

India's REPM Scheme: ₹7,280-Crore Push to Reduce China Dependence in Rare Earth Magnets

December 2, 2025 • vajiramandravi.com



REPM Scheme Latest News

- To counter China's overwhelming dominance in rare earth magnet manufacturing, the Indian government has approved a ₹7,280-crore scheme to promote domestic production of rare earth permanent magnets (REPMs).
- REPMs are critical components for EVs, renewable energy systems, electronics, aerospace, and defence. China currently controls **over 90%** of global REPM manufacturing and processing.
- This gives it significant geopolitical leverage, which it has used during trade disputes.

Why India Needs Urgent Diversification

- India plans large-scale expansion in renewable energy and electric mobility, sharply increasing domestic demand for REPMs.
- The government estimates that India's magnet consumption will double by 2030.

- However, India imports almost all of its REPM needs, making the country highly vulnerable to external shocks and supply disruptions.
- Also, in April 2025, China imposed export controls on magnets in response to US tariff measures, intensifying global supply concerns.
- The newly approved scheme aims to develop domestic capabilities and reduce over-reliance on China.
- While modest compared to China's scale, the initiative marks a crucial strategic shift as global stakes rise due to prolonged restrictions and supply chain uncertainty.

Government's REPM Scheme: What It Aims to Achieve

- The scheme marks the **beginning of a long, challenging journey** for India.
- The scheme targets creation of **6,000 MTPA** of integrated rare earth permanent magnet (REPM) manufacturing capacity.
- This capacity will be divided among **five beneficiaries**, each eligible for up to 1,200 MTPA through a competitive bidding process.

Incentives and Financial Support

- Selected companies will receive:
 - ₹6,450 crore in sales-linked incentives over five years
 - ₹750 crore as capital subsidy for setting up integrated facilities
- The financial support is designed to encourage large-scale, commercially viable manufacturing.

Focus on High-Demand NdFeB Magnets

- The scheme prioritises sintered rare-earth permanent magnets, specifically neodymium-iron-boron (NdFeB) magnets, which are the strongest and most widely used.
- These magnets rely on:
 - **Light rare-earths:** Neodymium (Nd), Praseodymium (Pr)
 - **Heavy rare-earths:** Dysprosium (Dy), Terbium (Tb) for better high-temperature performance

What Integrated REPM Manufacturing Involves

- The REPM production chain includes:
 - Mining
 - Beneficiation
 - Processing
 - Extraction
 - Refining to rare earth oxides
 - Conversion of oxides to metal
 - Metal to alloy
 - Alloy to magnet
- The scheme will support facilities capable of performing the final three stages:

- Rare earth oxide → metal
- Metal → alloy
- Alloy → rare earth permanent magnet

India's Heavy Dependence on China

- India imported over 53,000 tonnes of rare earth magnets in 2024-25, with more than 90% coming from China.
- The new scheme aims to reduce this reliance and build domestic capacity, but major challenges remain.

Where India Stands in the Global REPM Landscape

- Outside China, only countries like Japan and Vietnam produce REPMs, and their global share is limited.
- India currently has no commercial-scale manufacturing, only small-scale capabilities at select firms.
- China produces around 2,40,000 tonnes of REPMs annually—far beyond India's planned 6,000-tonne capacity under the new scheme, underscoring the vast gap.

Raw Material Bottlenecks: A Key Constraint

- India produces some light rare-earth oxides through IREL—such as neodymium-praseodymium (NdPr) oxides—but **no heavy rare-earth oxides** like dysprosium and terbium.
- These heavy rare earths are essential for high-strength, high-temperature NdFeB magnets.
- Thus, India will still need to import critical raw materials, limiting true self-reliance.

The Scale and Cost Challenge

- China's dominance comes from:
 - Massive production scale
 - Fully integrated value chain
 - Significant subsidies
- These factors make China's magnets far cheaper, making cost competitiveness a major hurdle for Indian manufacturers.
- Unless mandated through policy, users are unlikely to buy magnets that are significantly more expensive than Chinese imports.

Global Diversification Efforts Are Growing

- A 2022 US Department of Energy report shows that 93% of the global NdFeB magnet market is dominated by sintered magnets—and China controls almost the entire supply chain, from mining to magnet manufacturing.
- This has pushed countries worldwide to reduce dependency on China.

International Initiatives to Secure Critical Minerals

- **Quad Initiative (2024)** – In July, the Quad countries — India, Australia, Japan, and the US — launched a supply chain initiative to secure access to critical minerals, reducing reliance on China.
- **G7 Critical Minerals Action Plan (2024)** – India endorsed the G7's Critical Minerals Action Plan, which focuses on building diversified and resilient global supply chains.

India's National Critical Mineral Mission (NCMM)

- Launched in January 2024 for seven years (2024–25 to 2030–31), the NCMM aims to secure India's critical mineral supply chain through:
 - Reliable domestic and overseas mineral access
 - Strengthening exploration, processing, and recycling
 - Improving technology, regulation, and financing
- The mission has an outlay of ₹16,300 crore.

Reforming Domestic Mineral Governance

- In 2023, India identified 30 minerals as “critical”.
- The government amended the MMDR Act, 1957, giving the Centre exclusive powers to auction critical and strategic minerals such as lithium, cobalt, and rare earth elements.
- Since the amendment, 34 critical mineral blocks have been auctioned.

Securing Overseas Resources: The Role of KABIL

- India established Khanij Bidesh India Limited (**KABIL**), a joint venture tasked with identifying and developing critical mineral assets abroad.
- KABIL has signed an agreement with Camyen, a state-owned firm in Catamarca, Argentina, to explore and mine five lithium brine blocks, expanding India's access to essential battery minerals.

Source: IE | TH

Source: <https://vajiramandravi.com/current-affairs/indias-repm-scheme-7280-crore-push-to-reduce-china-dependence-in-rare-earth-magnets/>

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