METALWORLD

Devoted to Foundry & Non-Ferrous Metals Industry

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Amish Panchal
Partner, Kastwel Foundries

- **India's Automobile industry and infra projects to enhance the demand for casting**

- **HOW TO DIGITISE MELTSHOP?**

- **10th Asian Metallurgy Aluminium Industry – Innovative Applications & Emerging Markets**

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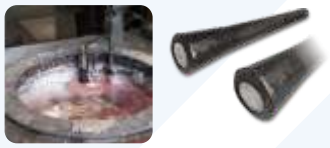

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D. A. Chandekar
Editor

Dear Readers,

The metals industry now looks far more stable than around six months back. Actually the demand curve started moving up immediately after the start of 2021 but many feared that it is a temporary surge, may be due to saturated demand of the last year and may not sustain for a long time. The logic looked right, atleast at that time, but now after seeing the performance of the major metal companies for the last two quarters, one has to change his opinion. The performance curve is continuously heading north defying few support lines and now it seems that we are going to have a long bullish run.

What were the reasons for this slightly unexpected recovery of the metals sector ? Let us start from the beginning. Firstly, when there was a grave problem of labour migration during the first and the second pandemic wave, the metals industry actually did not suffer as most of the plants in the country are situated in the eastern side and the labour migrated from west to east. In fact our industry gained because of the extra availability of labour. Secondly, after complete lockdown for initial period, Indian administration handled the pandemic very smartly imposing partial lockdowns wherever necessary, opening up few regions, strictly imposing covid norms and above all, pushing and managing world's biggest vaccination drive. It also gave away a huge package of Rs.20 L crores for the industry. All this helped the industry (including the metals sector) to regain the confidence to sustain and move forward. Also the work of government infra projects was restarted after the first few months itself which actually helped and supported the metal demand to grow. Finally Indian entrepreneurs and professionals worked tirelessly taking the risk of life in few occasions. All this contributed to the strong position of our industry which we are witnessing today.

This situation is somewhat similar to 2008 when most of the developed world economies collapsed due to global meltdown and India did not suffer much. That was the first time India was seen as one of the very few growing economies at that time and was identified as a bright investment destination. Today also, after successfully fighting the covid battle, India has emerged as one of the best destinations for investment. With improved international ranking on 'Ease of doing business', Indian economy is expected to get huge support from overseas investing community. The metals industry would also gain from the higher GDP growth rate estimations for India in coming years.

Some of the above may be my 'wishful thinking' but I sincerely believe that metals industry professionals have to capability to make it a reality !

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India's Automobile industry and infra projects to enhance the demand for casting

"In India, the automotive sector is the main driver of foundries. About 60% of metal castings are for the automotive sector, followed by railways, machine tools, defence, aerospace, sanitary fittings, etc."

Amish Panchal, Partner, Kastwel Foundries

Amish Panchal, Partner, Kastwel Foundries had an exclusive interaction with Mr.D A CHandekar, Managing Editor & CEO, Metalworld on the present status of Indian foundry industry and its raw material market impact on the industry.

Excerpts :

How is the present status of foundry sector in India?

Casting production in India reached a value of 11 Mn tonnes, and as per surveyand it is expected to expand at a compound annual growth rate (CAGR) of 8-10% till 2023. After Diwali both Automobile & Farm equipment markets which are major users of castings are doing bad. Hence casting demand has reduced by almost 50% across the sectors.

Most of the castings manufacturing units fall under small and medium enterprises (SMEs), they are unable to use advanced technological equipment or automation due to high costs. It is challenging for them to sustain their position in the marketplace. The inability to meet the high end domestic demand for castings and to supply quality products to the global market acts as a huge barrier for majority of the foundries to grow further.

The fluctuating prices of raw materials have put whole industry in doldrums. It has shaken the working and mind-set of the industry.

How is raw material price fluctuation affecting the bottom line?

Prices for all major raw materials, shipping cost energy, and logistics have soared tremendously.Key input materials such as Ferroalloys, scrap, pig iron, copper, aluminium, coke, carbon, and chemicals are some of the materials that have increased in price by up to 400 % over the past four months. The concern on the dramatic global shortage of magnesium, a metal that is predominantly produced in China has poised great worry. The low level of stocks the world over has caused an explosion in the magnesium price from USD2,000 to USD12,000. Recently prices have fallen down to USD5,250 and again increased to USD8,000 in the past few days. Such kind of volatility is making working in the industry very difficult.

A price hike of 3-4 times has put additional pressure on liquidity in foundries. Due to unprecedented price hikes, casting cost has increased from Rs.15-22/Kg. Non-timely and only partial price revisions from customers have threatened the existence of many Foundries, forget about the margin.

How much are we dependent on china for the raw material supplies?

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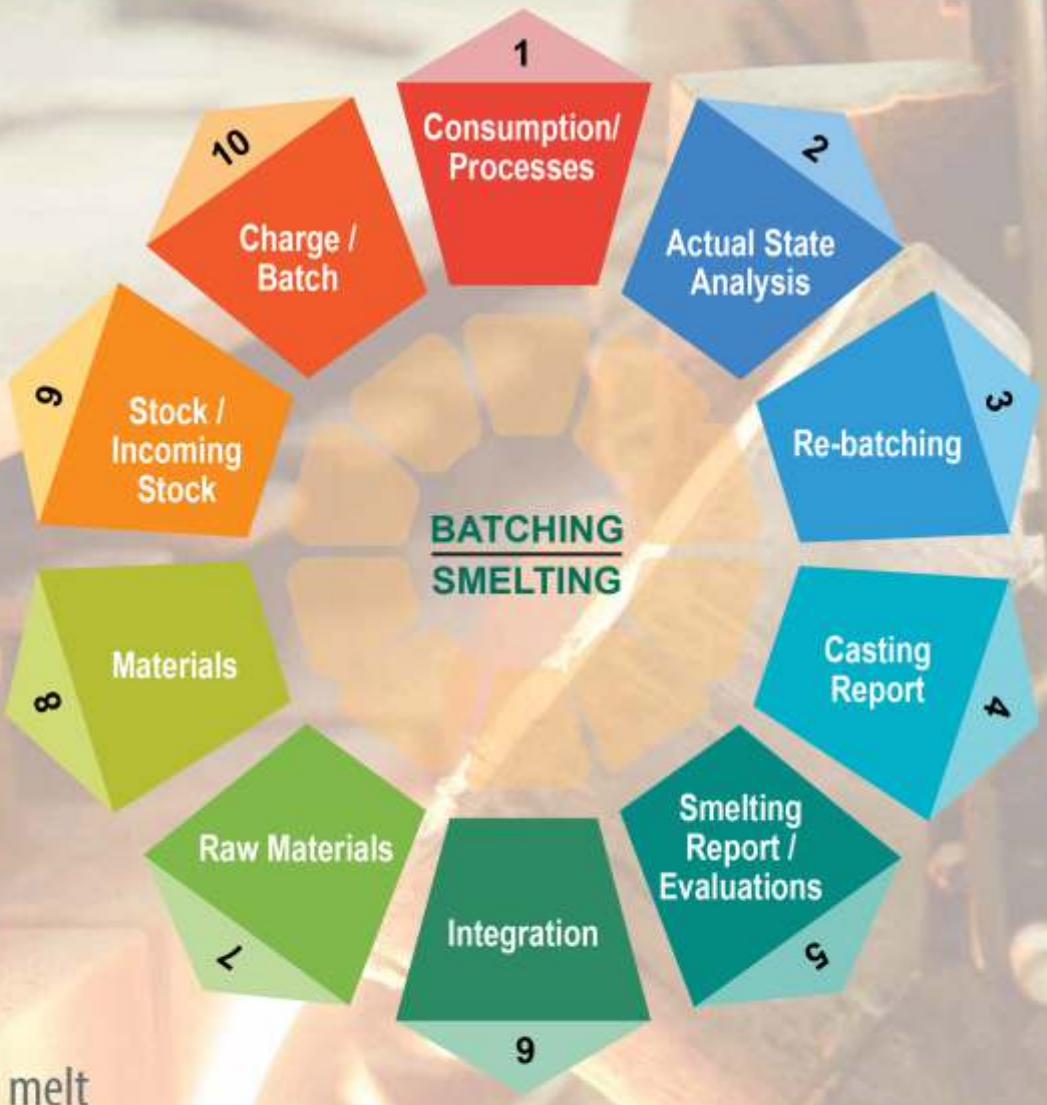

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yet to come in major chemicals & metals needed to produce key raw materials for the foundry industry.

Metals like magnesium, Rare Earth, Calcium, Nickel, Manganese, Silicon Metal, furfural Alcohol, Slag Remover, etc. are not produced in India at all. Even in the whole world majority of the production is done by China. Hence both ferrous and Non-Ferrous foundries are depending heavily on China in one way or other for their production. By assumption, we can say foundries are dependent by 20-30% on China for their raw material requirement value-wise.

How can we reduce this dependence?

To reduce dependence on Chinese imports we need to do, product segmentation, making use of the country's existing ecosystem, becoming members of key trade agreements, and modifying the work processes.

We have to analyze imports from china and develop the way forward. We need a bottom-up and top-down hybrid approach for identifying the materials. Trade associations have to do this study and present it to the Govt. to make a national-level strategic plan.

Industry peers also have to show patriotism and support local manufacturers, instead of just going for economic advantage. The same applies to the buyers of the castings.

How do you see the future of the Indian foundry industry?

In India, the automotive sector is the main driver of foundries. About 60% of metal castings are for the automotive sector, followed by railways, machine tools, defence, aerospace, sanitary fittings, etc.

Aluminium castings which contribute around 15% of the total castings production in the country are expected to increase considerably by the next 5-10 years, owing to a shift in demand from iron to lighter castings materials for manufacturing fuel-efficient automobiles and electronic vehicles. The government of India is focusing on expanding the manufacturing infrastructure, and various government sectors are expected to generate demand

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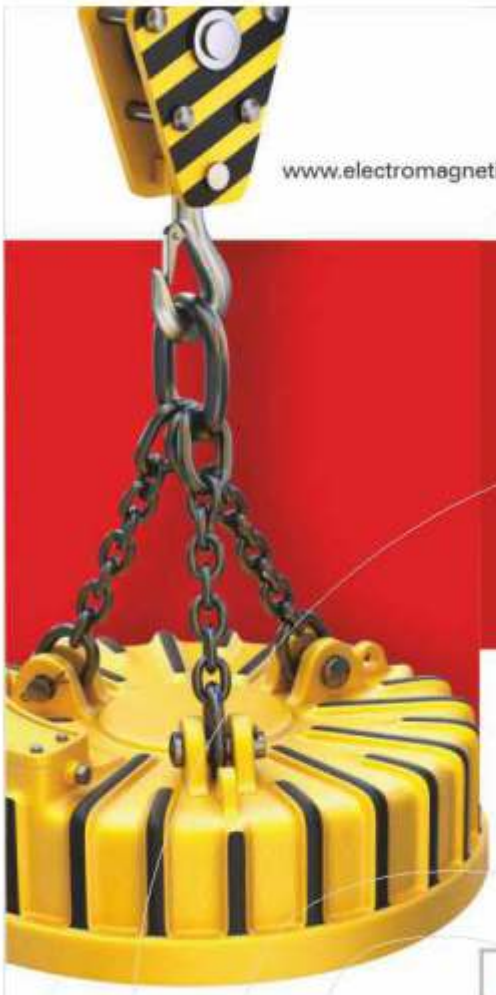

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for a wide variety of machinery and heavy equipment. This will in turn create fresh demand for metal castings.

Further, the thrust of manufacturing companies to reduce weight, especially in the automobile sector, presents growth opportunities to those Indian foundries that are innovative, progressive, and have the expertise to manufacture such specialty alloys castings.

In the exports market, all major casting importing countries are looking for new alternative sources to reduce the dependency on one country. India has a big opportunity to fit in this requirement. However, foundries which can fulfill the stringent quality & timely supply conditions are very low. We need to upgrade ourselves to become a major global supplier of castings.

About Kastwel Foundries

Founded in the year 1900 as an engineering workshop and foundry name as M/S Shivram Ganesh and Sons is diversified into manufacturing of Ferrous and Non-Ferrous Master Alloy in 1974 under the name of Kastwel foundries.

Kastwel Foundries developed import Substitute by manufacturing Nodularisers specialty Master Alloys used to produce Ductile Iron indigenously in 1974.

Kastwel Foundries since its inception is engaged in producing world-class quality products, competitive prices, and innovation to improve the efficiency of these alloys to strengthen the competitiveness of Indian S.G.Iron Industries.

On our growth path, we have added manufacturing of Non-Ferrous Master Alloys. We have introduced Carburisers, Inoculants, High purity Pig Iron, Premium Slag Removers, and allied products from the global world-class suppliers improving melt shop efficiencies at foundries.

Being pioneers in manufacturing these alloys, we have a maximum (47+ years) experience in India, and our products are considered most reliable by leading S.G.Iron Foundries in India.

We represent renowned International suppliers of M/S Rio Tinto group, South Africa for their High Purity Pig Iron SORELMETAL,
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The Fourth Generation at Kastwel Foundries is committed to carrying forward the legacy continuing with innovation, dedication, fair business policy, and vision to expand our horizons to the global platform taking up. Techno –commercial challenges of current & future trends.

On a mission to the growth of the Indian S.G.Iron industry, We have developed training modules and the highest industrial experience experts deliver training to S.G. Iron Foundries executives & enforce through our training program " S.G.Iron Technology Conclave " MASTERS OF MASTER ALLOY SINCE 1974.

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HOW TO DIGITISE MELTSHOP?

Introduction:

Melting is an art, a robust process that might not be able to change. Melting know-how and right practices are in demand and the availability of expert people and resources are very limited. New Engineers might not be able to melt and run melt shops if melting know-how is not transferred or digitized in the coming days.

Melt shop consumes around 70% of the total cost of the foundry. Melting is the process that decides your product quality, cost, efficiency, competitiveness in many ways. System-based assistance to plan furnaces estimates charge mix quantity & its impact on composition estimation, spectrometer integration, and late addition auto calculation could help to overcome many hurdles small and mid-scale foundries are facing with the shortage of know-how.

To digitize the foundry melt shop, we need to focus on two areas,

1. Furnace parameters – Data available and monitored by PLC/SCADA of the furnace maker
2. Melting process data – All process data from charge mix preparation up to pouring completion

VEZAPP Solutions has developed these specific Foundry apps to digitize the melt shop, which is helping small and mid-scale foundries to digitize their melt shop. It is possible to digitize melting process data without investing in any hardware and costly IoT devices, by simply adapting to mobile apps and getting read of logsheet, paper, and excel based reporting from the melt shop.

Bhushan Bhatt
Managing Partner,
Vezapp Solutions LLP

Process To Digitize The Melt Shop:

We see now how these both areas can be digitized in order to achieve the goal "Melt Shop Digitization" to get the complete data for all

of the furnace?

- Furnace Temperature
- Liquid melt weight
- Current drawn – power consumed
- Voltage
- Water flow

details

- Desired output results and expectations need to know in advance
- Investment required for IoT device and supporting software,

1 Furnace Parameters

Most of the furnace makers and latest furnaces are equipped with advanced SCADA /PLC, HMI along with the furnace. Even older furnaces have basic PLC.

PLC/SCADA systems record every event, parameters that are crucial for the furnace performance, safety, and smooth operation. To get these data from their PLC/SCADA systems we need an additional IoT device, which will fetch data from the PLC/SCADA and transfer these data to the cloud in real-time. This means every data that PLC/SCADA record, is now available via IoT device. IoT devices are equipped mostly with sim-based internet or router which push the captured data to the cloud in real-time.

What parameters available in PLC/SCADA

- Ideal time
- Many others

Once these data available in the cloud, real-time graphs, or a dashboard of the various parameter or their combinations is possible like Temperature, Current drawn for each heat, voltage, liquid melt weight, and many more.

How to get furnace data from PLC/SCADA?

- Requires Interface with furnace maker provided PLC/SCADA
- Requires IoT device to fetch data from PLC and push to the cloud in real-time
- Needs to study furnace maker, model, PLC type, and

- In case the advanced furnace has the facility to send data to the cloud, IoT device may not require. We can get data from the cloud directly for further processing and dashboard.
- In the future, Furnace maker may provide Rest API, to use furnace data via Rest API to any other cross-platform mobile applications

2 Melting Process Data

The melting process, right from furnace planning to pour, is relatively easy to Digitize. It can be done by adopting mobile applications replacing many activities melt team does just in mind, on paper, or in excel. It is possible by only one mantra "RECORD DATA IN MOBILE, WHEREVER AND WHENEVER IT IS GENERATED". It means

whatever data is generated and entered, no one should enter this data again no data redundancies at all. This will save lots of time, cost, and human error while writing again.

In today's time thanks to smartphones, it has become our data reporting tool if we use it wisely. Not to mention the company does need to invest in any hardware, server, or software, as it is readily available with shop floor workers to management. We all are connected with the same technology android/iOS all we need is data, so it can be available to all in real-time.

Existing Practice	Advance VEZAPP Melt Mobile Apps
Furnace Data ● Furnace size, capacity is known to team in melt shop	**Furnace Master App** ● Furnace master app contains information of all the furnaces, capacity, furnace number, plant / location, min-max lining size
Material Data ● Casting, raw materials composition available in paper or excel. ● Raw material, Returns stocks available in ERP, Excel or not known.	**Material Master App** ● Casting, raw material and its composition is stored, can upload via excel ● Raw material, Returns stocks available in App, will deducted automatically when consumed.
Charge – Mix ● For charge mix combination of furnace, capacity, material is known to only experienced person and melt in charge ● Existing know-how is not stored, New person in-charge may struggle	**Charge – Mix Master App** ● All charge mix combinations of furnace & materials available as benchmark or thumb rule ● Know-how is stored, new person can learn quickly from this data from App
Part Details ● Available in Excel or ERP	**Part Details** ● Upload casting part, material, melt required, return circuit weight, cavities to use while planning & shop floor reporting
Furnace Planning ● Mostly in mind, seldom on paper, rarely in ERP or Excel ● It's one of the dark gray area results in to unavailability of melt, moulding disruption, under utilisation of the furnace and higher melting cost	**Furnace Planning** ● As we have all required data of furnace, material, casting takes few min. to plan furnace heat wise, shift wise, time wise ● Plan & print/pdf furnace planning - Date, shift, furnace no & capacity, charge mix, part & no. of mould boxes to be poured ● Easy to plan and train others ● Print /PDF of furnace planning
Charge Optimization ● Can not predict output chemical composition by using different charge mix material type & quantity ● Dependency on one person	**Charge optimization** ● Try material optimization – by using different material and its quantity, mobile App shows in real time prediction of output composition – save time & cost ● No dependency on human
Melting Report ● it is available in log sheet, excel and later again copy to ERP in some cases – Data redundancies ● All data are scattered in different log sheets, difficult and requires	**Melting Report** ● Report data in real time, when generated e.g. charge mix weight photo, easy to enter data in mobile apps live instead of paper ● Melting Date, Heat code, Start &

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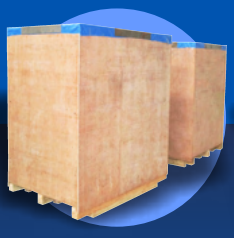

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efforts to combine them to see all data per heat ● Can't guess chemistry of the charge mix used in the furnace	End time, net weight, CE meter reading, spectro coin temp etc. record Live in App ● App calculates automatically estimated chemistry likely to get for the consumed charge mix, easy to add or remove any material to get right chemistry in first time
Spectrometer Reading ● Spectrometer reading is available separately in print, pdf, or csv.	**Spectrometer Reading** ● Spectrometer reading can be interface or imported by one click
Late Addition & Alloying ● Experienced melt person requires to decide late additions & alloying ● It takes time, when furnace is on high temperature, to find difference and calculate add on – burning money ● Human limitation takes time to calculate manually considering recover %, melt weight, furnace capacity ● Manual record in log sheet, paper of late addition added ● CE meter Reading in paper .	**Late Addition & Alloying** ● Any new comer can learn easily as app calculates deficiencies automatically ● Once Spectrometer data is imported, system knows target value and calculates automatically add on with a single click ● App gives you exact Kg required to add on including recovery%, no manual calculation required ● Record late addition in app, so all heat data is recorded and easy to study ● CE meter, Reaction Time, Thermal analysis reading in App
Pouring Report ● Separate department and maintains separate log sheet ● Additional time to copy from log sheet to excel/ERP – Data redundancies ● Can not inform, what amount of return circuit will be added to store	**Pouring Report** ● Brings melt data in pouring report automatically – full traceability ● Enter in mobile apps ladle & pouring temperature with image, pouring time ● Add stock of return circuit automatically
Break Down ● Manual log sheet ● Compilation required to get OEE ● Inform via call, email in the event of break down	**Break Down Reporting** ● Breakdown report in mobile apps ● OEE can be calculated if required ● Automatic SMS and Email alerts
Data Visualization ● Mostly requires collection of all above data from paper or logsheet to excel and keep compiling data for graphs and visualization	**Dash Board – Data Visualisation** ● As all data available from shop floor via mobile app, dashboard is available 24x7 ● No copy, paste or compilation required ● Pre-defined dashboard provided to see Raw material, alloys consumption heat wise, Melt prepared & poured daily etc.

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10th Asian Metallurgy

Aluminium Industry – Innovative Applications & Emerging Markets

The 10th Asian Metallurgy event was organized on 15th Dec.2021 at a virtual platform with the presence of eminent speakers who had presented their views on various aspects of aluminum. It was mainly focussing on Aluminium Industries processing innovative applications and emerging markets as well as the status of the industry in Europe.

Eminent Penal members who participated were as under.

1) **Dr Ashok Nandi (President – IBAAS)**
2) **B. S. Pani (Industry Veteran)**
3) **Dr Mario Conserva (President – METEF)**
4) **D.A. Chandekar as Convener (Editor and CEO, Metalworld & Steelworld)**

At the outset, **D A Chandekar** observed that aluminum and its applications is a very relevant subject in present times since its usage has grown phenomenally over the last decade. Bauxite mineral from which aluminium is obtained is available in India in abundance. The growth of aluminium industry depends upon finding new applications. The views of each panel member are presented below.

A) Dr. Ashok Nandi – India has huge resources of

Dr. Ashok Nandi
President, IBAAS

Bauxite mineral amounting to 3.8 billion MT. In spite of this, aluminium refineries in India are dependent on imports of high-grade bauxite. This problem is due to government policies and multiple reasons. Two large aluminium refineries viz, Vedanta and Nalco located at Orissa eastern ghat have bauxite mines in the vicinity but not getting good quality bauxite. Expansion from 2 MMT to 5 MMT of one of these refineries will also face challenges due to the problem of availability of bauxite. Hindalco, another refinery in Orissa state is also importing bauxite.

A technical paper was presented by Dr. Ashok Nandi in the year 2015 to highlight the economics of setting up small-scale alumina refineries.

Anark, a small refinery in Andhra Pradesh that was closed down in the year 2013 because of the non-availability of bauxite is now going to restart the operations. This is a 1, 40,000 MT capacity plant and was set up to utilize bauxite which is available from nearby mines. Refineries should be given rights to explore bauxite mines. Now, two small refineries of 1 Lac MT capacity are coming up to produce special grade alumina. China has entered Africa in a big way to utilize minerals for aluminum production.

Dhiraj K Chauhan
Director (METCON)

The primary aluminium industry will grow in India, China, Malaysia but it will vanish in Europe. In the Middle East, primary aluminium is available and the demand for secondary aluminium is also good. Latin American countries will also come up with the growth of the primary aluminium industry.

In West Africa, Gini has large resources of bauxite and iron ores. But it does not produce aluminium, instead only bauxite is exported. In Europe and Australia, primary aluminium industry will slowly go out.

B) B.S. Pani – In India bauxite deposits were explored by Mineral Exploration Corporation Ltd (MECL) in the year 1980 with G4 standards. The data and reports of these explorations are available. Private organisations have lost interest in exploration since they are not given mining rights.

Auction of the mines is

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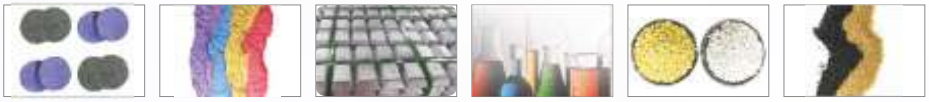

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B. S. Pani
Industry Veteran

permitted as per the new act of Mines and Minerals Development and Regulation Act (MMDR Act). Both aerial and ground explorations are required. Mining rights can be given if G4 standards are followed and a 60% confidence level is achieved.

If the government allows the auction of mines, it will get auction money which is payable over the entire duration of the exploration time period, Government will also get a royalty on the quantity of the mineral mined. Now, miners are allowed to sell some quantity of bauxite to other refineries.

From 190 countries of the world which were producing aluminium, now only 38 are left.

The Eastern hemisphere is predominant in primary aluminium production as compared to the Western hemisphere which has dominance in secondary aluminium production. However, China, India, Japan, and Korea are large consumers of primary aluminium.

India has targeted 3.5 MMT of primary aluminium production. It is importing semis in the form of aluminium alloys from China. Henan province in China is a very large producer of semis in the form of aluminium alloys.

The electric car manufacturer TESLA has its car plant in china because it requires 86 different aluminium alloys for its car components.

China is also innovating in numerous applications of aluminium alloys. For example, a stand for keeping a laptop, double-walled aluminium bottle, headphone (which uses aluminium alloy), etc. Even the components for a railway coach are extruded as 4 parts and then assembled together.

In India, a new aluminium park is coming up with an installed capacity of 3 MMT of aluminium refining with 3 plants at Angul, Jharsugda and Sambalpur.

Aluminium market is now a buyers' market that is expected to collapse in the next 4 - 5 years' time. Unless the economy improves, market will get flooded with primary aluminium metal in the next 4 to 5 years.

Aluminium is being replaced by composite materials and stainless steel in many applications, e.g. aircraft and defense products. This substitution can affect the consumption of aluminium.

Western countries are very conservative in sharing the technologies with other countries. For example, the European and American car manufacturers entered India but offered the old car models and technology. Hence, they did not succeed but Japanese and Korean car companies came and offered the latest technologies and car models and have been successful. Change in the work culture also has an effect.

As against India's 5.5 MMT production of primary aluminium China stands at 10 MMT.Russia's demand for primary aluminium outstrips its own supply.

Vietnam, Srilanka, Malaysia, and Thailand are getting industrialised.

C) Dr. Mario Conserva – Presented the status report (scenario) on the aluminium

Dr. Mario Conserva
President, Metef

industry in European Union (EU). In EU, secondary processing of aluminium is significant. It is in the form of rolled products, extrusions, and foundry castings.

The value of these products is 55 bln Euros. These industries offer direct

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employment to 230,000 people and over 1 million employments in the entire value chain.

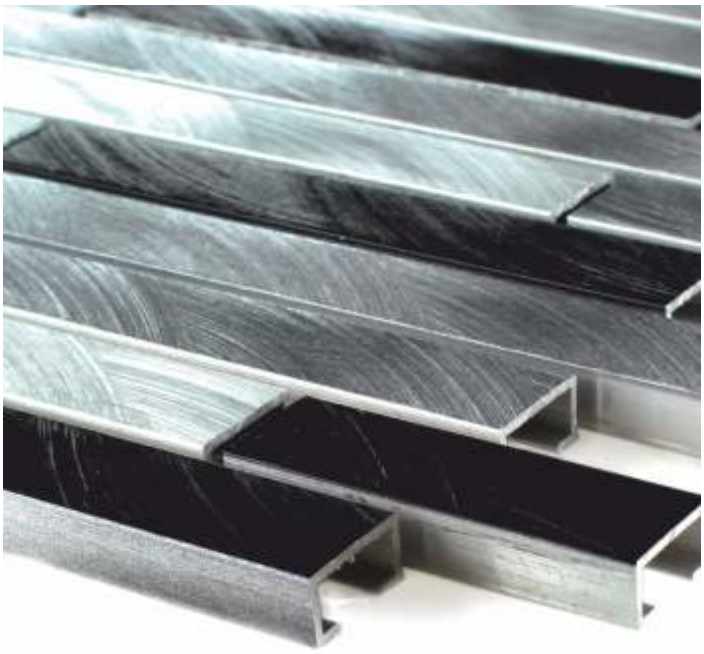
Over 2500 companies produce these aluminium products. Number of aluminium smelters has decreased over a time period and according to European Aluminium Association, there are now only 5 smelters producing primary aluminium. These are located in France, Germany, Greece, Netherland and Spain. In Europe only ~ 3.5% of primary aluminium is produced. The contribution of EU in secondary aluminium production is 35% of the total world production. 3.50 MMT of secondary aluminium is produced by EU.

The demand of Secondary aluminium products comprising rolled products, extrusions, and foundry castings was 5000-kilo tons in 20-21 in EU. Demand for aluminium billets for extrusion was 3.3-kilo tons. Post COVID 30% recovery has taken place in extrusions and rolled products.

EU is obliged to meet 75% of its primary aluminium needs from imports and meets only 25% of requirements indigenously. The extra cost to EU due to primary aluminium imports was 17.8 bln Euros over the last 10 years period.

China is the largest producer of aluminium in the world with 58% share.

\As regards the energy savings scenario, EU is giving emphasis on the use of aluminium scrap. It means more stress on the recycling



of aluminium scrap. Also to meet electrical energy needs, it expects to rely on nuclear energy.

Primary aluminium producers are given very high importance by the EU to meet its demand. Production of Green Aluminium by India is desirable. Europe can bring semis and foundry technology to India. Primary aluminium imports are growing from India to Italy.

For competitiveness of aluminium industry of EU following recommendations were made.

1) Import duty on primary aluminium metal to be abolished as it raises downstream costs. Abolishment of import tariff will generate additional resources of 1 bln Euros per year. Incentives could be directed towards innovative research, technological capacities, improvement of sustainability, and environmental performance.
2) Primary aluminium production should be maintained for the entire EU economy. Government should ensure that the EU is not totally dependent on imports.
3) Aluminium industry will become competitive by ensuring improvement in the relationship between aluminium processing industries and relevant end-users.
4) Secondary aluminium processors should be encouraged with proper support schemes and custom duties. Aluminium scrap which is generated should be recycled fully instead of exported to other countries. EU consumers should be exempt from duties on secondary aluminium when produced by recycling aluminium scrap.
5) For improving policy-making decisions reliable data and economic statistics should be made available. Data gaps should be plugged and industry knowledge must improve.

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Copper prices to soften in 2022, as tightness eases

Copper prices are forecast to soften from the current level in 2022 as tightness in global inventories is expected to loosen slightly this year and

Fitch Solutions on its 30 December note revised up its copper price forecasts for 2022 to $9,200 per tonne, from $8,800/tonne.

"This still means that we retain our bearish outlook for 2022 compared to current price levels, as fundamentals will weaken in the coming month."

The firm expects copper stocks on the Shanghai Futures Exchange, which hovered near 12-year lows, to improve starting in the first quarter of 2022.

"This is due to Chinese smelters increasing production again following cuts in the second-half of 2021 due to power rationing on the back of China's energy crisis and winter," Fitch Solutions said.

Stocks on the London Metal Exchange also rose to 81.4 kilotonnes (kt) at the time of the note was written, compared with 14.2kt in October.

Latin America supply

In addition, supply issues in Latin America which has kept seaborne concentrate supply tight and prevented global copper mine output from reaching pre-Covid levels, should ease in 2022.

Fitch Solutions took example of stoppage at Chinese miner 'MMGs Las Bambas copper mine in Peru over prolonged community protests against the project, as well as strike action over wage contracts in Chile over past months. While the strike in Chile has been resolved, it resulted in lower production from the Escondida, Cerro Colorado and Andina mines.

The firm expects these issues to stabilise in the coming months, while additional supply from a number of projects including Anglo American's Quellaveco mine in Peru will loosen the seaborne market.

Demand to stabilise

On the demand side, Fitch Solutions expect consumption to be stable in 2022, preventing prices from collapsing to levels seen before 2021.

Chinese consumption is expected to grow by an average of 1% year-on-year this year, as Beijing is likely to announce stimulus measures to support heavy industries and the property sector which will support demand for base metals. In the first 10 months of 2021, Chinese copper consumption dropped by 2.8% year-on-year, according to the firm.

"Overall, we expect global copper consumption growth to come in at 1.8% y-o-y (year-on-year) in 2022 compared to 1.3% y-o-y in 2021," Fitch Solutions said.

However, Fitch Solutions forecast the copper market will remain in deficit over the long term until 2030, as consumption continues to outpace supply, driving prices higher amid rising demand from renewables capacity.

Shanghai bonded copper stocks set record lows in Dec 2021

Copper stocks in the Shanghai bonded zone fell to historic lows in December due to favorable conditions for spot trading, while aluminium and nickel stocks edged upward following an increase in arrivals after cargoes had been booked earlier in the year when import terms were profitable.

Copper stocks set new record low

Shanghai bonded copper stocks continued to decline last month, setting a new low since Fast markets began assessing them in October 2014.

Fast markets assessed Shanghai bonded copper stocks at 142,000-156,000 tonnes on December 27, a decrease of 13.6% from 165,500-179,500 tonnes on November 29.

Easing backwardations in price spreads on the London Metal Exchange boosted spot activity in early December, which contributed to the decline in bonded stock levels, market sources told Fast markets.

"Spot buying picked up with the backwardations easing a lot, [and this] explains why the inventory declines," a Shanghai-based trader said.

Overall trading activity was still thin, however, due to the already low level of copper stocks in the bonded zone, sources said.

"Bonded stocks are likely to rally from the record low given the slow business at year-end," the Shanghai-based trader said.

Review of China Alumina Price Moves in 2021

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The global commodity prices showed a strong upward trend in 2021. Aluminium prices peaked at 24,765 yuan/mt throughout the entire year in October. Alumina prices hovered at lows in H1 under the background of a small surplus, but started to rise at the end of July, and the price increase accelerated in August. In early November, the SMM alumina weighted index reached 4,119 yuan/mt, a new high in the past ten years. However, the prices had lost the upward momentum ever since and entered a downward trajectory. As of the end of December, the prices had fallen by 1,310 yuan/mt, erasing all the gains from September to November.

1. Pessimistic expectations of the alumina market at the beginning of 2021

At the beginning of 2021, the market expectations of alumina were pessimistic. The market was in a surplus amid the continuous release of new capacity. The downstream aluminium smelting was profitable, but the demand for alumina barely increased as aluminium capacity had reached a bottleneck.

2. The slow price rise in Q1 and Q2 beat expectations

In mid-2021, alumina prices beat expectations. The SMM alumina weighted index rose from 2,338 yuan/mt in early January to 2,553 yuan/mt at the end of June, an increase of 9%.

3. Prices soared in Q3 and constantly refreshed the 10-year high

In August 2021, the alumina market turned brisk. Alumina prices in north China went up due to rising costs, and prices in south-west China followed suit with alumina outflows to the north. Three overseas refineries (Alumar, Jamalco, and Gramercy) cut their production. Guangxi required a 50% reduction in local alumina production. Guinea experienced political turmoil at the end of August. As a result, the bullish sentiment in the market increased significantly, lifting the SMM alumina weighted index from 2,571 yuan/mt at the beginning of August to a multi-year high of 4,119 yuan/mt in early November, an increase of 60.2% in three months.

4. Prices entered a downward channel in Q4

In November 2021, the alumina costs kept falling, and the prices of aluminium continued to fall. The domestic alumina market saw a small surplus, and cheaper overseas alumina flowed into China. As a result, the market sentiment turned bearish, and alumina prices entered a downward trajectory. As of late December, the SMM alumina weighted index stood at 2,809 yuan/mt, down 32% from the beginning of November.

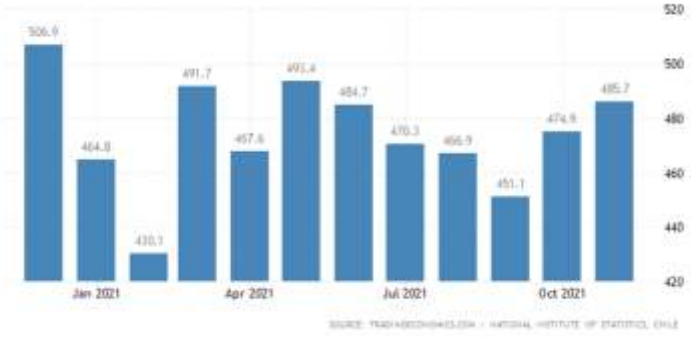
Looking back to 2021, alumina prices soared in the first three quarters of the year on the back of a tight balance, expectations of supply shortages, the reluctance of the goods holders to sell, and price inflation by speculators. The prices plummeted in Q4 due to supply surplus, sell-off by suppliers and declining rigid demand caused by the pullback of aluminium prices.

As the alumina futures contract has not yet been launched, the "price discovery" was affected by the industry chain and the prices were vulnerable to sharp rise or fall when market sentiment changed.

If the alumina futures contract is launched, price volatility will mitigate. If not, disruptions to the supply or demand side will intensify price volatility.

In 2022, the average alumina price is expected to be around 2,700 yuan/mt. The centre of full-year price range will move around the costs. Prices in south China will continue to underperform those in the north.

Chile's copper production down by 0.68% in November: Cochilco



Source : National Institute of Statistics, Chili

Chilean copper production was down by 0.68% in November 2021 compared with the same month of 2020, with just Collahuasi showing growth among the top mines in the country, copper commission Cochilco said on Tuesday January 4.Output totaled 481,800 tonnes in November, lower than the 485,100 tonnes produced in November a year before.With those numbers, Chile produced 5.13 million tonnes of copper in the January-November period of 2021, a 2.03% year-on-year decrease from 5.23 million tonnes.

Analysis of China's Rare Earth Import and Export Landscape in November

Imports from overseas producing rare earth mines

China's rare earth imports are mainly rare earth ore, and the two major suppliers are Myanmar and the United States.But the imports from the United States are likely to grow more slowly in the future. China imported 13,300 mt of rare earth metal ores in November, and the imports totalled 71,500 mt from January to November 2021, of which 71,300 mt were imported from the United States, accounting for 99% of the total. As the MP mine's production has been approaching full capacity, the growth of rare earth metal ore imports from the US has dropped from 67% in 2019 to 11% in 2021.

In terms of import structure of rare earth ores from Myanmar, it demonstrates a clear trend that features drop in total imports as well as the decline in the proportion of concentrate and the increase of REOs.

China imported 1,471 mt of unlisted REOs in November, and stood at 18,000 mt from January to November 2021, of which 15,600 mt were imported from Myanmar. And its proportion in total imports rose from 75% in 2018 to 87% in 2021.

In November, China imported 282 mt of mixed rare earth carbonate. And the imports stood at 4,348 mt from January to November 2021, of which 647 mt were imported from Myanmar. Imports of mixed rare earth carbonate from Myanmar accounted for 85% of China's total imports in 2018, which dropped to only 15% in 2021.

The imports of rare earth ores from Myanmar experienced great volatility in 2021, and overseas mining projects have attracted much attention. The Ministry of Health of Myanmar stated on December 27 that 4 omicron cases were discovered in Myanmar, followed by the news that the border between China and Myanmar was closed again since the last closure lasting through July-November 2021.

Some domestic companies are pessimistic about the re-opening of the China-Myanmar border next year. Hence, the very recent batch of imported rare earth ores from Myanmar is expected to be held firm by the traders. Some separation companies have been actively looking for alternatives for middle and heavy rare earth ores, and the potential demand for rare earth chloride will be strong.

Africa is rich in monazite mineral resources, with relative mining projects locating in Zambia, Morocco, Tanzania, Nigeria and etc. The rare earth chloride recovered from monazite may become a new growth engine for rare earth ore supply.

China rare earth exports landscape

China's rare earth exports are mainly NdFeB permanent magnets, followed by oxides and metals of non-permanent magnet elements such as lanthanum, cerium and yttrium. The exports of rare earth permanent magnets in November were 4,156 mt, down 0.5% from last month. As Christmas approaches, overseas market saw in the seasonal low, and demand weakened as well.

The exports of China's NdFeB permanent magnets to the Europe dropped the most in November, while the increase was mainly contributed by the United States. Among them, the permanent magnets exports to Europe in November stood at 1,462 mt, a decrease of 17% from the previous month; the exports to South-eastern Asia recorded 641 mt, flat from October; the exports to the United States were 668 mt, an increase of 37% month-on-month.

China's REO exports are mainly yttrium oxide, lanthanum oxide, and cerium oxide. The major destination of lanthanum oxide is the United States, which is mostly used for petroleum cracking catalysts. Yttrium oxide is largely exported to Japan. Many manufacturers built up the stocks in advance due to concerns about the impact of the Winter Olympics. And the yttrium oxide market may usher in the seasonal off in the overseas market after the New Year's Day. It is expected that the exports of yttrium oxide will decrease in January, 2022.

The domestic light rare earth ore mining quota expanded in 2021, and the production capacity of some domestic separation companies that use light rare earth ore as the major raw material grew accordingly. At the same time, the Baotou Conference proposed to solve the problem of overcapacity of lanthanum and cerium products through export. The exports of light rare earths such as lanthanum and cerium oxide are expected to increase in 2022.

China coal futures surge on Indonesia export ban

China's thermal coal futures surged by as much as 7.8per cent to kick off 2022 on concerns of supply disruptions after Indonesia, its biggest overseas supplier, banned exports.

The most-active thermal coal futures contract, for May delivery, on the Zhengzhou Commodity Exchange opened up 7.3per cent higher and is at 708 yuan (US$111.10) a tonne, up 5.5per cent, at 0225 GMT, on track for its biggest daily increase since Nov. 25.

The increase follows Indonesia's announcement on Saturday banning coal exports in January because of worries that low supplies at its domestic power plants could lead to widespread blackouts.

China sourced 178 million tonnes of Indonesian coal, mostly thermal coal, in the first 11 months of 2021, accounting for more than 60per cent of its total coal imports, customs data showed.

The ban comes amid a tumultuous time for the coal market after prices surged to records last year because of falling Chinese supply that caused some regional blackouts. Zhengzhou futures climbed to a record 1,848 yuan on Oct. 19.

"Indonesian coal is mainly shipped to coastal regions in eastern and southern China and accounts for about 20per cent of the total supply in the region," said Zhai Kun, an analyst at GuotaiJunan Futures in a note.

The Indonesian export ban is expected to tighten coal supply in the Chinese market since China's domestic coal output is already at a record high, Zhai said.China churned out a record 370.84 million tonnes of coal in November to ensure sufficient energy supplies for the winter heating season. But output is forecasted to slip with power plants slowing down their stockpile replenishing while the government carries out crackdowns on illegal mining.

Vedanta Aluminium Launches High-Speed Billets for Global Extrusion Industry

Vedanta Aluminium Business, India's largest producer of aluminium and value-added products, launches High-Speed Billets for the global extrusion industry. Vedanta is India's largest manufacturer and exporter of high-quality aluminium billets, which find end-usage in Building & Construction, Solar/Renewable Energy, Automotive, Electrical and many other key industries.

The High-Speed Billets are a part of Vedanta Aluminium's portfolio of billet offerings, manufactured with the highest engineering precision. Best-in-class global technologies like Wagstaff Hot-Top Air Slip Casting System (USA) and Hertwich Continuous Homogenising Furnace (Austria) have been used to manufacture these billets. Vedanta's High-Speed Billets can improve extrusion speed by at least 25%, or more, depending on the extrusion environment. With superior metallurgical properties, these billets demonstrate exceptional extrusion speed without compromising on the strength of the extruded profile, improve process recovery as well as die-life.

Launching the product, Mr. Rahul Sharma, CEO – Aluminium Business, Vedanta Ltd., said, “We are committed to offering our customers a powerful competitive edge in their business aspirations. Our holistic solutions are market-responsive and tailored to support customers at various stages of their current and evolving business journey. With our deep R&D capabilities and global expertise, we are keen to co-create leading-edge innovations with our customers. High-Speed Billets are our latest offering in a long line of expertly customized product solutions for various industry segments.”

Talking about a slew of initiatives as part of Vedanta's Customer Technical Services cell, Mr. Jonathan Pangborn, global billet-extrusion expert and technical advisor for Vedanta Aluminium added, “Vedanta Aluminium has a robust and quality-focused manufacturing. Working with the Customer Technical Service team, I look forward to collaborating with customers and providing the best technical solutions to them, as part of Vedanta's value-added service offering.” Vedanta Aluminium's Customer Technical Service cell anchors customers' quality and technical requirements from existing and new products.

Lithium price surge could charge demand for lead in batteries

Lead demand may get a boost in 2022 as battery makers opt for cheaper alternative to lithium, Chinese research house Antaike said recently. Lead-acid batteries are commonly used in internal combustion engine cars and have steadily lost ground to lithium-ion batteries favoured in the burgeoning electric vehicle (EV) sector. "The price of lead in the second half of this year was very much stabilized but for lithium it was picking up very fast," Antaike analyst Zhang Zhiwei told the China Lead and Zinc Conference. Prices for battery-grade lithium carbon China Lead and Zinc Conference. Prices for battery-grade lithium carbonate in China have more than quadrupled this year to a record high of 232,500 yuan ($36,514) per tonne on resurgent EV demand.

Vedanta aluminium production increase by 16% in Q3FY22

Vedanta has announced its production performance update for Q3FY22 and reported a 16 per cent growth in aluminium production Vedanta has announced its production performance update for Q3FY22 and reported a 16 per cent growth in aluminium production. The company said the total saleable production for Q3FY22 was 350 KT, higher by 3 per cent as compared to Q3 FY2021 and 20 per cent as compared to Q2FY22 owing to capital shutdown at Blast Furnace in August 2021. Production Update: Aluminium The Lanjigarh refinery produced 472,000 tonnes of alumina in Q3FY22, 16 per cent higher as compared to Q3FY21 and 8 per cent lower as compared to Q2FY22.

Vedanta raises Rs 1,000 crore from IDBI Bank, Canara Bank

Vedanta raised Rs 1,000 crore from IDBI Bank and Canara Bank last week for three years at 7.68% to repay existing debt and for general corporate purposes, people aware of the matter said.

Of the Rs 1,000 crore which were raised in the form of secured bonds maturing 31 December 2024, both banks subscribed to Rs 500 crore each.

The 7.68% pricing of the three-year AA-rated paper by Crisil is currently 239 basis points over the yield on sovereign bonds of the equivalent tenor.

Plea to reopen Sterlite Copper plant

The demand for the reopening of Sterlite Copper is growing further as people from 12 villages including five fishermen colonies submitted petition to the Collector during the weekly grievance meet held recently.

Residents from Lions Town, Anna Teresa Meenavar Colony, Fatima Nagar, Lourdhammalpuram, Sahayapuram, Ganesapuram, Cruzpuram, Ramarvilai, Gopalsamy Nagar, Pandaarampatti, Saaminaththam and Naduvaikurichi submitted separate petitions in support of the reopening of the copper manufacturing unit that remains closed for more than three-and-a-half years after the violent anti-Sterlite protest witnessed the killing of 13 persons in police firing.

The petitioners said the closure of Sterlite Copper had left a few thousand skilled and unskilled labourers unemployed and their families were starving. Moreover, welfare schemes being implemented by the copper major had been abandoned leaving the rural women, children and fishermen in the lurch. The training being imparted by the Sterlite Copper under its corporate social responsibility programme had been hit hard by the closure. The unit should be reopened at the theearliest to ensure employment to the youth who had been rendered jobless due to its closure, they said.

Hindalco acquires Hydro's aluminium extrusion to extend footprint in the southern market

Hindalco Industries, an Aditya Birla Group company, has acquired the Indian aluminium extrusion unit of Norway-headquartered Hydro for an enterprise value of ₹247 crore. The transaction is expected to close in the next quarter.

Hydro's integrated facility at Kuppam in Andhra Pradesh has 15,000 tonne aluminium extrusions capacity and is integrated with advanced value added capabilities for surface finishing and fabrication. It offers custom aluminium extrusion products and solutions for auto, building and construction, and industrial applications.

Expand presence

The acquisition further extends Hindalco's footprint in the southern market, the second-largest extrusions market in India. Satish Pai, Managing Director, Hindalco Industries, said the acquisition is a strategic step to expand the company's presence in the upper-end of the value-added market.

The specialised product portfolio of Hydro will enhance Hindalco's capabilities in high-end extrusions and fabricated solutions and is part of a long-term strategy to augment downstream business, he added.

The domestic aluminium extrusions market is expected to more than double to 8.50-lakh tonne by 2030 from the current level of about 3.73-lakh tonne. Once commissioned, the Kuppam and Silvassa units are expected to boost Hindalco's aluminium extrusions capacity from 60,000 tonne to 1.09-lakh tonne.

Other facilities

Earlier, Hindalco enhanced its downstream capacities at Silvassa and Hirakud with an investment of ₹3,730 crore. Last month, the company acquired Polycab's wholly-owned Ryker copper wire rod unit for ₹323 crore. Ryker has a cast and rolled copper wire rod manufacturing facility of 2.25-lakh tonne at Waghodia in Gujarat.

Hindalco operates one of the world's largest single-location custom copper smelters at Dahej in Gujarat, with a copper rod capacity of 3.45 lakh tonne. The acquisitions are aligned with Hindalco's strategy to increase downstream capacity to meet growing market demand, further expand product portfolio and increase revenue from value-added products to beat the volatility in metal prices on LME.

NALCO: CMD Sridhar Patra expects supply-demand gap to widen in 2022

NALCO expects the supply-demand gap to widen in the year 2022 in the aluminium market, Sridhar Patra, chairman and managing director, told CNBC-TV18.

The past year has seen

wild swings in aluminium prices, up 42 percent for the year even after prices have cooled around 12 percent from the peak. National Aluminium Company Limited (NALCO), a key aluminium player, has also seen over 130 percent upmove in its stock price in 2021.

According to Patra, a mismatch in the global aluminium market can keep prices elevated and expect prices to hover around USD 2,600-2,700 per tonne.On business, he expects the results of Q3FY22 to beat the numbers of Q2FY22.Patra also said that once Utkal coal blocks commence production, the company will save costs versus open market purchases.

Hindustan Zinc Q3 integrated metal production rises 11 pc

Vedanta group firm Hindustan Zinc Ltd (HZL) reported an 11 per cent rise in integrated metal production at 2,61,000 tonnes in the third quarter of this fiscal, supported by better plant and mined metal availability and improved operating parameters. The company's integrated metal production stood at 2,35,000 tonnes in the year-ago period, HZL said in a filing to BSE.

Integrated zinc production was at 214,000 tonnes, up 17 per cent as compared to Q3 FY'21.Refined lead production was at 47,000 tonnes in the thirdquarter of FY'22, down 10 per cent as compared to the year-ago-period. Mined production rose 3 per cent 2,52,000 tonnes on account of higher ore production at SindesarKhurd and Zawar mines and higher feed grade at RampuraAgucha, supported by improvement in recovery partly offset by lower ore metal grade.

Exide Industries' board gives 'in-principle' nod to set up multi-gigawatt lithium-ion cell plant

The government is pushing electric vehicle manufacturing through a supportive policy framework and by providing incentives to the manufacturers in this space.

Storage battery major Exide Industries on Tuesday said its board of directors has accorded in-principle approval to set up a greenfield multi-gigawatt lithium-ion cell

manufacturing plant in India as it has planned to participate in the government's production-linked incentive (PLI) scheme for advanced chemistry cell manufacturing." Electric vehicle penetration in India is expected to become a reality in the near future.

The government is pushing electric vehicle manufacturing through a supportive policy framework and by providing incentives to the manufacturers in this space. As a result, lithium-ion battery-based storage solutions will gain prominence, for both Automotive and Industrial applications," Exide Industries MD & CEO Subir Chakraborty said, commenting on the new development.

In a stock exchange filing, Exide Industries said its board, at a meeting held on Tuesday, consented to participate in the PLI scheme for "National Programme on Advanced Chemistry Cell (ACC) battery Storage", issued by the Ministry of Heavy Industries (MRI) for setting-up of multi-gigawatt Li-ion cell manufacturing facilities.

Chakraborty, in August this year, had said the company was exploring "all the possible options" to get into cell manufacturing for lithium-ion batteries and awaiting fine print and details of the PLI scheme for manufacturing advanced chemistry cell (ACC) batteries in the country.

The minimum investment needed for a cell manufacturing facility for lithium-ion batteries would be around $100 million per gigawatt-hour (GWh), he had informed.

Copper market to be well supplied in 2022

The global refined copper market is expected to be in a significant surplus in 2022, following a small supply deficit in 2021.The refined copper market saw a deficit of 479,000 mt in 2020, according to the International Copper Study Group, or ICSG.

ICSG expects a small deficit of 42,000 mt in 2021, with 2022 supply forecast to exceed demand by a colossal 328,000 mt.

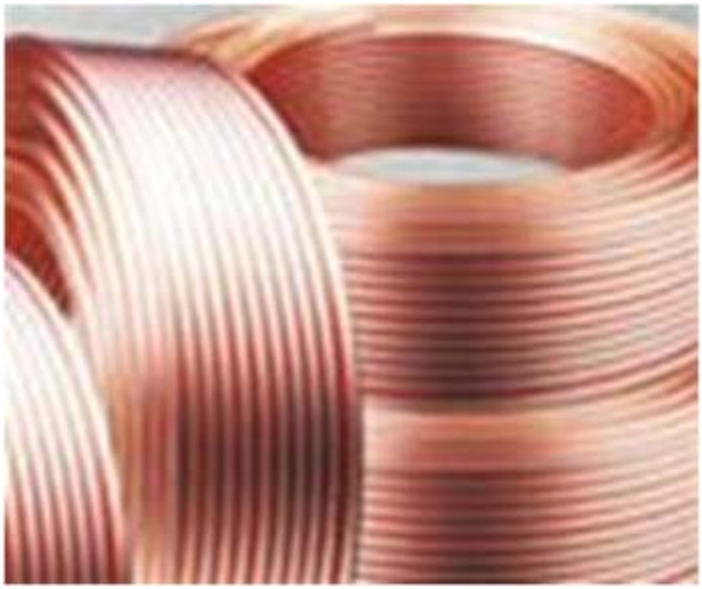
The 2022 surplus is based on the assumption of a 3.9% increase in refined output, the biggest increase in eight years, with copper demand expected to see a 2.4% increase, ED&F Man Capital Markets analyst Edward Meir said in a note Dec. 7.

Even though a rise in demand is anticipated, this will not be enough to absorb the increase in supply, Commerzbank's commodities analyst Daniel Briesemann

said in a note.

Also, the conspicuous supply difference is due to the expected noteworthy recovery in mine output.

According to ICSG, mine output will rise by 3.9% due to the commissioning of several new projects and the expansion



of existing mines, Briesemann said.

This was echoed by UK brokerage MarexSpectron, which said in a research note Dec. 7 that according to CRU — a commodity research company — the view is that after a deficit in 2021, the following two years are expected to see a surplus.

"They see the major projects coming online as Teck's QBII mine in Chile and Anglo's Quellaveco project in Peru which could add 200,000 mt. Then you have Ivanhoe's mine in [Democratic Republic of] Congo which could add a further 70,000 mt. Also, you have the ramp up at Freeport's Grasberg [in Indonesia] which could potentially add 110,000 mt," Marex said.

Secondary production

Aside primary copper production, an increase in secondary production, from scrap copper, was also likely to contribute to copper's surplus, Briesemann said. The supply chain was not encountering the same bottlenecks as earlier on during the pandemic, with operations more fluid following the easing of lockdown restrictions, he added.

Commerzbank's analyst noted that the higher copper supply was also essential in restocking the heavily depleted inventories.

"Stocks in LME warehouses are only slightly above a 16-year low, and those in SHFE warehouses are as low as they were last in 2009," Briesemann said.

This was echoed by ED&F's Meir: "Copper inventories remain critically low and are offering invaluable pricing support. Shanghai-bonded stocks fell to multi-year lows this past month, while LME stocks tumbled by 40% in November alone."

UK brokerage Liberum analysts, led by head of commodities strategy Tom Price, said in a research note Dec. 7 that global exchange inventories were down 60% since April, while on the other hand global scrap flows remained constrained.

"A recent pullback in China's imports is probably a seasonal event/credit-related, set to reverse in 1Q22; spot TC/RCs [spot copper concentrate treatment and refining charges] have stabilized in-line with 2021's contract $60-6c/lb," Liberum said.

Concentrate benchmark

ED&F's Meir said that the concentrate market looked to have tightened slightly since mid-September looking at the mild decline in spot TC/RCs.

"More importantly, long-term contract negotiations remain stalled although there is some hope that the benchmark price would be settled before Christmas. Chinese buyers are balking at entering iron-clad long-term deals, having gotten burnt this year by soaring backwardations," ED&F's analyst said.

For 2021, the annual concentrate benchmark was settled at $59.50/mt, Meir said.

"For 2022, it could settle in the high $60's, reflecting higher mine production (+3.9% projected by the ICSG), but we would not be surprised to see some pricing clauses inserted in the event that back surface with the same intensity as they did over the past few months," the analyst said.

Prices

With supply prospects looking optimistic, "many are calling for lower prices heading into 2022," Meir said, with ED&F's December copper price range between $9,315-$9,880/mt.

Reiterating the expectation of the global copper market being well supplied in 2022, "the market could therefore catch its breath before probably turning into a structural supply deficit later on," Briesemann said.

"In our view, the envisaged surplus should counteract strongly rising prices. We expect a (moderate) setback in prices in line with the improved supply situation. At the end of next year, the copper price should be trading at $9,500/mt," Commerzbank's analyst said.

UK broker Liberum copper forecast stands at an estimated $7,800/mt for 2022, $6,698/mt in 2023 and $6,635/mt, while Standard Chartered Bank's forecast stands at $9,150/mt for 2022 and $8,300/mt in 2023.

Shri M.R. Shah (Journey : 1945 to 2021)

Indian Foundry Industry will always remember the internationally recognized Editor of the Foundry Magazine, Late Shri M R Shah, who had passed away on 31st December 2021. He had devoted his valuable time to the industry and presented the technological development for the Indian Foundry Industry.

On behalf of Metalworld and Steelworld Publications, we pray that the almighty gives his family the strength to withstand this tragic moment.

A GOOD HEART HAS STOPPED BEATING

Cruel Pandemic has been marked 2001as dreadful year at large with death and loss. It has dragged its feet, claiming lives and pushing us all behind closed doors. There`s hardly a household left untouched by the dark clouds of Covid -19. We lost people we loved or knew, colleagues we hadn't seen for a while, or friends we didn't get a chance to say goodbye to. The losses have been immeasurable.

At this juncture , it is very unfortunate to share, Mr M R Shah, a noted Foundryman, and a Publisher and Editor of Foundry Magazine passed away on 31st December, 2021 after a prolonged illness attributed to Covid -19. He is survived by his three daughters, Son-in-laws and loving grand chidren.

Mahendra R. Shah was a qualified foundryman with long and rich experience in ferrous and non-ferrous foundries. He was an alumnus of The M. S. University of Baroda (B.E.- Mech., 1966), and The Indian Institute of Science, Bangalore (M. E. in Foundry Science & Engineering, 1968). He had rich experience in teaching (at The M. S. University of Baroda) and industry (Jyoti Ltd., Vadodara; L & T Ltd., Powai, Mumbai; and Bhagwati Spherocast Group, Ahmedabad)

His passion was journalism dedicated to Foundries . His greatest pleasure was developing informative and technical features in his career as a Foundry Man cum Journalist. Foundry Magazine has been his dream project which was launched in 1988 and there has been no looking back. His services to Foundry fraternity thru this bi-monthly magazine has been commendable.

He was gentle yet firm and intelligently handled complex matters thrown at his role. He has left an indelible impact. His loss is a huge shock to us all and our heart goes out to his family.

May his soul rest in peace.

By Beena Verma

Former Editor & CEO, MMR

Founder Editor, Foundry Review

With sad demise of Mr. M.R.Shah of FOUNDRY magazine, Indian foundry lost an important icon. My contact with Mr. Shah dates back early nineties. Extremely sincere and soft spoken person. Not once I saw him raising his voice during any debate or during arguments. Foundry Magazine brought foundry world on one platform, be it technical papers or foundry equipments and castings. Offourse Mr. Shah was very selective on good technical paper, bringing new and innovative ideas.

Mr. Shah all these years participated in IFC with great enthusiasm and held many a times important positions including member of technical paper selection committee. He took interviews of prominent foundrymen and published interviews in the Foundry magazine. It may not be so easy to fill in the void created with Mr. Shah's demise. My heartfelt condolence.

Prakash Chaubal

Director, Inductotherm (I) Pvt. Ltd.

SIAM Statistic
Passenger Vehicle Sales Drop On Year In November 2021

The Indian automobile industry has been grappling with a sales slowdown since 2019. As the auto industry continues to reel under the shortage of semiconductors, the month of November brought in relief to select automakers in the country.

The auto industry registered 2,45,262-unit sales in November 2021 as compared to 2,86,235-unit sales in the same period last year, thereby witnessing a drop of 14.3 per cent. As compared to October 2021, car sales have dropped by 5.7 per cent. According to the SIAM, new vehicle sales in India declined by 2.7 per cent last month as compared to November 2020. While this may not sound a significant drop in sales, it must be remembered that 2020 itself was a month of low sales

Passenger vehicle wholesales in India fell by 18.60% year-on-year (YoY) in November amid shortage of semiconductors, auto industry body Society of Indian Automobile Manufacturers (SIAM) said on Friday. Passenger vehicle sales last month stood at 215,626 units, as compared to 264,898 units in the year-ago period. As per the latest data by SIAM, 105,091 units of utility vehicles were sold in November (2021), and 100,906 units of passenger cars were sold in the month.

The factors contributing to this drop in passenger vehicle sales included crop loss due to incessant rains and flood in southern parts of the country. However, one of the major reasons is the semiconductor shortage that has impacted vehicle production.

This is despite customers' high interest in new vehicles bolstered by several product launches last month and during the festive season. But the shortage of vehicles has led to long wait periods because of which many customers are dropping their plans of buying a new vehicle.

Maruti Suzuki, Hyundai, and Tata Motors continue to retain the top-three positions in the country. Read below to learn more about the sales performance of brands and their respective models in November 2021.

A total of 22,471 units of three-wheelers were sold in the month, while 9,629 units of vans were sold in November. The total production of passenger vehicles, three-wheelers, two-wheelers and quadricycle in November stood at 1,696,012 units, SIAM said. A total of 356,659 units of two-wheelers were exported in the said month, whereas, 42,431 units of three-wheelers and 44,265 units of passenger vehicles were exported in November (2021).

Commenting on November 2021 sales data, Mr Rajesh Menon, Director General, SIAM said, “Industry continues to face headwinds due to global semi-conductor shortage. In the festive season, Industry was hoping to make up for the lost ground, but the sales in the month of November 2021, were lowest in 7 years for Passenger Vehicles, lowest in 11 years for TwoWheelers and lowest in 19 years for Three-Wheelers. Amidst the rising threat of Omicron, the new Covid variant, Industry is pro-actively ensuring employee safety and monitoring any supply chain hiccups.”

SIAM						
Summary Report: Cumulative Production, Domestic Sales & Exports data for the period of April-November 2021						
						Report I
						(Number of Vehicles)
Category	Production		Domestic Sales		Exports	
Segment/Subsegment	April-November		April-November		April-November	
	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
Passenger Vehicles (PVs)*						
Passenger Cars	951,630	1,122,032	839,008	885,865	154,356	238,821
Utility Vehicles (UVs)	612,079	1,003,749	555,746	870,894	79,062	128,413
Vans	58,045	74,707	60,804	72,934	564	1,371
Total Passenger Vehicles (PVs)	**1,621,754**	**2,200,488**	**1,455,558**	**1,829,693**	**233,982**	**368,605**
Three Wheelers						
Passenger Carrier	294,303	432,702	64,245	102,074	229,852	337,054
Goods Carrier	49,802	54,740	45,965	47,592	2,929	6,085
Total Three Wheelers	**344,105**	**487,442**	**110,210**	**149,666**	**232,781**	**343,139**
Two Wheelers						
Scooter/ Scooterettee	2,721,882	2,956,380	2,779,417	2,702,003	122,888	248,561
Motorcycle/Step-Throughs	8,049,141	8,658,617	6,456,310	6,069,307	1,681,721	2,719,671
Mopeds	399,125	333,258	402,184	330,473	4,979	7,720
Electric Two Wheelers	1,347	8,063	1,356	8,070	-	-
Total Two Wheelers	**11,171,495**	**11,956,318**	**9,639,267**	**9,109,853**	**1,809,588**	**2,975,952**
Quadricycle	**1,721**	**3,594**	**-27**	**54**	**1,639**	**3,887**
Grand Total of All Categories	**13,139,075**	**14,647,842**	**11,205,008**	**11,089,266**	**2,277,990**	**3,691,583**
* BMW, Mercedes, Volvo Auto data is not available and Tata Motors data is available for Apr-Sep only						
Society of Indian Automobile Manufacturers (10/12/2021)						

SIAM						
Segment wise Comparative Production, Domestic Sales & Exports data for the month of November 2021						
						(Number of Vehicles)
Category	Production		Domestic Sales		Exports	
Segment/Subsegment	November		November		November	
	2020	2021	2020	2021	2020	2021
Passenger Vehicles (PVs)*						
Passenger Cars	171,502	134,184	149,949	100,906	24,571	29,914
Utility Vehicles (UVs)	111,719	122,339	103,525	105,091	13,543	14,173
Vans	11,375	10,029	11,424	9,629	186	178
Total Passenger Vehicles (PVs)	**294,596**	**266,552**	**264,898**	**215,626**	**38,300**	**44,265**
Three Wheelers						
Passenger Carrier	54,410	55,471	14,158	16,159	36,893	41,852
Goods Carrier	11,050	5,980	9,913	6,312	386	579
Total Three Wheelers	**65,460**	**61,451**	**24,071**	**22,471**	**37,279**	**42,431**
Two Wheelers						
Scooter/ Scooterettee	524,058	325,303	502,561	306,899	19,188	24,481
Motorcycle/Step-Throughs	1,339,845	1,011,771	1,026,705	699,949	305,506	331,992
Mopeds	72,594	29,278	70,750	42,558	1,042	186
Electric Two Wheelers	296	1,349	363	1,210	-	-
Total Two Wheelers	**1,936,793**	**1,367,701**	**1,600,379**	**1,050,616**	**325,736**	**356,659**
Quadricycle	**330**	**308**	**-**	**46**	**228**	**294**
Grand Total of All Categories	**2,297,179**	**1,696,012**	**1,889,348**	**1,288,759**	**401,543**	**443,649**
* BMW, Mercedes, Tata Motors and Volvo Auto data is not available						
Society of Indian Automobile Manufacturers (10/12/2021)						

World refined lead metal supply exceeded demand by 15kt during Jan to Oct 2021

The International Lead and Zinc Study Group (ILZSG) released preliminary data for world lead and zinc supply anddemand during the first ten months of 2021. A brief summary is listed in the tables below.

World Refined Lead Supply and Usage 2016 - 2021											
000 tonnes						2020	2021	2021			
	2016	2017	2018	2019	2020	Jan-Oct		Jul	Aug	Sep	Oct
Mine Production	4,704	4,602	4,572	4,684	4,501	3,670	3,838	394.4	414.7	410.8	415.4
Metal Production	11,584	11,961	12,244	12,273	11,894	9,733	10,118	995.8	993.8	985.1	998.4
Metal Usage	11,541	12,104	12,290	12,225	11,754	9,601	10,103	964.2	1,008.0	1,026.6	1,038.6

As per the provisional data reported to the ILZSG indicate that world refined lead metal supply exceeded demandby 15kt during the first ten months (Jan to October) of 2021 with total reported stock levels increasing by 31kt.

Global lead mine production rose by 4.6% over the first ten months of 2021 compared to the same period in 2020. This was mainly due to increases in Bolivia, China, India, Mexico and Peru that more thanbalanced a significant reduction in Poland.

Rises in a number of countries, most notably Belgium, China, India, Mexico and Poland resulted in anoverall increase of refined lead metal production globally of 3.9%. However, output declined in Australia,Kazakhstan and Germany, due to the temporary suspension of activities at Ecobat's Stolberg smelter inmid-July. In the United States production also fell, primarily due to the closure of Clarios' 100 thousandtonne per year secondary lead smelter in March.

Refined global lead metal usage rose by 5.2%, primarily influenced by increases in Europe, Brazil, Japan,the Republic of Korea, Mexico and the United States.

Chinese imports of lead contained in lead concentrates decreased by 11.4% to 557kt. Net exports ofrefined lead metal totalled 32kt compared to net imports of 29kt over the same period of 2020.

World Refined Zinc Supply and Usage 2016 - 2021											
000 tonnes						2020	2021	2021			
	2016	2017	2018	2019	2020	Jan-Oct		Jul	Aug	Sep	Oct
Mine Production	12,679	12,683	12,744	12,814	12,276	9,999	10,608	1,056.8	1,101.2	1,087.8	1,110.8
Metal Production	13,611	13,534	13,151	13,518	13,774	11,338	11,594	1,170.0	1,157.8	1,156.0	1,151.3
Metal Usage	13,726	13,998	13,718	13,791	13,271	10,862	11,687	1,207.7	1,171.2	1,194.4	1,157.4

Source: ILZSG

- According to preliminary data recently compiled by the ILZSG and after taking into account releases totalling 180 thousand tonnes of refined zinc by China's National Food and Strategic Reserves Administration, the global market for refined zinc metal was in surplus by 87kt over the first ten months of 2021 with total reported inventories decreasing by 178kt.
- World zinc mine production rose by 6.1% mainly as a result of increases in Bolivia, India, Mexico, Peru, South Africa and Turkey that more than balanced falls in Brazil, Canada, Ireland, Kazakhstan and Poland.
- Rises in refined zinc metal production in China, India, Japan, Peru and the United States were partially offset by decreases in Canada and the Republic of Korea, resulting in an overall rise globally of 2.3%.
- A 7.6% increase in global usage of refined zinc metal was a consequence of rises in a number of countries and regions, in particular Europe, Brazil, China, India, Japan, Taiwan (China), Thailand, Turkey and the United States.
- Chinese imports of zinc contained in zinc concentrates fell by 7.1% to 1449kt. Net imports of refined zinc metal totalled 398kt, an increase of 0.9% compared to the first ten months of 2020.

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