

Rajasthan's Potential in Rare Earth Mineral Production

Why in News?

Surveys by the <u>Geological Survey of India (GSI)</u> and <u>Atomic Minerals Directorate (AMD)</u> have revealed <u>large reserves of <u>rare earth minerals</u> in Bhati Kheda, Siwana tehsil, Balotra, Rajasthan.</u>

• With ongoing surveys and **advancements in technology** and infrastructure, Rajasthan is poised to become a major global supplier in the rare earth market.

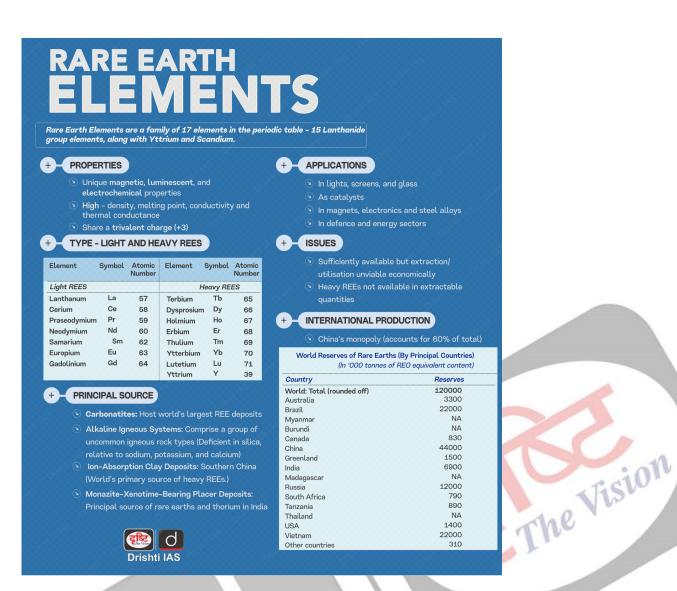
Key Points

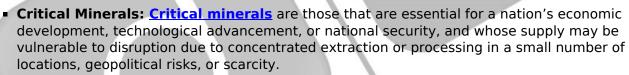
About Rare Earth Reserves in Rajasthan

- India's First Hard Rock Rare Mineral Block: Bhati Kheda in Balotra holds significant reserves
 of rare earth minerals, confirming the presence of 17 high-demand elements critical for modern
 technologies.
 - It is set to become the country's first block to contain rare earth minerals in hard rock granite, a more challenging form for mineral extraction.
 - The G2 level survey confirms the large reserves of these minerals, making it a significant find.
- **Survey and Mining Process:** The GSI and AMD have conducted extensive surveys in Balotra and Jalore districts, with the survey in Bhati Kheda nearing completion.
 - The central government will soon **auction mining leases** for these rare minerals, opening up opportunities for both private companies and state agencies.
 - As there are no wildlife sanctuaries or similar protected areas nearby, there are minimal environmental or local-level challenges expected in Bhati Kheda.

About Rare Earth Minerals

- Rare earth minerals are minerals that contain one or more rare earth elements (REEs) as a major metal constituent.
 - Rare earth elements refer specifically to 17 metallic elements: the **15 lanthanides** on the periodic table, plus **scandium and yttrium**.
 - These elements are used heavily in high-tech electronics, magnets, renewable energy technologies, and defense.





- The specific list of critical minerals can change over time depending on technological and economic needs.
- India has identified 30 critical minerals, including Antimony, Beryllium, Bismuth, Cobalt, and Germanium.
- China dominates the global processing of several critical minerals, including rare earths, controlling an estimated 80-90% of processing capacity.
 - India is heavily dependent on imports for critical minerals, particularly from China.
- India's Initiatives for Achieving Self-Reliance on Critical Minerals:
 - National Critical Mineral Mission
 - Khanij Bidesh India Ltd (KABIL)
 - Mineral Security Partnership (MSP)
 - Investment Partnership with Australia
 - 2023 amendment in <u>Mines and Minerals (Development and Regulation) Act, 1957</u>
 - Exploration Projects by Geological Survey of India (GSI)

