

2018-19

Annual Report



Ministry of Steel
Government of India

SAIL supplied
90% of steel for
the bridge



DHOLA-SADIYA BRIDGE

ANNUAL REPORT 2018-19



Ministry of Steel

Government of India

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CHAPTER-I

HIGHLIGHTS

1.1 Trends and Developments in Steel Sector

- India has become the world's 2nd largest producer of crude steel in calendar year 2018, producing 106.464 Million Tonnes (MT) (prov.) crude steel with growth rate of 4.94% over 2017.
- India is the largest producer of Direct Reduced Iron (DRI) or Sponge Iron in the world, producing 30.368 MT (prov.) Sponge Iron in 2018 with growth rate 3% over 2017.
- The country is also the 3rd largest consumer of finished steel in 2018 [96MT (prov.)] in the world preceded by China (835MT) and USA (100MT) [Source: WSA].
- Capacity for domestic crude steel production expanded from 102.26 MT in 2013-14 to 137.97 MT in 2017-18, a CAGR growth of 6.17% during this five-year period (Data on capacity utilization in 2018-19 is yet to be finalized).
- Crude steel production grew at 3.67% annually (CAGR) from 88.979 million tonnes in 2014-15 to 106.565 million tonnes in 2018-19 (prov.).
- The steel sector contributes around 2% of the country's GDP and employs around 25 lakhs persons in steel/allied sectors.
- During 2018-19 (provisional; source: JPC), the following is the industry scenario as compared to same period of last year:
 - a. Production of crude steel was at 106.565 million tonnes, a growth of 3.33% compared to same period of last year. SAIL, RINL, TSL, Essar, JSWL & JSPL together produced 63.602 million tonnes during 2018-19 which was a growth of 7.1% compared to same period of last year and 62% of total crude steel production. The rest 38% i.e. 42.962 million tonnes came from the Other Producers, which was a decline of 1.8% over same period of last year.
 - b. Pig iron production was 6.055 million tonnes, increased by 5.7% compared to last year. The Private Sector accounted for 91% of the same, the rest 9% being the share of the Public Sector.
 - c. In case of total finished steel (non-alloy + alloy/stainless):
 - ❖ Production stood at 131.572 million tonnes, a growth of 3.72% compared to last year.
 - ❖ Exports stood at 6.361 million tonnes, a decline of 33.87% compared to last year.
 - ❖ Imports stood at 7.834 million tonnes, a growth of 4.7% compared to last year.
 - ❖ India was a net importer of total finished steel.
 - ❖ Consumption stood at 97.536 million tonnes, a growth of 7.53% 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 from 2013-14 to 2018-19 (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	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
Finished Steel						
Production (Gross)	99.380	104.578	106.602	120.140	126.855	131.572 (3.72)
Imports	5.450	9.320	11.712	7.226	7.482	7.834 (4.7)
Export	5.985	5.596	4.079	8.242	9.620	6.361 (-33.87)
Apparent Steel Use	74.096	76.994	81.525	84.042	90.708	97.536 (7.53)
Crude Steel						
Production	81.694	88.979	89.790	97.936	103.131	106.565 (3.33)

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

1.2 Major Initiatives taken/achievements by the Ministry of Steel during 2018-19

1.2.1 Memorandum of Understanding [MoUs] With Capital Goods Manufacturers Under 'Make In India' Initiative

The National Steel Policy - 2017 envisages creation of 300 MT of steel capacity in the country by 2030-31 as against existing capacity of 138 MT. The estimated import of plant and equipment, for reaching 300 MT capacity, will be around Rs. 1,72,550 crores. Further, it is estimated that at 300 MT capacity level, India will have to spend about Rs. 3,450 crores annually for import of proprietary and other spares.



Coffee Table Book of Ministry of Steel was released during the Conclave on "Capital Goods in Steel Sector: Manufacture in India" in Bhubaneswar, Odisha on 23.10.2018

Ministry of Steel organized a Conclave on "Capital Goods in Steel Sector: Manufacture in India" in Bhubaneswar, Odisha on 23.10.2018. The Conclave is an initiative to promote domestic capacity and capability building and manufacturing of capital goods in steel sector.

The Conclave was attended by Minister of Steel, Minister of Heavy Industry, Minister of Petroleum & Natural Gas and Chief Minister of Odisha, senior officials of Govt. of India and State Govt. Nearly 30 top executives from 12 countries of Europe and Asia participated. Over 300 delegates comprising steel producers, Indian Capital Goods manufacturers, consultants, steel users, secondary steel sectors, associations, academia & R&D institutions attended the conclave.



Union Minister Shri Dharmendra Pradhan, addressing the participants during the Conclave on "Capital Goods in Steel Sector: Manufacture in India" in Bhubaneswar, Odisha on 23.10.2018

To meet the objective of the conclave, a strong beginning has been made by signing of as many as 38 MoUs with Foreign Technology companies, Indian Capital Goods manufacturers, Consultants and Indian steel producers. This broadly covers the entire spectrum of steel plant operations. All world renowned steel technology companies such as Paul Wurth, Danieli Corus, SMS, Metso, Sarralle, Acre, CSM etc. were involved in MoU signing. In the beginning, about Rs.39,400 crore worth of imported capital goods will be manufactured within the country as part of Make-in-India drive in steel sector during the next 12 years and would gradually increase over the years.

1.2.2 Award Scheme for Secondary Steel Producers

Ministry of Steel has instituted an Award Scheme for Secondary Steel Producers in the year 2018, to give recognition for their contribution in the national economy and to encourage these producers to achieve high standards of efficiency, quality, safety & economy in operation and also to promote innovation, waste utilization, reduction in Green House Gases (GHG) emission etc. The awards were given away at the Secondary Steel Sector Conclave held on September 13, 2018 for the performance year 2016-17.

1.2.3 Policy for Providing Preference to Domestically Manufactured Iron & Steel Products in Government Procurement (DMI&SP)

To promote domestic production of Iron and Steel, 'Policy for Providing Preference to Domestically Manufactured Iron & Steel Products in Government Procurement (DMI&SP)' has been notified in May

2017. The key features of the policy are:-

- To accomplish the vision of Government(Make in India) with the objective to encourage domestic manufacturing
- Imposition of several trade remedial measures
- Infrastructure development
- Preference to Domestically Manufactured Iron and Steel Products in Government Procurements
- Mandates minimum 15% domestic value addition for domestic producers
- Making BIS certification essential for most of the items(covering around 85% of the total steel products)

The policy of preference to Domestic Manufacturers of Iron and Steel Product (DMI&SP) which was rolled out in May,2017 has brought an estimated savings of around Rs.8500 crores worth of foreign exchange for the steel used in Oil, Gas and Railways sector.

1.2.4 Steel Research and Technology Mission of India (SRTMI)

Government has facilitated setting up of an innovative institutional mechanism namely SRTMI to promote joint collaborative research projects of national importance in Iron & Steel sector in India. This is an industry driven platform and the initial corpus is being funded by the major steel companies. SRTMI has been registered under the Societies Registration Act on 14th October 2015. SRTMI is actively interacting with steel companies, research labs & academia to spearhead research for the Iron & Steel sector.

1.2.5 R&D through Government Budget

Ministry of Steel is operating a R&D scheme namely, Promotion in Research and Development in Steel Sector. During the year 2018-19, 10 R&D projects have been approved with total cost of Rs 45.05 crore with financial assistance of Rs. 18.77 crore from the Government budget. 21 R&D projects are in progress.

1.2.6 Centre of Excellence in Steel Technology

Ministry of Steel is providing financial assistance for setting up of Centre of Excellences for creation of world class facility for metallurgical engineering and also for development of human resource for the steel sector. Such facilities are promoting R&D for the Iron & Steel sector and also generate skilled manpower for the sector. Four such Centers have been set up/ approved at IIT Kharagpur, IIT Bombay, IIT BHU and IIT Madras.

1.2.7 Steel and Steel Products (Quality Control) Order

Government has been facilitating supply of quality steel for critical end-use applications such as infrastructure, construction, housing and engineering sectors. Ministry of Steel is the leading Ministry with maximum coverage of products under the BIS certifications marks scheme. More than 85% steel products in the country are covered under Mandatory Quality Control Orders. These orders prohibit, import, sale and distribution of substandard steel products. This ensures better health & safety standards for end-users. Ministry of Steel has so far covered 47 carbon steel and 6 stainless steel products standards under the Mandatory BIS Certification scheme.

1.2.8 NEDO Model Projects

Under the NEDO model projects, Ministry of Steel, with financial assistance from Government of Japan, facilitated setting up of model projects in integrated steel plants to promote energy efficient, clean and green technologies. Under this scheme, during the period April 2014-March 2018, one model project on Energy Management System has been approved and is under implementation at ISP Burnpur of SAIL.

1.2.9 UNDP Project

Ministry of Steel in association with UNDP and AusAid have implemented the project "Up scaling Energy Efficient Production in Small Scale Steel Industry in India". Through this project, skill development

training was imparted to implement energy efficient technologies in 283 re-rolling mills and 4 induction furnace units for improvement of productivity, reduction in energy consumption and GHG emission. This resulted in average 24% reduction in energy consumption in these units.

1.2.10 Global Forum on Steel Excess Capacity (GFSEC) and India



Indian delegation led by Union Steel Minister Shri Birender Singh at the GFSEC meeting

The steel sector has been an important sector linking economies throughout the world through its central position in global value chains. Excess steelmaking capacity is a global challenge which continues to plague this sector and creates significant difficulties for steel producers in advanced, emerging and developing economies alike. The situation has become particularly acute since 2015. It depresses prices, undermines profitability, generates damaging trade distortions, jeopardizes the very existence of companies and branches across the world and also creates regional imbalances.

Alleviating excess capacity becomes a necessary condition for more stable, profitable & sustainable business and employment conditions. This would also help the industry to face a number of long term challenges more effectively.

In light of these challenges, G20 Leaders called for the formation of a Global Forum on Steel Excess Capacity (GFSEC) at their summit on 4 and 5 September, 2016, in Hangzhou, China. The Global Forum brings together 33 member economies representing more than 90% of global steel production and capacity.

India has played an important role in GFSEC. India co-chaired the meeting, under Argentinean Presidency in 2018 in GFSEC. India has upheld and supported the interests of developing/ emerging nations at the Forum and maintained that these countries may increase capacity due to their lower level of infrastructure growth, low per capita steel consumption, etc. In order to become more self-sufficient and for infrastructural development, emerging/ developing economies would produce steel as per the market demand. However, these economies would operate on the principle of the level playing field.

1.3 Major Expansion/acquisitions/Joint Ventures by PSEs

1.3.1 Steel Authority of India Ltd. (SAIL)

- Steel Authority of India Ltd. undertook modernization & expansion of its Integrated Steel Plants at Bhilai, Bokaro, Rourkela, Durgapur, Burnpur and Salem Steel Plant. The Modernization & Expansion plan envisaged to enhance the Crude Steel capacity from 12.8 Million Tonne Per Annum (MTPA) to 21.4 MTPA. The indicative investment for this is about Rs.61,870 crore. In addition, Rs.10,264 crore has been earmarked for modernization & expansion of SAIL Mines.
- Cumulative expenditure towards Modernisation & Expansion Plan till March'19 has been Rs.69,255 crore including expenditure of Rs.2,009 crore during the Financial Year 2018-19. During the Financial Year 2017-18, the cumulative expenditure towards Modernization and Expansion Plan was Rs.67,246 crore including expenditure of Rs.340 crore during Q-4 of 2017-18.
- The Modernisation and Expansion of Steel Plants at Rourkela, Burnpur, Durgapur, Bokaro and Salem has been completed and various facilities are under operation, stabilization and ramp up. The modernisation and expansion of Rourkela Steel Plant and IISCO Steel Plant has been dedicated to the Nation by the Hon'ble Prime Minister on 01.04.2018 and 10.05.2018 respectively.
- At Bhilai Steel Plant, major facilities under Modernisation and Expansion have been completed except one Caster and one Converter in SMS-III and the integrated process route is in operation, stabilization & ramp-up. Hon'ble Prime Minister of India dedicated the Modernized and Expanded Bhilai Steel Plant to the Nation on 14.6.2018.

1.3.2 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 about 93% of civil work, 90% structural erection, 76% equipment erection have been completed as on 31.3.19.
- NMDC expanding its business through forward integration in both Greenfield and Brownfield through following projects:
 - ❖ 1.2 MTPA Pellet Plant at Donimalai in Karnataka already commissioned.
 - ❖ In the process of developing 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.

1.4 Highlights of CPSEs during 2018-19

1.4.1 Steel Authority of India Ltd. (SAIL)

- Crude steel production of 16.26 million tonnes and finished steel production of 11.90 million tonnes in 2018-19.
- Net worth of the Company was Rs. 35,714 crore as on 31.03.2018 and Rs. 38,152 as on 31.03.2019.
- No Dividend was paid by SAIL for FY 2017-18. In case of 2018-19, dividend of Rs.0.50 per share of Rs.10 each has been proposed subject to approval of the Shareholders in the ensuing Annual General Meeting.
- Sales turnover was Rs.16,810.88 crore during the period January-March, 2018 and Rs.66,267.30 crore for the year ended 31st March, 2019.

1.4.2 Rashtriya Ispat Nigam Ltd. (RINL)

- Registered total saleable steel sales of 4.91 million tonnes with a growth of 9% over CPLY.
- Achieved Sales turnover of Rs. 20,844 crore with a growth of 25% over CPLY.
- Achieved growth of 11% over CPLY in Saleable Steel production.



- Growth achieved over CPLY in other major production areas also, with a growth of 12% in Hot Metal, 11% in Crude Steel, 9% in Finished Steel, 2% in Value added steel and 13% in captive power generation.
- Improvement was registered in Efficiency Parameters like Labour productivity (8%), Specific Water Consumption (3%) and Specific Energy Consumption (1%).

1.4.3 NMDC Ltd.

- Production of iron ore during the year was 32.36 million tonnes
- Domestic sale of iron ore was 31.20 million tonnes.
- Export sales of NMDC during the year was 1.18 million tonnes.
- Total Sales during the year was 32.38 million tonnes.
- NMDC has earned profit before tax of Rs 7198 crores (prov.) during the year.

1.4.4 MOIL Ltd.

- MOIL Ltd. produced 13.01 lakh tonnes (prov.) of manganese ore.
- The total income of the company was Rs. 1623.02 crore.
- The Profit Before Tax of the company was Rs. 719.75 crore (prov.).
- The Profit After Tax was Rs. 473.89 crore (prov.).
- MOIL has paid interim dividend of Rs. 77.28 crore for the financial year 2018-19.

1.4.5 MSTC Ltd.

- MSTC's total volume of business during 2018-19 was of Rs. 111236.61 crore.
- Turnover of Rs. 2927 crore (prov.) during 2018-19.
- Made rapid stride in the e-commerce sector for promoting e-Governance in all sectors of economy.

1.4.6 MECON Ltd.

- Profit before tax of Rs. 11.18 crore (provisional) and profit after tax of Rs. 15.87 crore (provisional) during the FY 2018-19.
- The Net Worth as on 31.03.2018 was Rs. 227.86 crore and as on 31.03.2019 is Rs. 243.73 crore (provisional).
- Paid dividend of Rs. 10.27 crore on Equity Share Capital for the FY 2017-18.

1.4.7 KIOCL Ltd

- Achieved a record Turnover of ₹1878.22 Crore which is highest since inception.
- Achieved cumulative Production of 2.238 Million Tons of Pellets - Surpassed the Excellent" MoU Target of 2.170 Million Tonnes.
- Reported a Profit Before Tax of Rs. 184.12 crore and Profit After Tax of Rs. 111.86 crore for the Financial Year 2018-19 against target of Rs. 43.78 Crore and Rs. 28.63 crore respectively.

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 and is assisted by Minister of State for 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

- Facilitate increase in steel usage in country to create demand of Steel and thereby to facilitate increase in steel making capacity.
- Facilitate growth in steel production to meet increased steel consumption/demand.
- Facilitate adequate availability of raw materials for steel industry particularly iron ore and coal for PSUs.
- To strive for improvement in performance of Iron & Steel industry including R&D and Technology interventions, Quality Control Orders and improvements in techno-economic parameters.
- Policy Initiatives needed for steel sector.
- Monitoring performance of CPSEs: Against MOU targets, CAPEX and Implementation of large projects.
- Safety in steel industry.
- Coordination with Department of Commerce on issues concerning: export/import & trade matters relating to iron ore/manganese/chromium; taxation and policy for import and export duty on steel products and International Trade issues (anti-dumping duty, safeguards, countervailing etc.)

2.1.2 Allocation of Responsibilities

The Ministry has 25 sections dealing with various subjects. The key divisions include Establishment, General Administration, Coordination, Budget & Finance, Projects & International Cooperation, Steel Development (Institutes), Technical Division, SAIL, MF, NMDC, Raw Materials, Trade & Taxation, Industrial Development, MECON, RINL, Board Level Appointment, KIOCL, MOIL, Economic and Statistics Division.

2.2 Other Related Organs of the Ministry of Steel

2.2.1 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 and non-partisan databank on this industry. JPC is headquartered at Kolkata with four regional offices in New Delhi, Kolkata, Mumbai and Chennai and an extension office in Bhubaneswar 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 currently headed by Additional Secretary to Government of India, Ministry of Steel as its Chairman and has representatives from the government, steel fraternity and industry as its esteemed Members. The four Regional Offices of JPC along with the Extension Centre 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, Vibrant Gujarat, Steel pavilion at IITF.

A range of publications and data reports, on monthly and annual basis ensure the spread of information and data to all stakeholders of industry. Segment surveys help in updating population structure while studies in emerging markets/segments are undertaken to understand the trends therein and prospects for growth of steel industry.

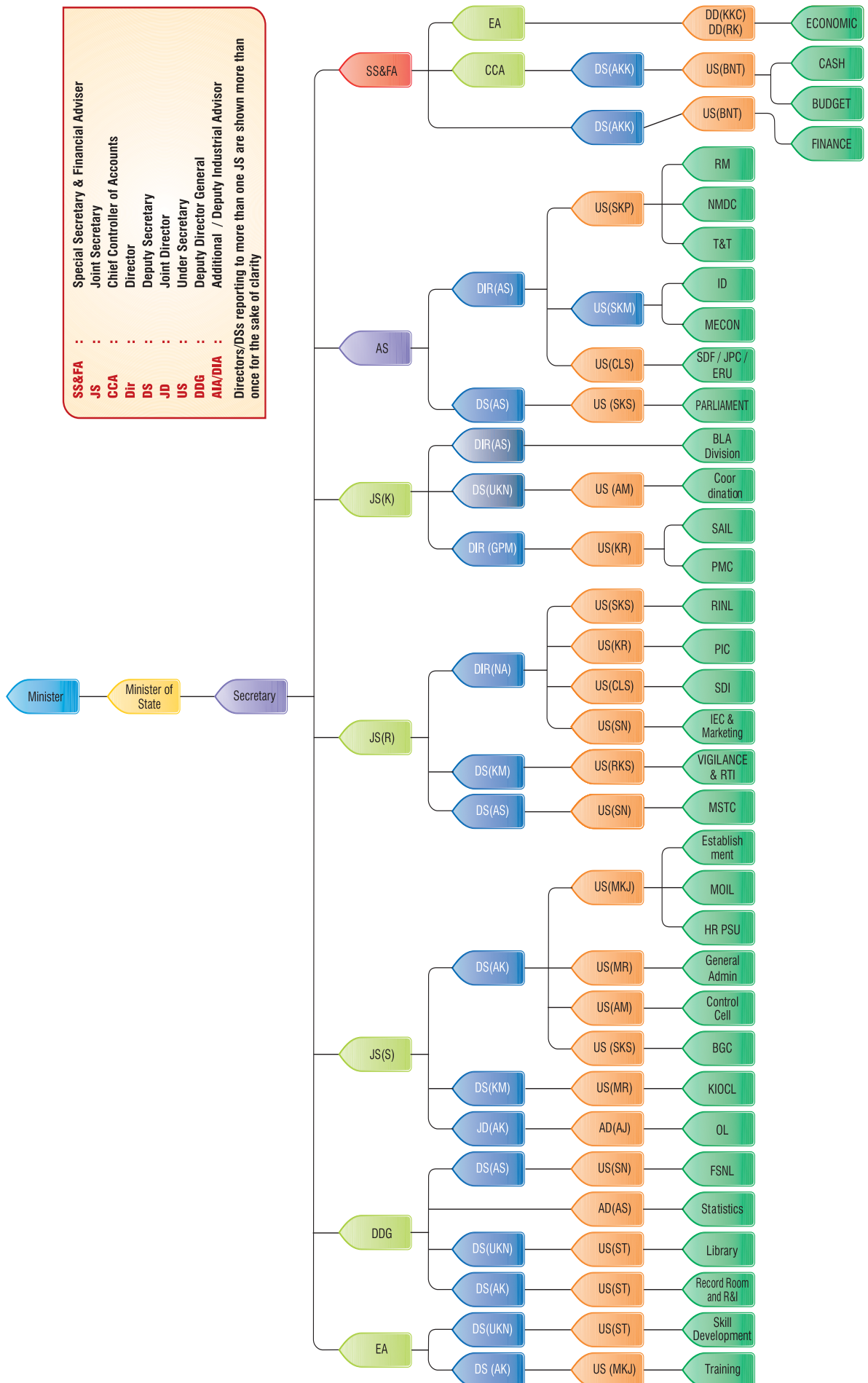
2.2.2 Economic Research Unit

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. The ERU is the secretariat of Steel Exporters' Forum, which is an association of the industry and various government bodies, set up to facilitate exports of the steel from the country.

2.3 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 http://www.sail.co.in	SAIL Refractory Co. Ltd. Post Bag No. 565 Salem-636005 (TN)
2.	Rashtriya Ispat Nigam Ltd.	Administrative Building, Visakhapatnam - 530031 (Andhra Pradesh) http://www.vizagsteel.com	Bird Group of Companies AG 104, Saurav Abasan 2nd Floor, Sector II, Salt Lake City, Kolkata-700091 http://birdgroup.gov.in
3.	NMDC Ltd.	Khanij Bhawan, 10-3 -311/A, Castle Hills, Masab Tank, Hyderabad-500028 (Andhra Pradesh) http://www.nmdc.co.in	J&K Mineral Development Corporation Ltd., 143-A, Gandhi Nagar, Jammu-180004 (J&K) http://www.jkminerals.com
4.	MOIL Ltd.	MOIL Bhawan, 1-A, Katol Road, Nagpur-440013 (Maharashtra) http://moil.nic.in	
5.	MSTC Ltd.	225-C, Acharya Jagdish Chandra Bose Road, Kolkata-700020 (West Bengal) http://www.mstcindia.co.in	Ferro Scrap Nigam Ltd., FSNL Bhawan, Equipment Chowk, Central Avenue, Bhilai-490001 (Chhattisgarh) http://fsnl.nic.in/
6.	MECON Ltd.	MECON Building, Ranchi-834002 (Jharkhand) http://www.meconlimited.co.in	
7.	KIOCL Ltd.	II Block, Koramangala Bengaluru-560034 (Karnataka) http://www.kioclltd.com	

ORGANIZATION CHART OF THE MINISTRY AS ON MARCH 31, 2019





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.

(i) 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

Fifty Three (53) 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.

Steps taken by Ministry for achieving the targets in NSP 2017

- a) To fulfill policy objectives this Ministry organized a conclave on "Capital Goods for Steel Sector: Manufactured in India" on 23rd October, 2018 at Bhubaneswar Odisha.
- b) Ministry of Steel has appointed a consultant this year for development and implementation of a strategic roadmap for the Ministry of Steel in relation to the National Steel Policy, 2017. The

management consultant will be responsible for development of a road map with defined milestones for successful policy implementation, designing of appropriate prioritization framework to identify prioritized initiatives and for hand-holding implementation of the NSP 2017 and will suggest/recommend action plan on other related issues.

(ii) 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 Rs. 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 and reduce the inclination to use low quality and low cost (unfairly traded) imported steel in Government funded projects.

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. Some of the major implications of the policy has been as follows-

- GAIL had to cancel several tenders on procurement of steel pipe in order to comply with the DMI&SP Policy
- ONGC was given waiver for limited time period of 1 to 2 years, to float procurement tender for various categories of steel pipes, till the time the domestic industry builds its capability through their product development program
- Railways had to comply with the policy and their global procurement tender for rails was not in the line with the spirit of the Policy.

The Policy has provided and expected to provide significant savings to the Indian Economy and restrict the use of low quality and cheap imported steel in Government funded projects, alongside 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 Domestically Manufacturing of Iron & Steel Products Policy-Revised 2019. 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. Rationalization 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.



Secondary Steel Sector Awards for 2016-17 were organised on 13th September,2018

(ii) Quality Control Orders

These Quality orders seek to facilitate the adoption of quality standards and mandatory quality certification by producers. Recently the Steel and Steel Products (Quality Control) Order, 2018 that mandates Bureau of Indian Standards certification for 53 categories of Steel 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. Fifty Three (53) 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

THE INDIAN STEEL SECTOR: PROGRESS AND POTENTIAL

5.1 Production, Consumption and Growth of Steel

5.1.1 Indian Steel sector has brought a new hope in Indian economy considering production of steel product as well as employment generation. From the fledgling one million tonne capacity status at the time of independence, India has now risen to be the 2nd largest crude steel producer in the world and the largest producer of sponge iron. In line with increase in demand, production of steel products also has increased leading to expansion of steel use in different sector.

The table below shows the trend in Production, Import, Export and Apparent steel Use of finished steel (alloy/stainless + non-alloy) in the country for the period of 2013-14 to 2018-19(prov):

Table 5.1 a: Trend of Finished Steel (alloy/stainless+non-alloy)--from 2013-14 to 2018-19
(in million tonnes)

Description	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
Production for Sale	99.38	104.578	106.602	120.14	126.855	131.572
Imports	5.45	9.320	11.712	7.226	7.482	7.834
Export	5.985	5.596	4.079	8.242	9.62	6.361
Apparent Steel Use	74.096	76.994	81.525	84.042	90.708	97.536

Source: JPC; * Provisional

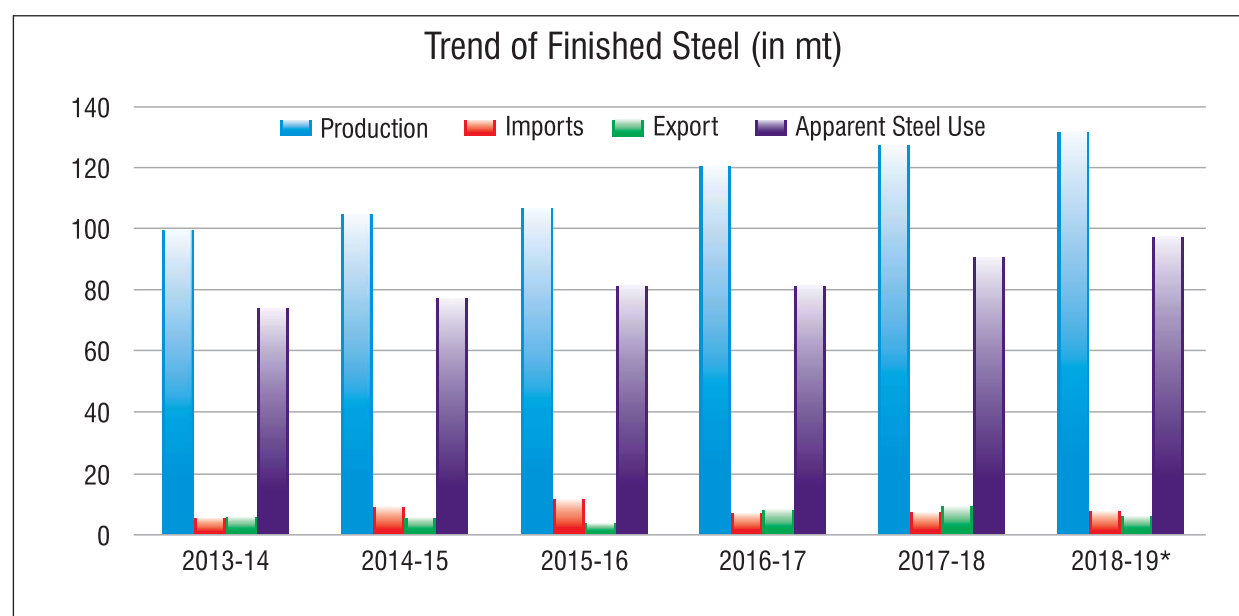
- Production of total Finished Steel (alloy/stainless+ non-alloy) stood at 131.572 million tonnes during 2018-19, as against 104.578 million tonnes in 2014-15, an average annual (CAGR) growth of 5%.
- Export of total Finished Steel (alloy/stainless + non-alloy) during 2018-19 stood at 6.361 million tonnes against 5.596 million tonnes in 2014-15.
- Import of total Finished Steel (alloy/stainless + non-alloy) during 2018-19 stood at 7.834 million tonnes against 9.320 million tonnes in 2014-15.
- Domestic Apparent Steel Use of total Finished Steel (alloy /stainless + non-alloy) stood at 97.536 million tonnes in 2018-19 as against 76.994 million tonnes in 2014-15, growing at a CAGR of 5% during the last five years.
- India became a net Exporter of total Finished Steel in 2017-18, while it is net importer during 2018-19.

Table 5.1b: Balance sheet of availability of alloy and Non-alloy steel - from 2013-14 to 2018-19
(in million tonnes)

Description	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
(A) Production						
Non-Alloy Steel	87.888	92.112	94.618	107.414	117.914	120.579
Alloy Steel	7.689	8.569	8.285	8.496	8.941	10.993
Total	95.577	100.682	102.903	115.910	126.855	131.572
Share of Alloy Steel	8.04%	8.51%	8.05%	7.33%	7.05%	8.36%
(B) Import						
Non-Alloy Steel	4.299	6.754	8.718	5.366	5.636	5.943
Alloy Steel	1.151	2.567	2.994	1.860	1.846	1.891
Total	5.450	9.320	11.712	7.226	7.482	7.834
Share of Alloy Steel	21.12%	27.54%	25.56%	25.74%	24.67%	24.14%

(C) Export						
Non-Alloy Steel	5.508	4.906	3.475	7.584	8.727	5.773
Alloy Steel	0.477	0.689	0.604	0.658	0.893	0.588
Total	5.985	5.596	4.079	8.242	9.620	6.361
Share of Alloy Steel	7.97%	12.32%	14.81%	7.98%	9.28%	9.24%
(D) Balance of Trade						
Non-Alloy Steel	1.210	-1.847	-5.243	2.218	3.091	-0.170
Alloy Steel	-0.674	-1.877	-2.390	-1.202	-0.953	-1.303
Total	0.536	-3.725	-7.633	1.016	2.138	-1.473
(E) Apparent Steel Use (ASU)						
Non-Alloy Steel	67.994	70.236	73.469	76.969	82.409	87.159
Alloy Steel	6.102	6.758	8.055	7.073	8.298	10.377
Total	74.096	76.994	81.524	84.042	90.708	97.536
Share of Alloy Steel	8.24%	8.78%	9.88%	8.42%	9.15%	10.64%
Per Capita ASU (kg)	59	61	64	65	69	73

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 decreased from 8.51% in 2014-15 to 8.36% in 2018-19.
- Balance of trade in Finished Steel product shows a change in "favourable balance" in 2017-18 and 2016-17 due to increase of export of non-alloy steel in those periods while balance of trade is negative in 2018-19.
- Share of Alloy steel in total steel use increased from 8.78% in 2014-15 to 10.64% in 2018-19.
- Indian population is increasing exponentially while production of steel product has shown a linear trend of growth along with increasing trend of per capita consumption of steel production from 59 kg in 2014-15 to 69 kg in 2017-18.

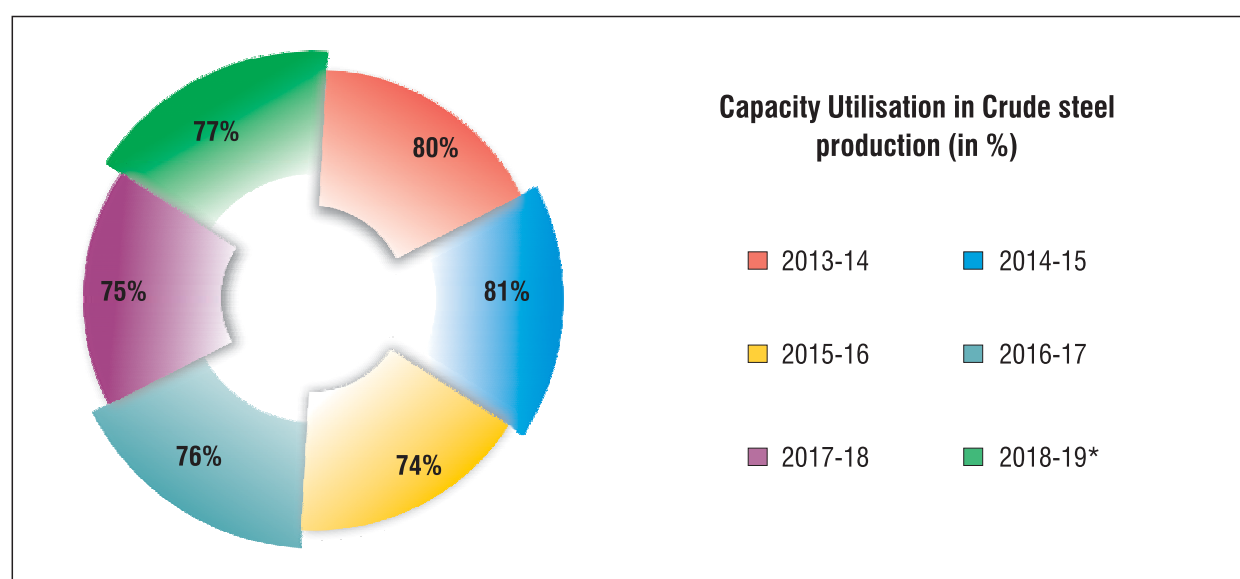
5.1.2 Crude Steel production has shown a sustained rise in last five years along with capacity increase. Data on Crude Steel production, Capacity and capacity utilization from 2013-14 to 2018-19 is given in the table below.

Table 5.2: Trend of Crude Steel Production – from 2013-14 to 2018-19 (in million tonnes)
(in million tonnes)

Year	Working Capacity	Production	% Utilisation
2013-14	102.261	81.694	80%
2014-15	109.851	88.979	81%
2015-16	121.971	89.791	74%
2016-17	128.277	97.936	76%
2017-18	137.975	103.131	75%
2018-19*	137.975^	106.565	77%

Source: JPC; * Provisional; ^ full-year figure

- Crude Steel production grew at 3.67% annually (CAGR) from 88.979 million tonnes in 2014-15 to 106.565 million tonnes in 2018-19.
- Such growth in production was driven by capacity expansion, from 102.261 million tonnes in 2013-14 to 137.975 million tonnes in 2017-18, a CAGR growth of 6.17% during this five year period (No further capacity expansion reported in 2018-19).



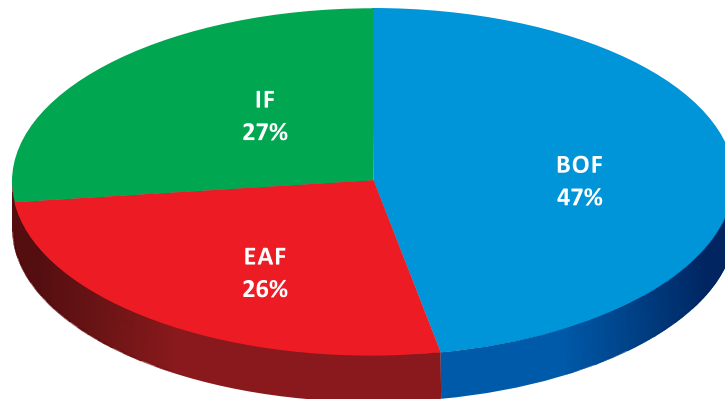
5.1.3 The above Crude Steel performance has been contributed largely by the strong trends in growth of the Electric route of steel making. The shares of the different process routes in total production of crude steel in the country during 2013-14 to 2018-19 are shown in the table below:

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
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%)
2017-18	47.489 (46%)	26.421 (26%)	29.221 (28%)	103.131 (100%)
2018-19*	50.08 (47%)	27.71 (26%)	28.77 (27%)	106.56(100%)

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

Crude Steel Production by Process Route in 2018-19



5.1.4 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 79% of total Sponge Iron production in the country both in 2017-18 and 2018-19 (prov). Capacity of Sponge Iron production has also increased over the years and stood at 49.62 million tonnes in 2017-18. The table below shows route wise production of Sponge Iron in the country during 2013-14 to 2018-19 (prov):

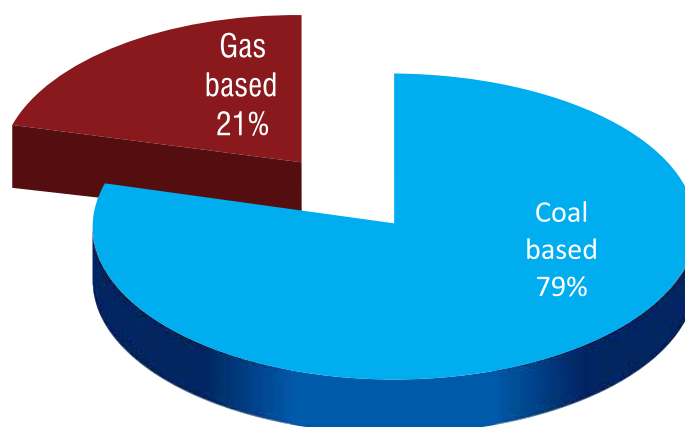
Table 5.4: Trend of Production of Sponge Iron in Last Five years

(in million tonnes)

Year	Coal based	Gas based	Total
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%)
2017-18	24.053 (79%)	6.458 (21%)	30.511 (100%)
2018-19*	26.10 (79%)	6.94 (21%)	33.04 (100%)

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

Production of Sponge Iron by Process in 2018-19



5.1.5 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 91% of total production of Pig Iron in 2018-19 (prov). The availability of Pig Iron is given in the table below for the period of 2013-14 to 2018-19 (prov):

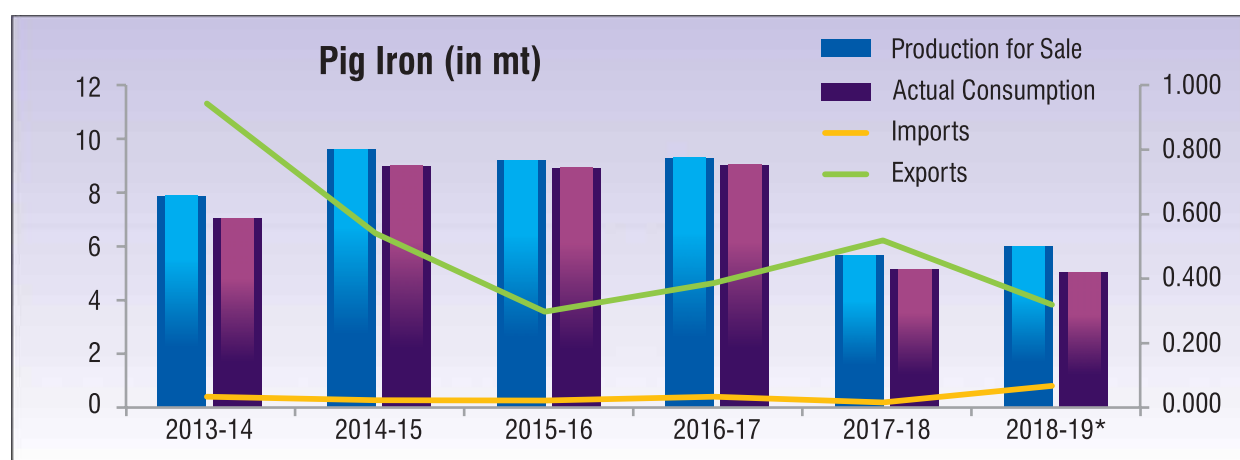
Table 5.5: Trend of Pig Iron Production – from 2013-14 to 2018-19

(in million tonnes)

Description	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
Production for Sale	7.950	9.694	9.228	9.388	5.728	6.055
Imports	0.034	0.023	0.022	0.034	0.016	0.067
Export	0.943	0.540	0.297	0.387	0.518	0.319
Actual Consumption	7.110	9.057	9.021	9.040	5.189	5.062

Source: JPC; * Provisional

- Production of Pig Iron stood at 6.055 million tonnes during 2018-19, as against 9.694 million tonnes in 2014-15, an average annual (CAGR) decline of 9%.
- Export of total Pig Iron during 2018-19 stood at 0.319 million tonnes against 0.540 million tonnes in 2014-15.
- Import of total Pig Iron during 2018-19 stood at 0.067 million tonnes against 0.023 million tonnes in 2014-15.
- Domestic Actual Consumption of total Pig Iron stood at 5.062 million tonnes in 2018-19 as against 9.057 million tonnes in 2014-15, declining at a CAGR of 11% during the last five years.
- India was a net Exporter of Pig Iron during last 5 years.



5.2 Global ranking of Indian Steel

World Crude Steel production stood at 1789.612 million tonnes during Calendar Year (CY) 2018, an increase of 4.46% over CY 2017 as per data released by the World Steel Association.

Chinese Crude Steel production reached 928 million tonnes during CY 2018, a growth of 6.59% over CY 2017. China remained the largest Crude Steel producer in the world, accounting for 74% of Asian and 52% of World Crude Steel production during CY 2018.

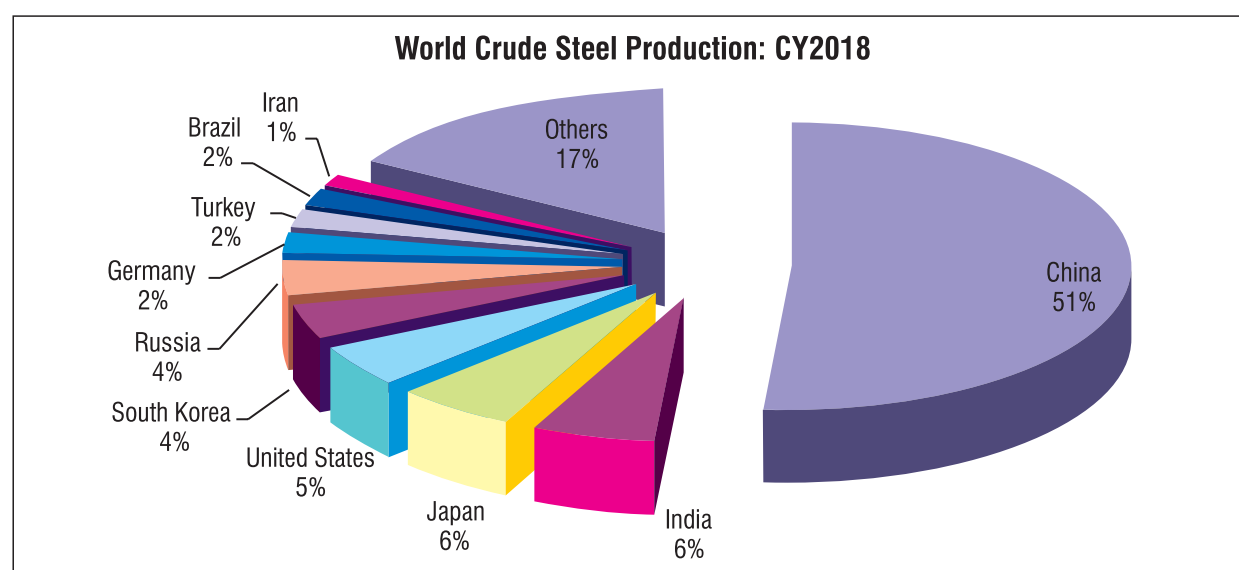
India was the 2nd largest Crude Steel producer during CY 2018 and recorded a production of 106.463 million tonnes with growth of 4.94% over CY 2017, accounting for 8% of Asian and 6% of World Crude Steel production during CY 2018.

Table 5.6: World Crude Steel Production in 2018*

(in million tonnes)

Rank	Country	2017	2018	% Growth	% Share
1	China	870.855	928.264	6.59%	51.87%
2	India	101.455	106.463	4.94%	5.95%
3	Japan	104.662	104.324	-0.32%	5.83%
4	United States	81.612	86.607	6.12%	4.84%
5	South Korea	71.030	72.464	2.02%	4.05%
6	Russia	71.491	71.680	0.26%	4.01%
7	Germany	43.297	42.435	-1.99%	2.37%
8	Turkey	37.524	37.312	-0.57%	2.08%
9	Brazil	34.365	34.735	1.08%	1.94%
10	Iran	21.236	25.000	17.72%	1.40%
	Top 10 countries	1437.527	1509.284	4.99%	84.34%
	Total 64 countries	1729.000	1808.000	4.51%	100.00%

Source: Worldsteel; *provisional



5.3 Trends in Production: Performance of Private/Public Sector

The following tables highlight the contribution of the Public and Private sector in crude steel production and finished steel production in the country during 2013-14 to 2018-19 (prov):

Table 5.7A: Performance of Public & Private sector in Crude Steel Production

(in million tonnes)

Sector	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
Public Sector	16.777	17.205	17.92	18.456	19.753	21.497
Private Sector	64.917	71.775	71.871	79.48	83.378	85.068
Total	81.694	88.98	89.791	97.936	103.131	106.565
% Share of Public Sector	21%	19%	20%	19%	19%	20%

Source: JPC; * Provisional

- Expansion of Private sector in steel making industry increases the contribution of Private sector gradually in Crude Steel making.

- Public sector has contributed 20% in 2018-19 in crude steel production.

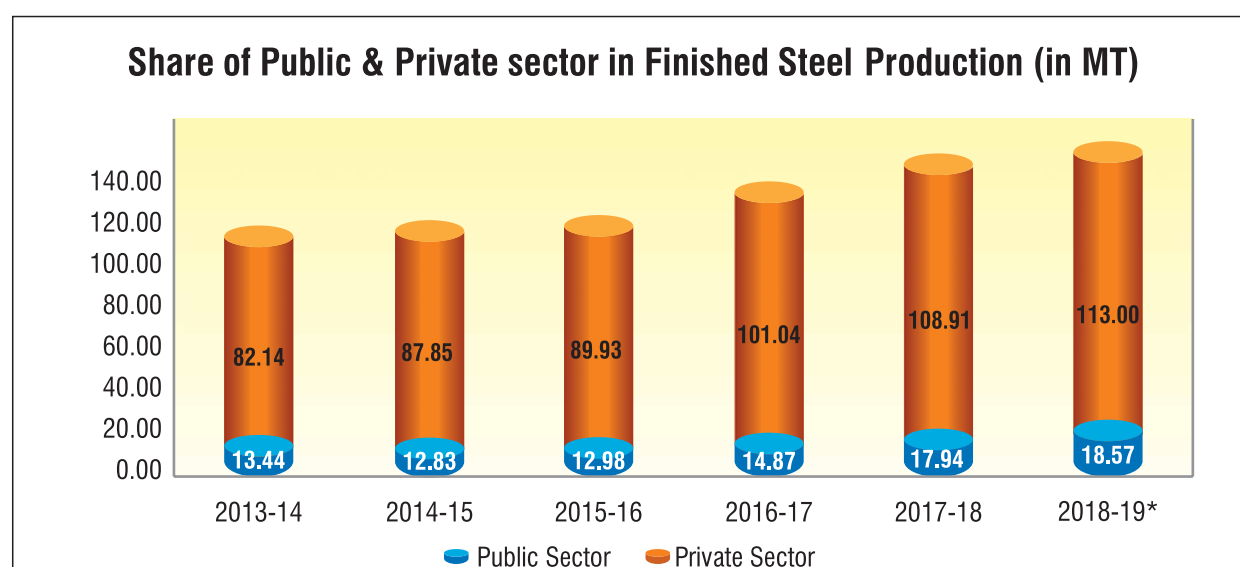
Table 5.7B: Performance of Public & Private sector in Finished Steel Production

(in million tonnes)

Sector	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
Public Sector	13.439	12.832	12.977	14.866	17.944	18.571
Private Sector	82.138	87.849	89.927	101.044	108.911	113.001
Total	95.577	100.681	102.904	115.91	126.855	131.572
% Share of Public Sector	14%	13%	13%	13%	14%	14%

Source: JPC; * Provisional

- Public sector is contributing 14% in finished steel production during 2018-19.



5.4 Steel: Key facts in "2018-19"

Following tables is showing steel at a glance during 2018-19.

Table 5.8: Indian Steel Scene: 2018-19*

(in million tonnes)

Item	Item	2018-19*	2017-18	% Growth
Finished Steel	Production	131.572	126.856	3.72%
	Imports	7.834	7.482	4.70%
	Export	6.361	9.619	-33.87%
	Consumption	97.536	90.708	7.53%
Crude Steel	Production	106.565	103.131	3.33%
	Capacity utilisation (%)	77%	75%	3.33%

Source: JPC; * Provisional

Besides being the 2nd largest global crude steel producer in 2018, India has also made a mark globally in the production of sponge iron/direct reduced iron (DRI). 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 several expansion projects at different stages of implementation, which once operational will re-write 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.

5.5 Annual Plan-2018-19

After completion of 12th Five Year Plan (2012-17), the Government has dispensed with five year planning. However, the Annual Plan of the Ministry to the tune of Rs. 7907.71 crore (i.e. Internal and Extra Budgetary Resources (IEBR) of Rs. 7892.71 cr. and Gross Budgetary Support (GBS) of Rs. 15 crore) on the basis of Revised Estimates is detailed in the table below:

Plan Outlay for Annual Plan 2018-19

Sl.No.	Name of the PSU/Organisation	IEBR	GBS	Total
A. Schemes of PSUs				
1.	Steel Authority of India Ltd.	4300.00	0.00	4300.00
2.	SAIL Refractory Company Limited	6.93	0.00	6.93
3.	Rashtriya Ispat Nigam Ltd.	1400.00	0.00	1400.00
4.	NMDC Ltd.	1756.00	0.00	1756.00
5.	KIOCL Ltd.	140.00	0.00	140.00
6.	MOIL Ltd.	201.89	0.00	201.89
7.	MECON Ltd.	5.00	0.00	5.00
8.	MSTC Ltd.	47.60	0.00	47.60
9.	Ferro Scrap Nigam Ltd.	15.29	0.00	15.29
10.	OMDC	20.00	0.00	20.00
	Total-A	7892.71	0.00	7892.71
B Scheme of Ministry of Steel				
10.	Scheme for promotion of R&D in Iron & Steel sector	0.00	15.00	15.00
	Total - B	0.00	15.00	15.00
	Grand Total: A + B	7892.71	15.00	7907.71

5.6 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.
- 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)" in Kolkata.
- Encouraging research and development activities in the steel sector.



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)

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 with headquarters 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. 5,000 crore. The paid up capital of the Company is Rs. 4130.53 crore as on 31.03.2018 and 31.03.2019, 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 Rs.66,267.30 crore during the Financial Year ended 31st March, 2019. The profit after tax was Rs.2,178.82 crore in the Financial Year ended 31st March, 2019. The



Hon'ble Prime Minister Shri Narendra Modi at Bhilai Steel Plant of SAIL

Company has not paid any dividend for the Financial Year 2017-18. In case of 2018-19, dividend of Rs.0.50 per share of Rs.10 each has been proposed subject to approval of the Shareholders in the ensuing Annual General Meeting.

6.2.3 Production Performance

The details of actual production are as under:

(million tonnes)

	2017-18	2018-19
Hot Metal	15.9	17.5
Crude Steel	15.02	16.3
Saleable Steel	14.0	15.1

6.2.4 Raw Materials

During 2018-19, SAIL has fulfilled the requirement of iron ore for its steel Plants by producing 28.35 million tonnes (MT) of iron ore from its captive mines. The production of fluxes from captive mines during 2018-19 was 1.84 MT and raw coal production from captive collieries of SAIL was 0.74 MT. During 2018-19, SAIL's washery at Chasnalla had processed total 0.73 MT of raw coal produced from SAIL's collieries and procured from BCCL and produced 0.40 MT of clean coking coal.

6.2.5 Manpower

The Manpower strength of SAIL as on 31.03.2019 was 72339 (Executive 11851 / Non-Executive 60488), achieving reduction of 4531 manpower during the year 2018-19 (upto March, 2019).

6.3 Rashtriya Ispat Nigam Ltd. (RINL)

Visakhapatnam Steel Plant (VSP) is a 7.3 MTPA plant. It was commissioned in 1992 with a capacity of 3.0 MTPA of liquid steel. The company subsequently completed its capacity expansion to 6.3 MTPA in April, 2015 and to 7.3 MTPA in December, 2017. RINL is one of the major players in the country for Long Products.



Panoramic view of 7.3 MT 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). The Company has partnership in RINMOIL Ferro Alloys Private Limited and International Coal Ventures Limited in the form of Joint Ventures with 50% and 26.49 % shareholding respectively.

RINL, with an exclusive product mix of longs is the largest producer of "Bars and Rods" in the country with a market share of 9.5% in 2018-19 (Source: JPC) and has recorded an annual turnover of Rs.20,844 crore (Prov.) in 2018-19. The products of RINL include Rebars, Wire Rods, Rounds, Structurals, 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.20844 crore (Provisional) in 2018-19. The company has reported Profit After Tax of Rs. 78 crore (Provisional) in 2018-19. The company has not paid dividend in 2017-18.

6.3.2 Production Performance

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

Item	2017-18	2018-19	Annual Growth over CPLY %
Crude Steel (000t)	4731	5233	11
Saleable Steel (000t)	4500	5000	11

Value Added Steel production stood at 3.7 MT from April 2018 to March 2019 - a growth of 2% over CPLY.

6.3.3 Manpower

The Manpower strength of RINL as on 31.03.19 was 17574.

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 six 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, Telangana and 1.2 MT capacity Pellet Plant at Donimalai, Karnataka.

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 about 93% of civil work, 90% structural erection, 76% equipment erection have been completed as on 31.3.19.

NMDC is in process of developing 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 Iron & Steel Plant at Nagamar, 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.
- 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.

6.4.1 Capital Structure

The Authorized share capital of the company is Rs.400 crores. The paid-up equity share capital is Rs.306.19 crores as on 31.03.2019, out of which 72.28% is held by the Government of India and the balance 27.72% by the financial institutions/banks/individuals/employees etc.

6.4.2 Financial Performance

The Company recorded turnover of Rs. 12153 crore in the financial year 2018-19. The post-tax net profit for the year was Rs. 4642 crore.

6.4.3 Production Performance

The details of the actual production are given below:

Items	2016-17	2017-18	2018-19 (Prov.)
Iron ore (in MT)	34.01	35.58	32.36
Diamonds (in carats)	35636	39394	38149

6.4.4 Manpower

The Manpower strength of NMDC as on 31.03.19 was 5887.

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 the largest producer of manganese ore in the country with share of around 50% in domestic production.

MOIL got listed on 15th December, 2010 on National Stock Exchange and Bombay Stock Exchange. After the listing, the shareholding in the company, of Govt. of India, Govt. of Maharashtra and Govt. of Madhya Pradesh was 71.57%, 4.62% and 3.81% respectively. Rest 20% shares were held by the public. After two successive buy backs, further disinvestment by Govt. of India and issue of bonus shares, current shareholding of Govt. of India, Govt. of Maharashtra and Govt. of Madhya Pradesh is 56.01%, 4.71% and 4.97% respectively and the rest of 34.31% is 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 1000 MTPA (recently enhanced to 1500 MTPA) capacity of electrolytic manganese dioxide (EMD). This product is used mainly for the manufacture of dry battery cells. EMD produced by MOIL is of good quality and is well accepted by the market. A ferro manganese plant having a capacity of 10,000 MTPA is also operated since 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, both in Dist. Dewas of Madhya Pradesh.

6.5.1 Capital Structure

The authorized and paid-up share capital of the Company is Rs. 300.00 Crores and Rs.257.61 crores respectively, as on 31st March, 2019.



MOIL's Ferro Manganese Plant at Balaghat

6.5.2 Financial Performance

The total turnover and profit after tax of the Company during the year 2018-19 was Rs. 1440.67 crore and Rs. 473.89 crore respectively. The Company has paid a dividend of Rs. 144.31 crore in 2017-18 and an interim dividend of Rs. 77.28 crore in 2018-19.

6.5.3 Production Performance

Items	2017-18	2018-19 (Prov.)
Production		
a) Manganese Ore (Lakh Metric Tonne)	12.01	13.01
b) E.M.D. (Metric Tonne)	875	992
c) Ferro Manganese (Metric Tonne)	10573	11003

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.

Presently, the company has diversified mainly into providing e-auction /e-procurement services. Under this segment, the Company undertakes disposal of ferrous and non-ferrous scrap arisings, surplus stores, condemned plants, minerals, Agri & forest produce etc. from Public Sector Undertakings and Government Departments including private companies. The Trading division is engaged in import as well as domestic sourcing of bulk industrial raw material for actual users as well as traders. This division looks after sourcing, purchase and sale of industrial raw materials like low ash metallurgical coke, HR coil, naphtha, crude oil, coking coal, steam coal, line pipes etc. on behalf of customers across steel, oil and gas, power sectors in private and public sector.

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 for various Central/State Government Departments and other private entities to ensure transparent and fair sale and purchase transactions. MSTC has evolved as the leading PSU under this segment of business. MSTC is providing e-commerce related services across diversified industry segment offering e-auction/e-sale, e-procurement services and development of customized software/solutions.

E-commerce includes disposal of Scrap, old plant & machineries, sale of Coal, Ferro Manganese Ore, Iron Ore, Baryte, Chrome ore, Human Hair and many other items etc. through forward e-auction and purchase of goods, service contracts by buyers through e-procurement. MSTC also developed e-bidding platforms and conducted e-auction for coal and non-coal mine blocks, sand mining blocks, land parcels, tea, gorgon nut, tendu leaves, timbers and other forest produce, etc.

MSTC expanded its volume of business in the existing areas and diverse areas like mining lease, iron ore, chrome ore, sand, timber, power, thermal coal, Agri-Horti & Forest sectors etc. to benefit the population and the Government exchequer as well by fair and transparent e-auction processes.

Developed Software for Computerized Draw System for Oil Marketing Companies for Online Draw System for distribution of new LPG distributorship. Till March' 19 MSTC conducted draws for more than 7000 LPG dealership and 12000 retail petrol pumps across the country.

Developed a unique online platform for Export & Import of various petroleum products on behalf of Indian oil Corporation Limited for better price discovery. This unique portal is one of its kinds in the country to overcome problems faced by various petroleum companies for market-determined price discovery system.

Developed a National portal for e-Auction of Mining Leases and Composite Licenses for various State Governments in consultation with Ministry of Mines. MSTC is successfully conducting e-auction for allotment of major mineral blocks and minor mineral blocks.

Successfully designed a complex e-bidding platform to facilitate implementation of the Government of India scheme to promote air connectivity for underserved and unserved airports in the country. The Scheme is known as Regional Connectivity Scheme popularly, UDAN (Ude Desh ka Aam Nagrik). MSTC is now conducting the phase III of the project.

Developed the bidding platform for the Scheme for Harnessing and Allocating Koyala (Coal) Transparently in India (SHAKTI) for allotment of coal to the power producers/IPPs who have already concluded long terms PPAs (Power Purchase Agreement) based on domestic coal and do not presently hold any Allocated Coal Block/LOA/Linkage in respect of such Specified End Use Plant.

Conducted auctions on behalf of National Agricultural Cooperative Marketing Federation Of India Ltd. (NAFED) & HAFED (largest apex cooperative federation of Haryana State) for selling various agro produces like cereals, oil seeds, pulses, etc. through its e-RaKAM portal. MSTC has also been able to sell the niche Agri/Horti produces from North East viz., Ginger & Pineapple. Similarly other produces like Litchi & Fox nut from Bihar, Onion from Nashik were sold successfully through the e-RaKAM portal.

Trading

The Trading department is engaged in various activities which involve facilitating procurement of industrial raw materials. 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. It is also supplying imported coal and Line pipes to its customers.

Recycling

To expand spectrum of operation and to support the steel industry in India, MSTC through its joint venture MMRPL forayed into the recycling sector. MMRPL is poised to set up organized state of the art auto shredding plant in India for recycling ELVs and other white goods by converting these into shredded scrap which is a vital raw material for secondary steel plants. A collection and dismantling centre with state-of-the-art technology has been set up in Greater Noida, in the State of Uttar Pradesh as a supply feedstock for the auto shredding plant.

6.6.2 Capital Structure and Share Holding Pattern:

As on 31-03-2019, the Authorized Capital of the company is Rs. 150.00 crore and paid up Capital is Rs.70.40 crore (as on 31-03-2019).

Recently Government of India offloaded 25.10 per cent, of total paid-up equity of MSTC through IPO.

The share holding pattern of the company is as below:

Name of Share holder	% of Holding
Government of India	64.75
Others	35.25
Total	100.00

6.6.3 Financial Performance

(Rs. in Crore)

Item	2017-18	2018-19*
Turnover	1946.27	2927.00
Operating Profit	113.05	(267.96)
Profit before tax	111.59	(269.21)
Profit after tax	76.63	(324.47)

* 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 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-Haridwar, RWF-Bengaluru, Air India- Mumbai and Essar-Hazira.

6.7.1 Physical Performance

Items	2017-18	2018-19
Recovery of scrap (lakh metric tonne)	32.90	35.66
Market Value of Production (Rs. in crores)	2895.20	3138.37

* Provisional

6.7.2 Financial Performance

(Rs. in Lakhs)

Item	2017-18	2018-19*
Total Turnover i.e., Service charge realised including misc. Income, etc.	34029.79	37841.34
Gross Margin Before Interest & Depreciation	2405.29	5539.73
Interest & Depreciation	1101.51	1430.78
Profit Before Tax	1303.78	4108.95

* 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 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 Dockyard and Fleet Base Buildings Package (DC-DY & FBB) Phase-IIA at Naval Base, Karwar for Project Seabird of Indian Navy; Bowl Cleaning Machine (BCM) at Sriharikota for ISRO; Establishment of All India Institute of Homeopathy, Narela, Delhi for GoI, Ministry of AYUSH; 100 Bedded ESIC Hospitals in each locations at Surat (Gujarat), Phulwari Sharif (Bihar) & Vizianagaram (Andhra Pradesh) for ESIC, New Delhi; BharatNet Project Phase-II in Jharkhand for JCNL, Ranchi; Development of Mosabani Uranium Recovery Plant (MURP) & Rohil Uranium Project of UCIL, Jaduguda; Procurement Services for Spares, Consumables and Services for existing Mines and Plants of UCIL, Jaduguda; Second Launching Pad at Sriharikota, 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, 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 are to name a few.

MECON has also strengthened its footprint in International market by providing World Class Design, Engineering & Consultancy Services for about 135 assignments in different countries.

6.8.1 Financial Performance

MECON recorded a turnover of around Rs.445.57 crore during the FY 2017-18 which is about 29.93% more than previous year. The turnover during the FY 2018-19 is Rs. 468.94 crore (prov.). The Net Worth stands at Rs. 227.86 crores as on 31.03.2018 and Rs. 243.73 crore (prov.) as on 31.03.2019.

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 is currently engaged in the business of manufacturing and selling of Iron Ore Pellets. The state of the art pelletisation plant with 3.5 MTPA rated capacity and 0.216 MTPA Blast Furnace Unit is located at Mangalore. KIOCL is having over four decades of experience in the field of Mining, Beneficiation and Processing of Iron ore. The manufacturing facilities are accredited with ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007. The Company had its captive berth and ship loading facilities at Mangalore. Government of India holds 99.06% of its equity.

6.9.1 Capital Structure And Share Holding Pattern:

During 2018-19 KIOCL has bought back 1,25,88,235 equity shares, representing 1.98% of the Paid up Equity Share Capital @ Rs. 170 per Equity share with total outgo of Rs. 214 crores which is 9.99% of the aggregate paid up share capital and free reserves of the Company.

6.9.2 Production Performance

The target set for production under Excellent category during the year 2018-19 is 21.70 Lakh tonnes of Pellets. Actual production during the year was 22.38 lakh tonnes which represents 103% of the target.

6.9.3 Financial Performance

An overview of the performance of KIOCL during 2018-19 and the previous year is as follows :

(Rs. in Crore)

Particulars	2017-18	2018-19*
Revenue from Operations	1,605.41	1,878.22
Profit Before Tax	86.09	184.12
Profit After Tax	81.48	111.86

* Provisional

6.10 EIL, OMD and BSLC

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

(a) Eastern Investments Limited (EIL)

Financial Performance

(Rs. in Crore)

Description	2017-18	2018-19*
Income	1.19	0.82
Expenditure	0.52	0.71
Profit After Tax(PAT)	0.35	(0.02)

*Provisional

EIL's Authorized capital is Rs.13.50 crore and paid up capital is 1.42 crore.

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

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

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

Financial Performance

(Rs. in Crore)

Description	2017-18	2018-19*
Other Income	55.23	53.94
Profit After Tax (PAT)	(252.95)	(451.63)

*Provisional

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

BSLC is a mining company and operates mining lease of limestone and dolomite in Sundargarh District in 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 Metric Tonne)

Description	2017-18	2018-19*
Production		
Dolomite	570,000	534,400
Limestone	-	-
Despatch		
Dolomite	580,000	541,526
Limestone	1000	20
Minor Mineral	-	27,994

*Provisional

Financial Performance

(Rs. in Crore)

Description	2017-18	2018-19*
Income	46.29	39.82
Profit/Loss After Tax (PAT)	(10.52)	(28.12)

*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.	JSW Steel Ltd.	18.00
2.	Tata Steel Ltd.	13.00
3.	Essar Steel Ltd.	10.00
4.	Jindal Steel and Power Ltd.	8.6
5.	Electrosteel Steel Ltd.	1.88
6.	Jindal Stainless Ltd.	0.88
7.	Jindal Stainless (Hissar) Ltd.	0.78

Note: Source JPC- The figures are provisional and are subject to finalization based on data provided to JPC.

7.3 JSW Steel Ltd.

JSW Steel Ltd is one of the foremost integrated steel company in India with an installed capacity of 18 MTPA, and has plans to scale it up in India and overseas. JSW Steel's manufacturing facility at Vijayanagar, Karnataka is the largest single location steel-producing facility in India with a capacity of 12 MTPA. It is the first company to manufacture high-strength and advanced high-end steel products for its automotive segments. Today, JSW Steel exports its products in over 100 countries across the globe.



JSW USA facility & JSW Steel Italy are the recent acquisitions in the US and Europe markets respectively. JSW Steel Ltd. has been widely recognized for its business and operational excellence. Latest key awards include Deming Prize for Total Quality Management at Vijayanagar (2018), DJSI RobecoSAM Sustainability Industry Mover Award (2018) among others.

7.4 TATA Steel Ltd.

Tata Steel Group is among the top global steel companies with an annual crude steel capacity of 33 million tonnes per annum (MTPA). It is one of the world's most geographically-diversified steel producers, with operations in Europe, South East Asia and India and commercial presence across the world. In 2018, Tata Steel acquired Bhushan Steel Ltd (now renamed as Tata Steel BSL Ltd). Currently, Tata Steel's Indian operations (Jamshedpur, Kalinganagar, Angul) has crude steel production capacity of 18.6 MnTPA.



Tata Steel India is one of the lowest cost steel producers globally. Tata steel is the winner of the 25th Prime Minister's Trophy for Excellence in Performance of Integrated Steel Plants for the year 2016-17. This was the fourth consecutive year that Tata Steel has been honoured with this coveted award. Since the inception of this award in 1992-93, Tata Steel has won the PM's Trophy 11 times. Tata Steel has been recognised among Top 25 India's Best Workplaces: Manufacturing for the year 2019 by the Great Place to Work® Institute.

The Company also received the 'World's Most Ethical Companies' award from Ethisphere Institute for the eighth time (2019) & Bradstreet Corporate Awards (2017 & 2018), among several others.

7.5 Essar Steel India Ltd.

Essar Steel is known for its high quality of flat steel products. The company focuses on high value added grade steels and has developed over 300 grades of flat steel for different applications. Essar Steel is a 10 MTPA integrated steel producer and has made many prudent investments by creating facilities to complete the value chain both upstream and downstream. Its investments in state-of-the-art facilities give it full control over its manufacturing process and ensures consistent quality of products.

Facility	Capacity (MTPA)
Pellet Plant	14
Iron Making	10.2
Hot Rolling	7.1
Cold Rolling	2.0
Galvanizing	1.0
Colour Coating	0.4
Pipe mill	0.6
Heavy Plate mill	1.5
Steel Processing	4.0



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 lays great emphasis on sustainability and is aligned with the World Steel Association's (WSA) sustainability indicators. Essar Steel is a climate action member and signatory to the Sustainability Charter, WSA and has been recognized for Safety & Health Excellence thrice over the last five years from the Association.

Essar has attained the benchmark of being a zero-waste company by engaging in activities like efficient rain water harvesting and controlled water usage, better slag and effluent gas management. For its concerted efforts in the sustainability sphere, the company has been bestowed with awards from reputed institutions.

7.6 Jindal Steel and Power Ltd.

Jindal Steel & Power Limited (JSPL), is amongst India's fastest growing and leading business conglomerates with significant presence in core infrastructure sectors including steel, power, mining and infrastructure.

JSPL's business operations span across the states of Chhattisgarh, Odisha and Jharkhand in India, where it operates some of India's most advanced steel manufacturing and power generation capacities of global scale. JSPL is India's first and only private manufacturer of Rails. It is among the lowest cost producers of steel and power in India. The Company secured an order to supply 97,400 tonnes of rails to Indian railways, completed delivery in April 22nd, 2019, four months ahead of schedule. Secured additional order of 30000 tonnes of rails under the same global tender from Indian Railways.



7.7 Jindal Stainless Ltd.(JSL)

Jindal Stainless Limited (JSL) is one of the largest integrated manufacturers of stainless steel in India. The Odisha plant has world class technology and equipments sourced from Siemens VAI, SMS Siemag and Andritz Sundwig and the complex, equipped with a Ferro Alloys set up and captive power generation unit, the 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.

7.8 Jindal Stainless (Hisar) Ltd.

Jindal Stainless (Hisar) Limited (JSHL) has a fully integrated stainless steel plant with a capacity of 0.8 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. The JSHL plant works on the strategy of both backward and forward integration, starting from melting, casting, hot rolling to cold rolling and other value additions.

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 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 envisaged 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.

8.3 National Institute of Secondary Steel Technology (NISST)

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:

- To conduct research, development & design work in frontier areas for providing updated technology to this sector.
- To extend consultancy services to industries in terms of solving technological problems, improving energy efficiency and reducing pollution levels.
- To provide a platform for interaction between industry and educational as well as research institutions.
- To provide various industrial service and testing facilities.
- To provide trained technical manpower to the secondary steel sector through short-term and long-term courses and to update their knowledge base.

Accreditations/Recognitions

- Empaneled as Accredited Energy Auditor with Bureau of Energy Efficiency, Ministry of Power, Govt. of India for carrying out mandatory energy audit.
- Empaneled by BEE for M&V activities under PAT scheme.
- Empaneled with PCRA and state designated agency PEDDA for energy audits and energy related assignments.
- Recognized as competent persons by Director of Factories, Government of Punjab and UT of Daman & Diu and Dadra Nagar Haveli for safety inspections.
- Recognized by Department of Central Excise and Custom for technical assistance.
- Executive member of the National safety council - North Zone Chapter.

Present Activities

A. Industrial Consultancy, Seminars, Training & Skill Development

During 2018-19 NISST has provided consultancy to different units across the country. NISST has also organized seminars and workshops, conducted various in-house training programmes focusing on production & quality aspects of Iron and Steel sector across India.

- Consultancy on selection of appropriate combustion equipment for using PNG as fuel in RHF. Also the unit has been assisted in successful commissioning of the natural gas firing project. One unit has been developed as model unit on PNG firing system in Mandi Gobindgarh, Punjab.
- Training on safety in melting and scrap segregation was conducted in different units as per instructions of Director of Factories, Govt. of Punjab.
- Safety audit conducted in different units of UT of Daman & Diu and Dadra Nagar Haveli.
- Consultancy on Accretion Formation in DRI kiln, assessment of working process to assess their categorization under Secondary Metallurgy Process category as per MOEF norms and economical PNG firing were provided to the units.
- Training & Skill Development of land losers of M/s. NMDC Iron & Steel plant at Nagarnar has been completed in August, 2018.

B. Energy Audits

Many energy efficiency related projects were executed by NISST which includes energy audits conducted in the steel industry, mandatory energy audits and M&V audits of designated consumers, energy efficiency improvement projects.

C. Safety Audit/Verfications/Inspection

Under the capacity of competent persons recognized by Director of factories, Govt. of Punjab, UT of Daman & Diu and Dadra Nagar Haveli, NISST has conducted safety inspections and safety audits for the steel industry in the state of Punjab, UT of Daman & Diu and Dadra Nagar Haveli. Various training programs in the areas of industrial safety are being conducted for a safe environment in the industry.

D. Testing Labs

Over the last one decade, NISST has been emerging as the main institution for providing testing facilities, conducting consultancy studies, energy audits and participating in various projects aimed at technological improvements in re-rolling industry. Few equipment were added/upgraded in last 5 years to keep the equipment/labs updated. Accordingly the following labs are operational in NISSTs Mandi Gobindgarh campus. .

- Mechanical testing lab
- Chemical testing lab
- Metallography lab
- Pollution testing lab

Out of the above, Mechanical & Chemical testing labs are accredited with NABL. Also NISST has obtained recognition for testing of 15 different steel products from Bureau of Indian Standards (BIS).

R&D activities

The Institute has undertaken following R&D projects:

- Development of production of micro alloyed structural steel through induction furnace & controlled rolling route in mini steel plants.
- Dephosphorization of commercial grade mild steel in acid lined induction furnace,
- Development of computer simulation in design of reheating furnace of Rerolling mills of secondary steel sector.



- Development of cost effective Refractory Lining Materials for In-Furnace Refining in Induction Melting Furnace to Produce Steels Conforming to BIS Quality Standards.
- Development of a cost effective green technology for pre reduction of Chromite Ore in Tunnel Kiln & Production of High carbon Ferro chrome in SAF.

Contribution

- Reduction in energy consumption per ton of steel;
- Contributed in reduction of energy consumption by conducting shop-floor training and awareness programs at various levels, resulting into substantial saving of National wealth and abatement in air pollution level.
- Reduction in material loss; contributed in reduction of scale loss by conducting shop-floor training and awareness programs at various levels, resulting to reduce their cost of production.
- Designing of re-heating furnaces for SRRM sector.
- Contributed in improvising the quality of steel product with various shop-floor trials
- Upgraded the technical knowledge of units on productivity improvements, cost control through various technical aspects e.g. implementation of Direct Rolling, Rejection Control etc.

NISST also represents in various BIS Standardization committees for formulation/modification of different standards related to steel products.

NISST is leading technical member of North East Industrial and Investment Promotion Policy (NEIIPP) 2007 to consider Central Capital Investment Subsidy (CCIS) claims under DIPP.

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.

8.4 Institute for Steel Development & Growth (INSDAG)

- INSDAG, a not-for-profit, member based organization, established by the Government of India (Ministry of Steel) and Major Steel Producers of India in the year 1996, to promote steel based construction and usages in Indian construction and infrastructure sectors. Established in line with Steel Construction Institute (SCI), UK, INSDAG is operating towards promotion of steel intensive structures in Indian construction and infrastructure sectors.
- The total membership base comprising of Architects, Structural Engineers, Designers, Fabricators, academic Institutions and students (Architects & Civil Engineering) apart from steel producers is 446 as on 31.03.2019. About 650 students are also enrolled as student members. During the year INSDAG published two technical books (a) INSDAG Yearbook 2017-2018, (b) Building Design using Steel Hollow Sections (LSM), (c) Critical Analysis of Landmark Steel Structures in India and (d) few reports & papers on steel promotion.
- During the year, INSDAG has been actively involved in various seminars (supported by Ministry of Steel) and promoted steel in construction through presentations. Such seminars were organized in Aizwal, Bhubaneswar, New Delhi, Visakhapatnam and Mumbai. INSDAG has coordinated with Ministry of Housing and Urban Affairs (MoHUA) for incorporating Steel-concrete composite technology in Govt's Affordable Housing scheme. The technology has since been incorporated into the scheme.
- To give further impetus on capacity building in rural areas in terms of fabrication, INSDAG has coordinated with Deptt. Of Micro & Small Scale Enterprises & Textiles, Govt of West Bengal to develop Common Facility Centre (CFC) in 6 Districts of West Bengal (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.

- Successfully organized annual national Student Competition for Students of Engineering Colleges, one for Civil & Structural students and another for Architecture students on different themes on steel based infrastructures. For Civil Competition 2018-19 - Theme: "Steel Intensive Innovative Car Service Station" and for Architecture Competition 2018 - Theme: "Steel Intensive 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.
 - ❖ Effective use of Parallel Flange Sections

During 2018-19 about 70 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	Adamas University	Mechanical / Civil	1
2	School of Planning and Architecture, New Delhi	Architecture	1
3	IEST, Shibpur	Architecture	1
4	Narula Institute of Technology	Civil	1
5	University of Engineering and Management, Kolkata	Civil	1
6	IIT, Kharagpur	Civil/Architecture	1

- 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 - The code has been finalized and adopted by BIS.
 - ❖ 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 is also actively involved (as domain expert) in MoS Technical Committee on Clarification / Exemption of Steel Grades w.r.t Quality Control Order. The committee meets once in a month (sometimes twice) to deliberate on the requests for steel imports and clears each application based on suitability.
- 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 precoated steel sheets.
- INSDAG has signed one Memorandum of Understanding (MoU) with HSCL in order to promote steel intensive construction in various infrastructure activities with a special focus on Housing.



CHAPTER-IX

SRTMI AND RESEARCH

In India, substantial R&D in the Indian Steel sector is being carried out through Government support and also from own funding by (i) leading public & private iron & steel companies, (ii) CSIR Laboratories, (iii) Academic Institutions, with industrial partnerships from their own R&D facilities. R&D investment of leading steel companies in India ranges between 0.05 - 0.6% of turnover as compared to 1% in leading steel companies abroad.

9.1 The National Steel Policy 2017 (NSP 2017) has set ambitious targets with regard to make Indian Steel globally competitive, to reduce carbon footprint, meeting domestic demand for high performance steel, increasing steel consumption etc. To achieve these targets, the NSP 2017 has identified high-end research as one of the focus areas.

9.2 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:

9.2.1 R & D with financial assistance with Government fund

- The Government started a new scheme viz. "Promotion of R&D in Iron and Steel Sector", during the 11th Five Year Plan, with Government funding, 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 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 36 R&D projects have been approved in which Rs. 123.95 crore has been released from Ministry of Steel. 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 have also been carried out. Further, feasibility of smelting reduction of iron ore/fines using hydrogen plasma has been explored in laboratory/ pilot scale.
- The details of funds released during 2018-19 for R&D under the scheme "Promotion of Research & Development in Iron & Steel Sector" is at Annexure-XVII.

9.2.2 Steel Research & Technology Mission of India (SRTMI)

Ministry of Steel has facilitated the establishment of an industry-academia led institutional platform namely "Steel research & Technology Mission of India", to bring in all the stakeholders into one platform, to promote steel research on themes of critical and vital National importance. SRTMI has been setup as a Registered Society on 14th October 2015. Director of SRTMI has been appointed since 1st January 2018. SRTMI is actively interacting with Steel Companies, Research labs & Academia to spearhead research for the iron & Steel sector to bring in synergy in pursuing R&D for the sector, to collectively address the challenges faced by the sector at the National level.

9.3 R&D by Steel Companies

9.3.1 Steel Authority of India Limited (SAIL)

Research & Development

Research & Development Centre for Iron & Steel (RDCIS) is pursuing 78 R&D projects in the current year 2018-2019, out of which 44 projects have been completed till March, 2019. 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 20 patents and 18 copyrights during April 2018 to March, 2018. As many as 79 technical papers were published and 95 papers were presented during 2018-2019.

R&D efforts and initiatives

- Introduction of hard facing and refractory lining copper tuyeres in BF#5, BSL.
- Improvement in performance of RHF by enhancing life of skid pipe insulation in R&S Mill, BSP.
- Introduction of high-performance bearings for increased availability of slab caster #2 at SMS, RSP.
- Investigation and characterization of Longitudinal Midface Cracks (LC) in slabs from caster #3 SMS-II, RSP.
- Development & production of special steel products like ASTM A537 Cl.1, 2, 3 / SAIL WR / SAIL WELD / ASTM A517Gr. F, RSP.
- Development of TRIP-enhanced lean duplex stainless steel on laboratory scale, RDCIS.
- Development of an Information System for Laboratory Testing and Library Procurement, RDCIS.
- Infrared thermal imaging of BF Stoves, BSL.
- Feasibility study of BOF slag by steam maturing for its use in cement concrete, BSL.
- Waste heat recovery from sinter cooler for hot water generation at SP-III, BSP.
- Effect on coke quality of Pet coke in coal blend through pilot oven carbonization, 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-March, 2019

- Q&T ASTM A 517 Gr. F, 32 & 40 mm thick Plates IS 2062 E 350 Structurals
- Q&T ASTM A 537 Cl. 2, 40 mm thick Plates
- UT sound 100 mm thick Plates in IS 2062 E250BR Grade
- Thicker Normalized BQ Plates - IS 2002 Gr.2 (63/70/110mm)
- High Strength Q&T Plates in EN 10025-6 S690 QL
- 2 Pi Quenched & Tempered Steel Plates
- 20 / 25 mm IS 1786 550 D TMT Bars
- Al killed JIS 3101 SS540 (RC-2) Gr. CC Blooms of 230x160, 300x150 & 350x240 mm size for high strength structurals
- Channel 100 IS 2062 E350 BR
- Heavy I-Beam IS 2062 E350 C, 56 mm Plates with enhanced impact properties (54 joules at - 20°C)
- Angle of Grade IS 2062 E250B0 of size 75x75x10 mm & 75x75x8 mm
- IS 1786 Fe550 D TMT rebars 25 / 32 mm
- JIS G3141 SPCC Coils
- SUP 11A Grade Billets
- Fe-500D Grade 8 & 10 mm dia TMT Wire Rod using C-20 (lower CE) Billets
- High Strength IPE600 Structural without Micro-alloying

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	43294	50.78	226.22	277.0	0.64
2016-17	49180	77.83	261.60	339.43	0.69
2017-18	58297	20.79	314.71	335.50	0.58
2018-19	66267	14.77	305.09	319.86	0.48

Patents filed: 20
Copyrights:18
Technical Paper published: 79
Technical Paper presented: 95
9.3.2 Rashtriya Ispat Nigam Limited (RINL)
R&D efforts and initiatives

R&D initiatives are directed towards meeting the present and future requirements of the plant. The R&D initiatives during the year are given below:

- Development of thermo-mechanically treated bars having improved corrosion and seismic resistance.
- Development of BORON Steel grades.
- Development of CO₂ Welding grades.
- Feasibility study on Utilization of fly ash pellets as Ladle & Tundish covering compound.
- Feasibility study on usage of ladle furnace slag as a replacement to synthetic slag.
- Optimizing slag characteristics for hot metal sulphur removal at Blast Furnace, VSP.
- Improvement in charging emissions in Coke Oven Battery 4.
- To study the effect of oversize (+ 10 mm) in iron ore fines on sintering.
- To study suitability of BF slag as a replacement for river sand in civil construction.
- Usage of Alumina-Magnesia Spinel Bricks for Steel Ladle Lining to enhance the Steel Ladle lining life in SMS-1.
- Ladle health Monitoring System at SMS-I.
- Feasibility study on usage of Mill Scale Briquettes as coolant in place of Steel Scrap in LD Converters.

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	20.06	0.12
2018-19	19.07*	0.09*

* 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

- Improving recovery of Iron Values (Min 2%) from lean tailing of Donimalai Beneficiation and pellet plant. (MOU project)
- Implementation of recommended modifications in screening plant - 2, Kirandul complex for improvement in screening efficiency
- Development of high-tech products like pure aluminum silicate and silicon dioxide from iron ore overburden of Kirandul complex (Dep-14) by Hydrometallurgical route.
- Studies on abrasive wear of liner materials used in Iron ore storage and handling (Phase II).

Expenditure on R&D

(Rs. in Crore)

Year	Turnover	PBT	Net Profit	R&D Expenditure	(%) of Turnover	(%) of PAT
(1)	(2)	(3)	(4)	(5)	(6)=(5)/(2)	(7)=(5/4)
2015-16	6456	4505	3028	17.64	0.27	0.58
2016-17	8830	4293	2589	20.30	0.23	0.78
2017-18	11615	6180	3806	22.03	0.19	0.58
2018-19	8901*	5001*	3188*	14.99*	0.17*	0.47*

* Provisional

9.3.4 MECON Limited

R&D efforts and initiatives

- Localized induction heat treatment of steel blank for automotive application.
- Development of Infrared camera based Torpedo Ladle Car (TLC) condition monitoring system.

Patents filed: 12

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	445.57	1.72	0.39
2018-19*	464.00	2.61	0.56

* Provisional

9.3.5 Manganese Ore India Limited (MOIL)

R&D efforts and initiatives

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 face ventilation 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.

Patents filed: 2

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	9.64	0.75
2018-19*	9.34	0.65

* Provisional

9.3.6 KIOCL Ltd.

- Modification of grinding process circuit at beneficiation plant.
- Replacement of clutch system to fluid couplings.
- Use of Organic binder along with Bentonite for pelletization process.
- Replacing Fabric belt with Steel Cord belt for CB-86 C Conveyor.

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

- **New product Development (FY 18):** R&D has successfully completed pilot scale development of API X-80 for non-sour & API X-65 for sour application with very good properties.
- **Building sound SS316L blocks using Laser Metal Deposition:** A methodology for additively manufacturing SS316L parts through LMD has been successfully developed and used to build sound AM test blocks with mechanical properties comparable to rolled SS316L plates.
- **Hot rolled dual phase steel (HRDP) with more than 780 MPa tensile strength:** Hot rolled sheets with thickness 5mm were produced through pilot scale rolling. Required mechanical properties including Tensile strength (TS), Yield strength (YS) with very good YS/TS ratio were achieved.

Process Technology Highlights

- **Prevention of dust formation in LF slag to improve environmental issues:** Addition of different additives in the LF helped in preventing slag dust formation which is a major environment concern. The results were achieved by addition of a naturally occurring compounds in earth crust
- **Implementation of cyanide removal by Anion Complex at blast furnace:** The results showed that 80% removal of cyanide was achieved as compared to inlet.
- **Use of "Super absorbent Polymer based flow aid" in Dry Processing Plant to improve flowability of iron ore:** The average increase in plant throughput during the trial period was 5500 tons/day. Subsequently data collected for the average throughput rate per hour indicated that the plant could achieve a throughput rate of 1000 Tons/hour which is about 30% more than that was achievable during the monsoon period.

Financial Year	R&D expenditure as % of Turnover	R&D expenditure (INR Crores)	Number of Patents Filed	Number of Patents Granted	Number of Collaborations with Research Institutes
2014-15	0.32	134	57	36	23
2015-16	0.34	129	71	32	32
2016-17	0.27	145	78	42	42
2017-18	0.30	182	94	58	34
2018-19	0.30*	208*	107	72	40

*Provisional

9.3.8 JSW Steel Ltd.

Vijayanagar woks

- A total of 25 projects (projects relating to process, energy and product optimization) have been completed till 31st March 2019.
- A total of 7 R&D developments have been implemented and commercialized till 31st March 2019. The savings accruable is Rs.14.58 crore/annum.
- A total of 3 collaborative projects have been initiated till 31st March 2018 with academic institutions (IIT Roorkee & IITKGP, NITK-Surathkal) and BASF Germany R&D.

R&D Expenditure

Year	Annual Turnover [Rs. Crores]	Investment in R&D [Rs. Crores]	R&D Investment against Annual Turnover [%]
2014-15	31430	17.44	0.055
2015-16	27818	8.06	0.029
2016-17	35299	19.30	0.055
2017-18	44057	32.00	0.073

Patent

Year	No. of Patents filed during the year	No. of Patents granted during the year
2014-15	7	0
2015-16	19	4
2016-17	11	1
2017-18	11	4
2018-19	11	2



Dolvi Works

- Total of 6 R&D projects for process improvements, energy optimization and product development have been completed in 2018-19.
- A total of 3 collaborative projects have been initiated in 2018-19 with CSIR-CBRI Roorkee, CSIR-IMMT Bhubaneswar, CSIR-NEERI Mumbai.

R&D Expenditure:

Year	Annual Turnover [Rs. Crores]	Investment in R&D [Rs. Crores]	R&D Investment against Annual Turnover [%]
2014-15	10404.37	1.44	0.014
2015-16	6190.00	1.97	0.031
2016-17	14562.00	2.23	0.017
2017-18	16401.53	6.70	0.040

Patent

Year	No. of Patents filed during the year	No. of Patents granted during the year
2014-15	1	0
2015-16	1	1
2016-17	5	0
2017-18	5	1
2018-19	6	0

Salem Works

- A total of 6 projects relating to process, energy and product optimization have been completed.
- Two collaborative project has been initiated with academic institutions

R&D Expenditure:

Year	Annual Turnover [Rs. Crores]	Investment in R&D [Rs. Crores]	R&D Investment against Annual Turnover [%]
2014-15	3423.34	2.85	0.083
2015-16	2661.41	3.20	0.120
2016-17	3240.42	3.75	0.115
2017-18	3604	4.56	0.126

Patent

Year	No. of Patents filed during the year	No. of Patents granted during the year
2014-15	1	0
2015-16	0	0
2016-17	0	0
2017-18	0	0
2018-19	1	1

9.3.9 Jindal Steel and Power Limited (JSPL)

R&D Initiatives

- Development of Semis: 60Si7, 56SiCr7, 28MNB5, 18MNNB6, S48C(M), T11, 1080Cr, En18S
- Development of New Section: MLSM: UC_203 & UB_305
- Development of Iron bearing bricks for Blast furnace

9.3.10 Tata Steel BSL Limited (TSBSL)

TSBSL has tied up with IIT Mumbai for optimization of High Carbon, 75Ni8, 75Cr1 & 50CrV4 steel grade w.r.t the end applications of the product after cold rolling and heat treatment.

R&D Initiatives

- Developed API 5L X-70 grade in 12.70x1450 mm for Oil & Gas Transportation with 100% shear area in DWTT test. This will help in approval of X-70 grade from Oil & Gas companies.
- Developed API 5L X-60 M PSL2 grade in 9.70x1030 mm for Oil & Gas Transportation with stringent requirements of DWTT at(-29°C).
- Developed SAE 1541 grade for precision tubes.
- Developed SAE 1536 grade for for precision tubes.
- Development of IS 10748 Gr-6, thickness up to 7.5 mm for Hollow Rectangular Pipe.
- Received SIRIM product license approval for Pipe & Tube (MS:1768:2004) and structural steel grade (MS EN 10025-2: 2011).

9.3.11 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

- Setup a 700 TPD micro palletisation facility for utilizing steel mill iron bearing dust and hazardous sludge. The micro pellets are fed into sinter plant which is replacing 10-12% of purchased iron ore in total sinter green mix.
- Development of 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 defense applications.
- Development of heavy plates in Q&T products for eg. 537 Cl2 (>90-95mm).
- Development of Boron Steel for hot stamping in lower thickness (1.6 mm / 1.8 mm) - 20MnB5 / 22MnB5.
- Development of High strength steel with TS>590Mpa in lower gauges <2.50mm for Automobile application.
- Development of High strength atmospheric corrosion resistant steel (A709 HPS70W).
- 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.



9.3.12 Jindal Stainless Hisar Limited (JSHL)

New Grades developed

- Austenitic Stainless Steel EQ309L & EQ309LNb with high ferrite content for use in Strip Cladding Applications.
- Austenitic Stainless Steels for Mirror Polishing Application.
- High Nitrogen Stainless Steel 18Cr22Mn0.65N for Ballistic Application.
- Stabilized Ferritic Stainless Steel Grade 444 & 432 with excellent corrosion resistance for Automotive Application.
- Lean Duplex Stainless Steel Grade UNS 32101 in CRAP for Copper refinery.
- Lean Duplex Stainless Steel Grade UNS 32304 in CRAP condition for Paper & Pulp Industry.
- Aircraft material 15CDV6 with high strength, good toughness and weldability.
- Roll Bonded Stainless Clad Steel Plate (MS+SS) in 1200 mm width.
- Niobium Stabilized high chromium Grade 445. This nickel free ferritic alloy matches the atmospheric corrosion resistance of 18cr-8Ni Austenitic Stainless Steels.

R&D Expenditure

Year	Turnover (Rs. in Crore)	R&D Expenditure (Rs. in Crore)	% of R&D Expenditure w.r.t. Turnover
2015-16	7,091.04	1.54	0.02%
2016-17	7,575.55	4.26	0.06%
2017-18	9,450.23	7.92	0.08%

9.3.13 Jindal Stainless Limited (JSL), Jajpur

Stainless Steel Grades Developed:

Grade	2014-15	2015-16	2016-17	2017-18 (Till Date)
200 Series	2	-	-	2
300 Series	2	2	4	6
400 Series	4	2	2	1
Duplex	-	2	-	-
Total	8	6	6	9

R&D Expenditure

Year	Turnover (Rs. in Crore)	R&D Expenditure (Rs. in Crore)	% of R&D Expenditure w.r.t. Turnover
2015-16	7028.24	1.4	0.020%
2016-17	8957.4	1.4	0.016%
2017-18	10963.67	1.45	0.013%

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) Thrie beam type steel barriers c) Modified Thrie 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
- Deployment of steel crash barriers (appropriate type) along all hilly roads to prevent fatal accidents

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 is 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.

Suitable for - hilly areas, areas of high rain fall and low maintenance

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.

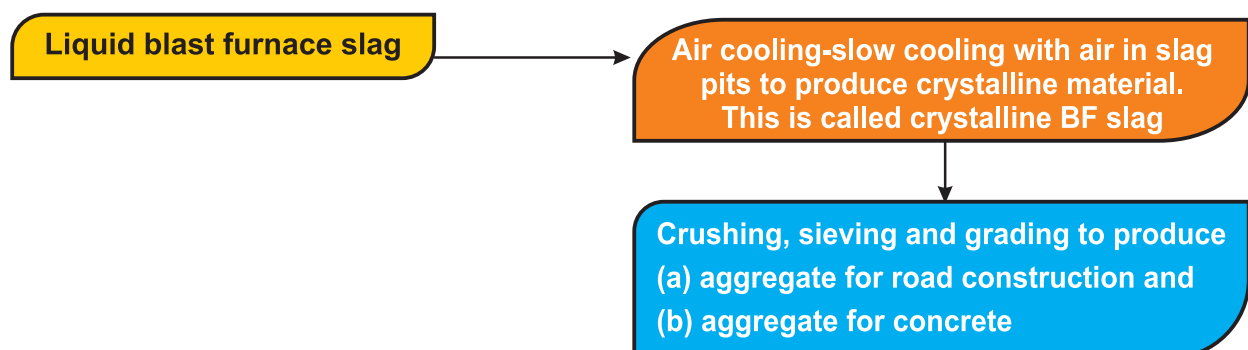


Steel slag and application areas

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 ($\text{SiO}_2, \text{Al}_2\text{O}_3, \text{CaO}, \text{MgO}$) 	<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 $\text{Na}_2\text{O}, \text{K}_2\text{O}$ *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 *$\text{FeO}, \text{CaO}, \text{SiO}_2$ 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 & Strom 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 I 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 pwf 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. Harding 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.

Efforts for making LCCA Technique mandatory in Road Projects

- Presentation was made to Director General MoRTH by INSDAG in presence of representatives from major steel producers for inclusion of LCCA technique during project appraisal by DPR Consultants. Necessary LCA studies submitted to MoRTH for their review and inclusion.
- BIS has reconstituted MSD 4 Committee to update necessary standards (IS 13174 Part I and Part II) for LCA studies.

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 2019 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.

In recent times, 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 updated draft report has been submitted which has been taken up for examination.

11.3 Steps taken by SAIL to promote Usage of Steel

Promotion for increased usage of steel in the Country within the overall objective of increasing per capita steel consumption to worldwide average levels has been accorded priority by SAIL. In this respect, SAIL has initiated several steps, some of which are as under:

- SAIL has been engaged in various promotional activities while undertaking sales through its Distributor/Dealer network. Some such activities include wall paintings showcasing different products at various locations including interior areas, hoardings and outdoor advertisements, displays in public places like Airports and traffic points, meetings/seminars for users and decision makers, etc.
- SAIL has been sponsoring various events, including college festivals, technical fests of Engineering colleges including IITs to spread knowledge about steel and steel designs amongst youth. Further, SAIL has been participating in fairs and exhibitions highlighting various usages of steel, etc.

- In order to expand its scope of business in rural areas of the Country, SAIL has recently introduced a Distributor Policy with a view to reach out efficiently to the end customers through retail channel and also to provide higher value for the customers through value addition in products, delivery and services. Till March'19, fourteen (14) Distributors have already been operational and the process of appointment of distributors in other locations is in progress.
- The campaign, "SAIL Steel-Gaon Ki Ore" which had been started in the previous financial year was continued in the Financial Year-2018-19 with more vigour by conducting 152 workshops across the Country. The aim of these workshops is to educate rural masses on benefits of steel usage and to create awareness about the retail products of SAIL.
- In order to promote steel based construction, SAIL has put up two state of the art structural mills; Medium Structural Mill (MSM) at Durgapur and Universal Structural Mill (USM) at Burnpur. The mills are capable of producing different sizes of Parallel Flange Beams (Narrow Parallel Flange Beam & Wide Parallel Flange Beams) and other structural items from 100mm to 750mm size. Progressively, different sections are being added to our product basket to service the demand of the customer. The capacity of these mills is to the tune of 1.85 million tonnes per annum. SAIL has branded its parallel Flange Structural from New Mills of ISP and DSP as "NEX".
- Various Seminars on the theme "New Challenges in Steel Design & Construction" have been organized to showcase the wide ranging applicability of these structural sections as well as advantages of Design and Construction using SAIL structures and Parallel Flange Beams. These seminars are being attended by Designers, Engineers, Academicians, Project customers and other leading professionals from the construction industry.
- To create awareness about steel sections including parallel flange sections among students, SAIL had sponsored an event "Encode-steel", which is focused on designing structures in steel instead of conventional RCC design ,at IIT, Chennai & IIT, Mumbai.
- Under the Smart City Mission initiative, SAIL has been undertaking various projects for development of smart City Infrastructure for the New Delhi Municipal Council (NDMC).
- Under the Digital India Initiative, SAIL has installed a Common Service Centre (CSC) Kiosk at Minto Road, New Delhi for NDMC and Ministry of Information Technology. The kiosk has been crafted in 304 grade Salem Stainless Steel. This facility will provide IT enabled Services under one roof for facilities like PANCARD, Passport, Railway Ticket, Property Tax, Birth & Death Certificates, Payment of Electricity Bills, Water Bills, etc.



Solar panelled SS Bus Shelter

- Two sample stainless steel bus shelters with solar roof panels and stainless steel benches have been fabricated by SAIL for NDMC and installed at prominent places.
- SAIL is presently working with South Delhi Municipal Corporation and North Delhi Municipal Corporation on creation of two smart garbage stations in Delhi - one each at Bhikaji Cama Place and Kamala Nagar, where Stainless Steel garbage bins will be placed in underground pits so that the road sides are spared from unpleasant odour, disease generating unhealthy garbage and ugly and dirty surroundings.
- **SS Garbage Bin** Stainless Steel Litter bins crafted with SAIL SALEM stainless steel which are hygienic, clean and aesthetically appealing, have been supplied to NDMC.
- With a view to give an impetus and awareness for using solar power, a solar tree has been fabricated in stainless steel and installed at the Palika Vatika. The seven meter tall Stainless Steel Solar Tree with nine petals, fabricated using 304 grade stainless steel, is now a major attraction at Connaught Place, which is a public convergence hub and is cited to be a precursor to many such solar trees in the NCR at other popular zones.
- SAIL has also developed a multi-tier planter module that can go well with the green initiatives and beautification of city landscape. This is being considered in the road intersection triangles and arterial road intersections.

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 pan-India basis with continuous supplies MOU are entered. 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 by RINL to improve promotion of steel usage:

- e-Retail with an objective to increase penetration in the north-eastern region and Jammu & Kashmir covering urban, semi-urban and rural India.
- Steel usage promotion campaigns are being carried out in a structured manner covering Meet of Architects, Builders & Construction Engineers (ABC Meets), Special Steel Customers Meet & Meeting of Original Equipment manufacturers (OEMs).



Western Region Customer Meet at Mumbai



- Promotion of Brand image through renaming of HazratNizamuddin - Visakhapatnam Samta Express Train as Vizag Steel Samta Express.
- Engaged Ms PV Sindhu, the first Indian Silver Medalist in Badminton in Olympics, as Brand Ambassador of Vizag Steel.
- Rural Area advertisements are made through State Transport Corporation buses and DD Kisan TV Channel. RINL also tied up with FM Radio and FM Gold Radio for its product promotion.
- Rural Dealership Scheme has been improved by providing for Secured Interest Free Credit, Cash & Carry, and Incentives for Product Promotion etc. Reimbursement of Rs.5000/- is made to active Rural Dealers towards the cost of display boards and MRRP boards. Rural Dealers who take up promotional activities like Hoardings, Wall Paintings, Newspaper / Cable TV Advertisement directly are entitled for a reimbursement of promotional incentive of Rs.100 per tonne.
- Under the Rural Dealership Scheme (RDS), 585 number of RDS are registered with RINL and about 44,653 tonnes lifted during 2018-19, a growth of 11% over CPLY.
- Appointed Consignment Sales Agent (CSA) for Sri Lanka and sales operations in Sri Lanka has started.
- RINL is a founder member of INSDAG (Institute of Steel Development and Growth), which is carrying out activities by designing steel intensive structures, developing codes for steel products, obtaining BIS Certification for steel products, holding Architects, Builders and Construction Engineers needs etc. and to carry out projects/studies that help enhancing the marketability of steel products and widening the application areas of steel in the country.
- In order to improve and have end to end logistics, RINL adopted a Multi Model Transport System and appointed agency for coastal shipment to branches located at Kochi, Ahmedabad and Mumbai.

11.5 MSTC Ltd.

MSTC, through the 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 of the country.

For sale and purchase of iron, steel and Non-Ferrous products, especially for small and medium sector manufacturers, MSTC has launched an e-shopping mall, "M3" online portal. MSTC METAL MANDI is a virtual market place for the B2B & B2C segment.

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.

Under PAT Cycle-IV (2018-21), 135 Designated Consumers in Iron Steel Sector have been notified by Ministry of Power.

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- May 2018)

Aimed to further replicate energy efficiency in steel re-rolling mills and expand the interventions to other SME Sector like induction furnaces. Facilitated implementing energy efficiency technologies in 283 steel rolling units and 4 Induction Furnace units. Helped to bring down energy consumption & GHG emission by 5-25%.



Third Phase: In the third phase for five years, 1200 units are proposed to be covered which will reduce 33 lakh tonnes CO₂.

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.
- Energy Monitoring and Management System at ISP Burnpur, SAIL is in progress.

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 Slag, Steel Melting Shop (SMS) Slag accounting for nearly more than half a ton for each ton of steel produced in ISPs. Most of the steel plants are utilizing 100% of the BF 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 utilization of SMS (particularly LD) slag is limited due to the following:

- Phosphorous content
- High Free lime content and
- Higher specific weight.

To resolve these issues, Ministry of Steel has constituted a Task Force for promotion and utilization of Iron and Steel Slag. A meeting of the task force was held on 30th September, 2016 under the chairmanship of Joint Secretary (Steel), which was attended by all major steel plants in public & private sector and associations. In this meeting, all the issues related to slag were deliberated upon and action plans were evolved. Ministry of Steel has written to Indian Road Congress for development of codes and procedures allowing use of SMS slag as road aggregates, Research Designs and Standards Organisation (RDSO) for framing standard for use of iron and steel as rail ballast, Ministry of Environment and Forest & Climate Change for considering making mandatory the use of iron and steel slag in road making, rail ballast and also to all the ISPs for setting up of commercial plant to produce processed SMS slag.

12.1.5 Nationally Determined Contributions (NDCs) for Indian Steel Industry

Government of India has submitted India's Nationally Determined Contributions (NDCs) to reduce the emissions intensity of its GDP by 33 to 35 percent by the year 2030 from the level of the year 2005. Subsequently, Government has ratified the Paris Agreement on 2nd October 2016. MoEF is pursuing in consultation with all Economic Ministries, to implement NDC to reduce CO₂ emission in respective sector. Ministry of Steel has constituted two Working Groups for revisiting the NDC targets & financial requirements.

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 4 years

Plant	2015-16	2016-17	2017-18	2018-19
BSP	6.44	6.58	6.58	6.75
DSP	6.42	6.36	6.04	6.28
RSP	6.50	6.43	6.19	6.26
BSL	6.70	6.70	6.67	6.68
ISP	7.60	7.20	6.06	6.32
SAIL	6.51	6.60	6.38	6.50

Environment Management

- Reduced specific particulate Matter (PM) emission load by 4.8% (from 0.74 kg/tcs to 0.70 kg/tcs).
- Reduced specific water consumption by 4.5% (from 3.62 m³/tcs to 3.44 m³/tcs).
- Reduced specific effluent discharge by 0.92% (from 1.89 m³/tss to 1.88 m³/tss).
- Increased BF slag utilisation by 5.9% (90.52% to 95.89%).

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:

- Tall coke oven batteries equipped with Land based Pushing Emission Control system.
- 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	2018-19
2.60	2.61	2.56	2.59

Highlights of compliance to national/CPCB/SPCB norms/regulations:

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: Utilization of BF & BOF slag and Total Solid Waste during 2018-2019*

BF Slag	BOF Slag	Total Solid Waste
95.89%	55.94%	85.17%

*Provisional data

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).
- Plantation of more than 4.43 lakh saplings.

12.2.2 Rashtriya Ispat Nigam Limited (RINL)

Energy Consumption (Gcal/tcs)

Year	Energy (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	6.05	2.62
2018-19	5.98	2.59

Measures Taken/being taken for reduction in Energy Consumption (2018-19)

- Commissioning & Stabilization of Steam Turbine of Coke Oven Battery-5 and generated 6.04 MW.
- Improvement in gross coke yield at Coke Oven from 72.34% to 72.88%.
- Improvement in Tar yield at Coke Oven from 3.08% to 3.13%.
- Increase in Pulverized Coal Injection (PCI) in Blast Furnace from 53.6 Kg/tHM to 59.2 Kg/tHM. BF-3 PCI increased from 76 kg/tHM to 95.4 kg/tHM. BF-2 PCI increased from 4 Kg/tHM to 27.8 Kg/tHM.
- Reduction in Heat Consumption at BF-3 from 432 Mcal/tHM to 408 Mcal/tHM.
- Reduction from Heat Consumption at SMS-1 from 38 Mcal/tCS to 35 Mcal/tCS.
- Reduction in power consumption at Special Bar Mills from 103.19 Kwh/tIP to 98.16 Kwh/tIP.
- Reduction in Heat consumption at Special Bar Mill (SBM) from 394 Mcal/tIP to 312 Mcal/tIP.
- Reduction in power consumption at WRM-1 from 121.68 Kwh/tIP to 120.03 Kwh/tIP.
- Reduction in power consumption at WRM-2 from 217.06 Kwh/tIP to 210.82 Kwh/tIP.
- Reduction in Heat Consumption at MMSM from 425 Mcal/tIP to 403 Mcal/tIP.
- Reduction in power consumption at STM from 114.12 Kwh/tIP to 101.05 Kwh/tIP.
- Reduction in Heat consumption at STM from 390 Mcal/tIP to 316 Mcal/tIP.
- Reduction in power consumption at CRMP-1&2 from 54.99 Kwh/tGL to 50.82 Kwh/tGL.
- Reduction in Heat consumption at CRMP-2 from 941 Mcal/tGL to 938 Mcal/tGL.
- Improvement in Power Generation at CPP-2 from 76.39MW to 104.10MW.
- Improvement in Power Generation at BPTS from 10.73MW to 11.7MW.
- Improvement in Solar Power Plant generated from 0.84 MW to 0.90 MW.
- Improvement in LD gas yield at SMS-1 from 95 Ncum/tCS to 104 Ncum/tCS.

Due to these measures, Specific Energy Consumption reduced from 6.05 Gcal/tCS in 2017-18 to 5.98 Gcal/tCS during the year 2018-19.

Waste Heat Recovery Systems (2018-19)

Energy Saving Facility	Units	Energy Recovered	Boiler Coal Saved (Tons)	Reduction of CO ₂ Emission(Tons)
LD Gas recovery plant-at LD Gas recovery plant-1&2	MNCum	514	304315	477775
Total Power generated at Back Pressure Turbine Station (BPTS, COB4&5 Turbine)	MWH	218368	174694	274270
Total Power generated at Gas Expansion Turbine Station (GETs) & TRT	MWh	56527	45222	70998
Total Power generated from Waste heat recovery at Sinter plant straight line cooler (NEDO Project)	MWh	779	623	978

Usage of By product gases in Thermal Power Plant (2018-19)

Units: MNcum

Name of Fuel used	Value	Boiler Coal Saved(Tons)	Reduction of Co ₂ emission(Tons)
CPP-1			
Coke Oven Gas	373	522692	820627
BF Gas	1874	420297	738366
CPP-2			
Coke Oven Gas	110	153752	241390
BF Gas	2506	628999	987528

Environment Management

Highlights of compliance to National/CPCB/SPCB norms/regulations (2018-19)

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 Ammonium. N₂, Phenol, Oil, Grease, COD & TSS were within norm as prescribed by APPCB/CPCB.

BF slag: 18,09,916 tons of BF Slag was generated and 26,64,876 tons was utilized, achieving utilization of 147.51%(up to March 19).

LD slag: 8,82,410 tons of LD Slag was generated and 1,57,378 tons was utilized in Sinter Plant, Blast furnace, Traffic & construction activities achieving utilization of 17.84 % (up to March19).

Other wastes: Other metallurgical wastes i.e. Dusts from DE systems & ESPs, Sludges from waste water treatment plants and Mill Scales of about 3,82,940 tons (up to March 19) are being utilized in Sinter Plant for of Base Mix preparation.

Environmental initiatives under implementation

- Modification/augmentation of ESP's of Thermal Power Plant for one Boiler is taken up with BHEL at a cost of Rs. 35.2 crore. to bring down the emissions below 50 mg/Nm³. It is expected to be completed by July'19.
- Long term lease of land for setting up of Auto Claved Aerated Concrete Block unit with a minimum off take 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. MECON has commissioned 20 kWp Solar Energy Power Unit in October, 2018.

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 20.46 lakhs trees in all the mines over the last recorded 30 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 wet drilling for drilling the blast hole.
- 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 , 10/11A and Donimalai Iron Ore Mine project for online monitoring of PM10 , PM2.5, SO2, NOX and CO.
- Dry Fog dust suppression system has been implemented at Donimalai Iron Ore Mine

Water Pollution

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

- Constructed tailing dams at all the mines for impoundment of slime generated during wet screening operations.

Sustainability Initiatives

- Carbon foot print studies are being conducted every year at all iron ore mining projects and disclosing GHG emission in Carbon Disclosure Project (CDP)
- 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 KIOCL LIMITED

- The Bio-medical wastes generated at the health centers are being disposed scientifically through KSPCB and MoEF approved agencies.
- A pit with pumping arrangement has been provided in the Cooling Pond area for recirculation of the spillages from Shed-1 and Shed-2 area and to conserve water.

The specific energy consumption in the last two years and from April to March, 2019 of the Financial Year 2018-19 is as under:

Year	2016-17	2017-18	2018-19
Power consumed per ton of pellets (In Kwh/T)	67.09	66.83	66.52
Heat consumption per ton of pellets (In Kcal/T)	246.30	249.57	229.73

12.2.7 JSW Steel Limited

Vijaynagar Work

Energy Management

Year	*SEC, Gcal/Tcs	*CO ₂ , TCO ₂ /Tcs
2015-2016	6.397	2.52
2016-2017	6.260**	2.41**
2017-2018	6.185**	2.40**
2018-2019	6.08**	2.31**

Note: * SEC & CO₂ values as per the PM Trophy & ** As per PMT Norms incl DRI & CDQ

Energy Management Highlights

- Installation of additional ESP in Pellet plant to reduce the process stack emission to <15 mg/ Nm³.
- Charging Emission control for batteries in Coke Oven 3&4 leading to reduction in visible emissions to <16 sec.
- Implemented system for zero rooftop emissions.
- MEROS technology for Sinter plants.
- Installation of additional 09 nos. of bag filters to capture emission from junction houses.
- Online continuous emission monitoring system installed in 71 stacks (95 parameters -71 PM, 12 SO₂ & 12 NO_x and hooked up with CPCB server to monitor real time data).

Environmental Key Performance Indicators Summary

Parameters	FY16	FY17	FY 18	FY 19
Specific Process dust emission* (kg/tcs)	0.58	0.50	0.50	0.42
Specific water discharge (m ³ /tcs)	0	0	0	0
Specific water consumption (m ³ /tcs)	2.80	2.37	2.28	2.41
Solid waste utilization (%)	68.76	70.60	78.23	79.94

* excluding power plants

Salem Works
Specific energy consumption:

Year	Gcal/TCS
2015 - 16	7.52
2016 - 17	7.24
2017-18	6.94
2018-19	6.95

Energy Highlights

- Increased waste gas utilization for power generation through installation of new chimney in coke over battery No. 1.

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.

12.2.8 Tata Steel Limited (TSL)

Tata Steel is adjudged as the Steel Industry leader globally on Sustainability in DJSI 2018 with a top score of 100 percentile in Environmental Dimension. Jamshedpur Steel Works (TSJ) remains Indian benchmark in Energy and CO₂ intensities (in Coal based BF-BOF route) and has retained the Green Co Platinum rating (only Indian Steel company).

Energy Management Highlights

Kalinganagar Works (TSK) continues to ramp-up and there,

- Blast Furnace fuel rate reduced from 474 Kg/thm in 2017-18 to 473 Kg/thm in 2018-19

FY	Specific Energy Consumption (Gcal/tcs)		Specific CO ₂ Emission (T/tcs)	
	TSJ	TSK	TSJ	TSK
2015-16	5.77	-	2.30	-
2016-17	5.67	8.76	2.29	3.08
2017-18	5.67	6.72	2.30	2.66
2018-19 (expected)	5.69	6.31	2.29	2.54

Environment Management Highlights

Stack Emissions: Dust or Particulate Matter (Kg/tcs)

Plant	2016-17	2017-18	2018-19
Jamshedpur	0.44	0.41	0.37
Kalinganagar	1.3	0.66	0.61

Overall waste utilisation was at 96% level at Jamshedpur Steel Works and 100% at Kalinganagar during 2018-19 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.

Period (UoM: Million tonne)	BF Slag				LD Slag			
	Generation		Utilisation		Generation		Utilisation	
	TSJ	TSK	TSJ	TSK	TSJ	TSK	TSJ	TSK
2017-18	3.90	1.06	3.88	0.98	1.81	0.54	1.05	0.30
2018-19(expected)	3.85	1.23	3.97	1.18	1.69	0.59	1.76	0.75

Period (UoM: Million tonne)	Total Waste			
	Generation		Utilisation	
	TSJ	TSK	TSJ	TSK
2017-18	6.78	2.69	5.72	2.36
2018-19 (expected)	6.88	2.13	6.76	2.14

Note: Utilisations include quantity ex-stock

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.

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.

Plantation

35444 saplings were planted during 2018-19 (till Sep 2018) across Indian operations; 28,091 (5278 at TSJ + 30116 at TSK) saplings were planted at Steel Works.

12.2.9 Tata Steel BSL Limited (TSBSL)

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.
- Installation of Briquetting Plant for conversion of BOF sludge, FES dust and mill scale into briquettes.
- Installation of new pyrometer for auto regulation of fan speed w.r.t temperature of sinter cooler in Sinter Plant # 2 & 3.

Environment Management

Parameter	2015-16	2016-17	2017-18	2018-19
Specific Energy Consumption (Gcal/tcs)	6.880	6.859	6.797	6.84
Specific CO ₂ Emission (T/tcs)	3.12	2.84	2.80	2.93

Solid Waste Generation & Utilization

Particulars	2015-16	2016-17	2017-18	2018-19
Total Waste generation (Kg/tcs)	720	684	740	713
Total Waste utilization (Kg/tcs)	670	644	673	502
% of waste utilization	93.18	94.16	90.94	70.35

Specific Water Consumption (m3/tcs)

Description	2016-17	2017-18	2018-19
Specific water consumption up to HSM excluding thermal power and drinking	4.42	4.55	4.25

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.

12.2.10 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

Year	Energy Consumption (Gcal/tCS)	CO ₂ emissions (Tons/tCS)
2015-16	7.606	2.72
2016-17	7.497	2.51
2017-18	6.995	2.33
2018-19 (Apr-Sep'18)	7.0*	2.33*

* Provisional

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 into 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.

12.2.11 Jindal Stainless Hissar Limited (JSHL)

JSHL has embarked upon a special drive in the field of energy conservation. As a part of continuing efforts towards energy conservation JSHL has made significant improvements in energy efficiency.

Year	Specific Energy Consumption Emission (T/tcs)
2015-16	0.488
2016-17	0.490
2017-18	0.473

Approximate 200000 MT/Annum slag is generated from Steel Melting Shops (AOD& EAF). All the slag is processed to recover the valuable metal to reuse in our steel melting facilities and rest is converted into slag chips and slag powder. Slag Chips and powder are used further as resource for various purposes

Stack Emission, Fugitive Emissions, Ambient Air Quality, Specific water consumption and Effluent discharge quality are well within the norms.

12.2.12 Jindal Stainless Limited (JSL), Jajpur,

Jindal Stainless Limited (JSL) set up its fully integrated stainless steel plant with modern, efficient and eco-friendly equipment at Kalinganagar, Jajpur, Orissa to meet the demand of higher-width stainless steel flat products. The plant is capable of producing a unique and wide range of products, both in terms of grades and dimensions.

Year	Specific Energy Consumption Emission (T/tcs)
2015-16	1.537
2016-17	1.432
2017-18	1.417

Approximate 200000 MT/Annum slag is generated from Steel Melting Shops (AOD& EAF). All the slag is processed to recover the valuable metal to reuse in our steel melting facilities and rest is converted



into slag chips and slag powder. Slag Chips and powder are used further as resource for various purposes

Stack Emission, Fugitive Emissions, Ambient Air Quality, Specific water consumption and Effluent discharge quality are well within the norms.

12.2.13 Jindal Steel and Power Ltd. (JSPL)

Environment Management

Year	Energy (Gcal/tCS)	CO ₂ emissions (Tons/tCS)
2014-15	9.099	2.942
2015-16	8.745	2.928
2016-17	8.417	2.744
2017-18	8.263	2.770
2018-19	8.092 *	2.766 *

* Unaudited figure

- Installation of VVFD in ABC fan in DRI-1
- Replacement of HPSV Lamps with LED Lights in DCPD
- All CREP Action points are complied.
- Utilization of 100% solid waste in CFBC Boiler which is operated with the 90% DRI Char and 10% DRI ABC dust. No raw coal is used in CFBC Boiler.

Adoption of Clean & Green Technologies

- Installed Cement Plant at Raigarh near its Steel plant to utilize Blast Furnace Slag.
- Installed Slag Processing plants based on Slag Atomising Technology of Ecomaister have been installed at Integrated Steel plants at Raigarh and Angul to utilize SMS slag
- Slag Atomising Process (SAP) uses compressed air & mist cooling system to convert waste Steel slag into a high compensation product called precious slag ball, which is used as abrasive blast material, counter weight etc.
- Char from Coal-based DRI from Raigarh steel plant is being reused as fuel in the Captive Power Plant.
- Iron containing solid wastes such as bag filter dust, mill scales is reused in Sinter Plant.

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)

SAIL has an established marketing network in the North East Region. It has a Branch Sales Office at Guwahati which looks after marketing of Steel products in whole of North Eastern Region. Apart from Branch Sales Office, there are three CA warehouses located in Guwahati, Silchar & Itanagar. Sales in North Eastern Region has been more than 1.7 lakhs tonnes during the financial year 2018-19. SAIL has been catering to various infrastructure projects of national importance.

Besides sales to Projects and Industry, SAIL has been focusing on meeting retail requirements also. Retail Sales in SAIL was earlier carried out through a wide spread dealer network. SAIL has embarked in 2-Tier Distribution model consisting of Distributors and Dealers attached to the Distributors covering a specific geographical area. The key objectives of the scheme are to reach out to the end customer in the Retail through an efficient distribution channel and deliver higher value to the customers through value addition in Products, Delivery & Services.

The Distributor appointed in the North Eastern Region, at Guwahati, w.e.f. 01.06.2017 is primarily responsible for Retail Sales of TMT. As on 01.04.2019 the distributor has 157 dealers on the rolls and covers all the seven States of North East. Total sales through 2-tier channel sales was 19970 tonnes during 2018-19.

The Distributor has carried out promotional activities in the form of rural awareness meets, mason meets, wall paintings, advertisement through various modes, etc.

13.3 Rashtriya Ispat Nigam Ltd. (RINL)

North Eastern Region is a fast developing region and there is a huge potential for infrastructure development in the area of Hydro power, thermal power stations, coal and Natural gas as this region is in abundance of natural resources. Presently, RINL meets the requirement of this region through material which is routed from RINL Kolkata stockyard by road to desired locations.

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 outlet. In order to have a Stockyard in North Eastern Region, discussions are in progress with National Small Industries Corporation Limited (NSIC) and Inland Waterway Authority of India.

A special ABC Meet at Agartala was conducted by RINL and ensured large scale participation from all Government. Department from CPWD, PWD, Agartala Municipality, Tripura Housing Board, Tripura State Electric Supply Corporation, Faculties and scholars from NIT Agartala, renowned Contractors, Builders and Architect from Govt. Department. Government Department like PWD, Housing Board, Municipality issued Internal Circular nominating their employees to attend the Meet organized by RINL.

13.4 MSTC Ltd.

North-Eastern Region (NER) is rich of forest wealth which constitutes of 22.21 percent of total forest area. Agro Climatic condition favours growth of varieties of fruits, vegetables and spices.



MSTC has taken initiatives to facilitate direct access to the market for the growers from NE states for their produce through its e-commerce services. MSTC has entered into an MOU with North East Region Agricultural Marketing Corporation Ltd. (NERAMAC - a PSU under the Ministry of DONER) to form an ecosystem wherein NERAMAC will act as an aggregator and Central Railside Warehouse Corporation Limited (CRWC), a public sector logistic provider, will ensure storage, transportation and door delivery of the commodity to the buyers. In addition, the Inland Waterways Authority of India (IWAI) which has both low & high barges may augment the ease of transportation through river/sea routes.

The transportation and logistics infrastructure of the above companies 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" online portal in a transparent and hassle-free manner.

In addition to this, MSTC has involvement in terms of selling scrap of State / Central Public Sector, Defence units, paramilitary forces situated in the North East for better realization in a transparent way which has also benefitted the local businessmen, and therefore indirectly supports economic development of 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:

- 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.
- Inter-Ministerial meetings in DIPP chaired by Shri Ravinder, Joint Secretary, DIPP, and attended by Shri Naresh Kumar Wadhwa, Deputy Secretary and Shri Ashish Sharma, Under Secretary, Ministry of Steel.
- Inter-Ministerial meeting in Department of Commerce chaired by Joint Secretary (Europe), Department of Commerce and attended by Shri Neeraj Agrawal, Director, Ministry of Steel.
- 18th Session of India-Bulgaria Joint Commission for Economic, Scientific and Technical Cooperation (JCESTC) under the aegis of Department of Commerce, attended by Shri Neeraj Agrawal, Director, Ministry of Steel.
- Inter-Ministerial meeting in Ministry of External Affairs for EAM-Azerbaijan Foreign Minister bilateral meeting, scheduled on 4th April, 2018 in Baku, Azerbaijan, Inter-Ministerial meeting (IMM) attended by Shri Anupam Prakesh, Director, Ministry of Steel.
- India Sourcing Fair at St. Petersburg (Russia) from March 20-22, 2018, Ms. Ruchika Chaudhry Govil, Joint Secretary, & Shri Neeraj Agrawal, Director, Ministry of Steel, participated.
- Study Visit of Committee on Government Assurances (2017-18) to Hyderabad on 21.05.2018 regarding restructuring of ICVL, attended by Ms. Ruchika Chaudhry Govil, Joint Secretary Ministry of Steel.
- 7th Session of India-Russia Sub-Group on Mining, under the aegis of Ministry of Mines, under the Working Group of Modernization and Industrial Coop, attended by Shri Neeraj Agrawal, Director, Ministry of Steel.
- Review meeting in Cabinet Secretariat on status of MoUs signed by GoI with foreign countries attended by Shri Neeraj Agrawal, Director, Ministry of Steel.
- 7th Inter-Ministerial Group meeting on resumption of discussions on Hazigak Mining Project, held on 01.02.2019 under the chairmanship of Ms. Ruchika Chaudhry Govil, Joint Secretary Ministry of Steel.



CHAPTER-XV

DEVELOPMENT OF INFORMATION TECHNOLOGY

15.1 Introduction

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

- The Computer Centre in the Ministry with high end Server, Client Systems, Local Area Network (LAN), Video Conferencing facility and Wi-Fi 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
- NICNET based Internet Connectivity with email facility under nic/gov domain has been provided to all Officials/Divisions in the Ministry.

E-Governance applications implemented in the Ministry for 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. **Ministry of Steel received the certificate of appreciation from Hon'ble Union Minister of State of the Ministry of Personnel, Public Grievances and Pension, Dr.Jitendra Singh in recognition of commendable work done by Ministry of Steel in implementation of e-Office.**
- As part of the e-governance programme, a Ministry-wide Intranet portal is also operational in the Ministry; the portal facilitates monitoring of various applications in the area of Action Plans, Ushering In Cashless Transaction Environment, Court cases etc. in the Ministry.
- eRequisition, Stock & Inventory Management System are operational and accessible through Ministry's Intranet Portal. The eRequisition, Stock & Inventory Management System have been developed for automating the requisition process, filing and its approval by Admin General section, and maintaining the Stock & Inventory at backend.
- 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 is operational in Steel Conference Room and O/o Secretary(Steel) for monthly PRAGATI VC of Hon'ble Prime Minister.
- As a part of eGovernance 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.
- ❖ PRAGATI - platform for Pro-Active Governance and Timely Implementation, 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.
- A Dashboard for monitoring the performance of Steel Sector at National and International level is operational for Ministry officials. The dashboard provides information on 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 and Status of Raw Material reserves.

Ministry's Official Website

- The bilingual web-site for Ministry of Steel (<https://steel.gov.in>), developed on Content Management Framework (CMF) platform, providing the comprehensive details and functioning of M/o Steel and its other offices/PSUs is operational and updated on regular basis.

15.2 Steel Authority of India Ltd. (SAIL)

SAIL has put in consistent efforts to develop and implement Information Technology (IT) Systems in all spheres of business, in line with the objective of achieving speed and accuracy of data availability and automating business processes, thus enabling SAIL's competitiveness in the domestic and global marketplace.

- SAIL due to a sustained effort over the years to keep pace with latest technology has been able to cover the major spectrum of business operations under the sphere of Enterprise Resource Planning (ERP). SAIL's 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) have already implemented ERP and are reaping it's benefits. ERP implementation at 5th Integrated Steel Plant i.e. IISCO Steel Plant(ISP) & Corporate Office(CO) is in progress with Go-live planned in the ensuing Financial Year(2019-20).
- SAIL embarked on the journey of availing IT services through Cloud model which is increasingly becoming de facto industry standard due to its inherent advantages of quick deployment, cost effectiveness, ease of manageability while providing access to the latest technology. Corporate Office pioneered in this initiative for deployment of ERP solution with ISP in the process of finalizing the deployment model.
- The 'Manufacturing Execution Systems' (MES) in BSP has been extended in URM and SMS-III to cater to shop execution, material tracking and balancing, sampling and result recording etc. inside each shop for enabling rolling as per stringent Railways requirement and facilitate timely dispatch.
- Implementation of e-Way Bill with respect to inter-State movements for statutory compliance has been done in major Plants/Units of the Company.
- As part of GOI initiative, steps have been taken to maximize procurement through GeM Portal and as a step towards automation, interfacing of Purchase Orders with ERP systems has been initiated.
- SAIL implemented in-house Online Human Resource Management System (HRMS) for creating a centralized repository of employee information having modules such as Employee Master Data



Management, their Growth Profile, Last Pay Certificate, Pension data, Grievance system, Suggestion System, Exit Interview, Training Module and MIS Reports.

- SAIL in its endeavor of keeping pace with digitization and changing times, has taken initiatives in mobility and has developed android apps in areas pertaining to Human Resource(HR) as well as capturing of shop floor parameters related to production.
- To promote transparency across organization, system has been implemented for Complaint Registration and Vigilance Clearance for SAIL executives.
- Online Pharmacy System has been extended to employees working in Captive Mines for improving availability of medicines in such remote locations.
- Implementation of e-Handshake module to facilitate Township third party consumers to pay their bills online through Internet SBI payment gateway.

15.3 Rashtriya Ispat Nigam Ltd. (RINL)

RINL has been making continuous efforts in development of IT infrastructure and various IT systems / applications for improving the overall organizational efficiency. Achievements during the year 2018-19 are given below:

- As a part of Digital India initiative of Govt of India, RINL implemented the e-Office software, developed by NIC, for file movements, across 23 geographically separated locations, from Oct, 2018 for enhanced transparency, increased accountability and speed of decision making. RINL is the first Steel PSU to achieve this feature.
- The Standard CMMI Appraisal Method for Process Improvement (SCAMPI, Class-A), audit was successfully conducted for business applications and RINL accredited with CMMI Level-3 certification.
- Recertification for ISO 27001:2013 obtained for implementation of Information Security Management System in IT & ERP Dept.
- Developed new Web Portals, Document Storage solution, Solid waste management module and Mobile Apps for Marketing Sales, production and delay data for expansion units etc
- In Production area- Developed New systems for rake analysis and monitoring, and implemented for viewing conveyors breakdown analysis
- Successfully commissioned Level-2 systems viz; SMS-2 Caster-2, SBM Furnace, and WRM-2 Mill. etc.
- Developed software for facilitating recruitment process, Web based self-appraisal system for executives', Gate Pass Systems for contract labors etc. in HR area,
- Developed Enterprise Bill Tracking system (EBTS) to facilitate RINL Vendors for making the tracking easy.
- Developed new Vendor Registration System, SRM e-tendering and e-auction modules, Mixed-currency bidding etc.

15.4 NMDC Ltd.

The following developments have been completed during the year:

- Tele Presence as a Service (TPaaS) on OPEX model and Multi-Protocol Label Switching (MPLS) connectivity has been implemented by M/s.Railtel Corporation of India Limited from 27.12.2018 connecting NMDC HO, Hyderabad with 10 other locations.
- Centralised Payroll Implementation has been extended to SIU-Palancha, GEC-Raipur and DMP-Panna.

- HRMS Software with all the modules has been uniformly implemented at NMDC HO and all locations.
- The Microsoft Implementation involved upgradation of licenses as follows:
 - ❖ Microsoft Exchange has been upgraded from 2003 to 2013.
 - ❖ Barracuda Email Security Gateway implemented.
 - ❖ Active Directory, DNS, DHCP has been upgraded from 2003 to 2012.
 - ❖ Windows Failover Cluster has been created and all the physical servers have been moved to virtual using HyperV.
 - ❖ SCCM has been implemented to manage cluster as well as managing clients.
- A PO has been released on 23.11.2018 for Implementation of Bio-metric Attendance Recording System at NMDC HO and all locations.
- The following new modules have been developed for Vigilance Department:
 - ❖ Vigilance Complaints Monitoring System.
 - ❖ Vigilance Inspection Management System.
 - ❖ Suggestion Management System.
- An MoU has been signed between NMDC and Government of Chattisgarh on 24.04.2018 through CHIPS, Raipur for Innovation in Information Technology and Electronic Systems Driven Automation in Mining and Plant. The following activities have been taken up under this:
 - ❖ Fleet Management System (FMS).
 - ❖ Digital Secretariat Software Implementation.
 - ❖ Drafting of IT policies and IT Roadmap for NMDC.
 - ❖ Quickwins that include POCs for Conveyor Belt Management System, Realtime Energy Monitoring, Workers Health & Safety and Asset Management System.
- A career portal has been developed for inviting applications from executives for parallel placement in Vigilance.
- An Incident Management System has been developed for Safety Department.
- Performance Review Discussions (PRD) has been introduced in Performance Appraisal System for Jos/Executives.

15.5 MOIL Ltd.

The Company has set-up a full-fledged systems department 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 systems department are as under.

- Installation of 450 computers in head office and all mines/plants.
- Ethernet-based Local Area Networks (LAN) on Windows and Linux platforms is in place at head office. LAN has also been designed and developed at all the mines of the Company.
- Designed, developed and hosted a dynamic internet website on NIC server and also an in-house intranet server.
- For effective sharing of applications, databases/information and other resources on regular basis by all mines and head office, they are connected through MPLS VPN and VPN over leased lines.



- For continuous knowledge sharing, e-mailing and for inter-unit data transfer facilities, all the concerned officials of head office have been provided with internet connections through 40 Mbps (1:1) internet leased line on OFC. All the mines are provided with leased line internet connections on OFC.
- All procurements of goods and services valuing Rs. 2 lakhs and above are through e-procurement portal of MSTC to ensure transparency in procurement process.
- Implementation of ERP in the Company (detailed below)
- Use of video conferencing for communications with mines, Ministry and other agencies.

Enterprise Resource Planning (ERP)

ERP implementation at MOIL envisages seamless integration of all business processes/functions to 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 achieved.

- State of the art data center for ERP is designed and commissioned at head office.
- In addition to core modules of SAP, viz, FICO, MM, SD, PP, PM and HRM, the company has also implemented FLM, DMS and ESS/MSS.
- All the routine business transactions are shifted to SAP from the erstwhile legacy systems.

15.6 MSTC Ltd.

- STQC Certification on GIGW(Guidelines For Indian Government Websites) was received which is valid till 4th February, 2022 after clearing audit conducted by STQC Kolkata for our corporate website <https://www.mstcindia.co.in>
- ISO 27001:2013 certification is in place and the same is under yearly surveillance audit by STQC, Kolkata and this certificate is valid up to 12th June, 2020.
- ISO 9001:2015 certification is also maintained as per standards and 2nd Surveillance audit is scheduled on 30.04.2019 and this certificate is valid upto 30-05-2020.
- MSTC Systems division is CMMi Level 3 appraised since 2013. The same is under renewal this year for another three years with a validity up to 27-06-2019.
- MSTC has developed in-house and implemented many customised projects like Major and Minor Mineral Block(MMB), e-RAKAM, IOC Import-Export portal, Property Sale including Dena Bank, HMDA, NMDC Diamond auction etc.
- MSTC has also developed in-house the portal of www.jaivikkheti.in on behalf of MoA, Online Draw System for distribution of Petrol Pumps & Transport on behalf of OMCs, Dashboard for MoS, Android M3 Mobile App along with internal development of online employee appraisal system(Non-ex), online air ticket requisition, online Leave application, knowledge management portal etc.
- Renewal of STQCCertification on e-Procurement services is under final stage 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.
- Network devices have been replaced with Next Generation Firewall of heterogeneous OEMs (Checkpoint/CISCO) at different levels to prevent hacking from inside users/outside world along with necessary software for monitoring the logs for taking pro-active actions.
- An audit by CERT-IN was carried out for software system department.

15.7 Ferro Scrap Nigam Ltd. (FSNL)

- FSNL has successfully implemented Multi-Protocol Label Switching (MPLS) connectivity between Corporate Office and its 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 has been successfully established.

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 softwares like Primavera, MS Projects and in-house developed project management softwares 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: The payroll accounting and generation of pay slips were computerized in the 80s. All payments are done through RTGS/ online/through Bank. All transactions are 100% cashless in Corporate Office as well as Plant.
- 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.
- Website Maintenance: The Company website comprehensively covers all the current activities undertaken by the company and is updated regularly in both English and Hindi. As per the Ministry guidelines, linkages with centralized Public grievance redressal and monitoring system have been implemented. Linkages are also provided in the website to integrate Social Media / Networking through Twitter, Facebook and Youtube to enable screening of interesting contents.



- **Online HRMIS:** Human Resource Management Information System (HRMIS) has been developed in-house which provides a centralized repository of employee information such as Master details, Career details, Promotion details, Dependent Details etc. for data analysis and processing. It is an integrated database of employee information.
- **Web based Performance Appraisal System:** Web based Performance Appraisal System has been developed in-house to automate the process of Annual performance Appraisal System for Executives upto E6 - E7. It is used for evaluating an Appraisee based on his performance.
- **Online Quarterly Vigilance Clearance System:** Quarterly Vigilance Clearance System has been developed in-house to automate Quarterly Vigilance Clearance Update process for Senior Executives in the level of AGM (E5) up to ED (E9) level.

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 level, 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.
- IPSS 1:11 standards on 'Safety and Personal Protective Equipments' are being formulated in identified areas of concern.

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.
- Video conferencing 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. Training program for newly appointed Departmental Safety Officers of Integrated Steel Plant, 'Industrial Safety Management', 'Safety Management', Occupational Safety and Health Audit for Statutory Compliance 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 'Safety in Rail Movement' was organised by SSO with the help of external faculty.

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)-For the period April 2018-March 2019: 0.17.
- 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.

16.2.9 New Initiatives

- Developing Safety Auditors for Statutory Compliances : Training Programme on 'Occupational Safety & Health Audit' was organized at all integrated Steel Plants with faculty support from National safety Council,Mumbai.
- Process safety Management:Training Programe on 'Process Safety Management' for Departmental Safety Officers (DSOs) was organized with the help of external expert agency.
- Structured Safety review by SSO:Structured Safety Review by ED, SSO has been started in plants covering various levels of hierarchy. Safety Reviews were conducted all Integrated Steel Plants covering all GMs/HODs, Departmental Safety Officers (DSOs), Safety Engineering Department (SED) & Fire Services followed by plant visit.
- Development of new safety procedures & guidelines:Continued thrust is being laid on development of new safety procedures/guidelines in identified areas of concern under IPSS 1-11 committee. In the meeting of IPSS held on 19-20th Dec'18,new safety standard for inspection/painting of chimney at height was finalized. Standards on safety guidelines for roof sheet changing, safety procedure for oxygen, nitrogen, acetylene and fuel gases and safety procedure for working at height by contractor's worker was reviewed. The meeting was attended by experts from TATA Steel, L&T, RINL, MECON, JSPL, HEC and SAIL Plants & Units.
- SAM- system of issuing Safety Alert Message introduced.
- Deployment of an external Safety Consultant of global repute is being explored for bringing safety cultural transformation in integrated Steel Plant.
- Monthly review is being done through video conference in Plants and Units.

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 31 Departmental Safety Committees were formed with equal participation from recognized trade union representatives and management representatives.

16.3.3 Emergency Management Plan

To ensure the emergency preparedness during the emergency situations, comprehensive emergency management plan is devised in Visakhapatnam Steel Plant in line with the Circular issued by Ministry of Steel and a Control Room at Plant Control is identified to co-ordinate various activities during any emergency situations.

On-site Emergency Plan was implemented. For testing the preparedness of Departments/ Plant, to fight against the emergencies, departmental level Fire Mock drills are being conducted every month and other mock drills were also conducted for meeting emergencies like Gas leakage, Electric Shock, Rescue etc.

16.3.4 Safety Audits/ 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 also been conducted once in a six months by the Lead Auditors of OHSAS Certifying Agency. All the non-conformities raised by the Auditors were vacated. As part of statutory requirement, External Safety Audit is being conducted by an External Expert Agency in the field of Safety.

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

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 Safety Training

7043 regular employees were covered in regular safety training programmes and about 19409 contract workers were given safety induction training and refresher training. All the contract workers are put on job only after safety induction 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. Online system for issuing safety passes was developed; the Gate Passes are issued only after obtaining safety pass.

The highlights / measures taken during the year 2018-19 :

- Frequency rate of accidents has been brought down to 0.09 from 0.13 in the previous financial year.
- Special mock drill was conducted at Benzol Plant.
- An awareness programme on "Implementation of Factories Act 1948. Mines Act, 1952 & BOCW Act, 1966 and the recent proposed developments in Legal provisions was conducted on 27.04.2018 by Dr. RK Elangovan, Dy. Director General, DGFASLI, Govt. of India.
- Organized awareness programme on Legal aspects of Safety with the help of Dr. R.K Elangovan, Dy. Director General, DGFASLI.
- Observed "**Safety Week**" and conducted various Safety competitions like slogan, essay writing, quiz, Housekeeping etc. on safety involving regular employees as well as contractor workers.
- Safety inspection of LPG plant was done and one Training programme was organized for Home makers of Ukkunagaram on "LPG Safety" with the help of Officials from IOCL.
- Night Surveillance by a team of Safety Officers was introduced for additional inspection of vulnerable areas of the Plant.

- Comprehensive External Safety Audit of the plant was conducted by M/s National Safety Council, Mumbai.
- National Safety Day was celebrated on March 4th '2019. In this connection various Safety awareness programs and competitions were conducted throughout the Plant, Mines and to the school children & housewives.

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.

Mine Level Tripartite Safety Committee Meetings have been conducted in each of the operating mines. This meeting is conducted once in a year at project level with senior officials, Union Representatives and DGMS Officials in which Safety Performance and its appraisal are made and the recommendations are implemented.

Corporate Level Tripartite Safety Committee Meetings are being held regularly once in a year at Head Office. 29th Corporate Level Tripartite Safety Committee Meeting of NMDC Mines (Bailadila Iron Ore Mine, Kirandul Complex; Bailadila Iron Ore Mine, Bacheli Complexes; Donimalai Iron Ore Mine; Kumaraswamy Iron Ore Mine and Diamond Mining Project, Panna) was conducted on 21.01.2019.

Man days lost per 1000 man days worked for the year 2018-19 is 7.04.

16.4.1 Integrated Management System (IMS)

All the NMDC Projects i.e. BIOM, Kirandul Complex; BIOM, Bacheli Complex; Donimalai Iron Ore Mine; Diamond Mining Project, Panna and Research & Development Center are accredited with Integrated Management System Certification comprising of (QMS) ISO 9001:2015; (EMS) ISO 14001:2015; (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. Internal Safety Audits of Projects are being conducted by Internal Audit team of Projects and the observations are submitted to the Projects for compliance and is being monitored by Internal Safety Organization.

16.5 MOIL Ltd.

Competent supervisors like mine mates, mine foremen and qualified mining engineers are regularly supervising all the working at mines. Workmen also carry out safety inspections during working shifts. Inspector, safety officer, mine manager and agents. Internal Safety organization headed by General Manager (Safety) at head office is coordinating with DGMS and inspects mines time to time.

Regular safety committee meetings are held at mines, where day-to-day safety aspects are discussed with the participation of workers' representatives. Unsafe acts and mine accidents are analyzed in details to avoid any recurrence.

Safety policy of the Company has been prepared as per recommendations of the 9th and 10th Safety Conference to further improve the safety standards of the mines. The Company has introduced study of health and safety management through risk assessment. Recommendations of the study are being implemented. Regular training is imparted to workmen inspector and workers in MOIL's training centre



at Munsar mine. All the concerted efforts have reduced the frequency of mine injury. Directors and CMD are closely monitoring the activities regularly to achieve high degree of safety standards.

16.5.1 Safety audits

Internal safety audits have been conducted at all mines and plants by concerned safety officers and by qualified internal OHSAS auditors. All the audit points are being complied with by respective departments. As part of statutory requirement, external safety audit is being conducted by an external expert agency in the field of safety. All the points raised by the agency have been complied with.

16.5.2 Risk assessment and risk management

Risk assessment study has been conducted at all major mines (underground as well as opencast) by experts and safety management plan has been made as per the requirement of DGMS circular No. 13 of 2002. The main purpose of risk management plan is to identify risk in various activities, analyse risk evaluation and prioritization of risk management and mitigation plan of risk.

16.5.3 Occupational health and safety management (OHSAS 18001:2007)

MOIL has received OHSAS 18001:2007 certification for Balaghat, Dongri Buzurg, Chikla, Kandri, Munsar, Gumgaon, Tirodi and Ukwa mines.

16.5.4 Disaster management plan

The Company has in place a disaster management plan for all the mines. The plan has been prepared taking into consideration provisions of Mines Act, 1952, Metalliferous Mines Regulation 1961, directives of Director General Mines Safety, National Disaster Management Authority, instructions of the Central Government issued from time to time, etc. As stated above, the OHSAS certification also requires to put in place the disaster management plan.

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. Safety Audit was conducted in all the units of FSNL through M/s National Safety Council during the year.

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 interval on 23.04.2018, 18.07.2018, 20.11.2018 and 23.03.2019.
- Various Training programmes are being conducted to inculcate Safety consciousness and to develop the human resources. The Refresher Training on SOPs and Maintenance activities, first aid, Firefighting training, Awareness programme on Environment, Occupational health, Safety, Vigilance Sustainable development, Productivity. The total training of 4719 mandays is provided for regular employees on above said subjects and 293 mandays for contractors workmen on Work place Safety.
- As per Factories Act 1948, National Safety week celebration was conducted from 4th to 10th March, 2019 and as a part of it, many safety competitions were conducted such as Safety slogans in Kannada, English and Hindi and Safety posters painting. In addition to the National safety week, KIOCL also conducted Steel Safety Day on 28th March 2019.
- The onsite Emergency Mock Drills are conducted once in 6 months in Pellet Plant and Blast Furnace Unit.

16.10 EIL, OMDC and BSLC

These companies take safety measures according to provision of the Mines Act, 1952 in terms of Rules, Regulations and guidelines received from Director General of Mines Safety (DGMS) time to time 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 196 employees against sanctioned strength of 246 in the Ministry as on 31.03.2019, 47 belonged to SCs (23.98%), 9 belonged to STs (4.59%) and 35 belonged to OBCs (16.84%). The posts belonging to Secretariat Services are filled by Department of Personnel & Training.

17.2 Steel Authority of India Ltd. (SAIL)

SAIL follows Presidential Directives on Reservation for Scheduled Castes and Scheduled Tribes in the matter of recruitments & promotions. As on 31.3.2019, out of total manpower of 72339, 11974 belonged to SCs (16.55%), 10815 belonged to STs (14.95%) and 10191 belonged to OBCs (14.08%).

SAIL Plants and Units including Mines are situated in economically backward regions of the Country with predominant SC/ST population. Therefore, SAIL has contributed to the overall development of civic, medical, educational and other facilities in these regions. Some of the contributions are:

- Recruitment of non-executive employees, which comprise close to 84% of the total employees, are carried out mainly on regional level and hence a large number of SCs/STs and other weaker section of the society get the benefit of employment in SAIL.
- Over the years, a large group of ancillary industries has also developed in the vicinity of Steel Plants. This has created opportunities for local unemployed persons for jobs and development of entrepreneurship.
- For jobs of temporary & intermittent nature, generally contractors deploy workmen from the local areas, which again provide an opportunity for employment of local candidates of economically weaker section.
- Establishment of SAIL steel plants in economically backward areas has given a fillip to the economic activities thus benefiting the support population providing different types of services.
- Steel Townships developed by SAIL have the best of medical, education and civic facilities and are like an oasis for the local Scheduled Castes, Scheduled Tribes and other population who share the fruits of prosperity along with SAIL employees.

SAIL has undertaken several initiatives for the socio-economic development of SCs/STs and other weaker sections of the society which are mainly as under:

- Special Schools have been started exclusively for poor, underprivileged children at five integrated steel plant locations. The facilities provided include free education, mid-day meals, uniforms including shoes, text books, stationery items, school bag, water bottles and transportation in some cases.
- No tuition fee is charged from SC/ST students studying in the Company run schools, whether they are SAIL employees' wards or non-employees' wards.
- Free medical health centres for poor have been set up at Bhilai, Durgapur, Rourkela, Bokaro, Burnpur (Gutgutpara) providing free medical consultation, medicines, etc. to the peripheral population mainly comprising of SC/ST and weaker sections of society.
- SAIL Plants have adopted tribal children. They are being provided free education, uniforms, textbooks, stationery, meals, boarding, lodging and medical facilities for their overall growth at residential hostels, such as Saranda Suvan Chhatravas Kiriburu, Gyanodaya Hostel, Bhilai and an exclusive Gyan Jyoti Yojana for nearly extinct Birhor Tribe.

- For Skill Development and better employability, youths & women of peripheral villages have been provided vocational & specialized skill development training at various ITIs, Nursing and other vocational training institutes in the areas of 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.

Implementation of Presidential Directives on Reservation for SC/ST

- Liaison Officers have been appointed as per Presidential Directives for due compliance of the orders and instructions pertaining to reservation for SCs/STs/OBCs at Plants/Units of SAIL.
- SC/ST Cell is functioning in all of the main plants/units. A member belonging to SC/ST community is associated in all DPCs/Selection Committees. A sufficiently senior level officer of SC/ST category is nominated for the purpose as per the level of the Recruitment Board /Selection Committees/ DPC.
- Internal workshops for Liaison Officers for SC/ST/OBC and other dealing officers of SAIL Plants/ Units are conducted at regular intervals through an external expert to keep them updated on the reservation policy for SC/ST and other related matters.
- Plants/Units of SAIL have SC/ST Employees' Welfare Associations which conduct regular meetings with Liaison Officers on implementation of reservation policy & other issues. In addition, an Apex level umbrella body namely SAIL SC/ST Employees Federation also exists in SAIL to represent the issues of SC/ST Employees in a coordinated manner. A meeting with the Federation at the level of Director (Personnel) is organized on a regular basis.

17.3 Rashtriya Ispat Nigam Ltd. (RINL)

As on 31.03.2019, the total manpower with RINL is 17574 comprising of 2891 SCs (16.45%), 1301 STs (7.4%) and 2931 OBCs (16.68%).

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

RINL Grants are meant exclusively for the children of an employee 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 8 such awards are given to children of SC employees and 4 such awards to children of ST employees.

17.4 NMDC Ltd.

The total number of employees in NMDC as on 31.03.2019 was 5887. Out of which 922 belongs to Scheduled Castes (15.66%), 1446 belongs to Scheduled Tribes (24.56%) and 1109 belongs to Other Backward Classes (18.84%)

As a policy, efforts are made to fill any backlog vacancy in the next year on a continuous basis and the company has been able to fill the reserved vacancies so far.

17.5 MOIL Ltd.

MOIL is a labour intensive organization with 6048 employees on its rolls as on 31.03.2019. More than 80% of the total strength belongs to SC/ST/OBC (SC-20.01%; ST-25.53%, OBC 35.04%). MOIL 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 providing drinking water facilities, road maintenance, periodical medical check-ups and treatment to the people living in these villages.
- Providing financial aid, stationery, books etc. to the schools adjacent to the mining areas.



- Organizing training classes for promoting higher self-employment.
- Other welfare measures for the development and upliftment of tribal women such as conducting sewing classes, adult literacy classes, AIDS awareness programmes, leprosy awareness programmes, etc.
- Providing training to the physically challenged persons under Person with Disabilities Act 1995.

17.6 MSTC Ltd.

The total number of employees in MSTC Ltd as on 31.03.2019 was 357, out of which, 61 belonged to SCs (17.08%), 18 to STs (5.04%) and 68 to OBCs (19.04%).

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, 6 SC, 1 ST and 17 OBC employees of the Company, were sponsored for training programmes and Institutional training programmes. 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 of 751 as on 31.03.2019, 149 belonged to SCs (19.84%), 79 belonged to STs (10.52%) and 126 OBCs (16.77%). 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 31.03.2019, out of 1282 employees on the strength of the Company, 249 belonged to SC(19.42%), 135 ST (10.53%) and 155 OBC(12.09%). MECON is fully aware of its social responsibilities for development and welfare of weaker section of the Society. MECON 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 31.03.2019 is 841 out of which 134 persons belong to Scheduled Caste (15.93%), 50 persons belong to Scheduled Tribe (5.95%) and 92 persons belong to Other Backward Classes (10.94%).

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 EIL, OMDC and BSLC as on 31.03.2019 is 1002. About 75.84% of the total strength (760 out of 1002) belong to SCs/STs/OBCs, out of which, 214 belonged to SCs (21.35%), 408 to STs (40.71%) and 138 to OBCs (13.77%).

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 Deputy 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);
- 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 this Ministry in consultation with CVC and the 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 1.1.2018 to 31.03.2019, 25 CVC references were received and 24 CVC references were disposed off. From other sources, 82 complaints were received and 80 were disposed off.

During the period, a two days Vigilance Conclave was organized by Ministry of Steel at New Delhi on 18-19 March, 2019 which was addressed by Chief Vigilance Commissioner, Government of India wherein the issues regarding Role of Vigilance in Administration, Complaint Handling Mechanism, Scrutiny of Contracts, Rules and Regulations relating to public procurement, transparency in tendering and procurement, delays in finalization of bills and payments, vigilance investigation, CBI matters of PSU employees, Drafting of charge-sheet, procurement process-GeM and GFR, Establishment and Personnel matters, Ethics in Governance etc. were discussed by eminent speakers from different fields.

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. During the period April 2018 - March 2019, the following activities were undertaken:

- Thrust Areas
 - ❖ Surveillance in the areas of receipt, sampling & testing of high value raw materials.
 - ❖ Audit of SIPs implemented in 2015 & 2016.
 - ❖ Scrutiny of emergency procurement and contract cases.
- Preventive Checks: A total of 2444 periodic checks including file scrutiny and Joint Checks were conducted in vulnerable areas of different Plants / Units of SAIL, out of which 46 checks were taken up for detailed investigation while preventive / system improvement recommendations were made in 565 cases.
- System Improvement Projects: A total of 18 system Improvements Projects (SIPs) were undertaken at different Plants/units of SAIL after identifying concern areas.
- Intensive Examinations: A total of 13 cases were taken up for Intensive Examination at different Plants / Units. During Intensive Examination, high value procurement / contracts were scrutinized comprehensively and necessary recommendations were forwarded to concerned departments for implementing suggestions for improvement.
- ACVO's Meet: As a part of maintaining regular interaction with Additional Chief Vigilance Officers (ACVOs) who head Vigilance Departments at Plant / Unit level, CVO conducted regular review meetings known as ACVO's Meets. During the meetings, performance of SAIL Vigilance was reviewed. Presentations on case studies / other vigilance related matters were made by different Plants / Units which would ensure adoption of good practices / procedures by all.
- Automatic File Scrutiny Report: An automatic File Scrutiny smart-form has been implemented by SAIL Vigilance in Bhilai Steel Plant and Durgapur Steel Plant. The data regarding major milestones in the procurement / contract cycle can now be obtained by Vigilance in the pre-defined standard File Scrutiny format at the click of a button. This would lead to significant saving of time as instead of physically requisitioning the file and searching for the relevant data in the file, the requisite information would be readily available to all officials working in Vigilance Department.
- Linking of Annual Immovable Property Return (AIPR) with Executive Performance Management System (EPMS): Delay in submission of AIPR by many executives was being observed in various Plants / Units of SAIL. In order to ensure timely submission of AIPR by all executives of SAIL, the submission of AIPR has been linked with submission of EPMS. The date of AIPR 2018 submission will now be reflected in the EPMS system while the executive submits his final review for the year 2018-19.



Anti-corruption Walkathon at Bhilai during Vigilance Awareness Week 2018

- Training Programmes organized by SAIL Vigilance: A total of 178 training/awareness programme/workshops involving 2994 participants were organized at various plants and units of SAIL, for enhancing awareness on System and Procedures followed in SAIL.
- Vigilance Awareness Week 2018: Vigilance Awareness Week was observed in SAIL during 29th October to 3rd November 2018.

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 various areas 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 was 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 was leveraged for bringing about greater transparency through e-initiatives like e-auction, e-reverse auction and e-payment etc. viz; 81.59% of the procurement, 99.98 e-payments, 100% of the Stores disposals and 100% of Marketing Transport / Handling contracts.

The following activities were also undertaken to promote Transparency and Integrity during the period April 2018 to March 2019:

- Conducted 329 system surveillance checks including 40 quality checks and 54 rail/road re-weighments.
- Organized 21 Vigilance Awareness Sessions on Preventive Vigilance / Ethics
- 05 Systems studies for improving procedures, rules, policies, guidelines etc were taken up and Vigilance observations/ recommendations were communicated to the concerned Departments.
- Observance of Vigilance Awareness Week - 2018 was conducted with the theme "Eradicate Corruption - Build a new India". Several Competitions were held for students of nearby Colleges. Several programmes viz; Pledge taking, display of posters, Essay writing, Quiz and Elocution Competitions, Cultural Program etc., designed to create awareness about vigilance were organized involving the participation of school children, employees, their dependents and other Stake Holders.
- A session on "Role of Vigilance" was conducted for CISF personnel.

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. Emphasis was laid on adequate checks and balances in the form of well-defined systems and procedures. Various programmes were conducted for awareness on vigilance matters for the employees of the Corporation. The vigilance functionaries at the projects have conducted regular training classes for the employees on the vigilance matters. Complaints received were taken up for investigation and necessary corrective measures / disciplinary action wherever required were recommended.

During the year, 78 surprise checks, 99 regular inspections and 5 CTE type inspection was conducted by Vigilance Department. Complaints received were taken up for investigation and necessary suggestions for system improvement/ disciplinary action wherever required was recommended. During the period, 48 grievances were addressed in the CPGRAMS Portal.

Vigilance Department in NMDC was upgraded to ISO 9001:2015 standards of Quality Management System (QMS) and certificate issued by the certifying authority was received which is valid up to Feb'2022.

As part of implementation of "Leveraging of Technology for transparency" in all the transactions, details of contracts concluded above Rs. 10 lakhs, all works awarded on nomination basis, single tender basis above Rs. 1 lakh, information regarding bill payments to the contractors etc., are provided on the



Vigilance Awareness Week at NMDC

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. As per the suggestions given by Vigilance Department, the threshold value has been decreased to 1.0 crore w.e.f. 07.09.2018 for both Procurement and Contracts as against the earlier threshold limit of Rs. 20 crores in case of Civil works and Contracts and Rs. 10 crores in case of Procurement on approval of NMDC Board. The Integrity Pact has been entered into 193 contracts with a value of Rs. 24,445.82 crores. All the contracts wherein the Integrity Pact was to be signed as per the threshold limit was adhered to and more than 90% of the total values of the contracts are covered under Integrity Pact.

The Vigilance Awareness Week 2018 was celebrated from 29.10.2018 to 03.11.2018. On the inaugural day administration of pledge to all the employees at Head Office and Units of NMDC at - Kirandul, Bacheli, Donimalai, Panna, NISP, Nagarnar, Sponge Iron Unit and Regional Offices was done. The theme for this year was "Eradicate Corruption - Build a New 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 2018-19 are as under:

- **ISO 9001-2015: certification:** Vigilance department is awarded by 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:** General and surprise inspections are being carried out regularly to ensure adherence to norms during execution and to suggest improvements in the system. During 2018-19, 60 periodic and surprise inspections carried out.
- **Complaint handling:** The vigilance department has handled 35 complaints and on the basis of outcome of the investigation, management was given 9 advisories for corrective action and system improvement.
- **Scrutiny of procedures and systems:** Vigilance department has studied the procedures related to purchase, contract, recruitment etc. and on the basis of examination, management was given 7 advisories for corrective action and system improvement.
- **E-procurement:** E-procurement is being done for purchases and work contracts above threshold value. The threshold value for purchases and Work contracts is Rs. 2 lakhs.



Inauguration of Vigilance Awareness Week at MOIL

- **Leveraging Technology:** Emphasized on the effective use of website and leveraging technology in discharge of regulatory, enforcement activities and dealing with complaints. The main thrust areas for leveraging technologies are procurement of goods and contracts. Also, the status of bill payments to contractors / suppliers posted on website. All Tender documents, Promotion list, Transfer list, CSR works, Seniority List applications for recruitment, notices and other proforma were posted on the website.
- **Training Programmes:** Conducted 07 training programs at Corporate Training Center and at Munsar Training Center, covering 273 employees (1051Hrs) on vigilance awareness.
- **Job Rotation:** Sensitive Posts have been identified for rotation of officials working on sensitivity posts for more than 3 years and are being rotated by the management.
- Vigilance Awareness Week was observed from 29th October to 3rd November 2018 at all Mines /offices of MOIL Limited. On this occasion Vigilance Department came out with the 7th annual issue of vigilance magazine "Shuchita" which was released by CMD and all Directors of MOIL. Various competitions, workshops, seminars, trainings, Vendor meet and vigilance awareness rally were organized during the week for employees, students of school and colleges and public at large.

18.6 MSTC Ltd.

MSTC Vigilance emphasizes on systemic changes & leveraging technology for transparent system and procedures, thereby increasing organizational effectiveness. The following activities were undertaken to promote transparency and integrity in MSTC during the year 2018-19:

- Surveillance Audit of ISO 9001:2015 of Vigilance department has been carried out in the month of May 2018.
- Structured Meetings are being held quarterly by the CVO with the CMD.
- Purchase and Service Contract Manual has been prepared and put in practice based on the inputs suggested by Vigilance Department. Updations in certain provision of various manuals such as Personnel Manual, Marketing Manual were carried out during the year. Amendment in CDA Rules with regard to incorporation of specific timelines for enabling timely completion of disciplinary proceedings in a time bound manner.
- Implementation of global pre-bid EMD resulting in increase in transparency in the e-auction system and facilitating the provision for online refund.
- Conducted 08 periodic inspections and systemic improvements suggested.



- Interactive Sessions were being organized with employees both at the Head office and various regional offices/branch offices to create vigilance awareness.
- Workshop on 'Delegation of Powers, Financial Powers and Project/Contract Management' amongst the middle management and senior management officials at Head Office, Kolkata.
- Secondary items/materials such as office stationeries & consumables, computer peripherals are being purchased through GEM portal. Purchases of items not offered through GEM portal are being procured through e-procurement portal. These activities are being monitored by Vigilance Department.
- Annual Performance Appraisal Report (APAR) is being filled by all the executives online and disclosure of APAR is available in the login of the executives. Executives have the opportunity to make representation online against the assessment.
- Meeting with Independent External Monitor was held in the year to review the implementation of the Integrity Pact.
- Vigilance Awareness Week 2018 was observed from 29.10.2018 to 03.11.2018 across all the regions/branches of MSTC and outreach activities amongst the youth in the schools/colleges was conducted on the theme of "Eradicate Corruption-Build a New India."

18.7 Ferro Scrap Nigam Ltd. (FSNL)

Vigilance Department 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.

The complaints received from various sources were handled as per the prescribed guideline/procedures of CVC. Co-ordination meetings with CBI were also held. As per the instruction of CVC and Ministry, structured meeting of Vigilance with the Managing Director is being conducted, quarterly.

Vigilance Department has been overseeing the implementation of Integrity Pact. Till 31/03/2019, 313 nos. of contracts have been covered under the Integrity 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 29th October, 2018 to 3rd November, 2018 during which various activities like Slogan competition, Essay writing competition in Schools & Collages, pamphlet distribution in public places, workshop on the theme "Eradicate Corruption - Build a New India" & preventive vigilance, taking pledge by the employees etc. were carried out to create vigilance awareness among the employees, giving its publicity in local Newspapers.

18.8 MECON Ltd.

The vigilance set up of MECON is presently functioning under Chief Vigilance Officer (CVO) stationed at Head Office, Ranchi. The Vigilance Department of MECON Ltd. has taken a number of initiatives, briefly mentioned below:-

- The Vigilance Awareness Week-2018 was observed commencing from 29th October to 3rd November 2018 at MECON Head Office, Ranchi and MECON Site Offices at various other locations in line with directive from Central Vigilance Commission with the theme 'Eradicate Corruption - Build a New India'.
- Till December, 2018, MECON has signed Integrity Pact (IP) with 195 suppliers/contractors [Threshold value lowered for wider coverage : Rs.1 Crore & 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.

- On preventive vigilance front, greater thrust was laid on the commercial aspects of projects. Proactive vigilance work was done in the areas of award and execution of contracts.
- 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. Payments towards GST are also made online. Web enabled Bill Watch System to enable vendors to track the status of their bills was combined with MECON's GST system (Mec-GST and Bill Watch System).
- Sensitive departments have been identified in the organization and thrust is laid on conducting Surprise/ Regular Inspections and scrutiny of files in these areas.

18.9 KIOCL Ltd.

Preventive vigilance has been the thrust area of Vigilance Department in KIOCL all these years and the same has received focused attention during the year. A climate of preventive vigilance is generated to sensitize officials at all levels about the ill effects of corruption and malpractices.

- Regular Structured Meeting of Vigilance with the management is being conducted and issues related to e-governance, Leveraging Technology, Tender Management, Award of Works, Recruitment Policy have been discussed.
- The Vigilance Department is certified for compliance to ISO certification 9001-2015 standards to ensure continuous improvement in Quality Management System. Certificate is valid upto 29th January, 2022.
- Vigilance Awareness Week was observed from 29th October to 3rd November, 2018 at all the locations/offices of KIOCL Limited. Workshops and Seminars were conducted during the week. Essay competition was conducted for school/college students. On this occasion, the importance of observing the Vigilance Awareness Week and steps taken to strengthen vigilance activities were highlighted.
- Procurement by tendering-cum-e-reverse auction is in vogue from September, 2010. The threshold value for this is fixed at Rs. 5 Lakhs and above. During 2018-19, 99.27% cases by value are covered under this. All payment above the threshold value of Rs. 1 Lakh are being made through electronic mode.
- During 2018-19, 130 work/purchase/sale orders have been issued incorporating Integrity Pact Clause, covering 98.84% of contracts by value. No complaints have been received under Integrity Pact.
- 62 scrutiny/examinations, 46 checks/inspections are carried out during the year and corrective actions, if any are suggested. Necessary action is taken with regard to the complaints received during the year.
- Vigilance Department conducted 6 training programmes at three different locations, covering 720 man hours. Topics such as Good governance - Vigilance & other developments, Vigilance Awareness & Preventive Vigilance, Eradicate Corruption - Build New India etc. were covered.

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 01.04.2018 to 31.03.2019 is as under:

Outstanding as on 01.04.2018	Received during 01.04.2018 to 31.03.2019	Disposed of during 01.04.2018 to 31.03.2019	Pending as on 31.03.2019
73	1499	1529	43

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 01.04.2018 to 31.03.2019 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2018	Grievances received 01.04.2018 to 31.03.2019	Grievances disposed off 01.04.2018 to 31.03.2019	No. of Grievances pending as on 31.03.2019
Public Grievances	17	681	688	10
Staff Grievances	10	257	254	13

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 01.04.2018 to 31.03.2019 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2018	Grievances received 01.04.2018 to 31.03.2019	Grievances disposed off 01.04.2018 to 31.03.2019	No. of Grievances pending as on 31.03.2019
Public Grievances	3	59	62	0
Staff Grievances	1	261	260	2

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 01.04.2018 to 31.03.2019 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2018	Grievances received 01.04.2018 to 31.03.2019	Grievances disposed off 01.04.2018 to 31.03.2019	No. of Grievances pending as on 31.03.2019
Public Grievances	5	46	43	8
Staff Grievances	0	0	0	0

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 01.04.2018 to 31.03.2019 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2018	Grievances received 01.04.2018 to 31.03.2019	Grievances disposed off 01.04.2018 to 31.03.2019	No. of Grievances pending as on 31.03.2019
Public Grievances	0	2	2	0
Staff Grievances	0	2	2	0

19.6 MSTC Ltd.

MSTC has Public Grievance Redressal Cells. There are total eight (08) cells in regions and branches of the organisation and there are a Nodal Officer and a Public Grievance officer in the Head Office. There is facility of online registration for lodging grievance on the Company's website www.mstcindia.co.in. MSTC has also implemented Centralized Public Grievance Redress and Monitoring System (CPGRAMS) for online receipt and disposal of public grievances, so that grievance can be sorted out immediately and to take action to solve the cases. Some grievances are also received by post. Action is taken to address and redress grievances received from outside and from staff of the organisation.

Apart from the cells, a Grievance Committee is also constituted at Head Office. The Grievance Committee makes recommendations after examination of the grievances and comments obtained from the concerned department/region/branch.

The Grievance Committee meets at periodical intervals to review the cases. The Centralized CPGRAMS and Public Grievance site of the Company are monitored regularly by the Head Office.

Status of Public/Staff grievances for the period 01.04.2018 to 31.03.2019 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2018	Grievances received 01.04.2018 to 31.03.2019	Grievances disposed off 01.04.2018 to 31.03.2019	No. of Grievances pending as on 31.03.2019
Public Grievances	0	64	60	4
Staff Grievances	0	4	4	0

19.7 Ferro Scrap Nigam Ltd. (FSNL)

Status of Public/Staff grievances for the period 01.04.2018 to 31.03.2019 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2018	Grievances received 01.04.2018 to 31.03.2019	Grievances disposed off 01.04.2018 to 31.03.2019	No. of Grievances pending as on 31.03.2019
Public Grievances	0	7	7	0
Staff Grievances	0	0	0	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 perceived injustice is treated as a grievance. Complaints from customers are taken very seriously and attended to. 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 grievance of its employees. 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.

Status of Public/Staff grievances for the period 01.04.2018 to 31.03.2019 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2018	Grievances received 01.04.2018 to 31.03.2019	Grievances disposed off 01.04.2018 to 31.03.2019	No. of Grievances pending as on 31.03.2019
Public Grievances	0	18	17	1
Staff Grievances	0	0	0	0

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.
- Vendors meets are organized at regular intervals.

The development of Sevottam Compliant Citizen's Charter has been put in place on corporate website: www.kioclltd.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 01.04.2018 to 31.03.2019 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2018	Grievances received 01.04.2018 to 31.03.2019	Grievances disposed off 01.04.2018 to 31.03.2019	No. of Grievances pending as on 31.03.2019
Public Grievances	0	2	2	0
Staff Grievances	0	7	6	1

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 Bird Group of Company have already initiated the system for on-line receipt of grievances and settlement as per the Sevottam model. Seven Step Model of "Sevottam" has been provided in BGC website i.e. www.birdgroup.co.in. for on line addressing of public grievances. Public grievances are frequently disposed through CPGRAMS portal.



CHAPTER-XX

DIVYANG AND STEEL

20.1 Ministry of Steel

The Ministry of Steel follows the Government's rules with regard to the implementation of provisions of the Disabilities Act, 1995. As on 31.03.2019, 5 persons [one visually handicapped (VH), one hearing handicapped (HH) and three 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 Rights of Persons with Disabilities Act, 2016 is followed at Plants/units of SAIL. Efforts have been made for barrier free environment at work place for persons with disabilities. Medical 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.
- SAIL extends free medical facility even to non-entitled major brother or sister of an employee, if they are disabled and dependent on the employee.
- Shops, STD booths, Milk booths, Hawkers licenses etc. are allotted to disabled persons in plants of SAIL.
- 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)

The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation), Act, 1995 has come into force with effect from 07-02-1996.

- RINL is earmarking stipulated percentage of posts in Group-A, B and C as per PwD Act-2016.
- As per the Act, RINL has been implementing reservation whenever recruitment is taken up. Concessions and relaxations are extended to PWDs like: Upper Age Limit (10 years), Application fee Exemption, 10% relaxation in Qualification marks at par with SC/ST, 10% relaxation in marks in Selection Tests at par with SC/ST.
- Since the Act came into force, RINL has employed 191 persons with various disabilities (excluding 10 persons on merit, till date).
- Facilities provided as per statute include: Identification of jobs, 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, Grievance redressal, Liaison Officer appointed for matters relating to Persons with Disabilities, Special Casual Leave and Preference in transfer/posting,
- Providing Ramp Way, Auditory Signal in the lifts of the building, Provision of a wheel-chair at the Reception Centre are some of actions taken up for the convenience of the differently-abled persons at different offices at main administrative building / corporate office.

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 100 employees with disabilities working in various posts.

NMDC has taken several steps for convenience of differently enabled persons visiting the offices of the company like providing ramp way, auditory signal in the lifts etc. Employees in the projects who become disabled while in service are redeployed in identified posts.

20.5 MOIL Ltd.

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

20.6 MSTC Ltd.

As on 31.03.2019, 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 equipment 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 in field 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.

MECON has implemented the provisions of "Persons with Disabilities Act, 1995". Total employment strength of MECON as on 31.03.2019 is 1282, out of which persons belonging to disabled/Physically handicapped category in various posts are 11.

20.9 KIOCL Ltd.

KIOCL complies with Government of India's directives on reservation of posts for the Persons with Disabilities (PwD) in recruitment. As on 31.03.2019, 13 employees belonging to Persons with Disabilities category in different groups are in position in KIOCL. KIOCL provides appropriate safety and health measures in all the locations and specially where Persons with Disabilities (PwD) employed and ensures that a particular disability does not come in the way of performance of the jobs allotted to them. The work environment is always maintained in such a manner that productivity / performance of the employees belonging to Persons with Disabilities category is in no way impaired by the disability.

20.10 EIL, OMDL and BSLC

EIL is only a shell company with only two employees on its strength. OMDL 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 2018-19 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 the administrative control of 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), one Senior Translation Officer, one Junior Translation Officer, one PPS, one ASO, one stenographer 'D' and other supporting staff. while two posts of Senior Translation Officers and two posts of Junior Translation Officers are sanctioned. Presently, one post of Senior Translation Officer is vacant and One Consultant is working against the vacant post of Junior Translation Officer.

21.1.1 Official Language Implementation Committee

There is one Official Language Implementation Committee working under Chairmanship of 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. Three such meetings have been held during 2018-19.

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 third meeting of the reconstituted Hindi Salahakar Samiti was held on 05.07.2018 and fourth meeting was held on 21.01.2019. The ministry had made a documentary film named "HINDI KI SHAAN" and got released by Hon'ble Minister of State (Steel) in the meeting of Hindi Salahakar Samiti. C-DAC was also invited who demonstrated the use of software "Kanthasth" developed by them.



Meeting of Hindi Salahakar Samiti held under the Chairmanship of Hon'ble Minister of Steel on 05.07.2018



Meeting of Hindi Salahkar Samiti held under the Chairmanship of Hon'ble Minister of State for Steel on 21.01.2019

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 Language Act, 1963 are prepared both in Hindi and English. In order to ensure issuing of letters in Hindi to Central Government Offices located in Region "A", "B" and "C", check points have been identified in the Ministry.

21.1.4 Hindi Divas/Hindi Fortnight/Hindi Workshop

In order to encourage the officers/employees of the Ministry for using Hindi in official work, an appeal was issued by the Hon'ble Minister of Steel on 14th September, 2018 on the occasion of Hindi Day. Hindi Fortnight was organized in the Ministry from 14th September to 30th September, 2018. 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. The scheme is aimed to encourage the writers to write original books in Hindi. The entries for 2016-2017 and 2017-18 are invited and action is being taken in this regard.

21.1.6 Official Language Inspections by the Officers of the Ministry / Parliamentary Official Language Committee

The Officers from the Ministry visited 22 offices of the CPSEs upto 31.03.2019 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, inspection of 10 offices of CPSEs were carried out by the Parliamentary Committee on Official Language and the Ministry had its representation in these meetings.

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, various Hindi workshops like "Hindi as used by common parlance: some interesting facts", "Day to day official work and common errors" to improve noting/ drafting skill of the employees and "Importance of Official Language and Time Management" and also workshop in the memory of famous writers/ poets were organized during the year, in which large number of employees participated.

SAIL has organized various Hindi Competitions like Antakshari, Dictation, Extempore, Poem Recitation, etc., apart from a Hindi workshop, during "Rajbhasha Fortnight" from 14th to 28th September, 2018, 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. Every year, this is an attempt being made by SAIL to link families of the employees with the "Rajbhasha Fortnight" directly.

SAIL's in house Rajbhasha journal, 'Ispat Bhasha Bharati', was the proud recipient of Second prize under the Town level best house journal competition for the year 2017-18 amongst the 60 member PSUs. The shields and certificates for all the award winning PSUs were given away by Rajbhasha Department, Ministry of Home Affairs, Govt. of India in the 47th meeting and prize distribution ceremony of TOLIC on 25th September, 2018 held in New Delhi.

SAIL shouldered the responsibility of Chairmanship of Town Official Language Committee (TOLIC) PSUs, Delhi from 06th May, 2011 to 03rd December, 2018 for more than 7 years. Every year, 2 half yearly meetings of TOLIC were being organized by SAIL. Various 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 being organized through various member PSUs. All the winners & the organizing PSUs were being awarded with shields & certificates in the meetings of TOLIC (PSUs), Delhi. Under the aegis of TOLIC, SAIL was also publishing a representative house journal "Indraprasth Swar" regularly with joint efforts of member PSUs, which was being released during these meetings. Half yearly progressive reports & in-house journal of the member PSUs were evaluated and best PSUs were awarded with shields and certificates in the respective TOLIC meetings.

Under the chairmanship of SAIL, 46th meeting and prize distribution ceremony of Town Official Language Implementation Committee (PSUs), Delhi was organized on 16th March, 2018. SAIL was adjudged 5th amongst the 60 member PSUs for the Half yearly progressive reports. Under the supervision of SAIL, 10 member PSUs organized various Hindi competitions.

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 2018-19 are given below:

Training & Workshops:

- 141 employees were covered under Hindi Prabodh/Praveen/Pragya courses conducted by Hindi Teaching Scheme, Department of Official Language, Ministry of Home Affairs, Govt. of India.
- 280 employees were trained to work on computers in Hindi through Unicode.
- 1405 employees were trained in Exercise Based Hindi Workshop conducted at HQ & Regional/ Branch Sales Offices/Liaison Offices.

Inspections:

- Internal : 26 Departments at Head Quarters and 13 ROs/BSOs/Liaisons
- By Ministry of Steel : 3 Offices
- By Ministry of Home Affairs : 02 Offices

- Parliamentary Committee on Official language : 03 Offices.
- Various suggestions received during inspections were complied with.

Recognitions/Awards:

- First Prize of Rajbhasha Keerthi Puraskar towards House Magazine 'Sugandh' by Department of Official Language, MoH, Government of India for 2017-18.
- Second prize of 'Ispat Rajbhasha Shield' and 'Rajbhasha Karyanvayan Samman' by MoS, Government of India.
- Rajbhasha Gaurav Samman' under category-1 for excellent implementation of Hindi and 'Nagar Rajbhasha Samman' for the year 2017-18 by TOLIC (PSU), Visakhapatnam.
- Consolation Prize to BSO- RINL, Kochi by TOLIC (PSU), Kochi.

21.4 NMDC Ltd.

NMDC remained in the forefront of effectively implementing Official Language Policy of Government of India in its Headquarters, Projects and Units.

Giving a thrust on training in Hindi language "Hindi Parangat" training continued during the year at Hindi training centre of Head Office. Four batches of employees have already completed the course. Hindi Workshops were conducted in every quarter at HO and Projects for practical training of 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 its premises with the help of Hindi Teaching Scheme of Govt of India to impart Hindi Stenography training to English Stenographers.

Incentive Schemes for writing noting, letters, Registers in Hindi and giving dictation in Hindi were implemented throughout the year. Hindi Fortnight was celebrated. Various Hindi competitions were conducted and prizes distributed to the participants.

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 augment the same, inspections and Desk training 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. "Rajbhasha Karya Sahayika" booklet was uploaded on the website of NMDC as ready reference for routine work in Hindi. A trilingual glossary "NMDC Trilingual Glossary" (English-Hindi-Telugu) has been prepared in-house.

NMDC also continued its efforts for propagation of Rajbhasha at town level. A Joint Hindi workshop for small undertakings of Twin cities of Hyderabad-Secunderabad 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.

"Rajbhasha Vichar Goshthee" was organised at Head Office for officers of various undertakings in presence of honourable members of Hindi Salahakar Samiti of MOS. All India Conference of NMDC Rajbhasha Officers was also conducted at Head Office. Rajbhasha Technical Seminars were conducted at Donimalai Iron Ore Project, SIU, Paloncha and Diamond Mining Project, Panna. House journal dedicated to Official language "Khanij Bharati" was published. Various Hindi/Bilingual/Trilingual magazines, news magazines were also published from Head Office and Projects viz, Sarjana, Baila Samachar, Bacheli Samachar, Doni Samachar, Heera Samachar, She News etc. To encourage usage of Rajbhasha in Projects and units, shields were distributed under "NMDC Rajbhasha Shield" Scheme.

NMDC was awarded "Rajbhasha Samman - First Prize" by Ministry Of Steel, Govt. of India for excellent implementation of Rajbhasha for the Year 2017-18. Rajbhasha Kirti Puraskar (Second) for PSU's in 'C' region was conferred on NMDC by Government of India, Ministry of Home Affairs for the year 2017-18. NMDC also received First Prize-"Rajbhasha Shield" from Town Official Language Implementation



Committee (U), Hyderabad-Secunderabad in mid-sized category for outstanding implementation of Rajbhasha during 2017-18. NMDC's Hindi Magazine "Khanij Bharati" was awarded "Best Magazine Award" in printed magazine category among all the PSUs of Hyderabad-Secunderabad.

21.5 MOIL Ltd.

Maximum correspondence in MOIL Limited including all the mines is done in Hindi (97%). Unicode system has been implemented in all the processors. The company has installed software related to Hindi in all the computer systems.

More than 55% of the amount consumed on the purchase of books is on Hindi books. In order to encourage the provisions contained in the Official Language Act, 1963, various types of Hindi Competitions are held on Dr. Baba Saheb Ambedkar Jayanti, SWACHHTA Campaign, Quami Ekta Diwas and Vigilance Awareness Week.

By conducting workshops and training, more and more people are trained to work in Hindi. Kavya Goshthi and Rajbhasha Seminars have been organized to promote Hindi. The employees working in Hindi language are being given the benefit of the Promotional Scheme at Head office and the Mines Units thereby encouraging them for promoting Hindi Language. The staff of MOIL have been awarded by the Nagar Rajbhasha Karyanven Samiti. "Suchita", a journal of MOIL Limited, was recognized by bagging third prize by the Nagar Rajbhasha Karyanven Samiti

21.6 MSTC Ltd.

Rajbhasha Trimas was inaugurated on September 14, 2018. During this period, Hindi competitions and workshops were organized in Head, regional and branch offices. Total 47 employees were awarded for winning in Hindi competitions and for passing in Hindi examinations. These awards were presented on the occasion of World Hindi Day organized on January 10, 2019. In this year, total 86 employees were awarded under the Official Language incentive Scheme.

Officers actively participated in Hindi Salahkar Samiti meeting and OLIC meeting organized by the Ministry of Steel. Officers actively participated in TOLIC, Kolkata. During the year 2018-19, the meeting of Official Language Implementation Committee was held quarterly.

The Parliamentary Committee on Official Language inspected the Head office, Kolkata (01.10.2018), Vadodara Office (26.10.2018) and Trivandrum Office (23.01.2019). During inspection, filled in questionnaire was duly submitted along with the attached documents. The implementation of the official language in MSTC has been strengthened by the valuable guidance of the Parliamentary Committee on Official Language and the Ministry of Steel.

Hon'ble Vice-President Shri M. Venkaiah Naidu awarded the first '**Raj Bhasha Kirti Puraskar**' to MSTC Limited for the best implementation of Official Language Policy on September 14, 2018.

26 and 21 employees were nominated for the examinations conducted by the Hindi Teaching Scheme in May and November 2018 session respectively. Training was provided to these employees through internal classes, LILA APP etc.

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.

"Hindi Mah" was observed in the month of September 2018 at Corporate Office & all units of FSNL. Various competitions like Hindi Noting/drafting, Essay writing, Hindi Gyan Pratiyogita, Hindi Debate competitions etc., were organized during the Hindi Mah and the employees enthusiastically took part in such competitions.

A dictionary of three languages, viz., Hindi-Chhattisgarhi-English was created by Rajbhasha Vibhag of FSNL. A glossary of Technical terms viz., "Rajbhasha Shabd Suman" was created by Rajbhasha Vibhag of FSNL

In order to motivate school/college children towards Hindi writing, a Letter-writing competition in Hindi was organized at Bhilai(Chhattisgarh), and various other activities were organized on different occasions.

The 1st issue of the house journal of FSNL in the new name & style "Darpan" was released by the Hon'ble Steel Minister Chaudhary Birendra Singh in the meeting of Hindi Salahkar Samithi held at Indore on 5th July 2018.

The Town Official Language Implementation Committee (TOLIC), Bhilai-Durg, awarded FSNL with "Rajbhasha Utkrishth Puraskar-2018" for exemplary work in the implementation of Rajbhasha, among the member concerns of the TOLIC, Bhilai-Durg.

Various Hindi Workshops & Technical meets were organized throughout the year on various dates by the Rajbhasha Vibhag of FSNL.

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.

"Hindi Pakhwara" was observed at Head Office as well as in other offices of the company from 14.09.2018 to 28.09.2018. 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 a Rajbhasha symposium on "Unicode ke jariye Hindi me Kam-Kaj" were also organised during the Hindi Pakhwara.

All India Rajbhasha Sangosthi was organised on 7th September, 2018 at our Head Office, Ranchi. It has two sessions. Theme of First Sessions was "Make in India: The role of PSU's of Ministry of Steel" and the theme of Second Sessions was "The Role of Rajbhasha Hindi in respect of World scenario".

Obligatory Hindi Training for Non-Hindi speaking personnel of the company was organised from January-May, 2019 (Session) covering Prabodh, Praveen & Pragya classess which was attended by 10 employees.

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. During the Year, 04 Hindi Workshops were conducted to impart training to the employees for doing their official work in Hindi.

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, 2018. Hindi Programmes and several Hindi Competitions were held and prizes distributed to the winners. A Valedictory function was organized on 29th September, 2018. 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 18th July, 2018 and 18th December, 2018. 13th Issue of Yearly Magazine "Deepika" brought under TOLIC banner was released during the first meeting organized by TOLIC (Undertakings) at Bangalore on 18th July, 2018.

The company organized a Joint Hindi Month for Town Official Language Implementation Committee (undertakings) members between 02nd to 30th August, 2018 and seventeen Competitions were conducted. Most of the PSUs Officers in Bangalore have participated in these Competitions. 167 Employees from different PSUs were honored with cash prizes, mementos and certificates.

21.10 EIL, OMDC and BSLC

These companies have taken positive steps to enhance awareness and usage of Hindi among employees. OMDC observed "Hindi Pakhwada" by way of organizing competitions and distribution of prize on essay writing, Hindi poems recitation and Hindi Anuvad 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 Head Office to appraise the employees with new words every day. 'Rajbhasha Training classes for Parangat courses were conducted under "Hindi Sikhsan Yojana" for learning Hindi and use of Hindi language for official use.

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 2018-19 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. SAIL provides 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 at SAIL 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 and informative programmes on AIDS Control. SAIL Plants and Units also have Mahila Samitis engaged in awareness initiatives on social issues such 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 3.1% of its total manpower. About 6.7% of the executives and 1.5% of the non-executives are women employees. Women employees are working in diverse and challenging areas like Operations and Projects besides the traditional functions in HR, Finance, Health Services, etc.

RINL facilitates the women workforce to be closely knit through the local cell of forum of Women in Public Sector (WIPS) formed under the aegis of SCOPE. The Cell has been associating in a number of activities organized for the development of women employees which includes Managerial Development programmes, programmes on Networking & social skills including Gender Sensitivity programmes for sensitizing its employees on issues relating to employment of women.

During the year 2018-19, the salient achievements include:

- A record number of 873 women employees were nominated for various Training & Development programmes including technical, managerial, women development, health, seminars, and conferences in the country. Two women employees were nominated for attending seminars abroad.
Training programmes for 70 Women Contract Workers were also conducted on provisions of Prevention of Sexual Harassment at workplace Act 2013.
- Celebrated major events like, International Yoga Day (June 21, 2018), Women's Day (8th March 2018) and also Women's Day celebrations as a part of Quami Ekta Week (National Integration Week) during 19th to 25th Nov, 2018 where in lecturer by eminent persons was arranged on the importance of Women in the Indian Society and their role in development of nation building
- One day annual Sports Meet for women employees was organized on 24th March, 2018 where in 100 women employees participated.
- The cell runs a crèche-"Happy Hours" for the benefit of children of working women. Children's Day is celebrated in the Creche every year.
- Women's team of RINL won Gold award in 5S work place management at the Chapter Convention on Quality Control Circles-2018 held at Visakhapatnam and First Prizes in 50 Mts Running and Tennicoit doubles at the district level sports meet conducted by Labour Welfare Department, Govt of A.P.

22.4 NMDC Ltd.

NMDC Limited employs 371 women as on 31.03.2019, which constitute about 6.30 % of its total manpower of 5887 (as on 31.03.2019). The company provides equal opportunities for all the sexes at all levels, whether it is selection, recruitment, placement or promotion. The number of women in senior positions is growing.

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. all statutory obligations of the Company are reflected in its policies for women employees.

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** - NMDC runs a focused initiative called "**Balika Shiksha Yojana**" for benefit of the tribal Girl students of Bastar division. The initiative has triple purpose of assisting girls from socio-economically disadvantage sections of society to pursue professional education, contribute to women empowerment and also help in addressing the situation of acute shortage of **Medical & Paramedical staff in Bastar region**. Under the scheme, selected tribal Girls are sponsored for B.Sc (Nursing) and GNM (General Nursing & Midwifery) courses at Apollo Institute of Nursing, Hyderabad. The program started with 25 students but with the success of the program the intake was enhanced to cover 40 Girl students. The entire expenditure of the scheme is borne by NMDC.

Since 2011-12, 298 Girl students have been sponsored for pursuing nursing courses under the scheme. The students from first three batches passed and have been gainfully employed.

- **Scholarship scheme for tribals: "Shiksha Sahayog Yojana"** is initiative by NMDC for the poor tribal and SC students of 07 (seven) districts of Baster division, Chhattisgarh and 8 villages around Donimalai in Bellary district in Karnataka. The objective of the scheme is to help **Students pursue education beyond 8th class upto Graduation level. A total 18000 nos. of scholarships are distributed under the scheme out of which approximately 44% of the beneficiaries are Girl students.**

22.5 MOIL Ltd.

MOIL has 783 women employees on its rolls which constitute 12.94% of its total workforce of 6048 as on 31.03.2019.

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 by Mahila Mandals, 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.

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. This programme in MOIL has got very good response and is a huge success.

As per the provisions of the Sexual Harassment of Woman at The Workplace (Prevention, Prohibition & Redressal) Act, 2013, a Sexual Harassment Prevention and Redressal Committee has been set up in the Company to deal with the cases received under Sexual Harassment.

The names of the Committee Members have been uploaded on Company's web site. i.e. www.moil.nic.in. One case of harassment was reported in MOIL and the same has been enquired by the Committee.

22.6 MSTC Ltd.

MSTC is a Corporate Life Member of Forum of Women in Public Sector (WIPS). During the year, several 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 in the Company.

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. The work culture of FSNL is quite conducive for the women employees.

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 26 women employees on rolls of KIOCL as on 31.03.2019.

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, a professional body functioning under the aegis of Standing Conference of Public Sector Enterprises (SCOPE). 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 of WIPS by the Company. International Women's Day was celebrated on 8th March, 2019 in a befitting manner.

During the year 2018-19, WIPS cell has actively undertaken various activities such as organising Medical camps, distribution of Hygiene kits etc, On Children's day, notebooks and dictionaries were distributed by WIPS to the students of Taneerbavi Higher Primary school, Mangaluru.

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. Internal Complaint Committees is in place in terms of The Sexual Harassment of Women at Work Place (Prevention, Prohibition & Redressal) Act, 2013.

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 Social Objective is synonymous with Corporate Social Responsibility (CSR). Apart from the business of manufacturing steel, the objective of the Company is to conduct business in ways that produce social, environmental and economic benefits to the communities in which it operates. For any organization, CSR begins by being aware of the impact of its business on society. With the underlying philosophy and a credo 'to make a meaningful difference in people's lives', SAIL has been structuring and implementing CSR initiatives right from the inception. These efforts have seen the obscure villages, where SAIL plants are located, turn into large industrial centre today.

SAIL CSR initiatives have always been undertaken in conformity to the prevalent statutes like revised DPE Guideline on CSR & Sustainability - 2013 and currently as per 'The Companies Act-2013'. SAIL's CSR projects are carried out in and around steel township, mines and far flung location across the country in the area of village development including development of Model Steel Villages (MSVs), Providing Medical and Health Care, Immunization, Ante and post natal care, Education, Access to water facilities, Construction of Roads, Road Side Drains & Street Lights, Environment, Women Empowerment, Assistance to people with disabilities, Sustainable Income Generation through Self Help Groups, Promotion of Sports, Art & Culture, etc.

SAIL CSR Initiatives

Healthcare

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 FY 2018-19, about 3050 Health Camps were organized benefitting approx. 60,000 villagers.

5 Mobile Medical Units (MMUs) running in the Plant peripheries have benefitted about 44,000 villagers in during FY 2018-19 at their doorsteps.



Free surgical interventions offered to peripheral populace by SAIL's Rourkela Steel Plant

24 Primary Health Centres at Plants exclusively provided free medical care and medicines to above 69,000 villagers during FY 2018-19.

Education

To develop the society through education, SAIL is supporting about 77 schools providing modern education to more than 40,000 children in the steel townships and is assisting over 600 Govt. schools in Bhilai and Rourkela with about 64,000 students by providing Mid-day meals in association with Akshya Patra Foundation.

- 19 Special Schools (Kalyan & Mukul Vidyalayas) benefitting around 3740 BPL category students at integrated steel plant locations with facilities like free education, mid-day meals, uniform including shoes, text books, stationary items, school bags and water bottles, etc. are running under CSR.
- More than 318 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:** Next batch of 15 Birhor children has been adopted, who are getting free Education along with boarding, lodging, nourishing and wholesome food, clothing, free medical treatment, sports and cultural opportunities, etc. at Bokaro.

Women Empowerment & Sustainable Income Generation

Approx. 710 youths & 1168 women folks are undergoing skills trainings, in areas such as Nursing, Physiotherapy, LMV Driving, Computers, Mobile repairing, Welder, Fitter & Electrician Training Improved agriculture, Mushroom cultivation, Achar/ Pappad/ Agarbati/Candle making, Handicrafts, Sericulture, Yarn Weaving, Tailoring, Sewing & embroidery, Gloves, Spices, Towels, Gunny-bags, Low-cost-Sanitary Napkins, Sweet Box, Soap, Smokeless chullah making, etc.

- SAIL has signed a Memorandum of Agreement (MoA) with the District Administration, Nuh to support their Menstrual Hygiene Management program, i.e., the drive in 100 girl/Co-education schools of Nuh, Haryana for :
 - ❖ Installation of one each of Sanitary Napkin Dispenser and Incinerator in 100 schools
 - ❖ Conduct of awareness/training program on Menstrual Hygiene Management covering 100 schools.

- ❖ Distribution of 20 Lakh Sanitary Napkins (SN) among Girl students and their female family members,
- Almost 816 youths have been sponsored for ITI training at ITCs Bolani, Bargaon, Baliapur, Bokaro Pvt ITI and Rourkela etc. The ITIs at Bolani & Bursua have been adopted for upgradation and operation by SAIL/RMD.

Swachha Bharat Abhiyaan - Swachha Vidhyalaya Abhiyaan

SAIL has been actively participating in the "Swachh Bharat Abhiyan" initiated by the Hon'ble Prime Minister of India. Under the campaign, construction of 672 toilets in schools falling within the periphery of its Plants & Mines in the States of Chhattisgarh, West Bengal, Odisha, Jharkhand, M.P. & Tamil Nadu; as allocated to SAIL by Ministry of HRD, had been undertaken and completed. Facilities like squatting units, urinals, washbasin and overhead water storage has been provided. Apart from toilet construction, cleanliness campaign has been undertaken all across the Organisation. Cleanliness drive is going on 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 practised on company wide basis.

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 identified 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 centres, livelihood generation, sports facilities, etc. The facilities developed at these MSVs are being run and maintained regularly.

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 8176 water sources have been installed, since inception, thereby enabling easy access to drinking water to over 50 lakh people living in far-flung areas.

Support to Divyangs (Differently Abled) & Senior Citizens: SAIL supports various schemes and centres at SAIL Plants under CSR like 'Muskaan' at Bhilai, "Schools for blind, deaf & mentally challenged children" and "Home and Hope" at Rourkela, "Ashalata Kendra" at Bokaro, various programs like "Handicapped Oriented Education Program" (Hope) and "Durgapur Handicapped Happy Home" at Durgapur, "Cheshire Home" at Burnpur. Old age homes are being supported at different Plant townships like "Siyon Sadan" at Bhilai.

23.3 Rashtriya Ispat Nigam Ltd. (RINL)

Since its inception RINL has undertaken a number of projects/activities and programs as part of its community development initiative when the concept of CSR was at its nascent states. A separate Department was formed in March 2007 and 'RINL CSR Foundation' was registered under the then Companies Act, 1956 to steer various CSR activities of the Company in a focussed manner. RINL had formulated its CSR Policy of its own in 2006 itself.

Subsequently, pursuant to the enactment of the new Companies Act, 2013, the Company has formulated a 'CSR & Sustainability Policy' in line with the said statute and DPE Guidelines and has been according due emphasis on 'Inclusive Growth and Sustainability'. Board Sub Committee on CSR&S, headed by an Independent Director in terms of the Section 135 of the Companies Act, 2013, has been regularly monitoring the implementation of these CSR activities.

The focus areas for CSR generally include areas mentioned in Schedule VII of the Companies Act, 2013 viz. Health care, Education, Skill Development, Environment Care, Rural Development, Sports, Sanitation & Swachh Bharat, Help during Natural calamities etc. Some of the flagship CSR initiatives of RINL are as under:

Education

- **Shiksha:** Support for education to 1600 children belonging to Below Poverty Line (BPL) families of the surrounding villages of Plant & Mines.



- **Free education, therapy and vocational training to 100 Divyang children through Arunodaya Special School.**
- The 11000 sft workshop building at **Govt. Polytechnic for Women, Bheemili, Visakhapatnam** got renovated to facilitate library, laboratories, workshops and class rooms benefitting around 600 girl students.
- **Chethana** - Towards empowering women who were deprived of education **Adult literacy programme** were organized in surroundings villages of Plant & Mines and tribal villages of Visakhapatnam and Vizianagaram Districts benefitting more than 600 women.
- **'Pathashala ki Aabharanam':** Provided 280 three seater dual desks to 6 Government Schools and further taken up project for providing 645 three seater dual desks to 15 Government Schools to address the shortage faced by the Schools.
- **Akshaya Vidya:** Providing **quality education to the children belonging to slum areas** in Hyderabad (25 centres) and YSR Kadapa Districts (15 centres).
- **School Infrastructure:** Provided educational infrastructure viz. dual desk benches, RO Plant, electrical wiring of class rooms, fans, tube lights etc. to the Upper Primary School at surrounding villages of Forged Wheel Plant of RINL at Lalganj, UP.
- **Support to Visakhapatnam Public Library:** Supported Public Library for providing additional space in the form of separate study hall.

Health

- **'Nethra Jyothi':** 125 eye camps were organized wherein 11700 beneficiaries were screened and **629 free cataract surgeries were performed to the beneficiaries belonging to BPL category**
- **Cochlear Implantation:** For rehabilitating the poor **children with hearing impairment**, Cochlear implants to five children belonging to BPL families are taken up through M/s. ALIMCO.
- **Support to Divyang:** Provided wheel chairs, tricycles, prosthetics, adaptive devices etc. to 147 Divyangan including spinal cord injury patients and amputees to enable them to lead a better life by limiting their disability.
- **Adopted 25 abandoned and destitute elderly persons** for a period of one year. They are provided with free shelter, food, medical facilities and homely care through Saint Hardayal Educational and Orphan Welfare Society (SHEOWS).
- RINL provided **200 wheel chairs to Visakhapatnam District Administration for facilitating the persons with disabilities to exercise their franchise in the General Elections.**
- Provided financial assistance for procurement of **Sanitary Napkin dispensers, Incinerators to 15 schools** and **100000 Sanitary napkins** for distribution in Nuh, an Aspirational District in Haryana.

Environmental Care

- **Contribution to 'Clean Ganga Fund':** RINL has joined hands in the national Mission of 'Clean Ganga' and contributed an amount of Rs.50 lakhs to Clean Ganga Fund set up by Govt. of India .

Skill Enhancement

- **'Saksham':** Facilitated Vocational training programmes in trades viz., Arya Works, LMV driving, Cutting & Tailoring , Blouse Designing and Beautician Course for 320 beneficiaries, **including 240 women beneficiaries**, residing in the surrounding villages of Plant, Mines and tribal villages of Visakhapatnam Dist.
- Skill development programme to **100 'People with Disabilities (Divyangjan)'** of Visakhapatnam was taken up and training completed for 75 beneficiaries and in progress for the balance 25 beneficiaries.

Peripheral Development

- **Community Halls:** In order to bridge the infrastructure gap in the village a community halls were constructed at Sitanagaram village in Anakapalle Mandal of Andhra Pradesh and Sahjadpur village of UP.
- The project "**Manakosam**" - Installation of a Community CCTV Surveillance System in 29 identified locations in the surrounding areas of Plant is taken up in association with the Visakhapatnam City Police with a view to **help in reduction of crime against women and enhance their safety and security 24X7 thus directly contributing to women empowerment.**

Help During National Calamities

- Extended support of Rs. 30 lakhs to the restoration activities in Srikakulam District which was badly hit by the sever cyclone "Titli"
- RINL joined hands with SAIL, NMDC, MIOL & MSTC in providing 20000 sets of stainless steel plates and tumblers to the residents of Palakkad District of Kerala who were affected by the severe floods in the state

Sanitation

- **Jaladhara:** Provided **potable drinking water to four tribal villages in Araku Valley Mandal** of Visakhapatnam District benefitting around 620 residents which has a **direct impact in the improvement of health indicators and education of women & girl children.**
- Supplied 70,000 litres per day drinking water to surrounding villages during summer months
- Installed RO plants in surrounding villages of RINL Mines.

Swachh Bharat

- **Swachh Vidyalaya:** Financial assistance is extended to 32 Government Schools for maintenance of toilets constructed under "Swachh Vidyalaya".
- **Bala Swachhta Jagruthi:** Awareness programmes on personal hygiene were conducted to 4200 students studying in twelve Government Schools in the surrounding villages.
- 2301 Cleanliness campaigns were organised in the areas of Plant, Mines and Township under Swachh Bharat during the year 2018-19. Further, in line with the directions of Govt. of India, activities viz. 'Safai Pakhwada' as per the year long calendar, 'Swachhta Hi Seva', Swachhta Parv, Swachhta Pakhwada etc. were also being religiously observed.

Digital Transaction Awareness

- 45 awareness sessions were organized to promote digital transactions.

23.4 NMDC Ltd.

The status of CSR programmes undertaken/initiated by NMDC 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 2018-19, 18000 scholarships have been awarded.
- NMDC has extended its financial support for the students of Bastar region under "Chhoo Lo Aasmaan Scheme" for undergoing PET/PMT coaching for acquiring merit seats in the Chhattisgarh Pre-Engineering & Medical Test. NMDC has continued its support w.r.t. the above successful programme.
- 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 been extending support for operation of 200-seater Residential school- 'Saksham I' & 'Saksham II' Schools set up for differently abled Boys & Girls. 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' an educational institution with 100% barrier free access for disabled people.
- Under NMDC Balika Shiksha Yojana, during the current academic year i.e. 2018-19, 40 girls have been sponsored in GNM & B.Sc. nursing courses at Apollo College /School of Nursing, Hyderabad. Till date 298 students have been sponsored by NMDC for pursuing nursing courses.
- The Residential School started at Nagarnar in 2010 is also running successfully with 583 no. of students in class I to XI.
- 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 1137 orphaned and violence affected children.
- 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.
- An initiative for promotion of education by operating 500 Single Teacher Ekal Vidyalaya Schools in areas around NMDC Projects in Chhattisgarh over a period of five years, was taken up in partnership with Friends of Tribal Society, Kolkata. During the year 120 Ekal Vidyalaya have been successfully set up under the scheme.
- Construction of Transit Hostel at Education City, Adwal, Bastar District.
- Construction of 500-Seater Residential Complex cum Training Centre Building' in Kondagaon District.
- Extended financial assistance for the purchase of seven (07) Buses for the benefit of the Students who are availing educational facilities at Swami Vivekananda Educational Complex, Narayanpur.
- Financial assistance to KR DAV School, Safidon, Jind for construction of Multipurpose hall in their School premises.



Mid Day meal at a Primary School by NMDC under CSR initiatives

Skill Development

- The ITI with Welder & Mason trades at Nagarnar with the intake of 28 students each year is being operated successfully.
- The ITI at Bhansi with 5 trades is being operated successfully with the intake of 76 no. of students each year. ITI Bhansi has been ranked 1st amongst all the ITIs in the State of Chhattisgarh by CRISIL.
- The Polytechnic College at Dantewada established with two streams i.e. Electrical & Mechanical with an intake of 126 students is being operated 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.
- Skill development Training Programme in partnership with NSDC to train 1600 non NMDC stakeholders in Mining and Steel Sector related skills over a period of 3 years has been completed successfully in the year 2018-19.
- A Skill Development Programme in partnership with Urbo Rural Integrated Development Association (URIDA), New Delhi has been undertaken for the benefit of 270 persons in trades such as Domestic Electrician, Wood craft (Design) and Industrial Garmenting. During 2018-19, training w.r.t. 2 batches made up of 180 trainees has been completed under this programme.
- Skill Development Training in partnership with Construction Industry Development Council (CIDC), New Delhi is undertaking a skill Development Programme for Unemployed Youth, SC/ST/OBC Women & persons from Economically weaker sections of Society (EWS) in Construction industry related trades., wherein 200 persons are to be covered. Trades covered: Group A - Mason, Bar benders, Shuttering Carpenter, Plumber etc, Group B - General Work Supervisor, Electrician, Welder & other Trades, Group C - Land Surveyor, Safety Inspector, Store keeper, Site Accountant, Lab Technician etc. During the year 43 trainees have been trained as Electricians, Plumbers, welders, DG Set Operators & Shuttering Carpenters.

Healthcare

- Free out-patient & in-patient treatment facility was extended to 85078 & 22802 local tribals respectively during the year 2018-19 (Upto Feb)
- During 2018-19, 11584 (up to Dec) local villagers have been treated at the doorsteps in the nearby 13 villages of Nagarnar Steel Plant, through operation of Hospital on Wheels service.
- Provision of Four Mobility Support Vehicles for Immunization and Mother & Child Health (MCH) Services to District Administration, Nuh, Haryana.
- Provision of Sanitary Napkins dispensers & incinerators in Schools of Nuh (Mewat) District, Haryana in partnership with District Administration, Nuh, Haryana.
- Construction of Primary Health Centers at Munro island, Kollam District and Eloor, Ernakulam District, Kerala, which were damaged in the floods of August 2018.
- Extended financial assistance to Aakar Asha Hospital for promotion of awareness and conduct of reconstructive surgery on 100 persons with disabilities residing around NMDC Projects in Chhattisgarh.

Drinking Water

- Provision of Drinking water facility in Education City premises at Gadaji in Narayanpur District.
- Installation of Solar Pumps for drinking water in 27 distant locations in Sukma District.

Rural Development

- Installation of 2KW Solar Power Plants in 08 Villages of Narayanpur District.
- 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

- 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 who are residents of the villages of the surrounding areas and mostly come from poor families
- In association with DAV Group of Schools, MOIL has constructed a large school at Village Sitasaongi, 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.
- With the overwhelming response for DAV-MOIL school at Sitasaongi, Company is in process to open one more branch of this school at Munsar, in Nagpur district, which will cater to the needs of quality education of the rural children. This school is expected to start functioning in April, 2020.

Drinking Water and Sanitation

- For providing drinking water to villages in remote areas, the Company has proposed to dig 42 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.

Swacch Bharat Abhiyan

- MOIL is observing Swachhta Diwas (Clean Day) on 1st Wednesday of every month and Swachhata Pakhwada for 1st to 15th of every month in one or more mines. Events such as awareness camps on health and hygiene by displaying banners, slogans and posters in mines and housing colonies but also nearby villages in and around mines are organised.

23.6 MSTC Ltd.

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

- Development of infrastructure of ITI Workshops by purchasing ITI equipments for Ramakrishna Mission, Belur Math.
- Renovation of Middle schools in West Bengal as well as in Aspirational Districts of Jharkhand.
- Construction of Primary School in Purba Mednipur district of West Bengal.
- Construction of Training Centre for the unemployed youth and marginalized women of West Bengal.

- Construction of Multimedia Interactive Language Lab at Ramakrishna Mission Centenary College in Rahara.
- Upgradation of the existing Hematology Laboratory with Automated equipment of Karnataka Hemophilia Society, Devanagere, Karnataka.

23.7 Ferro Scrap Nigam Ltd. (FSNL)

During the year 2018-19, the following activities have been undertaken by FSNL, including in the Aspirational districts, as stated below:-

- Construction of Toilet Blocks for Boys & Girl students at Zilla Parishad High School-Rambilli, Visakhapatnam (Andhra Pradesh).
- Construction of One Hall in Zilla Parishad High School, Thotagaruvu-Visakhapatnam (Andhra Pradesh) for the benefit of the Boys & Girl students.
- Construction of Toilet Block comprising of 4 Urinals and 4 lavatories, as well as Two Class rooms for Boys & Girl students of Ramrudra Intermediate School, Chas, Bokaro, District Dhanbad (Jharkhand).
- Providing Washbasin with Shed in 7 Government schools in Durg District of Chhattisgarh.
- Providing Washbasin in 3 Government schools in Durg District of Chhattisgarh.

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 organization in association with other employees drawn from various sections as per requirement.

The major developmental activities carried out by MECON in the financial year 2018-19 are as follows:

Sanitation

- Annual Maintenance of 36 nos. Pre-fabricated Bio-Toilets in MHRD Schools of Hazaribagh & Lohardaga Districts of Jharkhand under Swachh Bharat Abhiyan.
- Observance of "Swachhta Hi Sewa" campaign by organising "Awareness March", "Cleanliness Drive", "Talk on Swachhta/Hygiene" & "Talk on Preparation of Compost with domestic waste" programmes in villages of Jharkhand adopted by MECON
- Observance of "Swachhta Pakhwada" in Village - Bartoli of Adopted Village - Pancha, Block-Bundu, District-Ranchi (Jharkhand) wherein "Swachhta Shapath", "Cleanliness Drive", "Talk on Swachhta/Hygiene practices" etc. were carried out.

Healthcare services

- Organizing free Health check-up camps and free distribution of medicines in Adopted Villages & backward/slum areas of Jharkhand. Around 4,460 patients were covered in 95 medical camps.
- Project SMILE : Cleft Lip and Palate Surgery for poor/ downtrodden/ needy patients organized by Akila Bharatha Mahila Seva Samaja, Koramangala, Bangalore at Visakhapatnam, AP. (Surgery carried out in respect of 4 patients).
- Cataract Surgery for poor/ downtrodden/ needy villagers of Adopted Village - Pancha, Block - Bundu, Taimara, District - 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.



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.

23.9 KIOCL Ltd.

Some of the major activities undertaken by KIOCL under CSR during 2018-19 are as follows:

Promotion of Education in Aspirational District

- Support for introduction of Solar based smart classes in 30 Govt. Schools in Raichur District, Karnataka. Raichur District is identified as one of the aspirational district by Govt. of India in the state of Karnataka. In order to implement development activities in Raichur District in the field of education, KIOCL has supported for introduction of solar based smart classes in 30 Government Schools in rural areas of Raichur. This project is executed through Deputy Commissioner of Raichur District. More than 2000 students of rural areas are benefitted with this project.

Drinking Water

- Provision of Aquaguard to Govt. High School, Mullakadu, Mangaluru for supply of clean drinking water with a budgetary provision of Rs. 50,000/-. Through this project, around 250 children from rural background were benefitted.

Health Care

- KIOCL has conducted medical camps in Samse & Jambale Villages at Kudremukh under Corporate Social Responsibility. Free medical camps were conducted every month and necessary medicines were distributed free of cost. More than 2000 villagers were benefitted with this project.

Contribution to Chief Minister's Relief Fund

- During 2018, Kodagu District of Karnataka and several parts of Kerala had witnessed heavy and unprecedented rainfall which resulted in floods, landslides, mudslides etc. The unprecedented rainfall has caused death of common people. Public infrastructures such as roads and vital bridges, houses, buildings, schools and health centers, have been badly damaged. The disaster had crippled the lives and livelihoods of a very large number of impoverished, rural people. To extend necessary support to flood affected areas and to take up rehabilitation work, KIOCL has contributed Rs. 2.94 Lakhs to Chief Minister's Relief Fund, Karnataka and Rs. 5.90 Lakhs to Chief Minister's Relief Fund, Kerala respectively under Corporate Social Responsibility.

23.10 EIL, OMDC and BSLC

OMDC focuses on CSR activities like health, education, and supply of drinking water and community development. For the year 2018-19 an amount of Rs 35.80 Lakh have been earmarked as CSR budget. The CSR activities are carried out as per the DPE guidelines.

BSLC being a loss making company is not taking up any CSR activities at present as per the DPE guidelines.

EIL is not eligible to carry out CSR activities as per Companies Act, 2013.

The OMDC extend aid to peripheral schools and colleges in the form of construction of buildings, arranging study materials, providing furniture, school buses. The hospitals being run by the companies also provide treatment free of costs to all 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 period from 01.01.2018 to 31.03.2019, the Ministry of Steel has received 169 offline RTI applications and 276 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 Officer (PIO)/Asst. Public Information Officers, Appellate Authorities and Transparency Officer under Sections 5 and 19(1) of the Act in each Plant and Unit for speedy redressal of the queries received under the Act Under Sec 5(5). All the officers/line managers responsible for providing information to the PIO are called Deemed PIO, and are made equally responsible as PIO towards timely submission of information to the applicant.

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. 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 1st April, 2018 to 31st March, 2019, a total of 3814 applications and 653 appeals were received under RTI Act, 2005 in the Company, all of which have been disposed of within the stipulated time frame. CIC has also taken up 62 cases and most of these cases were disposed off in favour of the Company.

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 1765 requests have been received under Right to Information Act, by RINL during the period 1st April, 2018 to 31st March, 2019 and 1179 Nos. of RTI applications have been replied.

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. Details of PIOs and AA are being updated regularly for the information of the public. Annual reports of the Company which gives lot of information on its working are widely circulated and also available in NMDC's website. Further information is disseminated through press conference, press handouts etc. NMDC maintains all its records in a transparent manner. Information is given to the maximum extent in the form in which it is asked for & in the local language as well, when needed.

The number of RTI queries received & disposed during April 2018 to March 2019 are as under:-

Applications pending as on 01.04.2018	Applications received during 01.04.2018 to 31.03.2019	Applications disposed off during 01.04.2018 to 31.03.2019	Applications pending as on 31.03.2019
14	214	224	04

24.6 MOIL Ltd.

MOIL has appointed CPIOs at the Corporate Office and PIOs / APIOs have also been appointed in all its Mines. Executive Director (Personnel) has been appointed/designated as Appellate Authority under the Act. The names of all the PIOs / APIOs and the Appellate Authority has been also hoisted in 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 has been hoisted in the Company's portal. MOIL has been submitting necessary information and returns to the prescribed authorities and updating the same regularly.

During the year 2018-19, the company has received total 179 applications under RTI Act, out of which 172 applications were disposed off. Appellate authority has received 35 Nos. of RTI appeals out of which all 27 appeals were disposed off.

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.

During 2018-19, total 150 RTI Applications/First Appeals were received. Out of this, 142 RTI applications/appeals have been disposed off.

24.8 Ferro Scrap Nigam Ltd. (FSNL)

In compliance with the mandatory provisions of the RTI Act, FSNL has appointed a Public Information Officer (PIO) at Corporate Office and one APIO each at its 08 Units. ED (P&C), FSNL is the first appellate authority under RTI Act 2005. The company has complied the information under 17 different templates/manuals/manuals for voluntary/suo-moto disclosures 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.

FSNL is proactively complying with the provisions of Right to Information Act, 2005. All information sought under the Act is being furnished within the stipulated time period.

Quarterly reports are submitted to the CIC regularly. All requests for information are dealt with as per the prescribed guidelines of the RTI Act, 2005. The total number of RTI application received during the period 1st April 2018 to 31st March 2019 was 81. Out of 81 applications, 79 applications have been disposed off.

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 and Administration) has been nominated as the Transparency Officer of MECON Limited. The status of applications received and processed during the year 2018-2019 under Right to Information Act, 2005 are given below:

Applications pending as on 01.04.2018	Applications received during 01.04.2018 to 31.03.2019	Applications disposed off during 01.04.2018 to 31.03.2019	Applications pending as on 31.03.2019
03	85	81	07

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.kiocltd.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. During 2018-19, KIOCL has received 52 applications under RTI Act and all of them have been disposed off.

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.



CHAPTER-XXV

SKILL DEVELOPMENT

25.1 Pradhan Mantri Kaushal Vikas Yojana (PMKVY)- Short Term Training (STT)

In the year 2018-19, under PMKVY, Indian Iron and Steel Sector Skill Council (IIS SSC) has certified 5365 candidates. The training was done primarily in 18 states of the country, namely, Bihar, Chattishgarh, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Odisha, Rajasthan, Telengana, Tripura. A total of 89 Training Centers participated in imparting the training programs of IIS SSC. The basic thrust of above training program was school dropouts (8th/10th pass) and for entry level candidates to target the poor population. The trainings were conducted at remote districts which are backward and undeveloped.

Short Term Training Program under PMKVY for FY 17-18 & FY 18-19

Sl. No.	Year	Enrolled	Trained	Assessed	Passed	Certified	Placed
1	2017-18	12912	9678	8373	7733	7536	1937
2	2018-19	4888	5209	5200	5199	5365	4056
	TOTAL	17800	14884	13573	12932	12901	5993

N.B. 1. The targets are continuous and given by NSDC for the total period of 2017-20.

25.2 Pradhan Mantri Kaushal Vikas Yojana (PMKVY)- Recognition of Prior Learning (RPL)

In the year 2018-19, one new type of RPL was launched namely RPL 4.0 BICE (Best in Class Employers). Under this, the Industry itself participated in certification program of their existing employees through their managers and supervisors. Orientation was given to their managers and supervisors to make them understand about the process of assessment. IIS SSC received target of 14642 on 29th June, 2018 from NSDC/MSDE. The targets were also given for RPL at JSW and JSPL. The duration of the whole project is 12 months. The project started in different plants of JSW Steel (Vijay Nagar & Dolvi) and JSPL (Raigarh, Patratu and Angul). RINL also participated in the program for their contract workers (numbering 2000). IIS SSC also encouraged SME Units to participate in the program. Some of the SME units like Shyam Ferro Alloys, Amit Metaliks, Rashmi Mazelike, Kejriwal Castings etc. have confirmed their participation. In 2018-19 Shyam Steel started the program at their Durgapur plant.

During the year, the training was done at PSUs like SAIL, RINL and Garden Reach Ship Builders (GRSE) to upgrade their existing manpower and certify them for their prior learning. SMEs also participated in the training under IIS SSC for their existing work force. Other several schemes like JSDMS, NSKFDC, AICTE-TI, NULM, DDUGKY etc. were also run by IIS SSC during the year 2018-19. The details of the training are given below:-

Recognition of Prior Learning (RPL) Program for FY 17-18

Sl. No.	Scheme	Training Done
1	PSUs Training under RPL (SAIL- 183 (Durgapur Steel Plant- 90; Bokaro Steel Plant-41 and Burnpur Steel Plant- 75, RINL- 131; NMDC-86)	423
2	SME Sector Training	58
3	Other Schemes (AICTE)	682
	Total	1163

Recognition of Prior Learning (RPL) Program for FY 18-19

Sl. No.	Scheme	Training Done
1	PSUs Training under RPL (SAIL-181 (Durgapur Steel Plant-47; Bhilai Steel Plant-46; Bokaro Steel Plant-17 and Burnpur Steel Plant-71, RINL-193, Garden Reach Ship Builders-49)	423
2	SME Sector Training	69
3	Other Schemes (NULM, DDUGKY, AICTE, JSMD, NSKFDC)	2690
	Total	3182

RPL Training Program under PMKVY for FY 17-18 & FY 18-19

Sl. No.	Scheme	Certified	Placed
1	PMKVY- RPL (Recognition for Prior Learning) 2017-18	3000	Existing Employees Being Re-skilled
2.	PMKVY- RPL (Recognition for Prior Learning) 2018-19	1424	Existing Employees Being Re-skilled
	TOTAL	4424	

25.3 Apprenticeship

All the PSUs like SAIL, RINL engaged apprentices through new portal. IIS SSC also encouraged the individuals and SMEs units to participate in NAPS (National Apprenticeship Promotion Scheme). In the year 2018-19, SAIL plants (Durgapur, Bokaro, Burnpur, Rourkela and Bhilai) together took nearly 1500 apprentices. RINL took nearly 1000 apprentices in the last financial year. ITI Durgapur also suggested their passed out candidates to get enrolled in the portal to get selected for steel plant apprenticeship.

25.4 Rozgar Melas and Exhibitions

In the year 2018-19 IIS SSC Organised and participated in several Rozgar Melas and exhibitions. It played very important role in increasing the placement percentage of the council. In PMKVY 1.0 the placement percentage was 12.02% and in PMKVY 2.0 the placement percentage went upto 46.45%. IIS SSC organised 5 Rozgar melas basically at Jharkhand and Orissa. It also participated in 10 Rozgar melas organised by NSDC at PAN India.

25.5 Other Achievements

- Signed an MoU with Tata Steel in February, 2019 for training and certifying their existing manpower.
- The Indian Institute for Foundrymen (IIF) joined the Board of IIS SSC.

25.6 Skill Gap Study

IIS SSC started a skill gap study (job role wise) for Iron and Steel Clusters in India in February, 2019. The study is done by NISST (National Institute for Secondary Steel Technology). IIS SSC is conducting workshops at each cluster like (Raipur, Jamshedpur, Bhubaneswar, Kolkata etc). The report will be ready by the second quarter end of the current financial year (2019-20).

25.7 National Apprenticeship Promotion Scheme

IIS SSC has developed 8 Curriculum for NAPS in two modules, namely, Paired Model and Embedded Model. All the PSUs like SAIL, RINL are taking apprentices through new portal. IIS SSC is encouraging the individuals and SME units to participate in NAPS (National Apprenticeship Promotion Scheme). In the last financial year primarily SAIL plants (Durgapur, Bokaro, Burnpur, Rourkela and Bhilai) together took nearly 1500 apprentices. RINL took nearly 1000 apprentices. ITI Durgapur also suggested their passed out candidates to get enrolled in the portal to get selected for steel plant apprenticeship. In the current financial year IIS SSC would like to enroll nearly 2500 apprentices in different plants in Iron and Steel units.

**ANNEXURE - I****LIST OF SUBJECTS ALLOCATED TO THE MINISTRY
OF STEEL AS PER GOVERNMENT OF INDIA
(ALLOCATION OF BUSINESS) RULES, 1961**

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, kyanite, 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, namely:
 - (i) Steel Authority of India Limited (SAIL);
 - (ii) Rashtriya Ispat Nigam Limited (RINL);
 - (iii) Kudremukh Iron Ore Company Limited (KIOCL);
 - (iv) Manganese Ore (India) Limited (MOIL);
 - (v) National Mineral Development Corporation Limited (NMDC);
 - (vi) Metallurgical and Engineering Consultants (India) Limited (MECON);
 - (vii) Sponge Iron India Limited (SIIL);
 - (viii) Omitted;
 - (ix) Bharat Refractories Limited (BRL);
 - (x) Metal Scrap Trade Corporation (MSTC);
 - (xi) Ferro Scrap Nigam Limited; and
 - (xii) Bird Group of Companies.

ANNEXURE-II

MINISTER IN CHARGE AND OFFICER IN THE MINISTRY OF STEEL

(down to Deputy Secretary level)

(As on 31.03.2019)

Minister of Steel	Shri Birender Singh
Minister of State for Steel	Shri Vishnu Deo Sai
Secretary	Shri Binoy Kumar
Special Secretary & Financial Adviser	Shri Saraswati Prasad
Additional Secretary	Smt. Rasika Chaube
Joint Secretaries	Shri Puneet Kansal Smt. Ruchika Chaudhry Govil Shri T Srinivas
Economic Adviser	Smt. Promodita Sathish
Deputy Director General	Smt. Pally Kundu
Chief Controller of Accounts	Shri Anil Srivastava
Directors	Shri Neeraj Agrawal Shri Aman Sharma Shri Girraj Prasad Meena Shri Pankaj Vithal
Additional Industrial Adviser	Shri Parmjeet Singh
Deputy Secretary / Joint Director	Shri Anil Kumar Shri Ashish Sharma Shri K. Murali Shri A K Kailoo Shri U.K. Nair Shri Anand Kumar, JD(OL)



ANNEXURE - III

PRODUCTION OF ISP & OTHER PRODUCERS SUMMARY							
('000 tonnes)							
SL No.	ITEM / PRODUCER	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
PRODUCTION							
I.	CRUDE STEEL :						
	SAIL, TSL, RINL, ESL, JSWL, JSPL						
	Oxygen Route	35067	36610	36174	39711	41845	44602
	E.A.F.Units	9174	9473	11247	15775	17542	19001
	Other Producers						
	Oxygen Route	455	961	2221	2291	5645	5578
	E.A.F.Units (incl.Corex & MBF/EOF)	9419	13652	13352	13187	8879	8694
	Induction Furnaces	27579	28283	26796	26972	29221	28689
	TOTAL (Crude Steel)	81694	88979	89790	97936	103131	106564
	% Share of Other Producers	45.3%	47.1%	44.7%	41.0%	36.9%	35.1%
II.	PIG IRON (For Sale) :						
	SAIL,TSL,RINL,ESL,JSWL,JSPL	552	920	1186	799	726	962
	Other Producers	7398	8774	8041	8589	5002	5093
	TOTAL (Pig Iron)	7950	9694	9227	9388	5728	6055
	% Share of Other Producers	93.1%	90.5%	87.1%	91.5%	87.3%	84.1%
III.	SPONGE IRON :						
	Gas Based	2683	2354	2440	4854	6458.3	6937
	Coal Based	20189	21889	19987	23908	24052.7	26098
	TOTAL (Sponge Iron)	22872	24243	22427	28762	30511	33035
	% Share by Process (Coal Based)	88.3%	90.3%	89.1%	83.1%	78.8%	79.0%
IV.	FINISHED STEEL (Alloy/Non-Alloy) :						
	SAIL,TSL,RINL,ESL,JSWL,JSPL	45160	46820	48527	57698	69143	73420
	Other Producers	50417	53862	54376	58213	57712	58152
	TOTAL (Finished steel)	95577	100682	102903	115911	126854.81	131572
	% Share of Other Producers	52.8%	53.5%	52.8%	50.2%	45.5%	44.2%

Source: JPC; * Provisional

ANNEXURE - IV

PRODUCTION OF CRUDE/LIQUID STEEL (By Producers)

PRODUCER	2013-14			2014-15			2015-16			2016-17			2017-18			2018-19*		
	Working Capacity	Production	% Utilisation	Working Capacity	Production	% Utilisation	Working Capacity	Production	% Utilisation	Working Capacity	Production	% Utilisation	Working Capacity	Production	% Utilisation	Working Capacity	Production	% Utilisation
PUBLIC SECTOR																		
B S P	3925	5136	131%	3925	4807	122%	3925	5058	129	3925	4737	121	3925	4072	104	3925	4447	113
D S P	1802	2019	112%	1802	2063	114%	1802	1975	110	1802	2042	113	1802	2042	113	1802	2219	123
R S P	1900	2291	121%	4400	2792	63%	4400	2730	62	4400	2932	67	4400	3220	73	4400	3658	83
B S L	4360	3776	87%	4360	3831	88%	4360	3392	78	4360	3154	72	4360	3694	85	4360	3833	88
I S P	500	127	25%	2500	141	6%	2500	871	35	2500	1394	56	2500	1801	72	2500	1888	76
A S P	234	122	52%	234	104	44%	234	91	39	234	88	38	234	96	41	234	101	43
S S P	180	91	51%	180	125	69%	180	120	67	180	108	60	180	97	54	180	117	65
V I S L	118	13	11%	118	46	39%	118	42	36	118	39	33	118	0	0	118	0	0
TOTAL (SAIL) :	13019	13575	104%	17519	13909	79%	17519	14279	82	17519	14494	83	17519	15022	86	17519	16263	93
R I N L	2910	3202	110%	2910	3296	113%	6300	3641	58	6300	3962	63	6300	4731	75	6300	5233	83
TOTAL : (Public Sector)	15929	16777	105%	20429	17205	84%	23819	17920	75	23819	18456	77	23819	19753	83	23819	21496	90
PRIVATE SECTOR																		
Tata Steel Ltd	9600	9155	95%	9600	9331	97%	9600	9960	104	12500	11688	94	13000	12459	96	13000	13228	102
Essar Steel Ltd.	8540	3245	38%	8540	2854	33%	10000	3685	37	10000	5392	54	10000	6753	68	10000	6814	68
JSW Steel Ltd.	14600	12227	84%	14600	13136	90%	16600	12679	76	16600	16506	99	18000	16407	91	18000	16838	94
JSPL	2400	2836	118%	4000	3557	89%	4850	3177	66	4850	3445	71	8600	4014	47	8600	5227	61
Other BOF	363	455	125%	2733	961	35%	3160	2221	70	3760	2291	61	7682	5645	73	7682	5578	73
Other EAF	14335	9419	66%	13155	13652	104%	15641	13352	85	17127	13186	77	14408	8879	62	14408	8694	60
IF Units	36494	27579	76%	36794	28283	77%	38300	26796	70	39621	26972	68	42466	29221	69	42466	28689	68
TOTAL : (Private Sector)	86332	64916	75%	89422	71774	80%	98151	71870	73	104458	79480	76	114156	83378	73	114156	85068	75
GRAND TOTAL :	102261	81694	80%	109851	88979	81%	121970	89790	74	128277	97936	76	137975	103131	75	137975	106564	77

Source: JPC; * Provisional



ANNEXURE - V

PRODUCTION OF CRUDE/LIQUID STEEL (By Route)						
('000 tonnes)						
PROCESS ROUTE	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
1. OXYGEN ROUTE						
B S P	5136	4807	5058	4737	4072	4447
D S P	2019	2063	1975	2042	2042	2219
R S P	2291	2792	2730	2932	3220	3658
B S L	3776	3831	3392	3154	3694	3833
I S P	127	141	871	1394	1801	1888
V I S L	13	46	42	39	0	0
R I N L	3202	3296	3641	3962	4731	5233
T S L	9155	9331	9960	11688	12459	13228
JSW Steel Ltd.	9257	10178	8385	9655	9728	10096
Other Oxygen Route	455	961	2221	2291	5645	5578
TOTAL OXYGEN ROUTE :	35431	37446	38275	41894	47392	50180
2. ELECTRIC ROUTE						
ELECTRIC ARC FURNACE						
A S P	122	104	91	88	96	101
S S P	91	125	120	108	97	117
Essar Steel Ltd.	3245	2854	3685	5391	6753	6814
JSW Ispat Ltd./JSW Steel Ltd.	2971	2958	4294	6851	6679	6742
Jindal Steel & Power Ltd.	2836	3557	3177	3445	4014	5227
Lloyds Steel Ltd.	566	658	569	575	560	518
Jindal Stainless Ltd.	1111	1907	1258	1391	1497	1574
Bhushan Steel Ltd.	1084	2180	3078	5601	87	1344
Bhushan Power & Steel Ltd.	1714	1213	1832	3324	2018	2778
Other Electric Arc Furnace	4944	7694	6615	2296	4717	2480
TOTAL ELECTRIC ARC FURNACE :	18684	23250	24719	29070	26518	27695
ELECTRIC INDUCTION FURNACE	27579	28283	26796	26972	29221	28689
TOTAL ELECTRIC ROUTE :	46263	51533	51515	56042	55739	56384
GRAND TOTAL :	81694	88979	89790	97936	103131	106564

Source: JPC; * Provisional

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ANNEXURE - VI

PRODUCTION OF HOT METAL							
							('000 tonnes)
	PLANTS	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
A.	PUBLIC SECTOR						
	BHILAI STEEL PLANT	5377	5072	5317	5041	4280	4752
	DURGAPUR STEEL PLANT	2191	2297	2170	2318	2282	2515
	ROURKELA STEEL PLANT	2538	3157	3042	3094	3320	3836
	BOKARO STEEL LTD	4100	4253	3700	3410	4046	4209
	IISCO STEEL PLANT	220	566	1431	1810	2055	2200
	VISVESVARAYA I & S PLANT	21	68	60	54	0	0
	RASHTRIYA ISPAT NIGAM LTD.	3769	3780	3975	4043	5132	5769
	SUB TOTAL (A) :	18216	19193	19695	19770	21115	23281
B.	PRIVATE SECTOR						
	TATA STEEL LTD.	9898	10164	10655	13059	13855	14236
	MINI BLAST FURNACE	24342	27055	28353	32356	33046	35111
	SUB TOTAL (B) :	34240	37219	39008	45415	46901	49347
	TOTAL (A+B) :	52456	56412	58703	65185	68016	72628
	% SHARE OF PRIVATE SECTOR	65.3%	66.0%	66.4%	69.7%	69.0%	67.9%

Source: JPC; * Provisional



ANNEXURE - VII

PRODUCTION OF PIG IRON							
('000 tonnes)							
	PLANTS	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
A.	PUBLIC SECTOR						
	BHILAI STEEL PLANT	0	3	0	0	0	67
	DURGAPUR STEEL PLANT	38	54	53	90	61	69
	ROURKELA STEEL PLANT	87	143	131	55	35	148
	BOKARO STEEL PLANT	40	105	36	29	58	86
	IISCO STEEL PLANT	55	364	388	246	106	101
	VISVESVARAYA I & S PLANT	5	12	8	3	0	0
	RASHTRIYA ISPAT NIGAM LTD.	327	239	116	150	104	115
	SUB TOTAL (A) :	552	920	732	573	364	586
B.	PRIVATE SECTOR						
	OTHER BLAST FURNACE/ COREX UNIT	7398	8774	8495	8814	5364	5469
	SUB TOTAL (B) :	7398	8774	8495	8814	5364	5469
	TOTAL (A+B) :	7950	9694	9227	9387	5728	6055
	% SHARE OF PRIVATE SECTOR	93.1%	90.5%	92.1%	93.9%	93.6%	90.3%

Source: JPC; * Provisional

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ANNEXURE - VIII

PRODUCTION OF FINISHED STEEL (Non-Alloy & Alloy Steel)							
							('000 tonnes)
	PLANTS	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
A.	PUBLIC SECTOR						
	SAIL	12113	11654	11567	13352	14051	14338
	RASHTRIYA ISPAT NIGAM LTD.	2811	2552	2766	3219	3893	4233
	SUB TOTAL (A) :	14924	14206	14333	16571	17944	18571
B.	PRIVATE SECTOR						
	TATA STEEL LTD	11075	11490	11871	13639	14595	15765
	ESL+JSWL+JSPL	22965	25021	26021	31717	36604	39084
	OTHERS	50416	53861	54377	58213	57712	58152
	SUB TOTAL (B) :	84456	90372	92269	103569	108911	113001
	TOTAL PRODUCTION FOR SALE (A+B)	99380	104578	106602	120140	126855	131572
	% SHARE OF PRIVATE SECTOR	85.0%	86.4%	86.6%	86.2%	85.9%	85.9%

Source: JPC; * Provisional



ANNEXURE - IX

CATEGORY-WISE PRODUCTION FOR SALE OF FINISHED STEEL

'000 tonnes)

CATEGORY	2013 - 14			2014 - 15			2015 - 16			2016-17			2017-18			2018-19		
	Main Prods	Other Prods	TOTAL	Main Prods	Other Prods	TOTAL	Main Prods	Other Prods	TOTAL	Main Prods	Other Prods	TOTAL	Main Prods	Other Prods	TOTAL	Main Prods	Other Prods	TOTAL
1. Non-Flat Products																		
Bars & Rods	9618	20466	30084	9688	22733	32422	11064	22583	33646	11549	23548	35097	12915	22876	35791	13504	24553	38057
Structurals	1410	5486	6896	1482	6025	7507	1614	5898	7512	1687	6297	7985	1960	6070	8029	2121	6547	8668
Rly. Materials	882	5	887	830	5	835	882	54	937	1053	23	1076	1250	29	1279	1406	3	1409
Total (Non-flat Prdct)	11910	25957	37867	12000	28763	40763	13560	28535	42095	14289	29868	44158	16125	28975	45100	17031	31103	48134
2. Flat Products																		
Plates	3486	493	3979	4662	52	4714	4078	198	4276	4223	582	4805	4799	344	5143	5155	486	5641
Hr Coil/Strip	20478	4542	25019	20029	5322	25350	20192	6409	26601	26783	6451	33234	31096	6931	38027	32851	4334	37185
Hr Sheets	409	513	921	1099	39	1138	1504	12	1516	1043	53	1096	2425	11	2436	2367	54	2421
Cr Coil/Sheets	5193	5472	10666	5271	5285	10557	4773	4871	9643	6203	6473	12676	8761	6859	15620	9501	5187	14688
GP&GC/CC/Galvalume	3038	3936	6974	2998	4005	7003	3348	4418	7766	4028	4239	8268	3875	3168	7044	4321	3728	8049
Color Coated													716	920	1636	798	691	1489
Electrical Coils/Sheets	69	57	126	69	71	140	92	56	148	156	525	680	200	44	244	234	66	300
Tin Plates (Incl WW)	7	337	344	0	354	354	26	305	331	26	314	340	85	348	433	97	371	468
Pipes (Large Dia.)	196	1782	1978	238	1856	2094	265	1968	2232	207	1938	2145	228	2002	2230	261	1943	2204
TMBP	0	3	3	0	0	0	0	2	2	0	3	3	0	0	0	0	0	0
Tin Free Steel	0	12	12	0	0	0	0	8	8	0	10	10	0	0	0	0	0	0
Total (Flat Products)	32875	17146	50021	34367	16983	51349	34277	18246	52523	42669	20588	63257	52187	20627	72814	55585	16860	72445
Total (Fin. Non-alloy)	44785	43103	87888	46366	45746	92112	47837	46781	94618	56958	50456	107414	68312	49602	117914	72616	47963	120579
Total Fin. Steel (Alloy / Stainless)	375	7314	7689	454	8116	8569	690	7595	8285	738	7757	8496	831	8111	8942	804	10189	10993
Total Fin. Steel (Non-alloy + Alloy)	45160	50417	95577	46820	53862	100682	48527	54376	102903	57697	58213	115910	69143	57713	126855	73420	58152	131572

Figures from 2013-14 to 2016-17 are of Net Production and figures from 2017-18 to 2018-19 are of Gross Production

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ANNEXURE - X

CATEGORY-WISE EXPORT OF IRON & STEEL						
('000 tonnes)						
CATEGORY	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
I. SEMIS (Non-Alloy)	484.2	637.7	635.7	1184.4	1962.5	2149.8
II. FINISHED STEEL (Non-alloy)						
Non-Flat						
Bars & Rods	585.1	392.4	365.0	628.9	2041.5	509.0
Structurals	64.7	83.1	81.6	160.6	174.1	195.5
Railway Materials	1.2	2.8	1.9	82.6	42.8	1.5
Total Non-Flat	651.0	478.2	448.5	872.2	2258.5	705.9
Flat						
Plates	154.9	559.3	266.2	300.7	491.3	420.5
H R Coils/Sheets	2130.2	1374.7	446.6	2952.5	2838.5	2608.7
C R Sheets/Coils	560.6	584.7	655.2	1393.7	1230.5	642.1
GP/GC Sheets	1821.7	1629.3	1420.2	1715.8	1144.6	982.9
Elec. Sheets	9.9	9.9	19.3	44.7	90.1	47.5
Tinplates	70.1	46.9	56.4	55.6	37.1	39.7
Tin Free Steel	0.5	0.3	0.9	1.7	2.0	2.0
Pipes	109.3	223.1	162.1	247.5	634.6	323.6
Total Flat	4857.4	4428.1	3026.9	6712.2	6468.6	5067.0
Total Fin. Steel (Non-Alloy)	5508.4	4906.3	3475.3	7584.3	8727.0	5772.9
Total Steel (Non-Alloy)	5992.6	5544.0	4111.1	8768.7	10689.5	7922.7
Non-Flat Alloy/Stainless	227.9	336.1	165.3	190.3	523.3	277.1
Flat Alloy/Stainless	249.1	353.3	438.7	468.1	370.1	311.0
III. Total Finished Steel (Alloy/Stainless)	477.0	689.4	604.0	658.4	893.4	588.0
IV. Semi-Finished (Alloy/Stainless)	2.0	1.9	3.1	7.7	31.2	33.1
Total Steel (Alloy/Stainless)	479.0	691.3	607.1	666.1	924.6	621.1
Total Fin. Steel (Non-Alloy+Alloy)	5985.3	5595.7	4079.3	8242.7	9620.4	6361.0
Total Steel (Non-Alloy + Alloy)	6471.6	6235.4	4718.1	9434.8	11614.1	8543.8
IV. PIG IRON	943.1	540.0	297.2	386.8	518.3	318.6
V. SPONGE IRON	74.0	98.0	127.2	130.3	389.8	617.8

Source: JPC; * Provisional



ANNEXURE - XI

CATEGORY-WISE IMPORT OF IRON & STEEL

('000 tonnes)

Sl.No.	Category	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19*
I	Semi-finished Steel(Non-Alloy)						
	Semis	43.2	331.3	512.1	391.9	421.9	361.8
	Re-rollable Scrap	208.1	329.2	426.3	343.5	424.5	417.2
	TOTAL	251.3	660.6	938.4	735.4	846.4	779.1
II	Finished Steel(Non-Alloy)						
	Non-Flat						
	Bars & Rods	294.3	854.3	621.4	419.4	243.2	349.1
	Structurals	43.0	52.9	24.6	64.3	36.7	46.1
	Rly.Materials	4.4	15.5	11.7	38.5	28.8	67.2
	TOTAL Non-Flat	341.6	922.7	657.6	522.1	308.7	462.3
	Flat						
	Plates	409.9	731.7	1059.7	739.7	573.8	431.1
	HR Sheets	102.1	78.6	105.1	38.6	19.2	1.9
	HR Coils/Skelp/Strips	1104.3	2006.3	3400.6	1904.9	1751.2	1950.8
	CR Coils/Sheets	1278.9	1713.5	2235.1	917.3	542.6	565.3
	GP/GC Sheets	368.1	444.1	586.2	566.5	1155.1	1216.5
	Elec.Sheets	346.5	417.9	318.2	296.9	606.2	703.2
	TMBP	0.8	1.4	3.8	1.0	1.5	7.4
	Tin Plates	188.4	217.7	170.5	249.2	192.0	192.0
	Tin Free Steel	56.5	87.3	80.6	29.0	67.3	77.4
	Pipes	101.4	132.4	100.8	99.0	419.1	336.4
	TOTAL Flat	3956.9	5830.8	8060.7	4842.0	5328.0	5482.1
	TOTAL Fin. Steel (Non-Alloy)	4298.6	6753.5	8718.2	5364.1	5636.7	5944.4
	TOTAL STEEL (Non-Alloy)	4549.9	7414.1	9656.6	6099.5	6483.2	6723.5
	Alloy/Stainless Steel						
	Non-Flat	236.6	821.8	1119.5	467.7	442.5	591.1
	Flat	914.6	1744.9	1874.5	1392.6	1403.7	1299.6
	Semi-finished	7.1	35.8	42.4	10.2	71.0	175.4
	TOTAL FIN. STEEL (Alloy/Stainless)	1151.2	2566.8	2993.9	1860.3	1846.2	1890.7
	TOTAL STEEL (Alloy/Stainless)	1158.3	2602.5	3036.3	1870.5	1917.2	2066.0
	TOTAL FIN. STEEL (Alloy+Non-Alloy)	5449.8	9320.3	11712.2	7224.4	7482.9	7835.1
	TOTAL Steel (Non-Alloy + Alloy)	5708.2	10016.6	12692.9	7970.0	8400.3	8789.5
III	Other Steel Items						
	Fittings	298.0	419.4	482.5	470.7	205.1	189.8
	Misc.Steel Items	3402.9	2327.3	1902.4	1329.4	1550.5	1121.0
	Steel Scrap	4926.7	5784.3	6627.1	5365.0	4744.4	6555.2
IV	Iron						
	Pig Iron	34.2	23.4	21.9	34.1	16.3	66.9
	Sponge Iron	7.3	20.1	0.2	1.3	77.8	43.9
	H.B.Iron	0.0	0.0	0.8	0.0	0.0	0.0
V	Ferro-Alloys	140.5	242.2	237.4	575.9	589.0	579.7
	GRAND TOTAL	14517.8	18833.3	21965.3	15746.5	15583.4	17345.9

Source: JPC; * Provisional

ANNEXURE - XII

POSITION OF IMPLEMENTATION OF THE JUDEGEMENTS / ORDERS OF THE CENTRAL ADMINISTRATIVE TRIBUNAL

Ministry of Steel

Three OAs were filed by S/Shri A.K. Mishra, Assistant Industrial Adviser, S.S. Tak, Joint Industrial Adviser (Retd.) and Mukesh Kumar, Under Secretary before the Learned Central Administrative Tribunal (CAT) (Principal Bench, New Delhi) separately regarding service matters. All the OAs have been contested by the Ministry and CAT has given the judgements in favour of Ministry of Steel.

Steel Authority Of India Limited (SAIL)

Bokaro Steel Plant

(a) OA No.51/00173/2017: The Hon'ble CAT, Ranchi vide order dated 07.11.2017 directed SAIL/BSL to pass reasoned order on the representation of Shri Ajay Kumar. SAIL/BSL vide letter dated 31.01.2018 informed Shri Ajay Kumar that his request and representation has been rejected. Shri Ajay Kumar had filed a Contempt case no.CP/051/00017/2018 before Hon'ble CAT, Ranchi against Chairman, SAIL for non-compliance of order dated 07.11.2017. However, in view of reply dated 31.01.2018 of SAIL/BSL, Hon'ble CAT, Ranchi dropped the contempt case vide order dated 22.10.2018.

(b) OA NO.94/2015: Shri Niraj Kumar and others filed application no.OA/050/00094/2015 before Hon'ble CAT, Patna Bench for their regularisation in SPU, Bettiah. Hon'ble CAT vide order dated 26.05.2016 dismissed the application as devoid of merit. However, Hon'ble CAT in the said order advised SAIL to complete the vigilance investigation within a period of one year and arrive at a conclusion.

Thereafter, Shri Niraj Kumar and others filed a contempt case no.CP/50/11/2018 against SAIL before Hon'ble CAT, Patna Bench. The said contempt was dropped by Hon'ble CAT vide order dated 22.02.2018.

Subsequently, Shri Niraj Kumar and others filed a writ bearing no.13380/2018 before Patna High Court for quashing of order dated 22.02.2018 (contempt matter) and 26.05.2016 of Hon'ble CAT, Patna Bench. The matter is pending for filing of reply by SAIL.

KIOCL LTD.

The following cases are pending before the Central Administrative Tribunal (CAT) and High Court:

1	OA	575-579/ 2013	Shri 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 continuation of the applicants in the service of KIOCL. The tribunal allowed the petition and company has filed writ petition No.17566-67/2014 before High Court and the same is pending.
2	OA	170/ 001885/ 2018	Shri K. Vadiraja Rao	Vs	Union of India & others	Sri K. Vadiraja Rao, was transferred to Kaliapani by order dated 14.12.2018 for a period of 3 months. He challenged the same by filing OA before CAT Bangalore. CAT granted interim order but on 29.01.2019 disposed the OA with a direction that he should be relieved on 08.02.2019 and join at Kaliapani on 11.02.2019 and again he should be re-transferred to Mangalore on 10.05.2019 and join at Mangalore by 13.05.2019. Accordingly, he has been transferred.



3	WP	45483/ 2018	The Kudremukh Iron Ore Company Limited and another	Vs	Shri Shaikh Rahamathulla	Mr Shaikh Rahamatulla, ex-Sr Manager (Stores) was removed from the service of the company on the ground of his failure in handling the pilferage of coke during the transportation. He had challenged the Order of Central Administrative Tribunal which has upheld the order of removal from service by filing W.P 8747/2013. Hon'ble High court set aside the order of CAT and quashed the removal order. KIOCL reinstated Rahamathulla without back wages. An enquiry was initiated against Rahamatulla. He was removed from the service on 30.05.2015. Against this, he filed O.A.No.170/00736/2015 for quashing the enquiry and punishment. CAT by Order 03.09.2018 allowed the OA and granted back wages and cost of ₹10,000/-. Against this, KIOCL filed WP challenging the order and obtained stay order.
4	WP	6103/ 2019	Union of India & others	Vs	Sri Narayan Singh	Sri Narayan Singh met with an accident while on duty. He was not fit to discharge the duty in the Mining Department, and he was transferred to Pollution Control Department. He submitted the representation on 9.11.2012 for promotion. Management rejected the representation stating that he has already being offered alternative job. Against this endorsement, he filed OA No.388/2014 for quashing the same and for direction to promote him with effect from 1.11.2002 with all benefits. CAT allowed the OA by its order dated 25.10.2018 and KIOCL filed WP challenging the order. High Court granted stay of the order.

ANNEXURE - XIII

COMPARATIVE PBT (PROFIT BEFORE TAX) OF STEEL PSUs

(Rs. in crores)

Sl. No.	PSU/Company	2014-15	2015-16	2016-17	2017-18	2018-19*
1	SAIL	2358.91	(-)7198.44	(-)4851.00	(-)758.94	3337.89
2	RINL	103.35	(-)1417.23	(-)1690.49	(-)1911.45	(-)324.82
3	NMDC	9767.84	4092.02	4292.92	6179	7198
4	MOIL	650.57	270.26	461.90	647.92	719.75
5	MSTC	131.47	91.34	96.61	111.6	(-)269.21
6	FSNL	25.36	32.53	36.22	13.04	41.09
7	OMDC\$	25.84	18.91	12.36	(-)258.17	(-)638.11
8	EIL ##	(-)12.62	1.71	1.16	0.67	0.10
9	MECON	33.01	(-)174.70	(-)88.14	43.99	11.18
10	KIOCL	31.26	(-)89.67	31.22	86.09	184.12
11	BSLC\$	(-)27.27	(-)16.17	(-)17.74	(-)10.52	(-)28.12

* Provisional

Eastern Investment Ltd. (EIL), \$ Orissa Mineral Development Company Limited (OMDC), Bisra Stone Lime Company Limited (BSLC), are constituents of the Bird Group of Companies.



ANNEXURE-XIII (A)

COMPARATIVE PAT (PROFIT AFTER TAX) OF STEEL PSUs

(Rs. in crores)

Sl. No.	PSU/Company	2014-15	2015-16	2016-17	2017-18	2018-19*
1	SAIL	2092.68	(-)4137.26	(-)2833.00	(-)481.71	2178.82
2	RINL	62.38	(-)1420.64	(-)1263.16	(-)1369	77.67
3	NMDC	6421.86	2712.22	2589.14	3806	4642
4	MOIL	428.01	172.98	305.83	421.99	473.89
5	MSTC	90.99	59.88	65.43	76.63	(-)324.47
6	FSNL	17.10	21.11	23.75	8.07	26.69
7	OMDC\$	17.7	10.63	5.86	(-)252.95	(-)451.63
8	EIL ##	(-)12.72	1.44	0.85	0.35	(-)0.02
9	MECON	20.27	(-)162.41	(-)83.84	58.00	15.87
10	KIOCL	30.82	(-)80.15	47.93	81.48	111.86
11	BSLC\$	(-)27.27	(-)16.17	(-)17.74	(-)10.52	(-)28.12

* Provisional

Eastern Investment Ltd. (EIL), \$ Orissa Mineral Development Company Limited (OMDC), Bisra Stone Lime Company Limited (BSLC), are constituents of the Bird Group of Companies.

ANNEXURE - XIV

CONTRIBUTION MADE TO THE CENTRAL GOVERNMENT AND GOVERNMENT INSURANCE COMPANIES BY THE STEEL PSUs

(Rs. in crores)

Sl. No.	PSU/Company	2014-15	2015-16	2016-17	2017-18	2018-19*
1	SAIL	7667.00	5373.00	6951.00	6894	10916
2	RINL	1428.96	1397.53	1501.43	1810.32	2518.12
3	NMDC	6681.00	6655.78	10646	4435	5376
4	MOIL	230.29	201.23	254.97	262.07	381.15
5	MSTC	84.70	70.37	78.16	80.00	91.26
6	FSNL	41.11	42.87	49.68	38.67	36.32
7	MECON	87.48	86.62	77.94	87.15	130.19
8	KIOCL	110.79	37.54	58.78	71.68	53.32
9	OMDC	1.03	2.75	2.38	1.46	2.50
10	BSLC	0.41	0.75	0.73	0.76	1.20

*Provisional

ANNEXURE-XIV (A)

CONTRIBUTION MADE TO THE STATE GOVERNMENTS BY THE STEEL PSUs

(Rs. in crores)

Sl. No.	PSU/Company	2014-15	2015-16	2016-17	2017-18	2018-19*
1	SAIL	3443.00	3124.00	3292.00	2402.00	2604
2	RINL	514.91	556.37	531.59	584.66	767.37
3	NMDC	1262.00	1070.67	1332	2381	1726
4	MOIL	69.41	62.17	90.70	148.5	123.43
5	MSTC	68.63	67.10	31.86	28.00	24.43
6	FSNL	1.40	0.32	0.71	11.30	18.40
7	MECON	1.62	1.77	0.39	5.87	6.92
8	KIOCL	6.13	2.33	0.51	0.07	1.11
9	OMDC	0.94	1.75	0.42	40.34	550.71
10	BSLC	0.99	4.95	7.14	7.17	6.05

*Provisional



ANNEXURE-XV

BUDGET AND EXPENDITURE ON CSR BY STEEL PSUs

(Rs. in lakhs)

PSU Company	2014-15		2015-16		2016-17		2017-18		2018-19	
	Budgeted	Exp.	Budgeted	Exp.	Budgeted	Exp.	Budgeted	Exp.	Budgeted	Exp.
SAIL	7800.00	3504.00	10016.00	7616.00	2934.00	2905.00	2600	2570	3000	3118
RINL	1423.00	1404.00	1137.00	873.00	748.00	852.68	778.00	960.00	850	1030
NMDC	25018.69	18865.00	29820.00	21009.00	24832.00	17418.00	19516.00	16937.00	20000	16724
MOIL	1419.00	1358.00	1430.00	1447.00	1127.00	1143.10	922.00	962.00	925	929
MSTC	120.00	120.00	145.00	150.26	80.00	80.44	214.00	215.00	200	200
FSNL	25.27	22.10	26.80	26.83	51.16	77.29	63.36	63.48	65.00	66.44
MECON	468.23	144.46	491.51	221.08	270.43	67.30	203.12	42.32	229.00	16.92
KIOCL	109.92	101.11	96.50	64.00	43.50	38.19	15.98	15.98	39.64	32.51
OMDC	34.18	31.39	73.00	72.99	46.00	45.45	70.99	35.19	35.80	23.06
BSLC	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

* Provisional

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

Grants Released for R&D under the Scheme “Promotion of Research & Development in Iron & Steel Sector”

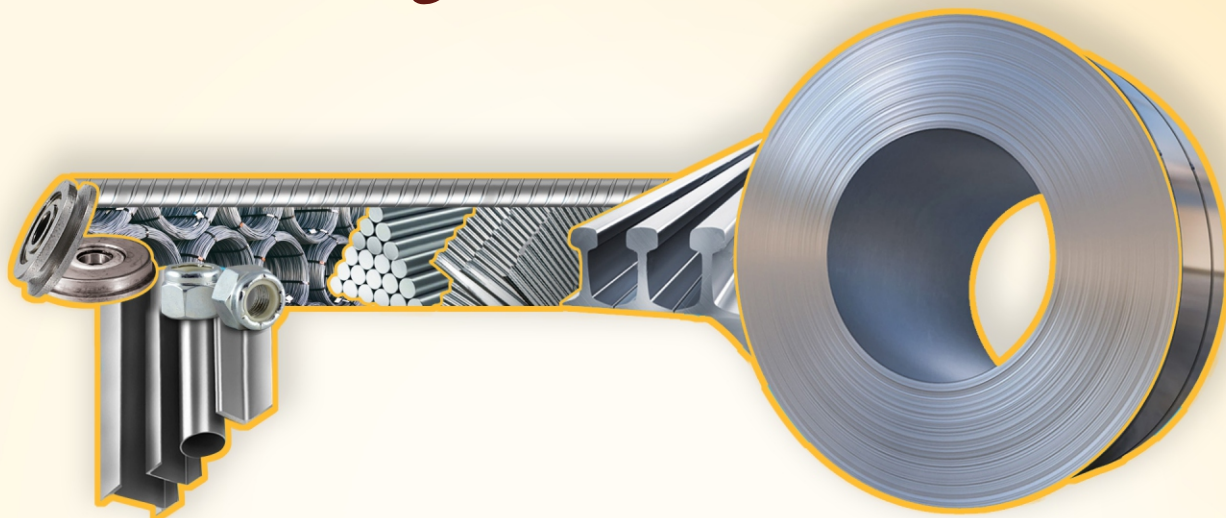
Sl. No.	Title of the R&D project	In Rs Lakhs		
		2018-19		
		Total	Capital	Revenue
1	Development of Automation System for Optimum Coal Blending at Coal Handling Plant of Coke Oven Batteries by RDCIS	147.00	138.50	8.50
2	Development of Dry Slag Granulation Technology and Energy Recovery System for Blast Furnace Slag for Producing Clinker Compatible Product by IIT Madras & JSW	29.43	7.43	22.00
3	Development of infrared camera based torpedo ladle car condition monitoring system by MECON	19.50	0.00	19.50
4	Development of nickel free nitrogen austenitic stainless steel for biomedical applications by IIT BHU	28.06	0.00	28.06
5	Development of Fluidised Bed Reduction Roasting Process for slimes & low grade iron ores by utilizing thermal grade coal for their magnetic susceptibility properties and maximizing the iron recovery by IIT Madras & JSW Steel	21.06	8.00	13.06
6	Production of low Carbon & low Phosphorus Ferromanganese by metallothermic treatment of high Manganese Slag using Silicomanganese by NML Jamshedpur.	34.00	0.00	34.00
7	Reduction Roasting and Microwave Heating of some difficult to treat Ores for the production of Pellet Feed Concentrate by IMMT Bhubaneswar	30.00	10.00	20.00
8	Modeling & Optimization of High Concentration Iron Ore fines /concentrate slurry Pipelines for Indian Iron Ore Processing Industries by IMMT Bhubaneswar & NMDC Ltd.	64.50	43.50	21.00
9	Development of a cost effective green technology for Pre Reduction of Chromite Ore in Tunnel Kiln and Production of High Carbon Ferro Chrome in SAF by NISST, NML & MECPL	70.02		70.02
10	A Novel Approach of Making Green Belite Cement from Electric Arc Furnace Steel Making Slag by IIT Kharagpur	12.96		12.96
11	Amorphous Electrical Steel (AES) for Energy Application submitted by NML Jamshedpur	135.49	135.49	
12	Development of Design Guidelines and Specifications for utilization of steel slag in road construction by CRRRI	286.50	286.50	0.00
13	Development of super alloy grade 625 & 825 for commercial market by MIDHANI	200.00	200.00	0.00
14	Optimisation of floatation process for Indian Coking Coal using advanced Pneuflot Floatation Cell by IMMT	74.74	40.00	34.74
15	Fundamental process engineering to minimize re-oxidation of steel during teeming via a ladle shroud leading to improved castability and cleanliness by IIT Kanpur	130.25	87.88	42.37
16	Conversion of emitted CO ₂ to chemical fuels by IMMT	49.45	30.00	19.45
17	Development of newer Cementitious Materials using Chemically Activated LD Slag by CBRI	120.00	85.00	35.00
18	Integrated cost effective technology for attaining Zero liquid discharge in steel plants with emphasis on slag utilization by CIMFR	12.12	5.00	7.12
19	Synthesis of Kudremukh Iron Ore Mine Tailings based Geopolymer Aggregate using Fly Ash as Precursor in Construction Industry by KIOCL	11.20	11.20	
20	Waste Management of Generated Sludge from Indian Steel and Steel Related Plants: A Sustainable Business Model by BITS Pilani	23.72	11.50	12.22
	Total	1,500.00	1,100.00	400.00

SAIL has supplied 12,000 metric tonnes of steel (more than 50% of total steel) & RINL has supplied 3,500 metric tonnes of steel



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