	2017-18 (Apr. - Nov.)
BSP	6.44	6.58	6.60
DSP	6.42	6.36	6.26
RSP	6.50	6.43	6.41
BSL	6.70	6.70	6.68
ISP	7.60	7.20	6.68
SAIL	6.51	6.60	6.54

Environment Management

- Reduced Particulate Matter (PM) emission load by more than 5% (from 0.77 kg/tcs to 0.7. kg/tcs)
- Reduced specific water consumption by more than 3%(from 3.81 m³/tcs to 3.68 m³/tcs).
- Reduced specific effluent discharge by more than 6% (from 1.98 m³/tss to 1.86 m³/tss).
- Reduced specific effluent load by more than 4% (from 0.091 kg/tcs to 0.087 kg/tcs)
- Increased BF slag utilisation by more than 1% (from 2.65 T/tcs to 2.62 T/tcs).



Tree plantation at SAIL by Minister of State for Steel Shri Vishnu Deo Sai.

Low carbon usage technologies / facilities adopted

As a measure towards reducing the CO₂ emissions and to achieve higher energy efficiency, SAIL plants have introduced various clean technologies at its plants over the years, mainly during the recent expansion/modernization projects. The notable among them are:

- Coke Dry Cooling
- Top Pressure Recovery (TRT) Turbine at Blast Furnace
- 100% Continuous Casting
- Waste Heat Recovery from Blast Furnace Stoves and Sinter Cooler
- Gas based Power Plant

Specific CO₂ Emission (T/tcs)

2015-16	2016-17	2017-18 (Apr.-Dec.)
2.60	2.61	2.62

Highlights of compliance to National/CPCB/SPCB norms/regulations during (Apr - Dec, 2016)

Stack Emission: Particulate Matter (PM) emissions from the stacks of all the major production shops were meeting the respective norms.

Fugitive Emissions: Fugitive emissions from the Coke Oven Batteries, Blast Furnaces and the Basic Oxygen Furnaces were within the norms.

Ambient Air Quality: Ambient Air Quality remained within the norms.

Effluent Discharge Quality: Effluent discharge quality was well within the norms.



Utilisation of Slag: Utilisation (%) of BF slag, LD slag and total solid waste during April - Nov., 2017.

BF Slag	LD Slag
88.47%	57.55%

Other Initiatives:

- Implementation of Environment Management System
- Eco-restoration of mined out areas
- Bio-sequestration of CO₂
- Non-conventional energy sources
- Initiatives to achieve Zero Liquid Discharge (ZLD)

12.2.2 Rashtriya Ispat Nigam Limited (RINL)

Energy Consumption (Gcal/tcs)

Year	SEC (Gcal/tCS)	CO ₂ emissions (Tons/tCS)
2014-15	6.37	2.79
2015-16	6.40	2.79
2016-17	6.39	2.78
2017-18 (Till Dec.,17)	6.12	2.64

Measures Taken/being taken for reduction in Energy Consumption (2017-18 till Dec'17)

- Increasing Pulverized Coal Injection - PCI improved to 46.3 Kg/t HM from 15.3 Kg/tHM (CPLY) at Blast Furnaces. PCI started in BF-2 during Dec'17.
- Increasing the availability of Benzol scrubber at Coal Chemical Plant - improvement in Benzol yield from 0.47% to 0.51%
- Improving process parameters at Sinter Plant-1 - reduction in coke breeze consumption from 64.3 Kg/tCS to 59.0 Kg/tCS
- Installing of energy efficient burners at Sinter Plant-1 - reduction of Sp. Heat Consumption from 33Mcal/tGS to 30.4 Mcal/tGS
- Increasing recovery of heats at Steel Melt Shop - improvement in LD gas yield from 80 Ncum/tCS to 89 Ncum/tCS
- Increasing usage of BF gas - improvement in Power Generation at CPP-2 from 17.35MW to 67.3 MW
- Increasing off take of BF gas in Thermal Power Plant and Captive Power Plant-2 - decrease in BF gas bleeding from 5.69 % to 1.17 %
- Commissioning of energy efficient Vertical Shaft kiln-2 at CRMP.

Waste Heat Recovery Systems till Dec'17

Energy Saving Facility	Units	Energy Recovered	Boiler Coal Saved (tons)	Reduction of CO ₂ Emission(Tons)
LD Gas recovery plant-at SMS	MNCum	306	176924	277771
Back Pressure Turbine Station (BPTS)	MWH	140693	112554.4	176710
Gas Expansion Turbine Station (GETs) & TRT	MWh	51480	41184	64659
Sinter plant straight line cooler	MWh	3340	2672	4195

Usage of By product gases in Thermal Power Plant up to Dec, 2017

Units: MNcum

Name of Fuel used	Value	Boiler Coal Saved(tons)	Reduction of Co ₂ emission(tons)
CPP-1			
Coke Oven Gas	258.07	398528	625689
BF Gas	1640.17	437925	687543
CPP-2			
Coke Oven Gas	73.10	102199	160453
BF Bas	1170.36	312486	490603

Environment Management

Highlights of compliance to national/CPCB/SPCB norms/regulations (Apr - Dec, 17)

Complied with all environment related statutory requirements of National/CPCB/SPCB Norms/Regulation in respect of stack emissions, ambient air quality and fugitive emissions. In respect of effluent quality, the concentrations of Amm. N2, Phenol, Oil, Grease, COD & TSS were within norm as prescribed by APPCB/CPCB.

BF slag: 11,90,745 tons of BF Slag was generated and 17,74,716 tons was utilized, achieving utilization of 149.04 % (upto Dec'17).

LD slag: 4,66,582 tons of LD Slag was generated and 89,474 tons was utilized in Sinter Plant, achieving utilization of 19.18 % (upto Dec'17).

Other wastes: Other metallurgical wastes i.e. Dusts from DE systems & ESPs, sludges from waste water treatment plants and Mill Scales are being fully utilized.

Environmental initiatives under implementation:

- Modification/augmentation of ESP's of Thermal Power Plant for one Boilers is taken up with BHEL to bring down the emissions below 50 mg/Nm3
- Pulverized Coal injection system where in BF Coke will be substituted partially by coal has been implemented in all the Furnaces.
- MOU was signed with CCI for setting up of a Clinker Plant with joint venture at RINL premises for utilizing Fly ash.
- Long term lease of land for setting up of Auto Claved Aerated Concrete Block unit with a minimum offtake of 75,000 tonnes per year per party targeting an off take of 2,00,000 tonnes per year is under process.

12.2.3 MECON Limited

MECON has taken up implementation of its Sustainable Development (SD) Policy and Plans as per the guidelines of Department of Public Enterprises.

12.2.4 Manganese Ore India Limited (MOIL)

Various measures are undertaken for control of pollutants:

Air Pollution Control:

- Wet drilling of blast holes.
- Sprinkling of water on Haulage roads by truck mounted water tankers with sprinkler arrangement.
- Maintaining drilling speed to control dust produced during deep large blast hole .
- Regular maintenance of vehicles and machineries is carried out in order to control emissions.



Water Pollution:

- Used underground water in mining operation is fully utilized for plantation and sand stowing operations.
- No discharge of water from any of the mine in the nearby water sources.

Solid Waste Management:

- After stabilization, white dumps are covered with plantation in consultation with National Environmental Engineering Research Institute (NEERI).
- Fresh and active dumps are being protected by benching and trench cutting/ stone pitching wall of 1m height all along the periphery at the ground level.

Plantation:

Planted more than 19.46 lakhs trees in all the mines over the last recorded 24 years with an average 75% survival rate of plants.

12.2.5 NMDC Limited

All the mines of NMDC centre have been accredited with Integrated Management System Certificate comprising of (QMS)ISO 9001:2008, (EMS)ISO 14001:2004 and (OHSMS) OHSAS 18001:2007 and SA 8000:2008 standards.

The initiatives made by NMDC towards Environment conservation and pollution control are given below:

Air Pollution

- Dust suppression on mine haul roads & use of atomized mist water spray at dumper platform and at transfer points for suppression fugitive dust generation.
- Use of conveyors which are completely covered for transportation of run of mine iron ore from crushing plant to screening plant to loading plant.
- Continuous Ambient Air Quality Monitoring System installed at Bailadila Deposit - 14,/11C project, Deposit-5 and 10/11A project for online monitoring of PM10 , PM2.5, SO2, NOX and CO.



Inauguration of rooftop hybrid solar power plant by Dr. Aruna Sharma, Secretary (Steel) at NMDC, Corporate Office, Hyderabad.

Water Pollution

- Constructed 2 MLD Sewage Treatment Plant with sequential batch reactor technology at Bachel Township for treatment of domestic sewage. Similar treatment plants of 3 MLD each are under construction at Kirandul and Donimalai townships.

Sustainability Initiatives

- NMDC is working towards 'Zero-Waste Mining' by maximizing utilization of various grades of iron ore (more than 45%). Efforts are also on for lean grade ore beneficiation.
- In order to gainfully utilizing the slimes (low grade rejects), beneficiation & Pellet plant has been set up in Karnataka at the mine site itself. Larger scale similar plant is being set up in Bailadila sector also along with 15 MTPA slurry pipeline, which is a green and a cost effective way of iron ore transportation.

12.2.6 JSW Steel Limited

Vijaynagar Work

Energy Management

Year	Energy (Gcal/Tcs)	CO ₂ Emissions (Tons/tCS)
2015-2016	6.34	2.52
2016-2017	6.35	2.41
2017-2018 (Till Dec 2017)	6.31	2.43

Energy Management Highlights up to Dec 2017:

- Top recovery turbine power generation is 18MW and suffices 14% of power consumption requirement of Blast Furnace.
- Installed VFD Drives for CEP & ID fan of CPP 4, resulted in power saving of 0.3MW.
- Blast furnace solid fuel consumption decreased by 1.3% wrt FY 2016-17 and increased PCI Consumption.
- Increased LD gas recovery to 96 Nm³/TIs.
- Increased Blast Furnace gas utilization additionally by 3% due to completion of phase 1 of BFG reliability project (BFG firing in Recovery Type Coke Oven).
- 26 MW of power generation through waste heat recovery of coke oven 1 & 2.
- 45 TPH of Steam generation through sinter cooler waste heat recovery boiler

Environmental Key Performance Indicators Summary:

Parameters	2013-14	2014-15	2015-16	2016-17	2017-18 (till Nov'17)
Specific Process dust emission (kg/tcs)	0.72	0.86	0.73	0.61	0.63
Specific water discharge (m ³ /tcs)	1.13	1.04	0.78	0	0
Specific water consumption (m ³ /tcs)	3.1	3.15	3.1	2.59	2.46
Solid waste utilization (%)	93.98	70.93	68.76	80.2	81.8



Dolvi Works

Energy Management:

Year	Energy (Gcal/Tcs)	CO ₂ emissions (Tons/tCS)
2015-2016	6.98	2.71
2016-2017	6.19	2.12
2017-2018 (Till Dec 2017)	6.27	2.16

Energy Management Highlights up to Dec 2017:

- Installation of Power factor improvement capacitor banks in motors and transformers to improve Power factor to 0.95.
- In SMS ladle cover in turret shall be put to prevent heat loss.
- Off gas analyser in CONARC can be installed for process optimization to save energy.
- Prevention of heat loss in cooling water of CONARC using slag retainer water cooled panel.
- Reduction of specific heat consumption of Coke Oven through proper thermal regulation.
- Refractory relining for reduction of skin temperature and high emissivity coating for tunnel furnace in HSM and Reheating furnaces of Bar Mill.
- Coke moisture reduction especially during monsoon for reduction of specific heat consumption in Blast Furnace.
- Polymer internal coating of bigger pumps to improve pump efficiency by 2-4%.
- Installation of air pre heater in Blast Furnace Boiler

Salem Works

Specific energy consumption

Year	Gcal/TCS
2014 - 15	7.485
2015 - 16	7.517
2016 - 17	7.253
2017-18 till Dec.,17	7.047

Energy Highlights

- Lowest ever specific energy consumption
- Power savings of 65Kw through optimization of 150TPD Air separation plant operation
- Power savings of 18Kw through coating in auxiliary cooling water pump at Captive Power Plant

All the plants of complied with all environment related statutory requirements of National/CPCB/SPCB Norms/Regulation in respect of stack emissions, ambient air quality and fugitive emissions. In respect of effluent quality, the concentrations of Amm. N₂, Phenol, Oil, Grease, COD & TSS were within norm as prescribed by APPCB/CPCB.

12.2.7 Tata Steel Limited (TSL)

Tata Steel is rated amongst top 7 steel companies, globally (CDP 2017) and continues to hold leadership position in Environmental Sustainability (DJSI 2017). Jamshedpur Steel Works Highlights of reduction in energy consumption and low Carbon usage technologies are as under:

Energy Management Highlights

Jamshedpur Works:

- Carbon rate in Blast Furnaces reduced from 444 (2016-17) to 441 Kg/C/thm (2017-18); corresponding fuel rate is 536 Kg/thm during 2017-18.
- Recovery & utilization of by-product gases and waste energy enhanced (incl. TRTs)

Kalinganagar Works continues to ramp-up and there,

- Blast Furnace fuel rate reduced by 3% (573 in 2016-17 to 555 Kg/thm in 2017-18)
- CDQ is under ramp-up; Top gas pressure Recovery Turbine at BF generated 12.45 MW (avg); LD Gas recovery @ 7.53 kNm³/hr.

FY	Specific Energy Consumption (Gcal/tcs)		Specific CO ₂ Emission (T/tcs)	
	Jamshedpur	Kalinganagar	Jamshedpur	Kalinganagar
2015-16	5.77	-	2.30	-
2016-17	5.67	8.5	2.29	3.08
2017-18 up to Nov,17	5.67	7.3	2.30	2.5

Environment Management Highlights

Stack Emissions: Dust Emission (Kg/tcs)

Plant	2015-16	2016-17	2017-18
Jamshedpur	0.51	0.44	0.39
Kalinganagar	-	1.3	0.65

Overall waste utilisation remained at 80% level at Jamshedpur Steel Works with LD Slag remaining the key challenge. Other wastes including Blast Furnace slag is mostly utilised either in-house or externally incl. in cement making. Pursuing collaborative initiatives with Govt. & Industry Bodies like IRC, BIS, RDSO, ICAR, Ministry of Steel, FICCI, etc. for developing usages of LD slag. Meanwhile, at Kalinganagar,

- 100% Online BF slag granulation is done.
- LD Slag: Metal recovery plant installed and commissioned in June 2017; steam ageing plant is under construction for non-metallic portion. At present LD slag is stored for processing and reuse within the plant premises.
- Process solid waste is used in Sinter Plant.

To comply with CREP guidance, old & existing ESPs & Bag Filters are being upgraded of Sinter Plant, F & G Blast Furnace & LD1 & LD2 (steelmaking) shops at Jamshedpur in addition to continuous augmentation of air pollution control, water treatment, recovery & recycling and waste processing facilities at both plants.

At Kalinganagar,

- Fugitive emission control system installed in stamp charged new Coke Oven batteries.
- Secondary fume extraction system installed in Steel making.
- Coal is injected as auxiliary fuel in Blast Furnaces, which has TRT, WHR at Stoves, Tar-free runners, Dust Extraction System at Cast House.
- Achieved specific water consumption 4.5 m³/tcs during 2017-18.
- Waste Management infrastructure installed:
 - ❖ Online granulation of Blast Furnace Slag; and
 - ❖ Metal recovery from LD Slag.



Clean / Green Technology Initiatives

- Started pilot trials of deploying Internal Carbon Pricing @ US\$ 15 / tCO₂.
- Participates in Public Private Collaborative Partnership driven by Ministry of Steel, Government of India and Government of Japan.
- The Company is Climate Action Member of Worldsteel Association.
- Noamundi mine became the country's first Iron Ore mine to have solar plant having capacity 3MW.

12.2.8 Bhushan Steel Limited

Energy Conservation Initiatives

- 100% Hot Charging of Steel Slab
- Top Gas Recovery Turbine in Blast Furnace -2
- Installation of LED lamps:
- Installation of Solar Lighting System:
- Installation of CDQ-1 and CDQ-2
- Installation of BOF Gas Holder
- Installation of 2nd PCI in Blast Furnace -2 , 130 to 200 Kg
- Combustion System modification in Reheating Furnaces #3 of Hot Strip Mill
- Increase of hot blast temperature from 1180 to 1250° C in BF-2

Environment Management

Parameter	2015-16	2016-17	2017-18 up to Dec'17
Specific Energy Consumption (Gcal/tcs)	6.88	6.86	6.72
Specific CO ₂ Emission (T/tcs)	3.12	2.84	2.70

Solid Waste Generation & Utilization

Particulars	2015-16	2016-17	2017-18 till Dec, 17
Total Waste generation (Kg/tcs)	720	684	743
Total Waste utilization (Kg/tcs)	670	644	676
% of Waste utilization	93.18	94.166	90.9

Specific Water Consumption (m3/tcs)

2015-16	2016-17	2017-18 till Dec, 17
4.44	4.42	4.0

Adoption of Clean & Green Technologies - Slag

- Two (2) nos. of Slag Atomization Plant (supplied by Ecomaister, South Korea) have been installed to process the slag generated from SMS - I and SMS - II to produce PS Ball.
- PS balls are environmentally-benign materials, spherical in shape with 0.1 to 4.5 mm in diameter, a non-expansionary material with no free lime and pollution issues.



12.2.9 Essar Steel India Limited

Energy Conservation Initiatives

- Installation of Energy efficient burner system with ignition furnace in Sinter Plant.
- Replacing conventional Street lights with LED.
- Installation of LED lightings in Plant area.

Environment Management

Parameter	2015-16	2016-17	2017-18 up to Dec'17
Specific Energy Consumption (Gcal/tcs)	7.60	7.49	7.45
Specific CO ₂ Emission (T/tcs)	2.72	2.32	2.50

Generation & utilization of iron and steel slag

Slag generated from EAF & Conarc Furnaces are being utilized as: Substitution of quarry material for filling low lying areas, as plant is closer to coastal area, Internal road making for expansion project activities, Ballast for Railway Track, Bund for railways, Load bearing platform, Compound wall, Shore Protection, Selling to nearby industries for above purposes.

Clean/ Green Technology Initiatives

- Selection of Plant technology based on NG / NGL / Naphtha as a fuel.
- Developed a technology of Hot DRI charging in EAF in place of Hot Briquetted Iron (HBI).It results in to reduction in power and improved productivity.
- Implementation of Corex Technology.
- Implementation of Compact Strip Plant.
- Corex gas generated from Corex plant is being used as a replacement of NG in HBI, Plate Mill, CSP Mill and Lime Plant.
- Essar has installed 19 MW waste heat recovery based power plant which is run by steam generated from BF gas.



CHAPTER-XIII

DEVELOPMENT OF NORTH-EASTERN REGION

13.1 Introduction

The Ministry of Steel has been exempted from the requirement of earmarking 10% of its budgetary allocation for this purpose.

13.2 Steel Authority of India Ltd. (SAIL)

Retail Sales in SAIL were earlier handled directly by SAIL through a widespread dealer network. SAIL has launched the distributor model in Retail Sales, SAIL has forayed into the Two-Tier Distribution Channel consisting of the SAIL Distributor and Dealers attached to them in an identified geographical area. The scheme was initially implemented in a select few locations with the North - East as one of the Pilot locations.

A Distributor was appointed for Retail Sales of TMT and GC Sheets in & around Guwahati for the states in North East covering all the districts in Assam, Arunachal Pradesh, Mizoram, Meghalaya, Manipur, Nagaland and Tripura w.e.f. 01.06.2017 and started operating since then.

With its remote location, hilly terrain and land locked region, the North East presents a unique challenge in marketing in general and Retail Marketing in particular. However, the Distributor appointed for the North East Region has achieved monthly average of 1769 MT till December, 2017 against a monthly target of 1500 MT per month. The distributor has appointed 118 dealers among the seven sister States. Further, as part of its activity, distributor also carried out promotional activities in the form of rural awareness meets, advertisement through various modes, Engineers meet etc.

13.3 Rashtriya Ispat Nigam Ltd. (RINL)

North Eastern Region is a fast developing region with immense potential for steel consumption in the near future. Presently, the requirement of this region is met through Consignment Sales Agents appointed at Guwahati & Agartala and material is routed from RINL Kolkata stockyard by road. In addition to that, one full rake load of 2622 tonne of TMT was dispatched from Plant to Agartala, for usage in construction of Tripura Cricket Stadium at Agartala.

RINL has tied up with M/s MSTC for utilizing their e-commerce platform i.e. Metal Mandi, for marketing its products in the North-Eastern States. In order to improve presence in North Eastern Region, RINL has plans to open a consignment agent stockyard at Guwahati which is likely to be in position in this Financial Year.

13.4 MSTC Ltd.

North-East Region is endowed with rich natural resource base- soil, water and vegetation. The climatic condition favours growth of varieties of fruits, vegetables and spices.

The economy of North-East Region has got its definite identity due to its peculiar physical, economic and socio-cultural characteristics. In this region, hilly terrain and limited road and flight connectivity have posed hurdles for companies wanting to expand operations. To overcome lack of connectivity within the region as well as with rest of the country and the world, MSTC has launched new e-auction portal, e-RaKAM along with CRWCL. Distinctly different from other digital initiatives, this will not only help farmers to get reasonable price for their produce, but also save them the effort of carting the produce to the mandi. This technology initiative will help farmers command better prices for their produce and bypass middlemen. Apart from perishable commodities, e-RaKAM plans to get into online auction of other agricultural produce like cereals, pulses and oilseeds.



Union Minister for Steel Shri Birender Singh launching a dedicated e-portal for online sales of steel products by RINL through MSTC Metal Mandi, in North Eastern Region of the country, in New Delhi on July 20, 2017.

The transportation and logistics infrastructure of the CRWCL will also help door delivery of both ferrous and non-ferrous products from its manufacturer to buyers in NE States for the transactions made through MSTC Metal Mandi, M3 portal in a transparent and hassle free manner.

MSTC has traditional business of disposal of scrap and surplus items of State / Central Public Sector, Defence units, paramilitary forces situated in the North-East Region for better realization in a transparent way which also benefitted local businessmen, indirectly benefits the region.



CHAPTER-XIV

INTERNATIONAL COOPERATION

International cooperation and collaboration are crucial for bringing the state-of-the-art technologies in the steel sector and for international trade development. To achieve these objectives, the Ministry of Steel participated and hosted various international meetings/conferences/seminars organised for development of iron and steel sector as per details given below:

- Visit of Shri Sunil Barthwal, Joint Secretary, Ministry of Steel for participation in India Sourcing Fair at St. Petersburg (Russia) held by ITPO from March 14-16, 2017 and visit to Novolipetsk Steel (NLMK), at Lipetsk, Russia on March 17, 2017.
- Participation in the Inter-Ministerial Meeting on 15th Session of India-Austria Joint Economic Commission (JEC) held on 10th July, 2017 in New Delhi.
- Participation in the Inter-Ministerial Meeting held in South Block, Ministry of External Affairs, New Delhi, on 10.08.2017 for visit of high powered delegation from Uzbekistan led by their Foreign Minister H.E. Mr. Abudlaziz Kamilov and Trade Minister Elyor Ganiev.
- Meeting of Australian Assistant Minister for Trade, Tourism and Investment, Mr. Keith Pitt with Hon'ble Minister of Steel on 28.08.2017 in New Delhi to discuss bilateral cooperation in steel sector.



- Participation of Shri Arun Kumar Kailoo, Deputy Secretary, Ministry of Steel, in the 6th Meeting of the India-Russia Sub-Group on Mining held on 16th September, 2017 in Russia.
- Meeting of H.E. Mr. Kenji Hiramatsu, Ambassador of Japan with Hon'ble Minister of Steel, to discuss India-Japan Cooperation on 26th October, 2017 in Ministry of Steel, Udyog Bhawan, New Delhi.
- Participation in the Inter-Ministerial Meeting held on 9th November, 2017 for 6th Session of India-Kazakhstan JWGTEC in Department of Commerce, Udyog Bhawan, New Delhi.



A Polish delegation called on Secretary(Steel) to discuss bilateral cooperation

- Meeting of First Deputy Minister of Energy of the Republic of Poland with Secretary, Ministry of Steel on 28th November 2017 to discuss bilateral cooperation in steel sector.
- A Global Forum on Steel Excess Capacity (GFSEC) was created in December, 2016 with a view to find concrete policy solutions to reduce excess steel capacity. A Ministerial level meeting on the GFSEC was held on 30th November, 2017 at Berlin, Germany where a GFSEC report was adopted. Global Forum report is an outcome of G-20 summit leaders in Hangzhou (September, 2016) and Hanburg (July, 2017) where concerns were expressed on global excess capacity in the steel sector. India is a Co-Chair for 2018 along with EU.
- Participation in the Meeting on various projects in respect of Mozambique chaired by Gen. Dr. V.K. Singh, Minister of State, Ministry of External Affairs, on 12th January, 2018 at Jawaharlal Nehru Bhavan, New Delhi.



CHAPTER-XV

DEVELOPMENT OF INFORMATION TECHNOLOGY

15.1 Ministry of Steel

The Ministry of Steel and the PSUs under it constantly endeavour to be updated on matters relating to ICT infrastructure and application development.

- " The Computer Centre in the Ministry with high end Server, Client Systems, Local Area Network (LAN) & Wifi setup is operational to provide ICT support to officials and staff in the Ministry.
- " A LAN of about 250 nodes with Gigabit backbone is operational in the Ministry.
- " Internet Connectivity with Email facility under nic/gov domain has been provided to all Officials/ Divisions in the Ministry.

E-Governance applications and promoting the concept of paperless office in the Ministry

- As a part of the National e-governance Plan of DARPG, "**e-office**" software (a mission mode project of Govt. of India) modules such as Electronic File Management System, Knowledge Management System, Leave Management System and Sparrow(eAPAR) have been implemented to achieve less-paper office initiative in the Ministry.
- As part of the e-governance programme, a Ministry-wide Internet portal is also operational in the Ministry; The portal facilitates various monitoring applications in the area of Action Plans, Ushering In Cashless Transaction Environment, Court cases, important references, Cabinet Notes & Parliament Assurances etc. in the Ministry.
- E-Requisition, Stock & Inventory Management System and Officer on Tour Information System are operational on Ministry's Intranet Portal. The E-Requisition, Stock & Inventory Management System has been implemented by automating the Requisition process, filing and its approval by Admin Genl Cection and maintaining the Stock & Inventory at backend.
- The facility for downloading of forms for sanction of leave and advances, medical re-imburement; Annual Confidential Report forms; Identity Card, staff car booking; Income Tax; telephone directory of officials/ Divisions in the Ministry, organization chart etc., are also provided on the Intranet portal for the Officials/Staff of the Ministry.
- LAN is extensively used for eOffice File Management & Tracking of receipts, files, VIP/PMO References, Cabinet Notes etc., Leave Management Systems, Knowledge Management and Information dissemination, Collecting information/material on Annual Reports, Parliament Questions, Pendency, Tracking and Monitoring Applications (Court Cases, Audit Parars & Parliament Assurances etc.) from Divisions.
- Biometric Attendance System based on Aadhaar Authentication with real time monitoring is operational in the Ministry.
- High Definition VC setup has been made operational in Steel Conference Room and O/o Secretary(Steel) for monthly PRAGATI VC of Hon'ble Prime Minister.
- As a part of E-Governance plan, the following Centralised Citizen Centric Web Based systems have also been implemented in the Ministry :
 - ❖ Centralized Public Grievance Redressal & Monitoring System (CPGRAMS) for facilitating Public & Pensioners Grievances in the Ministry and its PSUs.
 - ❖ Right to Information Act - Management Information System (RTI-MIS) - facilitates monitoring of Requests and Appeals received under RTI Act 2005. The system is implemented in the Ministry and it's PSUs.

- ❖ Public Financial Management System (PFMS), a financial management platform has been implemented in the Ministry.
- ❖ Online Pension Sanction and Payment Tracking System 'BHAVISHYA' for timely payment of retirement dues and issue of Pension Payment Order (PPO), Legal Information Management & Briefing System (LIMBS), Anubhav - A platform for retirees to share experience of working with the Government, Recruitment Rules Formulation, Amendment & Monitoring System (RRFAMS), CACMS, Representation of Reserved Categories in Posts and Services in GOI (RRCPS) Monitoring System.
- ❖ ACC Vacancy Monitoring System (AVMS), eVisitor Monitoring System (eVMS), eSamiksha portal, Sparrow for online filing of APAR and Annual Property Returns have also been implemented.
- Development of Dashboard on Steel Sector on following is in progress :-
 - ❖ Steel at a Glance
 - ❖ PSU Performance related to Production, Sale & Financial, Techno-Economic Performance, CSR Budget, Safety Issues, CAPEX, Joint Ventures (JVs)
 - ❖ Iron & Steel Scenario
 - ❖ Consumption and Capacity Utilisation
 - ❖ Import & Export
 - Prices of Steel Items
- Software development for Knowledge Sharing platform on the best practices adopted by PSUs, Innovations/R&D in Steel Sector is in progress

Ministry's Official Website

- The bilingual web-site for Ministry of Steel (<http://steel.gov.in>) has been re-designed and launched in the month of May'2017. The Ministry and its CPSEs are active in the social media platforms such as Twitter & Facebook.

15.2 Steel Authority of India Ltd. (SAIL)

SAIL has undertaken various Information Technology (IT) initiatives, duly aligned with its business goals and vision to maintain its competitive position in the domestic and global marketplace. The robust IT infrastructure has helped us attain transparency in operations, bring in efficiency, reduce operational costs and achieve customer satisfaction.

- Through SAP Enterprise Resource Planning (ERP) software, the best global practices in all major functions like procurement, sales and distribution, production, finance etc. have been implemented at 4 Integrated Steel Plants i.e. Bhilai Steel Plant (BSP), Durgapur Steel Plant (DSP), Bokaro Steel Plant (BSL), Rourkela Steel Plant (RSP) and Central Marketing Organization (CMO). ERP implementation at 5th Integrated Steel Plant i.e. IISCO Steel Plant and also at Corporate Office for data consolidation through integration of plant/unit is in progress.
- SAIL ERP Plants have upgraded to SAP-SRM7 'Supplier Relation Management' which facilitates in achieving better market reach and transparency and is able to connect with customers through Customer Relationship Management (CRM) SAP Module.
- Goods and Services Tax (GST) has been implemented across SAIL and IT applications have been made GST Compliant. The process for filing GST returns has been automated through Application Service Provider (ASP) & GST Suvidha Provider (GSP).
- As an initiative towards HR transparency, SAIL has implemented an application for tracking employees in Sensitive positions across SAIL.



- SAIL has upgraded to High Definition Video Conference System which has further facilitated strategic planning and decision making through face to face discussion without the need of travel. Video conference facility is extensively used in SAIL being both cost effective and time saving. Remote areas like mines have also been connected on VC. New upgraded system allows for VCs outside the SAIL network including international VC.

15.3 Rashtriya Ispat Nigam Ltd. (RINL)

A scalable IT infrastructure has been set up at RINL to enable information flow across the organization. The data leading to critical information of various processes is captured to monitor and later analyzed to carry out significant improvements in respective areas. Achievements during the year 2017-18 are given below:

- RINL-VSP successfully started its operations under the GST regime from 04-07-17.
- Mobile Apps were developed in the areas such as Production and Delays, Sales flash, Pay Slips, Leave Management, Medical Records, E-DAK, Township Complaints, PC Complaints, SCADA, RMHP and Effort Logging. SMS Alert to customers on Sales Order was launched.
- A dedicated e-portal for online sales of steel products by RINL-VSP through MSTC Metal Mandi, in North Eastern Region of the country was launched by Hon'ble Union Minister of Steel.
- Leveraged ERP to implement cashless payment and receipts with customers and suppliers. It has augmented e-tendering and e-auctions through ERP.
- All the shops in township including Cooperative Stores are equipped with PoS machines to facilitate cashless transactions.
- Cost Reduction Measures Monitoring System (CRMM) was deployed.
- Swachhta, a Portal on Swachh Bharat was launched as part of Swachhta hi Sewa campaign.
- For extending services closer to the employees Employee Information Kiosks were installed.
- Symposium on "Digital Economy for New India" along with "DIGIDHAN" Exhibition was inaugurated by Hon'ble Union Minister of Steel.
- 7th Operating Committee meeting on "Automation & Information Technology" with the theme "Leveraging automation and IT for process excellence & production of Value Added Quality Steel" was hosted by RINL.



Hon'ble Steel Minister inaugurating the Symposium on Digital Economy for New India on 23-04-17 at RINL.

15.4 NMDC Ltd.

The following developments have been completed during the year:

- On-line vigilance clearance portal for Executives
- Superannuation Benefit Fund A/c System
- Sales A/c and Inventory Management System made GST compliant w.e.f. July'17.
- File Tracking system.
- Microsoft and Antivirus updates on the systems beyond working hours with auto shutdown facility.
- Migration to latest Web Logic Server and Oracle database 12c.

15.5 MOIL Ltd.

The Company has set-up a full-fledged Systems Cell in order to ensure an effective Computerization of all the functional areas of the Company. In order to ensure an adequate IT infrastructure, Steps taken by the System Department are as under:

- Installation of 450 Nos. of Computers, out of which 200 Computers is at Head Quarter and 250 Computers are distributed in Maharashtra and Madhya Pradesh Mines.
- Ethernet based Local Area Networks (LAN) on Windows and Linux platform is in place at Head Office, Nagpur. LAN has also been designed and developed at all the nine mines of the Company.
- Design, Develop & Hoisted a dynamic internet website on NIC Server.
- Design, Develop & Hoisted a dynamic intranet website on in-house MOILNET Server
- For effective sharing of Applications, databases/ information and other resources on regular basis all the Mines and HO are connected through MPLS VPN and VPN over Leased line and Broadband.
- For continuous knowledge acquisition, e-mailing and for inter unit data transfer facilities all the concerned officials of Head Office have been provided with internet connection through a 40 Mbps (1:1) internet leased line on OFC. All the mines are provided with leased line/broad band internet connections.
- All Procurement of goods valuing Rs. 2 lakhs and above is through e-procurement portal of MSTC to bring transparency in procurement process.
- MOIL has implemented ERP in the Company and all the business transactions are carried out in SAP.
- ERP implementation at MOIL envisages seamless integration of all business processes, enable decision making based on information that is visible and transparent across all levels. With a single transaction base that is shared, updated and drawn upon by the entire organization, standardization of all the master data across business functions are expected to be achieved.
- State of the art Data center for ERP is designed and commissioned at Corporate office, Nagpur.
- All the routine business transactions are shifted to SAP from the existing legacy systems.

15.6 MSTC Ltd.

- STQC Certification on e-Procurement services was received which is valid till April'18 after clearing audit conducted by STQC Kolkata that includes all the testing like Functional testing, CVC and IT Act compliance Audit, Web Application Security Testing, Performance Testing, Vulnerability Assessment & Penetration Testing.



- ISO 27001:2013 certification is in place and was re-certified after clearance of recertification audit by STQC and this certificate is valid up to 12th June, 2020 and surveillance audit is carried out every year.
- ISO 9001:2015 certification is also maintained as per standards and this certificate is valid up to 30th. May, 2020.
- MSTC Systems division is CMMI Level 3 appraised since 2013. The same was renewed this year for another three years with a validity up to 27-06-2019.
- Online Minor Mineral Block auction for the States of Rajasthan/Chhattisgarh /UP /others have been developed & implemented.
- Multi currency multi stage events with global participation have been developed and successfully implemented for NMDC as mentioned in MoU.
- Customized e-procurement solution for IOCL Export has been developed and made live where global participation is there.

15.7 Ferro Scrap Nigam Ltd. (FSNL)

- FSNL has successfully implemented Multi-Protocol Label Switching (MPLS) connectivity between Corporate Office and it's six major units (Bhilai, Bokaro, Burnpur, Rourkela, Durgapur and Vizag).
- Integrated ERP package titled, "Integrated Information Management System (IIMS) is under implementation phase.
- Disaster Recovery (DR) Data Centre establishment is under implementation phase.

15.8 MECON Ltd.

MECON's offices at Ranchi, Bangalore and Delhi are equipped with state-of-the-art hardware, network and various Engineering softwares like REBARCAD, TEKLA, AERMODVIEW, STAAD.PRO, AUTOCAD, ETAP, CAESAR, PVLITE, AUTOPLANT, PDS etc. that facilitate quality design and timely completion of various projects.

MECON is using different project management software like Primavera, MS Projects and in-house developed project management software for planning and monitoring of different ongoing projects.

In-house developed web based applications like HR, Corporate Finance, Project Finance, MIS, Competency Mapping, e-Archive are in use for day to day activities.

MECON has also developed GST System for preparing GST Invoices to Clients and processing the GST Bills received from Vendors. These application software modules are integrated through a common information portal (www.meconinfo.co.in).

15.9 KIOCL Ltd.

The Information Technology is used in KIOCL since inception across all the plants and offices. Main areas covered in the scope of IT activities are:

- Inventory and Materials Management: The Company is using computerized inventory accounting and control system since 1980s. The design by Canadian mining companies which has unique procedures, forms and the codification with check digits was adopted. Later the System was upgraded and migrated to a web based platform.
- Finance and Accounting: GST was rolled out in KIOCL w.e.f. 1st July, 2017. KIOCL has made necessary changes in accounts and billing software for accounting transactions and billing under GST Intimation has been conveyed to all stake holders (Suppliers and Customers) to intimate their GSTNs for updating record and also our GSTN was conveyed to them individually as well as

published in KIOCL website. Help desk e-mail id i.e. gsthelppdesk@kioclltd.com was created for assistance of stake holders regarding GST implementation and smooth transition.

The payroll accounting and generation of pay slips were computerized in the 80s. Now all major activities of finance and accounting system are fully automated on a web based platform with required reporting features. All payments are done through RTGS/ online/through Bank. All transactions are 100% cashless in Corporate Office as well as Plant.

- IT- Infrastructure: Most of the communications and inter-office correspondences in the organization are carried out through the e-mailing system. The Office Automation is extensively used, thus reducing the use of papers. The infrastructure hardware and software are periodically upgraded and maintained. The company has deployed all-IP structured UTP based data networks with a fiber optic backbone at Mangalore and Bangalore. The 8 MBPS leased line at Mangalore and Bangalore and the internet connectivity at Kudremukh is through VPN to provide internet connectivity at the locations. The VPN connectivity thus provides a single network access to all the applications through different locations of the Company
- Video Conferencing: The internet leased line and the ISDN connections are used for Video Conferencing at Mangalore and Bangalore. The facility enables the meetings to be held across the locations periodically online.
- E-Commerce: Introduction of E-tendering, E-procurement and RTGS has resulted in reduced paperwork, increased transparency and reduced time. The sale of pellets is carried through E-Tender by a Class i/ii RSA/SA agency with STQC certification. This has reduced the price discovery time considerably. All the procurements above a threshold value are done through e-Tender
- Plant Process Automation: All the plants of KIOCL are fully automated and controlled from the Central Computer Rooms. This has resulted in reduced Manpower requirement, higher Man and machine safety and increased life of the equipments. The data collected through computerized control system is used in carrying out, periodic preventive maintenance, estimation of components life thus resulting in increased productivity.

15.10 EIL, OMDC and BSLC

These companies have taken initiative to publish all tenders /EOI in Companies Corporate Website and Central Public Procurement Portal (CPP Portal). Procedure for Sale of Iron Ore and Manganese Ore is designed through e-auction mode only. Biometric based Attendance System and CCTV based surveillance system is installed at Corporate office. Maintenance of Leave records and processing of salaries is being done through customized payroll system. Tally based Accounting Package is being used to payment vendor bills and different employee entitlements through RTGS and e-payment mode.



CHAPTER-XVI

SAFETY

16.1 Introduction

Safety is an important aspect in functioning of any industry. It is important not only for its employees and workers but also for the environment and the nation. Iron and Steel production being a complex and hazardous activity, needs to prevent injuries and accidents, provide a healthy working environment and guard against all possible hazards and risks to be adequately recognised and taken care of.

16.2 Steel Authority of India Limited (SAIL)

Salient aspects of Safety Management System & Practices in SAIL include the followings:

16.2.1 Management Commitment

Ensuring accident free working in steel plants has been one of the prime priorities of the SAIL Management, which is committed to achieve the target of 'Zero Accident'.

Safety is monitored at the highest level of management i.e. Chairman and Directors' level as well as by the Chief Executives of respective plants/units to provide impetus on inculcating safety awareness and improving human behavior towards safety. Safety is discussed as first item in all appropriate forums, and directions are issued for adoption of all requisite measures to bring continuous improvement in safety standards.

SAIL is implementing OHSAS-18001, an advanced Safety Management system and they also have an 'Occupational Health and Safety Policy'.

16.2.2 Safety set up in SAIL

Full-fledged Safety Engineering Department looks after the safety management aspects under respective Head of Works of all Plants & Units of SAIL. At corporate SAIL Safety Organization (SSO), Ranchi also coordinates and monitors the operational/fire safety activities undertaken at different plants/units of SAIL and provides appropriate corporate thrust on safety management at organization level.

16.2.3 Systems & Procedures

- Conformance with Management systems like OHSAS-18001:2007 and SA 8000:2008.
- Safety aspects are incorporated in Standard Operating Procedures (SOPs), Standard Maintenance Procedures (SMPs) and Safe Work Instructions (SWI) and adhered.
- Work permit system followed for safe execution of jobs.
- Protocols framed and adhered for Capital / Major repair jobs.
- Unsafe acts and conditions are identified during preventive inspections/surprise checks and control measures taken and followed up.
- Joint inspections are conducted for fire prone areas including Cable galleries, Oil cellars etc and functioning of fire detection & protection systems are closely monitored. Mock drills are conducted for emergency preparedness.
- Worker's participation in Safety Management is encouraged through Apex/ Departmental Safety Committees at Plants / Units. Also at National Steel Industry level through Joint Committee on Safety, Health and Env't. in the Steel Industry (JCSSI), secretarial functions of which is managed by SSO.
- Specific Medical examination made mandatory for issuance of Height Pass for Working at Height and also for Crane Operators and Mobile Equipment Operators.

- Inter plant networking in Occupational Safety & Health for coordination and monitoring established by SSO for which NOHSC, BSP is functioning as the Central agency.
- A MOU has been signed with NSC India for Safety Audit and Training for utilizing the expertise of both SAIL & NSC in SHE activities.

16.2.4 Safety Audit / Monitoring

Safety Audits are conducted at Plants and Units in following manner.

- Internal Safety Audits by Safety Engineering Deptt. of respective Plants.
- Safety Audits by SAIL Safety Organisation associating representatives from sister Plants/Units.
- Safety Audits by external agencies e.g. NSC,India, agencies recommended by Regional Statutory Authorities, OHSAS auditors etc.
- Management review for sustaining accreditation to OHSAS-18001,SA 8000 etc.
- Meeting of 'Heads of Safety' and 'Heads of Fire Services' of Plants/ Units are organised at specified interval.
- APP for Safety and Fire Services activities are formulated for each plant/unit and SSO.
- Round the clock safety surveillance made for all major Capital repair / Shutdown jobs to ensure safe completion of the jobs.
- Videoconferencing started with all plants/units by SSO.

16.2.5 Awareness & Training

- Awareness generation drives and campaigns are launched time to time for enhancing the standard of Safety, Occupational Health & Work Environment.
- Information pertaining to Safety issues is telecast through local TV network of Plants.
- Skill oriented job specific safety training is imparted in plants/ units at regular interval.
- Audiovisual aids and Safety films are used during imparting Safety trainings.
- Need based Training programme e.g. 'Safety Management', 'Chemical Safety', 'HAZOP study', 'Safety Audit' and 'Process Safety Management' was organised by SSO with the help of external faculty for the Departmental Safety Officers/ Line Managers / Safety Inspectors of plants and units.
- Workshop on 'Roles and Responsibilities of GMs/ HODs' started.

16.2.6 Usage of Personnel Protective Equipment and Safety Devices

- User friendly Personal Protective Equipment (PPE) are provided and its usage are monitored.
- Full -body harness with double lanyard is used for height safety.
- Advanced PPEs, Safety devices, Gas monitoring devices are also introduced time to time.

16.2.7 Contractor Workers' Safety

Among the identified thrust areas, high priority has been accorded towards enhancing safety standards at contractor's work areas in view of their deployment in both Projects & Works related jobs. Concerted efforts are being made to train and educate the persons coming from different socio economic background about safe working inside works. Guidelines in vogue in this area include safety and penalty clause in contracts, system of site inspections and issue of safety clearance before start of jobs, deployment of safety officers etc. Two day Induction Training module has been prepared for implementation by all plants and units.



16.2.8 Accident Analysis, Investigation & Compensation

- Reportable Lost Time Injury Frequency Rate (RLTIFR) which is reportable accident per million man-hours-For the period April 2017-Dec 2017 : 0.15
- All accidents are investigated, analysed and remedial actions taken to prevent recurrence.
- Recommendations of 'On- the- spot study' of fatal accidents are disseminated amongst all plants & units for implementation of relevant actions to prevent its recurrence. Responsibility for each fatal accident is fixed and actions are taken accordingly.
- In case of regular employees, the compensation is paid as per the company policy whereas for contract labour, compensation is paid as per the provisions of Employees State Insurance Scheme by the Employees State Insurance Corporation.

16.3 Rashtriya Ispat Nigam Ltd. (RINL)

16.3.1 Management Commitment

Continuous efforts of RINL on the implementation of safety standards, monitoring of risk control and proactive measures have resulted in reduction / elimination of potential hazards. Several measures are being taken up to achieve zero accident and to bring positive safety culture in the company. Routine and non-routine activities in the plant have been identified including the Expansion area as part of OHSMS and Hazard Identification and Risk Assessment (HIRAs) was carried out. All the safety controls and measures are identified and same are being monitored and implemented for all the activities.

16.3.2 Safety setup in RINL:

To encourage employees' participation in Occupational Health and Safety Management, one Central Safety Committee and 30 Departmental Safety Committees have been formed with equal participation from recognized trade union representatives and management representatives.

16.3.3 Safety Promotion

The highlights / measures taken during the year 2017-18 (up to December, 2017):

- The frequency rate reduced to lowest level of 0.11 since inception, as against 0.17 of last year.No fatal accidents have been reported.
- Special Safety audit was conducted by internal teams consisting of Safety Engineering Department and members from the concerned department, as per the directives of Ministry of Steel, in December, 2017.
- Five RINL-VSP employees won the awards in the National level safety competitions conducted by JCSSI at RANCHI.
- Ispat Suraksha Puraskar Awards - two nos in 2017, for no fatal accident in Rolling Mills & COCCP Zones for the years 2015 & 2016.

16.3.4 Safety Audits and Inspections

Internal safety audits have been conducted as per the schedule in all major and minor departments by the concerned Departmental Safety Officer and by Qualified Internal OHSAS Auditors. External Safety Audits have been conducted once in a six months by the Lead Auditors of OHSAS Certifying Agency. All the non-conformities raised by the Auditors were complied.

As part of pro-active approach, special safety inspections were carried out in all major departments for identifying non-conformances (Unsafe-Acts/Unsafe-Conditions) and same were rectified. In addition to that Regular inspections were also conducted throughout the plant by the Zonal Safety Officers. All the points raised by them are being complied.

All accidents and incidents were investigated and remedial measures were implemented in all departments. Round the clock monitoring is done by safety personnel during capital repairs and major activities in the plant.

16.3.5 Emergency Management Plan

To ensure the emergency preparedness during the emergency situations, comprehensive emergency management plan has been devised in Visakhapatnam Steel Plant. A Central Control Room at Plant Control has been identified to co-ordinate various activities during any emergency situations.

16.3.6 Safety Training and Awareness Campaign

About 5623 regular employees were covered in regular safety training programmes and nearly 1352 contract workers were given safety induction training and refresher training. Apart from that, specialized safety training programmes were conducted regularly in the area of Behavioural Based Safety, Legal & Other requirements, Safety in Material Handling, etc.

16.4 NMDC Ltd.

NMDC has its training centers in all its projects. They are equipped with infrastructure as required under Mines Vocational Training Rules. These centers cater to the needs of basic training, refresher training and training for skilled workers and also for those injured on duty. In each mining project of NMDC sufficient number of workmen inspectors are nominated / appointed for mining operations, mechanical and electrical installations as per statutory requirements. Safety Committees have been constituted in every operating mine and safety meetings are held every month discussing the safety matters and corrective actions related to work atmosphere.

Man days lost per 1000 man days worked for the year 2017-18 (up to Dec. '17) is 0.54.

16.4.1 Integrated Management System (IMS):

All the NMDC Projects i.e. BIOM, Kirandul Complex; BIOM, Bachel Complex; Donimalai Iron Ore Mine; Diamond Mining Project, Panna and Research & Development Centre are accredited with Integrated Management System Certification comprising of (QMS) ISO 9001:2008; (EMS) ISO 14001:2004; (OHSMS) OHSAS 18001:2007 and SA 8000:2014 Standards.

16.4.2 Safety Management System:

Safety Management System has been implemented and Risk Assessment Studies are being conducted regularly at all mines.



Tripartite safety committee meeting at NMDC



16.5 MOIL Ltd.

All the Mine working is being regularly supervised by Competent Supervisors like Mine Mate, Mine Foremen & qualified Mining Engineers. Safety Inspections are also being carried out during the working shift by Workmen, Inspector, Safety Officer, Mine Manager & Agents. Internal Safety organization headed by General Manager (Safety) at H.O. Level is coordinating with DGMS & carries out inspection of the mines from time to time.

Regular Safety Committee meeting are held at mines where day to day Safety aspects are discussed with the participation of workers representative. Unsafe Acts and Mine Accidents are analyzed in details to avoid any recurrence.



Hon'ble President of India Shri Ram Nath Kovind giving away award for Lowest Injury Frequency Rate for Beldongri Mine, MOIL

16.5.1 Risk Assessment and Risk Management: Risk assessment study has been conducted in all major manganese mines, underground as well as opencast mines by experts and safety management plan has been made as per the requirement of DGMS. The main purpose of risk management plan is to identify risk in various activities, analysis of risk evaluation and prioritization of risk management and mitigation plan of risk.

16.5.2 Occupational Health and Safety Management (OHSAS 18001:2007) In the area of occupational health and safety management system, MOIL received OHSAS 18001:2007 certificate for Balaghat, DongriBuzurg, Chikla, Kandri, Munsar, Gumgaon, Tirodi and Ukwa mines.

16.6 MSTC Ltd.

MSTC being a trading organisation does not have any plant/workshops. However, necessary measures are there in all MSTC's offices including attendance of a doctor during office hours.

16.7 Ferro Scrap Nigam Ltd. (FSNL)

Employees are constantly motivated to observe safety precautions & safe working practices and regular monitoring in this regard is ensured by FSNL. To ensure proper training of employees on safety & allied topics, Safety & related aspects are widely covered in the training calendar prepared for the whole year. Reputed & renowned agencies like National Safety Council etc. are engaged for imparting training to the employees.

Other measures for awareness & motivation of the employees towards Safety & Safe working practices, Essay/Slogan writing competitions, debate competitions, etc. are also held during Safety Day celebrations in the company. Suitable prizes are given to the winners of such competitions, by which enthusiastic participation of the employees in such competitions are ensured.

16.8 MECON Ltd.

MECON is an engineering, consultancy & contracting organization offering full range of services required for setting up of Project from concept to commissioning including turnkey execution and neither a manufacturing nor process Industry. MECON has prepared Safety Policy Statement which is regularly communicated to the employees during orientation training. Some of the features of the Safety Policy Statement have been incorporated in the Conduct, Discipline and Appeals Rules of the Company so as to ensure proper compliance of Safety Rules. No reportable incidence of accident has occurred in MECON.

16.9 KIOCL Ltd.

KIOCL Ltd. has a separate department called Training & Safety Department and Occupational Health Centre wherein an Engineer and a qualified Doctor together are in charge of looking after safety & health aspects of employees at Plant level.

- KIOCL is compliant with OHSAS : 18001 : 2007 certification for Occupational Hazardous and Safety Management System.
- The onsite emergency plan approved by Director of Factories is in existence for both Pellet Plant and Blast Furnace Unit.
- Safety Inspections are carried out regularly once in two months by the Safety Officer along with concerned department engineers and Safety Committee members. Safety aspects are discussed in the safety meetings, which are held once in every quarter and suitable actions are taken for implementations of the shortfall.
- Workers participation in safety Management System is one of the important criteria adopted by the Company. Area-wise Safety Committees are formed. Workers participation in these Safety Committees is ensured. The Safety Committee meetings were conducted on regular intervals during 2017-18 i.e. on 07.04.2017, 07.07.2017 & 05.10.2017.
- Various Training programmes are being conducted to inculcate safety consciousness and to develop the human resources. The Refresher Training on various topics like SOPs and Maintenance activities, first aid, Fire fighting training, Awareness programmes on Environment, Occupational health, Safety, Vigilance Sustainable development, Productivity etc. are covered. The total training of 4050 mandays is provided for regular employees on above said subjects including on-the-job training for internal Junior Trainees and 220 mandays for contractor's workmen on Work place Safety.
- The onsite Emergency Mock Drills are conducted once in 6 months in Pellet Plant and Blast Furnace Unit.

16.10 EIL, OMDC and BSLC

Mining companies under the Bird Group take safety measures according to provision of the Mines Act, 1952 in terms of Rules, Regulations and Guidelines towards safety of employees engaged in mining and allied activities. Necessary safety devices, tools and implements have been provided to the concerned employees. Safe practices pertaining to different activities in mining operations are displayed through participation of workers in safety exhibitions locally as well as regional basis. New practices are also regularly adopted by visiting similar mines. Basic and refresher training is imparted to the workers in the Vocational Training Center & from different disciplines and operational activities in the mines.



CHAPTER-XVII

WELFARE OF WEAKER SECTIONS OF SOCIETY

17.1 Introduction

The Ministry of Steel complies with the Government guidelines with regard to welfare of weaker sections of the society. Out of total manpower of 237 employees in the Ministry as on 31.12.2017, 38 belonged to SCs (16.03%), 9 belonged to STs (3.80%) and 20 belonged to OBCs (8.44%). The posts belonging to Secretariat Services are filled by Department of Personnel & Training.

17.2 Steel Authority of India Ltd. (SAIL)

Presidential Directives on Reservation for Scheduled Castes and Scheduled Tribes in Appointments in Public Enterprises are continued to be implemented. As on 1.12.2017, out of total manpower of 78742, 12943 belonged to SCs (16.44%), 11549 belonged to STs (14.67%) and 10293 belonged to OBCs (13.07%).

SAIL plants and units including mines are situated in economically backward regions of the country with predominant SC/ST population. SAIL has contributed to the overall development of civic, medical, educational and other facilities in these regions.

17.3 Rashtriya Ispat Nigam Ltd. (RINL)

Total manpower of RINL as on 31.12.2017 was 17,458 comprising of 2,899 SCs (16.61%), 1,303 STs (7.46%) and 2,467 OBCs (14.13%).

Grant under Dr. B R Ambedkar Merit Recognition Scheme - SC and ST Categories

RINL Grants are meant exclusively for the children of employees belonging to Scheduled Castes and Scheduled Tribes. Under this, an award of Rs.1500/- per month for full duration of the course is given to those children who qualify 12th standard or intermediate exam and seek admission in Degree courses in Engineering/Architecture/Medical/Veterinary/Dentistry/ Agricultural Sciences/Pharmacy/Law. A total of 08 such awards are given to children of SC employees and 04 such awards to children of ST employees.

17.4 NMDC Ltd.

The total number of employees in NMDC as on 31.12.2017 is 5438. Out of which 925 belongs to Scheduled Castes (17.01%), 1173 belongs to Scheduled Tribes (21.57%) and 996 belongs to Other Backward Classes (18.32%)

17.5 MOIL Ltd.

MOIL is a labour intensive organization with 6131 employees on its rolls as on 31.12.2017

About 80% of the total strength belongs to SC/ST/OBC including (SC 20.23% ST 25.69% OBC 34.28%) belonging to SC/ST/OBC. Our Company is also taking keen interest in development of the tribal population living in the vicinity of the mines situated in remote areas by:

- Adopting villages near the mines and provided drinking water facilities, road maintenance, periodical medical checkups and treatment to the people living in these villages.
- Organizing training classes for self employment scheme.
- Other welfare measures for the development and upliftment of tribal women such as conducting sewing classes, adult literacy classes, AIDS awareness programmes, propagating such other programmes by display of posters, notices and banners, leprosy awareness programmes etc.

17.6 MSTC Ltd.

The total number of employees in MSTC Ltd as on 31.12.2017 was 329, out of which, 61 belonged to SCs (18.54%), 18 to STs (5.47%) and 68 to OBCs (20.66%). Out of 33 persons recruited during the year, 9 belonged to OBC, 6 to SC and 1 to ST.

The directives in matters concerning recruitment and promotion regarding the weaker sections have been duly complied with. Other directives issued from time to time regarding reservation, relaxation, concession, etc. for the SC/ST/OBC/PWD candidates pertaining to the policies and procedures of the Government were duly observed. All Departmental Promotion Committees and Selection Committees (in case of recruitment) constituted during the year had representatives of SC/ST community.

During the year, 1 SC, 4 ST and 12 OBC employees of the Company, were sponsored for training programmes, both In-house and Institutional training programmes, out of which 2 employees were PWDs. In addition, all possible cooperation and assistance was provided to the MSTC SC/ST Employees' Council, which function primarily to safeguard the interest of the reserved section of employees of the Company.

17.7 Ferro Scrap Nigam Ltd. (FSNL)

Out of the total manpower with the Company i.e. 809 as on 31.12.2017, 157 belonged to SCs (19.41%), 90 belonged to STs (11.12%) and 128 OBCs (15.82%). The Promotion Policy as well as various welfare measures adopted by FSNL takes adequate care of welfare of the employees belonging to weaker sections of SC/ST/OBC communities.

17.8 MECON Ltd.

As on 31.12.2017, out of 1337 employees on the strength of the Company, 251 belonged to SCs(18.77%), 133 STs (9.94%) and 163 OBCs(12.19%). The Company is fully aware of its social responsibilities for development and welfare of weaker section of the Society. The Company has adopted adequate measures for safeguarding their interests and welfare such as Community Education Scheme, Resource Generation Scheme, Vocational Training Programme in Shyamali Colony, Ranchi, Community Health Programme, assistance to disabled persons at Cheshire Home, village based programme, safe drinking water projects etc.

17.9 KIOCL Ltd.

The total number of employees in KIOCL as on 31.12.2017 is 895 out of which 139 persons belong to Scheduled Caste (15.53%), 50 persons belong to Scheduled Tribe (5.58%) and 154 persons belong to Other Backward Classes (17.20%).



Meeting of KIOCL Ltd with the Parliamentary Committee on Welfare of Scheduled Castes and Scheduled Tribes at Mangaluru on 16.05.2017



The Company has setup full-fledged facilities at Kudremukh and Mangalore by establishing a modern township, hospital, recreation facilities etc. 10% of type "A" and "B" quarters and 5% of "C" & "D" type quarters are reserved for SC/ST employees.

There is a regular interaction with the Management and SC/ST Welfare Association at Kudremukh, Mangaluru and Bengaluru. The grievances of SC/ST employees are discussed and appropriate action is taken to redress their grievances.

17.10 EIL, OMDC and BSLC

The total number of employees in Bird Group of Companies as on 31.12.2017 is 1112. About 82.01% of the total strength (912 out of 1112) belong to SCs/STs/OBCs, out of which, 241 belonged to SCs (21.67%), 530 to STs (47.66%) and 141 to OBCs (12.67%).

CHAPTER-XVIII

VIGILANCE

18.1 Activities of Vigilance Division of the Ministry of Steel

The Vigilance unit of the Ministry is headed by a Chief Vigilance Officer (CVO) of the rank of Joint Secretary appointed on the advice of the Central Vigilance Commission (CVC). The CVO with one Dy. Secretary, one Under Secretary and supporting staff, functions as the nodal point in the vigilance set-up of the Ministry. The vigilance unit is inter-alia responsible for the following in respect of the Ministry of Steel and the CPSEs under its administrative control:

- Identification of sensitive areas prone to malpractices/temptation and taking preventive measures to ensure integrity/efficiency in Government functioning;
- Scrutiny of complaints and initiation of appropriate investigation measures;
- Inspections and follow-up action on the same;
- Furnishing the comments of the Ministry to the Central Vigilance Commission (CVC) on the investigation reports of the Central Bureau of Investigation (CBI);
- Taking appropriate action in respect of departmental proceedings on the advice of the CVC or otherwise;
- Obtaining first and second stage advice of the CVC, wherever necessary;
- Appointment of CVOs in the CPSEs in consultation with CVC and DoP&T;
- Examination of complaints regarding allegations against the officials/officers of the PSUs under this Ministry for appropriate action;
- Maintenance and scrutiny of immovable property returns of officers and staff working in this Ministry;
- Eight CPSEs are functioning under the administrative control of the Ministry. The Vigilance Unit in all CPSEs is headed by a CVO appointed by DOP&T.

The Ministry reviews the vigilance activities in the Steel CPSEs through individual meetings and through monthly checklist, periodic returns and statements sent by the CVOs. Other than this, depending on the backlog of pending references, the Ministry also held discussions with the CVOs of concerned CPSEs on the need basis. All circulars containing instructions and guidelines on different aspects of vigilance management received from the CVC, were also circulated to the CVOs of the CPSEs for compliance. Progress thereon, in the form of follow up action taken, was monitored.

During 2017-18 (1.4.2017 to 31.12.2017), 26 CVC references were received and 22 CVC references were disposed off. From other sources, 81 complaints were received and 78 were disposed off.

During the period meetings were held with the CVOs of Steel CPSEs wherein the issues regarding transparency in recruitment process, adoption of fair promotion policy, transparency in public procurement, increasing of e-procurement, regular updation of purchase manual, conducting of DPCs within stipulated time, rotation of officers of occupying sensitive posts in CPSEs, disclosure of APARs of all executives were discussed and necessary instructions were issued to all CMDs/CVOs of Steel CPSEs.

All CMDs/CVOs were also advised to ensure that 100% procurement should be shifted to e-procurement and all secondary items/material should be purchased/procured through GEM portal of DGS&D and all other items by using MSTC platform. They were also advised to install/provide POS like machines for digital payment from their CSR funds in line with GOI's recent initiative of less cash economy.



18.2 Steel Authority of India Ltd. (SAIL)

SAIL vigilance emphasizes on preventive vigilance through checks, scrutiny, examination and continuous review of existing systems and procedures and suggests system improvements thereby increasing organizational effectiveness. There is regular thrust on systemic changes & leveraging technology for transparent system and procedures. Following major thrust areas were identified and undertaken during the period April 2017 - December 2017:

- Surveillance in the areas of receipt, sampling and testing of high value raw materials
- Use of Business Intelligence (BI) Module while identifying areas of scrutiny of files and surprise checks at major plants and Central Marketing Organisation.
- Scrutiny of change orders issued during execution of projects.
- Scrutiny of Audit Report.
- A total of 102 training/awareness programme/workshops involving 3090 participants were organized at various plants and units of SAIL, for enhancing awareness on System and Procedures followed in SAIL.
- A total of 1680 periodic checks including file scrutiny and Joint Checks were conducted in vulnerable areas of different Plants / Units of SAIL, out of which 23 checks were taken up for detailed investigation, Preventive/Administrative recommendations were made in 385 cases and in four (4) cases System Improvements were recommended.
- Twenty one System Improvements Projects (SIPs) were undertaken at different Plants/units of SAIL after identifying concern areas.
- Business Intelligence:

With a view to introduce analytics in the areas of procurement & contracting, so as to generate exception alerts and red flags for corrective action / system improvements, Business Intelligence (BI) Modules are being developed in the existing SAP/ERP system in Integrated Steel Plants and CMO.
- CCTV Cameras:

Certain vulnerable points were identified in the plants/units such as weigh bridges, dispatch and unloading points, entry and exit points for goods, places of sampling and chemical analysis of received materials etc., on the advice of SAIL Vigilance. CCTV and allied data recording systems have already been installed at some of these places for monitoring and surveillance.
- E-procurement:

In an initiative towards maximizing e-procurement systems for all procurements / contracts to increase transparency in tendering process, Vigilance deptt had advised to incorporate e-procurement in the areas of Contract Cells and Township procurements also. This has already been implemented in most of the Plants/Units.
- Vigilance Awareness Week was observed in SAIL during 30th October to 4th November 2017 on the theme of "**My Vision-Corruption free India**". During the week workshops/ sensitization programmes, talks by eminent speakers like Ex- Secretary, Government of India, Customers meet, Anti-corruption March / Walkathon, quiz, essay, slogan, drawing and debate competition were organized for the employees and their families. As outreach measures, various events like Speech/ Oratory competition, Poster/Drawing competition, Essay/Slogan competition, Inter school debate competitions, Panel discussion, Quiz competition were organized across various townships of SAIL and metro cities of Delhi and Kolkata, in which around 500 students from 17 Colleges more than 2300 students from 84 schools participated.

18.3 Rashtriya Ispat Nigam Ltd. (RINL)

Vigilance Department of RINL took various measures to promote Transparency and Integrity in RINL with prime focus on Preventive Vigilance. System studies were conducted on the procedures being followed in procurements, sales and award of contracts including expansion area for improving existing procedure and systems, wherever required. Intensive examination of contracts / purchase orders was conducted and audit paras / internal audit reports were perused. Identification of Sensitive Posts, conducting Surveillance Checks, random scrutiny of bills were also undertaken. Besides, Special Vigilance Awareness drives were also undertaken to create awareness amongst the employees and other stake Holders on relevant aspects of vigilance, as a functional tool for Management to usher in Fairness and Equity.

Information Technology has been leveraged for bringing about greater transparency through e-initiatives like e-auction, e-reverse auction and e-payment etc. As on 31.12.2017:

- All procurement tenders of value more than Rs. 2 lakhs, other than single tender / proprietary cases, were done through e reverse auction.
- 100% of the disposals by Stores were done through e auction.
- 100% of Marketing transport contracts were finalized through reverse e-auction.
- 99.98% payments were made through e-payments.

The following activities were also undertaken to promote Transparency and Integrity in RINL during the period April 2017 to December 2017:

- Conducted 248 system surveillance checks including 42 quality checks and 51 rail/road re-weighments.
- Organized 21 Vigilance Awareness Sessions on Preventive Vigilance / Ethics.
- 11 Systems studies for improving procedures, rules, policies, guidelines etc were taken up and communicated Vigilance observations/ recommendations to the concerned Departments.
- Vigilance Awareness Sessions were also held at the Naval Science & Technological Laboratory, Visakhapatnam, Employees Provident Fund Organization, Visakhapatnam and CISF, RINL, VSP.

18.4 NMDC Ltd.

NMDC Vigilance Department guides and facilitates impartial, fair and transparent decision making and gives priority to preventive vigilance, with proactive measures. Department had taken several initiatives during the year. Various programmes were conducted for awareness on vigilance matters for the employees of the Corporation. Vigilance Department in NMDC is certified under ISO 9001:2008 conforming to the Quality Management System.

During the year (April - December 2017) 65 surprise checks, 64 regular inspections and 01 CTE type inspection was conducted by Vigilance Department. Complaints received were taken up for investigation and necessary disciplinary action wherever required was recommended.

As part of implementation of "Leveraging of Technology for transparency" in all the transactions, information about limited tender enquiries above Rs.30 lakhs, details of contracts concluded above Rs.10 lakhs, works awarded on nomination basis, single tender basis above Rs.1 lakh, information regarding bill payments to the contractors etc., are provided on the company's website. Efforts to encourage e-procurement, e-tender, e-auction are being made continuously.

NMDC has adopted implementation of Integrity Pact since November 2007. The threshold limit of Rs.20 crores in case of civil works and contracts and Rs.10 crores in case of procurement is being followed. Till date, the Integrity Pact is entered into 138 contracts with a value of Rs. 20,833.01 crores. As such, more than 90% of the total value of the contracts is covered under Integrity Pact.



The Vigilance Awareness Week 2017 was celebrated from 30.10.2017 to 04.11.2017 with the administering of Integrity Pledge to all the employees by the Director (Technical). The theme for this year was "My Vision - Corruption Free India".

18.5 MOIL Ltd.

The functioning of vigilance department includes preventive as well as proactive vigilance with the main thrust on the "System Improvement" in the organization. Some of the important activities of the vigilance department during the year 2017 are as under:

- **ISO 9001-2015 certification:** Vigilance department is awarded ISO-9001:2015 certificate by the International Certification Services Pvt. Ltd, Mumbai accredited by Joint Accreditation System of Australia and New Zealand for Quality Management System to provide vigilance services to the management of MOIL Ltd. Certificate is valid till 21.05.2020.
- **Inspections:** During 2017, 60 periodic and surprise inspections carried out.
- **E-governance:** E-procurement is being done for purchases and work contracts above threshold value. The threshold value for purchase and Works contracts is Rs. 2.00 lakhs. The disposal of scrap / surplus items and sale of some grade of Manganese Ore are being done through e-auction.
- **Training Programmes:** During 2017, vigilance department conducted 6 training programs at Corporate Training Center and at Munsar Training Center, covering 209 (832 hrs) employees on vigilance awareness.
- **Job Rotation:** 265 posts have been identified for job rotation considering the sensitivity of the posts and are being rotated by the management.
- **Vigilance Awareness Week:** Vigilance Awareness Week was observed from 30th October to 4th November 2017 at all Mines /offices of MOIL Limited. On this occasion vigilance department came out with the 6th annual issue of vigilance magazine "Shichita". Various competitions, workshops, seminars, Nukkad Natak, vigilance rally etc were organized during the week for bringing out vigilance awareness among employees, students of school and colleges and public at large.



Vigilance Awareness Week celebrations at MOIL

18.6 MSTC Ltd.

The prime focus of the Vigilance Department of MSTC has been on preventive Vigilance through the use of leveraging technology. The main thrust is to suggest systemic improvement in the identified vulnerable area of corruption in order to minimize the human interface in business transactions of the Company.

The highlights of some of the measures taken in this connection during 2017-18 are as under:

- Structured Meetings are being held quarterly by the CVO with the CMD.
- ISO Certification of MSTC Vigilance has been reassessed and upgraded to ISO-9001:2015 ensuring quality management integrated and aligned with the business strategies of the organization.
- Agreed List/ Officers of Doubtful Integrity list prepared for the year 2017.
- Interactive Sessions were being organized with employees both at the Head office and various regional offices/branch offices to create vigilance awareness.
- Training Programmes/Workshops were being organized for Vigilance Officials as well as line managers.
- Two categories of Sensitive Posts have been identified. One category of sensitive posts which are to be rotated and the other category which are being kept under watch but not to be rotated.
- Purchase & Service Contract Manual has been finalized & approved for implementation.
- Risk Management Policy for e-Commerce has been drawn up.
- Scrutiny of Annual Property Returns.
- Meeting with Independent External Monitor was held in the year to review the implementation of the Integrity Pact. The IP is part of the NIT document, Selling Agency Agreement which is uploaded on the MSTC Website in downloadable form and all Sellers are required to submit signed IP along with their bids. So far no representation/ complaints/disputes have been received in the matters of contracts and tenders under IP.

18.7 Ferro Scrap Nigam Ltd. (FSNL)

Vigilance Department of FSNL has been focusing on "Preventive & Proactive Vigilance" and accordingly co-ordinate with the HODs of the organization in improving upon the existing procedure & system to achieve the overall objectives of the Company.

Routine checks were carried out as a preventive measure in all the units and random scrutiny of the Property Returns of the officers was carried out. Apart from this, required reports/returns were submitted to Ministry/CVC and necessary follow up action was taken on the Minutes of Meeting of CVOs held by the Ministry time to time. As per the instruction of CVC and Ministry, structured meeting of CVO with the Managing Director is being conducted.

Vigilance Department has been overseeing the implementation of Integrity Pact. Till 31.12.2017, 285 nos. of contracts have been covered under the pact. Constant efforts are being made for adaptation of Leveraging technology for bringing transparency as per which all open tenders are hoisted in the Company's website, 5 National dailies and summary of work orders/Contracts, detail of bill payments above a pre-determined threshold value etc. is also posted on website every month.

Vigilance Awareness Week was organized in the company from 30th October, 2017 to 4th November, 2017 during which various activities like Slogan competition, Essay writing competition in School & Collage, pamphlet distribution in public places, workshop on the theme "My Vision - Corruption Free India" & preventive vigilance, taking pledge by the employees etc. were carried out to create vigilance awareness among the employees, giving its publicity in local News Papers.



18.8 MECON Ltd.

The Vigilance Department of MECON Ltd. has taken a number of initiatives, briefly mentioned below:-

- The Vigilance Awareness Week-2017 was observed commencing from 30th October to 4th November 2017 at MECON Head Office, Ranchi and MECON Site Offices at various other locations
- Till December 2017, MECON has signed Integrity Pact (IP) with 173 suppliers/contractors [Threshold value lowered for wider coverage : Rs.1 Cr. & above for EPC Projects and Rs.25 Lakhs & above for Town Admn. as well as for Inhouse Procurement].
- Vigilance Department follows a well-established Quality Management System (ISO 9001:2008) and has its own Vigilance Quality Manual
- Sensitive departments have been identified in the organization and thrust is laid on conducting Surprise/ Regular Inspections and scrutiny of files in these areas.
- All tenders irrespective of value are uploaded on MECON Website along with the tender documents, drawings and data, technical specification, etc. in downloadable form for greater transparency, barring some small emergency procurements. All tenders are also uploaded on CPP Portal.
- All payments to vendors are made through electronic fund transfer (NEFT/RTGS mode) except some small bills to local vendors.

18.9 KIOCL Ltd.

- Integrity Pact Programme (IP) was introduced in KIOCL from 01.01.2008. No complaints have been received under IP.
- ISO-9001:2008 Certificate of Vigilance Department has been re-validated.
- Inspections are being carried out regularly to ensure adherence to norms and eliminate deviations. During 2017-18 (till December, 2017), 3 CTE inspections, 25 surprise checks, 23 general inspections and 49 scrutinizes were carried out.
- Disposal of scrap/ surplus items is being done through e-auction, since September, 2004. E-reverse auction commenced from Sep-2010. The threshold value for e-procurement is fixed at Rs. 5 Lakhs and above During 2017-18 (upto December, 2017), 98.45% of contracts by value above the threshold are concluded under e-reverse auction. Payments above the threshold value of Rupees One Lakh are being made through electronic mode. During 2017-18 (upto December, 2017), 100% of payments above the threshold are made through e-payment (considering cheque payment also as e-payment).
- KIOCL has been using website in various areas from 2001. The main areas concerned are Contracts & Procurements, Applications for Registration of Contractors/ suppliers/ consultants / vendors etc. and status of bill payments to contractors / suppliers. All Tender documents, Notices and other proformas are posted on the websites.
- Accounts, Contracts, Projects, Technical Services, HR, Purchase and Stores manuals are posted on the Company's website. Updation of manuals is carried out on continuous basis.
- As per CVC circular, action is taken to ensure that tenders / contracts are posted in the website regularly every month, and are being monitored.
- During 2017-18 (upto December, 2017), Vigilance Department conducted 8 training programmes at three different locations.
- Vigilance Awareness Week was observed from 30th October 2017 at all the locations / offices of KIOCL Limited.

18.10 EIL, OMDC and BSLC

These Companies have its Vigilance Department headed by the Chief Vigilance Officer (CVO) of RINL, and assisted by one Vigilance Officer and PSO to CVO in Head office, Kolkata. In addition two Vigilance Officers (additional charge) are appointed for both OMDC mines, Thakurani and BSLC mines, Birmitrapur. The functions of Vigilance department include both preventive and punitive actions for all the mines of the company and for the Registered Office at Kolkata. Company's Vigilance department is continuing its efforts for systematic improvement to bring more and more transparency in working and conducted various training programme interactive sessions for creating Vigilance Awareness among the employees. As per the directives of Central Vigilance Commission the company observes "Vigilance Awareness Week" every year.

CHAPTER-XIX

GRIEVANCE REDRESSAL MECHANISM

19.1 Centralised Public Grievances Redressal and Monitoring System

Centralised Public Grievance Redressal and Monitoring System (CPGRAMS) has been implemented for facilitating public grievances in the Ministry and its PSUs. The CPGRAMS, is an online web-enabled system over NICNET developed by NIC in association with the Department of Administrative Reforms and Public Grievances (DARPG) with an objective of speedy redressal and effective monitoring of grievances by Ministries/Departments/Organisations of Government of India. The entire life cycle of the grievance redressal operation is (i) Lodging of the grievance by a citizen. (ii) Acknowledgement of acceptance of grievance by organisation. (iii) Assessment of grievance regarding follow up action. (iv) Forwarding and transfer. (v) Reminders and clarification. (vi) Disposal of the case.

The details of grievances dealt with in the CPGRAMS for the period from 01.04.2017 to 31.12.2017 are as under:

Outstanding as on 01.04.2017	Received during 01.04.2017 to 31.12.2017	Disposed of during 01.04.2017 to 31.12.2017	Pending as on 31.12.2017
86	1238	1209	115

A revised Sevottam Compliant Citizen's/Clients Charter has been finalized and implemented in the Ministry of Steel. Detailed status of adoption of 'Seven Step Model for Citizen Centric- Sevottam' in the Ministry and Steel PSUs is at Annexure XVI.

The position of the implementation of the judgment/orders of the Central Administrative Tribunal is given in Annexure-XII.

19.2 Steel Authority of India Ltd. (SAIL)

Effective internal grievances redressal machinery exists in SAIL plants and units, separately for executives and non-executives. The grievance procedure in SAIL has evolved after sustained deliberations and consent of employees, trade unions and associations.

The grievances in SAIL plants/units are dealt in 3 stages and employees are given an opportunity at every stage to raise grievances relating to wage irregularities, working conditions, transfers, leave, work assignments and welfare amenities etc. Such issues are effectively settled through the time-tested system of grievance management. However, majority of grievances are redressed informally in view of the participative nature of environment existing in the steel plants. The system is comprehensive, simple and flexible and has proved effective in promoting harmonious relationship between employees and management.

Status of Public/Staff grievances for the period 01.04.2017 to 31.12.2017 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2017	Grievances received during April to December 2017	Grievances disposed off during April to December 2017	No. of Grievances pending as on 31.12.2017
Public Grievances	23	682	682	23
Staff Grievances	16	260	267	9

19.3 Rashtriya Ispat Nigam Ltd. (RINL)

In RINL, structured formal and informal Grievance Handling System for redressal of grievances of employees exists, separately for Executives and Non-Executives. In the formal Grievance Redressal



Procedure for non-executives, a worker's representative is present in the committee. Further, both executives and non-executives grievance handling systems have a fixed time frame to redress the grievances.

Status of Public/Staff grievances for the period 01.04.2017 to 31.12.2017 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2017	No. of Grievances received during April to December 2017	No. of Grievances disposed off during April to December 2017	No. of Grievances pending as on 31.12.2017
Public Grievances	0	154	147	7
Staff Grievances	0	0	0	0

19.4 NMDC Ltd.

The grievance redressal machinery in NMDC is headed by a General Manager in the Head Office and by Head of Projects in each of the four production Projects. The CVO has been nominated as the nodal officer for monitoring the grievance redressal machinery. A link to the Government of India's portal for Public Grievances has been provided in the home page of NMDC's website for registering grievances.

Status of Public/Staff grievances for the period 01.04.2017 to 31.12.2017 is as under:

Category	Grievances outstanding on 01.04.2017	No. of Grievances received during the year (Apr - Dec. 2017)	No. of cases disposed off (Apr - Dec. 2017)	No. of cases pending as on 30.12.2017
Staff Grievances	04	16	19	01
Public Grievances	01	18	16	03

19.5 MOIL Ltd.

MOIL has its own grievance redressal procedure for Executives as well as non-executive employees. The redressal of grievance machinery in MOIL consists of one Grievance Officer nominated for at each unit/mine. The Grievance Officer nominated at Head Office co-ordinates with the Grievance Officers at the units for their effective performance.

Status of Public Staff Grievances for the period 01.04.2017 to 31.12.2017

Type of Grievances	Grievances outstanding as on 01.04.2017	No. of grievances as received during the period	No. of cases disposed off	No. of cases pending on 31.12.2017
Public Grievances	0	0	0	0
Staff Grievances	0	11	11	0

19.6 MSTC Ltd.

The company has an exclusive portal integrated into the corporate website www.mstcindia.co.in to register and monitor the grievances online. The portal provides a unique system generated code for the complainants to lodge and view the progress of the grievances registered online. Some grievances are also received at the CPGRAMS site and by post.

Grievance cells have been constituted at the Regional and Branch Offices as well. Normally the grievances are settled/resolved after examination of the grievances and obtaining comments of the concerned department/region/branch by the Grievance Committee. The Grievance Cells meet at periodical intervals to review the cases. Monthly Reports on the status of grievances received/disposed/pending are forwarded to the Administrative Ministry in the formats prescribed.

The Centralized Public Grievance Redress and Monitoring System (CPGRMS) is monitored regularly by Head Office.

Status of Public/Staff grievances for the period 01.04.2017 to 31.12.2017 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2017	Grievances received during April to December 2017	Grievances disposed off during April to December 2017	No. of Grievances pending as on 31.12.2017
Public Grievances	0	40	38	02
Staff Grievances	0	0	0	0

19.7 Ferro Scrap Nigam Ltd. (FSNL)

Status of Public/Staff grievances for the period 01.04.2017 to 31.12.2017 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2017	Grievances received during April to December 2017	Grievances disposed off during April to December 2017	No. of Grievances pending as on 31.12.2017
Public Grievances	1	0	1	0
Staff Grievances	0	1	1	0

19.8 MECON Ltd.

Public Grievances

By and large MECON does not have dealings with the public in general. But any specific complaints relating to any kind of harassment is treated as a grievance. Complaints from customers are taken very seriously and attended to. There is no grievance pending from the contractors/customers or public in general. MECON has nominated Nodal Officer under Centralized Public Grievances Redressal and Monitoring System (CPGRAMS) for public grievances and the name of Nodal Officer is published in the website of Ministry of Personnel, Public Grievances.

Employees Grievances

In MECON there is a three-tier grievance procedure for redressal of employees grievance. A Grievance Advisory Committee consisting of representatives of Executive and Non-Executive employees is operative to examine grievances of employees and submit recommendation for redressal. Further, there is a separate cell for redressal of grievances of SC/ST/OBC employees. At present, there is no staff grievance from any quarter. Generally employees prefer to take up their issues/grievances through their elected representatives of MECON Employees Union (MEU) in respect of non-executive employees and MECON Executives Association (MEA) in respect of executive employees both of which are recognized by the Company.

19.9 KIOCL Ltd.

KIOCL has a well structured and multilayered Public Grievances Redressal Mechanism including Dispute Resolution Mechanism. The Public Redressal setup in KIOCL has been introduced right from the Corporate Office at Bangalore to all the production units, project offices and liaison offices. Customers & stakeholders having complaints or grievances can interact with the organization through the following for Public Grievance / Dispute settlements: -

- Public Grievance Officers are nominated at all locations. The complainant can approach these officers in person or through written complaints or communicate through e-mail or contact on telephones.
- Customers meets are organized at regular intervals.



The development of Sevottam Compliant Citizen's Charter has been put in place in our corporate website: www.kiocltd.in. Company has provided a linkage in its website to the portal of Centralized Public Grievance Redress and Monitoring System (CPGRAMS) of Department of Administrative Reforms & Public Grievances for lodging and redressal of grievances.

Status of Public/Staff grievances for the period 01.04.2017 to 31.12.2017 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2017	Grievances received during April to December 2017	Grievances disposed off during April to December 2017	No. of Grievances pending as on 31.12.2017
Public Grievances	0	3	3	0
Staff Grievances	0	3	3	0

19.10 EIL, OMDC and BSLC

Grievance Redressal Mechanism is in place in these Companies at Unit Level and at Corporate Level. Nodal Officer has been notified for this purpose. The name & designation of the officer have been posted in the company website. The Companies have already initiated the system for online receipt of Grievances and settlement as per the "Sevottam" Model. Seven step model "Sevottam" has been provided on BGC website www.birdgroup.co.in for online addressing of Public Grievances.

CHAPTER-XX

DIVYANG AND STEEL

20.1 Ministry of Steel

The Ministry of Steel follows the Governments rules with regard to the implementation of provisions of the Disabilities Act, 1995. As on 31.12.2017, 4 persons (one visually handicapped (VH), one hearing handicapped (HH) and two orthopedically handicapped (OH) with disabilities are employed in the Ministry of Steel.

20.2 Steel Authority of India Ltd. (SAIL)

- Provisions related to reservation for Persons with Disabilities in terms of The Persons with Disabilities (Equal Opportunities, Protection of Rights & Full Participation) Act, 1995 is followed at Plants/ Units of SAIL. Some of the facilities provided include Jaipur foot, wheel chair etc.
- SAIL provides scholarship to the physically disabled children of its employees to support their education.
- Special relaxation is provided in allotment of quarters to disabled employees. Care is taken to allot ground floor to such employees.
- Various facilities for sports and cultural activities are provided exclusively for the disabled persons at plant locations. Separate playgrounds have been earmarked for the handicapped at some of the plant locations.

20.3 Rashtriya Ispat Nigam Ltd. (RINL)

- Facilities that are provided as per statute include:
 - ❖ Post recruitment and pre-promotion training
 - ❖ Providing Aids/Assistive devices
 - ❖ Accessibility and barrier free environment at work place
 - ❖ Preference in allotment of Company's quarters
 - ❖ Appointment of Liaison Officer for matters relating to Persons with Disabilities
 - ❖ Special Casual Leave
 - ❖ Preference in transfer/posting



Shri Birender Singh, Union Minister for Steel, handing over the cheque of Rs.75000 to Shri Jeet Kumar, a paralympian for taking up intensive coaching in Powerlifting.



- The following actions have been taken up for the convenience of the differently-abled persons at different offices at main administrative building / corporate office:
 - ❖ Providing Ramp Way
 - ❖ Auditory Signal in the lifts of the building
 - ❖ Provision of a wheel-chair at the Reception Centre located at the entrance of the Main Administrative Building

20.4 NMDC Ltd.

NMDC being a mining organization is governed by the provisions of the Mines Act and its rules and regulations & thereof considering the safety factor, it is not possible to employ PwDs in jobs involving working in Mines/Plant. However efforts are being made to conduct PwDs in posts where field work is not involved and at present NMDC has 102 employees with disabilities working in various posts.

20.5 MOIL Ltd.

The Company has implemented the various provisions of "Persons with Disabilities Act, 1995".

20.6 MSTC Ltd.

As on 31.12.2017, 10 persons with disabilities are employed in MSTC.

20.7 Ferro Scrap Nigam Ltd. (FSNL)

FSNL is a service organization, rendering its specialized services to the customer plants in scrap management & allied jobs. The activities of FSNL operations are carried out in open area in all the seasons. Further, heavy equipment such as Balling Cranes, Magnetic Separators, Dozers, Dumpers etc. are the main equipments used in carrying out operational activities. Thus, the atmosphere/working conditions of FSNL are not conducive for the persons with disabilities and hence engagement of disabled persons for carrying out jobs infield will not be safe for them.

However, in adherence of the Government directives, three posts each in Executive & Non-executive categories for persons with disabilities, one each for Visually Handicapped, Hearing Impaired and Orthopedically Handicapped under Group-A & Group-C categories in Ministerial Category have been identified. FSNL being a service organization, the recruitment in FSNL are made only on needbase, depending on availability of jobs from the customer plants.

20.8 MECON Ltd.

The Company has implemented the provisions of "Persons with Disabilities Act, 1995". Total employment strength of MECON as on 31.12.2017 is 1337, out of which 32 employees are persons with disabilities.

20.9 KIOCL Ltd.

As on 31.12.2017, 13 employees belonging to Persons with Disabilities category in different groups are in position in KIOCL.

20.10 EIL, OMDC and BSLC

EIL is only a shell company with only two employee on its strength. OMDC and BSLC are mining organizations governed by provisions of the Mines Act and rules and regulations thereof. Considering the safety factor it is not feasible to engage persons with disability in mines/plant.

CHAPTER-XXI

PROGRESSIVE USE OF HINDI

21.1 Introduction

The Ministry of Steel has made considerable progress in use of Hindi in official work during the year 2017-18 keeping in view the Annual Programme prepared and issued by the Department of Official Language [Ministry of Home Affairs] for implementation of the Official Language Policy of the Union.

The work relating to the progressive use of Hindi in the Ministry is under administrative control of a Joint Secretary. Rajbhasha Division under direct charge of Joint Director (Official Language) looks after the work relating to implementation of Official Language Policy and Hindi Translation work and it consists of one Assistant Director (OL), two Senior Hindi Translators, two Junior Hindi Translator, one PS, one ASO, one Stenographer 'D' and other supporting staff. Presently, One Consultant is working in place of one vacant post of junior Translator.

21.1.1 Official Language Implementation Committee

There is an Official Language Implementation Committee working under Chairmanship of a Joint Secretary in the Ministry. This Committee reviews the progress made in use of Hindi in the Ministry and its Public Sector Undertakings. Meetings of the Committee are held regularly. Four such meetings have been held during 2017-18. One workshop was organised on dt.13.11.2017 and the second is planned to be held soon.

21.1.2 Hindi Salahakar Samiti

Hindi Salahakar Samiti works under the Chairmanship of Union Minister of Steel with the main objective to advise the Ministry with regards to progressive use of Hindi in its official works. The second meeting of the reconstituted Hindi Salahakar Samiti was held on 11.09.2017.

21.1.3 Implementation of Section 3(3) of the Official Languages Act, 1963

In pursuance of the Official Language Policy of the Government of India, almost all documents covered under Section 3[3] of the Official Languages Act, 1963 are prepared both in Hindi and English. In order to ensure issue of letters in Hindi to Central Government Offices located in Region "A", "B" and "C", check points have been identified in the Ministry.



Meeting of Hindi Salahkar Samiti held under the Chairmanship of Hon'ble Minister for Steel.



21.1.4 Hindi Divas/Hindi Fortnight

In order to encourage use of Hindi in official work amongst officers/employees of the Ministry, an appeal was issued by the Hon'ble Minister of Steel on 14th September, 2017 on the occasion of Hindi day. Hindi Fortnight was organized in the Ministry from 14th September to 30th September, 2017. During this period, nine Hindi competitions were organized to create an atmosphere conducive to use of Hindi in the official work.

21.1.5 Cash Award Scheme for writing original books in Hindi

Cash award scheme for writing original books in Hindi in the matters concerning steel and being dealt with by Ministry of Steel is in operation comprising 1st, 2nd and 3rd prizes of Rs. 25,000/-, Rs. 20,000/- and Rs. 15,000/- respectively. Objective of the scheme is to encourage the writers to write original books in Hindi. The winners of the cash award scheme for the years 2014-15 & 2015-16 have been awarded, and the entries for 2016-2017 are invited.

21.1.6 Official Language Inspections by the Officers of the Ministry

The Officers from the Ministry visited 27 various offices of the PSUs upto 31.12.2017 under the administrative control of the Ministry to adjudge the progressive use of Official Language in those offices and remedial measures were suggested for compliance of Official Language policy of the Union in these offices. Apart from this 6 divisions were also inspected and given proper guidance.

21.2 Steel Authority of India Ltd. (SAIL)

SAIL has continued its thrust on implementation of the Official Language Policy of the Government of India. Continuous efforts are being made by SAIL for the propagation of Hindi.

SAIL is always complying with the statutory requirements of organizing Hindi workshops in every quarter. For its employees, a Translation competition & Workshop on 8th May, 2017, a Hindi Workshop on 26th September, 2017 and a workshop on usage of Hindi synonyms on 16th December, 2017 were organized, in which large number of employees participated.

"Rajbhasha Pakhwada" from 14 to 28 September, 2017 during which employees were made aware of Unicode & Google Voice Typing & Hindi Competitions like Dictation, Quiz, Extempore, Picture Presentation, Poem Recitation, Drama, etc. were organized, in which large number of employees participated. On the concluding day, Poem Recitation competition was organized for children of the SAIL employees, in which there was overwhelming participation of the kids. This was an attempt to link families of the employees with the "RajbhashaPakhwada" directly.

SAIL's in house Rajbhasha journal, 'IspatBhashaBharati', was the proud recipient of First prize under the Town level best house journal competition for the year 2016-17 amongst 60 member PSUs. The shields and certificates for all the award winning PSUs were given away by Secretary (Rajbhasha), Ministry of Home Affairs, Govt. of India, in the presence of Chairman SAIL & TOLIC (PSUs) in the 45th meeting and prize distribution ceremony of TOLIC on 8th September, 2017 held in New Delhi.

SAIL is shouldering the responsibility of Chairmanship of Town Official Language Committee (TOLIC) PSUs, Delhi for more than 6 years. Every year, 2 half yearly meetings of TOLIC are organized by SAIL. Under the aegis of TOLIC, SAIL also publishes a representative house journal "IndraprasthSwar" regularly with joint efforts of member PSUs, which is released on these meetings. Half yearly progressive reports & in house journal of the member PSUs are evaluated and best PSUs are awarded with shields and certificates in the respective TOLIC meetings. Under the Chairmanship of SAIL, a Rajbhasha Conference was organised by the member PSU - IREDA on 13th July, 2017, in which large number of PSUs participated and Secretary (Rajbhasha), Ministry of Home Affairs, Govt. of India, was chief guest of the conference.

Under the Chairmanship of SAIL, this year, Hindi competitions like Essay writing, Dictation, Debate, Poem Recitation, Memoirs writing, Picture Presentation, Complete the story, Story Telling, Official Language Awareness/ noting/ translation and Extempore were organised by 10 member PSUs from 10th November, 2017 to 30th November, 2017. Participation in all these competitions from all the member PSUs was quite encouraging. All the winners & the 10 PSUs organising above competitions will be awarded with shields & certificates in the forthcoming 46th meeting of TOLIC (PSUs), Delhi.

21.3 Rashtriya Ispat Nigam Ltd. (RINL)

At RINL, Official Language Policy and Specified Rules are followed as per Annual Programme issued by Department of Official Language, Ministry of Home Affairs, Government of India.

Initiatives taken towards progressive use of Hindi and recognitions received during the year 2017-18 (till Dec'17) are given below:

- 175 employees were trained under Hindi Prabodh/Praveen/Pragya courses conducted by Hindi Teaching Scheme, Department of Official Language, Ministry of Home Affairs, Govt. of India.
- 132 employees were also trained to work on computers in Hindi through Unicode.
- Conducted Hindi Workshops at HQ & Regional/Branch Sales Offices/Liaison Offices/Mines.
- A special workshop was conducted for TOLIC Hindi Officers in which representatives of 32 member officers participated.
- 18 Departments at Head Quarters and 10 ROs/BSOs/Mines were inspected during the year. Necessary help was extended and during inspection, Unicode training was also conducted for the employees working in those Departments.
- Ministry of Steel and Ministry of Home Affairs officials inspected 5 ROs/BSOs including Head Quarters with regard to implementation of Official Language. Various suggestions given by the officials for further improvement in the usage of Hindi in official work were complied with.
- Two issues of Quarterly Hindi In-House Magazine 'Sugandh'.
- Trilingual Glossary 'E-Sahayika'
- Practice Based Workshop Material
- E-Sahayika and Workshop material were released by Hon'ble Minister of State for Steel Sri Vishnu Deo Sai on 11th September, 2017 at New Delhi during Hindi Salahakar Samiti Meeting.



'Rajbhasha Keerthi Puraskar' 1st Prize awarded to RINL by Hon'ble President of India.



- First Prize of Rajbhasha Keerti Puraskar for the year 2016-17 by Department of Official Language, MoH, GOI.
- First prize of Ispat Rajbhasha Shield to RINL for the year 2016-17 by Ministry of Steel, Government of India.
- Rajbhasha Puraskhar for 2016-17 by TOLIC, Visakhapatnam.

21.4 NMDC Ltd.

NMDC continued to effectively implement Official Language Policy of Government Of India in its Headquarters, Projects and Units. A new course devised by Govt of India "Hindi Parangat" was started at Hindi Training Centre of Head Office to make Officers and employees work in Hindi efficiently. Hindi Workshops were conducted in every quarter at Head Office and all the Projects/Units for practical training for doing day-to-day official work in Hindi. Training in "Hindi Unicode" was imparted to work in Hindi on computers. Regular classes were held in the premises with the help of Hindi Teaching Scheme of Govt of India to impart Hindi Stenography training to all the English Stenographers.

Incentive Schemes were implemented throughout the year for noting, letters, registers in Hindi and giving dictation in Hindi. Hindi Fortnight was celebrated and also to promote use of Hindi, "Monthly Hindi Competitions" were also conducted. Meetings of Official Language Implementation Committees were held in every quarter at Head Office and all the Projects. To monitor use of Rajbhasha and suggest measures to argument the same, inspections and Desk trainings programs were conducted at various projects and units. Rajbhasha contact programs were held every month at various departments of HO by Officers of Rajbhasha Department to increase awareness towards Official Language. Desk training in Hindi was also imparted during such programs.

NMDC also continued its efforts for propagation of Rajbhasha at town level. A Joint Hindi workshop for small undertakings of Twin cities was conducted at Head Office under the agis of Town Official Language Committee (Undertakings), Hyderabad - Secunderabad. Also, an "Inter-Undertaking Hindi Competition" was organized for employees of all the undertakings. All India Conference of Rajbhasha Officers was also conducted at Head Office. House journal dedicated to Official language "Khanij Bharati" was published. Various Hindi/Bilingual magazines, news magazines were also published from Head Office and Projects viz, Sarjana, Takaneeki Sopan, Takaneeki Khitiz, Baila Samachar, Bacheli Samachar, Doni Samachar, NISP Patrika, She News etc. To encourage usage of Rajbhasha in Projects and units, "NMDC Rajbhasha Shield" Scheme was started.

NMDC was awarded "Rajbhasha Samman" by Ministry Of Steel, Govt. of India for excellent implementation of Rajbhasha for the Year 2016-17. NMDC was also conferred with First Prize- "Rajbhasha Shield" by Town Official Language Implementation Committee (U), Hyderabad-Secunderabad in mid-sized category for outstanding implementation of Rajbhasha during 2016-17. NMDC's Hindi Magazine "Khanij Bharati" was awarded "Best Magazine Award" among all the PSUs of Hyderabad-Secunderabad.

21.5 MOIL Ltd.

In all units of MOIL, majority of the work is being done in Hindi. The Unicode system has been installed in all computers. MOIL has provided Hindi language software in computers and is imparting training to its employees so that MOIL's employees can use the same in their day to day working.

Employees are being given re- training under the "HINDI EDUCATION SCHEME" of the HOME Ministry, in which 312 employees have already been given training for Pragma (High level).

Company has given donation to Magazine "VAINGANGA" which is published by Nagar Rajbhasha Karyanven Samiti Balaghat and "RAJBHASHA DARPEN" which is published by Nagar Rajbhasha Karyanven Samiti Nagpur.

The In-house Hindi magazine "SANKALP" which content excellent works done by the company in the field of Hindi have been appreciated by the Nagar Rajbhasha Karyanven Samiti, Nagpur. The officers and employees of MOIL are sent to participate in various competitions organized by the samiti. Employees of MOIL are encouraged to participate in various competitions in Hindi conducted by other institutes.

21.6 MSTC Ltd.

Rajbhasha Trimas was inaugurated on 14 September 2017. During this period, Hindi competitions and Hindi workshops were organised in head office and in regional and branch offices. Total 22 officers/employees will be awarded prizes for winning in Hindi competitions and for passing Hindi examinations. Total 20 employees were nominated for the Hindi examinations conducted by Hindi Teaching Scheme, Official Language Dept., Government of India. Quarterly reports and Annual Report were sent to the Ministry. Hindi reports of MSTC, Head Office as well as region/branch were submitted online. Workshop on On-line quarterly report submission was organised. Hindi Patrika "Sangati" is published periodically.

TOLIC meetings were attended regularly. Officials attended OLIC meetings of Ministry of Steel held during the year. OLIC meetings were arranged in the office. As per the Official Language Act, inspection was done in Head Office and regional and branch offices. All materials for inspection were made available at the time of inspection done by the Ministry. 41 officers and employees will be given incentives for doing work in Hindi under the incentive scheme for 2017-18.

MSTC, Head Office inspected its departments and regional and branch offices. Monitoring for implementation of Official Language was done. Up gradation of ISO 9001:2008 of Official Language Department is under process.

21.7 Ferro Scrap Nigam Ltd. (FSNL)

FSNL ensures strict adherence of the directives received from the Government time to time with regard to implementation of Official Language policy.

Various competitions such as Hindi Noting/Drafting competitions etc., were conducted as per the directives, during the year and suitable prizes were given to the winners of such competitions. Constant monitoring & encouragement of the employees is ensured for motivating the employees to do their day-to-day jobs in Hindi.

"Hindi Mah" was observed in the month of September 2017 at Corporate Office & all units of FSNL. Various competitions like Hindi Essay writing, Hindi Gyan Pratiyogita, Hindi Debate competitions etc., were organized during the Hindi Mah and the employees took part in such competitions enthusiastically.

The prestigious "Ispat Rajbhasha Samman" was awarded to Ferro Scrap Nigam Limited for the year 2016-17 for best implementation of Official Language Policy among the PSUs under Ministry of Steel.

Hon'ble Steel Minister Choudhary Birendra Singh presented this award to FSNL during the meeting of Hindi Salahkar Samithi at New Delhi on 11th September 2017.

FSNL's Rourkela Unit was also awarded the "Presidential Rajbhasha Trophy" for exemplary work in the field of implementation of Official Language Policy.

FSNL's representatives bagged 1st & 2nd prize in the "Online" Rajbhasha quiz competition organized by SAIL-Bhilai Steel Plant for the member concerns of Town Official Language Implementation Committee (TOLIC) Bhilai-Durg.

21.8 MECON Ltd.

MECON is effectively implementing the Official Language Policy of Govt. of India in its official work. There is an Official Language Implementation Committee under the Chairmanship of CMD. MECON is an important member of Town Official Language Committee, Ranchi and actively participates in all the programmes.

A condensed Translation Training Programme was conducted from 10th to 14th July, 2017 at MECON Head Office, Ranchi in which MECON employees as well as the employees of the member offices of Town Official Language Implementation Committee, Ranchi participated. This Translation Training Programme was organised in association with Central Translation Bureau, New Delhi, Dept. of Official Language, Ministry of Home Affairs, Govt. of India.

"Hindi Pakhwara" was observed in MECON at Head Office as well as in all the site offices of the



company from 14.09.2017 to 28.09.2017. On this occasion all employees took a pledge to increase use of Hindi in their day to day official work. During the "Hindi Pakhwara" competitions of various nature were also organized at Head Office and other offices of the Company. A special Hindi workshop and one Rajbhasha symposium on "Unicode ke jariye Hindi me Kam-Kaj" were organised during the Hindi Pakhwara..

A Hindi House Magazine - "MECON BHARATI" is also being published by the company. This magazine provides a platform for Employees for creative writing in Technical field in Hindi.

21.9 KIOCL Ltd.

KIOCL follows the directives issued from time to time by the Department of Official Language, Ministry of Home Affairs and Ministry of Steel, Government of India for the Progressive use of Official Language Hindi.

Hindi training is given to the employees, cash awards and increments are given as per the Government directives. Hindi Workshops, Orientation Programmes are conducted regularly to create awareness, imparts knowledge and encourages the employees to their official work in Hindi.

12th Issue of "Deepika" brought under TOLIC banner was released during the 1st Half Yearly Meeting organized by TOLIC (Undertakings), Bangalore at BEL, Bangalore complex at Jalahalli on 25.07.2017.

Official Language Implementation Committee meetings take place at all the locations regularly and the progress during the previous quarters is reviewed in such meetings. Hindi Fortnight was celebrated at all locations of the company in September 2017. Hindi Programmes and several Hindi Competitions were held and prizes distributed to the winners. A Valedictory function was organized on 27th September, 2017. During the occasion cash prizes were also distributed to the employees for doing their official work in Hindi.

The Company is Convener of Bangalore Town Official Language Implementation Committee (undertakings) and conducts regular meetings and Joint Hindi Month programmes for all Central PSUs in Bangalore. The meetings were conducted on 25th July, 2017 and 19th December, 2017.

The company organized a Joint Hindi Month for Town Official Language Implementation Committee (Undertakings) members between 10th July to 17th August, 2017 and seventeen Competitions were conducted. Most of the PSUs Officers in Bangalore have participated in these Competitions. A function was organized on 19th December, 2017. During the function 170 employees from different PSUs were honored with cash prizes, mementos and certificates.

21.10 EIL, OMDC and BSLC

The Orissa Minerals Development Company Limited (OMDC) is situated in category (C) area as per the Official Language Act. Company has taken positive steps to enhance awareness and usage of Hindi among employees. Company had observed "Hindi Pakhwada " by way of organizing competitions and distribution of prize on essay writing, Hindi poems recitation and Hindi Anubad in which the employees took active participation. OMDC is ensuring steps under the directives of the Official Language Act to use and propagate the use of Hindi. Bilingual Boards and advertisements are being issued. "Rajbhasha Shikshan Board" is put up at H.O. to appraise the employees with new words every day. 'Rajbhasa Training classes for Parangat courses were conducted under " Hindi Sikhshan Yojana" for learning Hindi and use of Hindi language for official use. Employees are putting signatures in attendance registers and despatch registers are maintained in Hindi. "Prabin , Pragya & Parangat" exams have been completed who attended classes and above 80% of employees have passed the related exam and accordingly Central Government has already notified OMDC under sub-rule (4) of Rule 10 of the Official Language Act on 01.03.2017. The OMDC is already registered in Rajbhasha website and quarterly report are being sent regularly through online. Company's website is already updated in Hindi.

CHAPTER-XXII

EMPOWERMENT OF WOMEN

22.1 Ministry of Steel

The Supreme Court of India in its judgment in August, 1997 in the case of Visakha and others versus State of Rajasthan and others, recognized international conventions and norms of gender equality of women, in relation to work and held that sexual harassment at workplace, is against their dignity and is violative of Article 14, 15(1) and 21 of the Constitution of India. As per the guidelines laid down by the Supreme Court, all employers whether in the public or private sector should take appropriate steps to prevent sexual harassment. As a part of the mechanism, a Complaint Committee (Sexual harassment of women at work place) with representatives from outside the organization was constituted.

In compliance of the guidelines of the Supreme Court, Ministry of Steel has constituted a five-member Committee to look into complaints made by women employees and to address them. The committee did not receive any complaint in 2017-18, and the same is a broad indicator of excellent environment for women work force in the Ministry.

Empowerment of Women

A Gender Budget Cell has been set up in the Ministry as per directions of the Ministry of Finance and the Ministry of Women and Child Development with the aim to initiate steps of implementation of the concept in this Ministry.

22.2 Steel Authority of India Ltd. (SAIL)

SAIL employs women employees in both technical and Non-technical area. There are women in managerial, technical (engineers) capacity, in medical, para-medical services and in academics. The Company does provide equal opportunities to both genders in selection, recruitment and placement or at promotion levels.

An equal career growth opportunity to all employees irrespective of the gender is the hallmark of SAIL's Policy towards professional development of its employees. The growing number of women in senior positions is an indication of this fact.

The Training Policy of the Company takes care of training and development needs of all its employees including the women employees through training needs analysis. Women employees are considered for specialized/technical/managerial training exposures in all areas in keeping with their career growth and job profiles.

Benefits to Women Employees

Separate toilets have been provided at all locations where women employees are posted /engaged both in technical as well as non technical areas. Washrooms, Canteens etc. for all employees in the Company's plants and units are available. Constant efforts are made for improving the hygiene conditions at workplace for all employees especially the women employees. The statutory compliance of the Company are also reflected in its Policies for women employees, such as, Maternity Leave, Child Care Leave benefits etc.

Prevention of Sexual Harassment

Internal Complaint Committees to prevent sexual harassment of women at workplace have been constituted at our Plants/Units in terms of The Sexual Harassment of Women at Work Place (Prevention, Prohibition & Redressal) Act, 2013 and composition of the committee has been uploaded on the existing Intranet/Web portal of the respective Plants/Units.



Welfare of Women

SAIL has also taken a number of steps in various spheres for the larger benefit of the women in society. The activities range from, literacy programmes for girl child, awareness programmes on health, care, family planning, ante-natal services, organizing health camps, Informative programmes on AIDS Control. SAIL plants and units also have Mahila Samitis engaged in awareness initiatives on social issues as child labour/dowry, exploitation of women, support to economically weaker women towards being self-reliant through self-employment, education, involvement in awareness programmes etc.

22.3 Rashtriya Ispat Nigam Ltd. (RINL)

In RINL, women employees constitute around 3% of its total workforce with around 6 % being executives and around 1.4 % in non- executives. Women employees are working in diverse and challenging areas like Operations & Projects apart from traditional functions in HR, Finance, and health services etc.

RINL facilitates the women workforce to be closely knit through the local cell of forum of Women in Public Sector (WIPS). The Cell has been associating in a number of activities for the development of women employees which include programmes on Managerial Development, Networking & social skills, technical skills including Gender Sensitivity. It has also been associated with some social support activities including CSR activities in the rehabilitation colonies.

The Company has put in place an Anti-Sexual Harassment Policy in line with the requirements of the Sexual Harassment of Women at Work Place (Prevention, Prohibition and Redressal) Act, 2013 and an Internal Complaints Committee has been set up to redress complaints received regarding Sexual harassment.

During the period from April to December 2017 the salient achievements include:

- RINL WIPS was awarded the "Best Enterprise Award" (1st Prize) in the Navratna category at the 27th Annual National Meet of WIPS.
- The team of 5 women employees received Gold Awards in International Convention for Quality Circles - 2017 at Manila Philipines in Oct 2017.
- 786 women employees were nominated for various training programmes including technical training, managerial training in reputed institutes like IIMs and for various competitions, seminars, conferences including WIPS Annual Meet.



"Best Enterprise Award"-1st Prize under Maharatna and Navratna category at the National Convention of WIPS.

- One day workshop was organized on the theme : Sustainable Development for women and girl children in March 2017 with participation of about 60 women employees and representatives of MahilaSamithis from HPCL, DCI, East Coast Railways, Power Grid, Naval Dockyard, BHEL, HPCL, AP Transco, based in Visakhapatnam.
- Two exclusive workshops on "Prevention of Sexual Harassment at the workplace" were organized.
- The Cell continues to maintain an exclusive "Portal" on the company's website wherein important achievements of women world wide are posted for the information and inspiration of women employees. The Portal also serves as a networking site for women employees of the company. The Cell also publishes "DISHA"- a newsletter every year.
- Various facilities were provided in the Creche run by WIPS in the steel township including installation of play equipments, construction of boundary wall, construction of stage, provision of games and toys and company accommodation to the crèche staff.

22.4 NMDC Ltd.

NMDC Limited employs 272 women as on 31.12.2017, which constitute about 5% of its total manpower of 5438 (as on 31.12.2017). The company provides equal opportunities for all the sexes at all levels, whether it is selection, recruitment, placement or promotion.

Facilities like separate wash rooms, rest rooms etc. are being provided in the Head Office and Projects. NMDC has also been sponsoring women employees for training on awareness in healthcare, family planning etc.

As per the recommendations of the Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice in its 62nd report, WIPS cells have been constituted in all the Projects.

Under CSR activities, NMDC has taken up various activities for empowerment of local women. Some of them are:

- **Balika Shiksha Yojana** is a novel CSR initiative having a triple purpose of assisting girls from socio-economically disadvantage sections of society to pursue their education, contribute to empowerment of women and also help in reducing the acute shortage of Medical & Paramedical staff in Bastar region. Till date, 258 students have been sponsored by NMDC for pursuing nursing courses. The first & second batches of students have completed their courses successfully and students of both the batches have secured gainful employment.
- **NMDC Shiksha Sahayog Yojana** where scholarships are granted to the poor tribal and SC students of Bastar Region to continue their academic pursuit beyond 8th class upto Graduation.

22.5 MOIL Ltd.

MOIL employees 738 women employees which constitute 12.04% of its total workforce of 6131 as on 01.12.2017.

In compliance of the directives of the Supreme Court guidelines relating to prevention of sexual harassment of women workers at work place were issued by Govt. of India, Ministry of Human Resources Development. Accordingly, a Complaint Committee comprising of three officials including a lady Doctor was constituted in the year 1999 & reconstituted in May 2014. No case of any harassment has since been reported at any of the Mines of the Company or its Corporate Office. The directives have been widely circulated to bring awareness amongst the women workers.

Mahila Mandals are working effectively at all the Mines of the Company. Various cultural, social, educative and community activities, such as adult education, blood donation camps, eye camps, family planning etc. are being organized regularly, mostly for the benefit of women residing in the remote mine areas.

Every year 8th March is celebrated as International Women Day and various programmes are organized to mark the day. Company also grants Maternity Leave and Special Casual Leave for Family Planning.



As part of its CSR activities, Self Help Groups have been created at the mines which comprise women hailing from the remote villages. They are trained to make candles, washing powder, washing soaps, bamboo baskets, tailoring and various other vocational activities in order to make them self-reliant.

22.6 MSTC Ltd.

MSTC is a Corporate Life Member of Forum of Women in Public Sector (WIPS) and women employees were nominated in the programmes organized by WIPS. Internal Complaints Committees constituted in all the offices of MSTC have been functioning successfully. Periodical meetings and Complaint redressal, awareness programs, etc. are also duly conducted by the Committees.

22.7 Ferro Scrap Nigam Ltd. (FSNL)

Women employees of FSNL are given due importance in all activities, and recognition is accorded for their skills, abilities and success in various competitions. It is also ensured that there is representation of female employees in various committees, such as committee for prevention of Sexual harassment etc.

22.8 MECON Ltd.

There is a Complaint Redressal Committee headed by a senior Lady Executive as its Chairperson to look into the grievance or complaints of women employees in MECON. MECON also follows instruction/ guidelines issued by the Ministry/Govt. of India from time to time with regard to empowerment of women. Besides, different programmes for training to women employees are conducted by our HRD Section from time to time.

22.9 KIOCL Ltd.

All necessary measures/statutory provisions for safeguarding the interests of women employees in matters like payment of wages, hours of work, health, safety and welfare aspects, maternity benefits etc. are being followed by the Company.

There are 29 women employees on rolls of KIOCL as on 31.12.2017.

In compliance to the provisions/requirements under to Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, internal Complaints Committee were constituted at Bengaluru, Mangaluru and Kudremukh Units to deal with complaints made by victims of sexual harassment. The Complaints Committee comprises of a Senior level women executive as Presiding Officer, one male employee and one female employee as members and one women representative from Non-Governmental Organization (NGO) as third party member.

A Women's Forum - Women in Public Sector is operating in KIOCL and all the women employees are Life Members of the said Forum. KIOCL is a Corporate Life Member for Forum of WIPS. Co-ordinators are being nominated on rotation basis from KIOCL to Liaison with the WIPS. Women employees (Members) are being sent to attend Annual meets / Regional meets / Quarterly REB meets of WIPS by the Company. International Women's Day was celebrated on 8th March, 2017 in a befitting manner.

During the year 2017-18, apart from participating in Swachh Bharat Abhiyan, WIPS Cell has actively undertaken various activities such as organising Medical Camp, monetary assistance to girl student from financially backward family for pursuing higher studies, awareness class on health & hygiene, workshop on cashless transactions, gender sensitisation workshop and other CSR activities.

22.10 EIL, OMDC and BSLC

These companies continue to accord due importance to gender equality. A Woman Grievance Cell is functioning in the Company to redress grievance of women employees. These companies are equal opportunity employer and do not differentiate in terms of gender. To ensure empowerment of women, "Gender Budgeting Cells" with women representatives have been constituted. In compliance with the directives of the Supreme Court, a Grievance Cell for Women is functioning to redress grievance of women employees.

CHAPTER-XXIII

CORPORATE SOCIAL RESPONSIBILITY

23.1 Introduction

Corporate Social Responsibility (CSR) is a concept whereby organizations serve the interests of society by taking responsibility for the impact of their activities on customers, employees, shareholders, communities and the environment in all aspects of their operations. Harnessing of natural resources has a direct impact on the economy, environment and society at large. CSR is thus linked with the practice of Sustainable Development.

Government of India has enacted the Companies Act 2013 in August 2013. Section 135 of the Companies Act 2013 deals with the subject of Corporate Social Responsibility (CSR). It lays down the qualifying criteria based on net worth, turnover, and net profit for companies which are required to undertake CSR activities and, inter alia, specifies the broad modalities of selection, implementation and monitoring of the CSR activities by the Boards of Directors of Companies. The activities which may be included by companies in their CSR policies are listed in Schedule VII of the Act. The provisions of Section 135 of the Act and Schedule VII of the Act apply to all companies, including CPSEs.

The Ministry of Corporate Affairs has formulated CSR Rules under the provisions of the Act and issued the same on 27.2.2014. The CSR Rules are applicable to all Companies, including CPSEs w.e.f. 1.4.2014. Further, Department of Public Enterprises has issued Guidelines on Corporate Social Responsibility and Sustainability in October, 2014. All the CPSEs have been directed to scrupulously follow the above mentioned Act/Rules/Guidelines while allocating and spending funds under CSR.

Details of allocation and expenditure of funds under CSR are at Annexure XV.

23.2 Steel Authority of India Ltd. (SAIL)

SAIL's CSR projects are carried out in and around periphery of steel townships, mines etc. in the thrust areas falling in line with the activities mentioned in the Schedule-VII of the Companies Act-2013, namely, Education, Medical and Health Care facilities, village development, Access to water facilities, Infrastructural development in peripheral rural areas, Environment conservation, Women Empowerment, Assistance to people with disabilities, Sustainable Income Generation through Self Help Groups, Promotion of Sports, Art, Culture & heritage conservation.

CSR Activities

Education

- To develop the society through education, SAIL is supporting 77 schools providing modern education to more than 40,000 children in the steel townships and is assisting over 630 Govt. schools in Bhilai and Rourkela with about 68,000 students by providing Mid-day meals in association with Akshya Patra Foundation. 19 Special Schools (Kalyan & Mukul Vidyalayas) benefitting 3504 BPL category students at integrated steel plant locations with facilities like free education, mid-day meals, uniform including shoes, text books, stationery items, school bags and water bottles, etc.
- 281 Tribal children are getting free Education, Accommodation, Meals & Uniforms, Textbooks, etc. at Saranda Suvan Chhatravas, Kiriburu; RTC Residential Public School, Manoharpur; Gyanodaya Chhatravas, BSP School Rajhara, Bhilai; Kalinga Institute of Social Sciences, Bhubaneswar; Gyanjyoti Yojna, Bokaro.
- Over 2300 school students are awarded annual scholarships in plant peripheries.
- Gyan Jyoti Yojana: Bokaro Steel Plant has introduced this scheme for providing education and holistic development for the children of Birhor tribe, which is at the verge of extinction. 15 Birhor children were adopted and provided free Education along with boarding, lodging, nourishing and wholesome food, clothing, free medical treatment, sports and cultural opportunities in a conducive atmosphere. They are the first Matriculates and 12th pass among their community. Inspired from



their achievements, another batch of 15 new Birhor children have been adopted. For Skill Development and better employability, 9 Matriculate Birhor Boys adopted under Gyan Jyoti Yojana have been sponsored for ITI training in "Welder trade" alongwith stipend of Rs.2500/- each, accommodation and meals at Bokaro Pvt ITI.

Healthcare

- SAIL's extensive & specialized Healthcare Infrastructure provided specialized and basic healthcare to 1.66 crore people living in the vicinity of its plants and units during the period 2011-17. Surgeries like Cataract and lens implant, cleft lip and palate disorder, polio-leg correction, etc. are conducted. Treatment of hearing impaired, anemia and identification & counseling of Sickle cell & Thalassemia patients, women with gynecological disorders, Leprosy & Tuberculosis patients is provided free of cost.
- In order to deliver quality healthcare at the doorsteps of the needy, regular health camps in various villages on fixed days are being organized for the people living in the periphery of plants/units, mines & far-flung areas. During April-December, 2017, 3567 Health Camps have been organized benefitting over 47,000 villagers. 7 Mobile Medical Units (MMUs) running in the plant peripheries have benefitted 54,000 villagers at their doorsteps.
- 27 exclusive Primary Health centres at plants provided free medical care and medicines to 3.33 lakh villagers during April-December, 2017.

Women Empowerment, Skill Development & Sustainable Income Generation

- Vocational and specialised skill development training targeted towards sustainable income generation were imparted to 4868 rural youths during 2016-17. At present 407 youths & 1141 women are undergoing skills trainings in areas such as Nursing, Physiotherapy, LMV Driving, Computers, Mobile repairing, Welder, Fitter & Electrician Training Improved agriculture, Mushroom cultivation, Goatery, Poultry, Fishery, Piggery, Achar/Pappad/Agarbati/Candle making, Screen printing, Handicrafts, Sericulture, Yarn Weaving, Tailoring, Sewing & embroidery, Gloves, Spices, Towels, Gunny-bags, Low-cost-Sanitary Napkins, Sweet Box, Soap, Smokeless chullah making etc.
- The above activities are being carried out at various centres located in and around steel plant and Mines locations such as Bhilai Ispat Kaushal Kutir & Swayamsiddha at Bhilai, PG College of Nursing, Bhilai with Free Boarding & Lodging, Kishori at Rourkela, Skill Development and Self Employment Training Institute (SDSETI) at Durgapur, Garment Technician Training at Salem, JHARCRAFT centre at Bokaro and Self employment centre "KIRAN" at Kiriburu Ore Mines & Meghahataburu, Aashaye Handloom Center at Gua, 'Mahila Mangal Sabha' at Burnpur, etc. SAIL is also instrumental in marketing of the products manufactured at such centers.



Promoting Self reliance at Kiran Centre, SAIL, Kiriburu mine, RMD, SAIL

- 551 youths have been sponsored for ITI training at ITCs Bolani, Bargaon, Baliapur, Bokaro Pvt ITI and Rourkela etc. and 31 youths have undergone training in Plastic Engineering through CIPET at Bokaro. The ITIs at Bolani & Bursua have been adopted for upgradation and operation by SAIL/RMD. Also, at Bokaro Pvt. ITI youths from the periphery are being trained in streams of Electrician, Welder & Fitter.

Infrastructure Development in Rural Areas

- Over 79.03 Lakh people across 450 villages have been connected to mainstream by SAIL since its inception by constructing and repairing of roads. Over 8097 water sources have been installed, since inception, thereby enabling easy access to drinking water to over 50 lakh people living in far-flung areas.
- SAIL has supported setting up and operation of 100 KW Capacity Solar Power Plant at Jari, Gumlain Jharkhand.

Swachha Bharat Abhiyaan-Swachha Vidhyalaya Abhiyaan

- SAIL has been actively participating in the "Swachha Bharat Abhiyan" initiated by the Hon'ble Prime Minister of India. Apart from toilet construction, cleanliness campaign has been undertaken all across the Organisation. Cleanliness drive is regularly undertaken at various locations including the works premises, awareness campaigns such as Pratiyogita, Quiz, Competitions and Shapath, are organized during 'Swachhta Pakhwada' and proper house-keeping is being practiced on company wide basis.

Adoption of Model Steel Villages

- In order to bridge the gap between rural and urban areas and to provide comprehensive development of both physical and social infrastructure, 79 villages were adopted as "Model Steel Villages" across the country (in eight states). The developmental activities undertaken in these villages include medical & health services, education, roads & connectivity, sanitation, community centers, livelihood generation, sports facilities, etc. The facilities developed at these MSVs are being run and maintained regularly.

SARANDA Forest Development

- In an effort to bring the marginalized masses of the remote forest areas to the mainstream of development, SAIL in association with Govt. of Jharkhand and Ministry of Rural Development, Govt. of India actively participated in the development process of Saranda forest, Jharkhand. SAIL provided ambulances, 7000 each of bicycles, transistors, solar lanterns and established an Integrated Development Centre (IDC) at Digha village in Saranda forest. IDC comprises of facilities like Bank, Panchayat Office, Ration shop, Telecom office, Anganwadi Centre, Meeting room etc. for the local populace.

23.3 Rashtriya Ispat Nigam Ltd. (RINL)

Various initiatives by RINL under CSR have made an effort in addressing the dire needs of the disadvantaged communities and bringing about a tangible change in their lives. Focus areas in this regard include Education, Health care, Skill Enhancement, Environmental care, Sanitation, Swachh Bharat, Sports etc. Major CSR activities taken up in 2017-18 are given below:

Education :

- Shiksha: Extended free education to around 1750 children belonging to Below Poverty Line (BPL) families
- Free education is being provided to differently abled children through Arunodaya Special School. Ninety three special children from the surrounding villages of Plant are benefitted, a bus has been provided to the School for commuting the Special children. A student of Arunodaya Special School won Gold medal in the aquatics (swimming) competition at National Games for all disabled held at Gandhi Nagar Gujarat
- Chethana - Organized Six month Adult literacy programme benefitting 625 adults.
- 'Pathashalaki Aabharanam', to address the infrastructural deficit faced by the Schools, a project for providing 570 three seater dual desks to 6 Government Schools has been taken up



Health

- Organized 124 eye camps through "Nethra Jyothi" benefitting 12157 patients and about 600 free cataract surgeries were done.
- A van was provided to Desire Society, an Institutional Care Home (ICH) for children abandoned and orphaned by HIV/AIDS for taking these children to various schools & Hospitals.
- For rehabilitating the poor children with hearing impairment, Cochlear implants to four children belonging to BPL families are being provided.
- Artificial limbs and calipers were distributed to 80 differently abled persons during a camp organized at Visakhapatnam district.
- To improve the access to timely medical care, two ambulances have been provided to hospitals in Sidhi District, one of the tribal districts of Madhya Pradesh.
- A General Medical camp was organized at a tribal village in Visakhapatnam District benefitting around 500 (Five hundred) villagers.

Skill Enhancement

- 'Saksham': Facilitated Vocational training programmes in Mobile repairing, Arya Works, LMV Driving, House Wiring, Cutting & Tailoring, Blouse Designing and Fabric Painting for 320 beneficiaries
- Skill development programme to 100 'People with Disabilities (Divyangjan)' of Visakhapatnam has been taken up.

Environment care:

- 'Green Visakha': Block plantation of 75000 saplings has been taken up under Green Visakha project at two venues Gangavaram and Lemarathi.
- 'Surya': 75 Solar street lights were installed in Kheri Saffa (25) and Kharak Bhura (50) villages of Jind District of Haryana under the CSR initiative of RINL.

Peripheral development:

- Ukku Kala Vedika- Multipurpose hall constructed at Gangavaram was inaugurated and put into operation for the benefit of villagers through Community welfare Centre.
- To ensure the comprehensive development of Chepulapada, a fisherman village near Bheemili of Visakhapatnam district, Under Ground Drainage (UGD) system has been provided.
- To bridge the infrastructure gap in Sahjadpur village for organizing Social functions, a hall is being constructed in collaboration with MSTC.

Sports:

- Financial assistance was extended to disabled sports person, to take up intense coaching for in power lifting (bench Press) in the run up for the upcoming National Paralympic events.

Sanitation:

- Supplied 75000 litres per day drinking water to Rehabilitation colonies/ surrounding villages during summer months.
- Three RO Plants were installed at surrounding villages to provide clean and hygienic drinking water for around 15,000 residents.
- New toilets blocks are being provided at Pharmacology Department of Rangaraya Medical College (RMC), AP.

Swachhbharat:

- SwachhVidyalaya: Financial assistance is extended to SarvaSikshaAbhiyan (SSA) Govt. of AP for maintenance of toilets constructed in 33 schools

- Bala Swachhta Jagruthi: Nine awareness programmes on sanitation were conducted in Govt. Schools
- Cleanliness campaigns were organized in the Plant, Mines and Township under Swachh Bharat as per the yearlong calendar. Further, in line with the directions of Govt. of India from time to time, activities viz. 'Swachhta Hi Seva', 'Cleanliness at offices' etc. were also religiously observed.

Digital transaction awareness:

- POS machines were distributed to vendors in the township to promote digital transactions.
- 58 awareness sessions to promote digital transactions have been organized during the year at the RINL CSR project implementation sites covering 2064 beneficiaries

23.4 NMDC Ltd.

The status of CSR programmes undertaken/initiated by the Company are as follows:

Education:

- The Scholarship Scheme "NMDC Shiksha Sahayog Yojana" to motivate ST/SC students is in operation since 2008 and during the year 2017-18, 18000 scholarships have been awarded.
- In the FY 2015-16, NMDC has extended its financial support for the students of Bastar region under 'Choo Lo Aasmaan Scheme' for undergoing PET/PMT coaching for acquiring merit seats in the Chhattisgarh Pre-Engineering & Medical Test. NMDC has been continuing the programme successfully in 2017-18 also.
- NMDC partnered into an agreement with Chhattisgarh Govt. under the scheme called "Ujjar" provides financial assistance to 100 tribal students from Dantewada District, Chhattisgarh for pursuing higher education. NMDC has been successfully supporting the programme since last year.
- NMDC has extended support for operation of Saksham I & Saksham II Schools set up for differently abled Boys & girls wherein 206 students are currently studying. The said institutions are functioning at Education Hub, Javanga, Geedam, Dantewada District and NMDC is continuing its support to the above initiative this year also. It is to once again intimate that it is a matter of pride to state that Saksham is the only educational institution in the country to have 100% barrier free access for disabled people.



Hon'ble Prime Minister interacting with students in 1000 seater auditorium during his visit to Education City, Dantewada District.



- Under NMDC Balika Shiksha Yojana, during the current academic year i.e. 2017-18, 33 girls have been sponsored in GNM & B.Sc. nursing courses at Apollo College /School of Nursing, Hyderabad. Till date 258 students have been sponsored by NMDC for pursuing nursing courses. All the first batch & second batches of students have completed their courses successfully and students of both the batches have secured gainful employment.
- The Residential School started at Nagarnar in 2010 is also running successfully with 571 no. of students in class I to X.
- NMDC has constructed Astha Gurukul School-A Residential School for SC/ST/orphans etc. and 1000-seater Auditorium attached in Dantewada within the Education City at Dantewada and NMDC has been partnering with District Authorities to successfully operate the school with around 1013 orphaned and violence affected children studying from Class I to Class VIII.
- Mid-day Meal programme covering 8000 rural school children in & around Donimalai Project in Karnataka is running successfully and NMDC is continuing its support to the initiative.
- NMDC contributed to the promotion of Education & Training in Yoga by helping Swami Vivekananda Yoga Anusandhan Samsthan, deemed University, Bangalore by supporting construction of one Floor of Ladies Hostel Block in the above Institution for accommodating 50 girl students.

Skill Development:

- The ITI with Welder & Mason trades at Nagarnar with the intake of 28 students each year is functioning successfully.
- The ITI at Bhansi with 5 trades is running successfully with the intake of 76 no. of students each year.
- The Polytechnic College at Dantewada established in 2010 with two streams i.e. Electrical & Mechanical with an intake of 126 students is running successfully. It is noteworthy to mention here that it is the only Polytechnic College in Chhattisgarh which is totally operated by a PSU without any contribution from the Govt. of Chhattisgarh.
- A Skill development Programme in collaboration with NSDC to train 1200 non NMDC stakeholders' viz. Contract labour in mining sector related skills over a period of three years, with 400 trainees being trained every year was initiated in the 2016-17. In the year 2017-18, out of a target of covering 400 trainees 290 persons have been trained so far.
- Similarly, a Skill development Programme also in collaboration with NSDC to train 400 Contract labour in Steel sector related skills over was initiated in the year 2016-17. As on date 138 trainees have already undergone training under the above skill development training programme.

Healthcare:

- Free out-patient & in-patient treatment facility was extended to 70535 & 4461 local tribals respectively during the year 2017-18 (Upto Dec.)

Rural Development:

- NMDC has been successfully continuing with the Farmers Development Scheme to provide fencing to farmers lands, digging bore wells & installation of hand pumps in Bastar District.

23.5 MOIL Ltd.

MOIL has framed a CSR policy duly approved by Board of Directors. Several schemes have been taken up and being implemented under CSR in the current Financial year which broadly includes:

Education & Skill Development:

- MOIL is supporting four schools. Two Schools in District Balaghat of Madhya Pradesh and two Schools in Bhandara District of Maharashtra. Both the districts are notified backward districts of India. Schools are imparting quality education to children's who are residents of the villages of the surrounding areas and mostly come from poor families



Health camp under CSR of MOIL

- In association with DAV Group of Schools, MOIL has constructed a large school at Village Sitasangi, in Bhandara district in academic session April 2014 onwards. The school caters to the educational needs of a number of villages in this remote backward area. The school has modern educational facilities with 35 class rooms, scientific laboratories, library, etc. The school is managed by DAV Management and funded by MOIL.

Drinking Water and Sanitation:

- For providing drinking water to villages in remote areas, MOIL has proposed to dig 50 Nos. bore wells.

Healthcare:

- Has tied up with Mahatma Eye Bank and Eye Hospital run by S.M.M. Eye welfare trust, for carrying out free cataract surgeries, for needy rural poor.

Rural Development:

- Company has promoted MOIL Foundation, a Society registered under Society Registration Act, 1860 and entered in to a MoU with Maharashtra Institute of Technology Transfer for Rural Areas (MITRA), an Associate Organization of BAIF Development Research Foundation for Community Development Programme. The main areas of Community Development Programme are agriculture development, livestock Development (poultry development, goat development), women empowerment, quality of life programme etc., which will help in overall development of the area.

The project will endeavor to develop resources at the village level for better quality of life. 21 villages have been identified in the vicinity of MOIL mines in the districts of Nagpur, Bhandara of Maharashtra and Balaghat of Madhya Pradesh for the Community Development Program.

Environment Protection:

- Company has taken up various infrastructural development works like construction of Village Roads, community Halls, Renovation of schools, and support for plantations etc.

23.6 MSTC Ltd.

MSTC Limited has made expenditure for the following purposes under its CSR initiative:

- Purchase of braille computers & TLM for disabled children.
- Primary school building repair and renovation.



- Installation of Tube well for drinking water.
- Purchase of ambulance for poor villagers.
- Construction of school & medical care Centre for orphans.
- Construction of home for elder citizens.
- Construction of primary school building & laboratory for Tribal students.
- Construction of primary school building for mentally challenged.

23.7 Ferro Scrap Nigam Ltd. (FSNL)

Company spends in each financial year, at least 2.0% of the average net profits of the company made during the three immediately preceding financial years. The above is not be applicable if the Company does not meet the criteria as covered under sub-section (1) of Section 135 of the Companies Act, 2013 for three consecutive financial years. Any unspent/unutilized CSR fund of a particular year, is carried forward to the following year, i.e. the CSR budget is non-lapsable in nature. At least 75% of the CSR budget is earmarked for activities to be implemented in project mode, and maximum upto 20% is allocated for other activities. The CSR Committee (Board Level Committee) recommends to the Board, the amount of expenditure, which shall be spent on the CSR & Sustainability activities. The budgetary allocation is approved by the Board of Directors.

23.8 MECON Ltd.

MECON is engaged in rural/community development activities in the nearby surroundings since 60's. In the year 1976, a dedicated group was formed and named "Community Development Committee (CDC)" and were assigned to look after the activities of "Corporate Social Responsibility". Subsequently in the year 2010, "CSR Cell" was formed to coordinate the CSR activities of the organisation in association with other employees drawn from various sections as per requirement.

The major developmental activities carried out by MECON in the financial year 2017-18 are as follows:

Sanitation:

- Organising "Awareness March" and "Cleanliness Drive" programmes in Adopted villages: Village-Pandu Toil, Block-Nagri, District-Ranchi (Jharkhand) and Village-Sungi, Block-Karra, District-Khunti (Jharkhand) under observance of "Swachhta Hi Sewa" campaign.

Rural Development Projects

- Construction of Toilet complex (W.C.: 10 nos.; Bath:10 nos.) at Village-Parsa Toli (A hamlet of Naxal affected Village-Pancha), Block-Bundu, District-Ranchi (Jharkhand) (Carry-over project of FY 2012-13).

Healthcare services

- Organising free Health check-up camps and free distribution of medicines in Naxal-hit villages & backward/slum areas of Jharkhand. Around 2,270 patients were covered in 48 medical camps.
- Providing Ambulance (TATA Winger) to Bharat Sevashram Sangha, Dhanbad (Jharkhand)
- Providing Hearse Vehicle (Vehicle for carrying Dead body for Funeral) to Punjabi Hindu Biradari, Ranchi (Jharkhand)

Education

- Free education is being provided to the under-privileged poor children at 13 (thirteen) nos. Literacy Centres, which are running in the slum areas/backward areas in and around Ranchi (Jharkhand). No. of students in these centers is around 300.
- Construction of a class room at Pramathanath Madhya Vidyalaya, Hinoo, Ranchi (Jharkhand)

Skill development for women & youth

- Free Stitching Training is being provided to the under-privileged women in 10 (ten) centres, which are running in slum/backward areas of Jharkhand. 70 students have been enrolled at these centres. Each centre is equipped with stitching machines and practice cloth/other accessories required for training have also been provided.
- Running of Vocational Training Institute, Ranchi for providing Free Vocational training to the under-privileged youths, who are not able to continue their higher studies. The institute is affiliated to National Institute of Open Schooling (NIOS), New Delhi.
- The institute has accreditation for the following five types of course viz. Radio & TV technician, Electrical technician, Welding technology, Computer Applications and Yoga. However, presently the courses on Electrical technician and Welding technology are being offered.

23.9 KIOCL Ltd.

KIOCL Limited has earmarked Rs. 16.70 Lakhs towards various CSR Projects identified in pursuance to schedule VII of the Companies Act 2013. Some of the major activities undertaken under CSR are as follows:

Education:

- To promote education of poor students, KIOCL is providing infrastructure facilities towards repair and renovation of class rooms, supply of pure drinking water facility etc. to Thadakoda Govt. School at Dharwad District of Karnataka.
- KIOCL is extending support for setting up of Physics Laboratory at Shree Bharathi Group of Institutions of Dharma Chakra Samsthanam Schools, Nanthoor, Mangaluru.
- KIOCL is also providing educational assistance to 3 schools at Mangaluru by giving desks, benches, chairs etc. from closed Kendriya Vidyalaya at Kudremukh.

Promotion of Swachh Vidyalaya Abhiyan:

- To promote Swachh Vidyalaya Campaign, KIOCL has taken up repair/renovation work of dysfunctional toilets in Thadakoda Govt. School at Dharwad District of Karnataka.
- Construction of public toilets in Madiwala Market near Corporate Office, Bengaluru.
- To ensure sustainability of toilets constructed in schools under Swachh Vidyalaya Abhiyan during previous years at Bengaluru, Mangaluru and Chickmagaluru, KIOCL has taken up the responsibility of maintenance of toilets for a period of 3 years.

Health Care:

- To support families living below poverty line, economically weaker section of the society who are unable to afford medical expenses due to poverty, KIOCL is supporting such families by providing medical aid in and around Kudremukh and Bengaluru.
- KIOCL is also supporting health care by providing spare medical equipments and instruments from Kudremukh Hospital to Vivekananda Memorial Hospital at Saragur of Karnataka.

23.10 EIL, OMDC and BSLC

OMDC and BSLC extend aids to peripheral schools and colleges. The companies extend aid in the form of construction of buildings, arranging study materials, providing furniture, school buses, sewing machine to women for self-employment etc. OMDC and BSLC run hospitals and provide treatment free of costs to all employees and to the villages located around its mining activities. These companies provide drinking water by digging wells, tube wells etc. for the employees and to the villages located around its mining activities.



CHAPTER-XXIV

IMPLEMENTATION OF THE RIGHT TO INFORMATION ACT, 2005

24.1 Introduction

With a view to promote openness, transparency and accountability in the administration and good governance of the country, the Government of India enacted the Right to Information (RTI) Act, 2005 on June 15, 2005. The objective of the Act is to promote openness, transparency and accountability in the administration and to provide good governance in the country. The Act also aims to protect the citizens' Right to Information to enable every citizen to secure access to the information from the public authorities. Correspondingly, dissemination of such information has become an obligation for all public authorities.

24.2 Implementation of the RTI Act in the Ministry of Steel.

One Under Secretary level officer has been nominated as nodal officer for implementation of the RTI Act and its monitoring in the Ministry. The officers of the level of Under Secretary/Assistant Director (OL)/Assistant Industrial Advisor or equivalent level Officer of the Ministry of Steel are designated as Central Public Information Officer (CPIO) and Officers of the level of Director / Deputy Secretary/ Joint Director (OL)/ Deputy Industrial Advisor or equivalent Officer of Ministry of Steel are designated as Appellate Authority respectively. The Ministry also monitors the progress/implementation of the RTI Act in its PSUs/Companies and other Organisations which are under its administrative control. The manual of 17 items, detail of Appellate Authority/ Central Public Information Officers, Assistant Public Information Officers have been hosted on the Ministry's Web-site www.steel.gov.in. All the Public authorities under the administrative control of the Ministry of Steel have also hosted the manual of 17 items on their respective websites and have nominated their respective Public Information Officers/Assistant Public Information Officers and Appellate Authority. Web portal for online filling of RTI application has been launched by Department of Personnel & Training (DoPT) and the Ministry of Steel has been a part of RTI online web portal w.e.f 25.06.2013. During the year 2017 (up to 31st Dec 2017), the Ministry of Steel has received 129 offline RTI applications and 196 online RTI applications including appeals, which were duly disposed of within the prescribed time limit.

24.3 Steel Authority of India Ltd. (SAIL)

SAIL has appointed Public Information Officers / Asstt. Public Information Officers and Appellate Authorities and Transparency Officer under Section 5 & Section 19(1) Of RTI Act in each Plant and Unit for speedy redressal of the queries received under the Act. The provisions under the Act are being complied with by all Plants and Units of SAIL.

An Exclusive RTI Portal for SAIL has been developed and link is available on SAIL Website. All the SAIL Plants/Units have listed 17 manuals, details of Authorities under the Act on the SAIL website www.sail.co.in. Quarterly Returns, Annual Returns on implementation of RTI Act 2005 are being submitted online through the CIC portal. Implementation of online request is introduced in SAIL from 1st May 2015. A compilation of Record Retention Policy of various functions of Corporate Office has also been uploaded on the SAIL website. In addition, compilations of important decision of CIC, DOPT circulars and High Court (HC) cases have also been uploaded on SAIL Website.

During the period 1.4.2017 to 31.12.2017, a total of 2589 applications and 490 appeals were received under RTI Act, 2005 in the Company, all of which have been disposed of within the stipulated time frame.

24.4 Rashtriya Ispat Nigam Ltd. (RINL)

Information available in the 17 manuals of the RTI has been updated on company website in accordance with the requirement of section 4(1) (b) of Right to Information Act, 2005. Quarterly Returns, Annual returns on implementation of RTI Act, 2005 are being submitted regularly in the CIC portal.

A total of 428 requests have been received under Right to Information Act, by RINL during the period 1st April, 2017 to 31st December, 2017. All the requests and appeals have been disposed of within stipulated time. A training cum workshop on "Implementation of RTI Act" had been conducted for the concerned dealing officers.

24.5 NMDC Ltd.

NMDC has published on its website, www.nmdc.co.in information under Section 4(1)(b) of the RTI Act 2005. Information is given to the maximum extent in the form in which it is asked for & in the local language as well, when required.

The number of RTI queries received and disposed during the year is as under: (from 01.04.2017 to 31.12.2017)

Applications pending as on 01.04.2017	Applications received during 01.04.2017 to 31.12.2017	Applications disposed off during 01.04.2017 to 31.12.2017	Applications pending as on 31.12.2017
14	170	163	21

24.6 MOIL Ltd.

MOIL has appointed CPIOs at the Corporate Office and PIOs/APIOs have also been appointed in all its Mining Units. General Manager (Personnel) has been appointed/designated as Appellate Authority under the Act. The names of all the PIOs/APIOs and the Appellate Authority have also been hosted in the Company's website www.moil.nic.in. The information in respect of company, its employees etc. has been prepared under 17 heads as prescribed in Section 4(1) (b) of the RTI Act, and the same been hosted on Company's portal. MOIL has been submitting necessary information and returns to the prescribed authorities and updating the same regularly.

The number of RTI applications received and disposed during April, 2017 to December, 2017 are as under:

Applications pending as on 01.04.2017	Applications received during 01.04.2017 to 31.12.2017	Applications disposed off during 01.04.2017 to 31.12.2017	Applications pending as on 31.12.2017
2	43	41	4

24.7 MSTC Ltd.

There is one Transparency Officer, one First Appellate Authority, one CPIO, one Nodal Officer in MSTC, Head office and every region/branch has one PIO for effectively processing the RTI applications received at various locations of the Company. Provisions of Right to Information Act 2005 have been duly complied for processing the Application/Appeals received under RTI Act 2005.

All quarterly reports are submitted on-line. During 01.04.2017 to 31.12.2017, total 97 RTI applications and 24 First Appeals have been received through online and by post also. Out of that 93 RTI Applications and 24 Appeals have been disposed of. RTI applications/appeals can be received and disposed of through RTI web portal namely <https://rtionline.gov.in>. RTI Applications and Appeals are received offline and online which are processed expeditiously.



24.8 Ferro Scrap Nigam Ltd. (FSNL)

FSNL has appointed a Public Information Officer (PIO) and one Assistant Public Information Officer at Corporate Office and one APIO each at its 8 Units. ED(P&C), FSNL is the first appellate authority under the R.T.I Act, 2005. The company has complied the information under 17 different templates/manuals/manuals for voluntary/suo-moto disclosure as required under Section 4(1) (b) of the Act and hosted the same on the company's website "fsnl.nic.in" and the information so published are being regularly updated. Quarterly reports are submitted to the CIC regularly.

The total number of RTI applications received during the period April 1, 2017 to December 31, 2017 was 16. Out of these, 15 applications have been disposed of.

24.9 MECON Ltd.

All the relevant manuals pertaining to RTI Act, 2005 have been hosted on "MECON's Website www.meconlimited.co.in w.e.f. 19th September, 2005. A Public Information Officer (PIO) and the 1st Appellate Authority have been nominated by MECON at its Headquarters and Assistant Public Information officers (APIOs) have been nominated at various Regional and Site Offices. The queries coming to MECON from the public are being attended to by these nominated officials and replied back by the Public Information Officer within the stipulated time period. Jt. General Manager (Personnel) has been nominated as the Transparency Officer of MECON Limited. The status of applications received and processed during the year 2017-2018 (upto November, 2017) under Right to Information Act, 2005 are given below:

Applications pending as on 01.04.2017	Applications received during 01.04.2017 to 30.11.2017	Applications disposed off during 01.04.2017 to 30.11.2017	Applications pending as on 30.11.2017
04	47	48	03

24.10 KIOCL Ltd.

KIOCL has appointed PIOs at the Corporate Office and PIOs/APIOs have also been appointed in all its Plants/other Units. Executives at the top level have been appointed/ designated as Appellate Authority under the Act. The names of all the PIOs/APIOs and the Appellate Authority have also been hosted on KIOCL's website www.kioclltd.com. The obligation of the preparation of the manual prescribed in clause (b) subsection (1) Section (4) has been complied with and these have also been hosted on KIOCL's portal and the same is being reviewed and updated at regular intervals.

Applications pending as on 01.04.2017	Applications received during 01.04.2017 to 31.12.2017	Applications disposed off during 01.04.2017 to 31.12.2017	Applications pending as on 31.12.2017
Nil	23	23	Nil

24.11 EIL, OMDC and BSLC

These companies are complying with the Right to Information Act -2005. For receipt and replying to the RTI queries, a PIO and APIO have been nominated.

ANNEXURE - I

LIST OF SUBJECTS ALLOCATED TO THE MINISTRY OF STEEL AS PER ALLOCATION OF BUSINESS

1. Planning, development and facilitation of setting up of iron and steel production facilities including Electric Arc Furnace (EAF) units, Induction Furnace (IF) units, processing facilities like re-rollers, flat products (hot/cold rolling units), coating units, wire drawing units and steel scrap processing.
2. Development of iron ore mines in the public sector and other ore mines (manganese ore, chrome ore, limestone, sillimanite, kayanite, and other minerals used in the iron and steel industry but excluding mining lease or matters related thereto).
3. Production, distribution, prices, imports and exports of iron and steel and ferro-alloys.
4. Matters relating to the following undertakings including their subsidiaries come under the purview of the Ministry of Steel:
 - (i) Steel Authority of India Limited (SAIL);
 - (ii) Rashtriya Ispat Nigam Limited (RINL);
 - (iii) KIOCL Limited (KIOCL);
 - (iv) Manganese Ore (India) Limited (MOIL);
 - (v) National Mineral Development Corporation Limited (NMDC);
 - (vi) Metallurgical and Engineering Consultants (India) Limited (MECON);
 - (vii) J&K Mineral Development Corporation Limited
 - (viii) SAIL Refractory Company Limited
 - (ix) Metal Scrap Trade Corporation (MSTC);
 - (x) Ferro Scrap Nigam Limited; and
 - (xi) Bird Group of Companies.



ANNEXURE-II

MINISTER IN CHARGE AND OFFICER IN THE MINISTRY OF STEEL

(Deputy Secretary Level Upwards)

(As on 31.12.2017)

Minister of Steel	Shri Birender Singh
Minister of State for Steel	Shri Vishnu Deo Sai
Secretary	Smt. Aruna Sharma
Additional Secretary & Financial Adviser	Shri Saraswati Prasad
Joint Secretaries	Shri Sunil Barthwal Smt. Urvilla Khati Smt. Ruchika Chaudhry Govil Shri T Srinivas
Economic Adviser	Dr. (Smt.) Promodita Sathish
Deputy Director General (Statistics)	Smt. Pally Kundu
Chief Controller of Accounts	Dr. Shakuntla
Directors	Shri Anupam Prakash Shri Mahabir Prasad Shri Neeraj Agarwal
Deputy Secretary / Joint Director	Shri Naresh Kumar Wadhwa Shri Subhash Bhattacharya Shri A K Kailoo Shri Anand Kumar, JD(OL)
Additional Industrial Adviser	Shri Parmjeet Singh

ANNEXURE - III

PRODUCTION OF ISP & OTHER PRODUCERS						
SUMMARY						
('000 tonnes)						
S. No.	ITEM / PRODUCER	2013-14	2014-15	2015-16	2016-17	Apr-Dec 2017-18*
PRODUCTION						
I.	CRUDE STEEL :					
	SAIL, TSL, RINL, ESL, JSWL, JSPL					
	Oxygen Route	35067	36610	36174	39711	30882
	E.A.F.Units	9174	9473	11247	15775	12652
	Other Producers					
	Oxygen Route	455	961	2221	2291	1747
	E.A.F.Units (incl.Corex & MBF/EOF)	9419	13652	13352	13187	10229
	Induction Furnaces	27579	28283	26796	26972	20132
	TOTAL (Crude Steel)	81694	88979	89790	97936	75642
	% share of Other Producers	45.3%	47.1%	44.7%	41.0%	40.1%
II.	P I G I R O N (For Sale) :					
	SAIL, TSL, RINL, ESL, JSWL, JSPL	552	920	1186	799	410
	Other Producers	7398	8774	8041	8589	6524
	TOTAL (Pig Iron)	7950	9694	9227	9388	6934
	% Share of Other Producers	93.1%	90.5%	87.1%	91.5%	94.1%
III.	S P O N G E I R O N :					
	Gas Based	2683	2354	2440	4854	4537
	Coal Based	20189	21889	19987	23908	14033
	TOTAL (Sponge Iron)	22872	24243	22427	28762	18570
	% Share by Process (Coal Based)	88.3%	90.3%	89.1%	83.1%	75.6%
IV.	FINISHED STEEL FOR SALE (Alloy/Non-Alloy) :					
	SAIL, TSL, RINL, ESL, JSWL, JSPL	45160	46820	48527	57698	45998
	Other Producers	50417	53862	54376	58213	40701
	Less IPT/Own Consumption	7902	8525	11923	14105	7650
	TOTAL (Finished steel)	87675	92157	90980	101806	79049
	% Share of Other Producers	57.5%	58.4%	59.8%	57.2%	51.5%

Source: JPC; * Provisional



ANNEXURE - IV

PRODUCTION OF CRUDE/LIQUID STEEL (By Producers)

PRODUCER	('000 tonnes)														
	2013-14			2014-15			2015-16			2016-17			Apr-Dec 2017-18*		
	Working Capacity	Production	% Utilisation												
PUBLIC SECTOR															
B S P	3925	5136	131%	3925	4807	122%	3925	5058	129	3925	4737	121	3925	2996	102
D S P	1802	2019	112%	1802	2063	114%	1802	1975	110	1802	2042	113	1802	1500	111
R S P	1900	2291	121%	4400	2792	63%	4400	2730	62	4400	2932	67	4400	2387	72
B S L	4360	3776	87%	4360	3831	88%	4360	3392	78	4360	3154	72	4360	2694	82
I S P	500	127	25%	2500	141	6%	2500	871	35	2500	1394	56	2500	1302	69
A S P	234	122	52%	234	104	44%	234	91	39	234	88	38	234	70	40
S S P	180	91	51%	180	125	69%	180	120	67	180	108	60	180	67	50
V I S L	118	13	11%	118	46	39%	118	42	36	118	39	33	118	0	0
TOTAL (SAIL) :	13019	13575	104%	17519	13909	79%	17519	14279	82	17519	14494	83	17519	11016	84
R I N L	2910	3202	110%	2910	3296	113%	6300	3641	58	6300	3962	63	6300	3371	71
TOTAL : (Public Sector)	15929	16777	105%	20429	17205	84%	23819	17920	75	23819	18456	77	23819	14387	81
PRIVATE SECTOR															
Tata Steel Ltd	9600	9155	95%	9600	9331	97%	9600	9960	104	9600	11688	94	12500	9406	100
Essar Steel Ltd.	8540	3245	38%	8540	2854	33%	10000	3685	37	10000	5392	54	10000	4500	60
JSW Steel Ltd.	14600	12227	84%	14600	13136	90%	16600	12679	76	16600	16506	99	18000	12481	92
JSPL	2400	2836	118%	4000	3557	89%	4850	3177	66	4850	3445	71	8600	2760	43
Other BOF	363	455	125%	2733	961	35%	3160	2221	70	3160	2291	61	3160	1747	74
Other EAF	14335	9419	66%	13155	13652	104%	15641	13352	85	17127	13186	77	15701	10229	87
IF Units	36494	27579	76%	36794	28283	77%	38300	26796	70	39621	26972	68	38302	20132	70
TOTAL : (Private Sector)	86332	64916	75%	89422	71174	80%	98151	71870	73	104458	79480	76	106263	61255	77
GRAND TOTAL :	102261	81694	80%	109851	88979	81%	121970	89790	74	128277	97936	76	130082	75642	78

Source: JPC; * Provisional

ANNEXURE - V

PRODUCTION OF CRUDE/LIQUID STEEL					
(By Route)					
('000 tonnes)					
PROCESS ROUTE	2013-14	2014-15	2015-16	2016-17	Apr-Dec 2017-18*
OXYGEN ROUTE					
B S P	5136	4807	5058	4737	2996
D S P	2019	2063	1975	2042	1500
R S P	2291	2792	2730	2932	2387
B S L	3776	3831	3392	3154	2694
I S P	127	141	871	1394	1302
S S P	91	125	120	108	67
V I S L	13	46	42	39	0
R I N L	3202	3296	3641	3962	3371
T S L	9155	9331	9960	11688	9406
JSW Steel Ltd.	9257	10178	8385	9655	7159
Other Oxygen Route	455	961	2221	2291	1747
TOTAL OXYGEN ROUTE :	35522	37571	38395	42002	32629
ELECTRIC ROUTE					
ELECTRIC ARC FURNACE					
A S P	122	104	91	88	70
Essar Steel Ltd.	3245	2854	3685	5391	4500
JSW Ispat Ltd./JSW Steel Ltd.	2971	2958	4294	6851	5322
Jindal Steel & Power Ltd.	2836	3557	3177	3445	2760
Lloyds Steel Ltd.	566	658	569	575	416
Jindal Stainless Ltd.	1111	1907	1258	1391	987
Bhushan Steel Ltd.	1084	2180	3078	5601	2345
Bhushan Power & Steel Ltd.	1714	1213	1832	3324	1439
Other Electric Arc Furnace	4944	7694	6615	2296	5042
TOTAL ELECTRIC ARC FURNACE :	18593	23125	24599	28962	22881
ELECTRIC INDUCTION FURNACE	27579	28283	26796	26972	20132
TOTAL ELECTRIC ROUTE :	46172	51408	51395	55934	43013
GRAND TOTAL :	81694	88979	89790	97936	75642

Source: JPC; * Provisional



ANNEXURE - VI

PRODUCTION OF HOT METAL						
('000 tonnes)						
	PLANTS	2013-14	2014-15	2015-16	2016-17	Apr-Dec 2017-18*
A.	PUBLIC SECTOR					
	BHILAI STEEL PLANT	5377	5072	5317	5041	3164
	DURGAPUR STEEL PLANT	2191	2297	2170	2318	1663
	ROURKELA STEEL PLANT	2538	3157	3042	3094	2475
	BOKARO STEEL LTD	4100	4253	3700	3410	2949
	IISCO STEEL PLANT	220	566	1431	1810	1494
	VISVESVARAYA I & S PLANT	21	68	60	54	0
	RASHTRIYA ISPAT NIGAM LTD.	3769	3780	3975	4043	3651
	SUB TOTAL (A) :	18216	19193	19695	19770	15396
B.	PRIVATE SECTOR					
	TATA STEEL LTD.	9898	10164	10655	13059	10581
	MINI BLAST FURNACE	24342	27055	28353	32356	23494
	SUB TOTAL (B) :	34240	37219	39008	45415	34075
	TOTAL (A+B) :	52456	56412	58703	65185	49471
	% SHARE OF PRIVATE SECTOR	65.3%	66.0%	66.4%	69.7%	68.9%

Source: JPC; * Provisional

ANNEXURE - VII

PRODUCTION OF PIG IRON (For Sale)						
						(000 tonnes)
	PLANTS	2013-14	2014-15	2015-16	2016-17	Apr-Dec 2017-18*
A.	PUBLIC SECTOR					
	BHILAI STEEL PLANT	0	3	0	0	0
	DURGAPUR STEEL PLANT	38	54	53	90	46
	ROURKELA STEEL PLANT	87	143	131	55	28
	BOKARO STEEL PLANT	40	105	36	29	41
	IISCO STEEL PLANT	55	364	388	246	80
	VISVESVARAYA I & S PLANT	5	12	8	3	0
	RASHTRIYA ISPAT NIGAM LTD.	327	239	116	150	76
	SUB TOTAL (A) :	552	920	732	573	271
B.	PRIVATE SECTOR					
	OTHER BLAST FURNACE/ COREX UNIT	7398	8774	8495	8814	6663
	SUB TOTAL (B) :	7398	8774	8495	8814	6663
	TOTAL (A+B) :	7950	9694	9227	9387	6934
	% SHARE OF PRIVATE SECTOR	93.1%	90.5%	92.1%	93.9%	96.1%

Source: JPC; * Provisional



ANNEXURE - VIII

PRODUCTION FOR SALE OF FINISHED STEEL (Non-Alloy & Alloy Steel)						
						(⁰⁰⁰ tonnes)
	PLANTS	2013-14	2014-15	2015-16	2016-17	Apr-Dec 2017-18*
A.	PUBLIC SECTOR					
	BHILAI STEEL PLANT	3470	3321	3271	3134	2312
	DURGAPUR STEEL PLANT	620	573	503	534	444
	ROURKELA STEEL PLANT	2057	2110	2168	2461	2123
	BOKARO STEEL PLANT	3330	3207	2472	3204	2620
	IISCO STEEL PLANT	186	120	436	856	724
	ALLOY STEEL PLANT	9	11	16	11	7
	SALEM STEEL PLANT	375	359	390	412	181
	VISVESVARAYA I & S PLANT	25	26	46	29	15
	SAIL- CONVERSION AGENT	556	553	909	1006	588
	RASHTRIYA ISPAT NIGAM LTD.	2811	2552	2766	3219	2796
	SUB TOTAL (A) :	13439	12832	12977	14866	11810
B.	PRIVATE SECTOR					
	TATA STEEL LTD	8756	8967	9527	11115	9117
	ESL+JSWL+JSPL	22965	25021	26023	31717	25071
	OTHERS	50417	53862	54376	58213	40701
	Less Own Consumption	7902	8525	11923	14105	7650
	SUB TOTAL (B) :	74236	79325	78003	86940	67239
	TOTAL PRODUCTION FOR SALE(A+B)	87675	92157	90980	101806	79049
	% SHARE OF PRIVATE SECTOR	84.7%	86.1%	85.7%	85.4%	85.1%

Source: JPC; * Provisional

ANNEXURE - IX

CATEGORY-WISE PRODUCTION FOR SALE OF FINISHED STEEL

('000 tonnes)

CATEGORY	2013 - 14				2014 - 15				2015 - 16				2016-17			
	Main Prods	Other Prods	IPT/OWN Consumption	TOTAL	Main Prods	Other Prods	IPT/OWN Consumption	TOTAL	Main Prods	Other Prods	IPT/OWN Consumption	TOTAL	Main Prods	Other Prods	IPT/OWN Consumption	TOTAL
1. Non-Flat Products																
Bars & Rods	9618	20466	535	29550	9688	22733	170	32251	11064	22583	135	33512	11549	23548	145	34951
Structurals	1410	5486	0	6896	1482	6025	11	7495	1614	5898	52	7460	1687	6297	0	7985
Rly. Materials	882	5	0	887	830	5	0	835	882	54	0	937	1053	23	0	1076
Total (Non-flat prodt)	11910	25957	535	37332	12000	28763	181	40581	13560	28535	187	41909	14289	29868	145	44012
2. Flat Products																
Plates	3486	493	82	3896	4662	52	14	4700	4078	198	137	4140	4223	582	97	4708
HR Coil/Strip	20478	4542	4213	20806	20029	5322	5146	20205	20192	6409	7150	19451	26783	6451	9116	24117
HR Sheets	409	513	2	920	1099	39	0	1138	1504	12	0	1516	1043	53	0	1096
CR Coil/Sheets	5193	5472	2944	7722	5271	5285	3048	7509	4773	4871	3774	5869	6203	6473	4114	8562
GP&GC/CC/Galvalume	3038	3936	75	6898	2998	4005	111	6892	3348	4418	582	7183	4028	4239	525	7742
Electrical Coils/Sheets	69	57	0	126	69	71	0	140	92	56	0	148	156	525	0	680
Tin Plates (incl WW)	7	337	0	344	0	354	0	354	26	305	0	331	26	314	0	340
Pipes (Large Dia.)	196	1782	0	1978	238	1856	0	2094	265	1968	70	2163	207	1938	62	2083
TMBP	0	3	0	3	0	0	0	0	0	2	0	2	0	3	0	3
Tin Free Steel	0	12	0	12	0	0	0	0	0	8	0	8	0	10	0	10
Total (Flat Products)	32875	17146	7316	42705	34367	16983	8318	43031	34277	18246	11712	40811	42669	20588	13915	49342
Total (Fin. Non-alloy)	44785	43103	7851	80038	46366	45746	8500	83613	47837	46781	11899	82719	56958	50456	14061	93354
Total Fin. Steel	375	7314	52	7637	454	8116	25	8544	690	7595	24	8261	738	7757	45	8451
(Alloy / Stainless)																
Total Fin. Steel (Non-Alloy + Alloy)	45160	50417	7902	87675	46820	53862	8525	92157	48527	54376	11923	90981	57697	58213	14105	101805



ANNEXURE - IX (Contd.)

CATEGORY-WISE PRODUCTION FOR SALE OF FINISHED STEEL				
('000 tonnes)				
2017-18*				
CATEGORY	Main Prods	Other Prods	IPT/OWN Consumption	TOTAL
1. Non-Flat Products				
Bars & Rods	8904	17313	89	26128
Structurals	1374	4705	0	6079
Rly. Materials	912	2	0	914
Total (Non-flat prdct)	11190	22020	89	33121
2. Flat Products				
Plates	3511	326	58	3779
HR Coil/Strip	21478	3014	5287	19205
HR Sheets	1721	37	0	1758
CR Coil/Sheets	4630	3771	2190	6211
GP&GC/CC/Galvalume	2618	2996	0	5614
Electrical Coils/Sheets	147	45	0	192
Tin Plates (incl WW)	24	252	0	276
Pipes (Large Dia.)	145	1428	0	1573
TMBP	0	0	0	0
Tin Free Steel	0	0	0	0
Total (Flat Products)	34274	11869	7535	38608
Total (Fin. Non-alloy)	45464	33889	7624	71729
Total Fin. Steel (Alloy / Stainless)	534	6812	26	7320
Total Fin. Steel (Non-Alloy + Alloy)	45998	40701	7650	79049

ANNEXURE - X

CATEGORY-WISE IMPORT OF IRON & STEEL						
('000 tonnes)						
Sl.No.	Category	2013-14	2014-15	2015-16	2016-17	Apr-Dec 2017-18*
I	Semi-finished Steel (Non-Alloy)					
	Semis	43.2	331.3	512.1	391.9	296.0
	Re-rollable Scrap	208.1	329.2	426.3	343.5	317.5
	TOTAL	251.3	660.6	938.4	735.4	613.6
II	Finished Steel(Non-Alloy)					
	Non-Flat					
	Bars & Rods	294.3	854.3	621.4	419.4	208.8
	Structurals	43.0	52.9	24.6	64.3	30.6
	Rly. Materials	4.4	15.5	11.7	38.5	17.2
	TOTAL Non-Flat	341.6	922.7	657.6	522.1	256.6
	Flat					
	Plates	409.9	731.7	1059.7	739.7	452.3
	HR Sheets	102.1	78.6	105.1	38.6	9.6
	HR Coils/Skelp/Strips	1104.3	2006.3	3400.6	1904.9	1425.2
	CR Coils/Sheets	1278.9	1713.5	2235.1	917.3	483.0
	GP/GC Sheets	368.1	444.1	586.2	566.5	898.0
	Elec.Sheets	346.5	417.9	318.2	296.9	469.3
	TMBP	0.8	1.4	3.8	1.0	1.0
	Tin Plates	188.4	217.7	170.5	249.2	154.1
	Tin Free Steel	56.5	87.3	80.6	29.0	51.4
	Pipes	101.4	132.4	100.8	99.0	353.1
	TOTAL Flat	3956.9	5830.8	8060.7	4842.0	4297.0
	TOTAL Fin. Steel (Non-Alloy)	4298.6	6753.5	8718.2	5364.1	4553.5
	TOTAL STEEL (Non-Alloy)	4549.9	7414.1	9656.6	6099.5	5167.1
	Alloy/Stainless Steel					
	Non-Flat	236.6	821.8	1119.5	467.7	371.8
	Flat	914.6	1744.9	1874.5	1392.6	1171.6
	Semi-finished	7.1	35.8	42.4	10.2	55.4
	TOTAL FIN. STEEL (Alloy/Stainless)	1151.2	2566.8	2993.9	1860.3	1543.4
	TOTAL STEEL (Alloy/Stainless)	1158.3	2602.5	3036.3	1870.5	1598.8
	TOTAL FIN. STEEL (Alloy+Non-Alloy)	5449.8	9320.3	11712.2	7224.4	6096.9
	TOTAL Steel (Non-Alloy + Alloy)	5708.2	10016.6	12692.9	7970.0	6765.9
III	Other Steel Items					
	Fittings	298.0	419.4	482.5	470.7	162.1
	Misc.Steel Items	3402.9	2327.3	1902.4	1329.4	1199.7
	Steel Scrap	4926.7	5784.3	6627.1	5365.0	3646.6
IV	Iron					
	Pig Iron	34.2	23.4	21.9	34.1	12.3
	Sponge Iron	7.3	20.1	0.2	1.3	58.3
	H.B.Iron	0.0	0.0	0.8	0.0	0.0
V	Ferro-Alloys	140.5	242.2	237.4	575.9	469.4
	GRAND TOTAL	14517.8	18833.3	21965.3	15746.5	12314.3

Source: JPC; * Provisional



ANNEXURE - XI

CATEGORY-WISE EXPORT OF IRON & STEEL					
('000 tonnes)					
CATEGORY	2013-14	2014-15	2015-16	2016-17	Apr-Dec 2017-18*
SEMIS (Non-Alloy)	484.2	637.7	635.7	1184.4	1184.4
FINISHED STEEL (Non-alloy)					
Non-Flat					
Bars & Rods	585.1	392.4	365.0	628.9	1786.6
Structurals	64.7	83.1	81.6	160.6	125.4
Railway Materials	1.2	2.8	1.9	82.6	40.3
Total Non-Flat	651.0	478.2	448.5	872.2	1952.4
Flat					
Plates	154.9	559.3	266.2	300.7	351.0
H R Coils/Sheets	2130.2	1374.7	446.6	2952.5	2178.1
C R Sheets/Coils	560.6	584.7	655.2	1393.7	951.5
GP/GC Sheets	1821.7	1629.3	1420.2	1715.8	856.1
Elec. Sheets	9.9	9.9	19.3	44.7	53.9
Tinplates	70.1	46.9	56.4	55.6	22.6
Tin Free Steel	0.5	0.3	0.9	1.7	1.5
Pipes	109.3	223.1	162.1	247.5	504.7
Total Flat	4857.4	4428.1	3026.9	6712.2	4919.3
Total Fin. Steel (Non-Alloy)	5508.4	4906.3	3475.3	7584.3	6871.7
Total Steel (Non-Alloy)	5992.6	5544.0	4111.1	8768.7	8262.4
Non-Flat Alloy/Stainless	227.9	336.1	165.3	190.3	452.9
Flat Alloy/Stainless	249.1	353.3	438.7	468.1	279.5
Total Finished Steel (Alloy/Stainless)	477.0	689.4	604.0	658.4	732.4
Semi-Finished (Alloy/Stainless)	2.0	1.9	3.1	7.7	27.4
Total Steel (Alloy/Stainless)	479.0	691.3	607.1	666.1	759.9
Total Fin. Steel (Non-Alloy+Alloy)	5985.3	5595.7	4079.3	8242.7	7604.1
Total Steel (Non-Alloy + Alloy)	6471.6	6235.4	4718.1	9434.8	9022.3
PIG IRON	943.1	540.0	297.2	386.8	427.4
SPONGE IRON	74.0	98.0	127.2	130.3	250.5

Source: JPC; * Provisional

ANNEXURE - XII

**POSITION OF IMPLEMENTATION OF THE
JUDGEEMENTS / ORDERS OF THE CENTRAL
ADMINISTRATIVE TRIBUNAL**

Steel Authority of India Limited

Bokaro Steel Plant: (a) O.A. No. 51/00173/2017Ajay Kumar Vrs. SAIL/BSL (regarding quashing of the release order dated 12.09.2017 whereby and where under the applicant was released from BSL). The O.A. has been dismissed vide order dated 07.11.2017 in favour of SAIL/BSL with a direction to pass a reasoned Order. The same is in the process of being implemented.

(b) O.A. No.94/2015 Niraj Kumar &Ors. Vrs. SAIL/BSL (Niraj Kumar & others have filed an application in CAT, Patna Bench, Patna for quashing the order dated 31/01/2014. They have further requested to engage them as substitutes in Group "D" post and subsequently to absorb them in the appropriate post). The matter was disposed on 14/06/2016. The Order is in the process of being implemented.

KIOCL LTD.

The following cases are pending before the Central Administrative Tribunal (CAT) and High Court:

1	OA	575-579/ 2013	MV Kulakarni & others	Vs	Union of India & others	KIOCL Introduced VRS and 5 employees who have applied for VRS filed application for withdrawing their VRS application. Company has not considered their application. These 5 employees have filed application before CAT for quashing the Office Order and declaring time for withdrawal of VR application 5 days as arbitrary and direction for continue the applicants in the service of KIOCL. The tribunal allowed the petition and company has filed writ petition before High Court and the same is pending.
2	OA	872-874/ 2013	H.S. Suresh & others	Vs	Union of India & others	KIOCL Introduced VRS and 3 employees who have applied for VRS filed application for withdrawing their VRS application. Company has not considered their application. These 3 employees have filed application before CAT for quashing the Office Order and declaring time for withdrawal of VR application 5 days as arbitrary and direction for continue the applicants in the service of KIOCL. The tribunal allowed the petition and company has filed writ petition before High Court and the same is pending.
3	OA	32/2012	T. Ramesh	Vs	KIOCL Ltd. & others	Three working women employees at Stores Department of Mangalore complained in writing against Shri T Ramesh, Manager (Stores) alleging sexual harassment. The Committee formed by the Company enquired and found Shri T Ramesh guilty and was removed from the service of the Company. Shri T Ramesh challenged the said Order of removal before Tribunal by filing OA to set aside the findings of the Committee & Termination Order passed by CMD. The tribunal allowed the application by quashing the entire proceedings as well as the punishment and directed to reinstate the applicant within two weeks with all attendant benefits made available to him with in that period or if time exceeds it should carry 12% interest. Company has filed WP 38701/2014 before High Court of Karnataka against the order of CAT. High Court has not granted stay of the order of CAT and Shri T Ramesh was reinstated without back wages. Case is pending before High Court.



ANNEXURE - XIII

COMPARATIVE PBT (PROFIT BEFORE TAX) OF STEEL PSUs

(Rs. in crores)

Sl. No.	PSU/Company	2013-14	2014-15	2015-16	2016-17	2017-18* (Apr-Dec)
1	SAIL	3225.00	2358.91	(-)7198.44	-4851.00	-2028.00**
2	RINL	549.15	103.35	-1417.23	-1690.49	-1321.00
3	NMDC	9759.20	9767.84	4092.02	4292.92	2809.14**
4	MOIL	769.33	650.57	270.26	461.90	441.60
5	MSTC	(-)107.37	131.47	91.34	96.61	100.17
6	FSNL	12.43	25.36	32.53	36.22	21.30
7	OMDC\$	16.74	25.84	18.91	12.36	5.90
8	EIL ##	0.24	(-)12.62	1.71	1.16	0.62
9	MECON	68.69	33.01	-174.7	-88.14	-49.56
10	KIOCL	61.40	31.26	-89.67	31.22	28.18
11	BSLC\$	(-)18.77	(-)27.27	-16.17	(-)17.74	(-)14.45

*Provisional

** Upto September, 2017

Eastern Investment Ltd. (EIL), \$ Orissa Mineral Development Company Limited (OMDC), Bisra Stone Lime Company Limited (BSLC), are constituents of the erstwhile Bird Group of Companies (BGC).

ANNEXURE-XIII (A)

COMPARATIVE PAT (PROFIT AFTER TAX) OF STEEL PSUs

(Rs. in crores)

Sl. No.	PSU/Company	2013-14	2014-15	2015-16	2016-17	2017-18* (Apr-Dec)
1	SAIL	2616.48	2092.68	-4137.26	-2833.00	-1340.00**
2	RINL	366.45	62.38	-1420.64	-1263.16	-978.58
3	NMDC	6420.08	6421.86	2712.22	2589.14	1813.50**
4	MOIL	509.56	428.01	172.98	305.83	288.77
5	MSTC	-70.03	90.99	59.88	65.43	65.47
6	FSNL	8.42	17.1	21.11	23.75	13.92
7	OMDC\$	6.26	17.7	10.63	5.86	2.09
8	EIL ##	0.09	(-)12.72	1.44	0.85	0.48
9	MECON	49.48	20.27	-162.41	-83.84	-49.56
10	KIOCL	39.93	30.82	-80.50	47.93	18.43
11	BSLC\$	-18.77	(-)27.27	-16.17	-17.74	-14.45

*Provisional

** Upto September, 2017

Eastern Investment Ltd. (EIL), \$ Orissa Mineral Development Company Limited (OMDC), Bisra Stone Lime Company Limited (BSLC), are constituents of the erstwhile Bird Group of Companies (BGC).



ANNEXURE - XIV

CONTRIBUTION MADE TO THE CENTRAL GOVERNMENT AND GOVERNMENT INSURANCE COMPANIES BY THE STEEL PSUs

(Rs. in crores)

Sl. No.	PSU/Company	2013-14	2014-15	2015-16	2016-17	2017-18* (Apr-Dec)
1	SAIL	8187.82	7667.00	5373.00	6951.00	2342.00**
2	RINL	1643.11	1428.96	1397.53	1501.43	1190.8
3	NMDC	8952	6681.00	6655.78	10646.00	2085.00
4	MOIL	291.75	230.29	201.23	254.97	272.08
5	MSTC	81.41	84.70	70.37	78.16	54.50
6	FSNL	40.83	41.11	42.87	49.68	25.7
7	MECON	92.96	87.47	86.62	77.94	45.62
8	KIOCL	261.05	110.79	37.54	58.78	61.36
9	BGC	10.28	5.85	1.86	2.71	1.44

*Provisional

** Upto September, 2017

ANNEXURE-XIV (A)

CONTRIBUTION MADE TO THE STATE GOVERNMENTS BY THE STEEL PSUs

(Rs. in crores)

Sl. No.	PSU/Company	2013-14	2014-15	2015-16	2016-17	2017-18* (Apr-Dec)
1	SAIL	3372.54	3443.00	3124.00	3292.00	1401.00**
2	RINL	606.62	514.91	556.37	531.59	327.14
3	NMDC	932.00	1262.00	1070.67	1332.00	1253.00
4	MOIL	83.24	69.41	62.17	90.7	83.32
5	MSTC	45.86	68.63	67.10	31.86	19.50
6	FSNL	0.73	1.40	0.32	0.71	7.55
7	MECON	0.94	1.62	1.77	0.39	2.38
8	KIOCL	20.44	6.13	2.33	0.51	0.06
9	BGC	4.38	7.22	5.07	8.44	5.26

*Provisional

** Upto September, 2017



ANNEXURE-XV

BUDGET AND EXPENDITURE ON CSR BY STEEL PSUS

(Rs. in lakhs)

PSU Company	2013-14		2014-15		2015-16		2016-17		2017-18*	
	Budgeted	Exp.	Budgeted	Exp.	Budgeted	Exp.	Budgeted	Exp	Budgeted	Exp (Apr-Dec)
SAIL	4000.00	6206.00	7800.00	3504.00	10016.00	7616.00	2934.00	2905.00	2600.00	1022.00**
RINL	750.00	2031.00	1423.00	1404.00	1137.00	873.00	748.00	852.68	778.00	643.66
NMDC	17105.00	13142.00	25018.69	18865.00	29820.00	21009.00	24832.00	17418.00	19516.00	6650.00
MOIL	863.00	1036.34	1419.00	1357.57	1430.00	1447.39	1127.00	1143.10	922.00	691.00
MSTC	260.00	483.00	120.00	120.00	145.00	150.26	80.00	80.44	214.00	177.23
FSNL	4.00	4.50	25.27	22.10	26.80	26.83	51.16	77.29	63.36	-
MECON	460.46	272.33	468.23	144.45	491.51	221.08	270.43	67.31	203.12	27.83
KIOCL	93.00	227.00	110.00	101.00	96.50	64.00	43.50	38.19	16.70	0.07
BGC	64.00	92.27	99.60	33.50	73.00	72.99	46.00	13.32	70.67	16.07

* Provisional

** Upto September, 2017



ANNEXURE-XVI

ADOPTION OF 'SEVEN STEP MODEL FOR CITIZEN CENTRIC-SEVOTTAM', AS PER RECOMMENDATION OF THE 2nd ADMINISTRATIVE REFORMS COMMISSION

The Second Administrative Reforms Commission in its 12th report "Citizens Centric Administration - the Heart of Governance" in paragraph 4.6.2 recommended for making organization transparent, accountable and citizens friendly through making citizens charter more effective and mandatory. The Department of Administrative Reforms and Public Grievances (AR & PG) has developed a model for benchmarking Excellence in Public Service Delivery (Sevottam). The model provides the framework to organizations to assess and improve the quality of service delivery for the citizens. It involves the identification of the services delivered to the citizens, quality of service, its objective, improvement of quality, by using innovative methods for developing business process more informative with the help of information technology.

The Ministry of Steel has brought out its 'Citizen Charter' and this is periodically updated in tune with the changing requirements and expectations from the stakeholders. The Charter is placed on the Ministry website www.steel.nic.in. The Central Public Sector Enterprises under the Ministry have also got their Citizen Charter uploaded on their respective websites.



ANNEXURE-XVII

RECENT IMPORTANT AUDIT OBSERVATIONS**Summary of Report No. 9 of 2017- General Purpose Financial Reports on CPSEs**

Weighbridges installed by Steel Authority of India Limited (SAIL) at its Meghahatuburu and Kiriburu Iron Ore Mines remained non-functional because these weighbridges were either not as per Railway specifications or were derecognised by the Railways. SAIL continued to load wagons/ rakes at the mines on estimation basis and the company had to incur expenditure on penalty/idle freight on over/under loading of iron ores amounting to Rs.101.97 crore during the period from 2011-12 to 2015-16.

(Para 15.4)

Steel Authority of India Limited approved (January 2008) installation of new Cold Rolling Mill (CRM) complex in Bokaro Steel Plant (BSL) to produce 1.2 million tonne of saleable steel at a total estimated cost of Rs.2,524.04 crore. Deficient project management led to delay of six years in completion of CRM project which has not been fully commissioned (December 2016). The delay resulted in additional interest of Rs.580 crore as from April 2012 to 31 August 2016 during construction of the project.

Further, the delay in commissioning of Acid Regeneration Plant (ARP) also resulted in avoidable expenditure of Rs.10.59 crore on account of payment made to a contractor under O&M contract (during February 2014 to March 2015) for the ARP package.

(Para 15.5)

Bokaro Steel Plant (BSL) and Rourkela Steel Plant (RSP) of Steel Authority of India Limited produce flat saleable steel product in their rolling mills. The process involves production of slabs which are used as input for producing flat steel. The optimum requirement of slabs for continuous operation of downstream rolling mills is 7 to 15 days stock of slabs. Deficient production planning led to accumulation of slab stock causing avoidable stock carrying cost of Rs.391 crore.

(Para 15.8)

Steel Authority of India Limited (SAIL or Company) purchases a range of materials for steel making either through domestic sources or through import. Audit examined purchase orders representing 63.19 per cent of total procurement value (excluding coal) of the five steel plants and the Corporate Material Management Group of the company covering three years (2012-15).

SAIL made limited use of Open/Global tenders with 24.4 per cent of the total value of procurement being made on limited tender basis and another 29 per cent on single tender basis. Although annual purchases of the plants up to Rs. 2 crore were about Rs. 1,851 crore, there were inadequate controls and no uniform procedures to deal such cases. There was lack of uniformity in purchase processes followed across the steel plants. Instances were noticed of costlier purchases through single tender basis. The Company procured Low Silica Lime Stone at significantly higher cost and incurred extra expenditure of Rs.484.15 crore on purchases made during 2012-16. RSP purchased dolomite from another Public Sector Undertaking (PSU) and incurred extra expenditure of Rs.88.04 crore due to dependence on this single source. BSL incurred an avoidable extra expenditure of Rs.235 crore by



using three time costlier pellets from a PSU as substitute of iron ore lump and sinter. The Company again resorted to avoidable use of pellets and incurred an extra expenditure of Rs.25.14 crore. BSL incurred extra expenditure of Rs.8.41 crore by opting road transport for dolomite chips instead of cheaper railways freight. The Company did not exploit production facilities of its refractory units to fullest to optimise its cost and ordered materials on other suppliers at higher cost. There were doubts on the credibility of purchases made through reverse auction. The Company had a high holding period of stores and spares as compared to its prescribed policy. The Company's efforts in implementing Public Procurement Policy of Government of India on Micro & Small Enterprises (MSEs) needed to be strengthened.

(Para 15.9)



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