

# Vedanta unit eyes rare earth production in India within 5 years

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Hindustan Zinc, among the world's largest producers of zinc, silver and lead, wants to mine and process neodymium, a rare earth used in permanent magnets. (Hindustan Zinc)

BENGALURU -- India's Hindustan Zinc is eyeing rare earth minerals but kickstarting production could take up to five years, a top executive told Nikkei Asia, highlighting the difficulties in building a domestic supply chain to counter China's dominance of the sector.

Chief Executive Arun Misra said that Hindustan Zinc, a subsidiary of Indian natural resources conglomerate Vedanta, wants to mine and process neodymium, a rare earth used in permanent magnets. The company is among the world's largest producers of zinc, silver and lead.

Hindustan Zinc was the only private company to win a mining block for monazite -- a mineral that contains neodymium -- in the northern Indian state of Uttar Pradesh through a government auction in May. However, the need for analysis means it will be some time before the company and country can see the benefits, even as a recent supply chain crisis has highlighted the need to access more rare earths.

"This (rare earth) is of strategic interest (to India)," said Mishra, who is also an executive director at Vedanta. "The first part is exploration and mining, and that itself could take about three or four years, because we have to evaluate (the quantity and quality) of the reserves."

Permanent magnets are currently in short supply after China restricted exports of seven rare earth minerals including terbium and dysprosium, which are mixed with neodymium magnets to increase their heat resistance. Those curbs have snowballed into a [crisis for](#)

[automobile companies](#) worldwide, as permanent magnets are used extensively in electric vehicle motors, steering systems, brakes and audio systems, although [China says it is processing export applications](#).

Misra said India could benefit if New Delhi allows private sector companies to mine monazite, which is found in sand, in the beaches dotting the southern Indian states of Kerala, Andhra Pradesh and Tamil Nadu, and Odisha in the east.

The Indian government pegs monazite reserves at 12.73 million metric tons, with concentrations between 0.4% and 4.3%.

But those monazite reserves in the southern Indian beaches are off limits to private sector companies because of their high thorium content, which makes them a crucial cog in India's nuclear energy programs and are governed by India's Atomic Energy Act. Consequently, public sector enterprise Indian Rare Earth Ltd. alone has the rights to mine the monazite found there and extract the rare earths..

The well-established extraction in those locations would drastically shorten production timescales for companies such as Hindustan Zinc.

"What is known is the (monazite content) in sea beaches, because rare earth mining has happened there for the last so many years," Misra said. "If monazite is decontrolled and allowed to be mined with private participation, and companies like ours participate, it will help India make magnets."



Arun Misra, CEO of Hindustan Zinc. (Hindustan Zinc)

According to the Indian government, rare earths like lanthanum, cerium, neodymium, praseodymium and samarium are in "supply surplus," while dysprosium, terbium and europium are in "supply constraint."

But China has easier access to neodymium: It has sprawling reserves of bastnaesite, a mineral containing the rare earth but minimal thorium. Bastnaesite's negligible radioactivity lowers the cost of processing for Chinese manufacturers, creating what

Misra called a "huge difference" in operational costs with India.

Consultancy EY pegs China's rare earth reserves at 44 million tons, accounting for 40% of the world's reserves, and the country is responsible for 69% of global production. India holds 6% of the reserves, behind China, Vietnam, Brazil and Russia, but accounts for only 1% of production.

"Going forward, substantial additional resources need to be allocated by the central and state governments as well as the private sector for research and development in the field of rare earths," D.K. Srivastava, chief policy adviser at EY India, wrote in a report in May, adding that the South Asian nation needs to strike strategic partnerships with rare earth-rich nations such as Myanmar, Vietnam, Brazil, South Africa and Tanzania.

"Any shortage will serve as a substantiative bottleneck in growth and employment," he added.

India's rare earth oxide imports fell 22% on the year by volume in the fiscal year ending March 2023, coming in at 7,906 tons, according to the latest data from the Indian government. But China's share of those imports rose from 17.5% to 25%.

The rare earth shortage has also put the spotlight on India's dependence on imports of critical minerals such as cobalt, copper, graphite, lithium and nickel. These are widely used in electric-vehicle batteries and energy storage systems, making them integral to India's target of achieving net zero carbon emissions by 2070.

For instance, India does not produce cobalt, despite having 44.91 million tons of cobalt ore reserves, because of a lack of refining capabilities, estimates the Institute for Energy Economics and Financial Analysis (IEEFA).

Imports make up 60% of India's graphite consumption for batteries, despite the country having 211.62 million tons in reserves, with imports between April 2017 and December 2023 being worth \$1.8 billion. Imports of lithium, another crucial component of EV batteries, stood at \$11.9 billion during this period, IEEFA estimates.

"This situation (dependence on imports) is likely to continue as the demand for critical minerals is expected to more than double by 2030, while domestic mines will take more than a decade to start producing," IEEFA said in a report last year.

In January, New Delhi moved to tackle the issue by launching the National Critical Mineral Mission, which is backed with 163 billion rupees (\$1.9 billion), and it has also tasked the Geological Survey of India with conducting 1,200 exploration projects by the 2030-2031 fiscal year. Plans are afoot to acquire mineral reserves abroad, including for lithium in Argentina and cobalt in Australia.

Hindustan Zinc has also thrown its hat in the ring. The firm has already secured potash and tungsten blocks in India, with an aim of generating 30% of its revenues from critical minerals in five years.

Misra declined to give details on the company's plans to fund the expansion, but said "money was not an issue." Annual profits in fiscal 2024-2025 jumped 33% to 103.5 billion rupees.

"We would like to work in sectors which are apparently difficult to operate and hence not attractive enough for other big players," he said.