STEELWORLD

Devoted to Iron & Steel Industry

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Paul White

- Zinc and Lead application in Construction and Automotive Industry to enhance the demand
- Digital application in Steel to overcome the cost-effectiveness challenges
- Steel Industry aligning towards environment and climate change

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STEELWORLD
Devoted to Iron & Steel Industry

EDITOR
D. A. Chandekar
B.E. (Met.) DBM, DJMC

PRODUCTION
Anita Chandekar

DESIGN & LAYOUT
Ace Graphics

MARKETING
Mrinal Nath

CIRCULATION
Prachee More

Administrative Office
1, Alpha, M. G. Road, Vile Parle (E),
Mumbai - 400 057. India
Tel. : 91-22-2619 2376,
2617 1575 / 2617 1866

Email :
Marketing : info@steelworld.com
Editorial : editorial@steelworld.com
Website : www.steelworld.com

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D. A. Chandekar
Editor

Dear Readers,

Rising demand and strong prices ! What else should the Indian iron & steel sector ask for ? Indeed last few months presented more than one surprises for Indian steel industry. The demand started rising somewhere during July-August, the prices started firming around the same period and now in the month of March 2021, the sentiment in the industry seems completely positive. So much so that the government had to lower the import duty on finished steel and also on the scrap and ore in order to put some pressure on prices. These proposals in the recently tabled union budget rightly aimed at giving some relief to the steel using sector such as automobile, infra and construction.

Yes, we have reached the pre-covid production levels and that is really remarkable but is not the peak performance. If one recalls, the Indian economy was not doing well since 2017. The GDP growth rate started falling gradually. Many parameters along with the auto sales figures went southwards and the experts were busy debating whether this can be officially termed as 'recession'. It was also argued that in today's connected world, no country can progress in isolation. India also can not progress when most of the countries in the world (of course except China) are undergoing recessionary trends. Quite valid logic ! So my dear friends, hold your crackers and postpone your celebrations. Let us first understand that we have only climbed till the half way mark. A similar situation in Jan 2020 was termed as 'recession', so what is the big deal ?

Friends, the most important fact about today's situation is that unlike in Jan 2020, its direction is northwards. We have bettered our situation and position in the last two quarters or so. Stabilised the production, strengthened the demand, rebuilt the logistic channels and imparted the required confidence to the user industry. Let me tell you this is a huge contribution not only to the growth of steel industry but also to national economy which was struggling to come back on the track at that point of time.

So what next ? I feel still a long way to go. If India has to become a 5 trillion economy and if its annual steel making capacity has to reach to 300 mt by 2030-31, our economy has to grow by around 7.5 to 8 % annually. The 'Indian growth story' can emerge only out of 'Indian steel growth story'. Lets keep going, as said in some old poem 'Miles to go before I sleep' !

Write your comments :
https://steelworldblog.wordpress.com/

豫兴热风炉

Low nox emission, High High Hot Blast Temperature,

Yuxing top fired stoves with a catenary dome for 2x2850m3 Bfs

Yuxing top fired stove with a catenary dome achieved monthly mean HBT of 1314.7 oC

Conventional 3-section top fired transformed into Yuxing top fired with a catenary dome by cutting the top portion of the existing stove shell

Reference of Yuxing Top Fired Stove for BF with volume 40-50% of China's steel capacity since 2017 to April

Sr. No	Client	BF no	Blast volume Nm3/min
1	Hebei Zongtie Steel	1	7800
2	Hebei Zongtie Steel	2	7800
3	Hebei Zongtie Steel	3	7800
4	Hebei Zongheng Steel	3	8400
5	Hebei Zongheng Steel	4	8400
6	HBIS LaoTing	1	9700
7	HBIS LaoTing	2	9700
8	HBIS LaoTing	3	9700
9	Tangshan RuiFeng Steel	4	8000
10	Tangshan JinXi Steel		6300
11	Tangshan JinXi Steel		6300

Notes: China accounts for 50% of the world's steel capacity, and Hebei
Since 2017 to the present moment, Yuxing top fired stove adoption rate
Total reference nos of Yuxing top fired: 550.

Low nox emission - temperature difference between dome
than 83mg (international standard less than 150 mg)
from 83.5-88.9% (9-10% greater than that for other top
Long life span - Application practice has proven that the
years (the lifetime of the catenary dome combustion
High HBT - Monthly mean HBT of 1314.7 oC delivered
than that by other stove under same conditions)
combustion technology, the lower the better concept is

YUXING

Top 10 Trademark High-end Equipment of Henan Equipment Manufacturing Industry in 2018
International Leading Technology Level Stove project reference nos up to 550, highest monthly mean HBT of 1314.7 deg C achieved in China

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Henan Hot Stove Engineering Technology Research Center

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Conventional 3-section top fired stoves for 3x2500m3 BFs converted into Yuxing 4-section top fired by cutting the top portion of the existing stove shell

over 2000m3 at Hebei Province which accounts for 2019, adoption rate of Yuxing top fired up to 84.6%.

	Stove type	Blast time mins	HBT oC
	Yuxing 4-section	45	1250
	Yuxing 4-section	45	1250
	Yuxing 4-section	45	1250
	Yuxing Caternary	45	1250
	Yuxing Caternary	45	1250
	Yuxing 4-section	45	1250
	Yuxing 4-section	45	1250
	Yuxing 4-section	45	1250
	Yuxing Caternary	45	1250
	Yuxing 4-section	45	1250
	Yuxing 4-section	45	1250

province accounts for 40-50% of China's steel capacity.
for BFs with volume over 2000m3 in Hebei reaches to 84.6%.

and HB at 30 oC approximately, nox emission less
Higher thermal efficiency - Thermal efficiency ranging
fired stove)
lifetimes of catenary dome have been in excess of 44
chamber of Yuxing stove over 30 years)
(HBT delivered by Yuxing stove is 15-20 oC higher
Lower air excess - 1.05-1.06 (Associated with
not always right)

3x3580m3 BFs configured with Yuxing 4-section top fired stoves

Internal combustion chamber stoves for 1497m3 BF at JianLong Steel converted into Yuxing top fired with a catenary dome

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TOTALE
REFRACTORIES CORROSION PROTECTION

Zinc and Lead application in Construction and Automotive Industry to enhance the demand

"We expect demand for zinc metal continue to rise, driven by positive trends in the construction and automotive sectors. Similarly, demand for lead metal in lead-acid batteries continue to remain the dominant power source for the world's automotive sector" says Paul White, Secretary-General, International Copper, Nickel, Lead and Zinc Study Group (ICSG, INSG and ILZSG).

Paul White is a Secretary-General of the International Copper, Nickel and Lead and Zinc Study Groups all of which are based in Lisbon, Portugal.

These Groups are inter-governmental organizations with a combined membership of 37 countries whose main purpose is to improve transparency in the base metal markets and promote co-operation between governments and the mining and metals industry.

Prior to this, Paul White was a Director of Market Research for the International Lead and Zinc Study Group. He conducted research and presented papers on all aspects of the global lead and zinc markets.

Before joining the Study Groups Paul worked as a physical metals trader in London for the Sumitomo Corporation and Brandeis Limited, a subsidiary of Pechiney World Trade. He has a degree in Chemical Engineering and an MBA from the Universities of Surrey and Warwick in England.

D A Chandekar, Editor & CEO, Steelworld had an exclusive interaction with Paul White, Secretary-General, International Copper, Nickel and Lead and Zinc Study Group highlighted the innovative application of Lead and Zinc Metal in the Construction and Automotive Industry to drive the demand in the future.

Excerpts :

What are the recent observations about the Indian Lead Zinc Industry?

Since 2000 investment in the Indian lead and zinc industry has been significant and it has expanded very rapidly. Hindustan Zinc is currently the second-largest zinc mining company in the world and the fourth-largest producer of refined zinc metal. The company's Rampura Agucha mine, located in Rajasthan, was the world's second most important by production in 2020 after Teck's US-based Red Dog operation. Regarding lead, Hindustan Zinc ranks number two globally in terms of mine output and number 5 regarding the production of

refined metal. Further expansions in both lead and zinc production are planned by the company over the next few years. These include a new 300kt per year zinc refinery in Gujarat. We anticipate that the company will continue to be one of the leading participants in both markets for many years to come.

Prospects for the Lead and Zinc Industry Globally

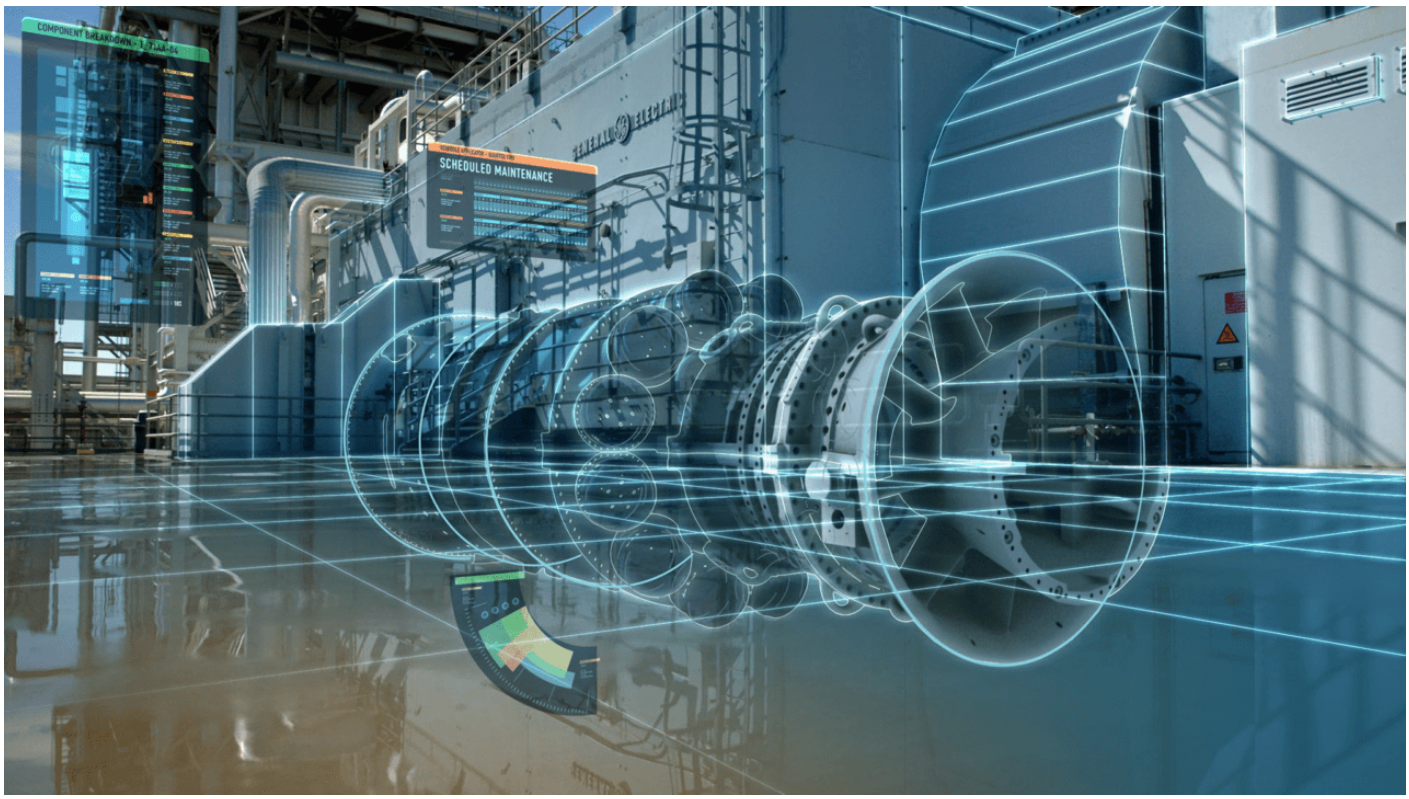
It is clear that the COVID19 Pandemic has impacted both the supply and demand of lead and zinc.

Activity in most end-use industries dropped significantly in 2020 perhaps most notably in the automotive sector. In the medium to long-term, we expect demand for zinc and lead applications will continue to rise in the construction and automotive sectors. We also expect increased use of zinc in other applications such as thermal spraying of off-shore windmills and in fertilizers. In the case of lead, lead-acid batteries remain by far the dominant power source for the world's automotive sector. This is expected to continue for the foreseeable future despite the increased use of lithium batteries in the electric vehicle and e-bike sectors.

What are the objectives and activities of the Metal Study Groups; INSG, ILZSG and ICSG?

The Groups are focused on the enhancement of

transparency in the global lead, zinc, nickel and copper markets. This is achieved via the publication of regular, detailed and highly accurate information. We also promote international co-operation amongst our member countries and between governments and the private sector. This is accomplished via regular meetings of the Groups comprising both government and industry representatives. In addition to our regular market analysis, recent topics that have been discussed and reported on include the growing importance of responsible minerals and metal supply chains, meeting the challenge of mining and smelting waste, innovative technology in mining and metals, social acceptance of the mining and metals industry and the importance of base metals to the circular economy.



Digital application in Steel to overcome the cost-effectiveness challenges

"Digitalization is a technology boon with the potential to address the much-needed challenges of cost-effectiveness in the steel metal industry. Building on the capabilities offered by a prudent combination of IT-enabled model, computing, cloud storage and communication technology to unlock the value overcoming two to three years"

Sadguru Kulkarni is a Chemical Engineering graduate from UDCT (now called as ICT-Mumbai). He had worked Aditya Birla Corporate Group, Aditya Birla Science & Technology Centre and in Hindalco for eighteen years as a top management position.

Prior to Aditya Birla Group, he was working with Hindustan Unilever Research Centre as a Principal Scientist-Chemical in Mumbai. His areas of expertise include process science & engineering, technology transfer, for a large range of products and processes. He holds over ten patents/ patent applications in these areas.

The steel, mining, minerals and metals industry has been generally considered as a classical, old-economy industry, with its resource intensity. It is heavily relying on the natural

Sadguru Kulkarni
Business Head - TecTrans Associates
Former President - Technology & Tech Services, Hindalco Industries Ltd.
Former Principal Scientist - Hindustan Unilever Research Centre

occurrence, often considered as gifts of Mother Nature, the large scale of operations, often long gestation periods, the burden on the environment. It is more capital and labour intensive industry and associated with high risk to the business. All these often resulting in a general lethargy towards change. Unlike many other manufacturing sectors, the metal sector is generally observed to be cautious, and rather sluggish in responding to the opportunities offered by the advents in technology.

However, several factors are now challenging this :

- Uncertain availability of trained manpower and

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expertise: This has become a reality especially for the metal sector facilities, which are continuous in nature, use extreme conditions (e.g. high temperature, operation in enclosed space, hazardous environment, molten material handling etc), have a high cost of even short shutdowns, making quick restarts technically and economically unviable.

- A renewed focus on personal safety, based on the realities of the Covid-19 pandemic: Need to operate without direct exposure, advance warning of unsafe conditions have become essential. Importance of life irrespective of work conditions have become a stark reality; coaxing people to stay away from inherently unsafe jobs.
- Competition: Need to be on the top of all relevant information here & now' has been the utmost priority of management. The speed of response based on uncertain information is a need. The cost of non-compliance is amounting due to the enhanced awareness of the statutory bodies and society at large, alike.
- Advents in information technology and rapid extensions of classical IT into ITEMS (IT-enabled enhanced manufacturing & services) has led to unique capabilities such as lower cost of computing at higher speed, supported by availability of hard and soft sensors, for direct as well as derived parameters, remote sensing & remote motor capabilities, advanced predictions based on big data analysis of trends, intelligent identification and filtering off data outliers, and machine-learning to match or even surpass trained human expert with life-time experience, etc.
- Some of these factors have taken leads from the service industry as well as high tech manufacturing industry (such as electronic component manufacturing, automobile assembly lines, Packaged food and pharmaceutical industry), and are now finding wider applications in commodity manufacture as well.

The combination of needs and opportunities, with perceived economic advantages has led to the mining, mineral & metal sector initiating activities in digitalization. Most global vendors working in automation, instrumentation and controls have extended their capabilities to address this opportunity, to seamlessly integrate with the present hardware and the software in metallurgical and supporting plants (like for example power plants, lime kilns). Digitalization of metallurgical plants including steel, other metal industry and manufacturing industry in general, is reported by the most core technology suppliers as well as automation vendors:

SMS offers end to end solution for steel industry, starting with maintenance management, embedded systems for tracking of individual machines and plants, etc. (Ref: https://www.sms-group.com/sms-group-magazine/overview/digitalization-in-the-steel-industry/),

ABB offers intelligent electrical machinery & components, process control, operations optimization, asset management through database and tracking, real-time tracking and optimization of melting furnaces, rolling, long products, casting etc in steel plants as well as in other metal plants. (Ref: https://new.abb.com/metals/digital),

Honeywell approaches the problem from the classical process control point of view and targets to build digitized factories. Honeywell has partnered with Tech Mahindra to build on the joint ITES capabilities. (Ref: https://www.mahindra.com/news-room/press-release/honeywell-and-tech-mahindra-announce-expanded-collaboration-to-

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build-digitized-factories-of-the-future),

Emerson like other automation majors offers total solutions and have examples in the areas of power plant digitization (Ref: https://www.emerson.com/en-us/perspectives/digital-transformation) an in the digitization of alumina refinery -Ref: https://www.emerson.com/documents/automation/alumina-refining-4-0-what-digital-transformation-looks-like-en-5363224.pdf).

Outotec a total solution provider for metals technology has started complementing their core metallurgical technologies, through partnering with ITES companies for a whole range of metallurgical manufacturing from copper, zinc, titanium etc (Ref: https://www.outotec.com/products-and-services/commodities/digitalization/insights/).

Some German MSMEs have developed a niche solutions for melts shops, furnaces and foundries (Ref: https://rgu-asia.com/wp-content/uploads/2020/11/2020-10-16_FRPmelt.pdf) .

Examples and achievements of digitization in the industry are highlighted below.

Digitalization Applications in

Steel Industry:

- Operations & Production Management
- Control – Production process, electricals
- Model-based control & optimisation of production processes for steel and associated materials like lime kiln, power plant,
- Smart Melt shop operation
- Digital Twin of steel mills (as well as other processes)
- Asset management,
- Maintenance management from breakdown to proactive
- Realtime optimization of casting- batch & continuous
- Rolling Mill optimization- HRM & CRM
- Central Control room, and extensions (plant on your mobile)

Mine of the Future:

Mining is the first step of all integrated metallurgical industry; and has been running in a well-established, conventional manner, with document-based processes, tight control of statutory regulations; intense high density vehicular movement, labour intensity, extreme environmental risks, and involving long term planning and execution; and now a serious societal outlook. The offers of new IETS technology has offered a new paradigm to the mining industry and some of the features include the following:

- Digitization of documents, and real-time integration of documents with implementation to ensure execution as planned; thus, providing low tolerance vis-à-vis plan.
- Real-time monitoring & control of the environment to avoid emergencies & hazards
- Potential for automated guided vehicles (AGVs) to commute from mine the site to godown, with automated weighing, mass balance reconciliation shift-wise in real-time.
- Use of automated or assisted excavators with an intelligent vision to facilitate remotely controlled mining thus improving safety
- Use of field sensors and elemental analysers, to track mined ore quality inn real-time, thus enabling minimization of WIP material, reducing cost- a step closer to JIT operation.
- Safety systems (as described earlier)
- Use of VR- Virtual Reality based simulators to get job-ready operators.
- Use of assisted robotics for hazardous operations like underground mining, wall-concretization, pumping of water sump inside the mines, operation of remote solar plants etc
- Potential for a steep reduction

Ref:
https://www.riotinto.com/en/about/innovation/smart-mining

Supply chain digitalization:

The supply chain has generally been a back-office

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process, extensively using database and ERP technologies. ITES has enabled supply chain to unlock value from all steps of the supply chain such as:

- Stores and materials management
- Logistics incl. transportation sourcing, optimization and tracking
- Packing line management
- Sourcing optimization in real time
- Customer Service- Tracking & Resolution

EHS management:

Environment, Health and Safety involve extensive systems, as well as supervision all on the ground. Availability of sensors, vision, etc has helped EHS to ensure strict adherence irrespective of supervision. Virtual reality is a boon to safety as it helps the novice learn processes and operations as if s/he is performing the job, without any real risk. The availability of many packages and videos for almost every job on the internet show the potential of VR in training in safety & beyond.

- Document digitization, authorization and interlocks
- Smart sensors- optical, proximity, surface temperature, image analysis, alarms
- Movement capture in safe, unsafe & prohibited areas + alarms
- Robotization of inherently unsafe operations- such as sludge removal, confined area maintenance, hazardous sample drawing, working at heights, online maintenance
- Remote supervision
- Auto-enunciation of non-compliance
- Safety Training with virtual reality packages, 360-degree Cameras and virtual dynamic simulators

Concept of Embedded System for improved plant performance:

With the cost of sensing & computing hardware and storage coming down in accordance with Moore's Law, it has become viable to build in a predesigned CPU as a chip in almost every piece of equipment. This CPU, of the size of a business card or smaller is designed to engage with the primary equipment (such as a pump), to record key performance parameters (such as speed, power consumption, vibration – frequency, amplitude as well as pump specifications, no of operating hours etc). The chip can send the data wirelessly to central cloud storage, where it is analysed using predefined statistical tools, to identify abnormalities if any, identify the root cause based on predefined logic and send it to the central control room for correcti8ve action if required (e.g. lubrication, alignment, bearing change, air-lock, deposits etc). The control action, once taken by the preventive maintenance team, is fed back to the central database for records. The analytics has now self-learning capability such that any hitherto unforeseen diagnosis gets appended to the database as new learning and the diagnostic capability improves with such learning. These 'embedded systems' have enabled more effective preventive and proactive maintenance, thus helping improve the uptime and resultant plant productivity.

Digitization of aluminium smelter to solve a long-standing operations problem:

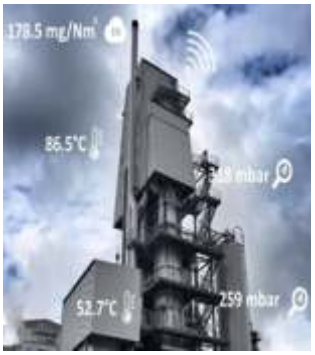
Use of novel magnetic sensors, wireless transmission, modelling and cloud computing has been used to attack and solve the long-standing problem of anode effect in the aluminium smelter, through for improved prediction of anode effects in Aluminium Smelters:

'Anode Effect' in aluminium smelter pots is a dreaded fear of most operators. Anode effect takes place when the carbon block anode/s and the cathode block with the molten metal layer tend to come in close contact, causing 'shorting' that leads to an imbalance of the flow of high amperage current through the shorted zone; and causes disturbance and perturbation in the cell, along with generation of

toxic perfluorocarbon gases and consumption of significantly higher power, causing the average specific energy consumption for the entire potline to go up by percentage levels. The entire disturbance takes place in seconds to minutes! It takes physical control action by the field operator to raise the anode beam, and control the 'anode effect'. Aluminium smelter plant operators have wondered about whether they could have an advance warning system of potential anode effect, so that they can plan the corrective action ahead of it's a possible occurrence!

Dr J W Evans of Dept of Materials Science and the Engineering University of CA, Berkeley, CA developed a system, consisting of a novel device based on the magnetic field measurement mounted on the anode beam to measure the current flowing into each anode rod, transmit the current wirelessly to a central computer, from where the data is transmitted in real time to a cloud computing system located in Evans Lab in CA. The big data analytics of the current in individual anodes have an algorithm, that precisely predicts which anodes are likely to 'short' and cause anode effect, three times faster than any of the existing anode effect predictor; and send the information back to the plant, so that the field operator can take corrective action before its occurrence! The system has been tested in Alcoa's aluminium smelter in US & Canada. The availability of such data in Evans lab for multiple smelters across the globe makes the system learn across the smelters, thus improving the predictability and reliability.

Ref: Evans J W etc al, Light Metals 2012 Edited by: Carlos E. Suarez TMS (The Minerals, Metals & Materials Society), 2012



Lime kiln plant Optimizer:

Qualical: Lime is an essential secondary raw material for the metallurgy industry, especially steel plants; and a lime kiln plant is present in most steelmakers. Optimal and reliable operation of lime kilns is important for lime quality but is seldom focussed on, being a secondary requirement for steel plants. Qualical- an Indian digital service venture with domain expertise in lime kilns and a flare for digitalization has come out with a module that tracks the parameters of the lime kiln in real-time, and makes them available as real-time data as well as short & long term trends on mobile platform for limekiln operators and managers alike. The statistical & Physico-chemical model of lime kiln inbuilt in 'Qualical Lime Kiln System' guides the operator in consolidating, reconciling and analysing the real-time data to suggest any corrective action.

Ref:

https://medium.com/qualical/digital-lime-plant-8aaaec3a075

Conclusion:

Digitalization is a technology boon with potential to address many long-standing ills of mining, mineral and metal industry. Building on the capabilities offered by a prudent combination of classical domain knowledge of mining/mineral/ metallurgical processes, IT-enabled practices, and the cost-effective availability of modelling, computing, cloud storage and communication technology, this industry is slated to adopt digitalization to bring about prudent innovations in manufacturing technology and unlock value, overcoming two to three years.

About the Author:

Presently Sadguru Kulkarni works as a free-lancer advising manufacturing companies in the areas of processes, as well as ITES for manufacturing. He is on the editorial board of MetalWorld. Contact Details: Cell: +91 9702010471, email: Sadguru.Kulkarni@gmail.com

Steel Industry aligning towards environment and climate change

Climate change is the biggest issue for the steel industry in the 21st century. Therefore, reducing CO2 emissions in steelmaking must be tackled on a global level. Making the substantial CO2 reductions required will need technology transfer, collaboration and breakthrough technologies.

The reduction of CO2 from steel production is an established priority, as is the reduction of GHG emissions during the life cycle of products that use steel.

In order to drastically reduce the overall CO2 emissions from the production of steel, the development of breakthrough technologies is crucial.

The steel industry recognizes the importance of the issues surrounding emissions to air and their impact on ambient air quality, human health and the environment. For decades, the steel industry has taken measures to address these issues, thereby significantly and demonstrably reducing emissions per tonne of steel.

Steel, whether produced via the blast furnace route or the electric arc furnace route requires the transport, storage, handling, heating and transformation of large amounts of raw materials. All these processes have the potential to generate emissions to air *, primarily in the form of dust/ particulate matter (PM), sulphur dioxide (SO2) and nitrous oxides (NOx).

Other emissions generated in small quantities include dioxins and heavy metals, typically attached to dust particles.

Today, all steel plants are subject to environmental regulation, which set requirements to restrict emissions to air. This regulatory framework is translated into an environmental permit (or licence to operate), which establishes plant-specific

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Emission Limit Values (ELVs) covering the primary emissions to air, dust, SO2, and NOx , and in most cases other emissions.

The environmental permit also sets monitoring requirements and it is common for steel plants to have additional requirements within the permit, such as maximum production capacity, emission ceilings for specific emissions, taxes or fees on emissions or specific reduction targets.

Today, a large number of promising breakthrough technology projects are ongoing in different parts of the world.

Some projects are in the early research stage while others are in pilot or demonstration phase.

Although their goals are similar, approaches differ and can be categorised as follows:

- **Hydrogen as a reducing agent -** Avoids carbon and uses hydrogen to reduce iron ore, thereby averting the creation of CO2, and producing H2O (water) instead.
- **Carbon Capture and Storage (CCS) -** Generates a clean and concentrated CO2 stream that can be captured and stored. The process involves retrofitting steel plants with capture technology and requires the development of transportation networks and access to storage sites.
- **Carbon Capture and Utilisation (CCU) -** Uses the components of the co-product gases from existing processes to produce fuels or input material for the chemical industry.
- **Biomass as a reducing agent -** Can partially substitute coal for biomass such as charcoal.
- **Electrolysis –** Reduces iron ore using electricity.

Every one of these technologies will have a role to play in cutting CO2 emissions.

Their implementation at a larger scale, however, will require large quantities of carbon-free hydrogen, biomass and electricity to be readily available, which implies a fundamental transformation of the global energy system.

On the road to the arrival of breakthrough technology short and medium-term process efficiency gains will provide important climate change benefits.

In 2019 the worldsteel Board of Members agreed to a new industry-wide drive named step up.

This multistep process covering raw materials, energy input, yield and maintenance can be used to support improvements in mill operations to efficiency levels commensurate with the steel industry's top performers.

Reducing CO2 through the efficient use of energy has always been one of the steel industry's key priorities. Cost is a crucial incentive for this, considering that energy purchases account for 20-40% in basic steel production.

Worldsteel estimates that steel companies have cut their energy consumption per tonne of steel produced

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D5/Cr12MoV/DIN 2601

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by 61% since 1960.

However, while existing production technologies are already very efficient, every steel company is at a different point of maturity and development.

Efficient use of resources, reuse and steel recycling, are also imperatives for sustainable development.

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Our goal is to use all raw materials to their full capacity, ensuring zero waste from steelmaking. This ambition guarantees that almost every co-product formed during steelmaking is used in new products. This approach minimizes the amount of waste sent to landfill, reduces emissions, and preserves raw materials.

The next few decades will also see an increased use of steel scrap in the production process. Steel scrap becomes available when steel reaches the end of its working life, which varies by application – from a few months for packaging steel to closer to 100 years for steel used in buildings.

All the steel that cannot be reused or remanufactured will be returned for recycling. This will play a key role in reducing sector emissions.

Environmental sustainability is related to the development of new and stronger products, which in the long-term, will provide clear and lasting positive benefits for the environment.

For the steel industry, the impact of steel during the entire life cycle of products, the use of co-products, recycling, energy and water management are also key focus areas.

Reference : Worldsteel Association

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World Steel production rise 4.8% in January 2021

As per the World crude steel production for the 64 countries was recorded at 162.9 million tonnes (mt) in January 2021, a 4.8% increase compared to January 2020.

China remained the global leader in production of steel in January, registering 6.8 per cent year-on-year growth in output at 90.2 MT during the month. According to worldsteel data, China had produced 84.3 MT steel in the same month last year.

While India registered a growth of 7.6 per cent in crude steel production at 10 million tonne (MT) in January 2021 as compared to 9.3 MT crude steel produced during the same month of preceding year.

Last month, Japan's output slipped 3.9 per cent to 7.9 MT year-on-year. The US produced 6.9 MT steel in the month under review. Its output was at 7.7 MT in January 2020. Russia's output last month was at 6.7 MT compared to 6 MT in January 2020.

South Korea's steel production in the month was at 6 MT, as compared to 5.8 MT in the year-ago period. Turkey produced 3.4 MT of crude steel last month. It had produced 3 MT in January 2020.

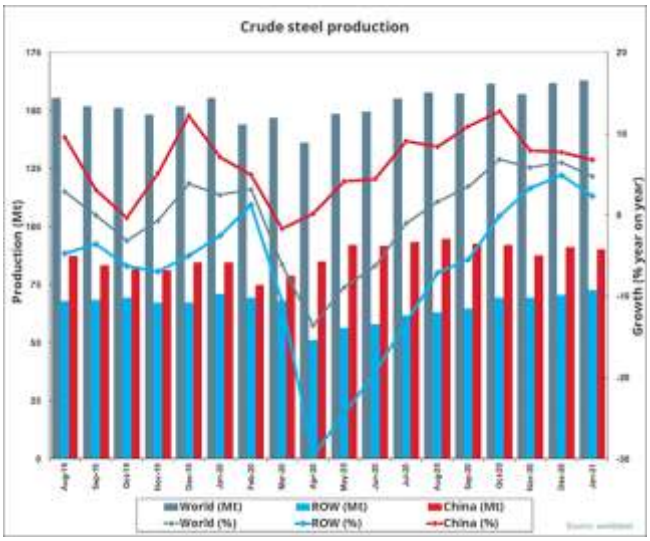
According to the report, while Germany produced 3.3 MT steel in January 2021, Brazil and Iran produced 3 MT and 2.6 MT, respectively. Middle East accounted for 3.6 mt of steel production in January (+1.5%), while North America produced 9.9 mt (-7%) of steel. Asia and Oceania region topped the list with 119 mt (+6.3%)

Steelworld
Research Team

Top 10 steel producing countries

	January 2021	% change Jan-21/20	Jan - Jan 2021	% change Jan - Jan 21/20
China	90.2 e	6.8	90.2	6.8
India	10.0	7.6	10.0	7.6
Japan	7.9	-3.9	7.9	-3.9
United States	6.9	-9.9	6.9	-9.9
Russia	6.7 e	6.5	6.7	6.5
South Korea	6.0	4.9	6.0	4.9
Turkey	3.4	12.7	3.4	12.7
Germany	3.3	6.0	3.3	6.0
Brazil	3.0	10.8	3.0	10.8
Iran	2.7 e	10.2	2.7	10.2

e - estimated. Ranking of top 10 producing countries is based on year to date aggregate



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India's steel and cement companies witnessing revival

India's steel and cement companies are witnessing a revival after getting eviscerated by the pandemic, a sign the infrastructure sector is returning to normality.

A report by CARE Ratings said the margins of steel companies were expected to grow further in the last quarter of the fiscal following a sharp drop in the first quarter and a gradual improvement in the next two quarters.

Cement companies too have retained their vigour and the industry is expected to report a volume drop of 2 per cent this fiscal after a 31 per cent contraction in the first quarter, according to Crisil.

The rating agency said the industry was set to hit a decade-high volume growth of 13 per cent in the next fiscal, helped by an expected revival in demand from the infrastructure and urban housing sectors.

In steel, the output this fiscal is set at around 102 million (mt) a decline of 7 per cent, CARE said.

"Similarly, fall in steel consumption is estimated to be around 8 per cent to about 92 million tonnes considering that January-March is a seasonally heavy quarter for the industry."

Posco's steel plant in Maharashtra faces disruption Automakers including Maruti Suzuki, India's top carmaker by sales, Hyundai Motor, Kia Motors, Tata Motors and Mahindra & Mahindra source steel from the Posco plant.

Posco's plant in the Indian state of Maharashtra have been disrupted due to local protests over labour and other issues, police and sources told Reuters, hampering the supply chain for automakers.

A local politician leading the protests said they have blocked employees and goods from entering the plant and will continue until Posco heeds to some of their requests which include giving employment preference to local workers, raising the wages of temporary employees and making them permanent.

Indian steel industry was heavily protected, but Budget 2021 has changed that. Here's why

ew Delhi: The Narendra Modi government has made a massive push for self-reliance or 'atmanirbharta' in this year's Budget, but the domestic steel industry has suffered a massive setback. It has lost its edge against foreign steel manufacturers, with the government either reducing import duties on finished steel products, or temporarily revoking anti-dumping and other duties.

It was a rare move that went against the government's efforts to promote domestic production, but it doesn't come as a complete surprise to the steel industry. Over the last few months, steel prices were surging, making it expensive to build houses, roads and other infrastructure. This led to a lot of backlash against the steel industry, with many alleging that it was making massive profits

JSW Steel crude steel production at 1.3 mn tn in Feb, down 1% from last yr

JSW Steel, the flagship business of 12 billion dollar JSW Group, on Thursday reported crude steel production of 13.06 lakh tonnes in February, down by one per cent from 13.2 lakh tonnes in the same month of previous year.

The average capacity utilisation was 93 per cent, it said in a statement.

The production of flat rolled products totalled 9.27 lakh tonnes in February, down 6 per cent from 9.82 lakh tonnes in the year-ago period.

But the production of long rolled products rose dramatically by 10 per cent to 3.4 lakh tonnes in February from 3.08 lakh tonnes the same month last year.

JSW Steel is the only Indian company ranked among the top 10 steel producers in the world by World Steel Dynamics for the last 10 consecutive years.

Its manufacturing facility at Vijayanagar in Karnataka is the largest single location steel producing facility in India with a capacity of 12 million tonnes per year.

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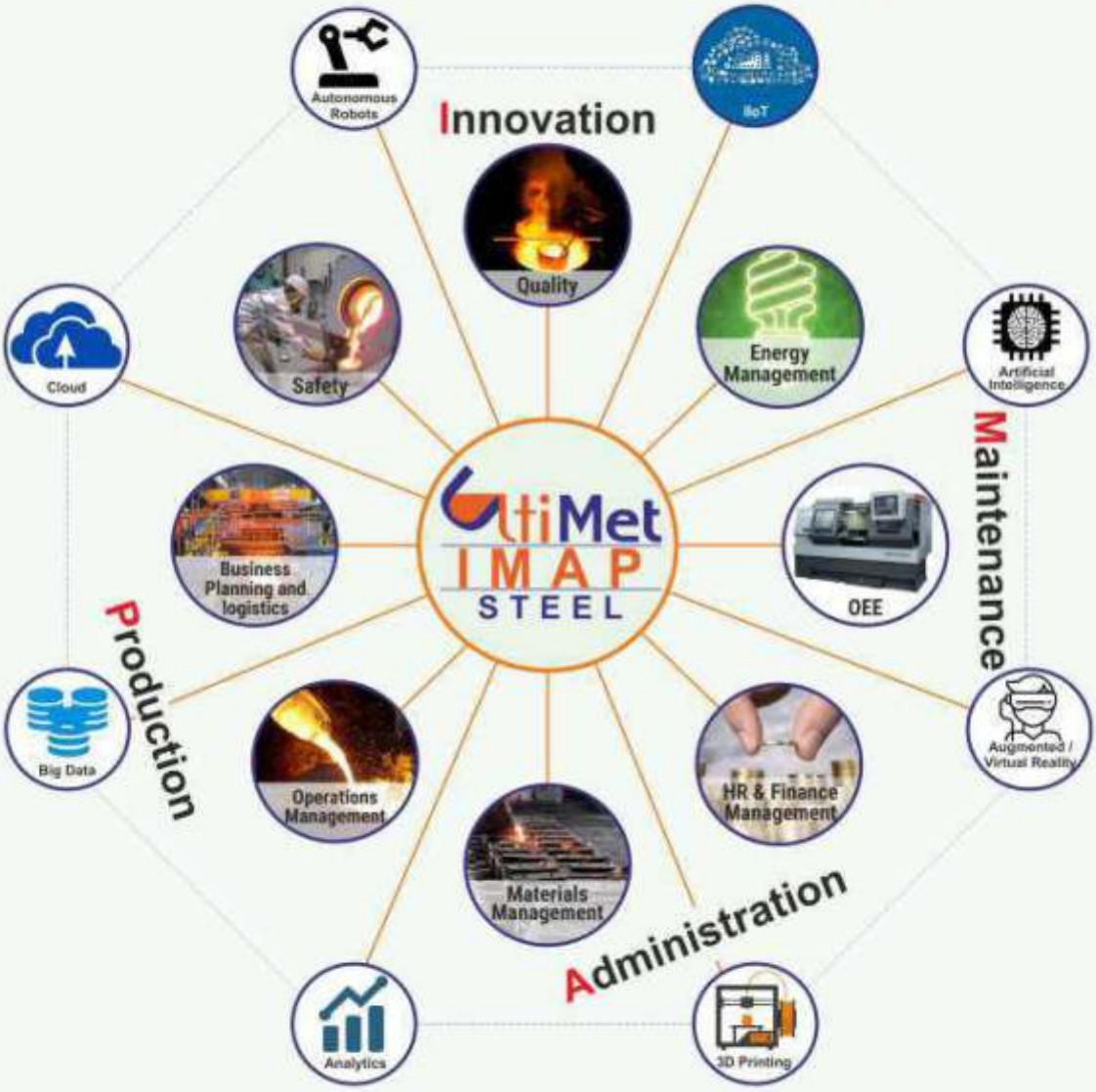

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JSPL output jumps 18 pc to 6.53

In February this year, the sales stood at 5.45 LT as compared to 4.80 LT in the year-ago period, a rise of 14 per cent. Jindal Steel and Power Ltd on Friday reported an 18 per cent jump in its crude steel output to 6.53 lakh tonnes (LT) in February this year.

The company had produced 5.54 LT steel in February 2020, JSPL said in a statement.

In February this year, the sales stood at 5.45 LT as compared to 4.80 LT in the year-ago period, a rise of 14 per cent.

Exports accounted for 26 per cent of the total sales volume, the company said.

"We are on our path of continuous growth month after month and will enhance production further without any new CAPEX (capital expenditure) in this financial year," JSPL Managing Director V R Sharma said.

Part of OP Jindal Group, Jindal Steel and Power Ltd (JSPL) has significant presence in core infrastructure sectors, including steel, power, and mining.

Tata Power to develop 15 MW solar power project for Tata Steel, Jamshedpur

Tata Power announced that TP Saurya, the wholly owned subsidiary of the company, has signed a Power Purchase Agreement with Tata Steel (TSL) to develop a 15 MW solar project at Jamshedpur, Jharkhand.

The energy will be supplied to TSL under a Power Purchase Agreement (PPA) valid for a period of 25 years from scheduled commercial operation date.

The project is required to be commissioned within 6 months from the date of execution of the PPA.

The Plant is expected to generate an average of 32 MUs of energy per year and will annually offset approximately average 25.8 Million Kg of CO_2.

Tata Power's renewable capacity will increase to 4,047 MW, out of which 2,687 MW is operational and 1,360 MW is under implementation including 15 MW won under this PPA.

Vizag steel plant privatisation: Employees to strike from March 25 if demands unmet

The RINL's - Vizag Steel Plant Privatization issue would be taking an altogether threatening turn as Employees of the Visakhapatnam steel plant have served a strike notice in continuation of the protests against the Union government's decision to privatise the plant. The strike will be called on or after March 25, according to a notice issued by the Visakha Ukku Parirakshana Porata Committee (Committee for Struggle to Protect Visakha Steel).

Multiple demands were listed in the strike notice, relating to various steps being taken towards complete privatisation of the Vizag steel plant. The committee, which comprises employees and workers of the plant, has demanded that the Cabinet Committee on Economic Affairs (CCEA) revoke its approval for 100% strategic sale of the steel plant. It has also demanded that the "inter-secretaries group constituted to study the strategic sale" be scrapped.

The committee has demanded that the Memorandum of Understanding (MoU) signed with the South Korean steel production company POSCO for the construction of an integrated steel plant be scrapped. The Andhra Pradesh government has invited POSCO to set up its greenfield integrated steel plant in Nellore district. It has also promised to extend various fiscal and non-fiscal incentives over and above those stipulated in the state Industrial Policy 2020-23.

Through the strike notice, the committee also sought suspension of another MoU signed by RINL (Rashtriya Ispat Nigam Limited) with state-run construction company NBCC on monetisation of land parcels at Maddilapalem. RINL, the corporate entity of the Visakhapatnam steel plant, expects to gain Rs 1,000 crore from the sale of its 22.19-acre land located in a prime location in the heart of Visakhapatnam city situated about 3-4 km from the beach.

The committee has also sought permanent employment to all the R-card holders (rehabilitation card holders) who were displaced at the time of establishment of the steel plant in the 1970s, and are yet to be compensated.

Meanwhile, Andhra Pradesh chief minister Y S Jagan Mohan Reddy said he was confident that the Centre would change its stand on privatising the Rashtriya Ispat Nigam Limited.

Brief Introduction of ACRE

ACRE is a wholly owned subsidiary of CHINA MINMETALS CORPORATION, an important state-owned backbone enterprise and ranked 112nd among the Fortune Global 500 companies, 2019.

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- By-product refining

Projects overseas

ACRE has completed an array of overseas projects in Brazil, Burma, India, Japan, Kazakhstan, Vietnam and South Africa. Totally, 37 coke oven batteries (output over 20 million tons of coke per year.)
ACRE now has 96% market share of large-capacity coke oven battery in China and 60% market share globally from 2008 to 2018.

Projects in China

ACRE has successfully implemented domestically over 2000 coke oven batteries (total output over 400 million tons of coke per year.)

Greatest honor in technological research and development

- The National Science and Technology Award Conference.
- Held in Great hall of China Council in Beijing on 8th January 2019
- Prize Class One for Progress in Science and Technology for research of "Development & Application in an Environmental-friendly and Efficient Coke making Technology and its equipments".
- Granted by Chinese president Xi presented

- ACRE has the highest turnover and the biggest human resource company among the international enterprises in coke making technology business.

'Kadapa steel plant will change landscape of Rayalaseema region'

Andhra Pradesh Chief Minister Y S Jagan Mohan Reddy at the inauguration of the Kadapa plant (Source: aphighgradesteels.com)

The Andhra Pradesh government has fast-tracked work on setting up a steel plant in YSR Kadapa district even as protests rage in Visakhapatnam over the Centre's plan to privatise the Visakhapatnam Steel Plant. The state government is likely to soon select a steel producer as its joint venture partner to establish and operationalise the steel plant by March 2024.

Sagili Shan Mohan, Managing Director of YSR Steel Corporation Limited, an undertaking of the Government of Andhra Pradesh (GoAP) set up to establish a 3 MTPA Steel, told *The Indian Express* the plant has been given environmental clearance by the Ministry of Environment, Forest and Climate Change, which is crucial for work to start.

While speaking to *The Indian Express*, Mohan said the plant will give rise to ancillary industries around it and generate a lot of indirect employment, which will change the landscape of the Rayalaseema region. Excerpts from an interview:

When will the steel plant become operational? Can the state government run the plant profitably while facing stiff competition from private companies? Does the government intend to stay in the business for long?

The government is firm on its commitment to have the steel plant running by March 2024, as promised by Chief Minister Y S Jagan Mohan Reddy. The government's main objective is to establish a steel plant to provide employment opportunities to local youth. As it is not the governments' cup of tea to establish and run a steel plant efficiently, we decided to rope in a private steel major as a JV partner to take advantage of their experience and expertise in establishing and operating the steel plant. While searching for a suitable JV partner, we understood that though private players were interested in establishing the steel plant, most of them were not in a position to start the activities immediately due to the financial impact caused by the coronavirus pandemic. Private players requested for government's support in taking up the project. This is when we decided to put in upfront equity of Rs 500 crore in the steel plant to help the JV partner kickstart the project. The government will invest up to Rs 3,000 crore in phases. The JV partner shall take the controlling stake by the date of commissioning, and YSRSCL plans to completely exit from the project within a maximum tenure of seven years.

Rise of 4.8% in January global steel production a welcome development

Has the steel industry left behind the phase of declining demand, fresh capacity addition not finding adequate market, falling prices, rising production cost and therefore a continuous period of poor Ebitda?

No doubt, Covid 19 pandemic has added fuel to the fire that literally burnt the backbone of many industries globally, large or small, apart from taking away the lives of more than 2.5 million and throwing out a few more millions out of their job and occupation. Against this background, a 4.8% rise in global steel production in January brings in a fair amount of fresh air in this atmosphere of gloom and despondency.

China still remains an enigma with nearly 7% growth in the month after producing over 1.05 billion tonne of crude steel last year. India's production of 10 MT in January, which exceeds last January's production by 7.6%, implies that

estimated shortfall in steel production in FY21 compared to last year would be minimised.

Society of Indian Automobile Manufacturers

Auto Industry Sales Performance of February & April- February 2021

Monthly Performance: February 2021

Production: The total production of Passenger Vehicles*, Three Wheelers, Two Wheelers and Quadricycle in the month of February 2021 was 2,252,877 units, as against 1,952,911 units in February 2020 marking a growth of 15.36%.

Domestic Sales:

- Passenger Vehicles* sales was 281,380 units in February 2021, compared to 238,622 units in February 2020, marking a growth of 17.92%.
- Three-wheeler sales was 27,331 units in February 2021 compared to 41,300 units in February 2020 marking a decrease by (-) 33.82%.
- Two-wheeler sales was 1,426,865 units in February 2021, compared to 1,294,787 units in February 2020, with a growth of 10.20%.

Performance: April - February 2021

Production: Total production of Passenger Vehicles**, Three Wheelers, Two Wheelers and Quadricycle in April- February 2021 was 19,572,565 units as against 24,140,891 units in April- February 2020 with a decline of (-) 18.92%.

Domestic Sales:

- Passenger Vehicles** sales was 2,335,808 units in April- February 2021, compared to 2,605,383 units in April- February 2020, down by (-) 10.35%.
- Three-wheeler sales was 184,267 units in April- February 2021 compared to 609,457 units in April- February 2020, down by (-) 69.77 %.
- Two-wheeler sales was 13,622,581 units in April- February 2021, compared to 16,549,587 units in April- February 2020, down by (-) 17.69 %

** BMW, Mercedes, Tata Motors & Volvo Auto data is not available.*
*** BMW, Mercedes & Volvo Auto data is not available and Tata Motors data is available for Apr-Dec only*

Commenting on the February 2021 data, Mr Rajesh Menon, Director General, SIAM said *"In the month of February 2021, 2.81 Lakhs Passenger Vehicles were sold, clocking a CAGR growth of just 3.29% over the previous highest sales in the month of February, in the year 2018 of 2.55 Lakhs, while in February 2020 the total sales were 2.39 Lakhs. As far as Two-Wheelers are concerned 14.27 Lakhs units were sold in February 2021, which results in a de-growth of (-) 5.41% CAGR from the previous highest sales in the month of February, in the year 2018 of 16.86 lakhs, while in February 2020, the sales of Two-Wheelers were 12.95 Lakhs units. However, the total sales from April to February period of Passenger Vehicles were still below 2015-16 levels and for Two-Wheelers it is below 2014-15 levels. Sales of Three-Wheelers continued to suffer a de-growth of (-)33.82%, compared to February 2020, primarily on account of lower off-take of Passenger Three-Wheelers. Supply chain challenges including rising price of steel, unavailability of semi-conductors and higher container charges, continue to be obstacles in smooth functioning of the industry."*

Statistics

Society of Indian Automobile Manufacturers

Category	Domestic Sales (In Numbers)		
Segment/Subsegment	February		
	2020	2021	% Change
Passenger Vehicles (PVs)*			
Passenger Cars	148,541	155,128	4.43
Utility Vehicles (UVs)	78,674	114,350	45.35
Vans	11,407	11,902	4.34
Total Passenger Vehicles (PVs)*	**238,622**	**281,380**	**17.92**
Three Wheelers			
Passenger Carrier	32,423	18,514	-42.90
Goods Carrier	8,877	8,817	-0.68
Total Three Wheelers	**41,300**	**27,331**	**-33.82**
Two Wheelers			
Scooter/ Scooterettee	422,168	464,744	10.09
Motorcycle/Step-Throughs	816,679	910,323	11.47
Mopeds	55,802	51,445	-7.81
Electric Two Wheelers	138	353	155.80
Total Two Wheelers	**1,294,787**	**1,426,865**	**10.20**
Quadricycle			
Quadricycle	55	8	-85.45
Total	**55**	**8**	**-85.45**
Grand Total	**1,574,764**	**1,735,584**	**10.21**

** BMW, Mercedes, Tata Motors & Volvo Auto data is not available.*

Category	Domestic Sales (In Numbers)		
Segment/Subsegment	April-February		
	2019-2020	2020-2021	% Change
Passenger Vehicles (PVs)*			
Passenger Cars	1,594,821	1,336,473	-16.20
Utility Vehicles (UVs)	885,556	902,951	1.96
Vans	125,006	96,384	-22.90
Total Passenger Vehicles (PVs)**	**2,605,383**	**2,335,808**	**-10.35**
Three Wheelers			
Passenger Carrier	503,317	112,473	-77.65
Goods Carrier	106,140	71,794	-32.36
Total Three Wheelers	**609,457**	**184,267**	**-69.77**
Two Wheelers			
Scooter/ Scooterettee	5,302,614	4,022,171	-24.15
Motorcycle/Step-Throughs	10,642,804	9,025,840	-15.19
Mopeds	604,004	572,559	-5.21
Electric Two Wheelers	165	2,011	1118.79
Total Two Wheelers	**16,549,587**	**13,622,581**	**-17.69**
Quadricycle			
Quadricycle	1,073	-19	-101.77
Total	**1,073**	**-19**	**-101.77**
Grand Total of All Categories	**19,765,500**	**16,142,637**	**-18.33**

*** BMW, Mercedes and Volvo Auto data is not available and Tata Motors data is available for Apr-Dec only*

Rajesh Menon, Director General, SIAM
rajesh.menon@siam.in

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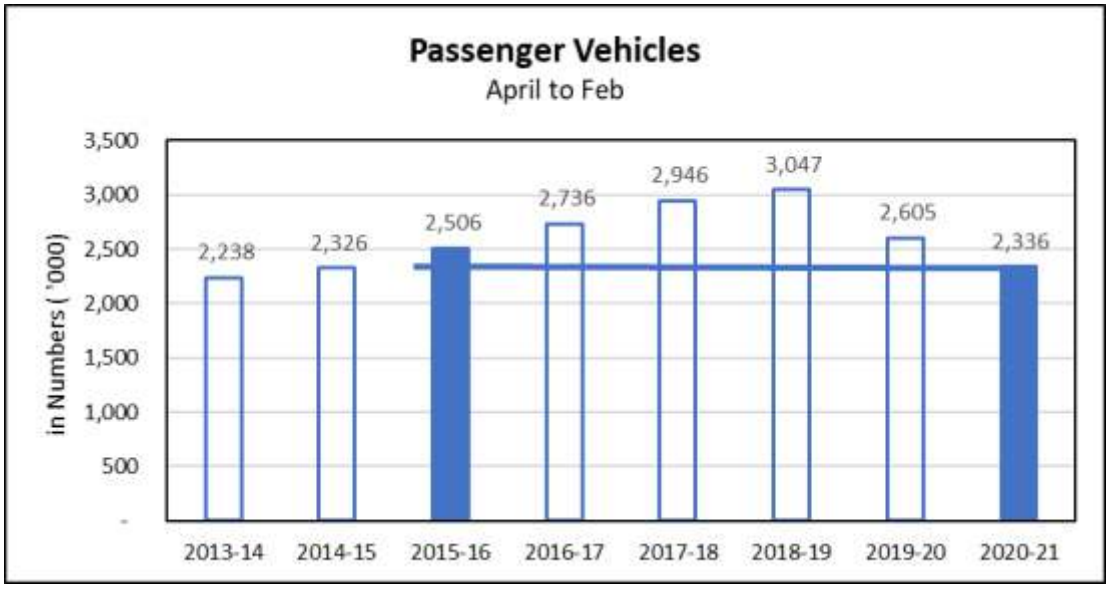
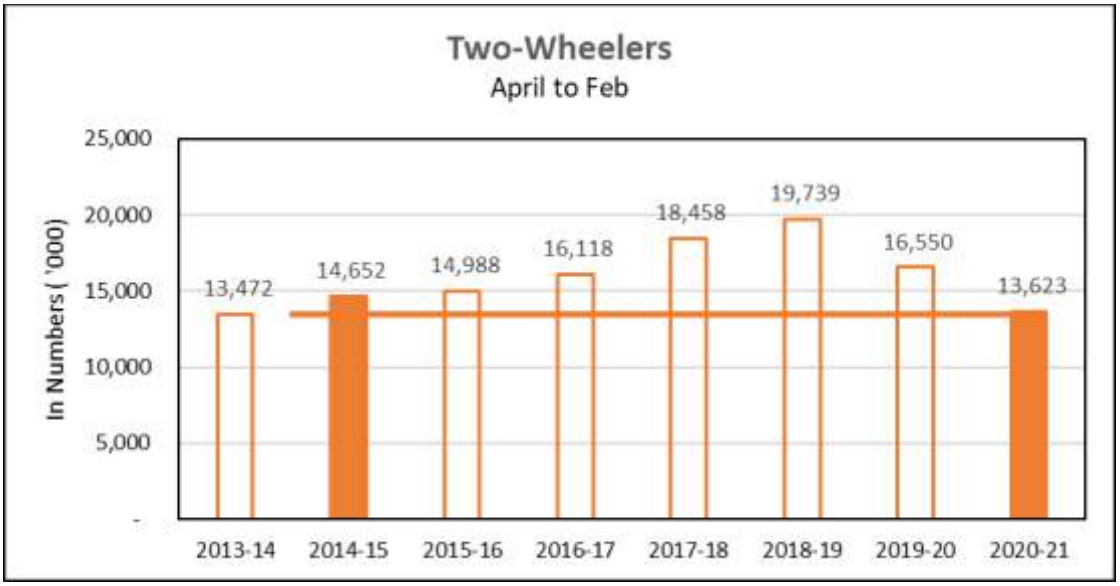


Apr to Feb Sales Numbers are below 2015-16 Levels



Apr to Feb Sales Numbers are below 2014-15 Levels

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RINL-Vizag Steel... aiding Atma Nirbhar Bharat

Now get easy access to

RINL-Vizag Steel's Quality Products

at your doorsteps

RINL eSuvidha

order online through web based portal

logon to https://esuvidha.vizagsteel.com/rinlesuvidha/index.jsp

RINL recently launched a new customer friendly initiative i.e. "RINL eSuvidha" – a Online Retail Portal to procure steel by customers all over India.

"RINL eSuvidha"

- Desktop/Mobile enabled website for customers across the country, to logon and access RINL-VizagSteel's Quality products in a convenient, transparent & efficient manner.
- Portal enables RINL to offer quotation against the customer's enquiry and the customer can confirm the order on the portal itself.
- Facilitates the customer to book order-on-line for quantities, make payment on-line for getting the material at their door steps.
- Provides a hassle free access to purchase quality steel products from RINL –Vizag Steel from any part of India.

The principal products of RINL-Vizag Steel includes TMT Rebars, Wire Rod Coils, Rounds, Structurals, Squares & Flats. Manufactured from 100 % virgin steel with stringent tolerances in both physical and chemical properties, RINL-Vizag Steel is the preferred steel for a wide array of customers.

RINL-Vizag Steel's quality products are marketed through a vast network of distributors and dealers in 24 Nos. of locations pan India including Tuticorin (Tamilnadu) &Rayagada (Odisha) distributors under 2-Tier Sales & Distribution system.

RINL-Vizag Steel is the first integrated steel plant to be certified for ISO 9001:2015, ISO 14001, ISO 27001 & OHSAS 18001 standards. It is also one of the first Indian Steel Companies to certified for ISO 50001 - Energy Management Systems.

उत्पाद श्रेणियाँ व उपयोग
PRODUCT MIX & APPLICATIONS

WIRE RODS

5.5mm - 45mm Dia

Wire drawing, Bright bars, Fasteners etc.

ROUNDS

16 - 90mm Dia in straight length

Fasteners, Forging, Re-rolling, Railways, Construction etc.

'VIZAG TMT' REBARS

8mm - 36mm Dia

Construction - Reinforcement etc.

BILLETS / BLOOMS

Billets : 65mm, 77mm, 90 mm, 125mm RCS
Blooms : 150 x 150, 200 x 200, 250 x 250
320 x 250mm

Forging, Re-rolling, General Engineering purposes etc.

'VIZAG UKKU' STRUCTURALS

Angles	50 x 50 x 6 - 110 x 110 x 10mm
Channels	100 x 50 - 200 x 75mm
Beams	125 x 70 - 150 x 75mm
Flats	80 x 12 - 100 x 20mm

Construction, Fabrication, Auto Leaf Springs etc.

@RINL VIZAG STEEL @RINL_VSP r.i.n.l

SANKET PRAKASHAN - 1, Alpha, M.G. Road, Vile Parle (East), Mumbai - 400 057.