

Annual Report 2019-2020



*Ispati Irada
for \$5 Trillion
Economy*



सत्यमेव जयते

Ministry of Steel
Government of India

SAIL supplied
around 35,400 tonnes of steel
for Bogibeel Bridge



Annual Report
2019-20

ANNUAL REPORT 2019-20



Ministry of Steel
Government of India



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CHAPTER-I HIGHLIGHTS

1.1 TRENDS AND DEVELOPMENTS IN STEEL SECTOR

- India is currently the world's 2nd largest producer of crude steel in January-December, 2019, producing 111.245 Million Tonnes (MT) (provisional) crude steel with growth rate 1.8% over the corresponding period last year (CPLY).
- India is the largest producer of Direct Reduced Iron (DRI) or Sponge Iron in the world in January-December 2019, producing 36.86 Million Tonnes Sponge Iron with growth rate 7.7% over the corresponding period last year (CPLY).
- The country is also likely to become the 2nd largest consumer of finished steel in 2019, preceded by China as the largest steel consumer (2019: 900 mt) as per the Short-Range Outlook, October, 2019 edition of World Steel Association.
- Capacity for domestic crude steel production expanded from 109.85 Million Tonnes Per Annum (MTPA) in 2014-15 to 142.24 MTPA in 2018-19, a Compounded Annual Growth Rate (CAGR) of 6.8% during this five-year period.
- Crude steel production grew at 7.6% annually (CAGR) from 88.98 MTPA in 2014-15 to 110.92 MTPA in 2018-19.
- During April – December, 2019 (provisional; source: JPC), the following is the industry scenario as compared to same period of last year:
 - a. Production of crude steel was at 82.192 Million Tonnes, up by 0.4%. SAIL, RINL, TSL, Essar, JSWL & JSPL together produced 46.752 Million Tonnes with a share of 57% and down by 0.4%. The rest 35.44 Million Tonnes came from the Other Producers, up by 1.5%.
 - b. With an 81% share, the Private Sector, producing 66.85 Million Tonnes, (up by 1.2%) led crude steel production compared to the 19% contribution of the PSUs.
 - c. Pig iron production was 4.314 Million Tonnes, down by 14.3%. The Private Sector accounted for 88% of the same, the rest 12% being the share of the Public Sector.
 - d. In case of total finished steel (non-alloy + alloy/stainless):
 - Production stood at 76.33 Million Tonnes, a growth of 1.8%.
 - Exports stood at 6.52 Million Tonnes, up by 39.4%.
 - Imports stood at 5.51 Million Tonnes, down by 6.7%.
 - India was a net exporter of total finished steel.
 - Consumption stood at 75.05 Million Tonnes, a growth of 3.8%.

- Data on production, consumption, import and export of total finished steel (alloy + nonalloy) and production of crude steel from 2014-15 to April – December, 2019 (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	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
Finished Steel						
Production	104.578	106.602	120.140	126.855	101.287#	76.326# (1.8)
Imports	9.320	11.712	7.226	7.482	7.834	5.51 (-6.7)
Export	5.596	4.079	8.242	9.620	6.361	6.52 (39.4)
Apparent Steel Use	76.994	81.525	84.042	90.708	90.708	75.05 (3.8)
Crude Steel						
Production	88.979	89.790	97.936	103.131	110.921	82.192 (04)

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

* Provisional; for April- December, 2019 # Crude steel equivalent

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

The Government's vision to achieve a \$5 trillion economy by 2024 entails investments in several steel intensive sectors like infrastructure, housing for all, 100% electrification, piped water for all, etc. The growth potential for the sector is thus immense and the domestic steel consumption will increase significantly in line with this vision. It is, therefore, important to ensure that this demand is served through a robust domestic steel industry. The Ministry of Steel alongside the CPSEs have, therefore, undertaken several initiatives to create a globally competitive steel sector.

1.2.1 Chintan Shivir – Collaborative platform to identify key thrust areas for the industry

The Indian steel sector is a diverse and vibrant ecosystem comprising of a multitude of stakeholders across the value chain. Each stakeholder brings valuable inputs to the sector based on their rich experience. In order to leverage these experiences and ensure efficient operationalization of the envisioned initiatives, the Ministry regularly facilitates interaction with the various stakeholders. Along these lines, the Chintan Shivir was organized on 23rd September 2019, as a collaborative platform to bring together all stakeholders of the Indian steel industry to address challenges, identify opportunities and arrive at tangible outcomes to steer the Indian steel industry on the path of sustainable growth. Over 900 stakeholders were part of this event. Over the course of the deliberations, 32 major challenges were identified. Additionally, 40 major suggestions were captured and 17 initiatives of the Ministry of Steel were discussed by the gathered participants.





Shri Dharmendra Pradhan, Hon'ble Union Minister of Steel giving inaugural speech during the 'Chintan Shivar' at Manekshaw Centre, Delhi Cantonment, New Delhi.

1.2.2 Make in Steel – Accelerating demand for steel: Committee of Secretaries note on increasing steel usage in construction and infrastructure

India's annual per capita steel consumption is 74 kg and is one-third the global average (224.5kg). India currently utilizes less steel intensive construction methodologies for buildings, roads and bridges and hence does not fully utilize the numerous benefits of steel intensive construction. A transition to steel intensive construction will also support India's rise to a \$5 trillion economy by 2024-25.

The Ministry of Steel held 50+ consultations with government agencies and private players to identify the various advantages of steel intensive construction and the measures required to bring about the transition.



Steel intensive construction is prevalent across the globe and an increase in steel use is strongly correlated with an economy's GDP growth, especially during the nation building phase. Steel's advantages over conventional construction methodologies such as lower life cycle cost, more durable and safer buildings, roads and bridges, reduced construction time, enhanced environmental sustainability and reduced air pollution without a significant rise in upfront cost ensures that economic development happens at a fast and environmentally sustainable pace. Furthermore, steel is a permanent material contributing to the circular economy due to its recyclable and reusable nature along with its reduced energy consumptions during the manufacturing phase and lower embodied carbon.

Ministry of Steel has prepared a Committee of Secretaries (CoS) note seeking approvals on various measures required to increase steel usage in the construction and infrastructure sectors in India and ensure that the Indian economy grows at a quick and environmentally sustainable pace.

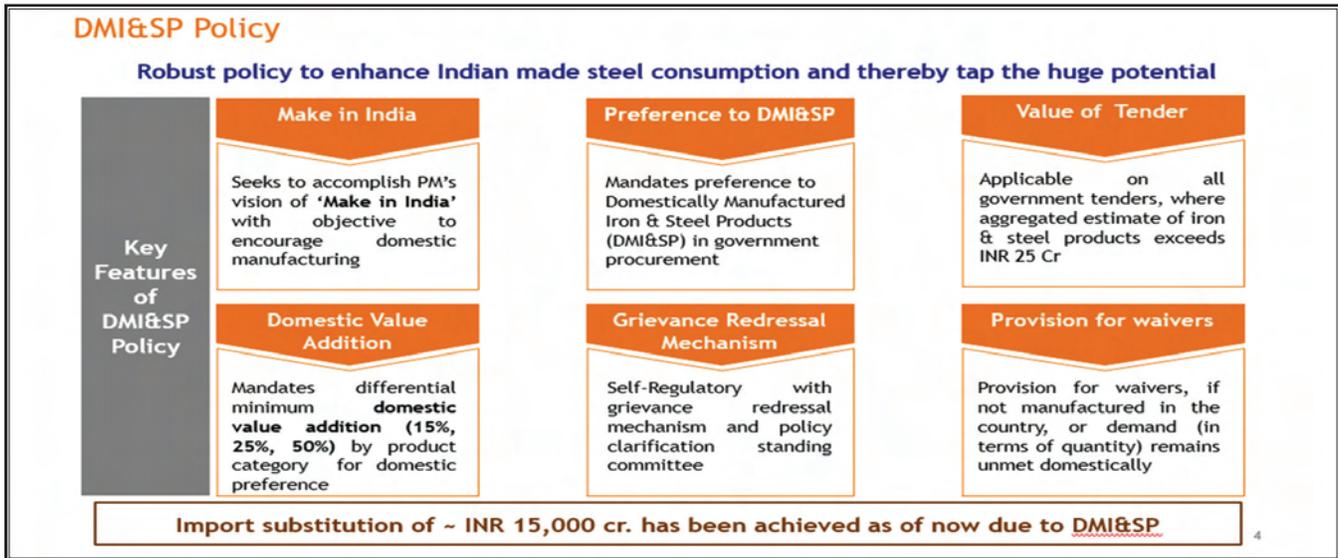
Enabling a transition to steel intensive construction requires a change in the General Financial Rules (GFR) mandating life cycle cost analysis for government projects during the design phase, and increasing steel intensive construction's coverage and depth in Bureau of Indian Standards (BIS) life cycle and building design codes. Furthermore, modifications in Ministry of Road Transport and Highways (MoRTH) guidelines to mandate life cycle cost analysis for roads and bridges and inclusion of pre-approved steel intensive bridge designs will also promote steel intensive roads and bridges. Inclusion of steel intensive construction and work rates in CPWD Plinth Area Rate (PAR) and Delhi Schedule of Rates (DSR) will enable faster approvals for steel intensive construction due to easier cost estimates of projects. Ensuring implementation of IRC guidelines for crash barrier installation and regular checks will reduce fatal vehicle accidents.

Significant opportunities exist to increase steel intensive construction in India

 <p>Framework of Life Cycle Cost</p> <ul style="list-style-type: none"> • "May" to "Shall" in GFR rules 136 (I)(iii) to mandate life cycle cost analysis • Updating the life cycle cost BIS code (IS 13174) 	 <p>Construction Design Codes/ Schedule Rates</p> <ul style="list-style-type: none"> • Updating steel intensive construction BIS codes to include modern • Inclusion of steel intensive construction Plinth Area Rate in CPWD PAR 	 <p>Road, bridge construction guidelines/codes</p> <ul style="list-style-type: none"> • Modification in MoRTH guidelines to conduct LCC analysis • Inclusion of pre approved steel bridge designs in MoRTH guidelines 	 <p>CPWD Delhi Schedule of Rates (DSR)</p> <ul style="list-style-type: none"> • Inclusion of steel construction item and work rates in the CPWD-Delhi Schedule Rate (DSR) • Including items in CPWD DSR
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1.2.3 Make in India: Boost domestic manufacturing through the Domestically Manufactured Iron & Steel Products Policy (DMI& SP)

Ministry of Steel has recently amended the Domestically Manufactured Iron & Steel Products Policy (DMI& SP) in order to increase domestic sourcing of iron & steel products by Central Government agencies. Through this DMI & SP policy, Steel imports worth more than Rs. 15,000 cr. have so far been avoided.



1.2.4 Ispati Irada – To encourage steel usage

Ministry of Steel has launched a collaborative branding campaign with the objective of promoting the benefits of steel usage in various facets of nation building and how it impacts the lives of citizens in the country. The brand elements for this campaign may be leveraged by various organizations like State Governments, State PSUs, private companies, non-profit organizations basis certain pre-defined guidelines being defined by the Ministry of Steel.



1.2.5 Capacity Creation

As demand increases, ensuring a self-sufficient steel ecosystem will necessitate further steel capacity addition and value addition in the country. The Ministry has initiated work on two key initiatives to enable this:

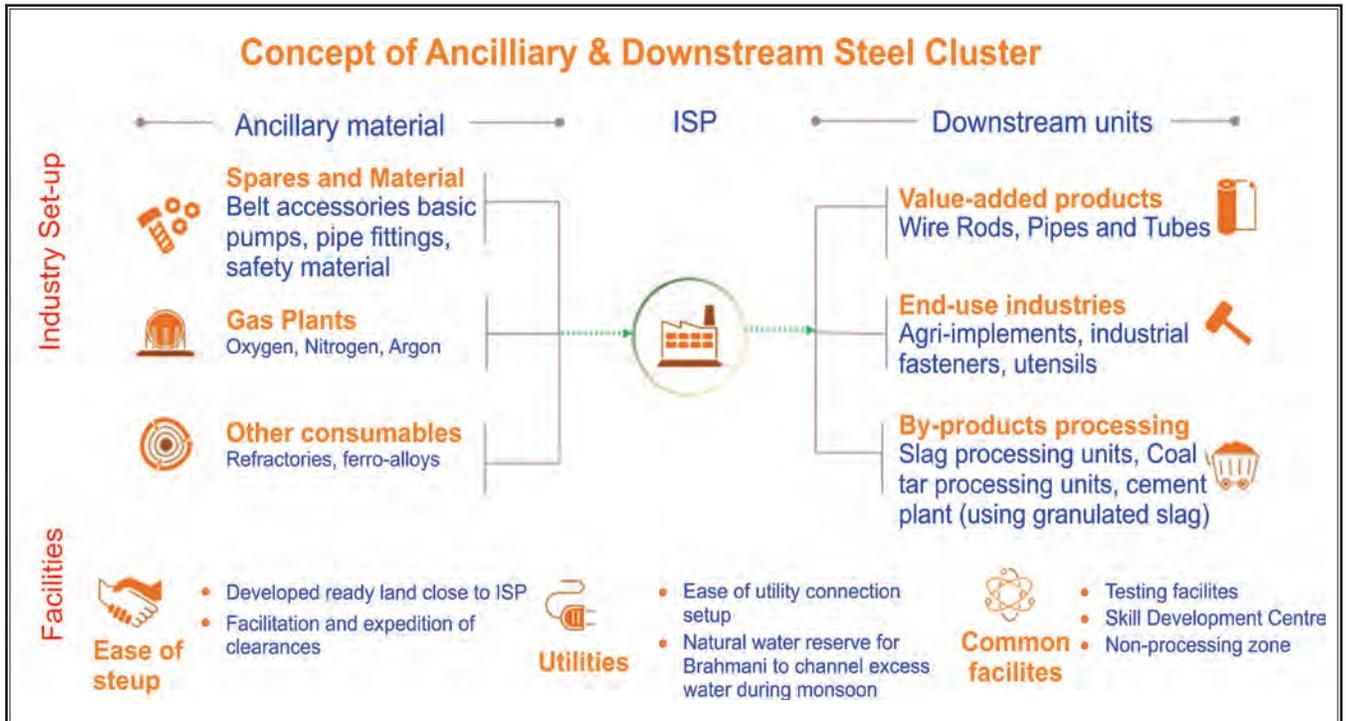
- Policy for development of Steel Clusters:**

In an endeavour to meet the steel demand of 160 MTPA by 2024-25 which will be arising out of India's vision of \$5 Trillion economy, Ministry of Steel has formulated a Framework Policy for development of Steel Clusters in the country.

The aim of the policy is to create a model eco-system for development of secondary steel and steel ancillary units to promote self-sufficiency, drive cost competitiveness and generate employment opportunities.

A steel cluster will be a defined region with co-located units across the value chain - with ancillary and secondary steel units around the steel producers, located either near the source of raw material (Integrated Steel Plant) or near the demand centre. It will also help in creation of an eco-system with robust logistics infrastructure, physical infrastructure and common facilities.





Benefits of the steel cluster will accrue to multiple stakeholders. While it will help the units improve their cost competitiveness and quality of production, it will also help State Government shift their reliance from mining to manufacturing, along with increase in investment, tax revenue and employment opportunities in the state.

The Ministry of Steel has initiated creation of the Eastern steel hub in line with the Hon'ble Prime Minister's larger Mission Purvodaya targeted at accelerated growth of the Eastern region. The eastern states of India (Odisha, Jharkhand, West Bengal, Chhattisgarh, and North Andhra Pradesh) are home to ~80% of the Indian iron reserves. Additionally, they have access to important logistic infrastructure such as ports (Paradip, Haldia, Dhamra, Gopalpur, and Vizag), inland waterways and slurry pipelines. Therefore, for the envisaged expansion of Indian steel sector, the Eastern hub will serve as the engine driving the growth of the Indian steel sector. At the same time, this will help drive investments, employment and improve the standard of living for the people in these regions. Steel will thus be a major driver for the development of these regions.

This hub will drive best in class capacity creation, augment value addition and boost competitiveness through the setting up of Greenfield steel plants, clusters, capital goods and requisite logistics infrastructure. It will act as a pilot location for strategic initiatives being undertaken by the Ministry of Steel.



JPCs covered “Study on End-Use Segment-wise steel demand”, formally released by Shri Dharmendra Pradhan, Hon’ble Union Minister of Steel at Kolkata.

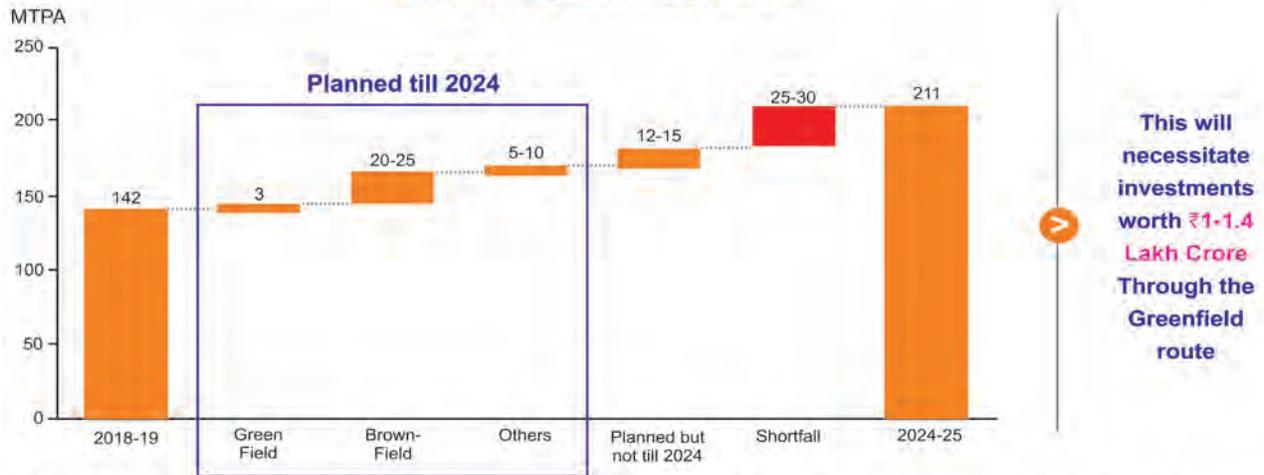
- **Policy for promotion of Greenfield investments in the steel sector:**

The steel industry in India is well established and has recorded a steady growth over the past 5 years. The demand for finished steel has consistently grown at 5.6% over the past 5 years reaching 99 MTPA in 2018-19. In accordance with this, crude steel capacity in the country has also increased to 142 MTPA.

However, going forward, the domestic steel consumption would need to increase significantly to ~160 MTPA by 2024-25 in line with India’s vision to become a \$5 Trillion economy. Current planned capacity expansions of existing players is expected to add approximately 28-30 MTPA by 2024-25. To meet the increased demand, an additional capacity of 25-30 MTPA would be required. In order to achieve such a substantial expansion in steel capacity, it would be imperative to enable set up of Greenfield steel plants with investments to the tune of ~ Rs. 1-1.4 Lakh Crore.



25-30 MTPA capacity needed in addition to planned capacity expansions to meet this ambitious vision



1. Tata steel is expected to complete the remaining 1 MTPA of Jamshedpur capacity expansion in FY20. 2. While 5 MTPA Kalinganagar and 2.7 MTPA Dhenkanal capacities (Bhushan) are expected to be commissioned by FY23. 3. JSW Steel to complete 1 MTPA Vijayanagar capacity expansion along with 5.7 MTPA Dolvi expansion by FY21, another 5 MTPA capacity expansion at Vijayanagar plant is expected to be done by FY23. 4. Electrosteel is expected to expand its current 1.5 MTPA capacity to 2.5 MTPA by fiscal 2021. Other potential additions include Electrosteel (4.5 MTPA)-Bhushan power and steel (2MTPA), Rungta Steel (1.5 MTPA), Essar Steel (2.5 MTPA) and Neelachal Ispat (4MTPA), however, other potential capacity additions have been estimated at 4-6 MTPA as the commissioning of the aforementioned capacities will depend on the cyclical nature of the steel demand over the next five years.

Over the past few years, most of the capacity expansion in the country has been through the brownfield route. Greenfield investments have been impacted by high project risk for the investors, leading to slow offtake. Therefore, the Ministry of Steel is working on a policy framework for promoting Greenfield steel plants (envisioned as part of the National Steel Policy 2017) in the country. Through this policy framework, the Ministry is aiming to facilitate four key elements for interested players to set up Greenfield capacity – availability of encumbrance free land, long term availability of iron ore at competitive price, statutory clearances and logistics infrastructure. These will help reduce project risk and increase investor confidence enabling more investment in the sector in States.

Policy will enable support across 4 key area to help facilitate Greenfield expansion in the country



Possession of unencumbered land



Availability of iron ore at competitive market rates



Time bound granting of clearances



Facilitation of logistics linkages

1.2.6 Promotion of availability of quality steel

Steel and Steel Products (Quality Control) Order: To promote quality steel production by the steel industry, Ministry of Steel has made adoption of BIS Standards mandatory through regulations known as Quality Control Order. The Quality Control Order facilitates supply of quality steel for critical end-use applications such as infrastructure, construction, housing, engineering sector etc. and also the public at large. The Quality Control Order prohibits import, sale and distribution of substandard steel and steel products. Ministry of Steel is the leading Ministry with maximum coverage of products under the BIS certifications marks scheme. Ministry of Steel has notified the Steel Quality Control Order 2019 on 22nd July 2019 to include 13 additional steel products standards to take the overall steel products standards covered under Quality Control Order to 66.

1.2.7 Promotion of Safety in the Iron & Steel sector

Creation of a safe working environment in the Indian steel sector is one of the key initiatives to ensuring the creation of a world class steel ecosystem in the country. Ministry of Steel has formulated 25 Safety Guidelines for the Iron & Steel sector which are based on specific activities/ hazards, after extensive consultations with the experts from the industry, associations & academia of repute. Ministry of Steel has proactively worked in identifying the hazards that prevails in the iron & steel making industry and measures to be adopted to eliminate accidents. These 25 Safety Guidelines has been uploaded on Ministry of Steel's website on 14th October 2019 and the iron & steel industry has been encouraged to adopt these guidelines.

1.2.8 R&D Scheme through financial assistance from Government Budget:

Ministry of Steel is operating an R&D scheme viz. "Promotion of R&D in Iron & Steel Sector", for providing financial assistance for pursuing R&D, to address the technological issues faced by the sector and also indigenous development of processes/ technologies. R&D Project Proposals are invited from reputed Academic Institutions/ Research Laboratories and Indian Steel Companies for pursuing R&D projects for the benefit of the Iron & Steel Sector in the country. Ministry of Steel is also funding 50% (Rs. 5.52 crore) in 3 R&D projects being pursued under the IMPRINT Scheme of MHRD.

New R&D Projects approved

- Development of a cost-effective refractory lining materials for induction melting furnace suitable for production of quality steel: phase-II (Industrial Trials)" by NISST, CSIR-CGCRI & CSIR-NML.
- Indigenous development of Austempered Ductile Iron technology for use in automobile & agricultural industries in India by PEC Chandigarh.

R&D Projects completed

- Development of Automation System for Optimum Coal Blending at Coal Handling Plant of Coke Oven Batteries by RDCIS, SAIL.
- Production of low Carbon & low Phosphorus Ferromanganese by metallothermic treatment of high Manganese Slag using Silicomanganese by CSIR-NML Jamshedpur.

1.2.9 Trade Measures – To improve India's trade balance for steel

Trade has always been an important component for steel sector in India and abroad. Globally, exports have constituted 25- 30% of finished steel production over the past 35 years. As capacity increases and the steel ecosystem becomes more evolved in the country, improving trade balance for the steel sector will be crucial. Hence, the Ministry is undertaking multiple initiatives to improve the trade balance for the steel sector in the country. Some of these initiatives include:

- Steel Import Monitoring System (SIMS)**

In order to ensure that granular data like end-use, IS grade etc. regarding steel import is available in public domain, prior to the entry of such imports in India, a Steel Import Monitoring System (SIMS) has been put in place on lines of SIMA (Steel Import Monitoring & Analysis) in USA. SIMS has been notified by DGFT on 5th September 2019 and has become operational w.e.f. 1st November 2019. SIMS requires the importer to submit advance information online for import of 284 steel tariff line on 8-digit HS Code level wherein they get an automatic registration number for carrying out imports. A token registration fees has been prescribed for this purpose. SIMS has already proved to be useful to Indian domestic steel industry by providing advance steel import data containing information on exact grade of steel, end use, adherence to Indian Standards etc. these information's were up till unavailable both to the industry as well as the Government. SIMS data is making it possible for the Indian Steel industry to respond to the market conditions in a more dynamic manner and is a step towards import substitution.

- Safeguard Measures**

The Ministry of Finance (Department of Revenue), on recommendation of DGTR, has imposed following anti-dumping and countervailing duty on “High-Speed Steel of Non-Cobalt Grade” and “Welded Stainless Steel Pipes and Tubes”:

S. No.	Product Description	Product HS Code (Indicative)	Form of Duty	Period of Duty Imposition	Countries	Rate of duty
1.	High-Speed Steel of Non-Cobalt Grade	7228 10 10 or 7228 10 90	Anti-Dumping	25.09.2019-24.09.2024	China Brazil Germany	\$1902-3263 \$2147 \$2259
2.	Welded Stainless Pipes and Tubes	7306 69 00 7306 11 00 7306 21 00 7306 40 00 7306 61 00	Countervailing	17.09.2019-16.09.2024	China Vietnam	21.74%-29.88% 10.33% - 11.96%

1.2.10 Raw Materials- Ensuring raw material security for the steel sector

Raw material is a critical enabler for ensuring sustained growth in the industry. The industry faces challenges both in the short and long term in terms of raw material security across iron ore, coking coal and scrap. The Ministry is, therefore, working across these three elements to ensure raw material security for the sector. Key initiatives being driven across these areas are:

Disruption in supply of iron ore

A disruption in supply of 45-50 Million Tonnes (MT) iron ore is expected in 2020-21 owing to expiry of about 37 working merchant mines (250+ mines in total) on 31st March, 2020. Ministry of Steel along with Ministry of Mines has worked out a strategy to mitigate the likely shortfall in supply of 45-50 Million Tonnes (MT) iron ore after March 2020 by-

- Granting Permission to allow Steel Authority of India (SAIL) to:**

- Sell 70 Million MT of low-grade fines lying at the mine heads of captive mines of SAIL.
- Sell 25% of the total fresh quantity mined by SAIL from its captive mines.



- **Amendment made in Minerals (Mining by Government Company Rules) 2015 by Ministry of Mines:** Ministry of Mines, Govt. of India has amended the Minerals (Mining by Government Company Rules) 2015 and substituted 'may for reasons to be recorded' in Rule 3(2) and Rule 4(3) with 'shall for reasons to be recorded' vide Gazette Notification No. GSR695(E) on 27.09.2019. This will help the Steel CPSEs to get their mines renewed with certainty.
- Ministry of Steel has also submitted a proposal to Ministry of Mines for reducing the royalty on Iron ore fines from the existing 15% to 5% in order to incentivize beneficiation & palletisation as well as reduce the stockpile of low-grade fines dumped at mine heads.
- After getting permission from the Government of Jharkhand for sale of iron ore from its captive mines, SAIL, on 14th Nov 2019, has issued Notice for Online Forward Auction (OFA) for Sale of 0.5 MT fresh fines from Kiriburu and Megathaburu mines and 0.5 MT low grade fines from the stockpiles at Gua mines.
- Bailadila Deposit 4 in Chhattisgarh has been reserved by Ministry of Mines in favour of NCL (a JV of NMDC Limited and Chhattisgarh Mineral Development Corporation Ltd.) on 30.09.2019. The iron ore mined from this block shall help meet the requirements of Sponge Iron / Steel Plants in Chhattisgarh.
- **Noamundi Block Initiative:** Social indicators of the Noamundi Block in the West Singhbhum (Chaibasa) district Jharkhand are not reflective of the richness of area in terms of natural resources (iron ore). Large organizations like SAIL, TATA Steel etc. have significant experience that can be leveraged for social transformation in the region. Core team has been set up under the leadership of Deputy Commissioner, West Singhbhum with representatives from SAIL, TATA and Ministry of Steel. This program focuses on collaboration and convergence of efforts, resources, technology and thereby enabling people to participate in economy and governance.

Coking Coal

• Enhancing usage of domestic coking coal by Steel producers

- ❖ SAIL has been granted renewal of its Tasra coking coal mine by the Government of Jharkhand in Nov 2019. SAIL now plans to set up a 4 MTPA washery for this Coking Coal Block. SAIL has also drawn a plan for enhancing the capacity of Chasnalla Washery from the existing 1.3 MTPA to 4 MTPA.
- ❖ Request has been made to Ministry of Coal to consider granting long term linkage of raw coking coal to SAIL from Kalyaneshwari coking coal block allocated to BCCL. This coking coal shall be washed at SAIL's Chasnalla washery.
- On the request of Ministry of Steel, Ministry of Coal has agreed to allocate through the reservation route, Rabodih and Rohne coking coal blocks to RINL and NMDC respectively, for which these CPSEs shall be setting up washeries with 2.5 MTPA & 2.24 MTPA capacity respectively.

• Diversifying sources of Imported coking coal

- The total import of coking coal in the country is about 56 Million Tonnes, costing about Rs 72000 Cr. Out of this about 45 Million Tonnes is imported from Australia alone. Remaining quantity is imported from South Africa, Canada and USA. Attempt is being made to diversify the coking coal



import sources, by importing coking coal from Russia and Mongolia. To begin with, about 10 Million Tonnes coking coal shall be sourced from Russia and Mongolia by SAIL, RINL, JSW, JSPL and TSL in the next FY. Already two high level visits to Russia and Mongolia have been made by these Steel producers.

Digitization of Mines in Steel CPSEs

To improve the operational and cost efficiencies as well as to increase the transparency in the mining sector, digitization is being driven across the Steel CPSEs. Detailed roadmap has been put in place to kick-start the digitization journey for the iron ore mining sector in the country for improvements in utilization, productivity and safety. The project will involve 2 phases with involvement from Key Central Public Sector Enterprises. Identification and institutionalization of digital lighthouse project by NMDC to identify and streamline operating modalities has been initiated.

• Steel Scrap Recycling Policy

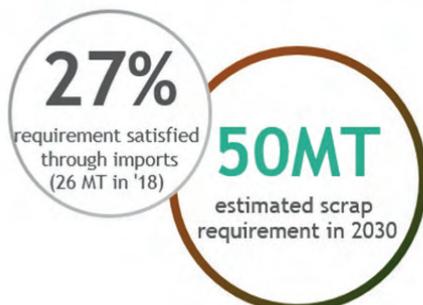
Ministry of Steel formulated a Steel Scrap Recycling Policy. The Policy has been notified in Gazette of India vide No. 354 dated 07th November, 2019. The policy provides a framework to facilitate and promote establishment of metal scrapping centres in India for scientific processing & recycling of ferrous scrap generated from various sources and a variety of products. The Policy framework provides standard guidelines for collection, dismantling and shredding activities in an organized, safe and environmentally sound manner. The Policy prescribes the guidelines for setting up and responsibilities of dismantling centre and scrap processing centre, roles of aggregators and responsibilities of the Government, manufacturer and owner. The Gazette Notification has been uploaded on the website of Ministry of Steel.

Scrap Policy

Ensure adequate availability of scrap to reduce imports and improve competitiveness of Indian steel sector

Scrap is an important raw material for the steel industry

Requirement expected to grow by ~2x over the next 11-12 years



Initiatives underway to make India self-sufficient in steel melting scrap

- Ministry of Steel has notified a policy on scientific recycling of old vehicles and white goods to recover usable industrial scrap and to supplement/ replace imports
- Vehicle scrapping policy will incentivize scrapping older vehicles by exempting registration fee for new vehicles (if purchaser produces scrapping certificate of previously owned vehicle of same category)

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

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 4th and 5th September, 2016, in Hangzhou, China. The Forum was formed in December, 2016 for a period of 3 years upto 2019. 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 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, India would produce steel as per the market demand.

Several meetings of GFSEC were held under the Japan's Chairmanship in 2019. The member economies worked to prepare a substantive report by June, 2019 as mandated by the G20 leaders. The Chair submitted the report to G20 leaders as Chair's Report at the G20 Summit at Osaka in June 2019. The G20 leaders observed that, "While we note the progress made so far by the Global Forum on Steel Excess Capacity (GFSEC), we ask relevant Ministers of the members of the GFSEC to explore and reach a consensus by fall 2019 on ways to further the work of the Forum."

After holding several working level meetings, the member countries met for Ministerial meeting on 26th October, 2019 in Tokyo to finalize the Ministerial Report. The Forum could not reach a consensus and only a Chair's statement, with the due approval of all countries, was issued in October, 2019.

1.3 Major Expansion/acquisitions/Joint Ventures by PSEs

1.3.1 Steel Authority of India Ltd. (SAIL)

- Steel Authority of India Ltd. has undertaken modernisation & expansion of its Integrated Steel Plants at Bhilai, Bokaro, Rourkela, Durgapur & Burnpur and special steel plant at Salem to enhance the Crude Steel capacity from 12.8 Million Ton to 21.4 Million Ton Per Annum. The indicative investment for Modernization & Expansion is Rs.69,252 crore, Net of Cenvat (NoC)/ Input Tax Credit (ITC). In addition, Rs.10,264 crore has been earmarked for modernization & expansion of SAIL Mines.
- Cumulative expenditure towards Modernisation & Expansion Plan till November, 2019 has been Rs.70,481 crore on gross basis including expenditure of Rs.1,020 crore during the financial year 2019-20. During the Financial Year 2018-19, the cumulative expenditure towards Modernization and Expansion Plan was Rs.69,255 crore including expenditure of Rs.2,009 crore for the Financial Year 2018-19.
- The Modernisation and Expansion at Rourkela, Burnpur, Durgapur, Bokaro and Salem Steel Plants has been completed and various facilities are under operation, stabilization & ramp up. The

Modernisation & Expansion of Rourkela Steel Plant and IISCO Steel Plant have been dedicated to the Nation by the Hon'ble Prime Minister on 1st April, 2015 & 10th May, 2015 respectively.

- At Bhilai Steel Plant, major facilities under Modernisation & Expansion have been completed 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 14th June, 2018.

1.3.2 RINL

Modernization & Expansion

The plant completed its capacity expansion from 6.3 MTPA of liquid steel to 7.3 MTPA in October, 2019. Following expansion/ modernization projects have been commissioned/completed:

- Coke Oven Battery-5, which is most crucial for operation of the company, heated up on 24.07.2019.
- From the additional water reservoir, KBR-2, pumping of water into plant network commenced on 24.07.2019.
- Rail Dispatches from Central Dispatch Yard (CDY) commenced on 12.10.2019. The state-of-the-art project facilitates improvement in logistics and smooth dispatch of VSP products through road and rail to various customers from a single location.
- Twin Ladle Heating Furnace (TLHF) in SMS-2 commissioned on 30.10.2019.

1.3.3 NMDC Limited

- NMDC is setting up a 3.0 MTPA Greenfield Integrated Steel Plant at Nagarnar, Bastar district in Chhattisgarh State. Construction work for the project is in progress and about 95% of Civil work, 93% of Structural erection, 81% of equipment erection have been completed.
- NMDC has taken up Installation of 12.0 MTPA Screening Plant – III at Kirandul Complex, Bailadila, Chhattisgarh. All the statutory clearances for the project are obtained and NMDC is in the process of finalization of an agency for execution of the major technological package of the project.
- NMDC is in the process of construction of Slurry pipeline system which consists of 2 MTPA Iron Ore processing plant at Bacheli, 15 MTPA Slurry pipeline system from Bacheli to Nagarnar and 2.0 MTPA Pellet plant at Nagarnar.
- NMDC is also in the process of augmenting its production & evacuation capacity by installing the following additional infrastructure facilities:
 - ❖ Construction of 5th screening line in existing Screening Plant-II and upgradation of downstream conveyor at Kirandul Complex, Bailadila Chhattisgarh.
 - ❖ Construction of 5th Screening line in existing Screening Plant and upgradation of downhill conveyor system at deposit-5, Bacheli Complex, Bailadila, Chhattisgarh.
 - ❖ Doubling of Kirandul – Kottavalsala Line between Kirandul – Jagdalpur through East Cost Railways on deposit work basis. Work of Around 62.02 km Railway line out of 150 km is completed and is in operation.
 - ❖ Doubling of Kirandul – Kottavalsala Line between Jagdalpur and Ambagaon (25 km) – (Execution by E.Co. Railways through Customer funding model). The work is completed and railway line is in operation.



Solar Projects of NMDC

- Installation of “Roof top solar power plants (1 MW)” at various production units are completed and are under operation.

1.4 Highlights of CPSEs during 2019-20

1.4.1 Steel Authority of India Ltd. (SAIL)

- Crude steel production of 11.84 Million Tonnes and finished steel of 8.86 Million tonnes (April-December, 2019).
- Net worth of the Company was Rs.38,152 crore as on 31.03.2019 and Rs.37,182 crore as on 31.12.2019.
- A dividend of Rs.0.50 per share of Rs.10 each was paid for the Financial Year 2018-19.
- Sales turnover was Rs.66,267.30 crore for the year ended 31st March, 2019 and Rs. 45,001 crore for the nine months (April-December) ended 31.12.2019

1.4.2 Rashtriya Ispat Nigam Ltd. (RINL)

- Registered total finished steel production of 2.6 Million Tonnes (April-December, 2019).
- Achieved cumulative Sales Turnover of Rs. 12143 crores (April-December, 2019).
- Registered Exports of 4.43 lakh Tonnes of saleable steel (April-December, 2019) with a growth of 90% over CPLY.

1.4.3 NMDC Ltd.

- Production of iron ore was 22.01 Million Tonnes (April-December, 2019).
- Domestic sale iron ore was 21.26 Million Tonnes (April-December, 2019).
- Export sale was 1.77 Million Tonnes (April-December, 2019).
- Total Sales during the year was 23.03 Million Tonnes (April-December, 2019).
- NMDC has earned Profit Before Tax (PBT) of Rs.4640 crores (upto December, 2019) (Provisional).

1.4.4 MOIL Ltd.

- MOIL Ltd. Produced 9.45 lakh Tonnes (provisional, upto December, 2019) of manganese ore.
- The total income of the company was Rs. 936.22 crore (provisional upto December, 2019).
- The Profit Before Tax of the company was Rs 318.87 crore (provisional upto December, 2019).
- The Profit After Tax was Rs. 234.75 crore (provisional upto December, 2019).
- The Net Worth of the company was Rs. 3082.71 crore as on 31.03.2019 and Rs. 3207.27 crore as on 31.12.2019.
- MOIL has paid final dividend of Rs. 77.28 crore for the financial year 2018-19.



1.4.5 MSTC Ltd.

- Total volume of Business was of Rs.68014.92 crore (April-December, 2019).
- Turnover of Rs. 733.65 crore (April-December, 2019) has been achieved.
- Profit Before Tax (PBT) of Rs.93.36 crore (Provisional) (April-December, 2019) has been achieved.

1.4.6 MECON Ltd.

- The Profit Before Tax (PBT) of the Company was (-) Rs 86.99 crores (provisional) during FY 2019-20 (upto December, 2019).
- The Profit After Tax (PAT) of the Company was Rs (-) Rs 86.99 crores (provisional) during FY 2019-20 (upto December, 2019).
- The Net Worth of the Company as on 31.12.2019 was Rs 277.79 crores (provisional).

1.4.7 KIOCL Ltd

- Revenue from Operations of Rs.1431.73 crore (provisional) (April-December, 2019) has been achieved.
- Production of pallet (April- December, 2019) stood at 17,05,000 Metric Tonnes.
- Recorded sales of 17,59,307 Metric Tonnes of Pellets (April-December, 2019).
- Reported Profit Before Tax (PBT) of Rs. 23.85 crore and Profit After Tax of Rs.15.51 Crore (Provisional) (April-December, 2019).

CHAPTER-II ORGANISATIONAL STRUCTURE AND FUNCTIONS OF 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. The details of the subject allocated to the Ministry may be seen in Annexure-I. The details of Minister-in-charge and the officers up to the level of Deputy Secretary is given in Annexure-II. The Ministry of Steel has a sanctioned strength of 246 employees out of which 187 employees are in position as on November 30, 2019.

2.1.1 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 skillful 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. 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 expeditious growth of steel capacity, investments through active coordination and formulation of right policy directives. An Inter-Ministerial Group (IMG) is functioning in the Ministry of Steel, under the Chairmanship of Secretary (Steel) to monitor and coordinate major steel investments in the country.
- Providing linkage for raw materials, rail movement clearance etc. for new plants and expansion of existing ones.
- Facilitating movement of raw materials other than coal through finalization of wagon requirements and ensuring an un-interrupted supply of raw materials to the producers.
- Regular interactions with entrepreneurs proposing to set up new ventures, to review the progress of implementation and assess problems faced.
- Identification of infrastructural and related facilities required by the steel industry, and coordination of infrastructure requirement of steel sector with the concerned Ministries/Department.
- Promoting, developing and propagating the proper and effective use of steel and increasing the intensity of steel usage, particularly in the construction sector in rural and semi urban areas, through "Institute for Steel Development and Growth (INSDAG)", Kolkata.
- Creating and updating a comprehensive data base for various segments of the steel industry.
- Monitor the physical and financial performance of CPSEs and capital expenditure on projects.

- Monitoring performance of commitments made in the MOUs and modernization and expansion programme of CPSEs.
- Improving the performance of Iron & Steel industry through R&D and Technology interventions, Quality Control and improvements in techno-economic parameters.
- Boosting domestic demand for steel through promotional efforts.

2.1.2 Key Divisions

The Ministry has 25 sections dealing with various subjects. The key divisions include Establishment, General Administration, Coordination Division, Budget and Finance, Projects and International Cooperation, Steel Development (Institutes), Technical Division, SAIL, MF, NMDC, Raw Materials, Trade and Taxation, Make in India (Industrial Development), MECON, RINL, Board Level Appointments, KIOCL, MOIL, Economic Division 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 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 Joint 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 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 domestic retail market prices from four metros.
- Collection of emerging data items like retail prices from steel clusters, employment data, etc.
- 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, Secondary Steel sector awards among others.

A range of publications and data reports, on monthly and annual basis ensure the spread of information and data to all stakeholders of industry. A dynamic website with online query module and a mobile app

ensures access to data in real time to all stakeholders, seeking information on performance statistics of Iron and Steel industry in India. 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 (ERU)

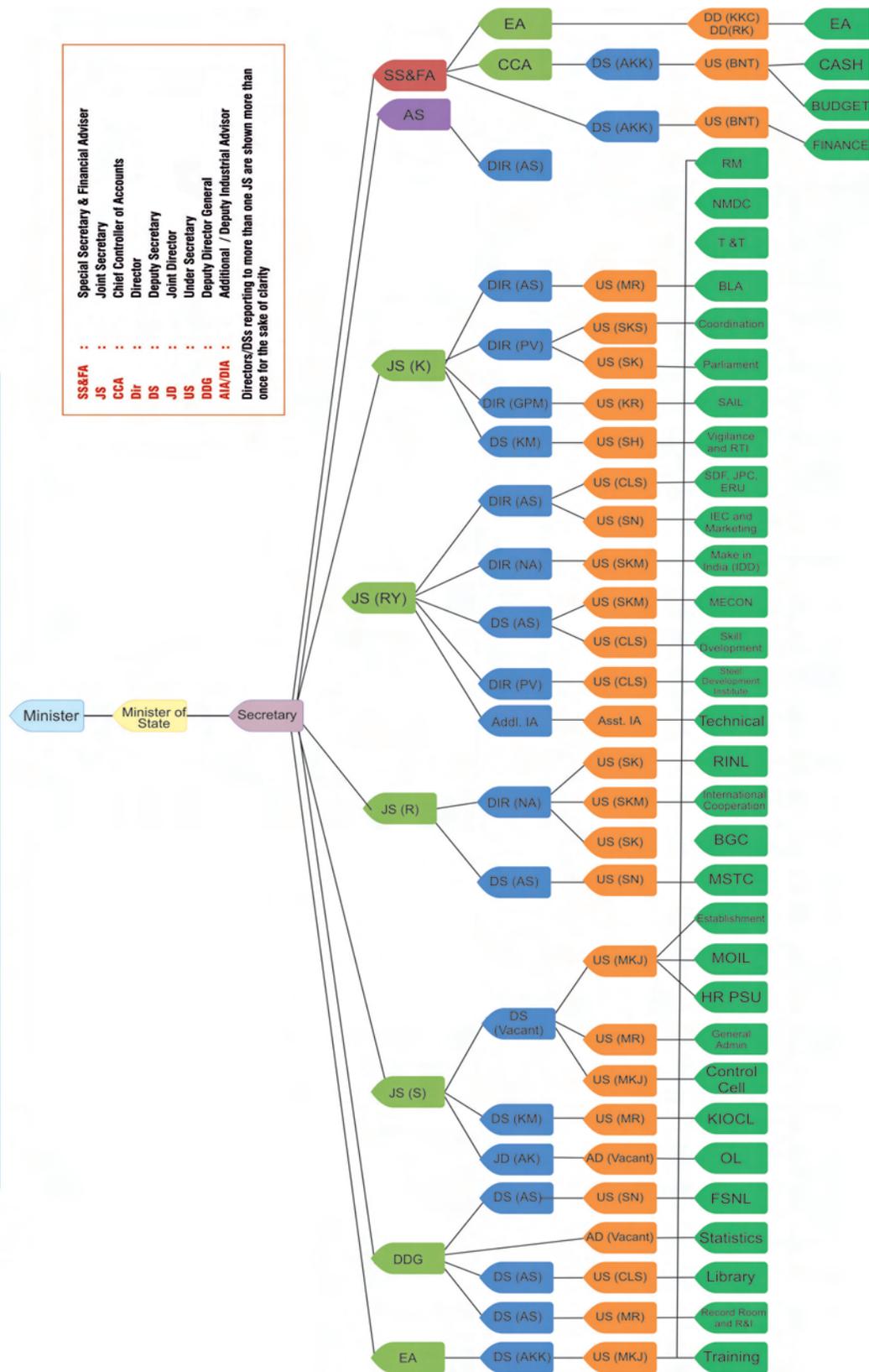
Research support, forecasting exercises and examination of policy matters/techno-economic studies are provided by the New Delhi based Economic Research Unit of JPC. The ERU also functions as the Secretariat to the prestigious Prime Minister's Trophy and the Steel Minister's Trophy. The ERU is the secretariat 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.	SAIL	Ispat Bhawan, Lodi Road, New Delhi - 110003	SAIL Refractory Co. Ltd. Post Bag No. 565 Salem-636005 (TN)
2.	RINL	Administrative Building, Visakhapatnam - 530031 (Andhra Pradesh)	EIL, OMDC and BSLC C/o SAIL Office, Ground Floor, Plot No. 271, Bidyut Marg, Shastri Nagar, Unit -IV, Bhubaneswar, Odisha-751001
3.	NMDC Ltd.	Khanij Bhawan, 10-3 -311/A, Castle Hills, Masab Tank, Hyderabad-500028 (Andhra Pradesh)	J&K Mineral Development Corporation Ltd., 143-A, Gandhi Nagar, Jammu-180004 (J&K)
4.	MOIL Ltd.	MOIL Bhawan, 1-A, Katol Road, Nagpur-440013 (Maharashtra)	
5.	MSTC Ltd.	225-C, Acharya Jagdish Chandra Bose Road, Kolkata-700020 (West Bengal)	Ferro Scrap Nigam Ltd., FSNL Bhawan, Equipment Chowk, Central Avenue, Bhilai-490001 (Chhattisgarh)
6.	MECON Ltd.	MECON Building, Ranchi-834002 (Jharkhand)	
7.	KIOCL Ltd.	II Block, Koramangala Bengaluru-560034 (Karnataka)	



Organization Chart of The Ministry as on December 4, 2019



CHAPTER-III STEEL POLICIES AND THEIR IMPACT

3.1 The Government has rolled out following National Landmark Policy initiatives:

3.1.1 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-a-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

Sixty-Six (66) 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 footprint 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 steel and alloys.

Steps taken by Ministry for achieving the objectives of NSP 2017

- Towards a Vibrant, Efficient and Globally Competitive Indian Steel sector, ‘Chintan Shivir’ was organized by Ministry of Steel, on 23rd September, 2019, (as mentioned in chapter 1). The



event aims to bring all stakeholders together to deliberate on a roadmap for making Indian Steel Sector more vibrant, efficient and globally competitive. It pitches for “Ispati Irada”, as mentioned in chapter 1, to bring transformational change, exhorts industry to work towards zero exports of natural resources, focus on value addition.

- 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.

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

The Government had introduced DMI&SP Policy on 8th May, 2017 to provide preference to domestically produced iron & steel material in Government tenders. Further, to fine tune this objective the Policy was revised on 27th May, 2019. The salient features of the revised Policy are as under:

- The revised policy has expanded the list of manufactured products to 49 from previous 11 items.
- While earlier the domestic content was limited to 15 per cent on all 11 products, the new list of 49 products have minimum prescribed value addition ranging between 15 to 50 per cent making it difficult for imported steel to compete with domestic bidders for government contracts.
- Each Ministry or Department of Government and all agencies/entities under their administrative control is under the purview of the DMI&SP order as notified by the Ministry of Steel.
- The policy shall be applicable to projects where the procurement value of iron and steel products is greater than Rs. 25 Crores. The policy shall also be applicable for other procurement (non-project), where annual procurement value of iron and steel products for that Government organization is greater than Rs. 25 Crores.
- The policy is applicable to purchase of iron & steel products by private agencies for fulfilling an EPC contract and/or any other requirement of Ministry or Department of Government or their PSUs and also to capital goods for manufacturing iron & steel products in compliance to prescribed quality standards, as applicable.
- The policy has provisions for waivers to all such procurements, where specific grades of steel are not manufactured in the country, or the quantities as per the demand of the project cannot be met through domestic sources.

The policy 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 in the Ministry's website from time to time. Some of the major implications of the policy have been as follows:

- In Budget speech for financial year 2019-20 the Government has highlighted its intention to spend about Rs 100 Lakh Crore in infrastructure projects such as Highways, ports, airports, housing, piped water to every household etc. All these initiatives shall use steel. According to the Ministry of Steel estimate, total requirement of Steel in the country is likely to rise to about 160 Million Tonnes Per Annum (MTPA) by 2024-25.
- In future, the increased domestic value addition is expected to contribute to the vibrant steel sector and the associated industries by generating employment and domestic market for their products.

This 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.

3.1.3 Quality Control Orders

India is the 2nd largest steel producer in the world and approaching towards a full quality regime. To achieve the objective of full quality regime, it is necessary to bring all the relevant Indian steel standards under the ambit of the steel quality control order. In India, Bureau of Indian Standards (BIS) is the National Standards Body, who are engaged in formulation and implementation of National Standards known as Indian Standards. Adoption of Indian Standards or marking products to bear ISI Mark by its very nature is optional unless it is made mandatory under specific Law, Rules & Regulations. Section 16 of BIS Act, 2016 authorizes Union Government to make the use of ISI marks mandatory in the public interest.

Government has been pursuing imposition of steel quality control order for ensuring the availability of quality steel to the industry and public at large and has notified 66 carbon steel, alloy steel and stainless-steel products on 22nd July, 2019 to make available quality steel to the end users mainly in construction, infrastructure, automobile and engineering applications etc.

3.1.4 Amendments to GFRs

The amendment in the GFR 2017 to include Life Cycle Cost Analysis while formulating DPR of the construction and infrastructure projects and the Quality Control Order promulgated by the Government, have also encouraged the sector to produce quality steel products in order to counter the chief 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 the 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.

CHAPTER-IV THE INDIAN STEEL SECTOR: PROGRESS AND POTENTIAL

4.1 Introduction

4.1.1 At the time of independence in 1947, India had only three steel plants – the Tata Iron & Steel Company, the Indian Iron and Steel Company and Visveswaraya Iron & Steel Ltd and a few electric arc furnace-based plants. The period till 1947 thus witnessed a small but viable steel industry in the country, which operated with a capacity of about 1 Million Tonne and was completely in the private sector. The provisions of the Economic Policy implemented in different time, underwent marked changes in Indian steel industry. 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. From a negligible global presence, the Indian steel industry is now globally acknowledged for its product quality.

4.1.2 The rapid pace of growth of the industry and the observed market trends called for certain guidelines and framework. Thus, was born the concept of the National Steel Policy, with the aim to provide a roadmap of growth and development for the Indian steel industry. The National Steel Policy (NSP), 2005 was announced in November 2005 as a basic blueprint for the growth of a self-reliant and globally competitive steel sector. The long-term objective of the National Steel Policy 2005 was to ensure that India has a modern and efficient steel industry of world standards, catering to diversified steel demand. The focus of the policy was to attain levels of global competitiveness in terms of global benchmarks of efficiency and productivity. Then, after a detailed review in 2017, the Government has released the **National Steel Policy 2017**, which has laid down the broad roadmap for encouraging long term growth for the Indian steel industry, both on demand and supply sides, by 2030-31, with a vision to create a technologically advanced and globally competitive steel industry that promotes economic growth. At the same time, as a facilitator in the present-day de-regulated, liberalized economic/market scenario, the Government has also announced a policy for providing preference to domestically manufactured Iron & Steel products in Government procurement. This policy seeks to accomplish Hon'ble Prime Minister's vision of 'Make in India' with the objective of nation building and to encourage domestic manufacturing.

4.2 Production, Consumption and Growth of Steel

4.2.1 The table below shows the trend in production, import, export and consumption of total finished steel (alloy + non-alloy) in the country for the last five years and April-December 2019:

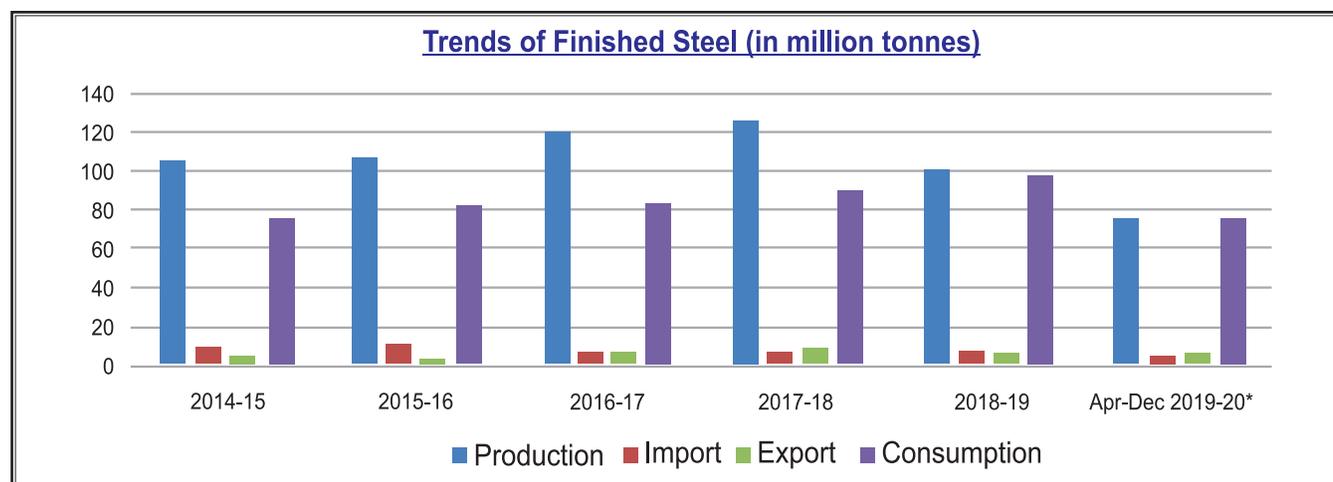
Annual Report 2019-20

Table 4.1: Production in Last five Years and in April-December, 2019.

Year	Total Finished Steel (alloy + non-alloy) (in Million Tonnes)			
	Gross Production	Import	Export	Consumption
2014-15	104.58	9.32	5.59	76.99
2015-16	106.60	11.71	4.08	81.52
2016-17	120.14	7.23	8.24	84.04
2017-18	126.86	7.48	9.62	90.71
2018-19	101.29#	7.83	6.36	98.71
April-December, 2019-2020*	76.33#	5.51	6.52	75.05

Source: JPC; *provisional; the difference in production reporting system of JPC may please be noted, # Crude steel equivalent

- Production of total finished steel (alloy + non-alloy) stood at 126.86 Million Tonnes during 2017-18, as against 104.58 Million Tonnes in 2014-15, an average annual (CAGR) growth of 6.4%. Production of finished steel, measured in terms of crude steel equivalent, stood at 101.29 MT and 76.33 MT during 2018-19 and April-December 2019 (provisional), respectively.
- Domestic consumption of total finished steel (alloy + non-alloy) was at 98.71 Million Tonnes in 2018-19 as against 76.99 Million Tonnes in 2014-15, growing at a CAGR of 6% during the last five years. Consumption stood at 75.05 Million Tonnes during April-December 2019 (provisional).
- Export of total finished steel (alloy + non-alloy) during 2018-19 stood at 6.36 Million Tonnes (5.59 Million Tonnes in 2014-15) while import of total finished steel (alloy + non-alloy) during the same year stood at 7.83 Million Tonnes (9.32 Million Tonnes in 2014-15). During April-December 2019 (provisional) the import and export figures were 5.51 MT and 6.52 MT, respectively.
- India was a net importer of total finished steel in 2018-19, but **India emerged as a net exporter in April-December, 2019** (provisional).



*Figures of April-December, 2019 are provisional



4.2.2 Crude Steel production has shown a sustained rise during the last five years along with capacity increase. Data on Crude Steel production, Capacity and Capacity Utilization during the last five years and April-December 2019-20 is given in the table below.

Table 4.2: Capacity Utilisation in Last five Years and in April-December, 2019.

(in Million Tonnes)

Year	Capacity	Production	Capacity utilization (%)
2014-15	109.85	88.98	81
2015-16	121.97	89.79	74
2016-17	128.28	97.94	76
2017-18	137.97	103.13	75
2018-19	142.24	110.92	78
2019-20*	142.24^	82.192	77#

Source: JPC; *provisional; for April– December, 2019 (2019-2020) ^full-year figure, #pro-rata, based on annual capacity data

- Crude steel production grew at 7.6% annually (CAGR) from 88.98 MTPA in 2014-15 to 110.92 MTPA in 2018-19.
- Such growth in production was driven by capacity expansion, from 109.85 Million Tonnes Per Annum (MTPA) in 2014-15 to 142.24 MTPA in 2018-19, a CAGR growth of 6.8% during this five-year period.

4.2.3 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 the last five year are shown in the table below along with data for April-December 2019-20 (provisional):

Table 4.3: Trend in Crude Steel Production by Process Route (in Million Tonnes)

Year	Basic Oxygen Furnace (BOF)	Electric Arc Furnace (EAF)	Induction Furnace (IF)	Total
2014-15	37.446 (42%)	23.25 (26%)	28.283 (32%)	88.979 (100%)
2015-16	38.275 (43%)	24.719 (28%)	26.796 (30%)	89.79 (100%)
2016-17	41.894 (43%)	29.07 (30%)	26.972 (27%)	97.936 (100%)
2017-18	47.392 (46%)	26.518 (26%)	29.221 (28%)	103.131 (100%)
2018-19	49.455 (45%)	28.476 (25%)	32.990 (30%)	110.921 (100%)
2019-2020*	35.841 (44%)	21.239 (26%)	25.112 (30%)	82.192 (100%)

Source: JPC; * Provisional; for April-December, 2019 Figures in bracket () indicate % share in total production

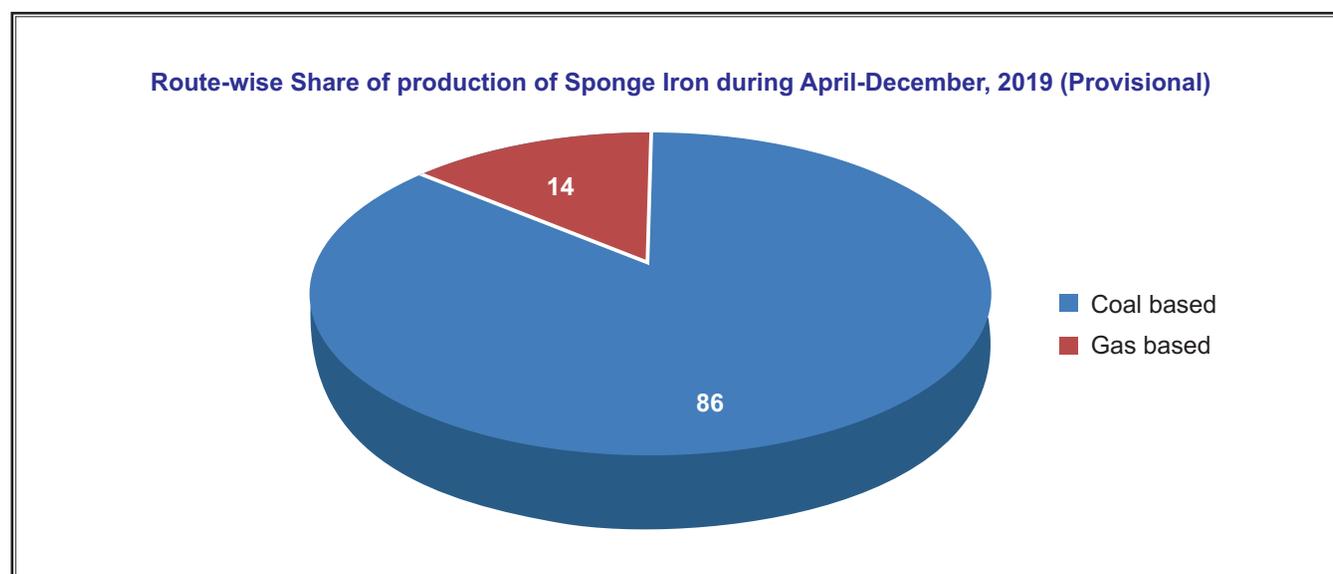


4.2.4 India is also a leading producer of Sponge Iron with a host of coal-based units, located in the mineral-rich States of the country. Over the years, the coal-based route has emerged as a key contributor and accounted for 80% of total Sponge Iron production in the country in 2018-19. Capacity in Sponge Iron making has also increased over the years and stood at 46.56 Million Tonnes in 2018-19. India has been the world's largest Sponge Iron producer every year since 2003. The table below shows the total production of Sponge Iron in the country, indicating the break-up of the share of coal and gas-based route of production for the last five years and April-December 2019-20 (provisional):

Table 4.4: Trend of Production of Sponge Iron (in Million Tonnes)

Year	Coal based	Gas based	Total
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	27.806 (80%)	6.90 (20%)	34.705 (100%)
2019-2020*	24.143 (86%)	3.93 (14%)	28.074 (100%)

Source: JPC; * Provisional; for April-December, 2019 Figures in bracket () indicate % share in total production



4.2.5 India is also an important producer of Pig Iron. Post-liberalization, with setting up several units in the private sector, which have reduced imports drastically as well as India has turned out to be a net exporter of Pig Iron. The private sector accounted for 91% of total production of pig Iron in the country in 2018-19. The domestic availability situation of Pig Iron is given in the table below for the last five years and April-December 2019-20 (provisional):



Table 4.5: Pig Iron Domestic Availability Scenario (in Million Tonnes)

Year	2014-15	2015-16	2016-17	2017-18	2018-19	(2019-2020) *
Production	10.228	10.240	10.342	5.728	6.414	4.314
Import	0.023	0.022	0.034	0.016	0.067	0.009
Export	0.540	0.297	0.387	0.518	0.317	0.347
Consumption	9.057	9.021	9.040	5.189	5.095	4.065

Source: JPC; *Provisional; for April-December, 2019.

4.3 Global ranking of Indian steel

World Crude Steel production stood at 1869.9 Million Tonnes during 2019, up by 3.4% over 2018, based on provisional data released by the World Steel Association (worldsteel). During this period, Chinese Crude Steel production reached 996.3 Million Tonnes, a growth of 8.3% over 2018. China remained the largest Crude Steel producer in the world, accounting for 74% of Asian and 53% of world Crude Steel production during this period. India was the 2nd largest Crude Steel producer and recorded a production of 111.245 Million Tonnes (Provisional) with growth of 1.8% during this period as compared to 2018.

Table 4.6: World Crude Steel Production: Top 10 Countries, 2019 (January-December, 2019)

Rank	Country	Qty (in Million Tonne)	% Change over 2018	% Share in 2019
1	China	996.30	8.3	53
2	India	111.20	1.7	5.9
3	Japan	99.30	(-)4.8	5.3
4	USA	87.80	1.4	4.7
5	Russia	71.60	(-)0.6	3.8
6	South Korea	71.40	(-) 1.5	3.8
7	Germany	39.70	(-) 6.4	2.1
8	Turkey	33.70	(-) 9.7	1.8
9	Brazil	32.20	(-) 9.0	1.7
10	Iran	31.90	30.2	1.7
Top 10		1575.10	4.7	84.0
World		1874.23	3.3	100.0

Source: worldsteel; *Provisional



4.4 Steel: Key facts

Table 4.7: Indian Steel scenario: April–December 2019-20*

Item	Item	Qty (Million Tonnes)	% change**
Finished Steel	Production	76.325	1.8%
	Imports	5.514	(-)6.7%
	Export	6.519	39.4%
	Consumption	75.05	3.8%
Crude Steel	Production	82.192	0.4%
	Capacity utilisation (%)	77%	-

Source: JPC; * Provisional ** over same period of last year

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). The data pertaining to production, consumption, import, export etc. of steel sector are at Annexure III-XI.

4.5 Trends in Production, Private/Public Sector

The following table highlights the total as also the contribution of the private and public sector in Crude Steel production in the country during the last five years and April-December 2019-20 (provisional):

Table 4.8: Indian Crude Steel Production (in Million Tonnes)

Sector	2014-15	2015-16	2016-17	2017-18	2018-19	(2019-20) *
Public Sector	17.21	17.92	18.46	19.75	21.49	15.34
Private sector	71.77	71.87	79.48	83.38	89.43	66.85
Total Production	88.98	89.79	97.94	103.13	110.92	82.19
Share of Public Sector	19	20	19	19	19	19

Source: JPC; *Provisional; for April-December, 2019



4.6 Annual Plan 2019-20

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. 9034.26 crore (i.e. Internal and Extra Budgetary Resources (IEBR) of Rs. 9019.26 crore and Gross Budgetary Support (GBS) of Rs.15 Crore) on the basis of Budget Estimates is detailed in the table below:

Table 4.9 Plan Outlay for Annual Plan 2019-20

Sl. No.	Name of the PSU/Organisation	IEBR	GBS	Total
A. Schemes of PSUs				
1	Steel Authority of India Ltd.	4000.00	0.00	4000.00
2	SAIL Refractory Company Ltd.	15.00	0.00	15.00
3	Rashtriya Ispat Nigam Ltd.	1400.00	0.00	1400.00
4	NMDC Ltd	3010.00	0.00	3010.00
5	KIOCL Ltd.	317.00	0.00	317.00
6	MOIL Ltd.	209.74	0.00	209.74
7	MECON Ltd.	5.00	0.00	5.00
8	MSTC Ltd.	44.40	0.00	44.40
9	Ferro Scrap Nigam Ltd.	18.12	0.00	18.12
	Total-A	9019.26	0.00	9019.26
B. Scheme of Ministry of Steel				
10	Schemes 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	9019.26	15.00	9034.26

CHAPTER-V PUBLIC SECTOR

5.1 Introduction

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

5.2 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.



Shri Dharmendra Pradhan Hon'ble Union Minister of Steel meeting workers during his visit to Bokaro Steel Plant



5.2.1 Capital Structure

The Authorized Capital of SAIL is Rs. 5,000 crores. The paid-up capital of the Company is Rs. 4130.53 crore as on 31.03.2019 and 31.12.2019, 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.

5.2.2 Financial Performance

The Company recorded turnover of Rs.45,001 crore during April-December, 2019 and Rs.66,267.30 crore during the Financial Year ended 31st March, 2019. The loss after tax was Rs.703.62 crore (Provisional) for the nine months ended 31.12.2019 and the profit after tax was Rs.2,178.82 crore in the Financial Year ended 31st March, 2019. The Company has paid a dividend of Rs.0.50 per share of Rs.10 each for the financial year 2018-19.

5.2.3 Production Performance

The details of actual production is as under:

(in Million Tonnes)

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
Hot Metal	15.4	15.7	15.7	15.9	17.5	12.9
Crude Steel	13.9	14.3	14.5	15.02	16.3	11.8
Saleable Steel	12.8	12.4	13.9	14.0	15.1	11.1

* Provisional; for April-December, 2019

5.2.4 Raw Materials

During 2019-20 (April-December, 2019), SAIL has fulfilled the requirement of iron ore for its Steel Plants by producing 21.20 Million Tonnes (MT) of iron ore from its captive mines. The production of fluxes from captive mines was 1.71 MT and raw coal production from captive collieries of SAIL was 0.23 MT. SAIL's washery at Chasnalla had processed total 0.44 MT of raw coal, produced from SAIL's coal mines and procured from CIL sources, and produced 0.27 MT of clean coking coal.



Shri Dharmendra Pradhan, Hon'ble Union Minister of Steel during his visit to Gua Ore Mines

5.2.5 Manpower

The Manpower strength of SAIL as on 01.01.2020 was 70246 (Executive 11538 / Non-Executive 58708), achieving reduction of 2093 manpower from 1st April, 2019 to 1st January, 2020.

5.3 Rashtriya Ispat Nigam Ltd. (RINL)

Rashtriya Ispat Nigam Limited (RINL), a Navratna PSE, is the corporate entity of Visakhapatnam Steel Plant – the country's first shore-based integrated steel plant with current production capacity of 7.3 MTPA Liquid Steel at Visakhapatnam, Andhra Pradesh.



Shri Dharmendra Pradhan, Hon'ble Union Minister of Steel accompanied by Sri PK Rath, CMD and Directors of RINL visited BF-3, SMS-2 and other major areas of Visakhapatnam Steel Plant

In addition, the company operates three mines for fluxes viz Jaggayyapeta Mines (Limestone), Garbham Mines (Manganese) in Andhra Pradesh and Madharam Mines (Dolomite) in Telangana State.

The company has one subsidiary, Eastern Investment Limited (EIL) with 51% shareholding, which in turn has two subsidiaries, M/s Orissa Minerals Development Company Ltd (OMDC) and M/s Bisra Stone Lime Company Ltd (BSLC). These three companies became Public Sector Undertakings with effect from 19.03.2010 and headquarter of these companies are at Bhubaneswar (Odisha).





Shri Faggan Singh Kulaste, Hon'ble Union Minister of State for Steel during his visit to Visakhapatnam Steel Plant

5.3.1 Capital Structure

RINL is a wholly owned Government company under the administrative control of Ministry of Steel. The company has its registered office at Visakhapatnam. The authorized share capital of the company is Rs.8000 crore and the paid-up capital of the Company is Rs. 4889.85 crore as on 31.12.2019.

5.3.2 Financial Performance

The Company registered turnover of Rs.20,844 Cr and Profit After Tax of Rs.96.71 Cr during the Financial Year ended 31st March, 2019. Due to downturn in the steel industry, the company registered a turnover of Rs.12,143 crore only and suffered a loss after tax of Rs.3319.38 Cr (Provisional) during the nine months period (April-December, 2019). The Company has not paid any dividend for the financial year 2018-19.

5.3.3 Production Performance

The company has been ramping up the production continuously since 2014-15. The details of production are as under:

(‘000 Tonnes)

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
Hot Metal	3780	3975	4386	5132	5769	3800
Crude Steel	3297	3641	3962	4731	5233	3507
Saleable Steel	3017	3513	3847	4500	5000	3663

* Provisional; for April-December, 2019

5.3.4 Raw Materials

RINL is dependent on external sources for critical raw materials such as Iron Ore and Coking Coal at market price due to lack of captive mines. The production of fluxes from captive mines for internal use during the period April– December, 2019 is 2,03,311 Tonnes of Dolomite, 3,16,500 Tonnes of Lime Stone and 2,865 Tonnes of Manganese.

5.3.5 Manpower

The Manpower strength of RINL as on 01.01.2020 was 17,591 (Executives: 5841 and Non-Executives: 11,750).

5.4 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.



Loading of iron ore at Bailadila Iron Ore Mines Complex

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 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 in Karnataka. NMDC is constructing 3 MTPA capacity Integrated Steel Plant in Chhattisgarh.



NMDC Iron and Steel Plant at Nagarnar, Chhattisgarh

5.4.1 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 30.11.2019, 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.

5.4.2 Financial Performance

The Company recorded turnover of Rs.5505 crore in the financial year 2019-20 upto Sept'19. The post-tax net profit for the year was Rs 3259 crore (Provisional) (upto December 2019).

5.4.3 Production Performance

The details of the actual production are given below:

Items	2017-18	2018-19	2019-20*
Iron ore (in MT)	35.58	32.36	22.01
Diamonds (in carats)	39394	38149	20110

* Provisional; for April– December, 2019

5.4.4 Manpower

The Manpower strength of NMDC as on 30.11.19 was 5785.

5.5 MOIL Ltd.

MOIL is a Schedule-A *MiniRatna* Category-I CPSE. It was originally incorporated as Manganese Ore (India) Limited in the year 1962. Subsequently, name of the Company was changed to MOIL Limited (MOIL) 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's Integrated Manganese Beneficiation Plant at Balaghat

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 as under:

- 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 grades for dry battery cells and chemical industry.

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.

MOIL has been granted Mining Lease of Parsoda manganese mine near village Parsoda - 46 Kms. from Nagpur in the year 2016. The lease extends over an area of 53.75 Ha. for a period of 50 years, i.e., from 22.04.2016 to 21.04.2066. Mine development activities and production (float ore) from new manganese ore mine of the company at Parsoda have been started in March, 2019. This is eleventh mine of MOIL.

5.5.1 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 December, 2019.



5.5.2 Financial Performance

The physical and financial performance of the Company for the last two years, i.e., 2018-19, 2019-20 (April-December, 2019) and are given below:

(Rs. In crores)

Parameter	2018-19	2019-20*
Total Income	1631.48	936.22
Profit Before Tax	719.75	318.87
Profit After Tax	473.89	234.75

* Provisional; for April-December, 2019

5.5.3 Production Performance

Items	2018-19	2019-20*
Production		
Manganese Ore (Lakh Metric Tonnes)	13.01	9.45
E.M.D. (Metric Tonnes)	992	693
Ferro Manganese (Metric Tonnes)	11003	7746

*Provisional and unaudited up to April-December, 2019.

The company has paid a final dividend of Rs. 77.28 crore for FY 2018-19.

5.6 MSTC Ltd.

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



5.6.1 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 provides e-Commerce services for Coal and Mineral Blocks also. Besides, MSTC also sells coal from Coal India Ltd, Singareni Coalfields Ltd, Jharkhand State Mineral Dev. Corpn. Ltd., Ferro Manganese and Manganese Ore from Manganese Ore India Ltd and Barytes for Andhra Pradesh Mineral Development Corpn. Ltd.

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 & another sector.

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. Mahindra MSTC Recycling Private Limited (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 have been set up in Greater Noida, in the State of Uttar Pradesh as a supply feedstock for the auto shredding plant.

5.6.2 Capital Structure and Shareholding Pattern

As on 31-12-2019 the Authorized Capital of the company is Rs. 150.00 crore and paid up Capital is Rs.70.40 crore.

The shareholding pattern of the company is as below:

Sl. No	Name of share holder	% of holding
1	Government of India	64.75
2	Others	35.25
	TOTAL	100.00



5.6.3 Financial Performance

(Rs. in crore)

Parameter	2018-19	2019-20 *
Turnover	2927.00	733.65
Operating Profit	(267.96)	94.51
Profit Before Tax	(269.21)	93.36
Profit After Tax	(324.47)	60.74

*Provisional- upto December, 2019

5.7 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.

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, Air India- Mumbai, Essar – Hazira & Midhani-Hyderabad.

The production performance of FSNL for the last four years & and upto December, 2019 for 2019-20 is given below:

5.7.1 Physical performance

Item	2015-16	2016-17	2017-18	2018-19	2019-20 *
Recovery of scrap (lakh metric tonnes)	28.29	26.43	32.90	35.66	34.39
Market Value of Production (Rs. in crore)	2489.85	2325.74	2895.20	3138.37	3026.18

*Provisional; upto December, 2019



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5.7.2 Financial performance

(Rs. in lakhs)

Item	2015-16	2016-17	2017-18	2018-19	2019-20*
Total Turnover i.e., Service charge realized including misc. Income, etc.	34706.87	32829.77	34029.79	37841.34	28289.22
Gross Margin Before Interest & Depreciation	4315.83	4766.07	2405.29	5539.73	3760.79
Interest & Depreciation	1063.29	1144.38	1101.51	1430.78	1165.85
Profit Before Tax	3252.54	3621.69	1303.78	4108.95	2594.94

*Provisional; upto December, 2019

5.8 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, 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 executed / executing various projects like Dockyard and Fleet Base Buildings Package (DC-DY & FBB) Phase – IIA at Naval Base, Karwar of Project Seabird of Indian Navy; Bowl Cleaning Machine (BCM) at Sriharikota for ISRO; Installation of FGD systems in Power plants of TANGEDCO, Rare Earth Permanent magnet plant of IREL, Mumbai, Execution of works in GGVCampus for Guru Ghasidas Vishwavidyalaya, Bilaspur, Establishment of All India Institute of Homeopathy, Narela, Delhi for Gol, Ministry of AYUSH; 100 Bedded ESIC Hospitals in each locations at Surat(Gujarat), Phulwari Sharif (Bihar) & Vizianagaram (Andhra Pradesh) for ESIC, New Delhi; Bharat Net 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 of 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.

5.8.1 Financial Performance

(Rs in Crores)

Particulars	2018-19	2019-20 *
Turnover	470.17	300.92
Operating Profit	(19.88)	(123.72)
Profit Before Tax	9.97	(86.69)
Profit After Tax	13.74	(86.69)

*Provisional, for April-December, 2019

5.9 KIOCL Ltd.

KIOCL Limited, a Flagship Company under Ministry of Steel, Government of India was established on 02.04.1976 with an objective to Mine & Beneficiate low grade magnetite iron ore at Kudremukh Iron Ore mine in Chickmagalur District of Karnataka State. KIOCL Limited is presently engaged in production of Iron Ore Pellets and Foundry Grade Pig Iron. KIOCL has been conferred with the “Mini-Ratna-category-I” status in 1999 under schedule-A and accredited with ISO-9001:2015, ISO-14001:2015 and compliant with OHSAS: 45001:2018. Government of India holds 99.06% of its equity.



Pellet Plant Reclaimer



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The Company has a capacity to produce 3.50 Million Tonnes of Iron Oxide Pellets and 2.16 Lakhs Tonnes of Pig Iron annually. The Company has its captive berth and ship-loading facilities at Mangaluru. The Mining Operations at Kudremukh was stopped with effect from 01.01.2006 pursuant to the order of Hon'ble Supreme Court. Due to this, Company depends mainly on NMDC & other private source for raw materials viz. iron ore to feed to its Pellet Plant by incurring huge logistic costs.

The Blast Furnace Unit is presently not in operation. The Company is in the process of adding additional production facilities as forward and backward integration to the existing Blast Furnace Unit Viz. Coke Oven Plant and Ductile Iron Spun Pipe (DISP) Plants to make its operations viable.

5.9.1 Production

Upto the end of December, 2019 for the Year 2019-20, the Pellet production stood at 17,05,000 Metric Tonnes against the target of 16,40,000 Metric Tonnes, which is 104% of the cumulative target for the period.

5.9.2 Financial Performance

An overview of the performance of KIOCL during the period April-December, 2019 and actuals for the previous three years are as follows:

(Rs. in Crores)

Particulars	2016-17	2017-18	2018-19	2019-20 *
Revenue from Operations	929.36	1,637.18	1,887.71	1,431.73
Profit Before Tax	31.22	86.09	184.12	23.85
Profit After Tax	47.93	81.48	111.86	15.51

*for April-December, 2019 – Unaudited

5.10 EIL, OMDC and BSLC

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

a. Eastern Investments Limited (EIL)

Financial performance

(Rs. In Crore)

Description	2019-20*
Income	0.62
Expenditure	0.55
Profit Before Tax (PBT)	0.09
Profit After Tax (PAT)	0.00

*Provisional; for April to December, 2019



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	2019-20*
Income	19.27
Expenditure	68.41
Profit Before Tax (PBT)	(49.13)
Profit After Tax (PAT)	(47.96)

* Provisional; for April to December, 2019

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

Description	April to December, 2019 (In Metric Tonnes)
Production	
Dolomite	414729
Limestone	6005
Dispatch	
Dolomite	433871
Limestone	4909
Minor Mineral	2000

Financial performance

(Rs. In Crore)

Description	2019-20*
Income	31.01
Expenditure	38.44
Profit Before Tax (PBT)	(7.43)
Profit After Tax (PAT)	(7.43)

Provisional for April to December, 2019



CHAPTER-VI

PRIVATE SECTOR

6.1 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 not only play an important role in production of primary and secondary steel, but also contribute substantial value addition in terms of quality, innovation and cost effectiveness.

6.2 The leading steel producers in the private sector with their given capacities are given in the table below:

S. No.	Name of Steel Company	Existing Capacity (Million Tonnes)
1.	JSW Steel Ltd.	18.00
2.	Tata Steel Ltd.	13.00
3.	Essar Steel India Ltd.	10.00
4.	Jindal Steel and Power Ltd.	8.6
5.	Electrosteel Steel Ltd.	1.88
6.	Jindal Stainless Ltd.	0.80
7.	Jindal Stainless (Hisar) Ltd.	0.78

Note: Figures as above are provisional in nature and subject to revision upon data finalization by JPC.

6.3 JSW Steel

The flagship company of USD 11 billion JSW Group, JSW Steel is one of India's leading integrated steel manufacturers with a capacity of **18 MTPA**. It is one of the fastest growing companies in India with a footprint in over 140 countries. It has six state-of-the-art manufacturing facilities located at **Vijayanagar** in Karnataka, **Salem** in Tamil Nadu and **Dolvi, Vasind, Tarapur** in Maharashtra.

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



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

6.4 Tata Steel Ltd.

Tata Steel Group is among the top global steel companies by achieving an annual crude steel capacity of 33 Million Tonnes in 2019-20. It is one of the world's most geographically-diversified steel producers, with operations and commercial presence across the world. The group (excluding SEA operations) recorded a consolidated turnover of US \$22.67 billion in the financial year ending March 31, 2019. Tata Steel acquired Bhushan Steel (now renamed as Tata Steel BSL Ltd) in 2018 followed by Usha Martin's steel business in 2019 (now part of Tata Steel Long Products Limited). The phase 2 expansion of Kalinganagar steel plant to 8 MTPA is underway. Tata Steel Limited, together with its subsidiaries, associates and joint ventures, is spread across five continents with an employee base of over 65,000.



6.5 Essar Steel India Limited

Arcelor Mittal Nippon Steel India Ltd. (Formerly known as Essar Steel India Ltd.) is an integrated steel plant with a production capacity of 10 MTPA.

The company produces iron ore pellets, hot rolled steel coils, hot rolled thick and wide plates, cold rolled and annealed coils, galvanized coils, color coated coils and sheets and large diameter SAW pipes. It caters high quality niche products for Automotive, High Strength Structural, Oil and Gas, Boilers and Pressure Vessels, Wind Energy, Ship Building, Yellow Goods, Defence and General Engineering applications.



Aerial View of the Hazira Plant

Arcelor Mittal Nippon Steel India Ltd. (AMNSIL) lays a great emphasis on sustainability and is aligned with the World Steel Association's (WSA) sustainability indicators. AMNSIL is a climate action member and a signatory to the Sustainability Charter, WSA and has been recognized for Safety and Health Excellence many times in last six years from WSA.

6.6 Jindal Steel & Power Limited

Jindal Steel & Power Limited is an industrial powerhouse and one of the leaders in the Indian steel industry with a significant global presence. It operates the largest coal-based sponge iron plant in the world and has substantial presence in domestic power, mining and infrastructure sectors. The Company's geographical footprints span across Asia, Africa, Australia and the Middle East. The Company produces economical and efficient steel and power through backward and forward integration. The Company's product portfolio spans across the steel value chain from widest flat products to a whole range of long products and rails. JSPL exports its diversified product portfolio to 22+ countries. Some Key Highlights of JSPL are as under:

- India's only private manufacturer of Rails and Long Rails.
- India's first and only manufacturer of Head Hardened Rail.
- India's largest Blast Furnace with a volume of 4554 m3.
- India's largest 2.75 MTPA New Electric Oxygen Furnace (NEOF).



- India's most advanced Plate Mill capable of producing upto 5-meter wide plates.
- India's largest 9 MTPA Pelletisation complex.
- World's first and largest Syngas-based DRI plant and Coal Gasification Plant for steel making based on Swadeshi coal.



6.7 Electrosteel Steels Limited

Electrosteel Steels Limited manufacturing facility is a green field integrated steel plant located near Bokaro, Jharkhand, India which has a current capacity of 1.5 Million Ton per annum of high- quality Steel intermediaries and Products- Pig Irons, Billets, TMT bars, Wire Rods, and Ductile Iron Pipes. It consists primarily of two sinter plants, a coke oven, two basic oxygen furnaces, a steel melting shop, a wire rod mill, a bar mill, a power plant and a ductile iron pipe plant.

In July 2019, Vedanta- ESL launched the rebranding of its steel portfolio i.e. 'V- XEGA' (TMT bars.), 'V-DUCPIPE' (DI Pipes), 'V-WIRRO' (Wire rods) with internal and external stakeholders. ESL is the largest player in branding the wire rods with the brand name V-WIRRO in India.



6.8 Jindal Stainless Limited (JSL)

Jindal Stainless Limited (JSL) is one of India's largest manufacturers of stainless steel with a capacity of 0.8 Million Tonnes per annum. It is located in the eastern coast of India in the state of Odisha. The manufacturing complex comprises 2, 50,000 Tonnes per annum of Ferro Alloy's facilities with world class technology and equipments. The complex, equipped with captive power generation facility (264 MW), is eventually scalable up to 3.2 Million Tonnes per annum of stainless-steel production. The Company's main focus is to expand its horizon to tap the potential for serving the needs of critical industrial applications in India and abroad by delivering high-quality stainless-steel products.



Further, special plans are being made for market development of niche grades and expanding the portfolio of high value stainless steel products.

6.9 JINDAL STAINLESS (HISAR) LIMITED

Jindal Stainless (Hisar) Limited (JSHL) was established in 1975 when its founder Shri OP Jindal envisioned a self-reliant India for meeting its stainless-steel demand. It was Shri OP Jindal's vision and his pioneering spirit that led to the establishment of the JSHL, India's first stainless steel manufacturing unit.



Since its inception, JSHL has integrated its operations on a strategy of both, backward and forward integration, starting from mining, melting, casting, hot rolling to cold rolling and other value additions. Today, JSHL is 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 Indian and international mints. JSHL's state-of-the-art Specialty Product Division (SPD) caters to the high-end precision and specialty stainless steel requirements of reputed Indian and international customers. The product range includes slabs and blooms, hot rolled coils, strips, plates, coin blanks, precision strips, and cold rolled coils.



CHAPTER-VII TECHNICAL INSTITUTES UNDER MINISTRY OF STEEL

7.1 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:

7.2 Biju Patnaik National Steel Institute (BPNSI)

Based on the concept plan developed by a task force set up by the Ministry of Steel, a decision was taken to set up a National Steel Institute (NSI) at Puri, as a Training-cum-Service-cum-Research & Development centre. The Institute is registered under the Societies Registration Act and started functioning from January 1, 2002. BPNSI was established to help the domestic secondary steel industry to keep up with the rapid transformation which the global and Indian steel industries have been undergoing. The Cabinet had on February 20, 2004 approved the setting up of BPNSI at Puri as a full-fledged institute with capital funding from JPC.

7.3 National Institute of Secondary Steel Technology (NISST), Mandi, Gobindgarh, Punjab

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 with the following aims and objectives:

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

Accreditations/Recognitions

- Empanelled as Accredited Energy Auditor with Bureau of Energy Efficiency, Ministry of Power, Govt. of India for carrying out Mandatory Energy Audit.
- Empanelled by BEE for M&V activities under PAT scheme.
- Empanelled 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 Customs for technical assistance.
- Executive member of the National Safety Council – North Zone Chapter.

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Present Activities

A. Energy Audits

Many Energy Efficiency related projects were executed by NISST which include Energy audits conducted in the steel industry, Mandatory Energy audits and M&V Audits of Designated consumers, Energy efficiency improvement projects.

B. Safety Audit/Verifications/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.

C. Testing Labs

Over the last one decade, NISST has emerged 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 equipments were added/upgraded in last 5 years to keep the equipment/labs updated. Accordingly, the following labs are operational in NISST's 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 taken recognition for testing of 15 different steel products from Bureau of Indian Standards (BIS).

D. 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 Furnaces of Re-rolling 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.

NISST was actively involved in preparing the safety guidelines for hazardous activities & process for Induction furnaces, Electric Arc furnaces, DRI units and Re-Rolling units.



7.4 Institute for Steel Development & Growth (INSDAG)

- The Institute for Steel Development & Growth (INSDAG) was set up in 1996 and started functioning from 1999 with the following mission:

“To work in unison for all the stakeholders in the steel industry so as to evolve ways and means for more efficient usage of steel and provide optimum value to the customer”

The Institute for Steel Development & Growth (INSDAG) was promoted by Ministry of Steel along with major Steel Producers in the country like SAIL, RINL, Tata Steel, JSW, Essar Steel and JSPL. The objective of the Institute is to promote consumption of steel in the country by means of technical publications & study reports, dissemination of knowledge on steel-based designs, steel codes & standards to the students of engineering colleges, faculties, academicians, professionals, architects & structural engineers. It was also involved in making guidelines and manuals for use of specific steel category and designs of steel-concrete composite technology in buildings and other structures.

- INSDAG from its formation has been involved with Steel Bridge Committees of the Indian Roads Congress (IRC) and has been the pivotal organization in the propagation of the Limit States Methodology in the Design of Steel and Steel-Concrete Composite Bridges in India.
- 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 (IS 808 etc.).
- INSDAG prepared draft document for revised IS: 11384 (Code of Practice General Construction in Buildings – Composite Construction) – CED 38 Committee. The revised code is now under printing.
- INSDAG is in the Committee for drafting IS: 11587 (Weathering Steel), IS: 15103 (Fire Resistant Steel and IS 15692 (Seismic Resistant Structural Steel).
- INSDAG has developed an innovative design methodology pertaining to low cost house targeting the rural poor people in India. The skeleton of the house is built with Square Hollow Section in netted form and 15 mm Ferro-Cement panels in walls and roof. Model houses have been constructed at some locations all over India like West Bengal, Tripura, Maharashtra and Telangana.
- To give further impetus on capacity building in rural areas in terms of fabrication, INSDAG is coordinating 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. Soft intervention for setting up CFC in Steel Fabrication is presently underway in few locations in Paschim Mednipur.
- INSDAG has also played an important role in steel promotion in North-East States by designing the following:
 - ❖ Steel Roof of Ummulong Church, Meghalaya.
 - ❖ Indoor Stadium at Lady Keane College, Shillong .
 - ❖ Indoor Stadium at Shillong College .
 - ❖ Roof of Sri Krishna Pranami Temple at Bermiok near Singtam, Sikkim.
 - ❖ Foot Over Bridge at Damthang, Sikkim.
 - ❖ (B+G+6) storeyed Super-specialty Hospital at Bongaigaon, Assam.

CHAPTER-VIII

RESEARCH AND DEVELOPMENT

8.1 Background

In India, substantive R&D is carried out by the following leading steel companies from their own funds, like SAIL, Tata Steel, JSW Steel & Essar Steel. R&D in the steel sector is also being pursued by the CSIR laboratories like NML Jamshedpur and IMMT Bhubaneswar, and academic institutions like IITs & NITs. Ministry is supplementing the R&D initiatives of the steel sector by providing financial assistance through a Government funded scheme: "Promotion of Research & Development in the steel sector".

8.2 R& D with financial assistance from Ministry of Steel

- Ministry of Steel is operating an R&D scheme viz. "Promotion of R&D in Iron & Steel Sector", for providing financial assistance for pursuing R&D to address the technological issues faced by the sector and also indigenous development of processes/ technologies.

The details of funds released during 2019-20 for R&D under the scheme "Promotion of R&D in Iron & Steel Sector" is at Annexure-XVII.

- R&D Project Proposals are invited from reputed Academic Institutions/ Research Laboratories and Indian Steel Companies for pursuing R&D projects for the benefit of the Iron & Steel Sector in the country.
- The thrust areas for R&D are given below:
 - ❖ Beneficiation/ up gradation/ agglomeration of low-grade iron ore, coal etc. for utilization of Indian iron ore fines/slimes and non-coking coal.
 - ❖ To pursue R&D projects to address Climate Change issues.
 - ❖ Development of viable technology for utilization of steel plant and mine wastes including LD/ EAF/EIF Slag.
 - ❖ Development of indigenous technologies for development of improved products viz. Ultra-High Strength Steel, High Strength High Formable steel, CGRO Steel Sheets, emerging coated products etc.
 - ❖ Development of innovative technology for improving energy efficiency in different iron & steel making processes.
 - ❖ To address issues faced by the secondary steel sector, like Improvement in quality of steel produced through the induction furnace.
 - ❖ Development of innovative solutions for addressing the challenges faced by the iron & steel industry.
- Under the scheme so far 37 R&D projects have been approved in which Rs. 134.82 Crore has been released from Ministry of Steel.
- So far 12 R&D Projects have been completed. Through the completed projects R&D has been pursued in laboratory/ pilot scale for beneficiation & agglomeration of iron ore & coal, alternative iron

making processes and also to address the technological issues faced by the secondary/ mini steel sector. Innovative processes have been developed in lab/ pilot scale.

- Ministry of Steel is also actively participating in the Impacting Research Innovation & Technology (IMPRINT) & Uchchatar Avishkar Yojana (UAY) Schemes launched by MHRD. Under the IMPRINT Scheme 3 R&D projects with total cost of Rs. 11.05 crore have been approved with 50% funding from Ministry of Steel. Under the UAY Scheme, 3 R&D projects have been approved with total cost of Rs. 10.09 crore with 25% funding from Ministry of Steel.
- The budget allocated for the scheme is around Rs 15 crore per year.

The expenditure on R&D during the last five years is given below:

Sl. No	Year	Government Fund (Rs.in Crore)
1	2015-16	10.26
2	2016-17	15.00
3	2017-18	14.00
4	2018-19	15.00
5	2019-20	11.79 (till December, 2019)

8.3 R&D by Steel Companies

8.3.1 Steel Authority of India Limited (SAIL)

Research & Development

Research & Development Centre for Iron & Steel (RDCIS) is pursuing 70 R&D projects in the current year 2019-2020, out of which 48 projects are scheduled for completion by March, 2020. These projects provide technological inputs to SAIL plants/ units with thrust on cost reduction, value addition, quality improvement and development of new products. A total of 45 technical papers were published and 54 papers were presented during April - January 2020.

R&D Efforts and Achievements

- Design of automation system for roller gap & speed control in leveller 1 & 2 and slab positioning in front of RHF of Plate Mill, BSP.
- Design and implementation of automation system for equipment of Charging area and Loopers of Strand A of WRM, BSP.
- Improvement in Sinter Plant productivity by 16% from current level: 1.15 t/m²/hr, ISP.
- Design and development of post weld-controlled cooling facility and establishing welding and heat treatment parameters for alloyed rails at flash butt welding plant, BSP.





Integrated Coke Dry Quenching System

- Design of bottom quenching system in COB#4,DSP.
- Improvement in thermal profile of work roll in old Plate Mill, RSP.
- Improvement in strip steering, squeezing and rinsing systems in Pickling Line-2, CRM, BSL.
- Development of flow-sheet for effective utilisation of sludge through sintering, ISP.
- Recommendation for Coiler Pinch Roll Materials and specification for HSM, BSL.
- Feasibility study on utilization of decanter tar sludge from by-product plant of COB#11 complex, ISP.
- Pilot studies for control of cyanide in effluent of Blast Furnace Gas Cleaning Plant, ISP.
- Investigation into aspects of improvement in water quality management of Walking Beam Furnace (WBF) zone of new Plate Mill, RSP.
- Development of $MgAl_2O_4$ solid solution layer on MgO grains through addition of nano ceramic components for application as superior refractory materials, 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 and CMO, developed the following products during April-December, 2019.

- Ship building quality IRS Gr. B Plates- Ship building (Dividing Support Vessel).
- IS 1786 Fe 500D Rebars with Low CE- Construction Segment.
- IS 2830 C20 MMnA Semis- TLT segments.



- IS 2830 C20 HMnA Semis (with micro-alloying)- TLT segments.
- EN 10025-4 S355 J2W grade plates- LHB Coaches.
- Customized IS 2062 E410C Plates- For Axle housing.
- Ship Building Quality IRS Gr.B HR coils- Ship building (Diving support vessel).
- SAE 1006 ALK WRC- Automotive.
- IS 513 ISC 390W CR- Auto segment.



Bhilai Rails

Expenditure on R&D

(Rs. in crore)

Year	SAIL's turnover	R&D Expenditure by SAIL				RDCIS Expenditure
		Capital	Revenue	Total	% of turnover	
2015-2016	43294	50.78	226.22	277.00	0.64	124.26
2016-2017	49180	77.83	261.60	339.43	0.69	128.88
2017-2018	58297	20.79	314.71	335.50	0.58	118.93
2018-2019	66267	14.77	305.09	319.86	0.48	90.10
2019-2020 (Apr-Dec)	45001	4.84	155.10	159.94	0.36	-

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Patents filed

Year	No of patents filed
2015-16	35
2016-17	35
2017-18	25
2018-19	20

8.3.2 Rashtriya Ispat Nigam Limited (RINL)

R&D initiatives are directed towards meeting the present and future requirements of the plant. Projects under progress during the year (April-December, 2019):

- Development of Boron steel grade for automobile fastener and CO₂ steel grades for welding applications at VSP.
- Identifying causes for welding of rolled product in STM of VSP.
- Study of De-phosphorization during steel making in SMS-1.
- 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 reduction of emissions during charging in Coke Oven Battery 4.
- To study the effect of oversize (+ 10 mm) in iron ore fines on sintering.
- Usage of Alumina-Magnesia Spinel Bricks for Steel Ladle Lining to enhance the Steel Ladle lining Life in SMS-1.
- Feasibility study on usage of Mill Scale Briquettes as Coolant in place of Steel Scrap in LD converters.
- Ladle Health Monitoring System at SMS-1.
- **Casting of 430 mm round** in SMS-2 (CCM-4), for the first time in India, commenced in July'19.



RINL's Forged Wheel Plant at Raebareli, UP for production of 1,00,000 wheels per annum for High Speed Trains of Indian Railways.



Expenditure on R&D

Year	Actual Expenditure (Rs in Crores)	Expenditure as a % of Turnover
2015-16	21.74	0.18
2016-17	23.52	0.18
2017-18	20.06	0.12
2018-19	19.07	0.09
2019-20*	10.71*	0.10*

*Provisional; (upto october, 2019)

8.3.3 NMDC Limited

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

- Modification of transfer chutes to reduce jamming by 10% with respect to previous year at Kirandul Complex.
- Development of comprehensive report on the flow characteristics of different types of Indian iron ores.

R&D Expenditure and Investment

Year	Turnover (Rs in Cr)	PBT (Rs. in Cr)	Net Profit (Rs in Cr)	R&D Expenditure (Rs in Cr)	(%) of turnover	(%) of PAT
(1)	(2)	(3)	(4)	(5)	(6) = (5)/(2)	(7) = (5/4)
2016-17	8830	4293	2589	20.30	0.23	0.78
2017-18	11615	6180	3806	22.03	0.19	0.58
2018-19	12153	7198	4638	30.96	0.25	0.67
2019-20	5756*	2993*	1882*	14.67*	0.25	0.78

* upto september, 2019

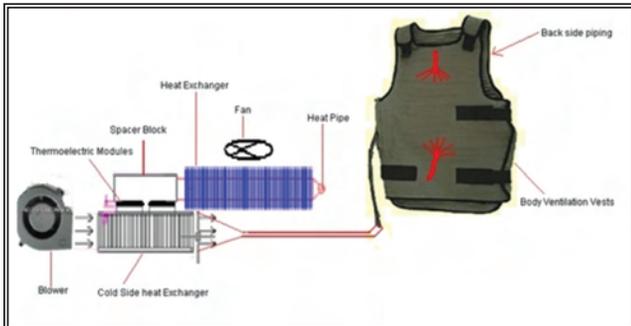


8.3.4 MECON Limited

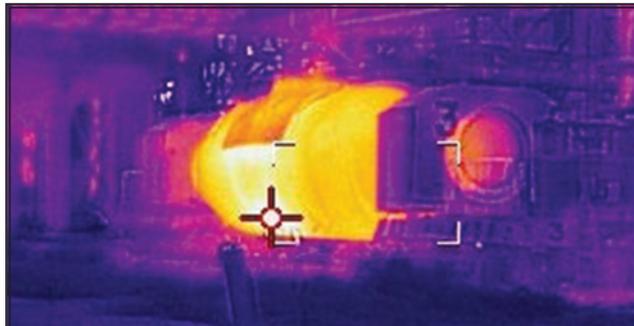
R&D Projects for Year 2019-20

Projects Completed

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



Conceptual design & simulation of Air Warrior Body Ventilation Vests for Defence personnel



Development of Torpedo Ladle car Condition monitoring system using infrared imaging



Friction Stir Welding



Indigenous portable Ozone Monitoring System for measurement of Real Time Ozone Concentration in and around Industrial area of Ranchi.

Ongoing Projects

Develop Procedure for Joining Next Generation High Temperature Material to be used for supercritical / ultra-supercritical power plant by Friction Stir Welding.

Future Projects

1. With enhanced financial support for R&D, it is proposed to bring focus on large R&D project under SRTMI with focus on Technology Development/Adoption so that benefits of the same can be directly utilized by the Industry to become globally competitive. In such critical high value projects like Heat Recovery and Slag Granulation Plant, alternate steel making technology using hot DRI etc. for the year 2019-24, MECON's involvement could be limited to development of design and engineering for the pilot scale and subsequent upscale facility or as consultant or as an interface between service and the end user.



- Innovative Cell has been created in MECON with a finalised policy framework. Under this cell, developmental projects are taken into consideration. Some of such projects are development of suspension system of BOF converter in partnership with IIT Kanpur, development of structural steel design based on IS:800, automatic film positioning system for ISRO etc. There are some more projects which are under consideration for tool rooms / educational institutes.
- Study on techno economical viability for utilization of lower grade iron and fine size ore and establishing the most beneficiation process route through experimentation with Ministry of Mines.

Recognition of MECON R&D

Renewal of recognition of MECON, R&D by DSIR, Govt. of India has been obtained vide letter no. TU/IV-RD/1191/2019, dated 17-06-2019 for Three years (up to 31/03/2022).

Patent

No. of Patent filed/ under process	:	19
No. of Patents applied for renewal	:	02

Presentation/Publication

No. of Paper Published/ Presented/ Communicated	:	01
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R&D Expenditure

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	470.17	2.61	0.56
2019-20*	214.05	1.17	0.55

* Provisional (up to October 2019)

8.3.5 MOIL Ltd.

MOIL is engaged in exploration, exploitation and marketing of various grades of manganese ore and value-added products such as Electrolytic Manganese Dioxide (EMD) and High Carbon Ferro Manganese Alloy. The company has carried out R & D activities to improve the safety and productivity in the mines by introducing modern technology with CSIR-R&D Laboratory, Reputed Academic and R&D Institutions of the country. Major activities are:

- Mine Ventilation:** Ventilation reorganisation studies for deeper levels have been conducted at Gumgaon and Chikla Mine by Indian Institute of Technology (IIT), Kharagpur. Accordingly, large diameter ventilation fan has been installed at Gumgaon Mine and Chikla Mine with energy saving devices. It has improved the face ventilation and productivity of underground section of the mines.

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Large Diameter Ventilation Fan (1.8 m dia) installed at Gumgaon Mine

- **Mines Safety/Mining subsidence:** In house scientific 3-D analysis of subsidence parameter has been carried out by Planning and Design Department for Gumgaon Mine. The report has been vetted by IIT, Kharagpur. The patent for the same has been submitted by MOIL for 7 pillar monitoring station.
- **Use of space Technology:** MOIL has carried out remote sensing studies, established with the help of NRSC (Unit of ISRO) and identified new probable area of manganese bearing zones at Balaghat, Jhabua, Jabalpur and Chhindwara district of Madhya Pradesh. This will improve the reserve/resources base of MOIL in near future.
- **Quality up-gradation in EMD:** Project of up-gradation of EMD quality: Creation of R&D pilot scale facilities for production of 500 TPA EMD (Electrolytic Manganese Dioxide) with reduced impurity levels to be suitable for E.V. Battery. The main impurities of EMD, Lead reduced from 300 PPM to around 50 PPM and Iron reduced from 500 PPM to less than 150 PPM as against the requirement of less than 50 PPM and 150 PPM.

Patents filed: Two and one is under process for publications.

Expenditure on R&D

Year	Expenditure on R&D (Rs. in Crores)	Sales turnover (Rs. in Crores)	Expenditure on R&D as % of sales turnover
2014-15	6.00	831.16	0.72
2015-16	7.33	634.60	1.16
2016-17	4.68	989.84	0.47
2017-18	9.64	1323.46	0.73
2018-19	8.91	1440.67	0.62
2019-20*	2.98	566.15	0.53

* From April to October 2019 (un-Audited)



8.3.6 KIOCL Ltd

- Synthesis of Kudremukh Iron Ore Mine Tailings based Geopolymer Aggregates using Fly ash as precursor in Construction Industry in collaboration with Dayananda Sagar College of Engineering (DSCE), Bangalore.
- Optimization of Grinding Media – Feasibility study/Trial production using low chrome grinding media from high chrome grinding media.

Expenditure details towards R&D Work as are follows:

Financial Year	Expenditure incurred (Rs. in Lakhs)	As % of total turnover
2015-16	17.00	0.09
2016-17	Nil	Nil
2017-18	30.52	0.019
2018-19	12.00	0.005

8.3.7 Tata Steel Limited (TSL)

Product Technology Highlights (FY 19-20): The brief details of a few projects initiated in FY 19 are provided below:

- Development of API X-70-line pipe steel grade for sour application.
- Development of Hot rolled wider section Armor Steel.
- Sensor development for online monitoring of remnant length of lances.
- Laser Welding-Brazing Process for Joining dissimilar metals for Automotive Applications.
- EVI and VAVE Activity with Major Customers.

Process Technology Highlights (FY 19-20)

- Process for making coke from non-coking coal.
- Systems to Track, Engineer and Measure Burden Distribution in Blast Furnace.
- Value added carbon products from coal tar.
- Online model to predict Rolling force in PLTCM.
- Iron Powder Product Development.
- Enhancement in tuyere life.
- Process Development for CO₂ Capture & Storage and New Material Production.



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Financial Year	R&D expenditure as % of Turnover	R&D expenditure (Rs in Crores)	Number of Patents Filed	Number of Patents Granted	Number of Collaborations with Research Institutes
FY 16	0.34	129	71	32	32
FY 17	0.27	145	78	42	42
FY 18	0.30	182	94	58	34
FY 19	0.31	216	107	72	40
FY20 (April – November, 2019)	NA*	NA*	30	29	33

*Details of R&D expenditure for the current FY are not available as of now

8.3.8 JSW Steel Ltd

Vijayanagar works

R&D Works (Projects, Results and Achievements) Carried Out during 2019-20

- Total of 46 numbers of R&D projects for process improvements, energy optimization, product customization and technology development and 3 numbers of collaborative projects have been planned in 2019-20.
- A total of 12 projects (projects relating to process, energy and product optimization) have been completed till Nov 2019.
- A total of 3 collaborative projects has initiated till Nov 2019 with academic institutions (IIT Madras), NCCBM (Ballabgarh) and CRRI (New Delhi).

Summary of R&D Investment

Year	Annual Turnover [Rs. in Crores]	Investment in R&D [Rs. in Crores]	R&D Investment against Annual Turnover, [%]
2015-16	27818	8.06	0.029
2016-17	35299	19.30	0.055
2017-18	43124	32.50	0.075
2018-19	52366	31.71	0.061

Patents filed and granted during last four years

Year	No. of Patents filed during the year	No. of Patents granted during the year
2015-16	19	4
2016-17	11	1
2017-18	11	4
2018-19	11	2
April-November, 2019	20	8



Dolvi Works

R&D Works (Projects, Results and Achievements) Carried Out during 2019-20

- Total of 8 R&D projects for process improvements, energy optimization and product development have been planned in 2019-20.
- A total of 2 projects relating to process improvement have been completed till Nov 2019.
- A total of 3 collaborative projects is under progress till Nov 2019 with CSIR-CBRI Roorkee, CSIR-IMMT Bhubaneshwar, CSIR-NEERI Mumbai.

Summary of R&D Investment

Year	Annual Turnover [Rs. in Crores]	Investment in R&D [Rs. in Crores]	R&D Investment against Annual Turnover, [%]
2015-16	6190	1.97	0.03
2016-17	14562	2.23	0.02
2017-18	16402	6.70	0.04
2018-19	17990	6.94	0.04

Patents filed and granted during last four years & upto November, 2019:

YEAR	No. of Patents filed during the year	No. of Patents granted during the year
2015-16	1	1
2016-17	5	0
2017-18	5	1
2018-19	6	0
April-November, 2019	3	0

Salem Works

R&D Works (Projects, Results and Achievements) Carried Out during 2019-20

- Total of 5 numbers of R&D projects for product development and waste utilization has been planned in 2019-20.

Summary of R&D Investment

Year	Annual Turnover [Rs. in Crores]	Investment in R&D [Rs. in Crores]	R&D Investment against Annual Turnover, [%]
2015-16	2661	3.20	0.120
2016-17	3240	3.75	0.115
2017-18	3604	4.56	0.126
2018-19	4840	6.96	0.144

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Patents filed and granted during last four years & upto November, 2019

YEAR	No. of Patents filed during the year	No. of Patents granted during the year
2015-16	0	0
2016-17	0	0
2017-18	0	0
2018-19	1	1
April-November, 2019	2	0

8.3.9 Jindal Steel and Power Limited (JSPL)

New Product Development

- Development of Blooms of grade: 41Cr4(BM), 31CrV3, SAE1004, R200, 30Mnb5.
- Development of grades in Plate mill: SAE 1006, Size (4X1500) mm Coil, API 5L X-42, Size (18 X2000) mm Coil.
- Development of Asymmetry Rail (ZU-1-60).
- Development of head hardened rails in As Rolled condition (1175 HT Grade) as per Indian Railway requirement.

R&D Investment

Total investment in FY 19-20 (up to October, 2019)/ Provisional	Rs. (In Cr)
R & D REVENUE EXPENSES	3.84
R & D CAPITAL EXPENSES	-
Total	3.84

8.3.10 Tata Steel BSL Limited (TSBSL)

Development of New Steel Grades_ Hot Rolled Coil: TSBSL has developed following new steel grades in FY: 2019 - 20 (April - November, 2019):

- Approval of API X70 grade by Mecon for supply of HR Coils for GAIL Projects.
- Development of API 5L X-70M PSL - 2 in size 7.28x1470mm & 12.83x1460 mm for BPCL project.
- Successful developed API 5L X60M PSL - 2 in size: 6.50x1625 & 8.0x1620 mm for HP Oil Gas Limited.
- Development of API 5L Gr-BM PSL-2 grade in size 6.5x1385 mm for HP Oil Gas Limited.
- API 5L X-70M PSL-2 grade has been developed & initial quantity of 4,400 MT has been supplied to Jindal India Ltd for GAIL Projects.
- Development of SAE1008 grade for Indian Steel Corporation Ltd.
- Development of IS 11513 CR-2 (D05) for Tata Steel branded product Steelium for panel application.
- IS 11513 CR-2 grade (C16) for Tata Steel branded product Steelium for automotive internal components or drawing application.
- Development of Bake Hardening Steel BH 220.



- Development of IS 10748 Gr-6 in thickness up to 15.80 mm for Tata Structura.
- Development of IS 11513 CR-2 grades for Tata steel branded product Steelium for automotive internal components or drawing application.
- Development of IS 2062 E250 grade in non-peritectic grade, HRC thickness up to 12.0 mm.

8.3.11 Essar Steel India Limited

The R&D unit is located at Hazira, Surat, Gujarat inside the factory premises of Essar Steel India Ltd. Essar R&D is certified as “In-House R&D unit” by Department of Scientific and Industrial Research.

Patents granted/ applied in last 3 years: 4

R&D Initiatives

- Online defect detection system in a compact strip plant CSP mill.
- Improving strength of corex sludge and fume extraction system dust agglomerates using bentonite for recycling in sinter plant.
- Development of Mill scale bricks for recycling in blast furnace.
- Development of corex sludge briquettes for recycling as coke substitute in steel making.
- Magnetic separation of blast furnace dust to recycle iron bearing in sinter and coal bearing in steel making process.
- Development of high strength heavy Tetrapods using steel slag for marine application.
- Development of Dolime fines briquetting for recycling in steel melt shop.

Commercialization of R&D initiatives

- A 700 TPD micro pelletization facility has been set up 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. The know-how and the show-how was from in-house R&D.
- A 600 TPD briquetting facility has been set up at Hazira for producing self-reducing briquettes from the steel plant waste. The briquettes are being fed into steel melt shop. The know-how and the show-how was from in-house R&D.
- A 500 TPD Corex coal briquetting plant was commissioned in 2017, using innovative binders that make the briquettes suitable for charging the briquettes in Corex process. The plant achieved rated capacity in 2018. The binder was developed at R&D and the plant was set up with R&D show-how.
- A 200 TPD Corex sludge briquetting facility has been setup at Hazira for producing briquettes along with BF dust for replacing coke in steel making process. The know-how and the show-how was from in-house R&D.
- Following steel grades were successfully commercialized:
 - ❖ Pressure vessel quality plates with thickness >90-95mm with stringent PWHT condition.
 - ❖ Development of heavy plates in Q&T products for e.g. 537 C12 (>90-95mm).
 - ❖ Boron Steel for hot stamping in lower thickness (1.6 mm / 1.8 mm) - 20MnB5 / 22MnB5.
 - ❖ High strength steel with TS>590Mpa in lower gauges <2.50mm for Automobile application.
 - ❖ High strength atmospheric corrosion resistant steel (A709 HPS70W).



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R&D expenditure

The estimated expenditure is as below:

Year	Capital (Rs. in Lakhs)	Recurring (Rs. in Lakhs)	Total (Rs. in Lakhs)	R&D expenditure as % of turnover
2015-16	0	2536	2536 ¹	0.17%
2016-17	0	402	402	0.02%
2017-18	92	623.8	715	0.03%
2018-19	0	1359.37	1359.37	0.042% ²
2019-20	0	146.45	146.45	NA

¹The spending is higher as large number of import substitute grades from newly commissioned plate mill were developed during this period. ²With provisional turnover of Rs 31,800 Crores.

8.3.12 Jindal Stainless Hisar Limited (JSHL) 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%
2018-19	8,956.40	17.13	0.19%

8.3.13 Jindal Stainless Limited (JSL), Jaipur

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%
2018-19	12585.01	2.63	0.02%



CHAPTER-IX

STEEL AND ITS USES-ARENAS AND NEW PRODUCTS

9.1 Use of Steel in roads [Steel Crash Barriers & Continuously Reinforced Concrete (CRCP)]

9.1.1 Steel Crash Barriers

What are safety barriers?

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 20 m 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 median causing head on collision.
- Fixed objects on Narrow Medians.

Types of Crash Barriers

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



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 drives to keep away from the safety barrier	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)

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

Recommendation

- Steel crash barriers shall be provided along with 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.

9.2 Use of Steel in Buildings

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 in resisting compression is very high.



- Steel is capable of taking lot of tensile force whereas its capacity in carrying compression is highly influenced by global buckling of the member and sometimes local buckling of the components of the member due to its geometrical properties.
- In composite construction these two different materials are tied together by the use of shear studs at their interface having lesser depth and thereby saving material cost considerably.
- The coefficient of thermal expansion of both concrete and steel being nearly same, differential thermal stresses are not induced in the section under variation of temperature.

Unique Benefits of Composite Construction

- Most effective utilization of materials viz. concrete in compression and steel in tension.
- Steel can be deformed in a ductile manner without premature failure and can withstand numerous loading cycles before fracture. Such high ductility of steel leads to better seismic resistance of the composite section.
- Steel component has the ability to absorb the energy released due to seismic forces.
- Ability to cover large column free area. This leads to more usable space. Also, speedy construction facilities quicker return on the invested capital.
- 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.

9.3 Use of Steel in Bridges

- General affinity of Bridge engineers in India has long been to go for steel bridges. The Howrah Bridge (Rabindra Setu) over river Hooghly is testament to the capabilities of Indian engineers. Other bridges, which tell the story of the competence level of Indian engineers, include Road cum Rail Bridge over river Ganga near Mokameh in Bihar, road-cum-rail Bridge across river Brahmaputra in Guwahati and numerous others. Only over the last few decades, RCC or Pre-stressed concrete bridges have taken over and many of the major bridges are being constructed using concrete as the major material of construction. This has been possible due to development of higher grades of concrete over the last few years. However, steel has also made huge leap in terms of higher grades with higher performance, thus enhancing the necessity for use in steel in modern bridges.

- **General Advantages of Steel as Construction Material in Bridges**

While studying the advantages of steel bridges over other materials of constructions like mainly the concrete ones (both RCC and PSC), the two main aspects to be kept in mind as usual are strength and economy. The lesser depth of steel girder in bridge means lower finished height of the working level. This will lead to

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lesser length and height of the approach way, leading to significant savings in overall cost of the entire system. Moreover, steel usually has a higher strength-to-weight ratio leading to lesser dead to live load ratio especially important in longer span lengths. A list of advantages of steel intensive bridges has been given below:

- ❖ Lesser time of construction compared to PSC girders.
- ❖ For larger spans steel bridges are easy for design and construction.
- ❖ Steel bridges are constructed with extensive prefabrication leading to higher quality control and hence better long-term performance.
- ❖ Use of high strength steel in bridges further reduces dead load, depth of structure and eases transportation and erection causing lesser overall cost of facilities.
- ❖ Continuous structural systems for steel structures lead to continuity, leading to lesser number of bearings and ensure higher durability.

• Steel-Concrete Composite Construction

The global resurgence of steel in construction both in bridges and in other structures has in no way lessened the importance of concrete as a construction material. It has been widely acknowledged by civil engineering experts across the world that appropriate combinations of the steel and concrete, utilizing the distinctly different merits of the two materials, is the best possible solution for a structural problem. As a result, bridge engineering mostly in road bridges and flyovers, is moving towards more extensive use of steel-concrete composite structural systems utilizing the strength of the two materials synergistically, especially in urban areas, as for grade separators in roads.

In conventional construction, concrete slabs rest over steel beams and are supported by them. Under load these two components act independently and a relative slip occurs at the interface if there is no connection between them. With the help of a deliberate and appropriate connection provided between the beam and the concrete slab, the slip between them can be eliminated. In this case the steel beam and the slab act as a “**composite beam**” and their action is similar to that of a monolithic Tee beam.

Various sectional configurations including I-sections and box sections have been found to be suitable for various types of Bridge spans. In urban areas, for flyovers acting as grade separators, under various considerations it is found that box girders are more appropriate vis-à-vis I-girders for the obligatory span(s) and the reverse is true for the shorter approach spans. Live examples for this are flyovers at Mayapuri and Andrewsganj intersections along the Ring Road in Delhi, Bridges on Metro Rail line at Delhi and flyovers in Kolkata under the Kolkata Urban Development Projects.

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, Consumers 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



CHAPTER-X

PROMOTION OF STEEL USAGE

10.1 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 awareness for more usage of steel in rural areas.

INSDAG is involved in all the BIS Committees (CTD 54, MTD 4) in order to promote the use of steel in the country. INSDAG is currently involved in the following BIS Codes –

- IS – 1786: High Strength Deformed Bars and Wires and Wires for Concrete Reinforcement.
- IS 11384: Code of Practice for Composite Construction in Structural Steel and Concrete.
- IS 16651: High Strength Deformed Stainless Steel Bars and Wires for Concrete Reinforcement.
- IS – 2062: Hot Rolled Medium and High Tensile Structural Steel.
- IS – 11587: Structural Weather Resistant Steels.

INSDAG is coordinating with Central Building Research Institute (CBRI), Roorkee, a nodal agency on development of various alternative building technologies, on development and implementation of INSDAG's steel-intensive model houses across the country depending on various regional requirements. MoU with CBRI in this regard has also been signed.

INSDAG has signed MoU with IIT Kharagpur for Promotion of Usage of Steel in Construction in India. The MoU is of umbrella type and specific projects have been proposed by INSDAG to go ahead with this MoU. The first two projects proposed are – Retrofitting of Masonry, RCC and Steel Structures using steel elements to enhance their longevity and Development of Light Weight Noise Barriers-cum-Walls, which could be utilized as cladding material specially in hospitals and schools.

INSDAG is taking an active role in propagating benefits (financial, environmental and social) of steel-based construction in seminars being organized under the theme of 'Why Steel'. As on date, two such seminars have been organized in Bhubaneswar and Vizag jointly with Ministry of Steel.

10.2 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 had earlier carried out a survey/ study through the Joint Plant Committee (JPC) to assess the demand for steel in rural India. The Study, completed in 2011, 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 average per capita consumption of finished steel in rural India was assessed at 9.78 kg. during the period 2007-2009, 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.

In recent times, a fresh study on the domestic rural steel consumption patterns has been completed by JPC under the aegis of the Ministry of Steel, covering 300 districts, over 1400 villages, more than 23,000 rural

households, 760 rural manufacturers, over 3000 channel partners and nearly 2400 rural institutions. 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. The pan-India field survey conducted by M/s Kantar IMRB has covered in its scope all items of daily and regular rural life/lifestyle across all the major end-use segments.

The Study Report has indicated per capita steel consumption in rural India to be 19.1 kg in 2018-19, driven by household construction and items for professional use.

The Study has also examined steel consumption trends in those rural infrastructure projects which are for public use and are typically funded out of central govt support / govt. schemes and the estimated use of steel therein has been worked out to be 2-3 kgs annually. The Study has come up with focused recommendations on ways and means to increase steel use in rural India in both current and emerging avenues like:

- Promoting RCC/Steel Concrete Composite Structures for residential construction
- Issuing guidelines & regulations for construction in areas prone to natural calamities.
- Replacement of asbestos roofing sheets.
- Training of masons in RCC construction techniques.
- Increasing rural penetration of 2 wheelers and small commercial vehicles for economic mobility.
- Creating interim local storage for harvested produce.
- Perception of steel and promoting its versatility.
- Educating rural consumers about corrosion protection.
- Training and equipping local artisans for steel work.
- Taking new products to rural market.
- Impress on OEMs to offer sturdier product to rural market.
- Initiatives under Swachh Bharat Mission.
- Improving availability of steel in rural areas.
- Mechanization of farming activities.
- Financing of working capital.

10.3 Steps taken by SAIL to promote usage of steel

There are continuous efforts in SAIL for increasing the usage of steel by interacting with key users and influencers in Government as well as private sector. Some of the efforts are:

- Along with other steel producers' body & INSDAG, SAIL is working on increased usage of steel incentive structures.
- SAIL, along with the others in the industry, has raised the issue of formulation and integration of Codes and Standards for steel intensive structures.
- While public usage of steel depends primarily on Government infrastructure and welfare spending, the individual use segment of steel has been actively targeted by SAIL for market building exercises along with promotion of its own products as under:

- ❖ In order to promote steel intensive construction, SAIL has launched its superior parallel flange beams under Brand name “NEX”. In the period April-December, 2019, about 94 meetings/presentations have been conducted with customers and designers across the Country by SAIL to promote use of parallel flange Beams.
- ❖ SAIL has been conducting workshops/lectures at important Engineering Institutes across the Country for students/teachers of Civil Engineering propagating the design advantages and other technical aspects pertaining to steel usage. In the current year, so far 9 such interactive workshops have been held in various engineering colleges across the Country including IITs, NITs, etc.
- ❖ SAIL has been holding seminar on the theme “New Challenges in Steel Design & Construction” for architects & designers. In the seminars, SAIL has been promoting steel structure designs with special emphasis on its own products and life cycle cost advantages of such designs.
- ❖ In order to help promote and build acceptance of steel usage in rural areas and to create awareness about Steel usage among the end users, SAIL has an ongoing programme under “Gaon Ki Ore” campaign for working with village level public decision makers, opinion makers, masons, builders, etc. In the current year, in the period April-December 2019, SAIL has conducted 114 “**Gaon Ki Ore**” meetings across India.
- ❖ SAIL is collaborating with others in Industry to make presentations to NHAI, Defence, CPWD, MoRTH, IRSTC, etc. on use of steel structures in construction.
- ❖ SAIL is interacting with senior officials of Central and State Governments to promote enhanced and innovative uses of steel in Government projects. The team has met Jal Jeevan Mission officials and had discussions about the capacities of SAIL in pipe making and other steel products. The members also had meeting with officials of Boarder Road Organization, Ministry of Defence and Ministry of Housing and Urban Affairs for promoting application of steel in general and SAIL, in particular.
- ❖ SAIL has contacted NHAI officials under MoRTH for increasing steel consumption in Bharatmala projects. Details of ongoing and upcoming projects were gathered for guiding SAIL’s marketing efforts.
- ❖ A meeting was held between SAIL team and Director (Housing for all), Ministry of Housing and Urban Affairs (MoHUA) for increasing general usage of steel in Prime Minister Aavaas Yojana.
- ❖ As an initiative for showcasing steel usage and enhancing smart city aesthetics, SAIL has been designing and supplying Stainless steel artefacts and ready to use products like iconic giant charkha, make in India lion, bus shelters, litter bins, etc. These products have been showcased in New Delhi and are in use in other locations.
- ❖ Over 3,85,000 square feet of wall paintings have been done in current year till December, 2019 to promote use of TMT and Galvanised steel sheets of SAIL.
- ❖ SAIL has undertaken various promotional activities while undertaking sales through its dealer network. Some such activities are listed below:
 - Advertisements in Railway stations, Airport trolley advertisement, Advertisement in Kiosks, Newspaper advertisements, etc. have been done to increase awareness of SAIL steel.
 - Distributing Product brochures/technical literature to the dealers for onward distribution amongst customers.
 - Advertisements in coaches in passenger train.
 - Radio jingles in the Eastern Region.



- ❖ In order to enhance retail presence with special emphasis on rural penetration, SAIL has launched its reinforcement bar Retail brand "SAIL-SeQR". This is being promoted as better-quality steel for safer homes.
- ❖ SAIL is in the process of strengthening its retail channel to make steel reach to the hinterland and individual steel consumers. Around 4.86 lakh Tonnes of steel has been sold through SAIL dealers in April-December 2019. As on 1st January 2020, SAIL has 1,845 dealers in place.

10.4 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. In order to ensure continuous supplies, MoUs are entered into with Manufacturers, Project Customers and Retailers. Ex-Plant dispatches are also facilitated, wherever the customers so desire.

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:

- Rural Dealership Scheme through Secured Interest Free Credit, Cash & Carry incentive and Product Promotion incentives etc.
- Rural Area advertisements are made through DD Kisan TV Channel, tie-up with FM Radio & FM Gold Radio, advertisement campaign on 100 State Transport Corporation buses in the rural areas of AP & Telangana & other promotional activities taken up by Rural Dealers like Hoardings, Newspapers etc.
- Advertisement on the web portal of Steel Guru, Hoarding and Digital Board at Vizag Airport, Advertising at conferences, Seminars, Summits of NIITs and Advertisements in Steel Magazines viz, Steel & Metallurgy, Steel Scenario, Iron & Steel Review, Steel Insights etc. Participating in Industrial Trade Fares and Expo viz., Builders Association of India, Indian Steel Conclave, Vibrant Gujrat, MSME Expo, and International Trade Fares etc.
- Rio Olympic Games Silver Medalist Ms. P V Sindhu appointed as the brand ambassador of RINL. Samata Express & Swarna Jayanti Express trains branding done for better visibility of steel products & VIZAG STEEL Brand.
- Organising Customer Meets at Branch, Regional and HQ level. 67 Districts all over India were especially identified and covered by visit of MRCO (Market Research Contact Officer) to promote use of steel in rural areas.



Shri Dharmendra Pradhan, Hon'ble Union Minister of Steel felicitating RINL-VSP's Brand Ambassador Ms PV Sindhu for winning the Gold at BWF 2019

- In order to leverage the potential of on-line sales, RINL has appointed E-retailers at Visakhapatnam, with a view to increasing penetration into distant location and supply products from one or more stockyards on pan India basis.
- 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, and carrying out projects / studies that help enhancing the marketability of steel products and widening the application areas of steel in the country.
- Funding of INSDAG projects on rural skill development program under the Market Development Project scheme by JPC, Collection of data on rural level stock points by INSDAG. Publication of books/study reports in connection with framed steel structures for rural areas by INSDAG etc. are efforts in this direction.
- Development of high-grade reinforcement bars like 500D and 550D grades through TMT route. INSDAG has been providing trainings for masons on good construction practices with TMT bars.

10.5 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 Business to Business & Business to Customer segment.

10.6 MOIL

MOIL has a production of 1.3 Million Tonne of manganese ore from its eleven mines located in Central India in the State of Maharashtra and Madhya Pradesh. four mines are operated by opencast method in which shovel -dumper combination is being used. Seven underground mines are operating at shallow (154 mtr.) to moderate (443mtr) depth below the surface.

Details of efforts taken by MOIL for increasing the steel usage are as under:

Opencast Mines

- Instead of tar roads, now all the approach roads are of cement concrete in which 10-12mm steel bars are being used. This has also increased life of the roads.
- For infrastructure development like siding bunkers, rails and girders are used.
- For mechanization, mobile crushers and steel plates for bunkers are being used continuously.
- Sorting and siding sections are constructed by steel girders and steel roof for the safety of men and machines.
- For exploration steel casing is being used.
- Dumps and weak rocks are covered with wire mesh and rock bolt for safety.

Underground Mines

- In all the underground mines of the MOIL, the method of stopping is horizontal cut and fill, post-filling by hydraulic sand stowing. For support of back, reinforcement is being done by pre-stressed steel wire cable (fully cement grouted), cable bolting. This system has saved the valuable timber required for square set. Every year MOIL is procuring more than 60 Tonnes of steel wire for cable bolting.
- MOIL has also adopted rock bolting in all the underground mines. MOIL procuring 100 Tonnes of steel roof bolts along with steel plate.
- Old manways of cement concrete and chutes are now replaced with steel manway and chutes by steel plates. MOIL is continuously procuring around 850 to 900 Tonnes of steel plates, angles etc. every year.
- Precast RCC slabs, in which steel bars fins application are used, is adopted for support of haulage, crosscut and even in tramlines also.
- For continuous use of water in underground for drilling a compressed air line and water line is being laid by steel G I pipes. Annually MOIL is procuring round 40 Tonnes per year.
- Various infrastructural activities like quarters, schools, offices are constructed in mines every year in which huge quantity of steel is required.
- For mechanical handling of ROM at surface, crushing and screening plant are now under construction stage at Munsar, Kandri, Ukwa & other mines.



CHAPTER-XI

ENERGY, ENVIRONMENT MANAGEMENT AND CLIMATE CHANGE

11.0 Introduction

Environment management and energy efficiency constitute an important benchmark for evaluation of Iron & Steel Industry. 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 as under:

11.1 Government Initiatives

11.1.1 National Action Plan on Climate Change (NAPCC)

National Action Plan for Climate Change (NAPCC) has been launched in 2008 to address the Challenge at the 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 that could be traded. PAT has become effective from April 2012.

So far, under PAT scheme (2012-2019), 158 Iron & Steel plants, have been notified who would be required to reduce the Specific Energy Consumption (SEC) from their baseline value. 67 of these Designated Consumers (DCs) have completed PAT I and entered the PAT II cycle along. 71 DCs have participated in PAT 2 cycle, which have completed in March 2019. PAT III, PAT IV and PAT V cycle are also notified by BEE in 2017, 2018 & 2019 respectively with 29 new DCs in PAT cycle III, 35 new DCs in PAT cycle IV and 23 new DCs in PAT cycle V.

Iron & Steel Plant coverage in PAT

S. No.	PAT Cycles	Number of Units	Total Production (MT)	Total Energy Consumption (MT)	Energy Saving Target (MT)	Savings (MT)
1	PAT Cycle-1	67	42.55	25.32	1.486	2.10 (Achieved)
2	PAT Cycle-2	71	64.49	40.44	2.37	3.362 (Projected)
3	PAT Cycle-3	29	10.67	7.64	0.456	-
4	PAT Cycle-4	35	4.86	3.22	0.192	-
5	PAT Cycle-5	23	4.70	2.82	0.168	-
	Total	225	127.27	79.44	4.672	

The total savings achieved by Iron & Steel sector covering the designated consumers in PAT Cycle I is 2.10 Million Tonnes. For achieving this, DC's has invested Rs. 5199 Cr. in various Energy Conservation Measures.



11.1.2 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 projects commissioned and in progress are as follows:

- BF Stove Waste Heat Recovery: Completed at Tata Steel.
- Coke Dry Quenching: Completed at Tata Steel.
- Sinter Cooler Waste Heat Recovery: Completed at Rashtriya Ispat Nigam Limited.
- Energy Monitoring and Management System at ISP Burnpur, SAIL is in progress.

11.1.3 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. The Task Force had extensive deliberations with the Stakeholders in which all the issues related to utilisation of iron & steel slag 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 & Standards Organisation (RDSO) for framing standard for use of iron and steel as rail ballast and Ministry of Environment & Forest & Climate Change for considering making mandatory the use of iron & steel slag in road making. Ministry of Steel has also urged all the ISPs for setting up of commercial plant to produce processed SMS slag.

Ministry of Steel has also constituted a Core Group of stakeholders comprising of steel producers, users of slag, CSIR labs, FICCI to explore the following:

- Evolving guidelines on utilisation of iron & steel slag.
- Focused R&D on processing & usage of Iron & Steel slag.
- Development of web based/ application-based information sharing on iron & steel slag availability at various locations, its utilisation & research being carried out.



Ministry of Steel is funding following 3 R&D projects for promoting utilisation of steel slag:

- Development of Design Guidelines and Specifications for utilization of steel slag in road construction by CSIR-CRRI.
- A Novel Approach of Making Green Belite Cement from Electric Arc Furnace Steel Making Slag by IIT Kharagpur.
- Development of newer Cementitious Materials using Chemically Activated LD Slag by CSIR-CBRI.

11.1.4 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 is actively engaging with MoEF&CC and the stakeholders in this matter.

11.2 Initiatives of Steel Companies

11.2.1 Steel Authority of India Limited (SAIL)

Energy Management

Trend of Specific Energy Consumption and Specific CO₂ emission is as under:

Parameter	2015-16	2016-17	2017-18	2018-19	2019-20 (April-December, 2019)
Specific Energy Consumption (GCal/tcs)	6.51	6.60	6.49	6.50	6.53*
Specific CO ₂ emission (T/tcs)	2.60	2.61	2.56	2.57	2.59*

*Provisional figures

Improvement in environmental indices during April-December, 2019 is given below:

- Specific CO₂ Emission has reduced by 0.8% (2.61 T/tcs to 2.59T/tcs).
- Specific Effluent Load has reduced by 5.7% (0.088kg/tcs to 0.083kg/tcs).
- Utilisation of BF slag has increased by 2.6% (95.07% to 98.2%).
- Utilisation of BOF slag has increased by 2.4% (55.5% to 56.8%).
- Utilisation of Total Solid Waste has increased by 3.4% (85.2% to 88.1%).



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Generation and utilization of Iron and Steel Slag along with details of innovative solutions for recycling/reuse of steel slag

Utilisation of BF & BOF slag and Total Solid Waste during April – December, 2019

BF Slag	BOF Slag	Total Solid Waste
98.2%	56.8%	88.1%

R&D based initiatives are being undertaken either through in-house research wing or in association with other research centers or academies of national repute to improve upon the BOF Slag utilization. Some of the initiatives are listed below:

- Steam maturing of BOF slag.
- Dry granulation of BOF slag.
- Use of BOF slag as rail ballast.
- Use of BF and BOF slag as substitutes to natural aggregates.
- Use of BF/BOF slag in road making.
- Use of BOF Slag as Soil ameliorant.
- Use of BOF Slag in cement making.

Highlights of Compliance to CREP Action Points

- Out of 34 installed Coke Oven batteries, 13 batteries have been re-built since 2003.
- All the plants achieved a 30% reduction in the fugitive emission in Steel Melting Shops.
- All the blast furnaces which are in operation across SAIL plants, including the new BFs at the BSP, RSP and ISP, are equipped with CDI facilities.
- Utilisation of BF slag was 98.2% during April-December, 2019 and utilisation to the fullest extent shall be achieved only after installation and efficient operation of cast house slag granulation facilities.
- Utilization of BOF slag was 56.8% during April-December, 2019. There are technological limitations in recycling/reusing of BOF slag. However, efforts are being made to enhance utilisation through R&D.
- The specific water consumption (m^3/tcs) at the integrated steel plants during April to November, 2019, against Corporate Responsibility for Environmental Protection (CREP) norm are as follows:

BSP	DSP	ISP	RSP	BSL
CREP Norm: 5 m^3/tcs			CREP Norm: 8 m^3/tcs	
2.77	3.24	5.30	3.91	3.45

Note: Due to unprecedented breakdown of ISP, production suffered for a long period and specific consumption of water was more.



Other Initiatives

- Adoption of Environment Management System (EMS) linked with ISO-14001.
- Plantation: Since inception, more than 20.9 Million saplings have already been planted across all plants and units. More than 3.05 lakhs saplings have been planted during April – December, 2019.
- Eco-restoration of mined-out area.



- Promotion of non-conventional energy sources.
- Environment-friendly disposal facility for Poly Chlorinated Bi-Phenyls (PCBs), at BSP.
- CO₂ sequestration through afforestation at RSP.

11.2.2 Rashtriya Ispat Nigam Limited (RINL)

Energy Consumption (GCal/tcs) & CO₂ Emissions (Tonnes/tcs)

Year	*SEC (Gcal/tcs)	CO ₂ emissions (Tonnes/tcs)
2015-16	6.40	2.787
2016-17	6.39	2.785
2017-18	6.05	2.62
2018-19	5.98	2.59
2019-20 (Till Nov'19)	6.00	2.58

*SEC as per PM trophy methodology

Measures Taken/being taken for reduction in Energy Consumption (2019-20 till November, 2019)

- Improvement in gross coke yield at Coke Oven from 72.88% to 73.04%.
- Improvement in Tar yield at Coke Oven from 3.13% to 3.14%.
- Reduction in coke breeze consumption at Sinter Plant-1 from 65.1 Kg/t of charged sinter to 63.6 Kg/t of charged sinter.
- Reduction in Sp. Heat Consumption at Sinter Plant-1 from 29 MCal/tGS to 27 MCal/tGS.
- Reduction in Sp. Heat Consumption at Sinter Plant-2 from 9 MCal/tGS to 6 MCal/tGS.





RINL accorded as “National Energy Leader” in 2019 for winning “Excellent Energy Efficient Unit Award” for the consecutive three years (2017,2018 & 2019) by CII, Godrej Green Business Centre, Hyderabad

- Reduction in Sp. Power Consumption at Sinter Plant-2 from 67.70 kWh/tGS to 65.86 kWh/tGS.
- Reduction in Sp. Heat consumption at Blast Furnace from 499 MCal/thm to 491 MCal/thm.
- Reduction in Fuel rate at Blast Furnace from 541.6 Kg/thm to 538.1Kg/thm.
- Increase in Pulverized Coal Injection (PCI) in Blast Furnace from 59.2 Kg/tHM to 90.1 Kg/thm. BF-2 PCI increased from 27.8 kg/thm to 91.0 Kg/hmM. BF-3 PCI increased from 95.4 kg/thm to 112.9 kg/thm.
- Improvement in LD gas yield at SMS-1 from 104 Ncum/tcs to 107 Ncum/tcs.
- Reduction in Sp. Heat Consumption at SBM from 302 MCal/tIB to 277 MCal/tIB.
- Reduction in Sp. Heat Consumption at WRM-2 from 265 MCal/tIB to 261 MCal/tIB.
- Improvement in Power Generation at GETS from 1.07 MW to 2.70MW.
- Improvement in Power Generation at BPTS from 11.65 MW to 12.17 MW.
- Improvement in Plant generation at TRT BF-3 from 5.39 MW to 7.12 MW.
- ❖ Verification CDM project titled “Top Pressure Recovery Turbine (TRT) of BF-3” has been completed. UNFCCC issued 58,841 CERs to RINL.
- ❖ RINL complied PAT 2nd cycle targets of Bureau of Energy Efficiency. Monitoring & Verification agency has recommended to BEE for issuance 1,29,907 Escerts (Energy Saving Certificate) to RINL.
- ❖ Recertification audit for Energy Management System ISO:50001 has been completed in Nov’19.

RINL engaged M/s Development Enviroenergy Services Limited (DESL) as an Energy Audit agency to conduct Mandatory Energy Audit as per EC Act-2001 on 6th November’19.



Waste Heat Recovery Systems (2019-20 Till November, 2019)

Energy Saving facility	Units	Energy Recovered	Boiler Coal Saved (Tonnes)	Reduction of CO ₂ emission(Tonnes)
Total volume of LD Gas recovered at LD Gas recovery plant-1&2	MNCum	285.19	166743	261786
Total power generated at Back Pressure Turbine Station (BPTS, COB4 &5 turbine)	MWh	130840	104672	164335
Total power generated at Gas Expansion Turbine Station (GETs) & TRT	MWh	57489	45991	72206
Total power generated from Waste heat recovery of Sinter plant straight line cooler (NEDO project)	MWh	325	260	408

(MNCum-Million Normal Cubic Meters, MWh-Mega Watt Hours)

Usage of Byproduct gases in Thermal Power Plant (2019-20 Till November, 2019)

Name of Fuel used in CPP-1	Units	Value	Boiler Coal Saved (Tonnes)	Reduction of CO ₂ emission (Tonnes)
Coke Oven Gas	MNcum	247.08	345010	541666
BF gas	MNcum	1042.42	281106	441336

Name of Fuel used in CPP-2	Units	Value	Boiler Coal Saved (Tonnes)	Reduction of CO ₂ emission (Tonnes)
Coke Oven Gas	MNcum	72.24	100871	158368
BF gas	MNcum	1646.87	444105	697245

Solar Energy:

Parameter	Units	Value	Boiler Coal Saved (Tonnes)	Reduction of CO ₂ emission (Tonnes)
Solar Plant Power generation	MWh	5016	4013	6300

Environment Management

Highlights of compliance to National/CPCB/SPCB Norms/Regulation in respect of Stack Emission, Fugitive emissions, ambient Air Quality, Efficient Discharge etc. indicating status of adoption of online monitoring system.

During the year 2019-20, VSP has complied with all environment related statutory requirements in respect of stack emissions, ambient air quality and fugitive emissions. In respect of effluent quality, the concentrations of Ammonical N₂, Phenol, Oil, Grease, COD & TSS are within norm as prescribed by



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APPCB/CPCB. All stacks are connected to online and data posting is being done on continuous basis to APPCB & CPCB website as per the directions. Continuous Effluent Quality Monitoring Systems were also installed at both the designated outfalls.

BF slag: 11,09,329 Tonnes of BF Slag was generated and 8,58,468 Tonnes was utilized, achieving utilization of 77.4 % (upto November, 2019).

LD slag: Around 5,40,392 Tonnes of LD Slag was generated and 1,66,754 Tonnes was utilized in Sinter Plant, Blast furnace, Traffic & construction activities achieving utilization of 30.86 % (upto November, 2019).

Other wastes: Other metallurgical wastes i.e. Dust from DE systems & ESPs, Sludges from waste water treatment plants and Mill Scales of about 2,40,643 Tonnes (upto November, 2019) are being utilized in Sinter Plant for Base Mix preparation.

Innovative solutions for recycling / reuse of SMS Slag

Utilization of LD slag:

To overcome logistics challenges that were preventing consumption of higher quantities of LD Slag at Sinter Plant, VSP has developed fabricated & deployed a unique in-situ charging systems for on-line charging of LD Slag to conveyors of Sinter Plant. This has led to substantial increase in consumption of LD Slag at Sinter Plant.

Present consumption in Sinter Plant

LD slag consumption in Sinter Plant increased to 19.9 kg/ t of charged sinter when compared to last year (2018-19) consumption of 15.6 kg/t of charged sinter. This is because of In-situ charging with in-house facilities by providing a bunker on the flux conveyor of RMB & RMPP.

11.2.3 MECON Limited

MECON has taken up implementation of its Sustainable Development (SD) Policy and Plans as per the guide lines of Department of Public Enterprises. MECON has committed to install total 140kWPSolar Energy Power unit by 2019-20. MECON has already installed 40kWp solar unit which is functional and another 40kWp unit under phase -III is under installation and balance 60kWp will be installed by March'20.

MECON declare its office complex and hospital, schools, consumer cooperatives retail stores, club located in township free from single use plastic.

In township one Organic Waste Converter is installed to convert organic waste to manure. The organic manure is used for green belt development in township. MECON employees impart training in waste management to nearby adopted villages in Jharkhand.

MECON has Rain Water Harvesting Scheme for entire Shyamali Colony by Recharge Pits & rain water Percolation Pond is under implementation. Also planned roof top Rain Water Harvesting System for MECON office premises at Ranchi.

11.2.4 MOIL Limited

Various measures are undertaken for control of pollutants:

Air Pollution Control

- Wet drilling of blast holes.
- Muck pile will be wetted before loading.



- Haulage roads are frequently sprinkled with water for which truck mounted water tankers with sprinkler arrangement have been provided.
- Maintaining the drilling speed as recommended by the manufacturers should control dust produced during deep large blast hole drilling.
- Green belt development would be taken up all along the haul roads and overburden dumps.
- 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.



Wind energy farm in Dist. Dewas Madhya Pradesh

Noise Pollution

- Noise is best abated at source by choosing machinery and equipment suitably, by proper mounting of equipment & ventilation systems and by providing noise insulating enclosures or padding where practicable.
- The equipment to be procured is new and as such as the noise emission will be optimal for their design/ operation. Proper maintenance/ working should be done which keeps the noise level within limits.
- Planting of bushy trees or rich canopy in and around the mine area to intercept noise transmission. A 50 m wide belt of trees of different heights should be useful to act as noise attenuator in the mining areas.

Water Pollution

- The water pumped during underground mining operation is fully utilized for plantation and sand stowing operations.
- The rain water collected in open pit is a source of water for dust suppression and plantation activity which is carried out in every year.
- There is no discharge of water from any of the mine in the nearby water sources.

Solid Waste Management

- On an average 4.8 Million M³ of solid waste is produced during the period of the report. MOIL has adopted a system to segregate these wastes in two categories namely (i) 'white waste and' (ii) 'black waste'. Both the wastes are dumped separately and systematically white waste is totally a waste rock and black waste is mostly magniferous rocks or 'sub-grade mineral' which can be utilized in future.
- White dumps once stabilized, are covered with plantation, MOIL in consultation with National Environmental Engineering Research Institute (NEERI) have successfully carried out plantation over these white dumps.

Plantation: Massive plantation is carried out with local tree species. MOIL has 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.

11.2.5 NMDC Limited

NMDC started conducting carbon foot print assessment studies from 2011-12 onwards. The studies are being continued and GHG emission reduction measures are being implemented such as replacement of old motors with energy efficient motors, periodical maintenance of diesel engines etc.

Table: Scope 1 & 2 Emission Intensity (tCO₂e/MT)

Year	BIOM-Kirandul	BIOM-Bacheli	DIOM-Donimalai
2015-16	382.64	338.11	435.61
2016-17	312.90	304.11	355.59
2017-18	315.97	330.49	343.54
2018-19	310.69	339.83	677.18

Highlight of compliance to National /CPCB/SPCB/ Norms/ Regulation in respect of Stack Emission, Fugitive emissions ambient Air Quality, Effluent Discharge etc. indicating status of adoption of online monitoring system.

Monitoring studies

- The Company is conducting monitoring studies covering all environmental parameters through recognized laboratories of MOEF&CC/CPCB. All environmental parameters continue to be well within limits.
- A reputed agency like FIMI has been engaged to carry out Sustainable Mining Audit for major iron ore mining complexes and recommendations of the Audit are being implemented.

Air Pollution

- Dust suppression on mine haul roads & use of atomized mist water spray at dumper platform and at transfer points for suppression of 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 Complex for online monitoring of PM10, PM2.5, SO₂, NO_x and CO.

Water Pollution

- Constructed 2 MLD Sewage Treatment Plant with sequential batch reactor technology at Bachel township for treatment of domestic sewage. Similar treatment plants of 3 MLD each are under construction at Kirandul and Donimalai townships.
- Installed Effluent Treatment Plants at Auto work shop and Service Centre in all mines for treatment of service Centre effluents, which contains suspended solids and oil & grease. One more ETP at Kirandul project is under construction stage.
- Dry screening method is adopted in screening plants. Tailing Dams were constructed at all projects for impoundment of slime generated if wet screening operations in monsoon season.

Noise Pollution

- Use of rubber coated screens and rubber lining at transfer points to prevent undue noise generation.
- Constructed sound proof chambers at tertiary crushing plant areas where operator cum mechanic can sit and oversee the operation of the plant.

Afforestation

- Released Rs.55 crores to Chhattisgarh Harihar Tree Plantation Programme, a state government initiative.



Plantation Drive in Chhattisgarh

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11.2.6 KIOCL LIMITED

- Roof Top Solar power plants have been installed at Pellet Plant Unit as well as at Blast Furnace Unit with a total capacity of 377 kWp. Further 1.3 MWp capacity ground-based Plant has also been installed and put to use at BFU.

Solar power generation

S.No.	Roof Top solar	2018-19	2019-20 (upto December, 2019)
1	At CPP	106760 Units	73645 Units
2	At BFU	404481 Units	625132 Units
3	Ground based solar plant at BFU	580050 Units	1147676 Units

Energy Consumption per Ton of Pellets:

- a) For the year 2017-18 : 66.83 kWh
- b) For the year 2018-19 : 67.85 kWh
- c) For the year 2019-20 : 64.39 kWh (as on October, 2019)

Heat consumption in '000 KCal/T:

- a) For the year 2017-18 : 249.57
- b) For the year 2018-19 : 229.73
- c) For the year 2019-20 : 235.52 (as on October, 2019)

Energy consumption in PP unit in GWh:

- a) For the year 2017-18 : 155.5 GWh
- b) For the year 2018-19 : 151.85 GWh
- c) For the year 2019-20 : 79.84 kWh (Upto October, 2019)

Maximum Demand Recorded is 20.11 MVA recorded in October, 2019.

11.2.7 JSW STEEL LIMITED

Vijayanagar Works

Energy Management Highlights for FY 2019-20 (Till October, 2019)

- Gross power generation through Coke Oven Coke Dry Quenching is 65 MW.
- Blast Furnace Top recovery power generation is 16 MW.
- 36 TPH of Steam generation through sinter cooler waste heat recovery boiler.
- Achieved lower specific gaseous fuel rate at HSM i.e. 0.265 GCal/TP by increasing hot charging % into the furnace.



- Debottlenecking of SMS1 gas export system by installation of high capacity boosters, which will further increase the LD gas recovery to 105 Nm³/tIs.
- Increased the pulverized coal injection in blast furnace 3 & 4 to 200 Kg/thm.

Energy Consumption of JSW Vijayanagar

Year	*SEC, GCal/tcs	*CO ₂ , TCO ₂ /tcs
2016-2017	6.260	2.41
2017-2018	6.185	2.40
2018-2019	6.08	2.31
2019-2020 (Till October, 2019)	6.166	2.32

Note: * As per PMT Norms (i.e. excluding CRM, Boiler & CPP & including DRI & CDQ)

Air Pollution Control

- Pipe conveyor system for eco-friendly transportation of iron ore.
- MEROS technology installed to reduce emissions from Sinter Plant.
- SOPRECO in Coke ovens for visible emission reduction.
- High efficiency ESPs/ Bag filters in Pellet plant.
- Upgradation of SMS1&2 secondary dedusting.

Water Pollution Control

- CO₂ injection project in SMS-1 (water saving of 500 m³/d).
- Rapid Clarifier System for ID fan flushing water of SMS-1 (water saving of 800 m³/d).
- Recovery of makeup water through 6 no. of RO Plant and reuse of treated blow down water for secondary applications, thereby ensuring zero liquid discharge.
- Neutralization of SMS-2 thickener waste water with acidic waste water of CRM-1.

Solid Waste Management

- Usage of dry pit slag in road making – NH63 (by Gammon India).
- Capacity enhancement of micro pellet plant to 2300 TPD.
- Expansion of slag sand plant (additional 125 TPH).



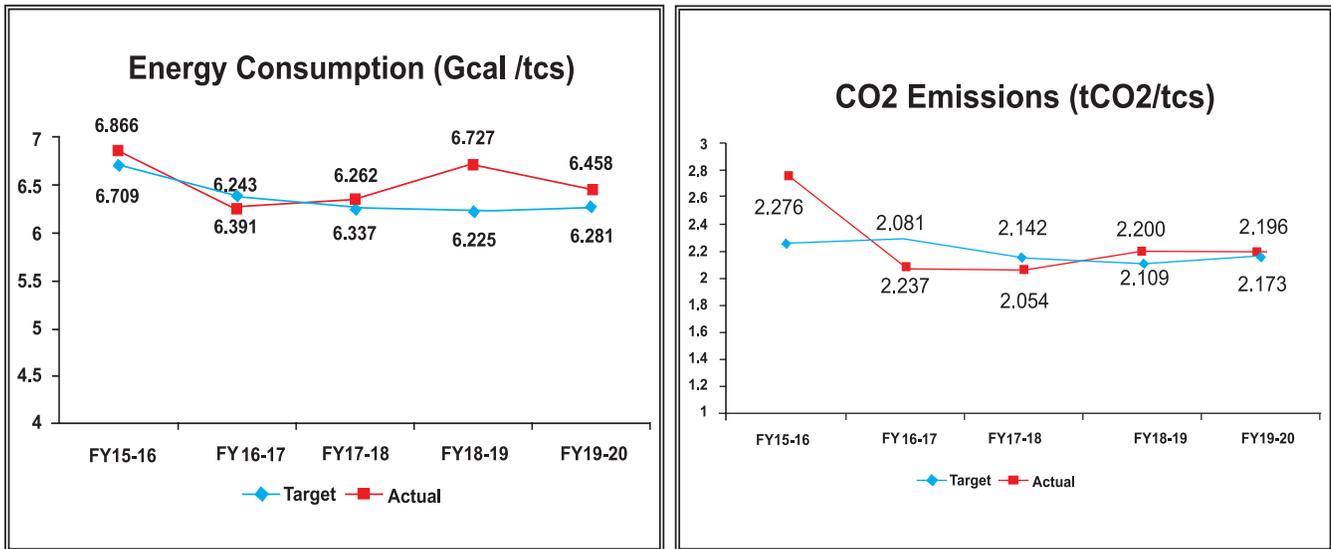
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- Aluminum kilned LHF Slag briquetting of 300 TPD.
- Production of DRI Briquettes in Mill Scale Briquetting plant.

Dolvi Works

Energy Management Highlights for FY 2019-20

Energy Consumption & CO₂ Emissions:



Note: 1.SEC & CO₂ of FY 15-16 is high due to plant shutdown for BF Revamping.

Initiatives taken for energy conservation; emissions reduction & Results achieved:

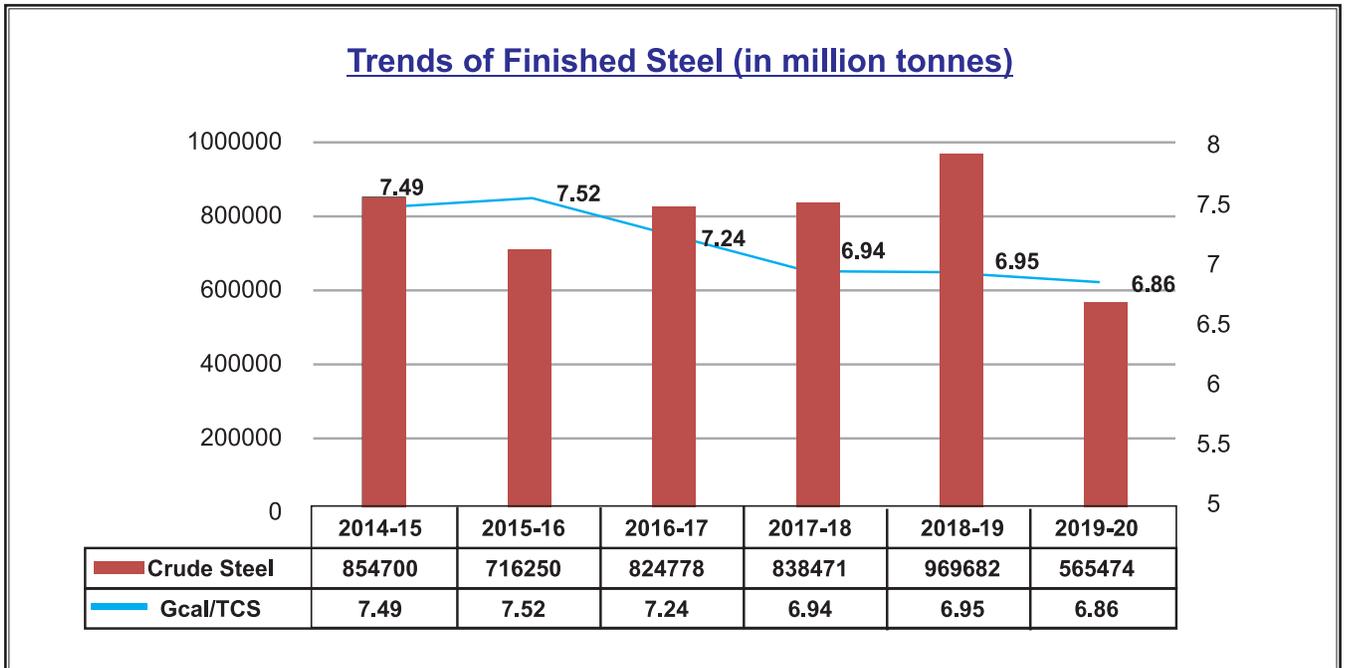
- Dolvi works has used Coke Oven Gas in place of NG at following locations to improve cost efficiency/ emissions reduction in FY 2019-20 (till October, 2019).
 - a) As a partial replacement of Natural Gas (NG) for production of Direct Reduced Iron (DRI), resulting in saving of 28114 KSm³ NG.
 - b) 100% Natural Gas is replaced with Coke oven gas at Tunnel Furnace for slab heating, resulting in saving of 15610 KSm³ NG.
 - c) Commissioning of Bar Mill on Mixed gas.
 - d) COG consumption in SMS ladle preheater in place of Natural gas, resulting in saving of 2856 KSm³ NG.
 - e) Fuel conversion of HSM Boiler & BF Cast house from NG to COG leading to NG saving of 3427 KSm³.



Salem Works

Energy Management Highlights – [2019-20]

Specific energy consumption



Note: Upstream energy is included in FY19. Otherwise, it will be 6.76 GCal/tcs -FY 20 – Data till Oct -19

Highlights

- Lowest ever specific energy consumption per ton of crude steel – 6.86 GCal/tcs (Previous best – 6.94 GCal/tcs, FY18).
- Lowest ever specific power consumption per ton of crude steel – 581kWh/tcs (Previous best – 592kWh/tcs, FY19).

Energy conservation

- Improved waste heat recovery from 24 ovens of Coke oven battery number3 by augmenting the boiler ID fan and flue gas exit chimney resulted in waste heat recovery of 2260 GCals.
- Reduction in BF gas consumption through Installation of top gas analyzer at BF#1 resulted in savings of 2028 GCals.
- Reduction in power consumption through the installation of VFD in BF#2 SGP cooling water pump – 27500 kWh.
- Increase in usage of Pulverized coal in blast furnace from 130Kg/THM to 160Kg/THM and there by avoided coke production of 9400MT.



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Environment Management Highlights 2019-20

Specific GHG emissions

Year	NET CO ₂ MT CO ₂ / TCS	Remarks (Methodology of Calculation)
2014-2015	3.09	World Steel Association
2015-2016	3.07	World Steel Association
2016-2017	2.88	World Steel Association
2017-2018	2.83	World Steel Association
2018-2019	2.72	World Steel Association
2019-2020 (Till Oct. 2019)	2.43	World Steel Association

Specific SO₂, NO_x and SPM emissions

Year	SPM (kg/tcs)	SO ₂ (kg/tcs)	NO _x (kg/tcs)
2014-2015	1.82	0.94	0.58
2015-2016	1.72	1.07	0.76
2016-2017 *	2.34	1.80	1.34
2017-18	1.99	1.65	1.41
2018-19	1.92	1.64	1.39
2019-20 (Till Oct. 2019)	1.83	1.52	1.35

*Monitoring stacks increased from 24 to 40 Nos

Solid waste (BF and steel slag)

Year	BF (Granulated slag) MT/annum	Steel slag MT/annum
2014 -15	356933	135821
2015 - 16	316560	138249
2016-17	379998	177385
2017-18	370039	172406
2018-19	381908	169009
2019-20 *	245807	88723

* (Till October, 2019)



11.2.8 Tata Steel Limited (TSL)

Jamshedpur Steel Works (TSJ)

- 40 MW CDQ power plant commissioned at Coke Oven Battery No.10 & 11.
- L.D. Gas Holder commissioned, and LD Gas recovery started from LD2.
- Coal firing completely stopped in Boilers.

Kalinganagar Works (TSK)

- Plant reached rated production capacity; Blast furnace reached Carbon Rate of 456 kg/thm resulting in reduction in CO₂ intensity.

Air Emissions: Particulate Matter from Stacks

Period	TSJ (kg/tcs)	TSK (kg/tcs)
2015-16	0.50	-
2016-17	0.44	1.3
2017-18	0.41	0.66
2018-19	0.37	0.60
2019-20 (April-October)	0.33	0.57

Generation & utilization of iron and steel slag (separately for BF slag, LD Slag & total waste)

Period (UoM: Million tonne)	Iron making Slag Generation		Iron making Slag Utilization	
	TSJ	TSK	TSJ	TSK
2015-16	3.56	-	3.63	-
2016-17	3.78	-	3.66	-
2017-18	3.90	1.04	3.88	0.92
2018-19	4.12	1.24	4.07	1.09
2019-20 (April-October)	2.34	0.79	2.18	0.78

Period (UoM: Million tonne)	Steelmaking Slag Generation		Steelmaking Slag Utilization	
	TSJ	TSK	TSJ	TSK
2015-16	1.57	-	0.44	-
2016-17	1.53	-	1.69	-
2017-18	1.52	0.54	0.81	0.30
2018-19	1.74	0.59	1.75	0.74
2019-20 (April -October)	0.99	0.37	1.16	0.44



Clean / Green Technology initiatives

- Participates in national and international engagements including inter-governmental initiatives driven by Ministry of Steel, Government of India and Government of Japan.
- The company is Climate Action Member of World Steel Association. During current year, onboarded peer companies.
- The company participates in MED39 of BIS to develop & adopt standards pertaining to Energy Management systems and supports development of ISO 14404-4, which is currently in draft stage.
- Participating in World steel improvement program of STEP-UP to improve Operational efficiency and CO₂ emissions.
- Launched a consortium to build a demonstration case of responsible manufacturing with seven more mining & metal companies at World Economic Forum.
- Undertaken exercise to assess Climate Change risks & opportunities in line with TCFD recommendations.
- Participating in net zero emissions as part of World Economic Forum's initiative on Mission Possible.

11.2.9 Tata Steel BSL Limited (TSBSL)

Energy Conservation Initiatives

- TSBSL installed two coke oven plants, COP # 1 - 0.85 MTPA & COP # 2 - 1.28 MTPA with combined production capacity of around 2.1 Million ton of coke per year. The coke oven plants initially started with wet quenching facilities, COP # 1 commissioned in 2010 and COP # 2 Commissioned in 2014.
- TSBSL installed Briquetting Plant for conversion of BOF sludge, FES dust and mill scale into briquettes which will be used as input in Steel Making Plant (BOF). The briquetting plant is under commissioning. This will replace DRI with low cost briquette as a coolant in Converter. This will further strengthen TSBSL's environmental compliance and obligation for effective usages of plant waste material with good realization.
- TSBSL recently commissioned 250 TPH Gas Fired Boiler, other two Gas fired Boilers of 60 TPH & 125 TPH in FY:16 / FY:17, wherein the BF Gas produced from BF #1 & BF# 2 gets used as a fuel for generation of steam which in turn used in turbine for generation of electricity as well process steam.
- TSBSL installed BOF Gas Holder, successfully commissioned in October 2019. The generation of BOF gas during steel making process is intermittent, and the flow rate is not uniform. The BOF Gas Holder will store converter gas generates from BOF # 1 & 2 for further use as fuel in various plant units through a distribution network in continuous and uniform manner.
- Miyawaki Plantation started across Angul Works under CO₂ Reduction Program.



The Specific Energy Consumption trend per ton of crude steel is as follows:

Description	2016 - 2017 (GCal/tcs)	2017 - 2018 (GCal/tcs)	2018 - 2019 (GCal/tcs)	2019 – 2020* (GCal/tcs)
Specific energy consumption in giga calorie per ton of crude steel	6.86	6.80	6.82	6.43

*April-November, 2019

Reduction in CO₂ Emission

TSBSL is committed to reducing the GHG emission in Integrated Steel Plant at Angul with various initiatives, as explained in the above paragraphs.

The CO₂ Emission Intensity (WSA Method) trend of TSBSL are as follows:

Description	2016 - 2017 (ton/tcs)	2017 - 2018 (ton/tcs)	2018 – 2019 (ton/tcs)	2019 – 2020* (ton/tcs)
Specific CO ₂ emission per ton of crude steel	2.84	2.99	2.93	2.75

*April-November, 2019

Water Conservation

The Specific Water Consumption trend indicated in following table:

Description	2016-17 (m ³ /tcs)	2017-18 (m ³ /tcs)	2018-19 (m ₃ /tcs)	2019-20* (m ₃ /tcs)
Specific water consumption up to HSM excluding thermal power and drinking	4.42	4.55	4.62	4.38

*April-November, 2019

Generation & Utilization of Iron & Steel Slag

- TSBSL has adopted the strategic approach to handle iron and steel slag generates from Integrated Steel Plant at Angul.
- The utilization of LD slag has been increased up to 43% in FY: 2019 - 20 (April – November, 2019) through Improvement in metal recovery by introducing new equipment/process improvement, Increase Consumption in Sinter & Hard stand & temporary road application. We have plan for LD slag utilization with annual average of 61% by end of current financial year.
- The utilization of BF slag has been around 97% in FY: 2019 - 20 (April – November, 2019).
- The Overall Solid Waste Utilization has been increased up to 77% in FY: 2019 - 20 (April – November, 2019) with possibility for higher rate of utilization by closure of current financial year.



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11.2.10 Essar Steel India Limited

Highlights of reduction in energy consumption and low Carbon usage technologies/ facilities and measures adopted & result thereof. Actual specific energy consumption/tcs and CO₂ emission/ tcs, during 2014-15, 2015-16, 2016-17, 2017-18, 2018-19 & 2019-20 (April-November, 2019).

Essar Steel has been regularly reporting CO₂ emission to World Steel Association (WSA).

Year	CO ₂ Emission (T/tcs)
2014-15	3.33
2015-16	2.72
2016-17	2.51
2017-18	2.33
2018-19	2.26
2019-20*	2.3*

* Provisional; for April-November, 2019

Generation & utilization of iron and steel slag (separately for BF Slag, LD Slag & total waste) also indicating the details of innovative solutions for recycling / reuse of SMS 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.
- BF & Corex slag is being sold to cement manufacturer & being exported.
- Require support & intervention from MoS/CPCB regarding 100 % utilization of EAF slag for road making by various Govt. agencies like CPWD, NHAI, PWD, R&B, Municipal Corporations etc.

Clean/ Green Technology Initiatives

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

Plantation & Eco-restoration

- Total Tree Plantation done in 2018-19 is 5200 Nos.

11.2.11 Jindal Stainless Hisar Limited (JSHL)

- Implementation of ISO 50001:2018 (Energy Management System) to improve the Energy performance of plant.
- Installation of VFD Screw compressor at Air plant.



- Installation of air pre heater at boiler to reduce the fuel consumption.
- Installation of capacitors bank to improve the power factor.
- Synchronize and automate billet transfer mechanism between PHF and WBF to reduce fuel consumption.
- Installation of energy efficient pump in sections to reduce power consumption.
- Conventional lights changed with highly efficient LED lights at SMS, HRM & CRM.
- Improvement in thermal insulation of WBF to reduce radiation leakages.
- Arresting air leakages in sections to reduce the compressor specific power consumption.
- Discontinue of hot well cooling tower & Installation of new tower to reduce power consumption.
- Installation of descaling pump at strip mill to reduce the power consumption under progress.

11.2.12 Jindal Steel and Power Ltd. (JSPL)

Overall SEC & CO₂ emission

Year	SEC (GCal/tcs)	CO ₂ (t/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	8.058	2.628
2019-20 (till October, 2019)	8.096 *	2.631 *

* unaudited figure

Conservation of Energy

- Reduction of auxiliary power in ETP area by modification in line in DCPD.
- Reduction in auxiliary power in cooling tower area due to modification and operational control in DCPD.
- Reduction of auxiliary power due to Optimisation of the Aux.power consumption PH-II AHP package AC which is charged from Phase -1 ACW pump in DCPD.
- Reduction of electrical power by replacing the HPSV & Tube light with LED lights IN DCPD.
- Reduction of electrical power by replacing 12 nos. of 2*4000W HPSV lamp with 350W LED light in high mast tower in DCPD.
- Reduction of electrical power due to Contactor logic replacement to Soft starter Drive in two cranes PQ 100MT old & new in MH in SMS-2.
- Reduction of electrical power due to Change in Halogen bulb to LED light of 50 nos in SMS-2.
- Reduction of electrical power due to replacement of Cooling tower CT fans Al. Blade with aerodynamic FRP blades in SMS-3.
- Reduction of electrical by replacing Metal Halide light fitting with LED lights fitting in SMS-3.
- Reduction of electrical power due to Stoppage of DCW & ICW Cooling Tower Fans by optimising blade angle in MLSM.
- Reduction of electrical power due to installation of Air Blower after Cold Saw & avoiding compressed air use in MLSM.
- Reduction of electrical power due to stage removal of boiler feed pump-1 of Phase-1.



CHAPTER-XII

DEVELOPMENT OF NORTH-EASTERN REGION

12.1 Introduction

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

12.2 Steel Authority of India Ltd. (SAIL)

SAIL has an established marketing network in the North East (NE) 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 and Itanagar. Sales in North Eastern Region have been more than 1.7 lakhs Tonnes during the Financial Year 2018-19. During the current year, SAIL has sold 103.41 lakhs Tonnes during the period April to December, 2019 in NE Region.

SAIL has been catering to various infrastructure projects of national importance, Railways, Defence, Cold reducers, LPG cylinder manufacturer, Small Scale industries, etc. in Government and Private sector.

Besides sales to Projects and Industry, SAIL has been focusing on meeting retail requirements also. SAIL has established a 2-Tier Distribution Retail Channel 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. 1st June, 2017 is primarily responsible for Retail Sales of TMT. As on 1st April, 2019 the distributor has 158 dealers on the rolls and covers all the seven States of North East. Total sales through 2-tier channel system was 19970 Tonnes during 2018-19. During the current financial year, SAIL has supplied 12505 Tonnes approx. of TMT through the retail channel upto December, 2019.

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

12.3 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 an 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.

12.4 MSTC Ltd.

North-Eastern Region (NER) is rich in forest wealth which constitutes 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-XIII

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:

1. An Indian delegation led by Shri Puneet Kansal, Joint Secretary, Ministry of Steel and comprising CMD, RINL and officers from SAIL & NMDC visited Korea from 25th to 28th February, 2019 to showcase investment potential in India for manufacturing high grade steel.
2. Visit of Shri Binoy Kumar, Secretary (Steel) to participate in Mining Indaba from 2nd to 7th February 2019.
3. An Indian delegation led by Secretary (Steel) and comprising Shri Puneet Kansal, Joint Secretary, officers of SAIL, RINL & NMDC visited Japan from 13-14 May, 2019 to showcase investment potential in India for manufacturing high grade steel by holding discussions with Ministry of Economy, Trade & Industry (METI), Government of Japan; meeting steel companies in Japan and holding a India-Japan Steel Seminar in Tokyo.
4. Visit of Shri Pritam S Purkayastha, DGM/TTD & PRSU and OSD, Ministry of Steel to Dusseldorf, Germany, to attend the METEC 2019, for 3 days between 25th June, 2019 to 29th June, 2019.
5. Delegation led by Shri Dharmendra Pradhan, Hon'ble Minister of Petroleum & Natural Gas and Steel, visited Russia, from 29th to 30th August, 2019, for attending Bilateral G-G meeting with Russian minister of Steel and Steel Companies, for cooperation in Steel Sector.
6. Delegation led by Shri Dharmendra Pradhan, Hon'ble Minister of Petroleum & Natural Gas and Steel, visited Saudi Arabia, UAE & Qatar, from 07th to 12th September, 2019, for securing energy sources for Indian industry, as also, increasing share of Indian steel exports to these countries.
7. Delegation led by Shri Dharmendra Pradhan, Hon'ble Minister of Petroleum & Natural Gas and Steel, visited Russia, from 21st to 25th October, 2019 and to Japan from 25th to 26th October, 2019, for exploring new sources for varied energy resources like gas, coal for the country's long-term requirements. Also, the scope for technology transfer regarding high end steels, as also skill development was discussed.
8. Visit of Shri Binoy Kumar, Secretary, Ministry of Steel to Australia for participating in "International Mining and Resources Conference (IMARC) -2019" held at Melbourne, Australia, during 28th to 31st October, 2019.

CHAPTER-XIV

DEVELOPMENT OF INFORMATION TECHNOLOGY

14.1 Introduction

The Ministry of Steel and its PSUs constantly endeavor to be updated on matters relating to ICT infrastructure, services and application development.

- The Computer Centre in the Ministry consisting of high-end servers, Client Systems, Local Area Network (LAN), Video Conferencing facility and Wi-Fi setup is operational to provide ICT services to the officials and staff in the Ministry of Steel.
- 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 the Officials/Divisions of 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) with built in modules such as Electronic File Management System, Knowledge Management System, Leave Management System and Sparrow (eAPAR) have been implemented to achieve paperless office initiative in the Ministry.
- A Ministry-wide Intranet portal is also operational in the Ministry which 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 is operational and accessible through Ministry’s Intranet Portal. The eRequisition, Stock & Inventory Management System has been developed for automating the requisition process, filing and its approval by Admin. General Section and maintenance of the Stock & Inventory at backend.
- LAN in the Ministry is extensively used for eOffice File Management, Tracking of Receipts, Files, VIP/PMO References, Cabinet Notes etc. It is also used for Leave Management System, Knowledge Management and Information dissemination, collecting information/material for Annual Reports, Parliament Questions, Pendency, Tracking and Monitoring Applications (Court Cases, Audit Paras & Parliament Assurances etc.) from Divisions.
- Biometric Attendance System based on Aadhaar Authentication with real time monitoring is operational in the Ministry of Steel.
- High Definition VC setup is operational in Steel Conference Room and O/o Secretary (Steel) for monthly PRAGATI VC of Hon’ble Prime Minister.

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- 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 its 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 (<https://dashboard.steel.gov.in/ministrydashboard>) for monitoring the performance of Steel Sector at National and International level is operational for officials of the Ministry. The dashboard provides information on Steel at a Glance, PSU Performance on 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.
- A Task Management system has been implemented in the Ministry of Steel for the monitoring of status and pendency of tasks assigned by Hon'ble Steel Minister and Secretary (Steel) to other officers of the Ministry.

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 compressive details and functioning of Ministry of Steel and its other offices/PSUs is operational and updated on regular basis.

14.2 Steel Authority of India Ltd. (SAIL)

In today's world of dynamic business environment wherein the competition is growing tremendously, SAIL is leveraging emerging technologies and best practices to face the challenges in the business environment in order to gain competitive advantage. With this objective, SAIL is continuing with various IT initiatives within the organization to strengthen its business processes and provide seamless and competitive services to business partners.

- With an aim to integrate all aspects of business operations and to optimize all organisational resources through standardization of business processes and adoption of best practices, SAIL had already implemented Enterprise Resource Planning (ERP) at four of its Integrated Steel Plants i.e. Bhilai Steel Plant(BSP), Durgapur Steel Plant(DSP), Bokaro Steel Plant(BSP), Rourkela Steel Plant(RSP) and its marketing set up at Central Marketing Organization (CMO). The 5th Integrated Steel Plant i.e. IISCO Steel Plant (ISP) as well as the Corporate Office (CO) have also gone live on SAP-ERP in this financial year. Further, SAIL initiated a cloud journey by adopting the Cloud model for ISP and CO ERP implementation.
- 24X7 Online Information to Customers has been made available by an interface, wherein they get information on Orders, Invoices and Financials along with automated communications through SMS and Mail. For enhancing customer satisfaction by way of faster resolution of customer complaints, Online complaint logging system has been enabled.
- For improvement of Logistics Bill Payment to various transporters, online bill submission has been enabled for automated processing leading to transparency of operations, faster bill processing cycle, savings of man hours and elimination of manual errors.
- System developed for Transfer of Plant Ready Stock Details from SAIL Plants/Units ERP System to Marketing ERP System on daily basis.
- SAIL implemented Innovation Portal for employees to share innovative ideas about People motivation, Production enhancement, Process Improvement, Policy rationalization, Procedure simplification, Problem resolution in a Positive Environment.
- Portal has been implemented to record the Hindi related activities and generate Monthly/Quarterly/ Half-Yearly/Annual Reports. Further, bilingual Offer Letters are being issued to the Customers mapped in ERP IT system.
- As a step towards preventive safety measure, SAIL has designed a Portal wherein safety issues at workplace can be recorded and corrective measures can be taken accordingly.

14.3 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 2019-20 are given below:

- Corporate Business Dashboard implemented to display various KPIs / data graphically and corresponding data in tabular form with filtering and sorting option.

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- As a part of “Web Applications consolidations project”, migration of Java and Net applications to new IIS web server and Oracle Web logic server has started for various applications. Migration of all Oracle 10G applications to Oracle Web logic server is under progress.
- New Nextgen Firewall with higher throughput is introduced to take care of perimeter security and server farm security.
- Implementation of Enterprise Asset Management in SAP is started with some production departments; SMS-1, SBM, WRM-1 and CPP-2.
- Online Label Printing facility is provided in all the Mills. Required interface has been developed between Level-2 systems and the printers. With this facility each bundle/coil can be identified with the Unique Product Id which is a part of the QR Code.
- System Integration Test (SIT) for Central Dispatch Yard Management Software (CDYMS) was completed. Servers are commissioned and Software Interface Testing is being done.
- SAP SRM (Suppliers Relationship Management) software upgraded to version 7.13 with service pack 16.
- Application based on Machine Learning (ML) algorithms is implemented to predict grades of steel at Steel Melt Shop (SMS).
- Arrival Line Forecast Assessment (ALFA) application implemented to improve logistics. It helps suggesting line allocation for rakes for optimizing tripling activities.
- Report for tracking the status of uploaded invoice in Electronics Bill Tracking System (EBTS) developed.
- Level -2 system enhanced to programmatically transfer Bundle wise data to ERP Interface table along with QR Code data.
- New SSL certificate of vizagsteel.com installed in Email and E-office Systems.
- SAP HR package has been updated to latest SAPKE604E6 in ERP servers. Management Framework has been updated to latest (WMF 5) in IIS Web server farm.

14.4 NMDC Ltd.

- Board Agenda and Minutes software has been implemented and gone live from 01.04.2019.
- Incident Management System has been implemented at all production units from 01.07.2019.
- Performance Appraisal System for contract employees of NISP, Nagarnar has been implemented from this year.
- Internet leased line at HO, Hyderabad has been upgraded to 500 Mbps.
- A career portal has been developed for inviting applications from executives for parallel placement in Vigilance.
- A software was developed for Commercial Department for ‘Empanelment of Vendors for Purchase of Pellets’.
- A software was developed for Materials Management Department for monitoring indents.

- HRMS Mobile App for employee self-services has been developed and is ready for implementation.
- HPE Blade Server infrastructure has been upgraded to include more storage and blades thereby increasing mailbox size and also allowing creation of more VMs.

14.5 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 System Department are as under:

- Installation of around 500 Nos. of Computers, out of which 200 Computers are at Head Office and 300 Computers are distributed in Maharashtra and Madhya Pradesh Mines.
- Ethernet based Local Area Networks (LAN) on Windows and Linux platform is in place at Head Office, Nagpur and at all Mines of the Company.
- For effective sharing of Applications, databases/ information and other resources on regular basis, all the Mines and HO are connected through MPLS VPN and VPN over Leased line.
- For continuous knowledge acquisition, e-mailing and for inter unit data transfer facilities, all the concerned officials of Head Office have been provided with internet connection through internet leased line on OFC. All the Mines are provided with leased line internet connections on OFC.
- Procurement of goods and services through e-procurement portal of MSTC to bring transparency in procurement process.
- Implementation of ERP in the Company.
- Use of File Lifecycle Management (FLM) for effective file tracking and reduction in paper work.
- Use of Video Conferencing for communication with Mines, Ministry and other agencies.

Enterprise Resource Planning (ERP)

- ERP implementation at MOIL envisages seamless integration of all business processes, effective 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 is expected to be achieved.
- State of the art data centre for ERP is designed and commissioned at Corporate office, Nagpur.
- In addition to core modules viz. FICO, MM, SD, PP, PM, HRM, of SAP the company has also implemented File Lifecycle Management, Document Management System and Employee Self Service Portal.
- All the routine business transactions are shifted to SAP from the existing legacy systems.

14.6 MSTC Ltd.

- 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 and this certificate is valid upto 30-05-2020.

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- MSTC Systems division is CMMi Level 3 appraised since 2013. The same has been renewed this year for another three years with a validity up to 18-09-2022.
- STQC Certification on GIGW (Guidelines for Indian Government Websites) for corporate <https://www.mstcindia.co.in> website was received which is valid till 4th February, 2022.
- MSTC has developed in-house and implemented many customised projects like Major and Minor Mineral Block(MMB Assam, UP with Global PREBID EMD), KSeB Soura Project, IOC LNG portal, Property Sale including RMC, APMDC, HMDA, IBAPI, NMDC Diamond auction, UDAN Tranche IV, RIL(Reliance) auctions, NBCC Pragati Maidan Property Lease, eRAKAM Price-Quantity Bidding with Global EMD for NAFED & HAFED etc.
- MSTC has also developed in-house the system of IOS & Android jaivikkheti Mobile App, enhancement in MSTC corporate site, jaivikkheti, Billing system, Asset Management system, User Call register, Inventory Management System, Co-operative system, HR Systems etc.
- Renewal of STQC Certification 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 compliance Audit, Web Application Security Testing, Performance Testing, Vulnerability Assessment & Penetration Testing.
- An audit by C-DAC was carried out for software system department.
- MSTC has planned to replace existing IBM Power series servers with latest technology IBM Power Series Servers.
- MSTC has offered retail software on BSNL cloud to IOCL for selection of Transporter through online Draw system.

14.7 Ferro Scrap Nigam Ltd. (FSNL)

- FSNL has developed in-house and successfully implemented an “Employee Self Service Portal” (ESS) for the employee of FSNL to facilitate viewing of their Provident Fund, Balances, Leave Balances and their Annual PF Statement.
- FSNL has also developed in-house and successfully implemented “Human Resource Management System” (HRMS) for the P&A department to manage Employee Master Database.

14.8 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, STADD.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 developed Biometric attendance system, integrating with payroll. MECON has also developed GST system for preparing GST Invoices to Clients and processing the GST Bills received

from Vendors. Bill watch system has been developed and integrated with existing GST system. These application modules are integrated through a common information portal (www.meconinfo.co.in).

14.9 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

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.

IT – Infrastructure

Inter-office correspondences in the organization are carried out through the e-mailing system. The infrastructure hardware and software are periodically upgraded and maintained. The company has deployed all-IP structured UTP based data networks with a fiber optic backbone at Mangalore and Bangalore. The 16 MBPS leased line at Mangalore and Bangalore and the internet connectivity at Kudremukh is through VPN to provide internet connectivity at the locations. The VPN connectivity thus provides a single network access to all the applications through different locations of the Company.

Video Conferencing

The internet leased lines are used for Video Conferencing at Mangalore and Bangalore. The facility enables the meetings to be held across the locations periodically online.

E-Commerce

Introduction of E-tendering, E-procurement and RTGS has resulted in reduced paperwork, increased transparency and reduced time. The sale of pellets is carried through E-Tender by a Class i/ii RSA/ SA agency with STQC certification. This has reduced the price discovery time considerably. All the procurements above a threshold value are done through e-Tender. Further procurement is done through GeM Portal.

Plant Process Automation

All the plants of KIOCL are fully automated and controlled from the Central Computer Rooms. This has resulted into 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

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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.

Correspondences through e-mail

E-mail servers are installed at Mangalore and Bangalore to provide an electronic inter-office and external communication. All the employees of the Company are provided with a mail account for this purpose. This has resulted into reduced time and cost for the correspondences within and outside the company.

Decision Support System

For movement of files from one department to another, KIOCL has a system of tracking acknowledgement on delivery of files through a delivery book kept for the purpose. While sending files from one location to another entry used to be made in the manual register. For immediate and better access, e-file tracking system has been introduced so that the files before sending needs to be registered and also needs to be acknowledged on reception. This has helped in easy movement of files and hence smooths functioning of the company.

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 Appraiser 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.

14.10 EIL, OMDC and BSLC

The companies have taken initiative to publish all tenders /Expression of Interest in their Corporate Website and Central Public Procurement Portal (CPP Portal). 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 for payment of vendor bills and different employee entitlements through RTGS and e-payment mode. Biometric based attendance has been installed at Head Office and Mines office. OMDC has started procurement through GeM portal.

CHAPTER-XV

SAFETY

15.1 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 recognized and taken care of.

15.2 Steel Authority of India Ltd. (SAIL)

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

15.2.1 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. Board Sub Committee on Health, Safety & Environment (HSE) reviews the safety performance on quarterly basis and apprises the SAIL Board. At Plant level, safety is reviewed by CEO and Head of Works at regular interval for bringing continual improvement in Safety System. 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 also have an 'Occupational Health and Safety Policy'.

15.2.2 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.

15.2.3 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 to.
- 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 and also, at National Steel Industry level through Joint Committee on Safety, Health and Environment 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 National Occupational Health Service Centre (NOHSC), BSP is functioning as the Central agency.
- An MOU has been signed with National Safety Council (NSC) India for Safety Audit and Training for utilizing the expertise of both SAIL & NSC in HSE activities.
- IPSS 1:11 standards on 'Safety and Personal Protective Equipments' are being formulated in identified areas of concern.

15.2.4 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.
- Meetings of 'Heads of Safety' and 'Heads of Fire Services' of Plants/Units are organised at specified interval.
- APP for Safety and Fire Services activities are formulated for each Plant/Unit and SSO.
- Round the clock safety surveillance made for all major Capital repair / Shutdown jobs to ensure safe completion of the jobs.
- Videoconferencing with all Plants/Units by SSO.

15.2.5 Awareness & Training

- Awareness generation drives and campaigns are launched from 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.
- Audio-visual 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.

15.2.6 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.

15.2.7 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.

15.2.8 Accident Analysis, Investigation & Compensation

- Reportable Lost Time Injury Frequency Rate (RLTIFR)-For the period April-December 2019: 0.14.
- 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.

15.2.9 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 Programme 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.

- SAM- system of issuing Safety Alert Message introduced.
- Deployment of an external Safety Consultant of global repute is being explored for Safety Management consulting engagement.
- A working group was constituted by Ministry of Steel (MOS) comprising from representatives SSO/ SAIL, Tata Steel Ltd. & IIT, KGP under the Chairmanship of ED, SSO for preparation of comprehensive Code of Practices for enhancing the safety eco-system in the steel producers in the Iron & Steel sector. 25 Safety Guidelines have been finalized so far and already uploaded on the website of MOS for reference and use by all stakeholders.
- Fire safety audit of major departments of 5 ISPs was carried out by SSO in association with Plants.
- SSO team visited Tata Steel Ltd. for learning from their good safety practices.
- A compendium of good safety practices of SAIL Plants & other steel producers, lessons from past incidents, etc. was published and circulated to Plants & Units.
- MOU between SAIL & M/s. National Safety Council of India, Mumbai has been renewed for one more year in the areas of Safety Audit and Training.
- Monthly review is being done through video conference in Plants and Units.

15.3 Rashtriya Ispat Nigam Ltd. (RINL)

15.3.1 Management Commitment

Continuous efforts on the implementation of safety standards, monitoring of risk control and other 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 as part of OHSMS and Hazard Identification and Risk Assessment (HIRA) were carried out. All the safety controls and measures are identified and same are being monitored and implemented for all the activities.

15.3.2 Safety set up in RINL

“Occupational Health & Safety Management System” is reviewed at Department level every month and at plant level every Quarter. The presentation on incidents is done in weekly co-ordination meetings and the remedial measures are discussed. The Central Safety Committee and Departmental Safety Committees discuss various safety issues and their recommendations are being implemented.

To encourage employee’s participation in Occupational Health and Safety Management, one Central Safety Committee and 31 Departmental Safety Committees exist with equal participation from recognized trade union representatives and management representatives.

15.3.3 Safety Audits/Inspections

- Theme based, monthly safety inspections like Shop floor illumination, Healthiness of electrical panels, Healthiness of earth pits, EOT crane safety are being conducted in major departments.
- Internal Safety audits have been conducted as per the schedule in all major and minor departments by the concerned Departmental Safety Officer and by Qualified Internal OHSAS Auditors.
- External Safety Audits have been conducted once in six months by the Lead Auditors of OHSAS Certifying Agency. All the non-conformities raised by the Auditors were vacated.



- 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 the same were rectified. In addition to these regular inspections were also conducted throughout the plant by the Zonal Safety Officers. All the points raised by them are being complied with.

15.3.4 Safety Training

5166 regular employees were covered in regular safety training programmes and about 15982 contract workers were given safety induction and refresher training. Apart from that, specialized safety training programmes are conducted regularly in the area of Behavioral 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.

15.3.5 Safety highlights (upto December, 2019)

- Night surveillance by Safety officers for additional inspection of vulnerable areas.
- Status of safety activities is also reviewed by Chief Executive every month.
- Plant level mock drills were conducted at GCP-2, Blast furnace and ASU-5, Utilities and factories department reviewed the Mock drill performance.
- Local Industrial Safety tour was organised for CSC members to ascertain the further best safety practices.
- Special BBS, Road safety, Electrical safety classes were conducted.
- Special drive for Conveyor belt guard inspection was carried out in CO&CCP, RMHP, SMS-1 & 2 and Mills.
- PPE awareness campaign was conducted in Major departments.
- Level Crossing Safety Campaign was conducted at Mills Road on 16th December, 2019 and at BF Area Shop Office on 20th December, 2019.
- PPE's campaign was conducted in WRM -2 on 27th December, 2019.
- Theme Based Safety inspections (Theme of the month) were conducted in major departments for colour coding of Gas Pipelines.

The frequency rate of accidents reduced over the years and is 0.09 per million-manhours in 2019-20 (upto December, 2019).

15.4 NMDC Ltd.

NMDC has its training centres in all its projects. They are equipped with infrastructure as required under Mines Vocational Training Rules. These centres 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.

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Mine Level Tripartite Safety Committee Meetings are being conducted at all Projects. 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.

Mandays lost per 1 lakh man days worked for the year 2019-20 up to October, 2019 are 12.01.

15.4.1 Safety Management System

Safety Management system has been implemented in all mines 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.

15.4.2 Integrated Management System (IMS)

All the NMDC Projects i.e. BIOM, Kirandul Complex; BIOM, Bachel Complex; Donimalai Iron Ore Mine & Kumaraswamy 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.

15.5 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. Regular occupational health checkups are being done as per the guidelines of DGMS.

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 under implementation. 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.

15.5.1 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.

15.5.2 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, analyses risk evaluation and prioritization of risk management and mitigation plan of risk.

15.5.3 Integrated Management System (IMS)

MOIL has received I.M.S. certification covering ISO9001:2015, ISO14001:2015 and OHSAS 18001:2007 for Balaghat, Dongri Buzurg, Chikla, Kandri, Munsar, Gumgaon, Tirodi and Ukwa mines.

15.5.4 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. The OHSAS certification also requires to put in place the disaster management plan.

15.6 MSTC Ltd.

MSTC is a trading and e-commerce organization and does not have any plant / manufacturing unit. However, necessary safety measures against fire, natural calamity, control room, etc. are observed in all MSTC offices including attendance of a doctor during office hours at Corporate Office.

15.7 Ferro Scrap Nigam Ltd. (FSNL)

FSNL accords utmost importance for Safety & Security of human assets. Employees are constantly motivated to observe safety precautions and safe working practices and regular monitoring in this regard is ensured by the company. Safety & related aspects are widely covered in the training calendar prepared for the whole year to ensure proper training of employees on safety and allied topics, and the training to the employees are imparted through renowned agencies like National Safety Council etc.

In order to create awareness of safety among the employees, Essay/Slogan writing competitions, debate competitions, etc. are also held during Safety Day celebrations in the company and the winners of such competitions are suitably awarded prizes, which boosts their morale, encouraging enthusiastic participation in such competitions.

Safety Audit has also been conducted in all the units of FSNL through M/s National Safety Council in accordance with the Government guidelines.

15.8 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. 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.

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MECON also has in place a well-documented Disaster Management Plan to take care of exigencies.

MECON is regularly conducting in-house safety audit for its Environmental Engineering laboratory, Office complex and Ispat Hospital (located in MECON Township at Ranchi). MECON's environmental laboratory has recently been recertified & upgraded to ISO: 45001: 2018 from BS: 18001:2007.

15.9 KIOCL Ltd.

KIOCL has well designed and comprehensive Safety Management system at its plants. KIOCL Pellet Plant and Blast Furnace Units are covered under Factories act and all the safety parameters, standards are complied with as per the Rules and Regulations provided therein the Factories Act, 1948 and its subsequent amendments.

KIOCL has been following SOPs and each Department in the Plant has their own standard operating procedures which are being followed. Based on the Departments involved in the production process at Pellet Plant a booklet has been prepared on "Code of Safety Practices" last year at Pellet Plant from the Safety Department to follow these safety practices meticulously by the concerned. More emphasis has been given on the safety aspects related to the equipments in use at our Pellet Plant.

The brief aspects covered under this "code of safety practices" are as under:

- Electrical Safety rules covering Substation, battery, switch gears, motor control, transformers, oil filtration and testy, lighting and power distribution, welding transformers, generators, overhead lines and cables, electrical hand tool, AC Plant, Radiation hazards, electrical panels, high tension and low tension, conveyor grab lines and hooters, lighting distribution boards.
- Mechanical equipments covering Agitators, Apron feeder, Ball Mill, Chutes, Conveyor belts, Crushers, Dump pond cleaning, Lifts, Pelletizing Discs, Pipelines, Pressure filters, process fans, pumps, Reclaimers, Roller Screen and feeder, safety in CPP, sewerage treatment plant, ship loader, Silos, thickeners, vacuum disc filters, vibrating screen and feeders, wet vibrating screens.
- Process control Laboratory covering personal wear, handling of glass wares, chemicals, storage of chemicals.
- General aspects covering housekeeping, material storage, PPE, hand tools, fire extinguishers, shutdown and lock out procedure, first aid and reporting injuries, machine guards and hand rails, welding and gas cutting, ladders and scaffolds, overhead work, cranes, hydraulic tools.
- KIOCL is also a certified ISO Company and accredited with ISO 9001-2015, ISO 14001-2015 and OHSAS 45001-2018. KIOCL has implemented the international standards as specified for the products, services and systems to ensure quality, safety and efficiency. KIOCL has implemented following aspects under OHSAS:
 - ❖ Adoption of Best practices in relation to risk management.
 - ❖ Health and wellbeing of employees is maintained as per requirement and best medical facilities have been provided.
 - ❖ Actions taken for Reducing/eliminating work place hazards.



- ❖ Incident investigation process is done invariably.
- ❖ Employee's motivation kept high through provision of safer workplace and their active participation in the process.
- ❖ Safety audits are conducted by external ISO agency and actions taken wherever required for improvements. Safety audits are also conducted by third party.

The requirements of the standards are being maintained and continually improved. The core concepts of OHSAS are being effectively implemented. The key performance indicators are continuously monitored such as permit to work, job safety analysis, evaluating near miss accidents, training on health and safety, first aid training, safety audits/inspections, frequency rate of accidents etc. The planning, implementation, auditing and evaluation process in the field of safety has helped us to keep the accidents minimal.

KIOCL has also formulated Guidelines for safe working in Pellet Plants as per the advice of Ministry of Steel which is linked to standard safety codes uploaded by the Ministry.

15.10 EIL, OMDC and BSLC

OMDC and BSLC have taken safety measures according to provisions of the Mines Act, 1952 in terms of Rules, Regulations and guidelines received from Director General of Mines Safety (DGMS) from time to time towards safety of employees engaged in mining and allied activities. Necessary safety devices, tools and equipments are provided to 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 Centre & from different disciplines and operational activities in the mines.

CHAPTER-XVI WELFARE OF WEAKER SECTIONS OF SOCIETY

16.1 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 187 employees against sanctioned strength of 246 in the Ministry as on 30.11.2019, 47 belonged to SC (25.13%), 9 belonged to ST (4.81%) and 35 belonged to OBCs (18.72%). The 142 posts belonging to Central Secretariat Services i.e. Central Secretariat Service, Central Secretariat Clerical Services and Central Secretariat Stenographers Service are filled by Department of Personnel & Training.

16.2 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 01.01.2020, out of total manpower of 70246, 11687 belong to SCs (16.64%), 10727 belong to STs (15.27%) and 10087 belong to OBCs (14.36%).

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, is 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, contractors generally deploy workmen from the local areas, which again provide an opportunity for employment of local candidates of economically weaker section.
- 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 & specialised skill development training at various ITIs, Nursing and other vocational training institutes in the areas of Nursing, Physiotherapy, LMV Driving, Computers, Mobile repairing, Welding, 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 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.

16.3 Rashtriya Ispat Nigam Ltd. (RINL)

As on 01.01.2020, the total manpower of RINL is 17591 comprising 2882 SCs (16.38%), 1290 STs (7.33%) and 3198 OBCs (18.18%).

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

RINL Grants are meant exclusively for the children of employees belonging to Scheduled Castes and Scheduled Tribes. Under this, an award of Rs 1500/- per month for full duration of the course is given to those children who qualify 12th standard or intermediate exam and seek admission in Degree courses in Engineering / Architecture / Medical / Veterinary / Dentistry / Agricultural Sciences / Pharmacy/Law. A total of 8 such awards are given to children of SC employees and 4 such awards to children of ST employees.

16.4 NMDC Ltd.

The total number of employees in NMDC as on 30.11.2019 was 5785. Out of which 894 belong to Scheduled Castes (15.45%), 1444 belong to Scheduled Tribes (24.95%) and 1106 belong to Other Backward Classes (19.11%).

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.

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Liaison Officers have been appointed as per the Presidential Directives at Corporate Office and all Projects.

A member belonging to SC/ST is associated in all DPCs.

Regular workshops are being held for Liaison Officers for SC/ST and OBC, dealing Officers of various Projects, SC/ST Welfare Association representatives to keep them updated on the reservation policy for SC/ST and other related matters.

Regular meetings are held with the SC/ST Welfare Associations of the Units and their Apex body at Corporate level.

16.5 MOIL Ltd.

The manpower as on 31.12.2019 of MOIL is given below:

Category	Executives	Non-Executives	P.R. Workers	Total
Male	308	2034	2861	5203
Female	28	99	664	791
Total	336	2133	3525	5994

The category-wise details of employees' strength as on 31.12.2019 are as under:

Group	Scheduled caste	Scheduled tribe	O.B.C.	Others	Total
A	57	10	80	155	302
B	27	8	60	73	168
C	303	208	406	364	1281
D	752	1295	1574	565	4186
Sweeper	57	0	0	0	57
Total	1196	1521	2120	1157	5994
Total %	19.95%	25.38%	35.37%	19.30%	100%

16.5.1 Welfare Activities

MOIL is carrying out numerous Welfare Schemes as housing, drinking water, electricity hospital, health camps, schools, home loans and interest subsidies on home loans etc. for the benefit of the employees as well as people residing in the adjacent areas of Mines which are situated in the remote areas. Salient features of such schemes are as follows:

- For improvement of living standard and taking into consideration the aspirations of the employees, residential quarters have been constructed and allotted to majority of the employees.
- Providing adequate supply of drinking water to the employees residing in the mine colonies.
- The Colonies and streets of the camps are well illuminated. The employees have been provided with electricity for their residence on concessional rate.
- Hospitals have been setup at all the Mine maintained by qualified Doctors and supported by trained paramedical staff. The arrangement of OPD as well as indoor ward separately for male and female



are provided. Ambulance is also provided to all the hospitals for attending emergencies. The patients are also being referred for medical treatments to specialized hospital as per the requirement.

- The scheme of post-retirement Medical Insurance for retired employees is existing in the company for extending the medical facility to the separated employees.
- MOIL Group Superannuation Cash Accumulation Scheme (defined contribution) Fund is in operation in the company w.e.f. 01.01.2007.
- Assistance is extended in running Primary Schools at some of the Mines where free education is imparted. School buses are provided at all the Mines so as to take children to nearby areas for High School/College.
- Reimbursement of tuition fees and scholarship are being provided to meritorious students. Reimbursement of tuition fees to the Children of staff and the workers are provided for taking education in professional courses.

16.5.2 Welfare Measures Taken for SC/ST

MOIL is a labour intensive organization with 5994 employees on its rolls as on 31.12.2019 and more than 80% of the total strength belongs to SC/ST/OBC including (SC 19.95% ST 25.38% OBC 35.37%). The Company is also taking keen interest in development of the tribal population living in the vicinity of the mines situated in remote areas by:

- Adopting villages near the mines and provided drinking water facilities, road maintenance, periodical medical checkups and treatment to the people living in these villages.
- Providing financial aid, stationery, books etc. to the school adjacent to the mining areas.
- Organizing training classes for self-employment scheme.
- Other welfare measures for the development and upliftment of tribal women such as conducting sewing classes, adult literacy classes, AIDS awareness programmes, propagating such other programmes by display of posters, notices and banners, leprosy awareness programmes etc.
- Providing training to the physically challenged persons under Person with Disabilities Act 1995.

16.6 MSTC Ltd.

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

During the year, 4 ST, 5 SC, 5 OBC and 1 PWD employees of the Company were sponsored for in-house 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.

16.7 Ferro Scrap Nigam Ltd. (FSNL)

In order to ensure upliftment of weaker section of the society, reservation of posts for the Scheduled Caste, Scheduled Tribe & Other Backward Class communities are provided in accordance with the guidelines/instructions issued by the Government from time to time.

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Adequate care of welfare of the employees belonging to weaker sections of SC/ST/OBC communities is taken through Promotion Policy as well as various welfare measures adopted by the company. As against the Presidential directive of 15% for SC & 7.5% for ST, the overall percentage of SC & ST categories of employees in FSNL was 19.78% & 10.58% respectively, as on 31.12.2019.

16.8 MECON Ltd.

As on 31.12.2019, out of 1234 employees on the strength of the Company, 243 employees belong to SC (19.69%), 128 belong to ST (10.37%) and 148 belong to OBCs (12%). MECON is fully aware of its social responsibilities for development and welfare of weaker sections of the Society. MECON has adopted adequate measures for safeguarding their interests and welfare.

16.9 KIOCL Ltd.

The total number of employees in KIOCL as on 31.12.2019 is 819 out of which 133 persons belong to Scheduled Caste (16.23%), 49 persons belong to Scheduled Tribe (5.98%) and 93 persons belong to Other Backward Classes (11.35%). Besides, there are 26 Women (3.17%) and 12 Physically Handicapped (1.46%).

Welfare Measures

The Company has setup full-fledged facilities at Kudremukh and Mangaluru 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.

Recruitment

During the Financial Year 2019-20 (as on 31st December, 2019), there are 19 recruitment in the Group 'A' (Executives). However, there is no recruitment in any of the Groups 'B', 'C', 'D' & D (Supervisors and Non-Executives).

Promotions

During the Financial Year 2019-2020 (as on 31st December, 2019), 130 employees put together in all Groups 'A', 'B', 'C', 'D' & D (Supervisors and Non-Executives) were promoted, out of which 18 employees belong to SC category and 05 employees belong to ST category.

Periodical Meetings with SC/ST Representatives

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. Dr. Ambedkar Jayanthi was celebrated at all locations on 14.04.2019.

Training Programme

During the Financial Year 2019-20, total of 52.50% (as on 31st December, 2019, 430 employees out of total 819 employees / 11153 trained man-days) have been nominated for various Programmes, Seminars and Conferences, out of whom 122 employees belong to SC/ST category, 52 belong to OBC category and 256 belong to general category.

16.10 EIL, OMDC and BSLC

The total number of employees in EIL, OMDC and BSLC as on 31.12.2019 is 937. About 75.56% of the total strength (708 out 937) belong to SCs/STs/OBCs. Out of 708, 196 belong to SCs (20.91%), 380 to STs (40.55%) and 132 to OBC (14.08%).

CHAPTER-XVII VIGILANCE

17.1 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 activities 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 Department of Personnel & Training (DoP&T) and CVC.
 - ❖ Examination of complaints regarding allegations against the officials/officers of the PSUs under the Ministry for appropriate action.
 - ❖ Scrutiny of immovable property returns of officers and staff working in this Ministry.
- Seven CPSEs are functioning under the administrative control of the Ministry. The Vigilance Units in all CPSEs are headed by full time Chief Vigilance Officer appointed by the Government of India.
- 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. Besides, the Ministry also reviews the cases and, wherever necessary, hold discussions with the CVOs of concerned CPSEs for early resolution of issues. Circulars containing instructions and guidelines on different aspects of vigilance management received from the Central Vigilance Commission, etc. are also circulated to the CVOs of the CPSEs for compliance.
- During the current year, the Vigilance Division received 116 complaints from various source. Out of the complaint received, 89 complaints have been disposed of and action on remaining complaints is being taken as per provisions contained in the Vigilance Manual. From 1.1.2019 to 31.12.2019, reports in 20 cases were submitted to the CVC, out of which CVC advice has been received in 18 cases. In all cases, CVC's advice was complied with and 15 cases were finalized. Disciplinary actions against 5 Board Level Employees were taken during the current year.
- During the period, Vigilance Conclaves were organized twice in March, 2019 and August, 2019 at New Delhi and Hyderabad respectively. These conclaves aimed at sensitizing the officers of CPSEs under the Ministry on the basic principles and procedures while taking important administrative and

commercial decisions. The conclaves were addressed by eminent speakers / experts including the then Chief Vigilance Commissioner 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, drafting of charge-sheet, procurement process- GeM and GFR, Establishment and Personnel Matters, ethics in Governance, etc. were discussed. The conclaves proved to be a platform for sharing of good practices and for mutual learning.

- The Ministry also observed Vigilance Awareness Week from 28th October to 2nd November, 2019. On this occasion, Integrity Pledge was taken by all the employees. Apart from displaying banners / posters at prominent locations in the office premise, Essay Writing Competition on a Topic - 'Good Governance Combats Corruption' was organized. The CPSEs under the Ministry also observed Vigilance Awareness Week during the period.
- The Ministry also participated in the Annual Sectoral Review Meeting of the CVC held on 10.10.2019 at Bhubaneswar, in which issues related to systemic improvements and strengthening negligence, mechanism, were discussed.

17.2 Steel Authority of India Ltd. (SAIL)

SAIL Vigilance emphasizes on preventive vigilance through Surprise Checks, Scrutiny of Files, continuous examination / review of existing systems and suggests system improvements thereby increasing organizational effectiveness. There is a thrust on leveraging technology to enhance transparency in the organization. Following activities were undertaken by SAIL Vigilance during the period April -December 2019.



Visit of Secretary, CVC and CVO, SAIL to Ranchi based units of SAIL

- A total of 125 training/awareness programme/workshops involving 2074 participants were organized at various plants and units of SAIL for enhancing awareness on System and Procedures followed in SAIL. A few significant training programmes organized by SAIL Vigilance are mentioned below:
- Vigilance Awareness Week was observed in SAIL during 28th October to 2nd November, 2019.
- The Thrust Areas of SAIL Vigilance for the year 2019 were:
 - ❖ Scrutiny of projects w.r.t change orders.



- ❖ Scrutiny of emergency procurement and contract cases.
- ❖ Scrutiny of repeat orders placed for procurement and contracts.
- ❖ Scrutiny of cases where there is delay in payment of bills.

- **Preventive Checks**

A total of 1754 periodic checks including file scrutiny and Joint Checks were conducted in vulnerable areas of different Plants/Units of SAIL, out of which 44 checks were taken up for detailed investigation while preventive/system improvement recommendations were made in 387 cases.

- **System Improvement Projects**

During the year 2019, a total of 17 System Improvements Projects (SIPs) were undertaken at different Plants/Units of SAIL after identifying concern areas.

- **Intensive Examinations**

During the year 2019, 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 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 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.

- **Setting-up of a new Vigilance unit at Collieries Division**

SAIL Vigilance was receiving several complaints pertaining to Collieries Division. However, Collieries Division did not have a separate Vigilance Unit and Vigilance activities regarding Collieries Division were being looked after by the Vigilance Unit of IISCO Steel Plant, Burnpur. Therefore, it was felt that having a separate Vigilance Unit for Collieries Division would be quite helpful in increasing the preventive & participative Vigilance activities in Collieries Division; which would enhance the awareness level among the officials working there. In view of the above, a new Vigilance unit was set-up in Collieries Division with the approval of Chairman, SAIL.

17.3 Rashtriya Ispat Nigam Ltd. (RINL)

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

Information Technology was leveraged for bringing out greater transparency through e-initiatives like e-auction, e-reverse auction and e-payment etc. As on 31.12.2019:

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

The following activities were also undertaken to promote Transparency and Integrity in RINL during the period April, 2019 to December, 2019:

- Conducted 185 system surveillance checks including 38 quality checks and 04 periodic surprise checks on medical services.
- Organized 12 Vigilance Awareness Sessions on Preventive Vigilance / Ethics.
- 08 System studies for improving procedures, rules, policies, guidelines etc. were taken up and Vigilance observations/ recommendations were communicated to the concerned Departments.
- Vigilance Awareness Week – 2019 was actively completed with the theme “Integrity – A way of life”. As directed by the Commission, 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., were also held to create awareness about vigilance.
- A “Grama Sabha” was also conducted in Gorrivanipalem, Parawada Mandal of Visakhapatnam District and a Vigilance Awareness session was conducted for the Villagers.

17.4 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.



Vigilance Awareness Week-2019 at NMDC

During the period (April-November, 2019), 40 surprise checks and 52 regular inspections were conducted by Vigilance Department. Complaints received were taken up for investigation and necessary suggestions for system improvement/ disciplinary action wherever required were recommended.

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 February, 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 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 Rs. 1.0 Crore w.e.f. 07.09.2018 for both Procurement and Contracts as against the earlier threshold limit of Rs. 20 crore in case of Civil works and Contracts and Rs. 10 crore in case of Procurement on approval of NMDC Board. The Integrity Pact has been entered into 223 contracts with a value of Rs. 24,677.51 crore. 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.

2nd Bi-Annual Vigilance Conclave was organized by Ministry of Steel and NMDC from 5th to 7th September, 2019 at Hyderabad. Vigilance Awareness Week 2019 was conducted from 28.10.2019 to 02.11.2019. Quarterly meeting of Vigilance Officers in NMDC is being conducted regularly and the last meeting was conducted on 1st & 2nd July, 2019.



Shri Binoy Kumar, Secretary, Ministry of Steel at the Inaugural programme of 2nd Bi-Annual 3-day Vigilance Conclave organized by Ministry of Steel and NMDC Limited at Hyderabad.

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Initiatives / studies / system improvements / suggestions / recommendations made during the period

As per the Action Plan, surprise and regular checks were conducted besides study of files. Irregularities and omissions under the provisions of the rules are identified and improvements in the systems suggested wherever required. Based on the observations of Vigilance, recoveries from the contractor's bills, for not conforming to the contractual terms were suggested.

17.5 MOIL Ltd.

The functioning of vigilance department includes preventive as well as proactive vigilance having the main thrust on systems improvement in the organization, with the objective to ensure that the management gets the maximum out of its various efforts and transaction. Some of the important activities of the vigilance department during the period April-November, 2019 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 the period April-November, 2019, 68 periodic and surprise inspections have been carried out.

- **Complaint handling**

During the period April-November, 2019, the vigilance department has handled 49 complaints and on the basis of outcome of the investigation, management was given 10 advisory for corrective action and system improvement.

- **Scrutiny of procedures and systems**

During the period April-November, 2019 the vigilance department has studied the procedure related to purchase, contract recruitment etc. and on the basis of examination, management was given 06 advisories for corrective action and system improvement.

- **Mobile App 'Vigilance MOIL'**

MOIL has provided a mobile app namely "Vigilance MOIL", which is available at Google App for the free downloading and making complaint from any place at any time.

- **Toll free number**

A toll-free number 18002333606 has been commissioned for receiving of Vigilance related information.

- **E-procurement**

E-procurement is being done for purchases and work contracts above threshold value. The threshold value for purchase and Work contract is Rs. 2 lakh.

- **Structured Meeting of Vigilance**

As per the instructions of CVC and Ministry of Steel, Structured meetings of vigilance with CMD was done in which issues related to e-governance, leveraging technologies, tendering management, awards of work, recruitment policies and contract management were discussed.

- **Leveraging Technology**

With reference to commission's circular, 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 pro-forma were posted on the website.

- **Updation of Manuals**

Various manuals such as Purchase Manual, Work and Contract Manual, Personnel Manual etc. have been prepared and put in practice. Purchase Manual, Work and Contract Manual, Personnel Manual are posted on the Company's website/intranet. Marketing Manual and Accounts Manual are under preparation. Updation of manuals is carried out on continuous basis as a part of proactive vigilance and is being pursued with the management.

- **Training Programs**

During the period April-November, 2019 Vigilance Department conducted 8 training programs at Corporate Training Centre, Munsar Training Centre and various mines, covering 217 employees (966 Hrs.) on vigilance awareness.

- **Job Rotation**

Sensitive posts have been identified for rotation of officials working on sensitive posts for more than 3 years and are being rotated by the management.

- **System Improvement**

As an outcome of investigations relating to complaints, study, inspection etc., advisories and suggestions were given to the management for system improvement in the following areas.

- ❖ Verification of Caste Certificate for claim of reservation benefit.
- ❖ In theft prone zone like O/C mine, Boundry wall and CCTV at select location and regular rotation of security person.
- ❖ Biometric system for attendance.
- ❖ Updation of Manual on regular basis.
- ❖ Procurement of Secondary items through GeM, wherever possible.
- ❖ E-Procurement for tender value Rs. 2 lakh and above.

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- ❖ Regular updation of personal file and service book of employees.
- ❖ Protection of information system i.e. ERP/SAP & Data recourse management controls. Third party audit of ERP.
- ❖ All the information regarding paid bill status to be uploaded on MOIL website.
- ❖ Timely payment to contractor/Vendor.
- ❖ In house preparation of reduced ore for EMD plant.
- ❖ Recruitment through on line process.
- ❖ Old record to be weeded out as per policy to avoid procedural complication.
- ❖ Duly approved TOC and TEC by competent authority to be informed of their scope and schedule well in time.

- **Vigilance Awareness Week**

Vigilance Awareness Week was observed from 28th October to 2nd November 2019 at all Mines/ Offices of MOIL Limited in which various activities were held in accordance with CVC guidelines with the theme “Integrity -A way of Life “.

17.6 MSTC Ltd.

The Vigilance setup of MSTC being headed by Chief Vigilance Officer (CVO) has been instrumental in institutionalizing the anti-corruption activities. MSTC Vigilance continues to foster the goodwill & confidence stemming from value-based business practices and strengthening the Company as a professionally managed, competitive, with the objective of enhancing efficiency and transparency primarily through system improvements, preventive, proactive & punitive vigilance.

MSTC Vigilance emphasizes on systemic changes & leveraging technology for transparent system and procedures, thereby increasing organizational effectiveness. During the period from 1st April, 2019 to 30th November, 2019, some of the important activities undertaken by the Vigilance Department are as follows:

- As a new initiative in preventive vigilance, the concept of PV-CHASE (Preventive Vigilance through Corruption Hazard Assessment and System Enhancement) has been introduced. It is a study of the organisation’s business process to list out all possibilities of corruption hazard, preventive measures available against each possibility of corruption. In a study pertaining to e-auction process for scrap disposal on behalf of sellers/principals, 27 hazard points detected. 20 check points found in place.30 system improvements suggested to management.
- Amendment in CDA Rules based on the inputs suggested by Vigilance Department for uniformity with Model CDA rules of DPE.
- Leveraging Technology emphasized in the areas of e-auction module and bill tracking system.
- Conducted 10 periodic/surprise inspections and systemic improvements suggested.
- 16 Sensitization programmes were being organized with employees both at the Head office and various regional offices/branch offices on CDA Rules, Delegation of Powers to create vigilance awareness.

- Study of recruitment process and 01 systemic improvement implemented.
- Vigilance Awareness Week – 2019 was observed with the theme “Integrity-A Way of Life”. Several Competitions were held for students of schools and colleges in seven Regions and Branches of MSTC offices. Several programmes viz; Walkathons, Pledge taking, poster competition, Essay writing, Quiz and Elocution Competitions, Cultural Program etc., organized to create awareness about vigilance involving the participation of school children, employees, their dependents and other Stake Holders. A special magazine has been brought out on the occasion.
- Vigilance Department is accredited with ISO 9001:2015 certification and Surveillance Audit of ISO 9001:2015 of Vigilance department has been carried out in the month of August, 2019.
- Student Vigilance Officer (SVO) Programme is being established in one of the colleges wherein students shall voluntarily function as advisors to the victims of corruption in reporting to the appropriate agencies.



Anti-corruption Walkathon at Head Office, Kolkata during Vigilance Awareness Week 2019

17.7 Ferro Scrap Nigam Ltd. (FSNL)

Vigilance Department has been focusing on “Preventive & Proactive Vigilance” and accordingly co-ordinate with Management in improving upon the existing procedure & system. This year 07 nos. of system improvement have been suggested to the Management. 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 Administrative Ministry/CVC.

The complaints received from various sources were handled as per the prescribed guidelines/procedures of CVC. In the year 2019-20, 37 complaints were received, report submitted for 22 complaints and 15 are under progress. 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.

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In the current year till 31/12/2019, 10 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 on the Company's website, 5 National dailies and summary of work orders/Contracts, detail of bill payments above a pre-determined thresh-hold value etc. is also posted on website every month.

Vigilance Department conducted/participated various training program in line with vigilance awareness & importance of vigilance in smooth functioning of the organization.

Vigilance Awareness Week was organized in the company from 28th October, 2019 to 2nd November, 2019 during which various activities like Slogan competition, Essay writing competition in Schools & Collages, pamphlet distribution in public places, workshop on the theme "Integrity – A way of life" & preventive vigilance, taking pledge by the employees etc. were carried out to create vigilance awareness among the employees, giving its publicity in local newspapers.

17.8 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 has taken a number of initiatives, briefly mentioned below:
 - ❖ Vigilance Awareness Week, 2019 was observed by MECON Limited in a befitting manner and with great enthusiasm from 28th October to 2nd November, 2019 in line with directive from Central Vigilance Commission with the theme "Integrity – A Way of Life". Pledge was also taken by employees posted at other site/engineering offices of MECON. Banners, posters and hoardings propagating message on Vigilance Awareness, Anti-corruption, etc. were displayed at various prominent places and activities like distribution of pamphlets containing Integrity Pledge and Quotes on Integrity, Talks, Panel Discussions, Speech and Quiz competitions among MECON employees were organized. Vigilance Walk combined with Run for Unity was also organized on 31st October, 2019. Giving thrust to participative vigilance, spreading awareness being the crucial element in combating corruption, many outreach and awareness activities were also undertaken like Speech competitions & Drawing competition which were organized in Schools & Colleges at Ranchi and other Site Offices.
 - ❖ Preventive Measure is being taken such as Surprise and Routine check, Scrutiny of Files, Scrutiny of Annual Property Returns, etc.
 - ❖ Officials of Vigilance Department participated in Bi-Annual Vigilance Conclave organized by the Ministry of Steel during 18-19 March 2019 at New Delhi and 6-8 September 2019 at Hyderabad along with line managers from other departments of MECON.
 - ❖ Till October 2019, MECON has signed Integrity Pact (IP) with 203 suppliers/contractors (Threshold value lowered for wider coverage: Rs. 1 crore & above for EPC Project and Rs. 25 lakh & above for Town Administration as well as for in-house Procurement).

17.9 KIOCL Ltd.

Preventive vigilance has been the thrust area of Vigilance Department 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 28th October to 2nd November, 2019 at all the locations/offices of KIOCL Limited. Workshops and Seminars were conducted during the week. Essay competition was conducted for school/college students. Elocution and Quiz competitions were held for employees. Organized Walkathon on 30th October, 2019 at Mangaluru for creating public awareness on the theme of Vigilance Awareness Week. Grama Sabhas were held in two Panchayats in Mangaluru and enlightened the public about integrity and eradication of corruption. 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 lakh and above. During 2019 (April-December), 98.80% cases by value are covered under this. E-procurement were implemented from 08.07.2019. All payment above the threshold value of Rs. 1 lakh are being made through electronic mode.
- During the year, 105 work/purchase/sale orders have been issued incorporating Integrity Pact Clause, covering 98.82% of contracts by value. No complaints have been received under Integrity Pact.
- 44 Scrutiny/examinations, 40 checks/inspections are carried out during the period and corrective actions, if any are suggested. Necessary action is taken as regards to the complaints received during the year.
- Vigilance Department conducted 12 training programmes at three different locations, covering 1240 manhours. Topics such as Vigilance Awareness & Preventive Vigilance, Public Procurement, Cyber-crimes, Integrity-A Way of Life etc. were covered.

17.10 EIL, OMDC and BSLC

The companies have their Vigilance Department headed by the Chief Vigilance Officer (CVO) of RINL and assisted by one Vigilance Officer and PSO to CVO in Head office, Bhubneshwar (Odisha). 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 Corporate Office at Bhubaneswar. 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-XVIII GRIEVANCE REDRESSAL MECHANISM

18.1 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 organization, (iii) Assessment of grievance regarding follow up action, (iv) Forwarding and transfer, (v) Reminders and clarification and (vi) Disposal of the case.

The details of grievances dealt with in the CPGRAMS for the period from 01.04.2019 to 31.12.2019 is as under:

Outstanding as on 01.04.2019	Received during 01.04.2019 to 31.12.2019	Disposed of during 01.04.2019 to 31.12.2019	Pending as on 31.12.2019
45	905	905	45

The position of implementation of the judgement orders of Central Administrative Tribunal is given at Annexure-XII

A revised Sevottam Compliant Citizens'/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.

18.2 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 disposal of Staff/Public Grievances for the year 2019-20 (01.4.2019 to 01.01.2020) is as under:

Type of Grievance	Staff Grievances outstanding as on 1.4.2019	No. of Grievances received during the period	No. of Grievances disposed of	No. of Grievances pending as on 01.01.2020
Staff Grievance	13	250	253	10
Public Grievance	10	530	514	26



18.3 Rashtriya Ispat Nigam Ltd. (RINL)

In RINL, structured Grievance Handling System is in place for redressal of grievances of Executive and Non-Executive employees. In the formal Grievance Redressal Procedure for non-executives, a workers' representative is present in the committee. Further, grievance handling system for Executives and Non-Executives has a fixed time frame to redress the grievances. A senior officer at the level of General Manager is designated as Public Grievance Officer to deal with the public grievances. There is a separate Grievance Redressal Mechanism each for Executives and Non-Executives.

During the year 2019-20, all the grievances received in Works area up to E-5 grade have been redressed appropriately.

Status of Public grievances for the year 2019-20 (April-December, 2019) is as under:

Types of Grievances	Grievances outstanding as on 01.04.2019	No. of Grievances received during the year 2019-20	No. of Grievances disposed off during the year 2019-20	No. of Grievances pending as on 31.12.2019
Formal	0	0	0	0
Informal	2	56	58	0
Public Grievances	0	79	79	0

18.4 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 GM(Per) has been nominated as the nodal officer for monitoring the grievance redressal machinery. The machinery is working satisfactorily. 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. As and when any public grievance (including in the press) is received, the same is promptly attended to.

The status of Public/Staff grievances for the period 01.04.2019 to 31.12.2019 is as under:

Sl. No.	Category	Grievances outstanding on 01.04.2019	No. of Grievances received during the year (April-December, 2019)	No. of cases disposed off (April-December, 2019)	No. of cases pending as on 31.12.2019
1	Staff Grievances	0	0	0	0
2	Public Grievances	8	61	69	0

18.5 MOIL Ltd.

Employees grievances – MOIL has its own grievance redressal procedure for Executives as well as non-executive employees. The grievances of employees are accordingly dealt with as per the rule.

Public Grievance – Any citizen can submit his grievance through online Centralized Public Grievance Redressal and Monitoring System (CPGRAMS). All Grievance officials have been apprised of the manner in which the Public Grievance received are to be disposed off. The system adopted for dealing the grievance of Public was constituted on the basis of instructions received from various authorities in the past.

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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.

Monthly/quarterly grievances are reviewed & dealt by designated Public grievance officers at mines and corporate office & disposed off with stipulated period of one month.

The data related to grievances at the units are submitted by unit grievance Officers in monthly / quarterly returns to the Head Office. The same is examined & submitted to the Ministry.

The status of Public Staff Grievances for the period 01.04.2019 to 31.12.2019

Sr. No	Type of Grievances	Grievances outstanding as on 01.04.2019	No. of grievances received during the period	No. of cases disposed off	No. of cases pending on 31.12.2019
1	Public Grievances	Nil	3	3	Nil
2	Staff Grievances	Nil	4	4	Nil
	TOTAL	Nil	7	7	Nil

18.6 MSTC Ltd.

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

A Grievance Committee is constituted at Head Office and Grievance Cells have been constituted at Head Office as well as Regional and Branch Offices. The grievance committee makes recommendation after examination of the grievances and comments obtained from the concerned department/region/branch. The grievances are settled /resolved based on the recommendation made by the grievance committee and also after the Competent Authority's approval, if required.

The Grievance Committee meets at periodical intervals to review the cases.

The Centralized Public Grievance Redress and Monitoring System (CPGRAMS) and Public Grievance site of the Company are monitored regularly by the Head Office. There are a Nodal officer and a Public Grievance officer in the Head Office.

Total 19 grievances have been received during 01.4.2019 to 31.12.2019. Out of that 18 grievances have been redressed and remaining 01 is under process.

18.7 Ferro Scrap Nigam Ltd. (FSNL)

The operational activities of FSNL are limited to rendering specialized services to the customer plants in scrap management & allied jobs, and the company does not have any direct public dealings. However, the company has implemented Citizen's Charter, in adherence of the instructions received from the Ministry on the subject. As regards redressal of any public grievance, the company ensures its redressal immediately without any delay.

As far as redressal of Staff Grievances are concerned, the company has formulated a scheme, viz.,

“Grievance Redressal scheme”. Under this scheme, the grievances, if any, of the employees are redressed in a time-bound schedule, to the entire satisfaction of the individual concerned. Following are the salient features of FSNL’s Grievance Redressal scheme:

- In all the Units/Corporate Office, FSNL has placed boxes viz., “Grievance Box”, which are kept at the reception counter of the Units/Corporate Office, keeping in view the easy accessibility of these boxes to the Public in general and the staff.
- Apart from this, Online Grievance applications are also received through CPGRAMS portal of Ministry of Steel, which are replied to immediately/within a reasonable period.
- The Grievances so received through Grievance box, are endorsed in a register called “Grievance Register”.
- Under Stage-I, if an employee/public has some grievances, he gets an opportunity to meet the Public/Staff Grievance Officer nominated for this purpose, who patiently hears the grievance, and if necessary, makes enquiries and gives the complainant a verbal answer within 3 working days from the date of hearing the grievance.
- Under Stage-II, in case the employee/Public is not satisfied with the answer given by the Public/Staff Grievance Officer, or if he does not get any reply within 3 working days’ time, or if his grievance does not get redressed satisfactorily at the level of Public/Staff Grievance Officer, the complainant gets an opportunity to meet the Unit Heads at the Units and Departmental Heads at Corporate Office, who patiently hears the grievance, gets feed-back from the concerned persons and gives his decision on the grievance, or sends a reply to the complainant.
- Under Stage-III, if the employee/public is not satisfied with the outcome of Stage-II, he gets an opportunity to meet General Manager(P&A) of the company at Corporate Office, who patiently hears the grievance, analyses the same and redresses it, in case he is not satisfied with the decision taken at Stage-II.
- If the employee/public is not satisfied with the result of Stage-I, II, & III, he can make an appeal to the Managing Director of the company, who will, in turn, re-examine the action taken in all the above 3 stages, analyze the grievance and communicate his decision to the concerned employee/public, within 15 days’ time from the date of receipt of the appeal.
- As regards the Public Grievances received on Grievance portal of FSNL/ Government grievance portals viz., CPGRAMS/ PMOPG, the same are attended to immediately and resolved within the stipulated period. The status of such grievances received on the portals during the financial year 2019-20 (Till December 2019), are furnished here under:

Brought forward	Received during the period	Total Grievances	Grievances redressed during the period	Closing balance
1	4	5	5	0



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There was no Staff grievance received under the Grievance redressal Scheme of the Company, and therefore, the status of staff grievance during the financial year 2019-20 (Till December, 2019) is NIL.

18.8 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 representative 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. 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.

The status of Public/Staff grievances for the period 01.04.2019 to 31.12.2019 is as under:

Types of Grievances	Grievances outstanding as on 01.04.2019	Grievances received 01.04.2019 to 31.12.2019	Grievances disposed off 01.04.2019 to 31.12.2019	No. of grievances pending as on 31.12.2019
Public Grievances	1	14	13	2
Staff Grievances	0	1	0	1

18.9 KIOCL Ltd.

KIOCL has a well-structured and multilayered Public Grievances Redressal Mechanism including Dispute Resolution Mechanism. The Public Redressal setup on KIOCL has been introduced right from the Corporate Office at Bangalore to all the production units, project offices and liaison offices. Vendors & 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 in our 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 01.04.2019 to 31.12.2019

Sr. No	Type of Grievances	Grievances outstanding as on 01.04.2019	No. of grievances as received during the period	No. of cases disposed off	No. of cases pending on 31.12.2019
1	Public Grievances	Nil	06	06	Nil
2	Staff Grievances	1	11	12	Nil
	TOTAL	1	17	18	Nil

18.10 EIL, OMDC and BSLC

A Grievance Redressal Mechanism is in place in EIL, OMDC and BSLC at Unit Level and at Corporate Level. A Nodal Officer has been notified for this purpose. The name & designation of the officer have been posted in the Company's website.

The Companies 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 online addressing of public grievances. Public grievances are frequently disposed off through CPGRAM portal.



CHAPTER-XIX DIVYANG AND STEEL

19.1 Ministry of Steel

The Ministry of Steel follows the Government rules with regard to the implementation of provisions of the Disabilities Act, 1995. As on 30.11.2019, Five persons (one visually handicapped (VH), one hearing handicapped (HH) and three orthopedically handicapped (OH) with disabilities are employed in the Ministry of Steel.

19.2 Steel Authority of India Ltd. (SAIL)

Implementation of Provisions of Rights of Persons with Disabilities Act, 2016

- Provisions related to reservation for Persons with Disabilities in terms of Rights of Persons with Disabilities Act, 2016 are 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.

19.3 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 has been 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 204 persons with various disabilities (excluding 10 persons on merit).
- 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 the actions taken up for the convenience of the differently-abled persons at different offices at main administrative building / corporate office.

19.4 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 induct PwDs in posts where field work is not involved. At present, NMDC has 99 employees with disabilities 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.

19.5 MOIL Ltd.

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

19.6 MSTC Ltd.

As on 30.11.2019, 11 persons with disabilities are employed in MSTC.

19.7 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 equipments such as Balling Cranes, Magnetic Separators, Dozers, Dumpers etc. are the main equipments used in carrying out operational activities. Thus, the atmosphere/working conditions of FSNL is 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 (VH), Hearing Impaired (HH) and Orthopedically Handicapped (OH) under Group-A & Group-C categories in Ministerial Category have been identified.

The recruitments made in FSNL are on need based, depending on availability of jobs from the customer plants.

User Friendly Website:

In view of the Government's policy for 'Divyang' persons, the Company's website has been made user friendly for visually impaired by installing Screen Reader Technology.

Ramp & Railing:

For the convenience of the Divyang persons, Ramp is provided with steel railing on one side for support, for entering into the office premises.

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19.8 MECON Ltd.

MECON has implemented the provisions of "Persons with Disabilities Act, 1995". Total employment strength of MECON as on 31.12.2019 is 1234, out of which persons belonging to disabled / physically handicapped category in various posts are 11.

19.9 KIOCL Ltd.

The details of Divyang Persons in different groups in position as on 30.11.2019:

No. of employees		No. of disabled persons			Total (BL+HI+LD)	% of disabled Persons (Col.3 & Col.1)
Group		BL	HI	LD		
A	226	2	--	2	4	1.76
B	41	--	--	--	--	--
C	518	--	--	5	5	0.96
D&D(S)	34	--	2	1	3	8.82
Total	819	2	2	8	12	1.46

Legends: BL - Blindness or low vision
 HI - Hearing impairment
 LD - Locomotor disability or cerebral palsy

19.10 EIL, OMDC and BSLC

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



CHAPTER-XX

PROGRESSIVE USE OF HINDI

20.1 Introduction

The Ministry of Steel has made considerable progress in the use of Hindi in official work during the year 2019-20 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 the direct charge of Joint Director (Official Language) looks after the work relating to implementation of Official Language Policy and Hindi Translation work and at present it consists of one Deputy Director (OL), One Assistant Director (OL), two Senior Translation Officers, one ASO, two Stenographers 'D' and other supporting staff.

20.1.1 Official Language Implementation Committee

There is one Official Language Implementation Committee working under the Chairmanship of Joint Secretary in the Ministry. This Committee reviews the progress made in the use of Hindi in the Ministry and its Public Sector Undertakings. Meetings of the Committee are held regularly. Two such meetings have been held so far during 2019-20. The progress of Hindi is reviewed in these meetings.

20.1.2 Hindi Salahakar Samiti

The reconstitution of Hindi Salahakar Samiti is under process. Hindi Salahakar Samiti works under the Chairmanship of Union Minister of Steel with the main objective to advise the Ministry with regard to progressive use of Hindi in its official work.



Shri Faggan Singh Kulaste, Hon'ble Union Minister of State for Steel at the National Hindi Seminar organised by MSTC at Kolkata under the aegis of Ministry of Steel

20.1.3 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 correspondence with Central Government Offices located in Region "A", "B" and "C", in Hindi, check points have been developed in the Ministry.

20.1.4 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, 2019 on the occasion of the Hindi Day. Hindi Fortnight was organized in the Ministry from 14th September to 30th September, 2019. During this period, nine Hindi competitions were organized to create an atmosphere conducive to the use of Hindi in the official work. A total of 55 officials officers took part in these competitions with great zeal.

20.1.5 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 have been invited and action is being taken in this regard.

20.1.6 Official Language Inspections by the Officers of the Ministry / Parliamentary Committee on Official Language

As on 30.11.2019, the Officers from the Ministry visited 15 offices of the CPSEs 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, during the inspection of the CPSEs of the Ministry of Steel by the Parliamentary Committee on Official Language, Ministry had its representation in these meetings.

20.1.7 Central Secretariat Official Language Implementation Committee

The Ministry represented in the meetings of Central Secretariat Official Language Implementation Committee Samiti and took necessary action on all the issues related to the progress of Hindi. Letters were written to all the concerned drawing their attention towards the shortcomings.

20.1.8 Hindi Seminars under the aegis of Ministry of Steel

The Ministry had inspired various CPSEs for organized Hindi Seminars. Seminars on the use of technology in Official Language were organized in various Undertakings. Cultural Programmes and Kavya Sandhya were also organized during these seminars. These seminars had representations of various Undertakings. Moreover, some Undertakings developed Trilingual Hindi Dictionary as well. During the current financial year, one seminar each was organized by MSTC Kolkata (01/08/2019), FSNL Bhilai, (29/08/2019) & MOIL, Nagpur (08/01/2020) under the Chairmanship of Hon'ble Minister of Steel/Minister of State for Steel.

20.1.9 Hindi Workshops

Hindi Workshops are being organized in the Ministry at regular intervals. On 01.07.2019 a workshop was organized on 'Hindi typing in Unicode' and on 24.10.2019, another workshop was organized on 'How to get better results in official work' in Hindi. A number of officials enthusiastically participated in these workshops.

20.2 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. Monthly Hindi incentive is



being provided to SAIL employees to encourage and popularize its usage in our day to day official work. Facility of online submission of forms for the same is provided at the SAIL portal. Updated Aaj ka Shabd/ Aaj ka Vichar on SAIL portal is available on daily basis with a new feature of scrolling.

SAIL is always complying with all the statutory requirements for promotion of Rajbhasha- Hindi. During the year, Hindi programmes were organized on regular basis in which large number of employees participated. A Hindi Workshop on 'Importance of Rajbhasha & Time Management' on 24th May, 2019 was held for the Executives of the Company. Another workshop on "Modern e-tools available in Hindi" for all Plants/Units of SAIL through video conferencing was organized on 24th September, 2019. Practical training of doing routine work in Hindi on computers was imparted on regular basis to the employees. International Yoga Day was celebrated totally in Hindi on 21st June, 2019. Premchand Smriti Karyakram on 8th August, 2019 and Hindi Sangoshthi on the topic "Hindi only a Rajbhasha or more" was organised on 20th September, 2019. On the occasion of 150th anniversary of Mahatma Gandhi, a Hindi essay competition on 30th June, 2019 was held on the subject "गाँधी के पहले और गाँधी के बाद का भारत" / "गाँधी और राष्ट्रभाषा हिन्दी". Hindi Dictation Competition on 23rd July, 2019, Hindi Debate competition on 19th September, 2019, Hindi Ashubhashan Competition on 18th September, 2019 and Hindi Kavita Path competition on 25th September, 2019 followed with a Kavya Goshthi.

"Rajbhasha Pakhwada" was organized from 14th to 28th September, 2019 during which employees were made aware of importance of Rajbhasha through various programmes. During this period, various Hindi Competitions and Special Workshops were organized on departmental basis. Unicode & Google Voice Typing and Hindi Competitions like Dictation, Hindi News Reading, Extempore Hindi debate, Hindi Quiz competition, etc. were organized, in which large number of employees participated. Rajbhasha Pakhwada Closing & Prize Distribution Ceremony was organised on 1st October, 2019 in the presence of Chairman, SAIL, Director (Commercial) and other senior officers including JD (Rajbhasha), Ministry of Steel. Padmashri Dr. Ram Nath Shukla was also invited as a special guest speaker on the occasion.

SAIL was awarded with "Rajbhasha Navratna Puraskar" on 21st October, 2019 at Goa by Bhartiya Bhasha Avam Sanskriti Kendra, a renowned Institute of National level.

20.3 Rashtriya Ispat Nigam Ltd. (RINL)

At RINL, Official Language Policy, Rules and Acts 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 FY2019-20 (April–December, 2019) are as follows:

Workshops/Training Programs

- 61 number of employees were trained in Prabodh/Praveen/Pragya.
- 201 number of employees were trained in Exercise Based Hindi Workshop.
- 211 number of employees were trained in Unicode Training on Computer.
- 349 number of employees were trained in Special Workshop on E-Office.

Inspection

- At the HQ: Internal inspection carried out in 32 department/offices.
- At Regional/Branch/Liaison Offices by HQ: 10.



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- By Ministry of Steel, Government of India: 02.
- By Ministry of Home Affairs, Government of India: 02.

Recognition/Awards

- Regional Office (North), New Delhi has won Consolation Prize from TOLIC (PSU), New Delhi for the period January-June, 2019.

20.4 NMDC Ltd.

NMDC continued its pursuit for excellence in field of implementation of Rajbhasha with the following activities:

- A trilingual Dictionary (English-Hindi-Telugu) with pronunciation in Telugu was prepared and uploaded on its website.
- Regular Classes continued for “Hindi Parangat” training in Hindi Training Centre of Head Office with Hindi Pradhyapak of Govt of India, Hindi Teaching Scheme regularly conducting the sessions.
- Desk Trainings in Hindi were conducted in all the Departments at HO to facilitate the usage of Rajbhasha.
- Monthly Incentive Schemes for writing letters in Hindi, Registers in Hindi, Notings in Hindi and Dictation in Hindi continued during the period in HO and all the Projects.
- Meetings of Official Language Implementation Committee were conducted in every quarter at HO and all the Projects.
- To propagate use of Rajbhasha, monthly Hindi Competitions were also conducted.
- During the month of September, Hindi Fortnight was celebrated in a grand manner and several competitions were conducted at HO and all the offices. Prizes to winners as well as to Officials doing their maximum work in Hindi were also given during the award function.
- Hindi workshops conducted in every quarter to train officials in doing their routine work in Hindi.
- To promote original writing in Hindi “Khanij Bharati”, Hindi house journal was published and all the projects published “News Letters” in Hindi /Bilingual/Trilingual viz., Baila Samachar, Bachel Samachar, Doni Samachar, Hira Samachar etc. “She News” magazine on Safety also contains Hindi pages.
- To assess implementation of Rajbhasha in Projects, HO also carried out inspection and Desk Training at Bachel and Kirandul complexes.
- Officers from Ministry of Steel inspected GEC, Raipur with regard to Rajbhasha implementation.
- To spread use of Hindi at Town level NMDC, HO conducted “Hindi Elocution Competition” for PSUs of Hyderabad-Secunderabad under the aegis of TOLIC.
- Regional Office, Vishakhapatnam organized joint workshop for PSUs in Vishakhapatnam.
- Diamond Mining Project of NMDC, being the coordinating office for TOLIC, conducted half yearly meetings of TOLIC, Panna.

Awards and Accolades

- “Rajbhasha Kirti” -Second Prize for implementation of Rajbhasha in “C” region. This was the second time in a row that NMDC has received this award.
- “Rajbhasha Shield”-First Prize of Town Official Language Implementation Committee of Hyderabad

for implementation of Rajbhasha in mid-sized undertakings category. This the fourth time in a row that NMDC has received First Prize.

- “Khanij Bharati”- Hindi House Journal of Head Office received “UttamPatrika”-First Prize in published magazine category of TOLIC, Hyderabad-Secunderabad. This is Third time in a row that Khanij Bharati has received this award.
- NMDC received “Rajbhasha Samman” from Vishwa Hindi Parishad for excellent implementation of Rajbhasha.

20.5 MOIL Ltd.

- Maximum correspondence in MOIL Limited including all the mines is done in Hindi and is 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.
- 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 Gosti 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 are awarded by the Nagar Rajbhasha Karyanven Samiti.
- Suchita, a journal of MOIL Limited, was recognized by giving third prize by the Nagar Rajbhasha Karyanven Samiti.
- Contributory fund is provided by MOIL for the publication of the magazine Wainganga and Official Language Mirror published by the Nagar Rajbhasha Karyanven Samiti Balaghat and Nagpur.
- MOIL Ltd. received mementoes by Goa Governor for Rajvanshi Samman for best implementation of Official Language at the International Conference by Vishwa Hindi Parishad on 13 September, 2019.

20.6 MSTC Ltd.

- MSTC has been awarded ‘Rajbhasha Bhushan’ for the year 2017-18 at 35th Akhil Bharathiya Rajbhasha Prashikshan Shibir and Sammelan, held at Mysore from 6th to 8th June, 2019.
- Officers actively participated in the Official Language Implementation Committee meetings organized by the Ministry of Steel on 26th July 2019 as well as in TOLIC, Kolkata organized on 31st August 2019. During the year 2019-20, the meetings of Official Language Implementation Committee are held quarterly.
- To mark the 139th birth anniversary of prominent novelist and story writer Munshi Prem Chand, the 12th Rashtriya Hindi Sangosthi (National Symposium on Hindi) organized by MSTC Ltd, was inaugurated by Shri Faggan Singh Kulaste, Union Minister of State, Steel on 31.07.2019.
- “Rajbhasha Trimas” was inaugurated on 14th September, 2019. During the quarterly period, Hindi



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competitions and workshops were organized in Head office, Regional and Branch offices. Quarterly reports were given online. These included the reports of Head office as well as reports of Regional and Branch offices.

- MSTC Limited was awarded by the World Hindi Council, Delhi on 14th September, 2019 at the International Hindi Conference for outstanding efforts in the field of implementation of Official Language for the year 2018-19.
- A total of 90 employees were awarded for winning in Hindi competitions. In this year, a total of 88 employees were awarded under the Official Language incentive Scheme.
- During May, 2019 and November, 2019 sessions, 14 and 13 employees respectively were nominated for the examinations conducted by the Hindi Teaching Scheme. Training was provided to these employees through internal classes, LILA app etc.
- During the year, Regional and branch offices have been inspected by the Head Office Officials.
- The ISO 9001: 2015 certification of Rajbhasha Cell of the Corporation was renewed.

20.7 Ferro Scrap Nigam Ltd. (FSNL)

The directives & instructions received from the Government from time to time with regard to implementation of Official Language Policy are strictly adhered to.

Some of the major achievements in the field of Rajbhasha during the financial year 2019-20 (till December, 2019) are as under:

- During the Rajbhasha Month observed in FSNL from 1st September, 2019 to 30th September, 2019, various Hindi competitions were organized at the Corporate Office, as well as in all the units of FSNL. The 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.
- During Hindi Mah, on 27th September 2019, a technical session was organized for the benefit of the member concerns of TOLIC, Bhilai-Durg, as well as school/college children from various institutions in & around Bhilai. Hindi Shrut Lekhan Pratiyogita was also organized during the session for the invited children, and the winners were given away prizes by the Managing Director.
- A mega event of National Rajbhasha Conference was organized at Bhilai(Chhattisgarh) on 30th August 2019. The theme of the Conference was “Abundance of Hindi in Technical field and FSNL”. Shri Faggan Singh Kulaste, Hon’ble Minister of State for Steel was invited as the Chief Guest.
- Town Official Language Implementation Committee, Bhilai-Durg organized “on the spot speech competition” was organized at Corporate Office, Bhilai on 26.04.19, wherein the representatives from various member concerns of TOLIC participated, and the winners were given away prizes.
- A Rajbhasha Karyashala was organized on 14.06.2019, wherein a Hindi quiz programme was also conducted, and the participants were imparted practical training on Google Voice typing and use of Unicode on computers for bilingual typing.

- The winners of Annual Hindi competitions like Hindi Typing, Hindi Noting/Drafting etc. held for the year 2018, were given away prizes in a ceremony organized on the occasion of Independence Day on 15.08.2019.
- School & College students, including Boys & Girls from various schools & colleges in & around Bhilai were also invited to participate in the above Rajbhasha Conference. An interesting Rajbhasha Quiz contest was also held during the seminar and the winning participants were given away prizes.
- The third edition of the house-journal “Darpan” of FSNL was released by the Hon’ble Minister of State for Steel, Shri Faggan Singh Kulaste in the inaugural session of the National Rajbhasha Conference.
- Durgapur Unit of FSNL has been awarded “Rajbhasha Karyanvayan Samman” for best implementation of Rajbhasha Hindi in the region by the Town Official Language Implementation Committee-Durgapur (W.B.).
- A group discussion in Hindi was organized during Communal Harmony week observed from 19-25 November, 2019.
- Hindi Essay writing competition was organized by FSNL for the member concerns of Town Official Language Implementation Committee, Bhilai-Durg, on 18.10.2019.
- FSNL-Durgapur Unit was awarded on 04.11.2019 by the Town Official Language Implementation Committee-Durgapur for exemplary work in implementation of the official language policy among the member concerns.
- On 04.11.2019, a Hindi Essay Writing Competition was organized by FSNL’s Vigilance Department for the students of Colleges in & around Bhilai.
- One-day Rajbhasha Workshop was organized on 29.11.2019 on the theme “Common mistake while writing in Hindi and solution thereof”.

20.8 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 Implementation Committee, Ranchi and actively participates in all the programmes.

One “Hashya Kavi Sammelan” was organised by Rajbhasha Vibhag on 07th April, 2019 in MECON Community Hall. In this Kavi Sammelan, 5 renowned poets and one poetess were present.

Joint Director (Rajbhasha), Ministry of Steel, Govt. of India inspected the progressive use of Hindi in MECON Head Office, Ranchi on 07th May, 2019. In presence of Joint Director (Rajbhasha), Ministry of Steel, one Hindi Workshop was organised in the Head Office on 7th May, 2019.

“Hindi Pakhwara” was observed in MECON at Head Office as well as in all the site offices of the company from 14.09.2019 to 28.09.2019. On this occasion, all employees took a pledge to increase use of Hindi in their day to day official work. During the “Hindi Pakhwara”, various competitions were also organized at Head Office and other offices of the Company. A special Hindi workshop and one Rajbhasha symposium on “Unicode ke jariye Hindi me Kam-Kaj” were organised during the Hindi Pakhwara.

Obligatory Hindi Training of Non-Hindi speaking personnel of the company (May-November, 2019 Session – Prabodh, Praveen & Pragya classes) was also organised by Rajbhasha Vibhag in which 10 employees attended.

20.9 KIOCL Ltd.

Two OLIC meetings were conducted on 07.06.19 and 16.09.19 to chalk out the strategies to implement the constitutional provisions of the Official Language Policy of the Union.

Two Hindi Workshops were conducted on 07.06.2019 and 16.09.2019 on “Importance of inspection by Parliamentary Committee on Official Language” and other “Constitutional Provisions of Official Language Implementation” and “Essential IT Tools for the utility of mobile in the practical use of Hindi work” and also imparted training to the employees for doing their official work in Hindi.

The Official Language Implementation Committee Meetings take place at all the locations regularly and the progress during the previous quarters is reviewed during such Meetings. Hindi Fortnight was celebrated at all locations of the Company during September 2019. Hindi Programmes and several Hindi Competitions were held and prizes distributed to the winners in the valedictory function organized on 29.09.2019.

The Company follows and implements 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. Employees of the Company are encouraged to work in Hindi with regular training, cash awards and increments as per the Government directives. Hindi Workshops, Orientation Programmes are conducted regularly to create awareness, impart knowledge and encourage the employees to do their official work in Hindi.

KIOCL is the Convener of Bengaluru Town Official Language Implementation Committee (Undertakings) (TOLIC) and conducts meetings at regular intervals. The Joint Hindi Month programmes were also conducted for all Central PSUs in Bengaluru.

First half yearly meeting of TOLIC (Undertakings), Bengaluru was conducted on 18.07.2019 at BEL Officer’s Club, Jallahalli. Total 10 prizes were distributed to the members offices which have done best official work in Implementation of Official Language. Three prizes awarded to three member offices for best magazines. Joint Hindi Month Competitions were conducted from 3rd August to 30th August, 2019 by 18 member offices and the Prizes distributed to the winners of competitions during II Half Yearly TOLIC (Undertakings) meeting on 18th December 2019.

20.10 EIL, OMDC and BSLC

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

CHAPTER-XXI EMPOWERMENT OF WOMEN

21.1 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 with the guidelines of the Supreme Court, Ministry of Steel has constituted a five-member Committee to look into the complaints made by women employees and to address them. The Committee did not receive any complaint during the period April 1, 2019 to November 30, 2019, and the same is broad indicator of excellent environment for women work force in the Ministry.

21.2 Steel Authority of India Ltd. (SAIL)

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

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

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

Benefits to Women Employees

Separate toilets have been provided at all locations where women employees are posted /engaged both in technical as well as non-technical areas. Washrooms, Canteens, etc. for all employees in the Company's Plants and Units are available. Constant efforts are made for improving the hygiene conditions at workplace for all employees especially the women employees. The statutory compliance of the Company is 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 to 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.

21.3 Rashtriya Ispat Nigam Ltd. (RINL)

In RINL, women employees constitute 3.2% of its total workforce. About 6.3% of the executives and 1.6% 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 include Programmes on Managerial Development, Networking and social skills including Gender Sensitivity for sensitizing its employees on issues relating to employment of women.

During the year FY 2019-20, till December, 2019, the salient achievements include:

- A total number of 121 women employees participated in house training & development programs specific to women and also 57 Women employees were nominated for Workshop on 'Prevention of Sexual Harassment'.
- 77 women employees were nominated for various Training & Development programmes including technical, managerial, women development, health, seminars, and conferences conducted in the country.
- Celebrated major events like International Yoga Day (21st June, 2019), International Women's Day (8th March, 2019).
- Quiz competition for women employees was conducted on 4th March, 2019. One day annual Sports Meet for women employees was organized in February, 2019 wherein 100 women employees participated.
- The cell runs a creche - "Happy Hours" for the benefit of children of working women. Children's Day is celebrated in the Creche every year.
- Women team of RINL won Gold award in Chapter Convention on Quality Control Circles-2019 held at Visakhapatnam.

21.4 NMDC Ltd.

NMDC Limited employs 372 women as on 30.11.2019, which constitute about 6.4 % of its total manpower of 5785. 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, 338 Girl students have been sponsored for pursuing nursing courses under the scheme. The students who have passed out, 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.

21.5 MOIL Ltd.

MOIL employs 791 women employees which constitute 13.20% of its total workforce of 5994 as on 31.12.2019.

Mentorship program along with Work Life Balance, Leadership development programs have been conducted and are in progress for women employees.

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

Every year 8th March is celebrated as International Women Day and various programmes are organized to mark the day.

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 a huge success.

As per the provisions of the Sexual Harassment of Woman at The Workplace (Prevention, Prohibition & Redressal) Act, 2013, a Sexual Harassment 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 The summary of the Sexual Harassment complaints received during the year 2019-20 (upto December, 2019) is Nil.

21.6 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

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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 Company. Various initiatives have been taken for empowering women employees of the Company to ensure work-life balancing by them & developing leadership skills in them.

To provide a safe working environment and to improve participation of female employees, the Company has the policy for prevention, prohibition and redressal of such offensive acts. The policy was implemented with the requirements of The Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013. Internal Complaints Committee (ICC) has been set up to redress complaints received regarding sexual harassment. All employees (permanent, contractual, temporary, trainees) are covered under this policy.

21.7 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 women employees.

Two special training programmes, exclusively for women employees, were organized by FSNL at Corporate Office and at Burnpur Unit to enhance their skill & knowledge for best utilization of their services for the betterment of the organization.

21.8 MECON Ltd.

There is an Internal Complaints Committee headed by a senior Lady Executive as Presiding Officer to look into the grievance or complaints of women employees in MECON. MECON also follows instructions/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 from time to time.

21.9 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.

In compliance with the provisions/requirements under the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, Internal complaints committees were constituted at Bengaluru, Mangaluru & 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 most of the women employees are members of the said Forum. KIOCL is a life Member for WIPS. Coordinators are being nominated on rotation basis from KIOCL to liaise with the WIPS and women employees (Members) are being sent to attend Annual meets/ Regional meets of WIPS by the Company.

21.10 EIL, OMDC and BSLC

EIL, OMDC & BSLC continue to accord due importance to gender equality and the companies are equal opportunity employer and do not differentiate in terms of gender. A Woman Grievance Cell is functioning in the Company to redress grievance of women employees. To ensure empowerment of women, "Gender Budgeting Cells" with women representatives have been constituted.

CHAPTER-XXII

CORPORATE SOCIAL RESPONSIBILITY

22.1. 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, as amended vide The Companies (Amendment) Act, 2019, 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 notified 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 issues Guidelines on Corporate Social Responsibility and Sustainability from time to time. All the CPSEs have been directed to scrupulously follow the above-mentioned Act/Rules/Guidelines while allocating and spending funds under CSR.

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

22.2 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 erstwhile obscure villages located around SAIL Plants, turn into large industrial hubs today.

SAIL CSR initiatives have always been undertaken in conformity to the CSR provisions under the Companies Act, 2013, CSR Rules, 2014 and Schedule-VII of the Companies Act, 2013. SAIL carries out CSR projects mainly in periphery of steel townships and mines in the thrust areas falling in line with the Schedule-VII, namely, Promotion of Education and Health, Women Empowerment, Sustainable Income Generation through Self Help Groups, Assistance to Divyangs (People with Special Abilities), Access to Water & Sanitation facilities, Village development, Environment sustenance, Sports coaching, promotion of traditional Art & Culture, etc.

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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 Financial Year 2019-20 (upto 31.12.2019), about 1100 Health Camps were organized benefitting approx. 50,000 villagers.

5 Mobile Medical Units (MMUs) running in the Plant peripheries have benefitted about 25,700 villagers during Financial Year 2019-20 (upto 31.12.2019) at their doorsteps.

24 Primary Health centres at Plants exclusively provided free medical care and medicines to above 43,500 patients in Financial Year 2019-20 (upto 31.12.2019).

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 3385 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 266 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



Saranda Suvan Chhatravaas, Jharkhand



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. 659 youths & 697 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, 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. at various Skill Centres located in and around Steel Plant and Mines locations. SAIL is also instrumental in marketing of the products manufactured at such centres.

Almost 743 youths have been sponsored for ITI training at ITIs 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 participated 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, Madhya Pradesh and Tamil Nadu as allocated to SAIL by Ministry of HRD, had been undertaken and completed. 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 in the Company.

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 and maintained 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 programs and centres under CSR at SAIL Plants like ‘Schools for blind, deaf & mentally challenged children’, ‘Home and Hope’ Rourkela, ‘Ashalata Kendra’ Bokaro, ‘Handicapped Oriented Education Program’ and ‘Durgapur Handicapped Happy Home’, Durgapur, and ‘Cheshire Home’ Burnpur. Old age homes are being supported at different Plant townships like ‘Siyon Sadan’ Bhilai, ‘Acharya Dham and Badshah’ Durgapur and ‘Sr. Citizens Home’, Rourkela, etc.

22.3 Rashtriya Ispat Nigam Ltd. (RINL)

The focus for CSR generally includes areas mentioned in Schedule VII of the Companies Act 2013 viz. Health Care, Education, Skill Development, Environment Care, Rural Development, Sports, Sanitation & Swachh Bharat, helping 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.
- **'Akshaya Vidya':** Quality education being provided to around 1800 children belonging to slum areas in 60 centres located in AP and Telangana.
- **Arunodaya Special School:** Free Education, Therapy and Vocational training is provided to 105 children through Arunodaya Special School.
- **Support to Mid-day Meal Scheme:** Meal is provided to 900 school children belonging to BPL families.
- **Chethana:** Adult Literacy Programme of 6 months duration was provided to 625 beneficiaries in 25 centres in the surrounding villages.
- **Paathashala Ki Aabharanam:** To address the infrastructure deficit in the Govt. Schools, 645 three-seater dual desks were provided to 14 Govt. Schools in Visakhapatnam District.

Health Care

- **Support to 'Divyangjan':** Distributed Wheel chairs, calipers and other assistive devices to 86 disabled persons.
- **'Nethra Jyothi':** 24 eye camps were organized and 74 cataract surgeries were performed on BPL patients.
- **Cochlear Implantation:** Cochlear implants to two needy children were arranged through ALIMCO.
- **Adopting abandoned and destitute elderly persons:** Adopted 25 abandoned and destitute elderly persons for a period of one year – provided free shelter, food, medical facilities and homely care at 'Guru Vishram Vridh Ashram' at Garhmukteshwar, UP.
- **Parivartan:** Organized Menstrual Health awareness programme - benefitting 213 girl students.
- VSP-RINL has joined hands with Homi Bhabha Cancer Hospital & Research Centre (HBCH & RC) and taken up a project for carrying out cancer preventive vaccination for 160 girls students of 9th standard of Visakha Vimala Vidyalayams located at Ukkunagaram and BC Road along with free cancer screening for their mothers.





Shri Faggan Singh Kulaste, Hon'ble Union Minister of State for Steel inaugurating the Blood Component Separator Equipment at Blood Bank in VSGH, RINL.

Skill Development

- **'Skill development programme for Divyangjan':** Skill Training in trades viz. Data Entry Operator, Mobile handset Repair & Sewing Machine Operator was provided to 100 Divyangjans.
- **VSP- RINL** in association with Andhra Pradesh Differently Abled and Senior Citizens Assistance Corporation (APDASCAC) and The Leprosy Mission Trust of India (TLMTI) organized a workshop at Vizianagaram on inclusive employment, training and easy access environment for persons with disabilities and people affected by leprosy. During the workshop, awareness was provided regarding the provisions of the Rights of Persons with Disability Act, 2016 and Access India Campaign.
- **Skill Development of persons affected by leprosy/disability:** One year residential skill development training programme in various courses viz. computer operations and programming assistance, diesel mechanic, welder, electrician was taken up by VSP-RINL at Vizianagaram to support 25 persons affected by leprosy/disability to empower them to have a decent livelihood.

Peripheral / Rural Development

- **Multi-Purpose hall at Jaggayyapeta:** A Multi-Purpose hall was constructed at Jaggayyapeta municipality.

Sanitation

- **Water purifiers at Annavaram:** Water Purifiers with Chillers were installed at eight identified places in the premises of Annavaram temple.
- **Drinking water Supply:** 65,000 litres of drinking water per day was supplied to surrounding villages during the summer months.

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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 in six schools in Visakhapatnam district benefitting 2,600 students.
- 1094 Cleanliness campaigns were organized in the areas of Plant, Mines and Township under Swachh Bharat. Further, in line with the directions of Govt. of India, Safai Pakhwada, yearlong cleanliness drives as per department-wise calendar and Swachhta Hi Seva, a special campaign with the theme on "Plastic Waste Management" were also observed regularly.

Help During Natural Calamities

- **Support to cyclone restoration activities in Odisha:** Contributed Rs 50.0 lakh to take up restoration activities at the affected areas of severe cyclone 'Fani' in Odisha.

22.4 NMDC Ltd.

The status of flagship CSR programmes and new initiatives undertaken/initiated by the Company in 2019-20 is as follows:

Education

- The Scholarship Scheme "NMDC Shiksha Sahayog Yojana" to motivate SC/ST students is in operation since 2008 and during the year 2019-20, up to 18000 scholarships have been awarded.
- **Choo Lo Aasmaan-** NMDC has been extending support to 'Choo Lo Aasmaan', a joint initiative with District Administration Dantewada, to provide coaching for various National/State level medical/engineering entrance tests. A selection test is conducted for VIII pass students of Dantewada Dist. Selected students are provided residential facilities, uniform and other facilities at Choo Lo Aasmaan from Class 9th to 12th. The initiative was started in 2011, and till date 320 boys and 320 girls have been benefitted from this scheme.
- 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.

- Under NMDC Balika Shiksha Yojana, during the current academic year i.e. 2019-20, 40 girls have been sponsored in GNM & B.Sc. nursing courses at Apollo College /School of Nursing, Hyderabad. Till date 338 students have been sponsored by NMDC for pursuing nursing courses.
- The Residential School started at Nagarnar in 2010 is also running successfully with 585 students in class I to XII.



Residential School at Nagarnar, Chhattisgarh

- NMDC has established Astha Gurukul -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.



Astha Gurukul, a residential school for children affected by violence in Bastar Division

- 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.

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- An initiative for promotion of education by operating 500 Single Teacher Schools (Ekal Vidyalayas) in areas around NMDC Projects in Chhattisgarh over a period of five years, was taken up. During the year 2018-19, 120 Ekal Vidyalayas have been successfully set up under the scheme. The initiative is continuing successfully this year also.

Initiatives taken up during 2019-20

- 'Financial support to Students under Choo Lo Aasmaan'-NMDC has extended financial support to four students of Bastar region of Chhattisgarh who have cleared JEE, Advance Entrance Examination and taking admission in IITs during the academic year 2019-20. The above financial assistance is granted as a token of encouragement to the students of Bastar region to pursue higher education in esteemed Institutes viz., IITs/AIIMS. A felicitation ceremony for the above students was held on 27.06.2019 at Raipur and the financial assistance in the form of cheques were handed over to the students by the Hon'ble Chief Minister of Chhattisgarh.
- NMDC has extended financial assistance to the extent of Rs.25.00 lakh on reimbursement basis for procurement of 55-seater Bus to a rural school being operated on charitable basis in Telangana for the benefit to the students from socio-economically disadvantaged sections of the community in pursuing their education.

Initiatives on the Anvil

- Financial Assistance to the Students of "Choo Lo Aasman"-To encourage and support the successful students from Bastar Region in the premier entrance examinations like IIT-JEE and AIIMS, NMDC has proposed a 'Scheme' for students of Choo Lo Aasmaan (Institution) who secure admission to Under-Graduate Degree courses in IITs and AIIMS under its CSR initiative.
- A proposal for establishment & Operation of Virtual Class rooms (Smart Class rooms) in 100 Govt. Schools across three districts viz., Panna, Chhatarpur & Guna in Madhya Pradesh is proposed to be taken up during 2019-20.

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 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 the only Polytechnic College in Chhattisgarh which is totally operated by a PSU without any contribution from the Govt. of Chhattisgarh.
- During the Year 2019 an "Open Campus Drive" was conducted in the College Campus wherein reputed Industries like Bajaj Motors & Ashok Leyland etc. have participated for hiring students. 27 students from Electrical and 33 students from mechanical streams have been selected from 2016-19 batch and got placement in above cited Industries.

- 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. An impact assessment study thereof has also been undertaken in partnership with NSDC, with the said study having been completed during the current year.

Initiatives taken up during 2019-20

- Assistance to Dairy development Centre in Dantewada District- To improve the dairy production and research work in dairy development, NMDC has taken up infrastructural development works viz., construction of Cow sheds, Research Lab & training Centre in Dantewada. The Research Centre was established in with 20 cows. With the help of indigenous breeding, the number has been enhanced to 84. The milk production is 220 litres per day.

Initiatives on the Anvil

- Proposal for imparting Skill development training (Recognition of Prior Learning - RPL) to 1600 persons of Bastar Division in partnership with Chhattisgarh Swami Vivekanand Technical University, Bilai (CSVTU) in different trades is in the pipeline.

Healthcare

- Free out-patient & in-patient treatment facility was extended to 44370 & 14045 local tribals respectively during the year 2019-20 (upto October).
- During 2019-20 (upto October), 7542 local villagers have been treated at the doorsteps in the nearby 13 villages of Nagarnar Steel Plant, through operation of Hospital on Wheels service.

Initiatives taken up during 2019-20

- Manufacturing & Distribution of Sanitary Napkins- To bring awareness about menstrual health & hygiene among girls & women of Dantewada District, NMDC has initiated a programme called "Mehraar cho Maan" in partnership with District Administration of Dantewada District. Under this programme, sanitary napkins have been distributed among girl students of Schools, Hostels & Ashrams along with tribal women. Apart from distribution of napkins, these women are being taught to make sanitary napkins with the help of Self-Help Groups. The first machine for handmade napkins was installed in the Centre which could made only 35-36 packets per day. With the installation of new machine 250 pieces are being made per day. These women are earning monthly income of Rupees four thousand by making sanitary pads. On the eve of Gandhi Jayanti, Manufacturing & distribution of Napkins has been started in 8 villages of Dantewada District. Till date, 22000 women have associated themselves with this programme.

Initiatives on the Anvil

- Operation of Bike Ambulance Service – NMDC has proposed to implement a Bike Ambulance Service in partnership with State Govt. of Chhattisgarh to enable villagers residing in inaccessible villages due to lack of road connectivity in areas around NMDC's Bailadila Projects access Healthcare facilities at

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NMDC Project Hospitals located in Bachel and Kirandul. Initially two Motor Bikes Ambulances will be provided for a period of one year and continuance of the said services will be decided based upon the response/success of the initiative. Implementation of the said initiative is on the anvil.

- Implementation of Malnutrition Programme in Bastar Division- Malnutrition is a major problem in Chhattisgarh and especially in the District of Bastar. NMDC has agreed to address this issue by partnering with State Govt. of Chhattisgarh by extending the requisite financial support for eradication of malnutrition among children in Bastar Division.
- NMDC is on the verge of implementing a smart healthy village initiative in the weaker section dominated villages around its Diamond Mining Project, Panna.

Rural Development

Capacity building of selected Gram Panchayats around NMDC Projects- The proposed initiative will be taken up in partnership with National Institute of Rural Development & Panchayati Raj (NIRD &PR). The goal of this initiative is to create successful models of Gram Panchayat (GP) clusters to achieve holistic & sustainable development through strengthening their institutional capacities and scientifically prepared quality Gram Panchayat Development Plan (GPDP) by providing technical guidance and handholding support and help in implementing their plans in true spirit.

22.5 MOIL Ltd.

Corporate social responsibility in MOIL is a continuous process. MOIL has been carrying out CSR activities in a resolute manner for past several years. The Company has framed a CSR policy, duly approved by the Board of Directors. Several schemes have been taken up and being implemented under CSR. Total budget for the year 2018-19 was Rs 925.00 lakh, against which expenditure of Rs 929.48 lakh has been incurred during the year. Broadly CSR projects include the following:

- MOIL is supporting four schools (two each in Bhandara district of Maharashtra and Balaghat district of Madhya Pradesh) in its education and skill development initiative. Both the districts are 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 a major step towards providing quality education to rural children, MOIL has constructed a large school at Sitasaongi in Bhandara district and is operating the same since April, 2014 in association with DAV Group of Schools. 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 total capital cost of the project was Rs. 8.00 crore. The school is managed by DAV Management and funded by MOIL. In the first year of its operations itself, the school has received overwhelming response. The strength of the school at present is 1026 students in Nursery to Class X (expected up to Class XI during 2019-20).
- 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, 2021.



DAV school at village Sitasawangi, Distt. Bhandara

- For providing drinking water to villages in remote areas, the Company has proposed to dig 42 bore wells.
- The Company has tied up with Mahatme Eye Bank and Eye Hospital run by S.M.M. Eye Welfare Trust for carrying out free cataract surgeries on needy rural poor.
- Company has associated professional agencies like BAIF and Maharashtra Institute of Technology Transfer for Rural Areas (MITTRA), an associate organization of BAIF, Pune who have decades of experience in rural development programmes. MOIL has entered into MoU with MITTRA who has prepared a detailed project report for the project. Initially twenty-one villages have been identified – five in Nagpur, eleven in Bhandara districts in Maharashtra and five in Balaghat district in Madhya Pradesh.

Major areas of developmental activities are in the following areas:

• Livelihood	• Education
• Women empowerment	• Anganwadi based intervention
• Water resources management	• Community resources development
• Agricultural training	• Infrastructure development
• Livestock development training	• Health, cleanliness and sanitation
• Quality of life	

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- The Company has also provided 463 family-size bio gas plants that help in reducing emissions of greenhouse gases produced by the firewood burning or use of LPG. Through the use of this biogas, ~ 7023 Kgs of Co2 emissions/day are reduced.
- Company has taken up various infrastructural development works like construction of village roads, personal toilets, community halls, renovation of schools, support for plantations, etc.



Bio-Gas Under Community Development Programme

22.6 MSTC Ltd.

MSTC Limited during the 2018 -2019, has suffered loss of Rs. 26,920.90 Lakh due to the provisions made for debt related to earlier years.

In view of losses incurred in the previous financial year, MSTC does not have any fund for CSR activities. The CSR Committee and Board have decided only to release the fund for projects sanctioned in the previous year and for which part payment has been released.

However, till date company has not released any fund for CSR activities. Some of the projects undertaken in the previous financial year but completed in this financial year are as follows:

- Renovation of School Building of Prathamik Vidyalaya Kanya, Nawadih, Jharkhand, by MSTC under its CSR initiative.
- Renovation of School Building of Madhya Vidyalaya Chiksia, Jharkhand, by MSTC under its CSR initiative.
- Construction of a training center for unemployed youth and marginalised women at Pairagachi, Block Habra-I, North 24 Pags. West Bengal.



22.7 Ferro Scrap Nigam Ltd. (FSNL)

Activities proposed under CSR during 2019-20

Against the sanctioned budget of Rs.62.78 lakh for undertaking CSR activities during the year 2019-20, the following activities have been carried out by FSNL, including in the Aspirational districts, as stated below:

- Construction of one Hall in Government Primary School-Ruabandha Sector, Bhilai, at an estimated cost of Rs.7.70 lakh.
- Construction of one room in the Govt. Higher Secondary School-Dhaurabhata in Durg District of Chhattisgarh State at an estimated cost of Rs.6.06 lakh.
- Construction of one room in the Government Middle School -Dewada in Durg District of Chhattisgarh State at an estimated cost of Rs.6.06 lakh.
- Construction of two nos. Toilet blocks for girl students consisting of 8 urinals and 7 lavatories in Zilla Parishad High School, V Juttada, Visakhapatnam, at an estimated cost of Rs.15.55 lakh.
- Providing 4 nos. handwash facilities with shed in the above Zilla Parishad High School, V Juttada, Visakhapatnam, at an estimated cost of Rs.0.52 lakh.
- Construction of one class room in Zilla Parishad High School, Chintala Agraharam, Visakhapatnam at an estimated cost of Rs.10.31 lakh.
- Providing 4 nos. handwash facilities with shed in the above Zilla Parishad High School, Chintala Agraharam, Visakhapatnam at an estimated cost of Rs. 0.52 lakh.
- Providing 4 nos. handwash facilities with shed in the Zilla Parishad High School, Kanithi, Gajuwaka, Visakhapatnam at an estimated cost of Rs. 0.52 lakh.
- Construction of Toilet Blocks for Boys (4 urinals & 4 lavatories) & Girl Students (4 urinals & 4 lavatories), studying in Zilla Parishad High School, Nadupuru, Visakhapatnam at an estimated cost of Rs. 15.54 lakh.

22.8 MECON Ltd.

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

The major developmental activities carried out by MECON during the period April – December' 2019 are as follows:

Sanitation

- Observance of “Swachhta Pakhwada” in Village School – Pranavanand Vidya Mandir, Pancha, Block-Bundu, Dist.-Ranchi (Jharkhand) wherein “Swachhta Shapath”, “Talk on Swachhta / Hygiene practices”, “Cleanliness Drive” etc. were carried out. In addition, Sketch colouring competition, drawing competition, Essay competition were conducted for the children of Pranavanand Vidya Mandir,Pancha.
- Annual Maintenance of Pre-fabricated Bio-Toilets installed in Lohardaga & Hazaribagh districts of Jharkhand: Under procurement process



Toilet Complex at Village-Pancha, Block-Bundu, Dist. - Ranchi

Healthcare services

- Organising free Health check-up camps and free distribution of medicines in Adopted Villages & backward/slum areas of Jharkhand. Around 2800 patients were covered in 65 medical camps.
- Under “Fit India Movement” program, games & sports was conducted for the children of Village School of Adopted Villages – Pancha, Block-Bundu, Dist.-Ranchi and Village- Sungi, Block-Karra, Dist.-Khunti.
- Cataract surgery for poor/down-trodden/needy villagers of Adopted villages / other villages/ under-developed/ slum areas etc. of Ranchi &Khunti districts of Jharkhand :Under process {7 (Seven) nos. of patients of Adopted Village-Sungi, Block-Karra, Dist.-Khunti have been identified and the Cataract surgery carried out in December 2019 / January 2020}.





Health camp at Vill.-Sungi, Block-Karra, Dist.- Khunti

Education

- Free education is being provided to the under-privileged poor children at 7 (seven) nos. Literacy Centres, which are running in the slum areas/backward areas in and around Ranchi (Jharkhand). No. of students in these centres is around 160.
- Setting up of Science Lab in 10 Schools in Ranchi District is under process (Preliminary study of facilities/apparatus/equipment etc. available in science labs have been carried out and accordingly additional facilitation/apparatus/equipment required is under finalization).

Nutrition

- “Poshan Abhiyan” has been started from the month of September 2019. It is being carried out on monthly basis, at the following villages/schools:
- Village – Pancha, Block – Bundu, Dist – Ranchi (Adopted Village)
- Village – Sungi, Block – Karra, Dist – Khunti (Adopted Village)
- Children of Outreach Programme of Jawahar Vidya Mandir, Shyamali, Ranchi
- Rose Bud Play School, Shyamali, Ranchi
- During the programme, Medicines/ Supplements (Such as – Deworming, Vitamin A, Vitamin D, Iron, Calcium, etc.) and Nutritional Supplements are being distributed among the children of age up to 6 years.

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Women Empowerment

- Free Stitching Training is being provided to the under-privileged women at 7 (seven) Centres, which are running in the slum areas/backward areas in and around Ranchi and in Adopted Village of Khunti district (Jharkhand). No. of women in these centres is around 65.
- A program for Women Empowerment through Promotion of Usage of Steel “Ispat – Naari Ke Saath”: “Naari Shakti – Ispatiraada” was organized in MECON’s Adopted Villages - Pancha, Block – Bundu, Dist. – Ranchi and Village - Sungi, Block – Karra, Dist. – Khunti. During the program, Lectures / Talk was delivered on “Awareness Program on Usage of Steel with respect to Disadvantages of using Plastic”.

Thereafter, promotional activities were organized for Steel Usages wherein Quizzes were conducted for village women folk. Further, to encourage them, Steel Utensils for household use were given to those Women who gave correct answers.

Voter Awareness Program

- Under Voter Awareness Program – “SVEEP” (Systematic Voters’ Education and Electoral Participation) was conducted at 15 places in Adopted Villages, Stitching Training Centres of Ranchi & Khunti districts for General Election-2019
- Voter Awareness Program was also conducted for Assembly Election-2019 at Adopted Villages – Pancha, Block-Bundu, Dist.-Ranchi and Village-Sungi, Block-Karra, Dist.-Khunti

Social Welfare

- Construction of Boys Hostel Building at Orphanage at Village-Sungi, Block-Karra, Dist.-Khunti: Construction under progress.
- Construction of Drinking Water Facility at Adarsh Home (Old Age Home) of M/s Vihar Samaj Kalyan Sanathan at Village-Kulgu, Block-Nagri, Dist-Ranchi.

Rural Development

- Construction of Toilet Complex in Adopted Village-Parsa Toil, Pancha, Block-Bundu, Dist.-Ranchi: Construction under progress.
- Construction of Toilet Complex in Adopted Village - Bar Toli, Pancha, Block-Bundu, Dist-Ranchi: Construction under progress.

Drinking Water

- Solar powered Drinking water system in Adopted Village-Sungi, Block-Karra, Dist.-Khunti: Construction under progress.
- Solar powered Drinking water system in Adopted Village-Rai, Block-Khunti, Dist.-Khunti: Construction under progress.
- Solar powered Drinking water system in Adopted Village-Rupru, Block-Angara, Dist.-Ranchi has been planned.



22.9 KIOCL Ltd.

As a socially conscious corporate, KIOCL has been contributing significantly towards community development and socio-economic development of people to ensure that people living in the vicinity of the projects are benefitted directly and indirectly through the various development projects. As a responsible corporate entity, it is organizing initiatives in education and training, in providing infrastructure and health care, empowerment of communities, development of backward regions and uplift of the marginalized & under privileged sections of the society as a long-term investment for nation building. KIOCL is striving hard to transform the lives of poor to come to mainstream of society and lead better quality of life.

The Company has constituted a two-tier organizational structure viz. Board level Committee headed by an Independent Director and the below Board level team headed by Nodal Officer to steer the CSR agenda of the Company and to ensure implementation of activities and utilization of funds in a time bound manner.



KIOCL Limited has earmarked Rs. 208.08 lakh for the Financial Year 2019-20 towards various CSR Projects identified in pursuance to Schedule VII of the Companies Act 2013.

An amount of Rs. 27 lakh was spent as contribution to Disaster management, rehabilitation & reconstruction activities in flood affected areas of Karnataka.

22.10 EIL, OMDC and BSLC

OMDC focuses on CSR activities like health, education and supply of drinking water and community development. Since the PBT for the last three years is negative, no CSR budget was allocated for the

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year 2019-20. Balance amount of Rs.35.80 lakh on account of CSR from the year 2018-19 was carried forward to perform the activities during the year 2019-20. The CSR activities are carried out as per the DPE guidelines.

Providing educational facilities – Extend aids to peripheral schools and colleges. The companies extend aid in the form of construction of buildings, arranging study materials, providing furniture, school buses, Sewing machine to women for self-employment etc.

Providing Hospital Facilities – Provide treatment free of cost to all employees and to the villages located around its mining activities.

Providing Drinking Water by digging wells, tube wells etc. for the employees and to the villages located around its mining activities.

Occupational Health Surveillance –Programmes for malaria eradication, pulse polio etc. through the hospitals to all employees and to the villages located around its mining activities are conducted by OMDC from time to time and facilities like X-ray, pathology tests, ECG, etc. are also made available to the villagers of nearby villages in and around mining activities of the company.

BSLC, being a loss-making company, is not taking up any CSR activities at present.

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

CHAPTER-XXIII IMPLEMENTATION OF RIGHT TO INFORMATION ACT, 2005

23.1 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.

23.2 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, details of Appellate Authority/ Central Public Information Officers, Assistant Public Information Officers have been hosted on the Ministry's Web-site www.steel.gov.in. All the Public authorities under the administrative control of the Ministry of Steel have also hosted the manual of 17 items on their respective websites and have nominated their respective Public Information Officers/Assistant Public Information Officers and Appellate Authority. Web portal for online filling of RTI application has been launched by Department of Personnel & Training (DoPT) and the Ministry of Steel has been a part of RTI online web portal w.e.f. 25.06.2013. During the year 2019 (up to 31st Dec, 2019), Ministry of Steel has received 156 RTI applications/appeals through offline mode and 246 RTI applications/appeals received through online mode, which were duly disposed off.

23.3 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 Section 5(5) of the Act. All the officers/line managers responsible for providing information to the PIO are called Deemed PIO, and are equally responsible as PIO towards timely submission of information to the applicant.

An exclusive RTI Portal for SAIL has been developed with link available on the website of the Company. All the Plants/Units have listed 17 manuals and details of Authorities under the Act are uploaded on the website of the Company. Quarterly Returns and Annual Returns on implementation of the Act are being submitted online through CIC Portal. Implementation of online requests has already been introduced from 1st May, 2015. A compilation of Record Retention Policy of various functions of Corporate Office has also been uploaded on the website of the Company. In addition to this, compilation of important decisions of CIC, DOPT circulars and High Court cases is also available on the website of SAIL.

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SAIL received a total of 3299 applications and 626 appeals under the Act during the period 1st April to 31st December, 2019, all of which have been disposed off within the stipulated time frame under the Act. CIC, New Delhi has also taken up 9 cases and most of these cases were disposed off in favour of the Company.

23.4 Rashtriya Ispat Nigam Ltd. (RINL)

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

A total of 585 Nos. of RTI requests have been received during April to December, 2019 and 401 Nos. of RTI applications have been disposed off.

23.5 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 give lot of information on its working are widely circulated and also available in NMDC's website. Further information is disseminated through press conferences, 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 2019 to October 2019 are as under:

Applications pending on 01.04.2019	Applications received during 01.04.2019 to 31.10.2019	Applications disposed off during 01.04.2019 to 31.10.2019	Applications pending as on 31.10.2019
4	113	110	7

23.6 MOIL Ltd.

With the advent of the Right to Information Act 2005 in India, MOIL has taken the major initiatives towards its effective implementation.

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 been hoisted in Company's portal. MOIL has been submitting necessary information and returns to the prescribed authorities and updating the same regularly.

A lot of awareness has been generated in order to make Company's employees aware about the intention and true spirit of this Act. The various provisions of the Act have been highlighted by issue of the circulars and to keep transparency in day-to-day work and maintain all the records in a proper/systematic manner. Further, the Company has also been hoisting/updating in Company's website as much information suo-moto at regular intervals for the public, so that public has minimum resort to use the various provisions under the RTI Act to obtain information.

For the awareness of employees at large, seminars have been organised to make them understand the importance of RTI Act in the present scenario and highlighted the provisions of the Act.

During the year under report, the company has received a total of 127 applications under RTI Act, out of which 102 applications were disposed and 25 are under process. The Appellate authority has received 32 RTI appeals out of which 21 appeals were disposed off and 11 are in process.

23.7 MSTC Ltd.

Provisions of RTI Act 2005 were complied with for processing the RTI applications and appeals received in all offices of MSTC. There are 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.

All quarterly reports have been submitted on-line. All quarterly reports have been uploaded on CIC site. During 01.04.2019 to 30.11.2019, 86 RTI applications and 12 First Appeals have been received through online and by post also. Out of that 83 RTI Applications and 11 Appeals have been disposed off.

Remaining 03 RTI applications and 01 appeal are under process. RTI applications/appeals can be received and disposed of through RTI web portal namely <https://rtionline.gov.in>. RTI Applications and Appeals are received offline and online which are processed expeditiously.

23.8 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 is being regularly updated.

The company 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 2019 to 31st December 2019 was 49. Out of 49 applications, 46 applications have been disposed off, 03 applications will be replied to within the stipulated time.

23.9 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 Central Public Information Officer (PIO) and the 1st Appellate Authority have been nominated at the Headquarters and Assistant Public Information Officers (APIOs) have been nominated at various Regional and Site Offices. The queries from the public are being attended to by these nominated officials and replied back by the Central Public Information Officer within the stipulated time period. 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 2019-2020 under Right to Information Act, 2005 are given below:

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Applications pending as on 01.04.2019	Applications received during 01.04.2019 to 31.12.2019	Applications disposed off during 01.04.2019 to 31.12.2019	Applications pending as on 31.12.2019
07	155	145	17

23.10 KIOCL Ltd.

The RTI Act, 2005 has been enacted by Govt. of India on 15.06.2005 with an objective to promote openness, transparency and accountability in the administration and to provide good governance in the country. It also gives the opportunity to every citizen to secure access to information from public authorities. KIOCL, being a CPSE, falls within the ambit of aforesaid regulation, had operationalized the same from the date it came into effect.

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 levels has been appointed/ designated as Appellate Authority under the Act. The names of all the PIOs/APIOs and the Appellate Authority have also been posted on KIOCL's website: www.kiocltd.in. 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 within the stipulated time frame given under the Act and the same is being reviewed and updated at regular intervals.

On the basis of the directives issued by Central Information Commission and the Ministry of Steel from time to time, KIOCL has been updating the requisite information on periodical basis. The monthly return is being sent to concerned authorities regularly. Further, as per the Ministry of Steel directives the system of submission of quarterly return to the CIC has been introduced.

Ministry of Personnel, Public Grievances & Pensions, Department of Personnel & Training launched the RTI Online Portal to receive online application from the citizens. KIOCL has created the User Id and Password for Nodal Officer, Public Information Officers, Appellate Authorities for all Units to receive and reply the applications through online. The Company is aligned with DoPT directives.

During the period, KIOCL has received 46 RTI applications on various matters and suitable reply was sent within the stipulated time.

23.11 EIL, OMDC and BSLC

The companies are complying with the provisions of Right to Information Act -2005. For receipt and replying to the RTI queries, PIO and APIO have been nominated. The queries received are replied within the given time frame. Wherever there is likelihood of delay, an interim reply is sent. RTI queries are being regularly disposed of through online portal.



CHAPTER-XXIV SKILL DEVELOPMENT

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

In the year 2019-20, under PMKVY Short Term Training Programmes, Indian Iron and Steel Sector Skill Council (IISSSC) has certified 5493 candidates. The training was done primarily in 20 States of the country, namely Uttar Pradesh, Himachal Pradesh, Kerala, Maharashtra, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Odisha, Rajasthan, Telangana, Tripura, West Bengal, Jammu and Kashmir, Assam, Punjab, Uttarakhand. A total of 129 Training Centres participated in imparting the training programs of IISSSC through 40 number of Training Partners. 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 underdeveloped.

Short Term Training Program (STTP) under PMKVY 2.0 for FY 2017-18 to 2019-20

S.No.	Year	Enrolled	Trained	Assessed	Passed	Certificate	Placed
1	2017-18	12912	9678	9099	7764	7536	1937
2	2018-19	4888	5209	4559	5168	5365	4056
3	2019-20 (April to Decemer, 2019)	4119	6282	5826	5563	5493	2284
Total		21919	21169	19484	18495	18394	8277

N.B. The targets are continuous and given by NSDC for the total period of PMKVY 2.0 (2016-20).

24.2 Pradhan Mantri Kaushal Vikas Yojana (PMKVY) - Recognition for Prior Learning (RPL)

4303 candidates certified under RPL 4.0 BICE (Best in Class Employers) in the year 2019-20. Under this, the Industry itself participated in certification program of their existing employees through their managers and supervisors. Orientation is given to their managers and supervisors to make them understand about the process of assessment. The target is given for RPL at JSW, JSPL, Shyam Steel & Tata Steel. The project is running in different plants of JSW Steel (Vijay Nagar & Dolvi), JSPL (Raigarh, Patratu and Angul), Tata Steel – JNTVTI Jamshedpur & Shyam Steel Durgapur. RINL will also participate in the program for their contract workers. Some of the SME units like Shyam Ferro Alloys, Electro Steel and members of Sponge Iron Manufacturers Association are also participating in the scheme.

Recognition for Prior Learning (RPL) & STTR Program for 2019-20

S. No.	Scheme	Training Done
1	PSUs Training under RPL SAIL- 243 (Durgapur Steel Plant- 48; Burnpur Steel Plant- 43), RINL-152	243
2	SME Sector & Training (CTTC-78)	78
3	Other Schemes (WB School-909, PBSSD-41, AICTE-427, JSDMS-142, NSKFDC-876, & Non PMKVY-60, PMKVY CSSM-503, Special Project-59) STT Program	3017
Total		3338

RPL Training Program under PMKVY for FY 17-18 to 19-20

S. 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
3	PMKVY-RPL (Recognition for prior Learning)2019-20	4303	Existing Employees Being Re-Skilled
	Total	8727	

24.3 Apprenticeship: All the PSUs like SAIL, RINL are taking apprentices through new portal. Plants are taking apprentices mainly for DGT Courses. SAIL plants (Durgapur, Bokaro, Burnpur, Rourkela and Bhilai) together took nearly 2300 apprentices in the year 2019-20. RINL took nearly 1000 apprentices in the year 2019-20. IISSSC is encouraging the individuals and SME units to participate in NAPS (National Apprenticeship Promotion Scheme) on optional trade. IISSSC already developed 4 modules on optional trade. ITI Durgapur also suggested that passed out candidates from them to get enrolled in the portal for selection for steel plant apprenticeship. IISSSC is taking help of 3rd party aggregator (TPA) to promote the scheme.

Total number of apprentices engaged by major steel plants for FY20 comes to 5350.

24.4 Rozgar Melas and Exhibitions

IISSSC organized and also participated in several Rozgar Melas and exhibitions. It played a very vital role in increasing the placement opportunities for IISSSC Certified Candidates. IISSSC organized seven Rozgar Melas in the FY 2019-20 at West Bengal, Gujarat, Rajasthan, Tripura, Madhya Pradesh and further two Rozgar Melas are yet to be completed during this year. In these Rozgar Melas, around 500 candidates are short listed/selected.

24.5 Other Achievements

- 1) IISSSC is connecting to other CPSEs like FSNL, NMDC etc. for RPL programs.
- 2) Signed an MoU with RINL in January 2, 2020 for training and certifying their existing manpower, both regular and contractual.
- 3) IISSSC is also participating in skilling at school level. 909 candidates are assessed in the current financial year.



ANNEXURE - I MINISTRY OF STEEL (ISPAT MANTRALAYA)

Planning, development and facilitation of setting up of iron and steel production facilities including Electric Arc Furnace units, Induction Furnace (IF) units, processing facilities like re-rollers, flat products (hot/cold rolling units), coating units, wire drawing units and steel scrap processing¹.

Development of iron ore mines in the public sector and other ore mines (manganese ore, chrome ore, limestone, sillimanite, kayanite, and other minerals used in the iron and steel industry but excluding mining lease or matters related thereto).

Production, distribution, prices, imports and exports of iron and steel and ferro-alloys.

Matters relating to the following undertakings including their subsidiaries, namely² —

- (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) Omitted³
- (ix) Bharat Refractories Limited (BRL);
- (x) Metal Scrap Trade Corporation (MSTC);
- (xi) Ferro Scrap Nigam Limited; and
- (xii) Bird Group of Companies

¹Modified vide Amendment series no.306 dated 31.07.2014 (earlier modified vide Amendment series no.281 dated 01.09.2005).

² Modified vide Amendment series no.286 dated 01.06.2006.

³Omitted vide Amendment series no.337 dated 06.12.2017.

ANNEXURE-II
MINISTER IN CHARGE AND OFFICERS
IN THE MINISTRY OF STEEL

(down to Deputy Secretary level)

(As on December 31, 2019)

Minister of Steel	Shri Dharmendra Pradhan
Minister of State for Steel	Shri Faggan Singh Kulaste
Secretary	Shri Binoy Kumar
Special Secretary & Financial Adviser	Shri Saraswati Prasad
Additional Secretary	Smt. Rasika Chaube
Joint Secretaries	Shri Puneet Kansal
	Shri Rohit Yadav
	Smt. Ruchika Chaudhry Govil
	Shri T Srinivas
Deputy Director General (Statistics)	Smt. Pally Kundu
Economic Adviser	Smt. Promodita Sathish
Chief Controller of Accounts	Shri Anil Srivastava
OSD and Chief Engineer (Railways)	Shri Avani Bhushan Gupta
Directors	Shri Neeraj Agrawal
	Shri Girraj Prasad Meena
	Shri Aman Sharma
	Shri Pankaj Vithal
Additional Industrial Adviser	Shri Parmjeet Singh
Deputy Secretary / Deputy Director	Shri A K Kailoo
	Shri K Murali
	Shri Ashish Sharma
	Shri Anand Kumar, JD(OL)

ANNEXURE-III
PRODUCTION OF ISP AND OTHER PRODUCERS

('000 Tonnes)

S No	ITEM / PRODUCER	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
	PRODUCTION						
I.	CRUDE STEEL: SAIL, TSL, RINL, ESL, JSWL, JSPL						
	Oxygen Route	36610	36174	39711	41845	44602	32054
	E.A.F Route	9473	11247	15775	17542	18932	14699
	Other Producers						
	Oxygen Route	961	2221	2291	5645	4853	3787
	E.A.F Route	13652	13352	13187	8879	9544	6540
	IF Route	28283	26796	26972	29221	32990	25112
	TOTAL Crude Steel	88979	89790	97936	103132	110921	82192
	% share of Other Producers	47.1%	44.7%	41.0%	36.9%	38.3%	38.5%
II.	PIG IRON:						
	SAIL, TSL, RINL, ESL, JSWL, JSPL	1213	1287	905	726	953	813
	Other Producers	9015	8953	9437	5002	5461	3501
	TOTAL Pig Iron	10228	10240	10342	5728	6414	4314
	% share of Other Producers	88.1%	87.4%	91.2%	87.3%	85.1%	81.2%
III.	SPONGE IRON:						
	Gas Based	2354	2440	4854	6458	6899	3930
	Coal Based	21889	19987	23908	24053	27806	24143
	TOTAL Sponge Iron	24243	22427	28762	30511	34705	28074
	% share by Process (Coal Based)	90.3%	89.1%	83.1%	78.8%	80.1%	86.0%
IV.	FINISHED STEEL (Production)** (Alloy/Non-Alloy):						
	SAIL, TSL, RINL, ESL, JSWL, JSPL	50717	52225	61927	69143	56014	41299
	Other Producers	53861	54377	58213	57712	45273	35026
	TOTAL Finished steel	104578	106602	120140	126855	101287	76325
	% share of Other Producers	51.5%	51.0%	48.5%	45.5%	44.7%	45.9%

* Note: The figures related to 2018-19 and for April–December, 2019 (2019-2020) are not comparable to the other FY's, as they are reported in terms of Crude Steel Equivalent. Provisional; April– December, 2019 (2019-2020)

** The production figures of FY 2019 and onwards refer to production of finished steel in terms of crude steel equivalent and hence are different in concept from those reported for past FY's. This change is due to change in reporting system of JPC as approved by Ministry of Steel and Industry Experts.

ANNEXURE-IV PRODUCTION OF CRUDE / LIQUID STEEL (By Producers)

('000 Tonnes)

P R O D U C E R	2015-16			2016-17			2017-18			2018-19			Apr-Oct 2019*	
	Working Capacity	Production	% Utili-sation	Working Capacity	Production									
PUBLIC SECTOR														
SAIL	17519	14279	82	17519	14494	83	17519	15022	86	19132	16263	85	19132	11845
R I N L	6300	3641	58	6300	3962	63	6300	4731	75	6300	5233	6300	3498	56
TOTAL: (Public Sector)	23819	17920	75	23819	18456	77	23819	19753	83	25432	21496	85	25432	15343
PRIVATE SECTOR														
Tata Steel Ltd	9600	9960	104	12500	11688	94	13000	12459	96	13000	13228	102	13000	9700
Essar Steel Ltd.	10000	3685	37	10000	5392	54	10000	6753	68	10000	6813	68	10000	5378
JSW Steel Ltd.	16600	12679	76	16600	16506	99	18000	16407	91	18000	16743	93	18000	11907
JSPL	4850	3177	66	4850	3445	71	8600	4014	47	8600	5254	61	8600	4425
Other BOF	3160	2221	70	3760	2291	61	7682	5645	73	7777	4853	62	7777	3787
Other EAF	15641	13352	85	17127	13186	77	14408	8879	62	15450	9545	62	15450	6540
IF Units	38300	26796	70	39621	26972	68	42466	29221	69	43977	32990	75	43977	25112
TOTAL: (Private Sector)	98151	71870	73	104458	79480	76	114156	83378	73	116804	89426	77	116804	66849
GRAND TOTAL:	121970	89790	74	128277	97936	76	137975	103131	75	142236	110922	78	142236	82192
Share of Public Sector (%)	20	20		19	19		17	19		18	19		18	19

*Provisional, for April-December, 2019:JPC



ANNEXURE-V
PRODUCTION OF CRUDE STEEL
(BY Route)

('000 Tonnes)

PROCESS ROUTE	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
OXYGEN ROUTE						
SAIL	13680	14068	14298	14829	16045	11672
RINL	3296	3641	3962	4731	5233	3498
TSL	9331	9960	11688	12459	13228	9700
JSW Steel Ltd.	10178	8385	9655	9728	10096	7184
Bhushan Steel Ltd.				3167	2810	2441
Other Oxygen Route	961	2221	2291	2478	2043	1346
TOTAL OXYGEN ROUTE	37446	38275	41894	47392	49455	35841
ELECTRIC ROUTE						
ELECTRIC ARC FURNACE						
SAIL	229	211	196	193	218	173
Essar Steel Ltd.	2854	3685	5391	6753	6813	5378
JSW Ispat Ltd./JSW Steel Ltd.	2958	4294	6851	6679	6647	4723
Jindal Steel & Power Ltd.	3557	3177	3445	4014	5254	4425
Lloyds Steel Ltd.	658	569	575	560	518	332
Jindal Stainless Ltd.	1907	1258	1391	1497	1554	739
Bhushan Steel Ltd.	2180	3078	5601	87	1344	1128
Bhushan Power & Steel Ltd.	1213	1832	3324	2018	2778	2093
Other Electric Arc Furnace	7694	6615	2296	4717	3350	2247
TOTAL ELECTRIC ARC FURNACE:	23250	24719	29070	26518	28476	21239
ELECTRIC INDUCTION FURNACE	28283	26796	26972	29221	32990	25112
TOTAL ELECTRIC ROUTE:	51533	51515	56042	55739	61466	46351
GRAND TOTAL:	88979	89790	97936	103131	110921	82192

*Provisional, for April-December, 2019:JPC



ANNEXURE-VI

PRODUCTION OF HOT METAL

(‘000 Tonnes)

PLANTS	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
STEEL AUTHORITY OF INDIA LTD.	15413	15720	15727	15983	17512	12839
RASHTRIYA ISPAT NIGAM LTD.	3780	3975	4043	5132	5770	3800
TATA STEEL LTD.	10164	10655	13059	13855	14236	10439
ESSAR STEEL LTD.	2619	2914	3612	3002	3257	2737
JSW STEEL LTD.	12472	11849	14853.3	15011	15477	11439
JINDAL STEEL AND POWER LTD.	1802	2043	2017	3147	5042	4098
(A) SUB TOTAL	46250	47156	53311.3	56130	61294	45352
(B) OTHER PRODUCERS	10162	11547	11873.7	11886.7	13083	9268
TOTAL (A+B)	56412	58703	65185	68016.7	74377	54620
% SHARE OF OTHER PRODUCERS	18.0%	19.7%	18.2%	17.5%	17.6%	17.0%

*Provisional, for April-December, 2019:JPC



ANNEXURE-VII

PRODUCTION OF PIG IRON

(‘000 Tonnes)

P L A N T S	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
STEEL AUTHORITY OF INDIA LTD.	681	616	423	260	471	463
RASHTRIYA ISPAT NIGAM LTD.	239	116	150	104	117	33
JSW STEEL LTD.	204	139	241	172	235	232
JINDAL STEEL AND POWER LTD.	89	417	91	190	130	85
SUB TOTAL (A):	1213	1288	905	726	953	813
OTHER BLAST FURNACE/ COREX UNIT	9015	8952	9437	5002	5461	3501
SUB TOTAL (B):	9015	8952	9437	5002	5461	3501
TOTAL (A+B):	10228	10240	10342	5728	6414	4314
% SHARE OF OTHERS	88.1%	87.4%	91.2%	87.3%	85.1%	81.2%

*Provisional, for April-December, 2019:JPC



ANNEXURE-VIII

PRODUCTION OF FINISHED STEEL

(Non-Alloy & Alloy Steel)

('000 Tonnes)

PLANTS	2014-15	2015-16	2016-17	2017-18	2018-19*	2019-20**
STEEL AUTHORITY OF INDIA LTD.	11654	11567	13352	14051	12698	9132
RASHTRIYA ISPAT NIGAM LTD.	2552	2766	3219	3893	4235	2651
TATA STEEL LTD.	11490	11871	13639	14595	12929	9592
ESSAR STEEL LTD.	5421	6313	7916	10488	6782	5302
JSW STEEL LTD.	16810	17195	21161	23127	15562	11215
JINDAL STEEL AND POWER LTD.	2790	2513	2640	2989	3808	3407
(A) SUB TOTAL	50717	52225	61927	69143	56014	41299
(B) OTHER PRODUCERS	53861	54377	58213	57712	45273	35026
TOTAL PRODUCTION (A+B)	104578	106602	120140	126855	101287	76325
% SHARE OF OTHER PRODUCERS	51.5%	51.0%	48.5%	45.5%	44.7%	45.9%

* Note: The figures related to 2018-19 and Provisional for April–December, 2019 (2019-2020) are not comparable to the other FY's, as they are reported in terms of Crude Steel Equivalent.

** The production figures of FY 2019 and onwards refer to production of finished steel in terms of crude steel equivalent and hence are different in concept from those reported for past FY's. This change is due to change in reporting system of JPC as approved by Ministry of Steel and Industry Experts.



ANNEXURE IXA:
CATEGORYWISE PRODUCTION OF FINISHED STEEL

('000 tonnes)

CATEGORY	2015-16				2016-17			
	SAIL, RINL, TSL, ESL, JSWL, JSPL	Other Prods	IPT/OWN Consp.	Total	SAIL, RINL, TSL, ESL, JSWL, JSPL	Other Prods	IPT/OWN Consp.	TOTAL
1. Non-Flat Products								
BARS & RODS	11064	22583	135	33512	11549	23548	145	34951
STRUCTURALS	1614	5898	52	7460	1687	6297	0	7985
RLY. MATERIALS	882	54	0	937	1053	23	0	1076
TOTAL (Non-flat product)	13560	28535	187	41909	14289	29868	145	44012
2. Flat Products								
PLATES	4078	198	137	4140	4223	582	97	4708
HR COIL/STRIP	20192	6409	7150	19451	26783	6451	9116	24117
HR SHEETS	1504	12	0	1516	1043	53	0	1096
CR COIL/SHEETS	4773	4871	3774	5869	6203	6473	4114	8562
GP&GC/GALVALUME	3348	4418	582	7183	4028	4239	525	7742
ELECTRICAL COILS/SHEETS	92	56	0	148	156	525	0	680
TIN PLATES (incl ww)	26	305	0	331	26	314	0	340
PIPES (LARGE DIA.)	265	1968	70	2163	207	1938	62	2083
TMBP	0	2	0	2	0	3	0	3
TIN FREE STEEL	0	8	0	8	0	10	0	10
TOTAL (Flat Products)	34277	18246	11712	40811	42669	20588	13915	49342
TOTAL (Fin. Non-Alloy)	47837	46781	11899	82719	56958	50456	14061	93354
TOTAL FIN. STEEL (Alloy / Stainless)	690	7595	24	8261	738	7757	45	8451
TOTAL FIN. STEEL (Non-Alloy + Alloy)	48527	54376	11923	90981	57697	58213	14105	101805

Source: JPC

ANNEXURE IXB:

CATEGORYWISE PRODUCTION OF FINISHED STEEL

('000 tonnes)

CATEGORY	2017-18		
	SAIL, RINL, TSL, ESL, JSWL, JSPL	Other Prods	TOTAL
1. Non-Flat Products			
BARS & RODS	12915	22876	35791
STRUCTURALS	1960	6070	8029
RLY. MATERIALS	1250	29	1279
TOTAL (Non-flat prdct)	16125	28975	45100
2. Flat Products			
PLATES	4799	344	5143
HR COIL/STRIP	31096	6931	38027
HR SHEETS	2425	11	2436
CR COIL/SHEETS	8761	6859	15620
GP&GC/GALVALUME	3875	3168	7044
COLOR COATED	716	920	1636
ELECTRICAL COILS/SHEETS	200	44	244
TIN PLATES (incl ww)	85	348	433
PIPES (LARGE DIA.)	228	2002	2230
TIN FREE STEEL	0	0	0
TOTAL (Flat Products)	52187	20627	72814
TOTAL (Fin. Non-Alloy)	68312	49602	117914
TOTAL FIN. STEEL (Alloy / Stainless)	831	8111	8942
TOTAL FIN. STEEL (Non-Alloy + Alloy)	69143	57713	126855

Source: JPC



ANNEXURE IXC:

CATEGORYWISE PRODUCTION OF FINISHED STEEL

(‘000 tonnes)

CATEGORY	2018-19		Apr-Dec 2019*		TOTAL
	SAIL, RINL, TSL, ESL, JSWL, JSPL	OTHERS	SAIL, RINL, TSL, ESL, JSWL, JSPL	OTHERS	
FINISHED STEEL (Non-Alloy)					
BARS & RODS	13517	25558	10152	20593	30744
STRUCTURALS	2442	4882	1598	3933	5531
RLY. MATERIALS	1406	69	1299	25	1324
TOTAL(NON-FLAT)	17365	30508	13049	24550	37599
PM PLATES	4693	103	3396	128	3524
HR COIL/STRIP	33198	8977	24390	7476	31866
TOTAL(FLAT)	37891	9080	27786	7604	35390
TOTAL(Non-Alloy)	55256	39588	40835	32155	72989
FINISHED STEEL (Alloy)					
NON-FLAT	617	2699	358	1551	1909
FLAT	87	135	34	161	195
TOTAL(Alloy)	704	2834	392	1712	2104
FINISHED STEEL (Stainless)					
NON-FLAT	0	1017	0	409	409
FLAT	54	1834	72	751	823
TOTAL(Stainless)	54	2851	72	1160	1232
FINISHED STEEL (Non-Alloy + Alloy + Stainless)					
TOTAL(NON-FLAT)	17982	34224	13407	26510	39917
TOTAL(FLAT)	38032	11049	27892	8516	36409
TOTAL Finished Steel	56014	45273	41299	35026	76325

*Provisional; Source: JPC

ANNEXURE-X
CATEGORY-WISE IMPORT OF IRON & STEEL

('000 Tonnes)

S. No.	CATEGORY	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
I	Semi-finished Steel (Non-Alloy)						
	Semis	331.3	512.1	391.9	421.9	361.8	65.9
	Re-rollable Scrap	329.2	426.3	343.5	424.5	417.2	191.5
	TOTAL	660.5	938.4	735.4	846.4	779.0	257.4
II	Finished Steel (Non-Alloy)						
	Non-Flat						
	Bars & Rods	854.3	621.4	419.4	243.2	349.1	219.5
	Structurals	52.9	24.6	64.3	36.7	46.1	27.1
	Rly.Materials	15.5	11.7	38.5	28.8	67.2	31.4
	TOTAL Non-Flat	922.7	657.7	522.2	308.7	462.4	278.1
	Flat						
	Plates	731.7	1059.7	739.7	573.8	431.1	268.8
	HR Sheets	78.6	105.1	38.6	19.2	1.9	6.1
	HR Coils/Skelp/Strips	2006.3	3400.6	1904.9	1751.2	1950.8	1386.4
	CR Coils/Sheets	1713.5	2235.1	917.3	542.6	565.3	317.9
	GP/GC Sheets	444.1	586.2	566.5	1155.1	1217.5	706.4
	Elec.Sheets	417.9	318.2	296.9	606.2	703.2	434.3
	TMBP	1.4	3.8	1.0	1.5	7.4	0.0
	Tin Plates	217.68	170.48	249.2	192.0	192.3	147.7
	Tin Free Steel	87.3	80.6	29.0	67.3	77.4	59.7
	Pipes	132.4	100.8	99.0	419.1	336.4	266.4
	TOTAL Flat	5830.8	8060.7	4842.1	5328.0	5483.3	3593.6
	TOTAL Fin. Steel (Non-Alloy)	6753.5	8718.2	5364.3	5636.7	5945.7	3871.7
	TOTAL STEEL (Non-Alloy)	7414.0	9656.6	6099.7	6483.1	6724.7	4129.1
	Alloy/Stainless Steel						
	Non-Flat	821.8	1119.5	467.7	442.5	591.1	319.1
	Flat	1744.9	1874.5	1392.6	1403.7	1298.3	1323.2
	Semi-finished	35.8	42.4	10.2	71.0	175.4	46.0
	TOTAL FIN. STEEL (Alloy/Stainless)	2566.7	2993.90	1860.3	1846.2	1889.4	1642.3
	TOTAL STEEL (Alloy/Stainless)	2602.5	3036.4	1870.5	1917.2	2064.8	1688.2
	TOTAL FIN. STEEL (Alloy+Non-Alloy)	9320.3	11712.2	7224.4	7482.9	7835.0	5514.0
	TOTAL Steel (Non-Alloy + Alloy)	10016.5	12693.0	7970.2	8400.3	8789.5	5817.4
III	Other Steel Items.						
	Fittings	419.4	482.5	470.7	205.1	189.8	123.7
	Misc.Steel Items	2327.3	1902.4	1329.4	1550.5	1121.0	274.5
	Steel Scrap	5784.3	6627.1	5365.0	4744.4	6555.2	5084.6
IV	Iron						
	Pig Iron	23.4	21.9	34.1	16.3	66.9	9.2
	Sponge Iron	20.1	0.2	1.3	77.8	43.9	38.2
	H.B.Iron	0.0	0.8	0.0	0.0	0.0	0.0
V	Ferro-Alloys	242.2	237.4	575.9	589.0	579.7	518.4
	GRAND TOTAL	18833.3	21965.2	15746.4	15583.4	17346	11866.0

Source: JPC; * Provisional; for April- December, 2019



ANNEXURE-XI
CATEGORY-WISE EXPORT OF IRON & STEEL

(*'000 Tonnes)

CATEGORY	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20*
SEMIS (Non-Alloy)	637.7	635.7	1184.4	1962.5	2149.8	2196.7
FINISHED STEEL (Non-alloy)						
Non-Flat						
Bars & Rods	392.4	365.0	628.9	2041.5	509.0	380.7
Structurals	83.1	81.6	160.6	174.1	195.5	119.4
Railway Materials	2.8	1.9	82.6	42.8	1.5	0.6
Total Non-Flat	478.2	448.5	872.2	2258.5	705.9	500.6
Flat						
Plates	559.3	266.2	300.7	491.3	420.5	192.4
H R Coils/Sheets	1374.7	446.6	2952.5	2838.5	2608.7	3812.7
C R Sheets/Coils	584.7	655.2	1393.7	1230.5	642.1	462.6
GP/GC Sheets	1629.3	1420.2	1715.8	1144.6	982.9	684.0
Elec. Sheets	9.9	19.3	44.7	90.1	47.5	30.2
Tinplates	46.9	56.4	55.6	37.1	39.7	12.2
Tin Free Steel	0.3	0.9	1.7	2.0	2.0	1.8
Pipes	223.1	162.1	247.5	634.6	323.6	225.7
Total Flat	4428.1	3026.9	6712.2	6468.6	5067.0	5421.6
Total Fin. Steel (Non-Alloy)	4906.3	3475.3	7584.3	8727.0	5772.9	5922.2
Total Steel (Non-Alloy)	5544.0	4111.1	8768.7	10689.5	7922.7	8118.9
Non-Flat Alloy/Stainless	336.1	165.3	190.3	523.3	277.1	209.1
Flat Alloy/Stainless	353.3	438.7	468.1	370.1	311.0	388.0
Total Finished Steel (Alloy/Stainless)	689.4	604.0	658.4	893.4	588.0	597.1
Semi-Finished (Alloy/Stainless)	1.9	3.1	7.7	31.2	33.1	6.8
Total Steel (Alloy/Stainless)	691.3	607.1	666.1	924.6	621.1	604.0
Total Fin. Steel (Non-Alloy+Alloy)	5595.7	4079.3	8242.7	9620.4	6361.0	6519.3
Total Steel (Non-Alloy + Alloy)	6235.4	4718.1	9434.8	11614.1	8543.8	8722.8
PIG IRON	540.0	297.2	386.8	518.3	318.6	346.5
SPONGE IRON	98.0	127.2	130.3	389.8	617.8	621.7

*Source: JPC; Provisional; for April– December, 2019

ANNEXURE - XII

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

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. In the above matter, vide order dated 18.10.2019 Hon'ble Tribunal directed SAIL/BSL to dispose of the pending appeals by passing a reasoned and speaking order within a period of 3 Months from the date of receipt of the order.
- (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 before the Hon'ble High Court.

KIOCL LTD.

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

1	W.P. 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.
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ANNEXURE – XIII

COMPARATIVE PBT (PROFIT BEFORE TAX) OF STEEL PSUs

(Rs. in Crore)

S. No.	PSU/Company	2015-16	2016-17	2017-18	2018-19	2019-20*
1	SAIL	(-)7008	(-)4851	(-)758.64	3337.89	(-)1010.51
2	RINL	(-)1417.23	(-)1690.49	(-)1911.45	(-)306.89	(-)3592.85
3	NMDC	4092.02	4292.92	6179	7198	4640
4	MOIL	270.26	461.90	647.92	719.75	318.87
5	MSTC	91.34	96.61	111.6	(-)269.21	93.36
6	FSNL	32.53	36.22	13.04	41.09	25.95
7	OMDC\$	18.91	12.36	(-)258.17	(-) 638.11	(-)49.13
8	EIL\$	1.71	1.16	0.67	0.10	0.09
9	MECON	(-)174.70	(-)88.14	43.99	9.97	(-)86.69
10	KIOCL	(-)89.67	31.22	86.09	184.12	23.85
11	BSLC\$	(-)16.17	(-)17.74	(-)10.52	(-)28.12	(-)7.43

*Provisional for April-December, 2019

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

ANNEXURE - XIII A

COMPARATIVE PAT (PROFIT AFTER TAX) OF STEEL PSUs

(Rs. in crore)

S. No.	PSU/COMPANY	2015-16	2016-17	2017-18	2018-19	2019-20*
1	SAIL	(-)4021	(-)2833.00	(-)481.71	2178.82	(-)703.62
2	RINL	(-)1420.64	(-)1263.16	(-)1369	96.71	(-)3319.38
3	NMDC	2712.22	2589.14	3806	4642	3259
4	MOIL	172.98	305.83	421.99	473.89	234.75
5	MSTC	59.88	65.43	76.63	(-)324.47	60.74
6	FSNL	21.11	23.75	8.07	26.69	17.10
7	OMDC\$	10.63	5.86	(-)252.95	(-)451.63	(-)47.96
8	EIL \$	1.44	0.85	0.35	(-)0.02	0.00
9	MECON	(-)162.41	(-)83.84	58.00	13.74	(-)86.69
10	KIOCL	(-)80.15	47.93	81.48	111.86	15.51
11	BSLC\$	(-)16.17	(-)17.74	(-)10.52	(-)28.12	(-)7.43

*Provisional for April-December, 2019

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



ANNEXURE XIV

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

(Rs. in crores)

Sl. No.	PSU/COMPANY	2015-16	2016-17	2017-18	2018-19	2019-20*
1	SAIL	5373.00	6951.00	6894	10916	4576
2	RINL	1397.53	1501.43	1810.32	2518.12	1600.80
3	NMDC	6655.78	10646	4435	5376	1733
4	MOIL	201.23	254.97	262.07	381.15	268.53
5	MSTC	70.37	68	80.00	91.26	58.66
6	FSNL	42.87	49.68	38.67	36.31	21.30
7	MECON	86.62	77.94	87.15	112.98	7.05
8	KIOCL	37.54	58.78	71.68	53.60	71.21
9	OMDC	2.75	2.38	1.46	3.00	1.25
10	BSLC	0.75	0.73	0.76	0.89	0.78

*Provisional for April-December, 2019



ANNEXURE XIV A
CONTRIBUTION MADE TO THE STATE GOVERNMENT
BY THE STEEL PSUS

(Rs. in crores)

S. No.	PSU/COMPANY	2015-16	2016-17	2017-18	2018-19	2019-20*
1	SAIL	3124.00	3292.00	2402.00	2604	2319
2	RINL	556.37	531.59	584.66	767.37	381.89
3	NMDC	1070.67	1332	2381	1726	1669
4	MOIL	62.17	90.70	148.50	123.43	61.32
5	MSTC	67.10	31.00	28.00	24.43	12.12
6	FSNL	0.32	0.71	11.30	18.83	13.22
7	MECON	1.77	0.39	5.87	6.74	10.75
8	KIOCL	2.33	0.51	0.07	1.11	2.23
9	OMDC	1.75	0.42	40.34	550.21	324.05
10	BSLC	4.95	7.14	7.17	6.40	6.59

*Provisional for April-December, 2019



ANNEXURE XV

BUDGET AND EXPENDITURE ON CSR BY STEEL PSUs

(Rs. In Lakh)

S.No	PSU/ Company	2015-16		2016-17		2017-18		2018-19		2019-20*	
		Budgeted	Exp	Budgeted	Exp	Budgeted	Exp	Budgeted	Exp	Budgeted	Exp
1	SAIL	10016	7616	2934	2905	2600	2570	3000	3118	3300	1724
2	RINL	1137	873.32	748	853	778	960	850	1030	850	454
3	NMDC	29820	21009	24832	17418	19516	16937	20000	16724	20000	3388
4	MOIL	1375	1447	1127	1143.10	922	962	925	929	1250	597.19
5	MSTC	145	150	77	80	214	215	200	200	Nil	Nil
6	FSNL	26.80	26.83	51.16	77.29	63.36	63.48	65	66.81	62.78	#
7	MECON	491.51	221.08	270.43	67.30	203.12	49	229	16.92	547.03	42.29
8	KIOCL	96.50	64	43.50	38.19	15.98	15.98	39.64	32.51	208.08	52.53

*Provisional for April-December, 2019

Ongoing Projects. Payments to be released on achievement of Milestones.

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”

S No	Title of the R&D project	In Rs Lakhs					
		2018-19			2019-20 (upto Dec 2019)		
		Total	Capital	Revenue	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	28.39	0.00	28.39
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	44.88	25.00	19.88
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	16.80	0.00	16.80
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	34.30	0.00	34.30
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	75.48	0.00	75.48
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	-	-	-	-

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S No	Title of the R&D project	In Rs Lakhs					
		2018-19			2019-20 (upto Dec 2019)		
		Total	Capital	Revenue	Total	Capital	Revenue
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	600.00	600.00	0.00
14	Optimisation of floatation process for Indian Coking Coal using advanced Pneufлот Floatation Cell by IMMT	74.74	40.00	34.74	16.80	0.00	16.80
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	15.19	4.00	11.19
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	11.12	6.00	5.12
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	6.77		6.77
21	Development of a cost-effective refractory lining materials for induction melting furnace suitable for production of quality steel: phase-II (Industrial Trials)" by NISST, CGCRI & NML	-	-	-	209.00		209.00
22	Indigenous development of Austempered Ductile Iron technology for use in automobile & agricultural industries in India by PEC Chandigarh	-	-	-	120.00	95.00	25.00
	Total	1,500.00	1,100.00	400.00	1,178.73	730.00	448.73



ANNEXURE XVIII

REPORTS OF C&AG

Audit Report No. 5 of 2019 of CAG on 'Operational Performance of NMDC Limited'

Major Audit Findings

Production, Evacuation and Sale of Iron Ore

In its Strategic Management Plan (SMP) – Vision 2025, the Company fixed (October 2015) over-ambitious targets for production of Iron ore viz. 75 MTPA by 2018-19 and 100 MTPA by 2021-22. The targets were fixed without giving due cognizance to adverse findings of the Consultant appointed for the purpose and without taking into consideration the declining trend in the domestic and international prices of Iron ore. Subsequently, the SMP was revised (September 2016) wherein the targeted production capacity was reduced to 50 MTPA and 67 MTPA by 2018-19 and 2021-22 respectively. However, the enabling action of setting up of various projects and infrastructure facilities to achieve the targeted production capacity were not in sync with the envisaged timelines.

(Paras 2.1.3 and 2.1.4)

The execution of all the packages for development of Deposit-11B mine in Bailadila sector was delayed beyond their scheduled completion dates. As a result, the project was still under implementation (March 2018) as against the scheduled completion time of June 2008. Against the installed capacity of 7 MTPA of the 11B mine, the Company could produce only 0.61 MTPA and 0.58 MTPA of Iron ore during the years 2015-16 and 2016-17 after commissioning the Crushing Plant and Downhill Conveyer System in August 2015, for want of screening facilities and non-completion of other package works.

(Para 2.3.1)

The execution of Kumaraswamy Iron Ore Project (KIOP) was still under implementation (March 2018) though the same was scheduled to be completed by March 2012. As such, the possibility of achieving the envisaged production target of 7 MTPA by 2018-19 as per the revised SMP-Vision 2025 by the Company seems to be remote. Further, due to non-availability of Screening Plant and Loading Plant with railway yard for KIOP, the Company had to resort to outsourcing of mining till the completion of the requisite facilities at KIOP, which was not an environment friendly step.

(Paras 2.3.2 and 2.3.3)

The Environmental Clearance for Screening Plant-II for KIOP was recommended (June 2017) by the Expert Appraisal Committee of the Ministry of Environment, Forest and Climate Change (MoEF & CC) subject to receipt of Stage-I Forest Clearance, after more than three years of application made (March 2014) by the Company. The delay was partly attributable to the Company as it failed to take prompt action for applying for revised Terms of Reference on account of increase in land requirement and submitted the requisite information to the MoEF & CC belatedly. Further, the Forest Clearance which was applied for in December 2014 was still awaited (March 2018) due to undue delay in conducting Differential Global Positioning System (DGPS) survey and non-submission of essential details sought by the Deputy Conservator of Forests, Bellary.

(Para 2.4.1)

In respect of Screening Plant-III for Kirandul complex, the Environmental Clearance (EC) was received by the Company in November 2013. However, the mistake in the area of the land mentioned in the EC as 65.936 hectares, against the land area of 74.236 hectares applied for, was not observed by the Company until it was pointed out (October 2016) by the Chhattisgarh Environment Conservation Board (CECB) before issue of Consent for Establishment (CFE). The Company requested (December 2016) MoEF & CC for issue of a revised EC which was received in March 2017. As a result, CFE was granted by CECB in July 2017. Thus, there was an avoidable delay of 38 months (from November 2013 to December 2016) on the part of the Company.

(Para 2.4.2)

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Diversification Activities

The Company proceeded (January 2010) with the establishment of an Integrated Steel Plant at Nagarnar, Chhattisgarh and awarded various packages based on the tentative details given in the Techno-Economic Feasibility Report (TEFR) instead of preparing a Detailed Project Report (DPR). As a result, the estimates were revised upwards and technical specifications were modified after the tenders were floated. This led to delays in tendering and award of packages. Further, the cost of the project was increased by 43 per cent from the estimated cost of Rs.15,525 crore to Rs.22,196 crore. The increase in cost amounting to Rs.6,671 crore included Rs.3,842 crore on account of change in scope of work, which could have been avoided if the Company had prepared the DPR. The project was still under execution (March 2018) even though it was scheduled to be completed by March 2014.

(Para 3.1)

In respect of diamond mining at Panna, Madhya Pradesh, considerable quantity of unsold stock of Diamonds ranging between 39 per cent and 80 per cent of their production was lying at the end of each year during 2012-13 to 2016-17. The average production cost of Diamonds remained higher than the Net Realizable Value (NRV) during all these years. In view of this, the net loss of the Diamond Mining Project (DMP) as at the end of 2016-17 was Rs.27.16 crore.

(Para 3.2)

The Company formed (June 2008) a Joint Venture Company viz., NMDC-CMDC Limited (NCL) with Chhattisgarh Mineral Development Corporation Limited (CMDC) for development of Deposit-13 situated in Bailadila Iron ore range. Forest Clearances for the project were received (January 2017) after 14 years from application (January 2003). The delay was partly attributable to the Company as it took four years' time to submit the Indian Bureau of Mines (IBM) approved mine plan to the concerned authorities and also did not comply with some of the conditions of Stage-I Forest Clearance. Further, the Consent for Establishment and Consent to Operate were yet to be obtained from Chhattisgarh Environment Conservation Board (March 2018). Thus, the prospects of achieving the targeted production of 2 MTPA of Iron ore from Deposit-13 by 2018-19 as envisaged in the SMP 2025 appear to be bleak.

(Para 3.3)

The Company proposed (May 2009) to set up 1.2 MTPA Pellet Plant at Donimalai at a cost of Rs.572 crore for production of Pellets by utilizing slimes (1.59 MTPA) and fines (0.30 MTPA) through beneficiation and pelletisation process. However, due to non-synchronization of major package works, commissioning of the project was abnormally delayed. The Pellet Plant was proposed to be set up on the strength of slimes available free of cost. However, in view of the directions of the Hon'ble Supreme Court regarding Iron ore sales in Karnataka State through e-auction under the supervision of the Monitoring Committee appointed by Central Empowered Committee, the Company had to procure the slimes/fines through e-auction at market price at par with others. On account of this, the production cost of Pellets was bound to increase which, in turn, had a negative impact on the viability of the project.

(Para 3.6)

Strategic Investment in Joint Ventures

The Company formed (May 1989) a Joint Venture Company (JVC) named J&K Mineral Development Corporation Limited (J&KMDC) with J&K Minerals Limited for setting up a 30,000 TPA (Tonnes per annum) capacity Dead Burnt Magnesite (DBM) manufacturing plant at Panthal village in Jammu & Kashmir. The mining lease was transferred (April 2011) in the name of the JVC and the JVC received the Environment Clearance in May 2011. However, in October 2016, MoEF&CC withdrew the Environmental Clearance citing that open cast mining in close proximity to holy shrine of Shri Mata Vaishno Devi may lead to irreversible damage to pristine, fragile and environmentally sensitive area. Thus, amount of Rs.42.37 crore spent by the Company on the project proved infructuous and was written off from the books of accounts in 2016-17.

(Para 4.1)

With the objective of securing Metallurgical Coking Coal and Thermal Coal supplies from overseas, a Special Purpose Vehicle (SPV) viz., 'International Coal Ventures Limited (ICVL)' was formed in May 2009 wherein NMDC Limited was one of the participating PSUs. In July 2014, ICVL decided to acquire the ownership portion of Rio Tinto Plc., UK in the Coal mine and Coal assets located in Mozambique. It was observed that the investment made

by Company to the extent of Rs.376.36 crore (on which there was no return so far) by relying upon the incorrect/improper and unrealistic business plan of ICVL for acquisition of loss-making Mozambique mining assets was not prudent.

(Para 4.4)

The Company decided (May 2011) to acquire 50 percent shares in legacy Iron Ore Limited, (LIOL), Australia to secure management control on the mining tenements that would be acquired by LIOL. The Company made a total investment in LIOL to the extent of Rs.168.53 crore (Aus \$31.01 Million) despite the fact that the Consultant appointed for conducting evaluating study had opined that it was a negative Net Present Value (NPV) project and was a marginal asset in the short to medium term. The share value of LIOL eroded to 0.30 Aus cents per share (3 November, 2017) from the initial acquired price of 6.55 Aus cents per share. On account of this, the value of investment made by the Company also declined to Rs.17.13 crore from Rs.168.53 crore. Further, the Company was bound to spend Rs.89.67 lakh annually till the year 2030 to retain the tenements in addition to the expenditure for development of infrastructure facilities.

(Para 4.5)

Internal Control and Monitoring

The internal control mechanism of the Company was weak as evident from the fact that - (a) the Sub-Committee for reviewing ongoing Projects did not fix any timelines with clear milestones to be achieved which could be reviewed in its subsequent meeting; (b) the decisions on major investments were made without conducting proper due diligence on its own; (c) periodical mid-term review of implementation of Strategic Management Plan – Vision 2025 as prescribed by the Board was not done, due to which corrective action in plugging shortfalls in achievement of the projected targets were not addressed.

(Para 5.1)

Recommendations:

- 1) The Company needs to factor in market trends while fixing the targets in its periodic plans so that the set targets are realistic and achievable.
- 2) The Company may ensure timely submission of required documentation and follow up with the concerned statutory authorities with a view to secure statutory clearances within the timelines prescribed.
- 3) The Company needs to conduct proper due diligence and pay due cognizance to the risk factors before embarking on national and international investment ventures.
- 4) The Company needs to strengthen its project execution mechanism/ strategy to avoid delays in implementation of projects/construction works and to avoid time and cost overruns so that envisaged benefits are realized.
- 5) The Board of the Company may strengthen its monitoring mechanism with a view to ensure timely completion of projects.

Report No. 13 of 2019 of CAG of India on Union Government (Commercial)- Compliance Audit Observations

SAIL acquired (February 2009) the assets of erstwhile M/s Malvika Steel Limited (MSL) (closed since 1998) at Jagdishpur, UP consisting of 739.65acre land and plant & Machineries for Rs. 226.67 crore. Audit observed that plant and machineries acquired for Rs. 44.35 crore became idle and scrap. Production from TMT bar mill, Crash Barrier mill and galvanised corrugated sheets mill installed by SAIL failed to start even after lapse of three to eight years from their installation. 739.65 acres industrial land acquired from MSL was idling with no economic/industrial activities. This led to idle investment of RS. 366 crore and annual interest cost of Rs. 27 crores (Rs. 264 crore upto December, 2018).

(Para 10.7)

Audit observed that BSLC produced less than one fourth of the allowed production quantity due to constraints of working capital, stoppage of mining operation due to non-availability of environmental clearance, attachments of bank accounts by statutory authority and its failure to de-water the submerged quarries. Its failure mine in five its six

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blocks led to non-renewable of mining lease in these five blocks and loss opportunity to mine 318.80 lakh tonne of limestone/dolomite from these five blocks. Audit further noted more than 80% of the production was done through contractors due to old worn out equipment and lack of skilled labour and the labour productivity of BSLC was below 7 tonne/ man/ day vis-s vis the international bench mark of 25-30 tonne/man/day.

(Para 10.1)

Orissa Mineral Development Corporation (OMDC) operates six iron ore and manganese ore mining leases located in Barbil, Orissa with an estimated total reserve of about 206 MT of iron ore and 44MT manganese ore.

Audit observed that mining operation of all mines of OMDC were stopped since last 8-12 years on account of absence of statutory clearances and non-transfer of three mining leases leading to loss of production of 17.22 Million Tonne of iron ore and 0.22 Million Tonnes of manganese or valuing Rs. 3144.68 crore during 2011-18. Further, the company was imposed with penalty of Rs. 1482.94 crore on account of excess/illegal mining in pursuance of judgement of Supreme Court, out of which it had deposited Rs. 172.93 crore till November, 2018.

Audit further highlighted that iron ore valuing Rs. 34.46 crore was washed out and manganese ore worth Rs. 3.03 crore was found short during 2010-18 in the absence retaining barriers that a Sponge iron plant set up at a cost of Rs. 13.60 crore was idling in dilapidated condition, since, eight years. Many operations related employees were rendered and employee related expenses were met from interest earned from bank deposits.

(Para 10.2)

Audit reviewed the addition, modification and replacement (AMR) projects executed by SAIL during 2013-14 to 2017-18 and noted that there was large deviation between the estimated and awarded price due to inaccurate assessment and delays of up to 50 months in awarding of projects. Audit further noted that SAIL incurred extra expenditure of Rs. 94.42 crore during 2016-18 due to use of power and blowing station -1 at IISCO despite three years since recommendation to close it. Audit also observed lapses in tendering process, repeated cancellation of tenders, delays in handing over of site etc. and resultant increase in contract cost by Rs. 114.58 crore and loss of envisaged benefits of Rs. 118.11 crore in Sinter Plant II of Bokaro Steel plant (BSL). Audit noted foregoing of annual benefit of Rs. 30.12 crore and idling of investment of Rs. 162.93 crore in COB-7 projects, Bokaro Steel Plant due to non-synchronisation of projects. Coal dust injection system in Rourkela and Durgapur steel plants did not achieve the required injection rate of 100 kg/THM which led to extra expenditure of Rs. 330 crores.

(Para 10.5)

Steel Authority of India limited undertook Modernisation and expansion plan (MEP) in 2006-07 to enhance Hot Metal (HM) capacity from 13.83 Million Tonnes per annum (MTPA) to 23.46 MTPA by 2010. Rs. 62, 835 crores were spent till March 2018.

Audit observed that as against target, the HM capacity created upto March 2018 was 19.46 MTPA while the HM production during 2017-18 was 15.98 MT. Audit observed that targeted coke rate post MEP was not achieved resulting in excess consumption of 17.84 lakh Tonnes coke valuing Rs. 3100 crores. Targeted blast furnace productivity was also not met by any of the steel plants. Audit highlighted delays in completion of projects and loss of contribution of Rs. 1372 crore on account of inability to supply indented quantity to railways. Further, failure to enhance capacity of downstream facilities at Rourkela Steel plant resulted in loss of contribution of Rs. 226.89 crore during 2013-18 on account of SAIL of slabs instead of plates. C&AG also noted that Rs. 552.54 crore was paid as price variation claims to contractors for delays attributable to SAIL and beside the above, guaranteed cenvat credit of Rs. 560 crores also could not be recovered in 98 contracts.

(Para 10.6)

Audit reviewed the ERP-SAP implemented in SAIL at a cost of Rs. 204.74 crore and observed that data captured in vendor data based was not complete and various fields were blank. Audit noted that financial accounting and controlling (FICO) module was not upgraded to comply with the Company Act, 2013/ Ind. AS, whereas, manufacturing Execution system (MES) implemented in Bhilai Steel Plant at a price of Rs. 29.31 crore was not extended to all the shops thereby depriving other plants of improvements in operational efficiency and cost control. Thirty-eight percent of the SAIL's PCs were running windows XP OS and were vulnerable to risks and Data Response Centres were located in close proximity of the plants. Deficiencies were noticed in legacy softwares where validation controls were weak and data was not captured in critical fields.

(Para 10.4)



View of Bachel Plant of NMDC





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