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How rare earth shortages are stalling India's burgeoning EV sector

China introduced restrictions on its rare earth exports in April, two days after Trump announced retaliatory tariffs.



Scooters lead the sale of electric vehicles in India [File: Mahesh Kumar A/AP]

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In July, India's best-selling electric scooter, Bajaj Auto's Chetak, hit a big speed bump. A shortage of rare-earth metals had hit production plans, and the company was forced to almost halve its output.

Bajaj manufactured just 10,824 units of the Chetak in July, as compared with 20,384 units during the same period last year, due to rare earth shortages.

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"The rare-earth magnet supply situation has been a constraint that created the risk of a sharper production dip in July," Rakesh Sharma, executive director of Bajaj Auto, told Al Jazeera.

The company has since quickly redesigned certain motors to use light rare-earth magnets and has been reworking supply chains so it can cater to its needs, Sharma said.

"These changes helped us recover close to half of our planned July output for electric two-wheelers. We expect to reach around 60 percent [of output] during August and September."

The shortage that Bajaj is facing is industry-wide after China introduced restrictions on its rare earth exports on April 4, two days after United States President Donald Trump announced reciprocal tariffs on April 2. No shipment has come to India since then, putting automobile and other industries reliant on these metals in jeopardy.

Vigneshwar Chittur Selvakumar, president of the Federation of Automobile Dealers Association (FADA) that counts about 15,000 automobile retailers across the country as its members, says he is "deeply concerned" about how the shortages of these metals "might have a drastic impact on the automobile sector".

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"We control around 80 percent sales of the vehicles, and any dip in production will affect our business badly," Vigneshwar said.

Rare-earth metals refer to a combination of 17 metallic elements, including dysprosium, terbium, europium, samarium, and gadolinium, that are found in abundance in China,

which has the world's largest reserves of rare-earth elements, estimated at 44 million tonnes, and dominates 90 percent of rare-earth elements processing capacity.

Apart from EVs, the metals are also used in smartphones, computer screens, and other electronic devices. They are also essential for defence equipment like radar and guidance systems, as well as medical machines such as Magnetic Resonance Imaging systems.

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"The rare-earth elements help in making strong magnets that are used widely in electric vehicles ... to maintain a stable magnetic field," Aman Bir Singh, an EV consultant, told Al Jazeera. "Internal combustion engine (ICE) or hybrid vehicles that run on petrol, diesel and wind turbines also use them, but in a very small quantity, and the current shortage doesn't impact them as much."

The shortage comes just as India's EV sector was taking off with sales crossing 2 million for the first time in 2024. This was up 24 percent from 1.6 million vehicle sales in 2023. Two-wheelers lead that with sales of 1.2 million units last year.

Sales of electric cars, too, are on the rise, and more than 100,000 electric cars were sold in the financial year ending March 31, 2025. Tesla, too, has joined in and <u>launched its</u> <u>Model Y in the country in July</u>. As a result, the electric car penetration has more than doubled from 1 percent to 2.6 percent during this period, and is expected to cross 7 percent by 2028, according to a July report by CareEdge Analytics & Advisory.



Sales of electric cars have started picking up in India, but businesses are concerned the current rare earth shortages might drive potential customers away [File: Rafiq Maqbool/AP]

Several EV companies, however, have refrained from speaking on the rare earth crisis.

"The industry is still in a fledgling state and companies fear that they might lose customers and also their share value if they concede to rare earth shortage as the potential buyers might be too apprehensive to purchase the vehicles," said Nilanjan Banik, an economics professor at Mahindra University.

The shortage has also affected the television industry, where rare-earth magnets are critical in television manufacturing, particularly for speakers, due to their superior performance and compact size.

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"As the country remains heavily reliant on imports for these components, this presents a clear challenge," said Arjun Bajaj, director of Videotex — television manufacturers for various reputed brands. "We currently have adequate stocks for the current season, but our focus is also to find an alternative solution, and the industry is actively exploring alternatives like ferrite magnets, though matching the performance of rare-earth magnets will require continued research and technological upgrades," he added.

Relief for India

On August 19, China announced it would <u>ease export restrictions</u> on fertilisers, rare earths, and tunnel-boring machines to India after talks with Indian foreign minister S Jaishankar in Beijing.

Experts, however, called this a "tactical gesture".

India's trade deficit with China hit a record \$100bn in the last financial year. Beijing has also openly backed India's archenemy Pakistan in a recent clash between New Delhi and Islamabad in May, a reminder that India's dependence on China can be risky for it.

"India's dependence on China gives [the latter] significant leverage during crises," pointed out Ajay Srivastava, the founder of Global Research Trade Initiative (GTRI), a trade research group.

"China now supplies over 70 percent of India's needs in several critical areas. Everyday products like laptops (80.5 percent) and flat panel displays (86 percent) are also dominated by Chinese imports. At the same time, India's share in bilateral trade has collapsed to just 11.2 percent from 42.3 percent two decades ago, exposing the fragility of supply chains. The easing of rare earth supply is just a tactical gesture and nothing beyond," Srivastava said.

India holds the fifth-largest rare-earth elements with 8.52 million tonnes, but contributes less than 1 percent of the global rare-earth mining as it faces stiff challenges with limited infrastructure, technological issues and regulatory hurdles and environmental concerns.

Vishwas Dass, a Delhi-based policy expert, told Al Jazeera that the current disruption must be used to accelerate domestic exploration and offer incentives for refining capabilities, and forging mineral alliances with trusted nations.

The Geological Survey of India (GSI) has already started exploration in the states of Assam and West Bengal.

"The exploration is part of India's long-term strategic vision to achieve self-reliance in key sectors and aligns with the government's policy of securing domestic mineral supplies for further technological and industrial needs," Asit Saha, director general of GSI, told Al Jazeera.

Mahindra University's Banik, however, says that processing of rare-earth metals will be a tricky issue. "It might take over a decade to completely set up the processing units of rare metals, but the technology of using rare earth in vehicles might become outdated by then."

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