International Journal of Engineering and Management Research e-ISSN: 2250-0758 | p-ISSN: 2394-6962
Volume-11, Issue-4 (August 2021)
www.ijemr.net https://doi.org/10.31033/ijemr.11.4.15

Impact of COVID 19 on Steel Industry – A case Study of RINL, Visakhapatnam Steel Plant

Pradosh Kumar Rath[1] and Prof. B. Mohan Venkata Ram[2]
[1]Chairman-cum-Managing Director, Rashtriya Ispat Nigam Limited, Visakhapatnam, INDIA
[2]Professor. Department of Commerce & Management Studies, Andhra University, Visakhapatnam, INDIA

[1]Corresponding Author: mbvr2008@gmail.com

ABSTRACT

Steel is by far, the most widely used and is environment friendly as it can be recycled 100%. Steel has wide variety of applications in day to day life. Indeed, steel is the backbone and support of the global economy and infrastructure. Steel has got many forward linkages with manufacturing industries.

Status of global steel industry before the onset of COVID 19 and the effect of pandemic on industry in both global and Indian contexts were discussed. The status of Indian economy was briefly explained and projected outlook for steel market after breakout of the pandemic. The effect of COVID on RINL was discussed in detail and various strategies adopted by the industry during the period were explained. Handling of such future eventualities were addressed. After the outbreak, the recovery and outlook were explained in detail. Interventions and initiatives sought from the Government were presented in this paper.

Keywords-- COVID – 19, Infrastructure, Manufacturing, Global Economy, Pandemic

I. INTRODUCTION

Steel, as a precious metal, has a greatest impact on the human race since ages. It is, by far, the most widely used, multifunctional and adaptable natural material found and mined from the earth. In fact, the development of mankind itself would have been impossible in this scale without the invention of steel. Steel has umpteen number of uses in today's world, which is a marker for its incredible adaptability. Among the defining characteristics of Steel are... Heat resistance, Resistant to Deformation at both high and cold temperatures, Weldability, Corrosion resistant, Machinability, Formability to both hot and cold, Wear resistance, Toughness, being Weather-proof etc. Additional advantage of steel is its very low production cost, when compared to other materials. Steel is environment friendly as it can be recycled 100%. The energy required for the production of steel is also 25% lower than that of aluminum and other non-ferrous metals. Moreover, the earth's crust is comprised of 5.6% iron and hence abundant availability, so this represents a secure raw material base for the production of steel.

Stainless steel, developed by British metallurgist, Harry Brearly, is used in most of today's gadgets, machinery, tools, household goods, and more. From surgical tools to the hub caps on your car, to kitchen utensils, building materials, and even furniture, stainless steel is extremely versatile. Indeed, steel is the backbone and support of the global economy and infrastructure. It's a massive industry worth approximately $900 billion per year. Steel has some stiff competition from aluminum.

The global crude steel production is 1541.77 Million Tonnes in January-Oct 2019 and registered a growth rate of 3.2% over CPLY (corresponding period last year). With 829.21 Millon tonnes of steel production, China still occupies the position in the world as highest crude steel producer. India, occupying the second largest crude steel position with 93.31 Million tonnes of crude steel production during the same period. WSA published the Short Range Outlook in April 2019, as per the report there is an improvement of about 4.9% in apparent global steel consumption during 2018 whereas, China recorded a growth rate of 7.9%. During 2018, global and China per capita finished steel consumption was 224.5 kg and590.1 kg respectively [1]. The Indian finished steel per capita consumption was during the same period was 74.1 kg. [2]

China's share of crude steel production in the world is 49%, However, it is expected that China's steel demand to decrease in the coming period due to lack of motivational measures. Due to uncertainty over trade policies, Expected China's reduced demand for steel, melt down in global economy and contemporary political situation in many regions there may be restraint in business investments. This situation is forcing global steel industry to most unwanted sluggish phase. All this happened because of the built in excess capacities than the steel demand and creating additional burden on the global steel industry.

Table 1: Region/country wise apparent steel consumption and YoY % growth

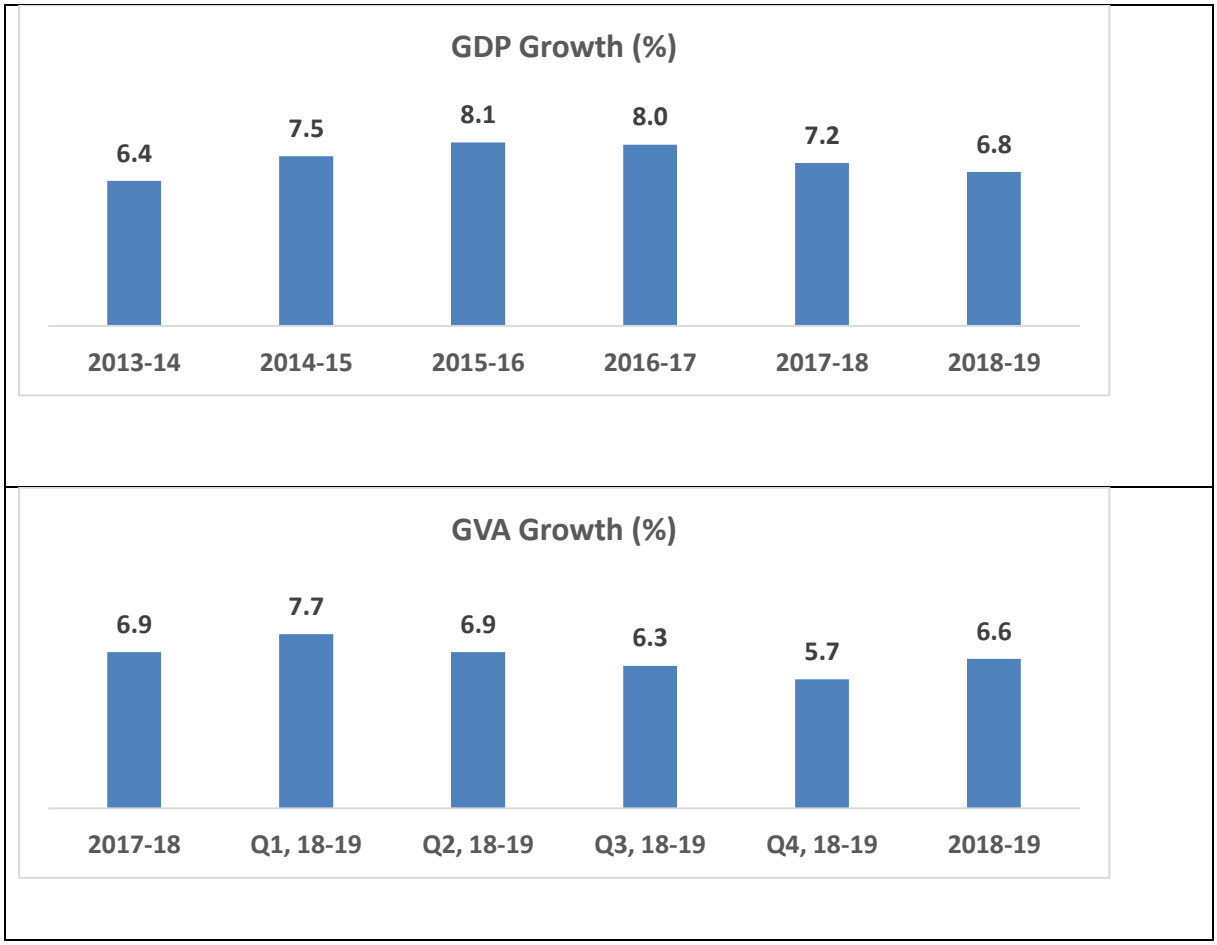
Regions	In Million Tonnes)			Y-o-Y Growth Rates, %		
	2018	2019(F)	2020(F)	2018	2019 (F)	2020(F)
World	1 712.1	1 735.0	1 751.6	4.9*	1.3	1.0
China	835	843.3	834.9	7.9	1.0	-1.0
India	96	102.8	110.2	8.3	7.1	7.2
Emerging and Developing economies excl. China	463.2	476.5	498.6	2.5	2.9	4.6
Developed economies	414	415.2	418.1	1.8	0.3	0.7

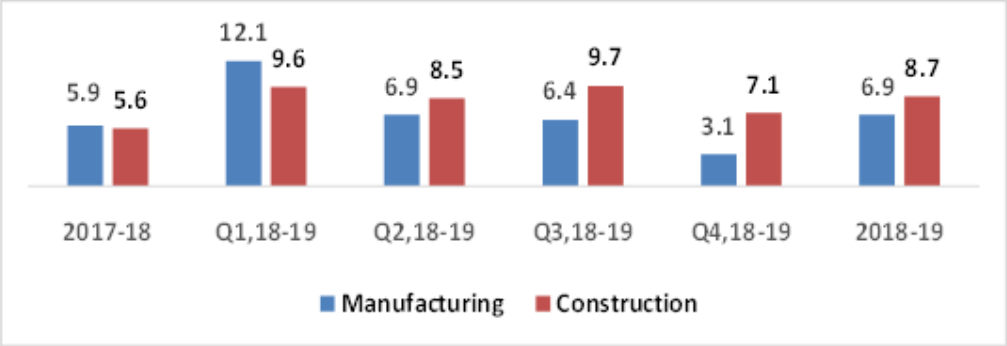
F – Forecast Source: WSA SRO – Apr '19

* 2.1% (after adjusting for China induction furnace closures)

II. INDIAN ECONOMY

For the last 5 to 6 years, Indian economy has been a fastest growing major economy and exceeded China. India's economy is growing enviably. The GDP growth stood at 6.8% in the year 2018-19 and the same in 2017-18 was about 7.2%. The overall GVA growth was also in the same lines and stood at 6.6% for 2018-19 when compared to 2017-18 the GVA was around 6.9%. It can be observed that there was a decreasing trend from first quarter i.e. 7.7 % to 6.6 % in 4th quarter. Manufacturing and Construction sectors recorded GVA growth rate of 6.9% and 8.7% respectively, during 2018-19.[2]

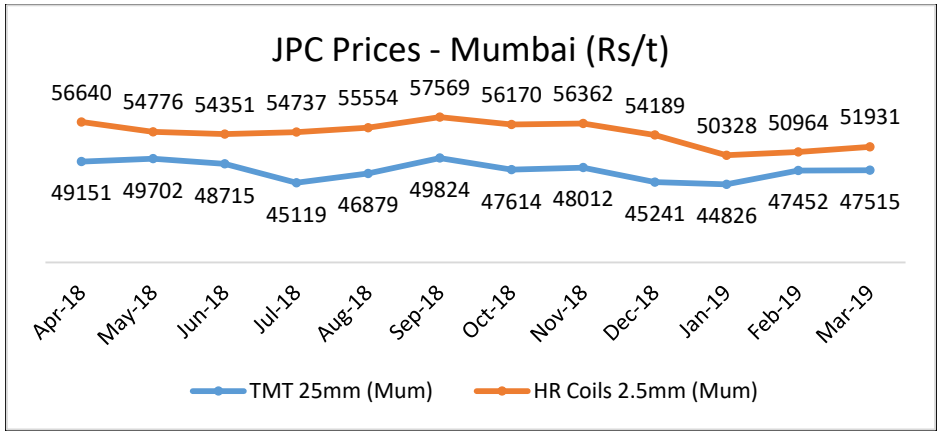




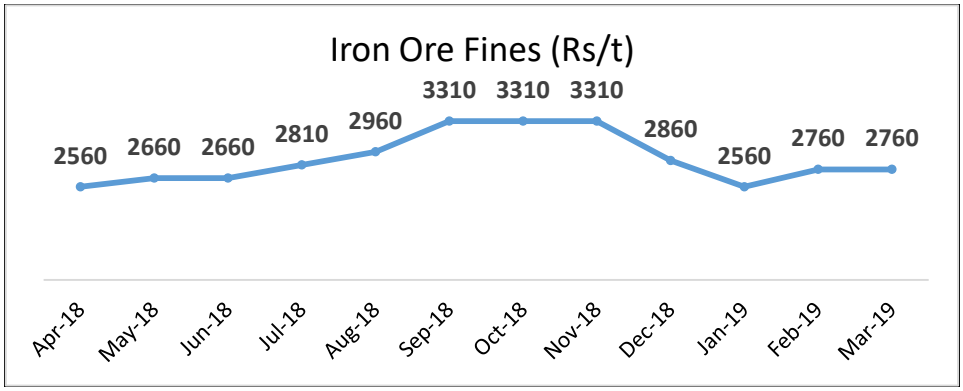
III. INDIAN STEEL SCENARIO

India recorded apparent steel consumption growth rate of 7.5% and 7.9% respectively in the years 2018-19 and 2017-18 respectively. Whereas the exports reduced by 34% to 6.361 Mt in 2018-19 from 9.619 Mt during 2017-18 due to uncertainty over trade policies, melt down in global economy and contemporary political situation in many regions. All these reasons caused This led to accumulation of inventory with Indian Steel Producers, even though the growth in production is low when compared to previous year and stood at 4.4% with respect to 6.8% in the previous year.

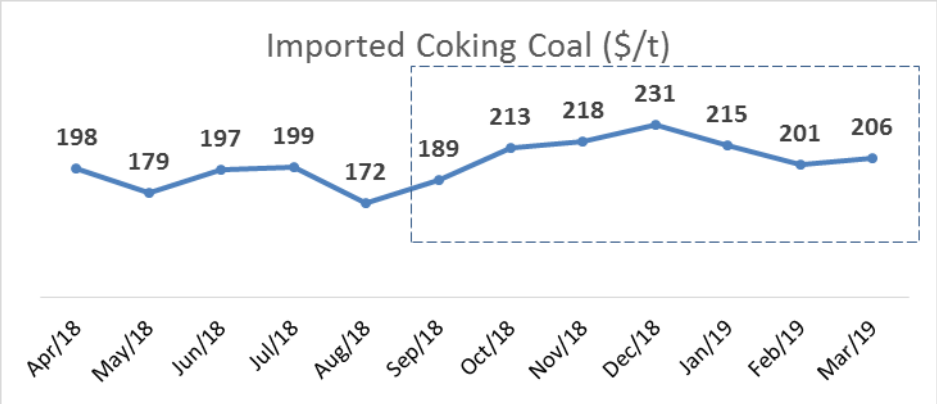
The reduction in Exports for non-flat category was even higher at 69%. The exports dropped down to 0.705 Mt in 2018-19 from 2.258 Mt in 2017-18. The inventory has raised to 2.157 Mt of non-flat steel production. Due to all these reasons, steel prices softened considerably during second half of 2018-19. Though, the raw material prices remained high, showed negative effect on the financials.



The prices of raw materials particularly the main raw material for steel making i.e. Iron Ore prices increased sharply during the period Apr–Nov'18. This was attributable to mine closures in Odisha. NMDC increased cost of Iron Ore fines by 27 % from Rs. 2,560 /t in April, 2018 to Rs. 3,310 /t September, 2018 and maintained this high cost till November, 2018. Moreover, RINL had to resort to auction, tender routes to meet the requirement of raw materials for procurement. This has resulted in overall procurement cost increase to the tune of 27% during 2018-19 over 2017-18.



Likewise imported Coking Coal prices also heaved from August 2018 to December 2018 due to supply constrictions from Australia.



Added to the above, Indian rupee value also depreciated with respect to US Dollar to an average of Rs.69.83 in 2018-19 from an average of Rs.64.50 in the 2017-18.

The domestic steel demand which was slightly sluggish was provided a boost in the Union Budget 2019. The Finance Minister announced Rs.100 lakh Crs allocation for infrastructure in the next 5 years, and gave thrust to the projects such as Industrial Corridors, Dedicated Freight Corridor, Bharatmala, Sagarmala & UDAN schemes. Schemes already announced like the Pradhan Mantri Awas Yojana; Har Ghar Jal scheme; Pradhan Mantri Gram Sadak Yojana and the flagship "Make in India" programme of the Government, Housing for all and affordable housing and the smart cities mission will also provide the necessary fillip in increasing the per capita consumption of steel in India.

India's enviable GDP growth rate of 6.8 % in FY 2018 and projected growth rate of 7.1% is supported by two vital macroeconomic pillars – 1. A favourable climate for investment and 2. Healthy growth of the manufacturing sector. Government investment in physical infrastructure is, indisputably, the single greatest motivation to the Indian steel industry for its steps to enhance the production capacity, with the National Steel Policy 2017 predicting per capita steel consumption to increase up to 160 kg by 2030 from a low value of 70.9 kg when compared to world average in 2018, which explains the requirement of augmentation of capacity to about 300 MTPA by 2030. [3]

IV. ONSET OF COVID-19

The year 2019 began with the above expectations and went on well till November 2019. The pandemic COVID-19 started in China in December, 2019. Slowly the pandemic spread all over the world and global economies were shattered. Most of the steel producing countries in the world started implementing lockdown measures as a last resort to contain the spread of COVID-19. As a result of the pandemic, an estimated 2.7 billion people or more than four out of five workers in the global workforce, have been affected by lockdowns and stay-at-home measures. In India, lock down was imposed from 24rd March, 2020 and till that time the production was in full swing. The effect continued till September 2020. Because of the lock downs, production capacities in most of the steel plants were curtailed. In some of the steel plants, even blast furnaces were stopped which is a very rare thing to experience in any integrated steel plant. Even the produce could not be sent to markets due to logistics problem. All the activities relating to infrastructure came to a standstill during the period and none of the steel consuming sectors like, construction, engineering, automobile etc. were in operation. During the period, most of the steel plants faced the liquidity crunch and suffered a lot. The sudden fall in demand has also put brakes on a steady rise in steel prices. The impact of a slowdown in global demand on the domestic sector was limited as steel producers export only 8 per cent of their total production. But since the metal industry has strong forward linkages to many important sectors such as automotive, construction, infrastructure and manufacturing, a slowdown in business activity in these sectors has inevitably driven down the derived demand for metals.

Effect on Raw Materials (Upstream side)

As steelmakers around the world operated at reduced capacity, it is pertinent here to mention the impact of the COVID-19 pandemic on the mining sectors. Australia is undoubtedly the key supplier of iron ore and metallurgical coal and its exports are about 60% of the global seaborne supply in 2019. Luckily, Australian mining operations and logistics of these two major raw materials have proved quite robust during the COVID-19 pandemic. Their automation levels and logistics have paid dividends during this tough period. Lockdowns sprea dingall over the world, which indirectly effected transportation during Covid-19, have led to decrease in raw material stocks in many steel plants, particularly those who have not maintained large

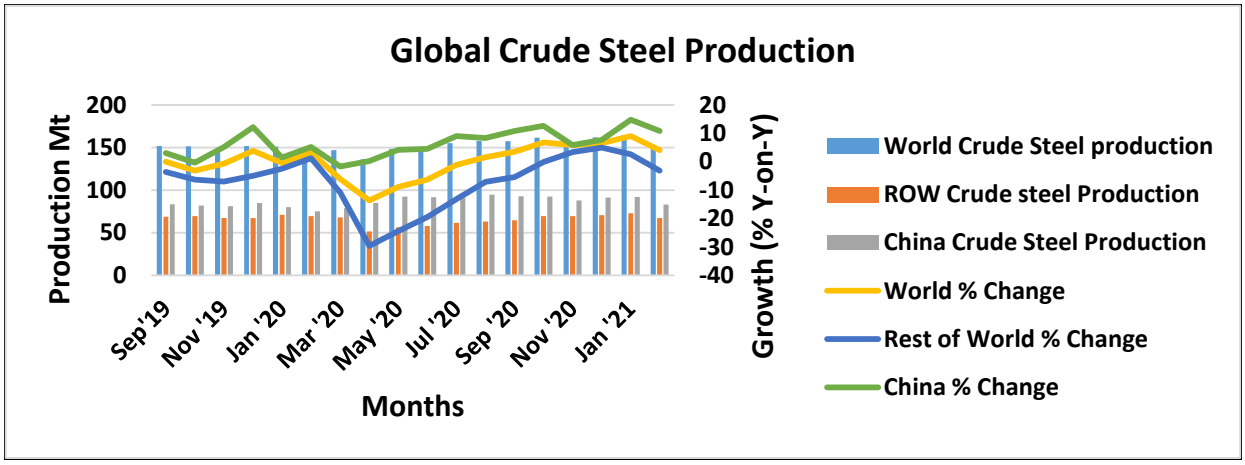
enough stock to manage production during pandemic period got affected maximum. Even in Brazil, the second largest iron ore supplier in the world also did not get effect much during 2020.

Whereas, the situation in India, Canada and South Africa is different. Operating restrictions for mines have decreased mining output. These three countries accounts for about 10% of global seaborne iron ore supply in 2019. As India is biggest importer of seaborne metallurgical coal suffered most because of the nation-wide lockdown in India.

V. EFFECT ON STEEL PRODUCTION

Coming to the steel production scenario, crude steel production around the world deteriorated after the onset of the pandemic. World crude steel production has reduced by 13 percent when compared to April 2019, in April 2020 the steel production was 131.1 million tonnes, and 148.8 million tonnes in May'20 which was 8.7% lower as compared to May 2019. Japan produced 5.9 Mt of crude steel in May 2020, down by 31.8% compared to May 2019. India produced 5.8 Mt of crude steel in May 2020, down by 39.1% from May 2019.

According to World Steel Association, the Covid-19 pandemic and associated lockdown measures have significantly affected production volumes by many steelmakers worldwide. [4] China registered crude steel production was 85.0 million tonnes in April 2020there is no change from the April 2019 production. Throughout the virus outbreak, many blast furnaces in China operated at normal capacities.



Effect on Major Steel consuming Industries (Downstream Side)

As per the International Organization of Motor Vehicle Manufacturers report, global automotive production reduced by 16% last year due to the COVID-19 pandemic and subsequent efforts to suppress the spread. When it comes to the United States the automotive production drop was about 19%, slightly above the global average. In Europe, automotive production fell by 21% on average, all other main automotive producing countries reporting drops between 11% and up to almost 40%. South America saw production fall more than 30% as Brazil took the impact of COVID hard, and vehicle production in Africa slipped more than 35%.

Asian producers fared better than vehicle manufacturers elsewhere. Automotive production on the world's largest continent fell only about 10%."Organisation Internationale des Constructeurs d'Automobiles" (OICA) reported that China's accelerated recovery through vehicle production and restricted the fall to only 2% over the year. Asia's share of global vehicle production is 57% share of global vehicle production. South Korea's car production dropped down by 22% in April 2020when compared to the previous year and also car exports reduced by 44%. The country's car exports to the US itself reduced by 28% in April from previous year same period. However, the pressure on the manufacturing sector was continued for the rest of this year. In China also, most metals markets do not predict a real recovery until Q4 [5].

China Recovery

China is the first country to come out of the coronavirus crisis and worked toward full normalisation of economic activity. China's economic activity froze during the lockdown in February, with manufacturing Purchasing Manager's Index (PMI) dropping to 35.7, Since a resumption of operations led by the coastal areas started in late February, an economic recovery has been gradually taking place and the Chinese PMI jumped to 52 in March2020. Light is now visible at the end of the tunnel as the post COVID-19 pandemic shows recovery in China and large scale government stimulus indicates that the industry should be able to weather this storm.

China produced 92.3 Mt of crude steel in May 2020, an increase of 4.2% compared to May 2019. China which started early after the pandemic is looking forward to a gradual economic recovery. Due to its

comparatively robust requirement or Consumption, China found itself in the rare position of being a target for steel exports from countries including India, Japan, Russia and Turkey. Over January-April, China's finished steel imports grew 7.4% to reach 4.18 million Mt, while its exports were almost 12% lower at 20.6 million tons. China is currently the biggest buyer of billet.

Fortunately, recovery in China, the biggest driver of steel industry demand in the world, and its Shipbuilding activity is back to 90% production levels. State infrastructure projects have been mandated by the government to return to pre-crisis levels of activity. The automotive industry has increased to 30% production levels. The speed with which the country is returning to normalcy indicated future steel demand.

Global Recovery

Around the world, the steel industry is crawling back to normalcy and although it is expected to contract by more than 10% in 2020, it will see a substantial recovery in 2021.

As economies are re-opening after lock downs in most of the steel producing countries, steel companies are striding forward cautiously. Health & safety of workforce being paramount importance, companies are strictly adhering to the procedures as mandated by various governments, even risking lower productivity and an extended production cycle. The dual objective of "live & livelihood" is making companies go the extra mile in ensuring the safety of their workforce.

VI. EFFECT OF COVID-19 ON INDIAN STEEL SECTOR

After the onset of pandemic, Indian steel production was slashed by an unprecedented 65.2 percent, year-on-year, in April. Unbelievably, April month's production figure was just 3.1 million tonnes. [2]

In contrast to metals prices generally, prices of seaborne iron ore have been remarkably resilient, even during the worst months of the COVID 19 outbreak, because Chinese crude steel production continued largely persistent.

Indian players are on expansion plans in line with the Government's target of scaling up the total steelmaking capacity to 300 million tonne per annum (MTPA) by 2030. Government has been very proactive with policy responses to manage the potential economic consequences. The effect of COVID-19 pandemic impacted the expansion plans of domestic steel makers.

Any Organizations' first priority in crisis times is ensuring the health and safety of work force. Now, as organizations begin to emerge from this phase, leaders are focusing on the next set of workforce challenges as they plan for recovery.

VII. BRIEF INTRODUCTION OF RINL

Rashtriya Ispat Nigam Limited (RINL), the corporate entity of Visakhapatnam Steel Plant (VSP) a Navratna company is a first shore based integrated steel plant at Visakhapatnam in Andhra Pradesh under the Ministry of Steel, GOI. Visakhapatnam Steel Plant (VSP) is the latest in the public sector steel plants conceived by the Government of India (GOI). It is now known for the quality of its products and as the leading producer of long products & value added steels. VSP is on the growth path and is almost doubled its capacity to a level of 7.3Mt of liquid steel progressively.

Outlook and Effect of COVID on Rashtriya Ispat Nigam Limited in 2019-20 & 2020-21

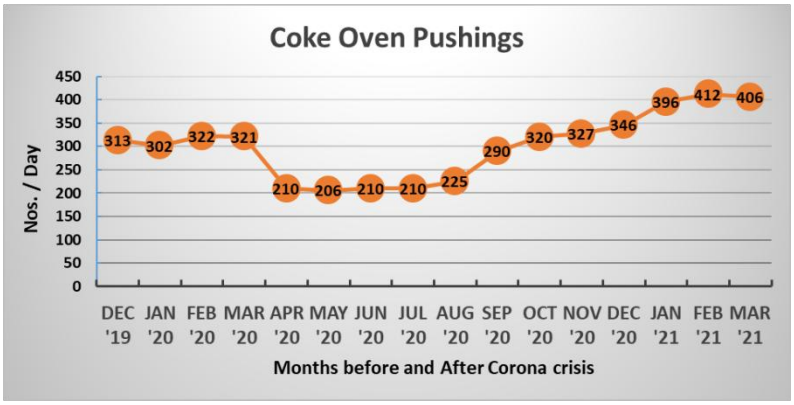
India was projected to maintain a growth of 7.1% in 2019, the highest among the major steel producers of the world. The thrust being given by the Government for infrastructure and manufacturing would have positive impact on steel industry in general and the company in particular. The company would further gain from productivity and efficiency improvements and value growth planned for 2019-20.

Some of the focus areas before the onset of Covid-19 for RINL are:

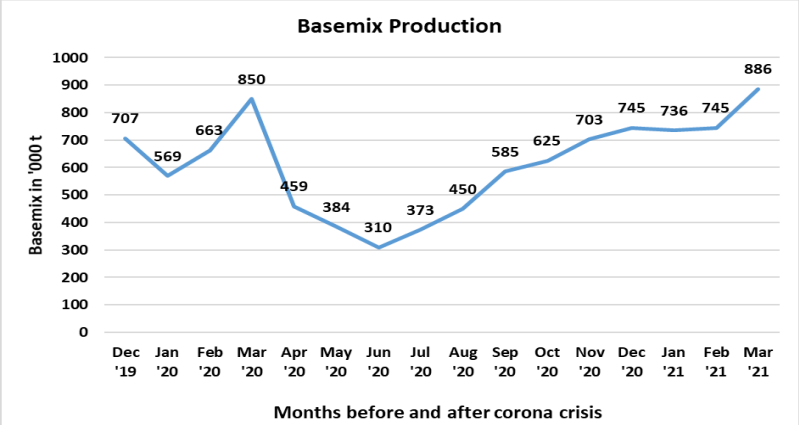
- Achieving rated capacity for 6.3 Mt
- Enhancing production of high end Value Added Steel
- Improving sales in high NSR region
- Maximizing conversion of semis
- Commercial production from Forged Wheel Plant
- Minimising impact of bought out BF coke by improving PCI usage and commissioning of Battery-5
- Optimization of product mix, concentration on niche markets and high end value added products.

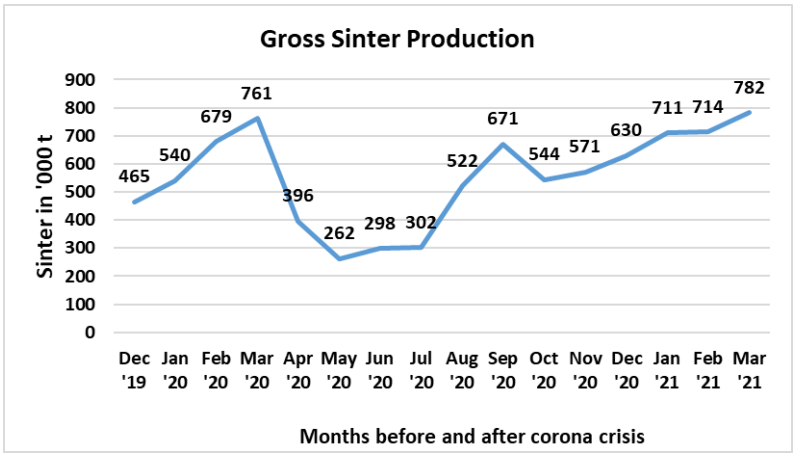
The performance of RINL during pre and post COVID periods is presented below to demonstrate the pandemic effect on RINL.

Coke is one of the very important constituent required for iron make through Blast furnace route. Coke production has been reduced (started) in the month of march and continued till Nov., '20 as two Blast furnaces were under shut down due to inventories piled up, lock down and low man power availability.

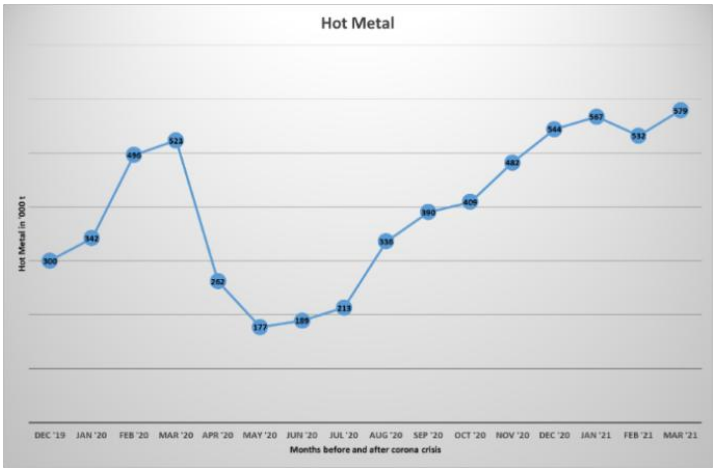


Base mix is required to produce sinter for charging into Blast furnaces as charge material. As only single blast furnace was in operation sinter requirement has been dropped down to one third of regular production. However, the period has been utilised to complete capital repairs and maintenance jobs requirement. The production in March was 8,50,000 tonnes and the same has been reduced to 4,59,000 tonnes in April' 20 and further reduced in next four months. Same is the case with Sinter production also.

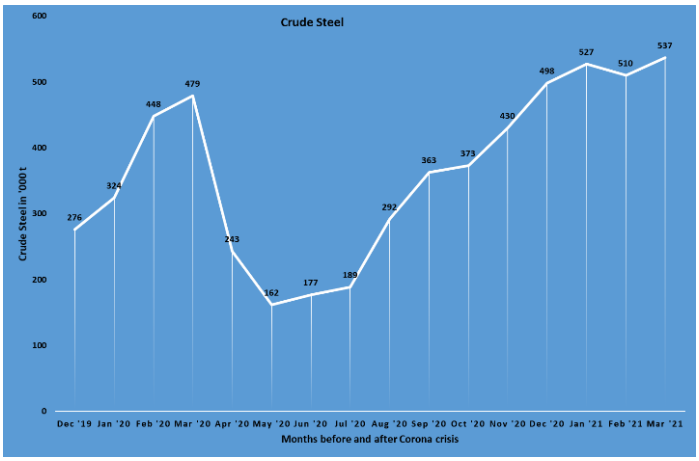




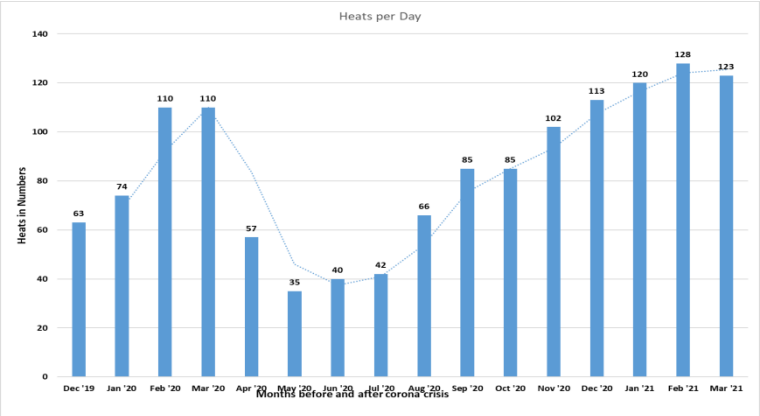
Blast Furnace-2 was put down on account of lower market demand from 25th Mar'20 to 15th July'20 (113 days). The furnace was again restarted with in-house expertise on 16.07.20. Blast Furnace-3 was put down on account of lower market demand from 13th Apr'20 to 17th Oct'20 (188 days). The furnace was restarted with in-house resources on 18.10.20. Stopping of Blast furnaces is a rare feat in any steel plant. Because of the pandemic Blast Furnaces were stopped for almost six months in RINL.



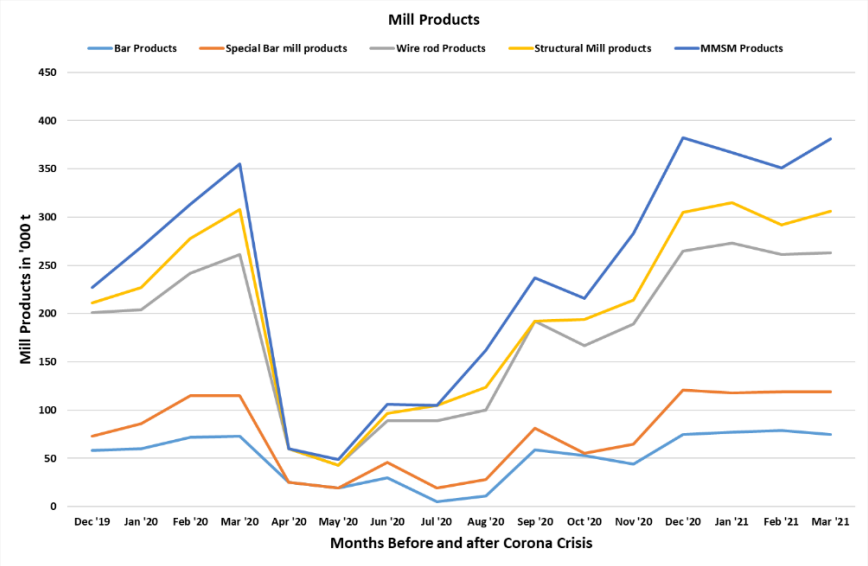
Crude steel production has been dropped down to lowest during the period and the same is presented below.

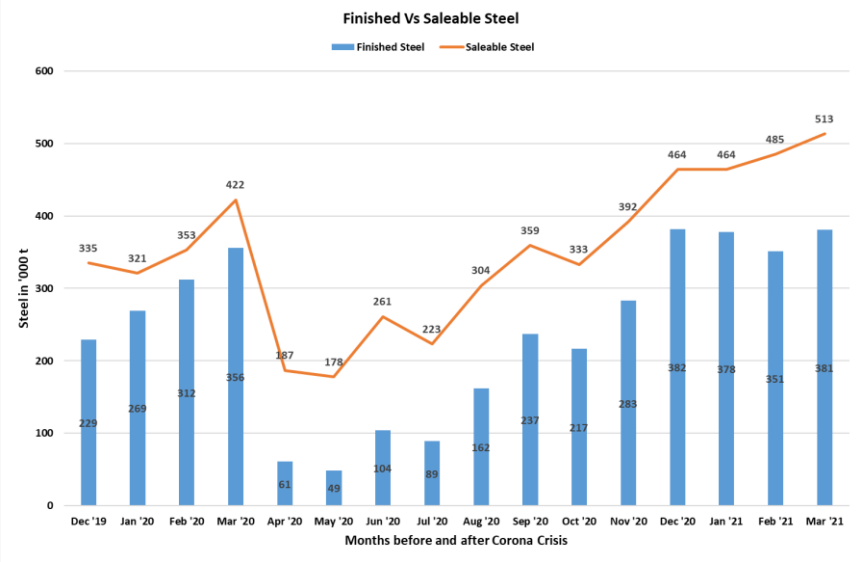


Number of heats is the measuring tool for steel production. Before pandemic the same was 110 heats per day and in May it has reduced to lowest and stood at 35 when 6 steel making converters were in operation. These months have become night mare for RINL.

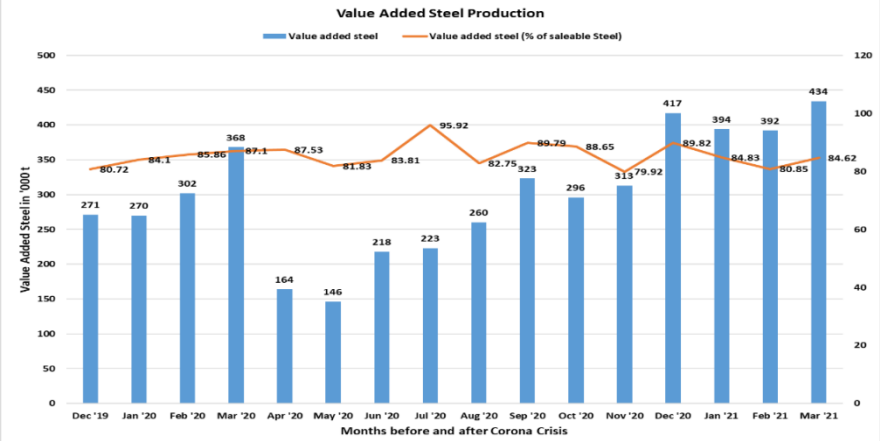


Due to lack of domestic demand, finished steel production has been reduced to lowest ever in RINL. However, during the period, export market was explored and semis were exported to other countries especially to china. Though the finished steel production was less, the saleable steel production was substantially high with export market of semis to china. During the period, exports were almost 1.3 Mt which is a record since inception. The same is presented in the below two figures.

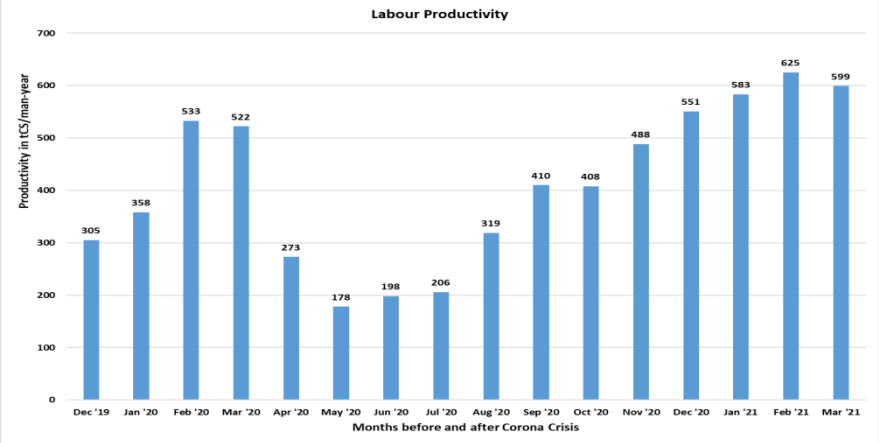




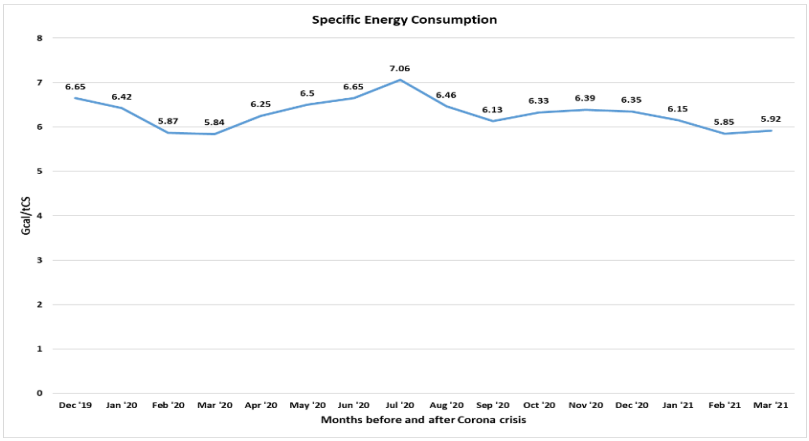
One more initiative of RINL was to increase the Value added steel production during the period. This is to gain more NSR with less production and resources for immediate survival. The value added steel production was always 80 % of the total saleable steel produced. This has helped RINL to survive during torrid times of pandemic.



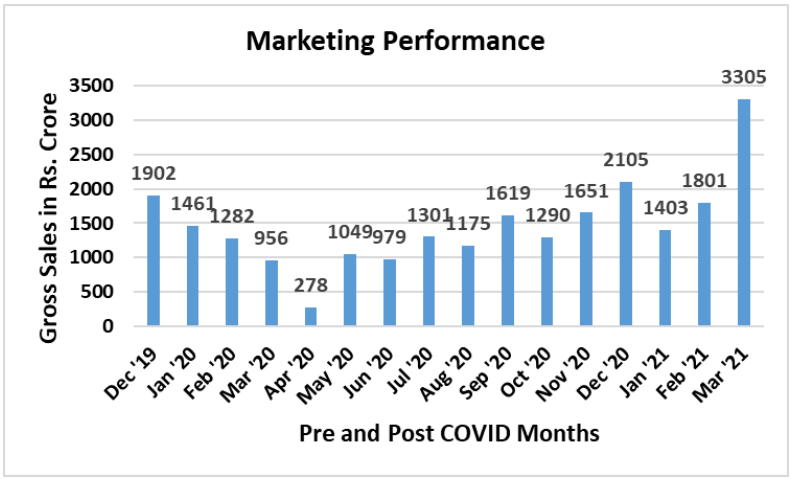
Labour productivity is one of the measuring tools for any steel industry. The same was reduced during pandemic period and achieved new heights after the pandemic. The labour productivity achieved in February ’21 is the highest achieved since inception.



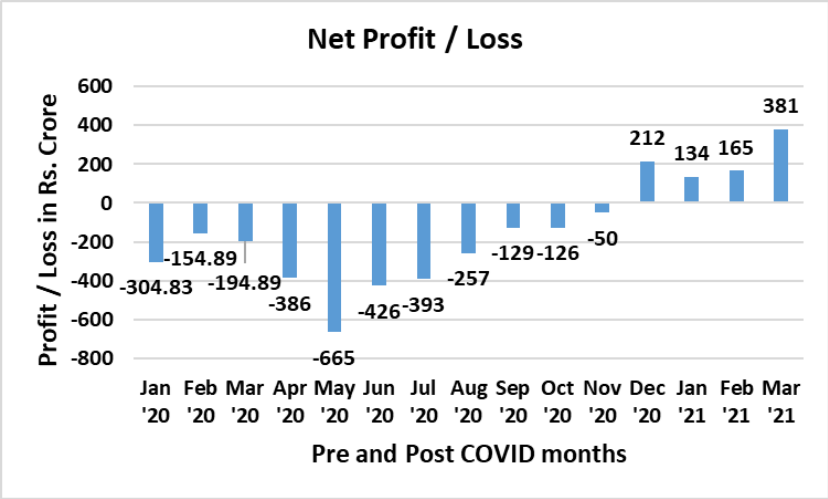
Steel industry is one of the high energy intensive industry and the same is also effected due to less production during the period. The following figure depicts the impact.



The marketing performance was very poor during the period due to lock down and not much transportation facilities inside India. Also there was not much activity which consume steel. Construction industry was stand still, Automobile industry was effected and manufacturing industry activities were stopped due to pandemic. The same can be observed from the following figure.



Finally, financial performance of the company has been effected. Net losses were recorded till November '20 and due to improvement in market conditions and production peaking at right time, from December '20 onwards company has recorded continuous net profits till end of the financial year.



VIII. RINL POST COVID PERFORMANCE

During 2020-21, the sales turnover of RINL registered a growth of 13% to reach about Rs.18,000 Cr, the second best since inception. The sales volume reached 4.45 Mt recording a growth rate of 4 percent. In March 2021 itself, the Company achieved a sales turnover of Rs.3,300 crores and sales volume of 7.11 lakh tonnes for the first time in its history. This is 42 percent more than the previous best of Rs.2329 crores in March 2019.

In 2019-20, the contribution margin of semis went down to as low as Rs.500/t, while the incremental cost of Purchased Coke went up to Rs.5, 000/t. Hence, RINL could not offset lower demand in domestic sales with export of semis. But, at present the contribution margin of semis is about Rs.11,500/t and RINL is self-sufficient in BF Coke, with the commissioning of Coke Over Battery-5. Hence, RINL able to offset lower demand in domestic sales with export of semis.

During the year, RINL achieved export sales of 1.3 Mt, which 261% higher than previous year.

On the marketing front, RINL has increased the sales of High End Value Added Steel as a percentage of domestic sales from 20% in the year 2019-20 to 25% in the current year i.e 2020-21. The initiatives taken by RINL for improving traceability, for OEM registrations and for VC Meets with customers helped in this direction.

IX. CONCLUSIONS AND SUGGESTIONS PAST / POST COVID ERA

For the time being the survival strategy of all steel plants is to focus on basics like Cost reduction, improving utilization and margins, and maintaining cash flow. China, India, and emerging Southeast Asian countries such as Vietnam, Indonesia and the Philippines still have tremendous growth profiles that will drive demand for steel from infrastructure development and building construction. We may expect domestic demand to restart gradually with segments like packaging, steel products for domestic gas distribution, infrastructure, special steel for automotive etc. For the next one to two months, the focus will be on a balance between domestic and exports. It is believed that overcoming challenges of getting migrant labourers back into manufacturing/construction zones, resetting disrupted supply chains and overcoming liquidity constraints particularly towards working capital needs, will take some time. With the monsoons around the corner, it will impede the industry's faster return to normalcy.

The New Normal in the post COVID era will not be the same and every business operation will see a change, depending on the lessons learnt during the crisis. Steel Industry which has been Labour intensive, will also have to look into the ways to improve Health and safety of workforce and minimizing human touch and interference through Process automation and Digitization.

Suggestions for Preparedness to Future Eventualities

Usage of Technology

The term "Industry 4.0" heralds the coming of a new industrial revolution through smart manufacturing. Quick Implementation of "Industry 4.0" is the need of the hour in new normal era.

The Industrial Internet of Things – IIOT is important because of its potential to enable faster and better decision-making. The IIoT is to use sensors and automation to make processes more efficient.

In a post-COVID-19 world, the ultimate goal of these changes will be to insulate companies and employees from COVID-19-related risks as much as possible. IIoT devices can make warehouses and factories operate in a more remote manner, protecting workers and securing supply chains. For example, a simple sensor on a forklift might keep track of location. But a sophisticated sensor could monitor fuel supply, payload, and maintenance requirements as well. The COVID-19 pandemic has expedited the adoption of many digital IIoT technologies. That is forcing many in industrial settings especially manufacturing and supply chain management to adapt quickly.

Market Dynamics

Under these testing times for steel industry, implementation of Big ticket infrastructure projects as announced earlier by the Government will help in improve steel demand. This can become a key driver for India's ultimate economic recovery.

India's domestic steel demand is primarily driven by Construction & Infrastructure, Capital goods and Auto & Consumer durables. Construction & Infrastructure is the largest segment with a share of around 55%, followed by Automobile @ 17% and Capital goods @ 9%. Though the Construction sector accounts for almost 55% of India's steel consumption, the per capita use is only around 31 kg compared to an average of 111 kg of emerging economies. Therefore, there is huge potential in this segment.

One should concentrate on construction sector also as it is one of the prime demand drivers for steel. Supported by government stimulus, recovery in construction will be led by infrastructure investment such as railways. Other steel-consuming sectors should also be placed on the fast track. Government's initiative of extending moratorium for the industries will help improving liquidity. Since the metal industry has strong forward linkages to many important sectors such as automotive, construction, infrastructure and manufacturing, immediate measures to improve these sectors will drive demand for steel.

The government's support to rural income, as well as expected consumption related to the upcoming festive season, will help a substantial recovery of demand for consumption-driven manufacturing goods in the second half.

To enhance demand, measures like time-bound implementation of infrastructure projects announced by the government and package for steel consuming industries like auto and infrastructure, to bring them back to normalcy at the earliest. The crisis situation will not only test the strength of our economy but also our capability to transform within the constraints of time and resources.

The anticipated increase in urbanization would provide adequate opportunities to accelerate the steel demand with India's housing sector holding substantial potential. The steel to cement ratio in the country is far lower at 0.3 against international levels of more than 1 providing adequate scope to improve the steel consumption.

Constraints

The Covid-19 pandemic has exposed the vulnerabilities of the metal industry's raw material supply chain, where metal producers relied on outside mining companies for ores to maintain their production operations at desired levels.

Recent technological developments are increasingly challenging the dominance of steel, particularly in Aviation and Auto sectors, with the current trend preferring light weight material such as Aluminum and carbon. The Indian steel companies are therefore faced with the challenge of maintaining the superiority of steel, which would necessitate technological upgradation through intensive R&D efforts for high quality / high strength steel for light weighting.

Positive Out- Look for Steel Industry

Spread of COVID-19 has impacted the production, demand and supply of steel in the country. Many steel plants are running at lower capacity. The steel industry is likely to face huge drop in sales along with stress on margins. The entities are burdened to service debts and will not be able to even execute business plans nor continue any expansion of capacities. However, India, with its abundant Iron Ore resources, comparatively lower wage costs, conducive conditions for a growing market, favourable demographic profile, is all set to start a new growth curve. It may not come off immediately, but the fundamental conditions for growth is in place and will happen.

The Industrial sector is the 2nd largest consumer in the country after Construction with Capital goods, Automobiles and Consumer durables being the majority segments. The National Manufacturing Policy foresees a share of 25% in GDP over the next decade. This would be a prominent driver as it has a cascading effect on related manufacturing industries. India's Auto sector offers attractive opportunity as mentioned above to drive the steel consumption because of its ability to become a global manufacturing hub for automobiles, particularly small cars. Though India is the largest market for small cars, less than 10% of the small car production is done in India. India can easily aspire to become a leader in this segment, given its high skill-low cost labour and favourable geographical location.

Interventions and Initiatives Sought from Government

About 65% of input materials and 50% of the finished goods of the steel sector are currently moved by rail. The steel sector contributes about 20% of the total railway freight which would increase further with enhancement in the steel production capacities. Road and rail connectivity along with ports have to be augmented through appropriate initiatives to facilitate the capacity build-up. The average payload per wagon in India is 3-million-ton km per annum against 4.6 in China

and 7.3 in US and needs to be addressed comprehensively.

Road infrastructure is also vital for the steel industry, particularly for the medium and small scale units as well as for distribution of steel products to remote and rural areas. The transportation in our country is dominated by the road sector, due to which the logistics cost in the country as a percentage of GDP is high compared to the other economies. The National Highways account for only 1.7% of the total road network, but carry 40% of the freight. The poor quality of roads results in low average speeds increasing the logistics cost. The low road density, particularly in the mineral-rich States, and inadequate network of roads connecting mines & steel plants to the national highways are serious concerns, which need to be addressed immediately.

The country's long coast line handles approximately 61% of the country's total cargo. The port capacity needs to be augmented including stacking space to meet the steel capacity build-up. The port requirements for import of essential raw materials for the steel industry would go up by 2025 and accordingly, the port facilities have to be ramped up. The shipping fleet in the country is very low and fleet acquisition needs to be encouraged for self-sufficiency. While the ports account for 90% of the international freight, coastal shipping accounts for only 7% of the total domestic freight, although the country is endowed with a long coal line of over 7,500 kilo meters. Costal shipping, apart from being environmental friendly, is a cost effective mode of transport, given its fuel efficiency. The developed countries have been taking significant advantages of coastal shipping and it is time for us to supplement rail & good transportation through coastal shipping. In the European Union, the cost of coastal movement is cheaper than the road and rail movement. China moves around a billion tons of cargo through coastal shipping. India, with about 140 vessels, moves only around 150 million tons through coastal shipping. Waterways in India are 14,500 km only against 1,10,000 km in China; 50,000 km in Brazil; and 41,000 in in USA. The Govt. of India has started working on a comprehensive coastal shipping policy and this should augur well to enhance coastal shipping in the country, given its cost advantages.

As the industry keeps growing, it is becoming difficult to get qualified and skilled manpower. The crunch is already visible and needs to be addressed before it assumes proportions. The demographics of the country is favourable and the highly educated workforce can be leveraged to the advantage of the industry.

Environmental requirement for "Clean Steel" is also of great importance today. The development of energy efficient processes for reduced emissions and maximization of recycling of wastes have to assume centre stage for the industry to manage its growth profitably. The steel industry in future would come under increased scrutiny from environmental regulators to limit its carbon footprint and reduce emissions. Though compliance to the new norms will lead to increased capital costs, in the long term it will lead to higher profitability and sustainable growth.

The key to the growth aspiration would be capital infusion. The industry may require around 75 US Billion Dollars of fresh capital during the next decade to create additional capacity. The availability of such a large investment at a reasonable cost will be a challenge, particularly as FDI in steel is relatively insignificant. The Government may have to facilitate this through innovative policy making.

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