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- **Aluminium Sector- Technology, Process & Applications**

- **Hydro investing in the green transition and Norwegian aluminium plants**
- **LME records chaotic year with metal stockpiles perilously low**

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## D. A. Chandekar
## Editor

*Dear Readers,*

Customer is the most important guest in your premises' is a very famous statement and is seen being displayed in many shops. Such is the importance of 'customer' or if one sees this in the context of industry, such is the importance of 'demand'. Yes, if demand is there everything else can be managed, created, isn't it !

The global metals industry today is caught in a delicate situation. The US has already started showing signs of recession. May be in the next few months it will be officially announced. European economy is stagnated since many years and whatever demand is remaining, energy / gas scarcity will further erode it. I am afraid, European countries (barring few exceptions like Germany, France) will also enter a long recession in few months from now. After the real estate bubble burst in China, their economy is far from healthy. Their growth projections have already been slashed down drastically by ADB and other global bodies. In all likelihood, their exports as well as the domestic demand will suffer a jolt. Many of the Middle East region countries are actually the satellite economies of the US and the western world and move up and down in tune with them. Also the IUI (infrastructure



Utilization Index) being very low in the region, there is a limit to the developmental activity and thus is not expected to contribute much to the metals demand in next few years. Africa is still not fully awake and the steel demand in most of the countries is insignificant. Where does all this leave us ?

Where is the economy and the metals demand growing ? The answer is undoubtedly 'India'. Yes, it is. Firstly, the continuous and sizable domestic demand has protected India from entering into recession. Whatever happens in the rest of the world, the country as big as 135 crores population and boasting of the biggest middle class in the world can not be short of demand. Secondly, as its IUI is very high, one can expect a huge and sustained developmental activity here which will ensure metals demand curve heading north.

All this is not only hallow theory. We are seeing it happening on the ground. The user industries like construction and auto are manifesting robust growth. All the major metal business houses are implementing very big expansion plans. Domestic metals production climbing up and still the imports are also rising. Such strong is the metals demand push !

In my opinion this is the time to take a bit extra risk and bait your money on Indian economy and metals sector ! What say you ?

*Write your comments :*
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# Aluminium Sector- Technology, Process & Applications

**Metalworld Magazine successfully concluded the 11th Asian Metallurgy which was started in 1997 as a physical exhibition & conference until Covid hit the country. After Covid, all events were converted into digital ones. From last year, Asian Metallurgy was conducted through online mode and it was participated in by more than 50 stands including steel & metal expo etc.**

During the 11th Asian Metallurgy session, ***S.M. Kulkarni (Consultant)***

had a detailed discussion with eminent experts on the important topics such as increase in usage of aluminium in newer applications & sustainability.

At the opening remarks, S.M. Kulkarni emphasized more on the primary material which gets consumed is Metals & it is actually led by steel, copper, aluminium as well as others. Within metals, aluminium is considered as the metals of the future, it is already replacing many conventional materials and therefore it is important to focus on aluminium in the Metallurgical industry.

***Excerpts :***

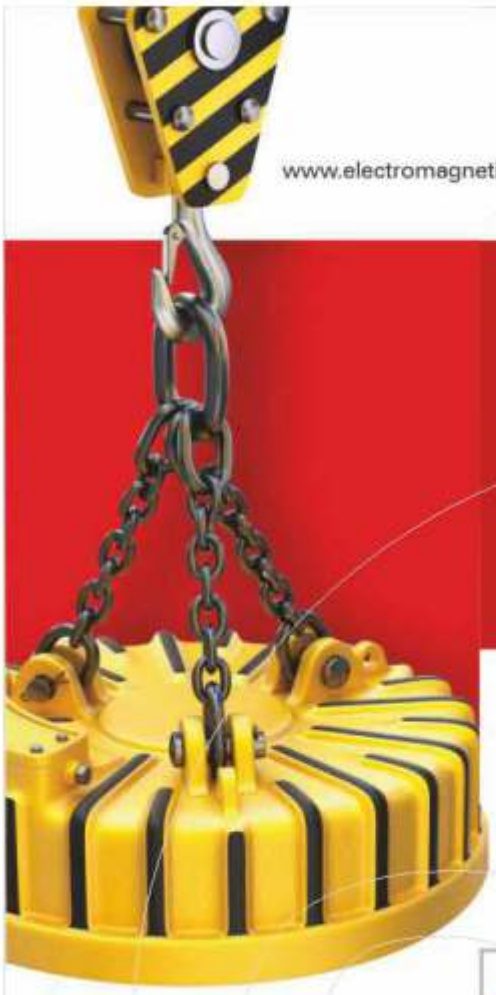
**Mr. Dhamorikar : How do you analyse the usage of aluminium in the transportation industry going up and your strategy for enhancing the use of aluminium in transportation?**

***Sagar Dhamorikar (Head, Commercial Vehicles, Hindalco)***- Aluminium is primarily used for its light weight & is infinitely recyclable also it is corrosion resistant. So if someone really wants to drive the sustainability agenda, one also needs to look into what is called product

stewardship. If we can harness the true potential of aluminium, we can definitely reduce the greenhouse emission and help in achieving that net zero emission target of various

**Hindalco's ecosystem will be beneficial to enhance the usage of aluminium in the transport industry**

agencies and typically the COP 27 agenda. In that perspective transport being one of the leading end-users, aluminium finds an important space in this arena. In the transport segment, typically every 100 kg



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reduction in weight leads to almost 8 grams of CO2 emission. So, we started with aluminium bulkers because here the major issue is the heavy weight of the vehicles. In the commercial vehicle space, there is significant scope for reduction in CO2 from the sustainability point of view. Now you may ask why commercial vehicles? because here the benefits are also tangible. Unlike in western region, where people typically have to focus on the passenger segment for gaining the Corporate Average Fuel Economy (CAFE) standards.

**What is the kind of potential of this weight reduction, in terms of money across India ?**

***Sagar Dhamorikar -*** The typical life of a vehicle in India is 15 years, so 12 years you can very well enjoy the benefit of the extra payload. For a transporter, if you ask raw numbers this means around Rs.40,000 earnings per month. So, on an average of Rs.40,000 multiplied by 180 months it's a significant savings so he recovers the cost of aluminium what he has paid plus he recovers almost the entire vehicle cost by converting into aluminium.

**How can this benefit be extended worldwide ?**

**Sagar Dhamorikar -**Some companies like in the US or even in Thailand have converted commercial vehicles into aluminium vehicles. If you look at Tesla's new truck it uses a significant amount of aluminium so it is a new beginning. In India it's a fairly established phenomena & typically with the move towards e-mobility the potential is significant .Things are looking brighter from this juncture but it is not as simple as it sounds because people are convinced about the product, they are worried about the ecosystem to service these products & here is where Hindalco is playing a major role, so now we have created an ecosystem of fabrication which will give confidence to the stakeholders that these vehicles can be repaired in case of accidents.

**Vaishali - Can you please elaborate the company strategy which helped to reach the status of being the most sustainable aluminium manufacturer worldwide. What was your journey like?**

***Vaishali Surawar (Head of Sustainability, Hindalco) -***

We focus more on waste recycling, 86% of the waste is going as a raw material to cement majorly & also for road making, brick & other applications as well. We are also working with many IITs, IIMT, CRRI to ensure that the applications developed are getting into the notifications of the government & that's how we are trying to promote aluminium usage in various segments . I think taking a systematic approach, adopting the right method & partners is what matters. Hindalco has adopted semi dry technology to reduce the water consumption while NTPC has gone for the technology. They are using full water-based technology and that is how they are producing calcium sulphate. While we are producing calcium sulphate and we know this waste also has to be now filled in the landfill & which we thought we should virtually work & find an application for this we have shortlisted almost 60 to 80 startups.

**Lastly, what will be your message to go forward with a positive note?**

**Vaishali Surawar-** Don't restrict yourself to the competencies, capabilities within the four walls of your company. As the entire world is available for collaboration, today collaboration is a way to find solutions for your problems. You alone won't have those skills & competencies to solve every problem. You need to have an open mindset to put your problem in the public domain, don't hide your problems, there's always someone who will find a solution for your problem.

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*Old caviar tubes becomes new, low-carbon aluminium after recycling*

# Hydro investing in the green transition and Norwegian aluminium plants

The investments at the Norwegian primary aluminium plants will help Hydro take a leading role in climate efficient aluminium solutions through continued industrial development and initiatives driving the green transition. The primary aluminium plants will have an extended lifespan and the products are turned towards low-carbon aluminum for a growing market.

"We are upgrading the plants, investing in the development of the plants, and implementing new technology such as recycling, carbon capture and green hydrogen with the goal of becoming the world's first supplier of zero-carbon aluminium. We recently entered into an agreement with Mercedes Benz for a technology collaboration, and to supply our aluminium products to support their investment in making lighter, more climate friendly electric cars," says Ola Sæter, Head of Primary Production at Hydro.

In 2021, Hydro launched new climate ambitions to become carbon neutral by 2050, with a partial goal of having several technologies ready on an industrial scale by 2030. The company has initiated several projects to develop new technology that will help reduce emissions from aluminium production. Over the last two years, Hydro has initiated projects worth around NOK 3 billion at the Norwegian aluminium plants. The investments will contribute to


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reducing greenhouse gas emissions, on the way to becoming carbon-neutral by 2050.

The technology of increased recycling of post-consumer aluminium will contribute to reducing emissions faster today. In 2022, Hydro produced aluminium products for customers that were 100 percent recycled, and with near zero-carbon footprint. By introducing green hydrogen to replace natural gas, it could bring the production to zero-carbon emissions. Hydro Høyanger has tested using more post-consumer aluminium in its primary production, with good results. They are now building a special facility that will take in more post-consumer aluminium directly into the primary aluminium casthouse production, and further reduce the climate footprint for aluminium produced in Norway.

The development of carbon capture, adapted to aluminium production, will be able to reduce the direct emissions at the existing primary plants. At the same time, Hydro is developing a completely new production method that will remove the emissions from the electrolysis process. The new process is called HalZero and involves replacing the current Hall-Heroult process, which was patented in 1886, and which has been gradually improved and used for almost 140 years.


*Maximilian van Veen, Jan Erik Abrahamsen og Jonny Manseth discussing use of post-consumer aluminium in the sheet ingot casthouse at Hydro Høyanger.*

"We believe that Norway, with its political system, large natural resources and highly competent workforce, gives us a good starting point for developing tomorrow's materials and industrial processes," says Sæter.

In addition to investment projects, Hydro is working on developing the skills of the work force. During the period of a weaker market for certain aluminium products, Hydro Husnes and Hydro Karmøy are doing a comprehensive skills upgrade. This involves a management development program, industrial vocational school, training in the prevention of CO2 emissions, training on various types of vehicles and training in new work tasks.

"We have a lot of activity at all our Norwegian aluminium plants and there is an exciting development of new aluminium products. It increases our flexibility to deal with challenging markets and increased demands for quality and a low-carbon footprint from customers," says Sæter.

"Although the current aluminium market is challenging and we are entering 2023 with high inventories, we are confident that the long term development of the aluminium market will be positive. The world needs more aluminium, especially low-carbon aluminium, which we can produce. Demand for low-carbon aluminium is increasing by 20 percent annually, compared to three percent annual growth for aluminium overall. Norway, therefore, has the best conditions for us to continue to be the most important aluminium supplier in Europe. The competition is fierce and we must continue to develop the Norwegian primary aluminium plants," says Sæter.

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# LME records chaotic year with metal stockpiles perilously low

The London Metal Exchange will enter 2023 with the smallest available warehouse stockpiles in at least 25 years, setting the stage for future squeezes and spikes if demand turns out stronger than expected as reported by Bloomberg

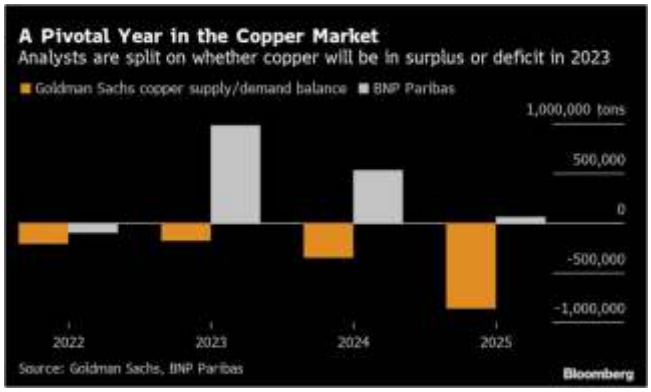

While most of the world's metal never sees the inside of an LME warehouse, exchange inventory levels are important because every short seller who holds a contract to expiry must deliver physical metal registered in an LME warehouse. The LME has introduced new rules to allow deferral to prevent future squeezes, but the exemptions come with costly fees.

The tight stockpiles also reflect a tension that has gripped metals markets for much of this year, between constrained supplies on the one hand, and worries about weakening demand due to recessionary threats in the world's key economies on the other.

For traders on the LME, the dwindling inventories represent another in a litany of headaches following one of the most dramatic years in the exchange's 145-year history. The LME is facing regulatory probes and lawsuits over its actions during a runaway short squeeze in the nickel market in March that pushed several LME dealers to the brink of default, and is due to soon publish the results of an independent review into the crisis.

Heading into 2023, a key debate across metals markets is whether a worldwide downturn in industrial activity and rebounding supply will help to replenish the industry's threadbare reserves, while China's recent reopening from Covid lockdowns adds further uncertainty.

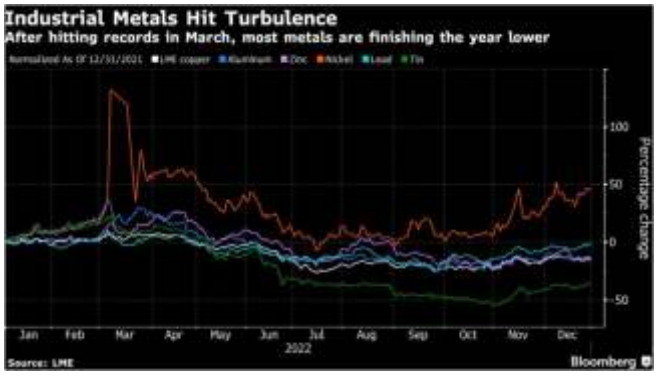
The debate over the outlook for metals supply and demand is particularly contentious in copper, where




some analysts are predicting ongoing deficits while others see the market swinging into a rare and historic period of oversupply.

That's feeding into a sharp divergence over the outlook for prices, with analysts at Goldman Sachs Group Inc. predicting copper will hit a record high of $11,000 a ton within 12 months, while BNP Paribas says prices will drop to $6,465 a ton by the middle of next year as the market swings into a huge surplus. Prices were little changed at $8,402.50 as of 1:58 p.m. local time on the LME on Friday.

As the year draws to a close, only nickel is trading in positive territory. The market remains hamstrung by low liquidity since the crisis, with regular sharp swings.



Copper, zinc and aluminum are all down more than 10% this year, while tin, the worst performer, has plunged by more than a third and is set for the biggest annual decline since at least 1990.

A historic squeeze in the tin market seen during the early stages of the pandemic has unraveled this year, with cooling demand from the electronics sector coinciding with a recovery in supply. Still, worries about low levels of inventory persist, and prices have been staging a comeback over the past two months as buyers move to secure stocks in anticipation of a rebound in demand.

## Prices will fall across metals and mining in 2023 – Woodmac

Wood Mackenzie _in a newreport makes ten predictions for 2023, including that world oil demand growth will bounce back, carbon capture, use and storage will go mainstream and that developed countries will follow the US Inflation Reduction Act and step up their own policy support for low carbon energy.

Mining, particularly battery metals, will receive a boost if other predictions from the Edinburgh-headquartered commodity market specialists pan out, including forecasts of a recovery in US solar installations, surging electric vehicle sales and IRA-like policies outside the US – but overall the outlook for the sector next year is dim.

Nick Pickens, Woodmac's Research Director – Copper, says softening demand, stronger supply and weaker sentiment point to a year-on-year decline in average prices across the metals and mining industries in 2023:

"The construction sector, a key area for iron ore, steel and base metals, will be a drag on global demand, with the Chinese real estate market in particular remaining sluggish.

"Meanwhile, supplies of copper, aluminium, lead, zinc, iron ore and steel, among others will all post higher growth rates than in 2022. The production of battery materials – nickel, cobalt and lithium – will continue to forge ahead, following double digit-growth in 2022."

Pickens does point out that there are some upside potential on the demand side next year, but "overall, we think the prevailing tendency in prices will be downwards":

"Inflationary pressures are showing signs of easing, and so are supply-chain constraints. That could mean the global economic slowdown is less severe than expected. A

recovery in the automotive sector and in low-carbon energy could help offset some of the demand weakness in other consumer-led segments.

FocusEconomics, a Barcelona-based independent research company, says demand for copper and industrial metals should stay fairly limp during the first half of next year "as global interest rates peak and China's economy likely stays weighed down by the property crash and covid-19."

The consensus forecast for average copper prices in 2023 is below current levels at around $7,660 per tonne, according to FocusEconomics with the lowest prediction at just $5,430 per tonne and the top end at an uninspiring $8,775 per tonne.

In 2024 prices are expected to average $8,000 per tonne – with the most bearish prediction pegged at below $5,000 and the highest at $10,750 per tonne. Surging covid cases in China after the easing of restrictions have reinforced worries about demand, already under pressure from weakening global industrial activity.

"Globally, it doesn't look good for industrial metals. China's rapid reopening remains in focus with optimism around reopening, tempered by the number of cases," a metals trader said. "The softening dollar is lending some support."

Also weighing on the base metals complex is China's Lunar New Year holiday later this month when factories sometimes shut down for weeks.

# Electric vehicles continue charge toward sales dominance – EY analysis


· Despite headwinds, combined electric vehicle (EV) sales in the US, China and Europe to outstrip all other engine sales by 2030

· By 2040, internal combustion engine (ICE) vehicles will shrink to less than 1% of overall sales

· Europe is expected to lead electric vehicle sales volumes until 2024, with China taking the lead from 2025 onward.

Electric vehicle1 (EV) sales in the US, China and Europe will outpace all other engines three years sooner than previously expected, according to new EY research and analysis. The figures come from the EY Mobility Lens Forecaster, an artificial intelligence (AI) powered forecasting tool that provides an outlook for light vehicle registrations through to 2050.

The latest predictions show that by 2027 EV sales in Europe will surpass those of other powertrains, a trend that will be repeated in both China and the US by 2032. For Europe and China this is one year faster than previously expected and for the US four years faster. In the US the change is driven by continued investments in electrification, with the leading states being California, New York, Washington, and Massachusetts among others. The analysis also shows that by 2040, ICE vehicle sales will shrink to less than 1% of global sales, five years faster than previously expected.

Randall Miller, EY Global Advanced Manufacturing & Mobility Leader, says:

"Despite a series of finance and energy related headwinds in the last 12 months, the EV revolution continues to gain momentum and the point at which we think EVs will come to dominate the marketplace has actually moved forward."

"In Europe, car sales in general are down and we would expect the move over to EVs to potentially struggle if the energy crisis persists. This would require more government assistance to maintain the current pace. In China, while we expect EVs to dominate sales by 2032, we also see hybrids sustaining their market share all the way up to 2050. In the US we see large population states leading the way, so there remains cause for optimism in meeting the 2030 target for 50% of sales being EVs. Despite this the US will need to deal with supply chain issues and recessionary headwinds focusing on charging infrastructure and in-country battery development to really push on with EVs."

EV sales charge continues

Rising consumer demand backed by government policies and incentives, along with aggressive electrification targets by original equipment manufacturers (OEMs) have accelerated the transition to EV adoption in all three key regions - Europe, the US and China. Benefits of a carbon-neutral mobility ecosystem are now being realized at a larger scale, which has led to substantial investments in all three regions toward setting up EV infrastructure and transitioning from fossil-led mobility ecosystem to an electric one.

A better way to forecast

EY automotive analysts and data scientists built the EY Mobility Lens Forecaster on a neural network model that uses AI to analyze several variables that influence demand and supply for mobility. These include variables that reflect consumer behavior, regulatory trends, technology evolution (vehicle and ecosystem) and manufacturers' announced strategies. The model is updated regularly with new market inputs to keep up with the ever-changing reality, including disruptions and available technology. As its predictions are matched up against actual outcomes, the model adjusts its calculations and learns from any mistakes for future predictions, essentially becoming smarter and more accurate over time.


*Innovative business models such as battery swapping have emerged to enable widespread EV adoption.*

# EVs set to lead Auto space in India by 2030

**According to NITI Ayog, by 2030, nearly 80 per cent of two- and three-wheelers, 40 per cent of buses, and nearly 70 per cent of cars in India will be EVs**

Share:

In today's time, governments all over the world are encouraging the electric vehicle (EV) industry through various regulations and incentives to meet the consumer demand for low-emission commuting instead of the fossil fuel-driven vehicles that are endangering our planet.

Initial EVs launched in India were available at a very high initial cost, low speed, smaller battery with lower range due to which the industry the industry could not take off. However, the last 10 years have seen a breakthrough within the EV segment. There has been a rise in universal interest among original equipment manufacturers (OEMs), governments and customers resulting in the EV manufacturing domain witnessing lump sum investments being made, resulting in millions of vehicles getting sold across countries.

The path towards EVs in India

**Sunil Gandhi**
*CEO*
*JLNPhenix Energy*

The path towards a bright future of EV in India is slowly being paved. According to NITI Ayog, by 2030, nearly 80 per cent of two- and three-wheelers, 40 per cent of buses, and nearly 70 per cent of cars in India will be EVs. As the nation gears towards its 'zero-emission' 2070 dream, funds and focus are being directed towards electric mobility.

Innovative business models such as battery swapping have emerged to enable widespread EV adoption. Battery swapping model improves issues of long charging time, range anxiety, high upfront cost and battery reliability concerns for EV owners. To make this model workable, the operator needs

to ensure standardisation of batteries and operate in a closed loop environment.

There are several reasons as to why the electric vehicles are all set to lead the space in the times to come. Explained below are some of the reasons:

Eco-friendly savings on CO2 emissions

Shifting gears to electric mobility will help India save nearly one giga tonne of carbon dioxide emissions by 2030. Even those buying cars are ready to do their bit for the environment by switching to EVs that will eventually help reducing environmental hazards to a great extent. This acts as a great initiative toward boosting public health by reducing ecological damage. Lesser the exhaustion of harmful emissions, better the air quality will be, which eventually implies fewer health problems.

Significant cost savings on maintenance and running

Maintenance and running costs form a major part of ownership in terms of vehicles are much less as EVs are quite economical in terms of fuel costs and have fewer moving parts thus less costly to maintain.

Offers incredible driving experience

Interestingly, EVs come without gears that often ensures an excellent driving experience without any complicated controls. It's just brake, accelerator and steer to manage and enjoy a convenient drive with much better accelerations, higher wheel torque and efficiency.

Noise-free drive is yet another advantage of electric vehicles. Studies have proven that too much of noise emitted from vehicles can end up impacting individuals in a negative way – such as anxiety, high blood pressure and even increased chances of heart attacks. Needless to say, that when it comes to electric vehicles, such issues are far and few in between.

Additional tax benefits

It might come as a surprise to many, but leasing to buying an EV can help you offer tax benefits. For example, if you have an electric vehicle registered in your company's name, you are eligible to avail 40 percent depreciation in the first year to save on income tax. The government is also supporting the cause or the idea of buying electric vehicle and has launched an EV policy under which you can avail yourself of additional benefits of up to Rs 1.5 lakh.

The way forward

The Indian automobile industry is already in the fifth position globally and it is anticipated to become the third biggest by 2030. According to the India Energy Storage Alliance, the EV market in India is expected to develop at a compounded annual growth rate (CAGR) of 36 per cent. As India's population grows and demand for automobiles increases, reliance on conventional energy supplies is no longer a viable option, as the country imports over 80 per cent of its crude oil.

The Indian government has also been working towards promoting the use of EVs in the times to come. All major Indian and global OEMs have not only invested, but also launched EVs and a large number of brand new OEMs have attracted substantial investment along with the launching of successful models, creating demand for EVs thereby creating unicorns too.

## Chile copper production down 5.5% in November

The agency said the drop was partly due to lower ore grade and operational problems affecting major companies in the sector.

Some copper deposits have also been affected by less water availability, fatal accidents and maintenance issues. Chile is the world's top copper producer and is home to global giants like Codelco, BHP, Glencore, Anglo American, Freeport and Antofagasta.

Manufacturing production in the Andean nation dropped 7.8% in the month, INE added. This follows a 9.2% drop in October.

INE said the decrease was largely due to a drop in manufacturing of chemical products and substances due to a lower availability of raw materials to produce methanol.

There was also a drop in metal products, alcoholic and non-alcoholic beverages due to lower demand leading to less wine grape production.

## Vedanta inks pacts with 30 Japanese firms to develop Indian semiconductor manufacturing ecosystem

Vedanta Group on Tuesday said that it has signed pacts with 30 Japanese technology companies to develop an Indian semiconductor and glass display manufacturing ecosystem. The pacts were signed at the Vedanta-Avanstrate Business Partners Summit 2022 held last week at Tokyo, Japan. The summit was attended by more than 200 delegates from over 100 global companies.
The company is committed to make India a hub for electronics manufacturing. It is focussed on taking the lead in creating the Vedanta Group on Tuesday said that it has signed pacts with 30 Japanese technology companies to develop an Indian semiconductor and glass display manufacturing ecosystem. The pacts were signed at the Vedanta-Avanstrate Business Partners Summit 2022 held last week at Tokyo, Japan. The summit was attended by more than 200 delegates from over 100 global companies.
Vedanta Ltd, an arm of Vedanta Resources Ltd, is one of the world's leading oil and gas and metals companies with operations in oil and gas, zinc, lead, silver, copper, iron ore, steel and aluminium, and power across India, South Africa and Namibia.

## Battery metals sector closes the year with some large M&A deals

The critical metal sector saw two big deals during the second last week of the year, noted Michael McCrae, mining audiences manager at Kitco

On Friday McCrae recorded Kitco Roundtable with John Feneck, Portfolio Manager and Founder of Feneck Consulting.

This week the world's largest miner, BHP, firmed up terms to acquire OZ Minerals. Deal has been upsized to $6.39 billion. For comparison, the Agnico-Pan American-Yamana deal was $4.8 billion. OZ Minerals has copper and nickel operations in Australia. Forbes reports that the acquisition could be BHP's biggest in over a decade. The deal follows the trend of big miners investing in the battery metal space: Sibanye-Stillwater buying ioneer and Keliber, Rio Tinto spending $2.4 billion on Serbian lithium project Jadar. Last year BHP Billiton lost the fight to acquire Noront Resources and its rich nickel project in Ontario.

Keeping with the battery metal theme, Lithium Americas is set to acquire Arena Minerals for $227 million. CEO Jonathon Evans said the transaction will consolidate development projects in Argentina. Lithium Americas plans to cut itself in two in 2023 with one company focusing on Latin America and the other on North America with the goal of unlocking value.

Roundtable also covered macro picture with Feneck predicting a hard landing due to the Federal Reserve's aggressive moves to fight inflation.

## Hindustan Copper Signs Pact for Collaboration with Mines Technology Institute in India

State-owned Hindustan Copper Limited (HCL) and the Indian Institute of Technology (IIT) (Indian School of Mines), Dhanbad, on Wednesday signed a Memorandum of Understanding (MoU) for technical collaboration to increase the state-owned firm's copper ore production.

This is the first technical collaboration between the two organisations. HCL is the only copper miner in India and owns all operating mining leases for copper ore in the country.

At present, majority of ore production comes through from underground, with an estimated 4 million tonne produced annually. However, due to complex geological characteristics of the ore body and increased depth of mining, various geo-technical and ground water related issues along with technical/ operational problems are being faced during the process of production along with

maintaining safety standards and dealing the emerging sustainability issues.

HCL plans to increase its ore production capacity threefold in the coming years wherein development activities in projects are either on-going in nature or already planned in most of its mines.

At present, the mined out ore is processed at the company's ore beneficiation plants and metals in concentrate is sold in domestic and international markets.

IIT-ISM, Dhanbad, being an institute of national repute, particularly in the fields of mining of minerals and its beneficiation and Earth Sciences, will play a key role in solving the emerging geological, technical, environmental, sustainable and ore beneficiation issues for achieving the envisaged expansion programme of HCL.

The MoU will allow HCL to receive technical assistance, guidance and consultancy work from IIT-ISM for enhancing copper ore production through modifying mining methods with application of state-of-the-art technologies, improvement of productivity and safety in mines, environmental clearance issues, various hydrological & hydro-geological studies and in areas of unconventional exploration methods like Geophysical exploration, Remote Sensing etc. for depth exploration of copper ore.

## Rusal looks to supply additional low-carbon aluminium in China

Russian aluminium company United Co Rusal International is considering supply of more low-carbon aluminium to China due to surging demand for the metal from electric vehicle (EV) companies, reported Reuters citing Rusal manager.

Rusal Shanghai Economic and Trade Company vice-president Huang Wenqian was quoted by Reuters as saying to a conference: "We are very optimistic about China's low-carbon demand."

Rusal has annual electrolytic aluminium production capacity of four million tonnes, majority being low-carbon with no more than four tonnes of $CO_2$ emissions.

Each year, the Russian company sells 400,000 to 500,000 tonnes of aluminium into China, marking a large share of the Asian country's imports of 1.58 million tonnes.

At the event held by Shanghai Metals Market in Foshan in southern China, Wenqian said the Russian company is offering premium of between $20 and $40 for each tonne of its low-carbon product at spot prices in China.

The aluminium contract prices listed on the London Metals Exchange in Europe are as much as $60 per tonne.

Chinese EV maker Nio raw materials procurement manager Xia Ding said many EV firms in China are keen on reducing their carbon footprint due to surging pressure from foreign consumers to reduce emissions.

Xia said that Nio aims to use aluminium products with $CO_2$ emissions capped at seven tonnes.

Earlier this year, Bloomberg News Rusal was weighing sale of aluminium directly to London Metal Exchange (LME) warehouses in Asia.

## Mercedes-Benz to source Green Aluminium from Hydro

As part of its key milestone towards enabling a green aluminium supply chain, Mercedes-Benz has signed a letter of intent (LoI) with Norwegian Aluminium maker Hydro for a low-carbon technology roadmap between 2023 to 2030.

According to a press release from Mercedes-Benz, both parties have agreed on the gradual supply of very low $CO_2$ emission aluminium for automotive applications on the road to decarbonisation.

Meanwhile, as an immediate result of the partnership, the $CO_2$ footprint of the aluminium supplied by Hydro will be almost 70% lower than the European average by next year.

The automaker noted that for realising the path towards near zero $CO_2$ aluminium, it is important to optimise the primary aluminium production process, starting with a $CO_2$ -optimised aluminium oxide production and reducing the $CO_2$ emissions resulting from the electrolysis process.

Together with steel, aluminium is proportionally the most widely used material in many vehicles. Therefore, this agreement marks a decisive step for the supply of low-emission aluminium and thereby reducing the carbon footprint of Mercedes-Benz products, it added.

Interestingly, producing aluminium using secondary material only requires 5% of the energy compared to producing aluminium based on primary resources.

As part of the collaboration, Mercedes-Benz and Hydro even want to take it one step further by exploring solutions on how to implement a closed-loop-recycling, the release added.

Markus Schäfer, Member of the Board of Management, Chief Technology Officer- Development & Procurement, Mercedes-Benz Group AG, noted that aluminium is becoming increasingly important as a lightweight material in electric vehicles.

Hilde Merete Aasheim, President and CEO, Hydro, said, "Partnerships and collaboration in the value chains can accelerate technology developments needed to reduce emissions, and we are excited to have Mercedes joining us on our path to zero carbon aluminium."

## Nissan to use Kobe Steel's low-$CO_2$ steel and green aluminium

Kobenable steel, claimed to significantly reduce CO2 emissions in the blast furnace process to be used in mass-produced vehicles for the first time.

Nissan Motor Co and Kobe Steel have today announced

that Nissan plans to use 'Kobenable Steel' for Nissan models from January 2023 onward. With this Nissan becomes the latest global carmaker to confirm future use of low-carbon steel. Ford, Mercedes-Benz and BMW are among the other carmakers who have already inked similar measures.

Kobenable steel, commercialised by Kobe Steel, is claimed to significantly reduce CO2 emissions in the blast furnace process. Kobe Steel will also supply Nissan with aluminium sheets made from green-aluminium raw materials. This will be the first time Kobenable Steel will be used in mass-produced vehicles.

Nissan aims to achieve carbon neutrality throughout the entire product lifecycle, including raw material extraction, manufacturing, use, and the recycling or reuse of end-of-life vehicles, by 2050.

*Nissan is targeting carbon neutrality across the company's*


*operations and product lifecycle by 2050. As part of this effort, by the early 2030s every all-new Nissan vehicle offering in key markets will be electrified.*

As per the Japanese carmaker, since approximately 60% of a vehicle's weight is made up of steel parts and around 10% of its weight is made up of aluminium parts, the use of green steel and green aluminum is a very effective way to reduce CO2 emissions during parts manufacturing, which is part of the vehicle's lifecycle.

Therefore, the companies' decision to use the steel and aluminium for Nissan vehicles is due not only to the significant CO2 emission reductions but also because the same level of high quality as conventional products can be achieved.

Nissan models will use Kobenable Premier, which reduces 100% of CO2 emissions during manufacturing through the mass-balance method. The specific amount of steel to be used by Nissan will be determined through further discussions.

The green aluminium raw materials purchased by Kobe Steel to produce aluminum sheets for Nissan are electrolytically smelted using only electricity generated by solar power, thereby reducing CO2 emissions during aluminium ingot production by approximately 50%. Recycled aluminum materials generated at Nissan's manufacturing sites will also be used to further reduce CO2 emissions during production.

## EV sales in India in 2022 record 210% growth, cross a million for the first time

2022, which has been a record year of sales for India Auto Inc across vehicle segments, also saw demand for electric vehicles soar to 999,949 units. Growing eco-consciousness among buyers, incentives and wider product choice will be the drivers of the future EV growth story.

## Bharat Forge subsidiary enters into BTA with Indo Shell Mould

JS Auto Cast Foundry India, a step-down subsidiary of Pune based leading forging company Bharat Forge, on Monday announced that it has entered into Business

Transfer Agreement (BTA) with Indo Shell Mould (ISML) for acquiring their SEZ Unit in SIPCOT, Erode.

"The SEZ Unit with a capacity of 42,000 MTPA, supplies fully machined critical castings to marquee customers in the automotive industry and will operate as the third manufacturing unit of JS Auto. This takes the capacity at JS Auto to 1,42,000 MTPA," the company said in a regulatory filing.

According to the company, this acquisition strengthens JS Auto's presence in the castings sector, expands the product offering & client base and enhances its footprint in the Indian manufacturing landscape. The acquisition will be EPS accretive from the first year itself.

## Chip-impacted Maruti Suzuki's December sales down 9% to 112,010 units, lowest in 2022

After five months of consistent growth, December 2022 numbers are a dampener albeit that's more due to production constraints than lack of consumer demand.

Nearly 18-odd months after the phenomenon first impacted the automotive industry adversely, the semiconductor supply chain issue still continues to have a detrimental effect on vehicle manufacturers and their production ecosystem. Case in point is passenger vehicle market leader Maruti Suzuki India's December 2022 wholesales performance.

The carmaker has posted its lowest monthly numbers in all of CY2022 in December: 112,010 units. This is 9% down on December 2021's 123,016 units.

| MARUTI SUZUKI INDIA SALES | | | | |
|---|---|---|---|---|
| Month | Domestic market sales | | | % growth |
| | 2022 | 2021 | Change | |
| January | 1,26,924 | 1,39,002 | -10,078 | -7% |
| February | 1,44,761 | 1,33,948 | 10,813 | 8% |
| March | 1,33,861 | 1,46,203 | -12,342 | -8% |
| April | 1,21,986 | 1,35,870 | -13,884 | -10% |
| May | 1,24,474 | 32,903 | 91,571 | 278% |
| June | 1,22,685 | 1,24,280 | -1,595 | -1% |
| July | 1,42,850 | 1,33,732 | 9,118 | 7% |
| August | 1,34,166 | 1,03,167 | 30,979 | 30% |
| September | 1,48,380 | 63,111 | 85,269 | 135% |
| October | 1,40,337 | 1,08,991 | 31,346 | 29% |
| November | 1,32,395 | 1,09,726 | 22,669 | 21% |
| December | 1,12,010 | 1,23,016 | -11,006 | -9% |
| Total | 15,86,838 | 13,53,978 | 2,32,860 | 17% |

In its statement, Maruti Suzuki said: "The shortage of electronic components had some impact on the production of vehicles, mainly in domestic models."

After five months of consistent growth, December 2022 numbers are a dampener albeit that's more due to production constraints rather than lack of consumer demand. The impact can be clearly seen in the fact that of the five product categories, only two (UVs and the Eeco van) are in positive territory.

| DOMESTIC MARKET SALES FOR MARUTI SUZUKI | December | | | % |
|---|---|---|---|---|
| | 2022 | 2021 | Change | growth |
| Alto, S-Presso | 9,765 | 16,320 | -6,555 | -40% |
| Baleno, Celerio, Dzire, Ignis, Swift, Tour S, Wagon R | 57,502 | 69,345 | -11,843 | -17% |
| Ciaz | 1,154 | 1,204 | -50 | -4% |
| Brezza, Ertiga, S-Cross, XL6, Grand Vitara | 33,008 | 26,982 | 6,026 | 22% |
| Eeco | 10,581 | 9,165 | 1,416 | 15% |
| **Total** | **1,12,010** | **1,23,016** | **-11,006** | **-9%** |

The company's entry level cars – the Alto and S-Presso – saw a sharp 40% year-on-year decline at 9,765 units. On November 19, Maruti Suzuki had launched the CNG variant of the third-generation Alto K10, priced at Rs 595,000. Tepid deliveries to showrooms across the country could hamper potential demand in this segment, which is gradually seeing demand return.

Maruti Suzuki's six-pack comprising the Baleno, Celerio, Dzire (and Tour S), Ignis, Swift and Wagon R is also down – 57,502 units are a 17% YoY decline (December 2021: 69,345) whilke the premium Ciaz sedan's sales fell by 4% YoY to 1,154 units.

The UVs – new Brezza, Ertiga, XL6 and the new Grand Vitara – contributed 33,008 units, up 22% on year-ago 26,982 units. Maruti Suzuki is currently seeing strong demand for the recently launched Grand Vitara and the new Brezza. The Eeco van was the second vehicle category to show growth: 10,581 units, up 15% on year-ago wholesales of 9,165 units.

**April-December 2022 sales up 26%**

| DOMESTIC MARKET SALES FOR MARUTI SUZUKI | April-December | | | % |
|---|---|---|---|---|
| | 2022 | 2021 | Change | growth |
| Alto, S-Presso | 1,74,008 | 1,57,946 | 16,062 | 10% |
| Baleno, Celerio, Dzire, Ignis, Swift, Tour S, Wagon R | 6,37,459 | 4,73,300 | 1,64,159 | 35% |
| Ciaz | 11,518 | 10,457 | 1,061 | 10% |
| Brezza, Ertiga, S-Cross, XL6, Grand Vitara | 2,60,172 | 2,13,716 | 46,456 | 22% |
| Eeco | 96,135 | 79,406 | 16,729 | 21% |
| **Total** | **11,79,292** | **9,34,825** | **2,44,467** | **26%** |

On the cumulative 9-month (April-December 2022) front, things look better for the company as seen in the data chart below. All five model segments are showing double-digit growth .

Given that Maruti Suzuki, which is seeing strong demand for its new Grand Vitara and Brezza SUVs, it is imperative that the company has to sort out its production issues if it is to capitalise on the market demand.

## Mercedes Benz Energy, Lohum sign pact for recycling used batteries

The battery management company is MBE's first partner in Asia as both continue to push for sustainability across the battery supply chain.

Mercedes-Benz Energy and Noida-based LohumCleanTech have announced a strategic partnership to repurpose EV batteries. Lohum is committed to provide a minimum of 50MWh using repurposed batteries from e-rickshaws and other non-automotive applications.

The agreement will enable Lohum consistent volumes of second-use batteries from Mercedes-Benz Energy (MBE), which it will recycle through its hydromet plant once they reach the end of its life-cycle.

Lohum currently has the ability to recycle 100,000 battery packs, and additionally, accumulate 200,000 two-wheeler battery packs at its Noida facility.

Gordon Gassman, CEO of MBE has said that Lohum is keen on the 2nd life of batteries, and that they are developing applications across multiple module variants to create a long-term supply funnel. This has created a perfect fit for MBE to have Lohum as their strategic partner in battery recycling.

"This flexibility and model unlocks value for both parties, and defines the innovation and reliability we seek in strategic partnerships," Gassman said. Lohum's 2nd life, combined with recycling, offers the best solution for sustainability and value creation in the long term.

The battery lifecycle management company is MBE's first partner in Asia as both companies continue to push sustainability across the battery supply chain.

Justin Lemmon, co-founder, and Head of International Operations of Lohum, also highlighted that in addition to their willingness to regularly test new opportunities for collaboration, the battery lifecycle management company is creating infrastructure and capabilities to maximise sustainability and value for used inventory.

“Mercedes-Benz Energy's model for approaching 2nd life is the most advanced we have seen by far," said Lemmon.

MBE has access to used inventory across the globe. With Lohum's current footprint in Asia, combined with its entrance into the US market, both companies will continue to evaluate new collaboration opportunities across regions.

## China November aluminium imports fall amid rising domestic supply

China's aluminium imports in November fell 35.7% from a year earlier as a result of mounting domestic supply, also as the COVID-hit economy continued to temper demand for the light metal.

The country brought in 255,744 tonnes, including primary metal and unwrought, alloyed aluminium, last month, according to data from the General Administration of Customs.

With easing power restrictions on industrial users this year, smelters in China ramped up their production. The latest November output number showed a ninth consecutive increase to 3.41 million tonnes.

## Vedanta shares drop 2% after mixed Q3 production data Alumina production at Lanjigarh refinery decreased 6 per cent YoY (2 per cent QoQ) to 4,43,000 tonnes due to maintenance activities in calciners, Vedanta.

The company reported a mixed set of pruduction data for December quarter. Vedanta said total aluminium production fell 2 per cent to 5,66,000 tonnes from 5,79,000 tonnes in the year-ago quarter. Alumina production at  tonnes due to maintenance activities in calciners, it said. The cast metal aluminium production at smelters decreased 2 per cent YoY and 3 per cent QoQ, the company said in a BSE filing. In the case of Zinc India, Vedanta said its mined metal production at 2,54,000 tonnes was up 1 per cent YoY, driven by higher ore production. Refined metal production at 2,57,000 tonnes was down 2 per cent YoY, as per mined metal availability. It was higher by 5 per cent sequentially with better plant and mined metal availability. Integrated zinc production came in at 2,10,000 tonnes, down 2 per cent YoY and up 11 per cent QoQ. Refined lead production was at 46,000 tonnes, down 1 per cent YoY and 18 per cent QoQ due to planned maintenance shutdown at Dariba Lead plant in the December quarter, Vedanta said.

# India identifies copper and lithium mines in Argentina; to acquire them soon

In November 2022, the Indian government sent a team of geologists to South America to "assess potential lithium deposits"

India has identified two lithium mines and one copper mine in Argentina, and it may acquire or lease them soon, a report by *BusinessLine (BL)* said. In November 2022, the Indian government sent a team of geologists to South America to "assess potential lithium deposits".

The report cited officials of the ministry of mines as saying that the ownership or leasing rights of the mines will be with Khanij Bidesh India Ltd (Kabil). It is a joint venture of the National Aluminium Company (Nalco), Hindustan Copper (HCL), and Mineral Exploration Corporation Ltd (MECL). It was formed in 2019 to ensure the supply of strategic minerals in India's market.

"Subsequent to the preliminary assessment, Kabil expressed interest to partner with a state-owned organisation there in December to prospect the identified areas and explore the possibility of establishing projects for lithium extraction in due course of time. Commercial evaluation of the same has begun at our end here," the official told *BL*.

Argentina is the fourth largest producer of lithium. It also has the third-largest reserve of the mineral in the world. Lithium is widely used in manufacturing batteries and other electronic products. Australia, US and China are the other major producers of the mineral.

In December, *PTI* reported that Kabil expressed interest in partnering with Argentina-based Camyen to prospect two areas for extracting lithium.

The ministry, in October, said that Camyen shared information regarding two prospective lithium projects in la Aguada and El Indio in Catamarca through the Indian Embassy in Buenos Aires.

Kabil also signed three agreements with Argentina government-run companies JEMSE, Camyen and YPF between July and September 2020 to explore sourcing of lithium and other mineral assets in the South American country.

Kabil is also reportedly in the process of hunting joint lithium mining projects in Chile.

In March, the JV under the mines ministry signed a memorandum of understanding with the Department of Industry, Science and Resources, Australia, for joint investment in lithium and cobalt assets in that country.

Hindustan Copper Signed MoU with IIT (Indian School of Mines) for Technical Support

Hindustan Copper (HCL) has signed a Memorandum of Understanding (MoU) with the Indian Institute of Technology (Indian School of Mines), Dhanbad for a collaborative and sponsored research project. It is a momentous occasion for HCL as it is the first technical collaboration with IIT (IMS) Dhanbad. It is the only copper miner in India owning all the operating mining leases of copper ore in the nation.

## Hindustan Copper Signed MoU with IIT (Indian School of Mines) for Technical Support- Key Points

- The MoU addresses the needs of HCL for technical assistance, guidance, and consultancy work from IIT-ISM.

- HCL needs assistance in enhancing copper ore production through modifying mining methods with the application of state-of-the-art Technologies.
- Improvement of productivity and safety in mines, environmental clearance issues, and various Hydrological & Hydro-geological studies.
- Also, in areas of unconventional exploration methods like Geophysical exploration, Remote Sensing, etc.
- Hindustan Cooper's principal activities include the mining of copper ore and the concentration of copper ore into copper concentration through a beneficiation process.
- It also works for smelting, refining, and extruding of the copper concentrate into refined Copper in downstream saleable products.

Hind Zinc prepares Rs 10,000-cr blueprint for green energy, diversification

# Automobile November 2022 Sales supported with positive consumer sentiments: SIAM

The total production of Passenger Vehicles*, Three Wheelers, Two Wheelers, and Quadricycles in the month of November 2022 was 20,42,575 units. Total production of Passenger Vehicles**, Three Wheelers, Two Wheelers and Quadricycles in April-November 2022 was 1,74,04,800 units.

While commenting on November sales, Mr Vinod Aggarwal, President, SIAM said, "Positive consumer and business sentiments have reflected in the better sales in the month of November 2022, compared to the previous year. We note a sequential decline over October 2022 attributable to seasonality and softness in key export markets."

Commenting on Industry performance in November 2022, Mr Rajesh Menon, Director General, SIAM said, "Passenger vehicles posted highest ever sales in FY 2022-23 till November, while the Three-Wheelers are still lower than 2010-11 and Two-Wheelers are less than 2016-17. Higher interest rates and increase in long term insurance premium, continues to be a concern for the consumers."

Retail sales of automobiles in India reached a record high in November as customers rushed to buy new vehicles undeterred by rising loan rates and higher fuel prices.

Sales hit 2.38 million units during the month, 26% higher than the 1.89 vehicles sold in the same month last year. It was the highest monthly sales, with the exception of March 2020, when sales received a boost a month before the industry shifted to new Bharat Stage VI emission norms, which made new vehicles costlier.

Sales of passenger vehicles and commercial vehicles in November surpassed the pre-covid sales peak of 2019 by 5% and 6%, respectively, while two-wheelers reached within touching distance of the record sales seen in 2019, showed data from the Federation of Automobile Dealers' Association (Fada) which tracks new vehicle registrations.

Retail sales received a fillip from sustained festive season momentum and spillover from October, along with the ongoing wedding season in several parts of India. Retail sales in November 2019 stood at a total of 2.34 million vehicles. "The two-wheeler segment has responded well to the wedding season, and demand has continued after the festive season. Until August, the two-wheeler segment was under stress, but after that, we have seen some signs of recovery and growth on a year-on-year basis. However, we will wait to see sustained demand for a couple of more months to change our stance from cautious to positive," said Manish Raj Singhania, president of Fada.

*SIAM*

**Segment wise Comparative Production, Domestic Sales & Exports data for the month of November 2022**

(Number of Vehicles)

| Category Segment/Subsegment | Production November | | Domestic Sales November | | Exports November | |
|---|---|---|---|---|---|---|
| | 2021 | 2022 | 2021 | 2022 | 2021 | 2022 |
| **Passenger Vehicles (PVs)*** | | | | | | |
| Passenger Cars | 1,34,184 | 1,72,008 | 1,00,906 | 1,30,142 | 29,0[illegible]4 | 37,599 |
| Utility Vehicles (UVs) | 1,22,339 | 1,84,154 | 1,05,091 | 1,38,780 | 14,173 | 16,336 |
| Vans | 10,029 | 7,343 | 9,629 | 7,309 | 178 | 24 |
| **Total Passenger Vehicles (PVs)** | **2,66,552** | **3,43,505** | **2,15,626** | **2,76,231** | **44,265** | **53,959** |
| **Three Wheelers** | | | | | | |
| Passenger Carrier | 54,438 | 66,340 | 15,023 | 33,845 | 41,852 | 30,852 |
| Goods Carrier | 5,530 | 8,075 | 6,139 | 9,985 | 579 | 237 |
| E-Rickshaw | 1,384 | 2,930 | 1,217 | 2,601 | - | - |
| E-Cart | 202 | 255 | 172 | 230 | - | - |
| **Total Three Wheelers** | **61,554** | **78,580** | **22,551** | **45,664** | **42,431** | **30,889** |
| **Two Wheelers** | | | | | | |
| Scooter/ Scooterettee | 3,37,417 | 4,92,112 | 3,15,986 | 4,12,832 | 24,181 | 25,459 |
| Motorcycle/Step-Throughs | 10,11,771 | 10,57,748 | 6,99,949 | 7,88,895 | 3,31,992 | 2,6[illegible],086 |
| Mopeds | 29,278 | 40,479 | 42,558 | 34,465 | 186 | 492 |
| **Total Two Wheelers** | **13,78,466** | **16,20,339** | **10,61,493** | **12,36,190** | **3,56,659** | **2,37,037** |
| **Quadricycle** | **308** | **151** | **46** | **60** | **294** | **132** |
| **Grand Total** | **17,06,880** | **20,42,575** | **12,99,716** | **15,58,145** | **4,43,649** | **3,72,017** |

* BMW, Mercedes, Tata Motors and Volvo Auto data is not availeble

Society of Indian Automobile Manufacturers (19/12/2022)

## SIAM

### Summary Report: Cumulative Production, Domestic Sales & Exports data for the period of April-November 2022

Report I

(Number of Vehicles)

| Category / Segment/Subsegment | Production April-November | | Domestic Sales April-November | | Exports April-November | |
|---|---|---|---|---|---|---|
| | 2021-22 | 2022-23 | 2021-22 | 2022-23 | 2021-22 | 2022-23 |
| **Passenger Vehicles (PVs)*** | | | | | | |
| Passenger Cars | 11,22,032 | 14,33,030 | 8,85,865 | 11,51,022 | 2,38,802 | 2,72,344 |
| Utility Vehicles (UVs) | 10,06,577 | 14,26,905 | 8,70,894 | 12,62,490 | 1,28,392 | 1,49,513 |
| Vans | 74,707 | 90,960 | 72,934 | 90,572 | 1,371 | 268 |
| **Total Passenger Vehicles (PVs)** | **22,03,316** | **29,50,895** | **18,29,693** | **25,04,084** | **3,68,565** | **4,22,125** |
| **Three Wheelers** | | | | | | |
| Passenger Carrier | 4,27,681 | 4,90,653 | 96,717 | 2,16,652 | 3,37,054 | 2,74,623 |
| Goods Carrier | 54,420 | 65,255 | 47,253 | 62,308 | 6,085 | 2,647 |
| E-Rickshaw | 5,104 | 15,714 | 5,489 | 15,350 | - | - |
| E-Cart | 386 | 2,167 | 355 | 2,120 | - | - |
| **Total Three Wheelers** | **4,87,591** | **5,73,789** | **1,49,814** | **2,96,430** | **3,43,139** | **2,77,270** |
| **Two Wheelers** | | | | | | |
| Scooter/ Scooterettee | 30,17,872 | 39,88,575 | 27,64,494 | 36,89,720 | 2,48,674 | 2,83,234 |
| Motorcycle/Step-Throughs | 86,58,617 | 95,85,679 | 60,69,307 | 72,15,905 | 27,19,671 | 23,93,693 |
| Mopeds | 3,33,258 | 3,04,579 | 3,30,473 | 3,06,723 | 7,720 | 2,274 |
| **Total Two Wheelers** | **1,20,09,747** | **1,38,78,833** | **91,64,274** | **1,12,12,348** | **29,76,065** | **26,79,201** |
| **Quadricycle** | **3,594** | **1,283** | **54** | **421** | **3,887** | **960** |
| **Grand Total** | **1,47,04,248** | **1,74,04,800** | **1,11,43,835** | **1,40,13,283** | **36,91,656** | **33,79,556** |

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

Society of Indian Automobile Manufacturers (13/12/2022)

## SIAM

### Category & Company wise Summary Report for the month of November 2022 and Cumulative for April-November 2022

Report II

(Number of Vehicles)

| Category / Segment/Subsegment / Manufacturer | Production November | | Production April-November | | Domestic Sales November | | Domestic Sales April-November | | Exports November | | Exports April-November | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021 | 2022 | 2021-22 | 2022-23 | 2021 | 2022 | 2021-22 | 2022-23 | 2021 | 2022 | 2021-22 | 2022-23 |
| **Passenger Vehicles (PVs)** | | | | | | | | | | | | |
| FCA India Automobiles Pvt Ltd | 1,452 | 1,227 | 11,821 | 12,668 | 1,052 | 894 | 7,879 | 9,394 | 555 | 605 | 4,607 | 3,434 |
| Force Motors Ltd | 99 | 55 | 171 | 476 | 64 | 55 | 122 | 503 | - | 3 | - | 4 |
| Ford India Private Ltd | NA | NA | 39,337 | NA | NA | NA | 15,818 | NA | NA | NA | 18,022 | - |
| Honda Cars India Ltd | 6,602 | 8,535 | 64,352 | 79,325 | 5,457 | 7,051 | 53,433 | 63,757 | 1,447 | 726 | 11,878 | 15,730 |
| Hyundai Motor India Ltd | 48,000 | 64,400 | 3,96,000 | 4,82,000 | 37,001 | 48,002 | 3,16,516 | 3,81,008 | 9,909 | 16,001 | 83,438 | 1,00,078 |
| Isuzu Motors India Pvt Ltd | 142 | 103 | 1,042 | 1,872 | 66 | 57 | 451 | 413 | 30 | 2 | 141 | 479 |
| Kia India Pvt Ltd | 17,251 | 32,260 | 1,48,337 | 2,38,208 | 14,214 | 24,025 | 1,18,928 | 1,79,310 | 3,524 | 6,809 | 30,738 | 56,078 |
| Mahindra & Mahindra Ltd | 18,401 | 32,178 | 1,41,410 | 2,32,944 | 19,458 | 30,392 | 1,32,943 | 2,31,413 | 756 | 1,226 | 6,376 | 5,444 |
| Maruti Suzuki India Ltd | 1,42,025 | 1,51,326 | 9,91,013 | 12,68,979 | 1,09,726 | 1,32,395 | 8,11,809 | 10,67,282 | 21,198 | 19,455 | 1,45,906 | 1,70,471 |
| MG Motor India Pvt Ltd | 2,452 | 5,708 | 24,213 | 35,208 | 2,481 | 4,079 | 24,264 | 30,609 | - | - | - | 12 |
| Nissan Motor India Pvt Ltd | 5,914 | 9,997 | 49,978 | 66,869 | 2,651 | 2,400 | 24,955 | 23,344 | 2,954 | 4,346 | 24,581 | 37,113 |
| PCA Motors Pvt. Ltd | 57 | 1,246 | 669 | 5,672 | 52 | 825 | 600 | 4,983 | - | - | - | - |
| Renault India Pvt Ltd | 7,632 | 9,026 | 71,609 | 80,020 | 5,052 | 6,325 | 58,140 | 57,787 | 2,683 | 2,172 | 15,710 | 17,584 |
| SkodaAuto India Pvt Ltd | 2,026 | 7,224 | 18,707 | 38,248 | 2,196 | 4,433 | 17,608 | 35,813 | - | 16 | - | 275 |
| Tata Motors Ltd* | NA | NA | 1,51,353 | 2,79,965 | NA | NA | 1,49,525 | 2,75,785 | NA | NA | 795 | 783 |
| Toyota Kirloskar Motor Pvt Ltd | 8,437 | 13,329 | 49,146 | 88,868 | 13,002 | 11,728 | 79,724 | 1,16,225 | 29 | - | 91 | 45 |
| Volkswagen India Pvt Ltd | 6,062 | 6,891 | 44,158 | 39,573 | 3,154 | 3,570 | 16,978 | 26,458 | 1,180 | 2,598 | 26,282 | 14,595 |
| **Total Passenger Vehicles (PVs)** | **2,66,552** | **3,43,505** | **22,03,316** | **29,50,895** | **2,15,626** | **2,76,231** | **18,29,693** | **25,04,084** | **44,265** | **53,959** | **3,68,565** | **4,22,125** |

* Only cumulative data is available for Apr-Sep

NA= Not Available

## SIAM

### Category & Company wise Summary Report for the month of November 2022 and Cumulative for April-November 2022

Report II

(Number of Vehicles)

| Category / Segment/Subsegment / Manufacturer | Production November | | Production April-November | | Domestic Sales November | | Domestic Sales April-November | | Exports November | | Exports April-November | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021 | 2022 | 2021-22 | 2022-23 | 2021 | 2022 | 2021-22 | 2022-23 | 2021 | 2022 | 2021-22 | 2022-23 |
| **Three Wheelers** | | | | | | | | | | | | |
| Atul Auto Ltd | 1,232 | 2,264 | 9,846 | 16,237 | 1,145 | 2,002 | 8,805 | 14,022 | 199 | 251 | 1,011 | 1,892 |
| Bajaj Auto Ltd | 40,317 | 44,605 | 3,01,026 | 3,12,449 | 13,756 | 29,166 | 92,228 | 1,77,250 | 26,707 | 15,074 | 2,14,147 | 1,37,602 |
| Continental Engines Pvt Ltd | 479 | 184 | 2,328 | 4,388 | 467 | 500 | 2,325 | 4,576 | - | - | - | - |
| Force Motors Ltd | 302 | 168 | 2,467 | 1,663 | - | - | - | - | 322 | 322 | 2,422 | 1,694 |
| Mahindra & Mahindra Ltd | 1,627 | 5,688 | 16,119 | 36,721 | 2,564 | 5,198 | 16,876 | 35,859 | 30 | 96 | 282 | 362 |
| Piaggio Vehicles Pvt Ltd | 4,265 | 10,645 | 40,806 | 75,620 | 3,866 | 7,539 | 24,858 | 54,187 | 1,096 | 2,924 | 15,439 | 20,610 |
| TVS Motor Company Ltd | 13,332 | 15,026 | 1,14,999 | 1,26,711 | 753 | 1,259 | 4,722 | 10,536 | 14,077 | 12,222 | 1,09,838 | 1,15,110 |
| **Total Three Wheelers** | **61,554** | **78,580** | **4,87,591** | **5,73,789** | **22,551** | **45,664** | **1,49,814** | **2,96,430** | **42,431** | **30,889** | **3,43,139** | **2,77,270** |
| **Two Wheelers** | | | | | | | | | | | | |
| Ather Energy Pvt. Ltd | 1,544 | 9,737 | 13,100 | 48,939 | 1,656 | 8,036 | 13,704 | 46,624 | - | - | - | - |
| Bajaj Auto Ltd | 3,19,688 | 2,42,398 | 26,14,163 | 24,67,198 | 1,44,953 | 1,23,490 | 11,74,391 | 12,65,173 | 1,93,520 | 1,38,630 | 14,84,605 | 12,05,042 |
| Hero MotoCorp Ltd | 3,47,588 | 4,20,994 | 33,25,322 | 36,11,816 | 3,28,862 | 3,79,747 | 31,63,155 | 35,39,850 | 20,531 | 11,093 | 1,97,337 | 1,23,930 |
| Honda Motorcycle & Scooter India Pvt Ltd | 2,81,975 | 3,91,890 | 25,48,912 | 33,40,009 | 2,56,174 | 3,53,553 | 23,47,741 | 30,89,595 | 24,211 | 19,681 | 2,37,028 | 2,55,640 |
| India Kawasaki Motors Pvt Ltd | 362 | 416 | 2,444 | 1,879 | 310 | 330 | 2,487 | 2,319 | - | - | - | - |
| India Yamaha Motor Pvt Ltd | 55,393 | 70,384 | 4,78,629 | 6,20,010 | 39,309 | 42,802 | 3,20,192 | 4,15,731 | 19,361 | 23,316 | 1,77,975 | 2,05,845 |
| Mahindra Two Wheelers Ltd | - | - | - | 72 | - | 1 | 3 | 96 | - | - | - | - |
| Okinawa Autotech Pvt. Ltd | 9,221 | 6,263 | 40,329 | 81,754 | 9,221 | 4,703 | 40,717 | 80,357 | - | - | 113 | 78 |
| Piaggio Vehicles Pvt Ltd | 3,787 | 4,365 | 53,681 | 45,309 | 4,464 | 2,790 | 35,188 | 32,828 | 384 | 1,196 | 18,403 | 12,448 |
| Royal-Enfield (Unit of Eicher Motors) | 60,007 | 77,017 | 3,38,472 | 5,61,713 | 44,830 | 65,760 | 2,95,711 | 4,82,997 | 6,824 | 5,006 | 47,143 | 64,973 |
| Suzuki Motorcycle India Pvt Ltd | 69,386 | 85,671 | 4,89,130 | 6,20,204 | 55,662 | 63,156 | 4,07,319 | 4,98,122 | 9,905 | 16,203 | 88,684 | 1,23,166 |
| Triumph Motorcycles India Pvt Ltd | 63 | 63 | 440 | 459 | 112 | 92 | 814 | 742 | - | - | - | - |
| TVS Motor Company Ltd | 2,29,452 | 3,11,141 | 21,05,125 | 24,79,471 | 1,75,940 | 1,91,730 | 13,62,852 | 17,57,914 | 81,923 | 71,912 | 7,24,777 | 6,88,079 |
| **Total Two Wheelers** | **13,78,466** | **16,20,339** | **1,20,09,747** | **1,38,78,833** | **10,61,493** | **12,36,190** | **91,64,274** | **1,12,12,348** | **3,56,659** | **2,87,037** | **29,76,065** | **26,79,201** |
| **Quadricycle** | | | | | | | | | | | | |
| Bajaj Auto Ltd | 308 | 151 | 3,594 | 1,283 | 46 | 60 | 54 | 421 | 294 | 132 | 3,887 | 960 |
| **Total** | **308** | **151** | **3,594** | **1,283** | **46** | **60** | **54** | **421** | **294** | **132** | **3,887** | **960** |
| **Grand Total** | **17,06,880** | **20,42,575** | **1,47,04,248** | **1,74,04,800** | **12,99,716** | **15,58,145** | **1,11,43,835** | **1,40,13,283** | **4,43,649** | **3,72,017** | **36,91,656** | **33,79,556** |

Society of Indian Automobile Manufacturers (13/12/2022)

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