



Why did China block export of rare earth elements

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Context

- Amid the ongoing U.S.–China trade war, Chinese authorities have reportedly imposed **export controls on rare earth elements (REEs) and magnets that are needed in a range of manufacturing activities, from semiconductor fabrication units to defence equipment.**
- China's curbs target **dysprosium, gadolinium, lutetium, samarium, scandium, terbium, and yttrium, 7 of the 17 elements classified as REEs.**
- Practically **all heavy REEs used all over the world are refined in China.** From personal electronics to defence, therefore, Beijing has enormous leverage over the entire world for a range of supply chains for critical raw and intermediate materials.
- The export restrictions don't appear to amount to an outright ban, but **could interrupt supplies to countries for a few weeks** as refiners work through the process of getting permits.

Rare earth elements

- Rare earth elements are a **series of 17 substances** that are present in the earth's crust.
- Unlike what the name may indicate, **rare earths occur plentifully in nature, but the rarity comes from the ability to isolate them chemically and make them usable in industrial applications.**
- Heavy and light rare earths occur naturally in several countries, such as **India, China, Myanmar, Japan, Australia and North Korea.**
- **Dysprosium's** so-called magnetic susceptibility makes it ideal for use in **hard disks and car motors**; **gadolinium** is used in **nuclear reactors for shielding and in some medical equipment** (MRI scanner); **lutetium** and compounds with it are used in **PET scanners and in petroleum refineries**; **samarium** is used in powerful magnets in personal **electronics**; **scandium aluminium alloys** are used in **fighter aircraft**; **terbium** is used in **lighting for personal electronics**; and **yttrium** is used in **cancer treatments and superconductors.**

India and REEs

- Indian supply chains may not be immediately impacted by REE export restrictions in China. While the government has taken steps to **boost domestic production of semiconductors and defence equipment**, the more advanced stages of manufacturing typically happen abroad in countries like China and Japan.
- **India** has recognised the importance of REE production, as it is estimated to have **6% of their total deposits.** Mining and refining activities tend to present great environmental strain, which have been factors in India's practically non-existent capabilities in those activities.

- India has light REE extraction capabilities through the **state-owned Indian Rare Earths Ltd**, such as **monazite extraction from beach sand in Kerala**.
- India imports a limited quantity of REEs.
- “As a policy framework for utilizing critical minerals, including rare earth metals, the **National Critical Mineral Mission (NCMM)** has been launched, which is **India’s strategic initiative to secure critical mineral supply chain by increasing domestic critical minerals production and foreign supply sources**,” the Ministry said in Parliament.
- **Critical minerals are a larger umbrella under which REEs fall.**
- “China’s restrictions on certain critical minerals, the Russia–Ukraine War, and other issues highlight the fragility of critical mineral supply and the **need for diversifying sources**,” the Ministry of Mines said in a presentation on the NCMM in January.
- Under the NCMM, the government has said it will facilitate or engage in 1,200 exploration projects, award exploratory licenses to **incentivise private exploration**, and **auction** more critical mineral blocks.

1. Antimony	15. Nickel	iv. Neodymium
2. Beryllium	16. PGE	v. Promethium
3. Bismuth	i. Platinum	vi. Samarium
4. Cadmium	ii. Palladium	vii. Europium
5. Cobalt	iii. Rhodium	viii. Gadolinium
6. Copper	iv. Ruthenium	ix. Terbium
7. Gallium	v. Iridium	x. Dysprosium
8. Germanium	vi. Osmium	xi. Holmium
9. Graphite	17. Phosphorous	xii. Erbium
10. Hafnium	18. Potash	xiii. Thulium
11. Indium	19. REE	xiv. Ytterbium
12. Lithium	i. Lanthanum	xv. Lutetium
13. Molybdenum	ii. Cerium	xvi. Scandium
14. Niobium	iii. Praseodymium	xvii. Yttrium