



The Central Government Cancels the Auction of 13 Crucial Mineral Blocks

Why in News?

Recently, the Centre has cancelled auction for 13 of 20 blocks on offer in the first round of [critical mineral](#) bids following poor response from the bidders.

Key Points

- These **13 crucial mineral blocks** which received poor response hold glauconite, nickel, chromium and platinum group elements (PGE), potash, etc. They are **spread across Bihar, Jharkhand, Odisha, Tamil Nadu, Uttar Pradesh, and Jammu and Kashmir (J&K)**.
 - The PGEs—platinum, palladium, rhodium, ruthenium, iridium, and osmium—are metals that have similar physical and chemical properties and tend to occur together in nature.
- Earlier, in **June 2023**, the government released **a list of 30 minerals considered critical for the country**. These **include antimony, beryllium, bismuth, cobalt, copper, gallium, germanium, graphite, hafnium, indium, lithium, molybdenum, niobium, nickel, platinum group elements (PGE), phosphorous, and potash**.
- [Rare Earth Elements \(REE\)](#) like **rhodium, silicon, strontium, tantalum, tellurium, tin, titanium, tungsten, vanadium, zirconium, selenium and cadmium** were also present in this list.

Critical Minerals

- Critical minerals are those minerals that are **essential for economic development and national security**
- The **lack of availability** of these minerals or concentration of extraction or processing in a few geographical locations may lead to **supply chain vulnerabilities** and even disruption of supplies.
- **Declaration of Critical Minerals:**
 - It is a **dynamic process**, and it can evolve over time as new technologies, market dynamics, and geopolitical considerations emerge.
 - **Different countries may have their own unique lists** of critical minerals based on their specific circumstances and priorities.
 - **Expert Committee under Ministry of Mines has identified a set of 30 critical minerals for India.**

RARE EARTH ELEMENTS

Rare Earth Elements are a family of 17 elements in the periodic table - 15 Lanthanide group elements, along with Yttrium and Scandium.

+ PROPERTIES

- Unique magnetic, luminescent, and electrochemical properties
- High - density, melting point, conductivity and thermal conductance
- Share a trivalent charge (+3)

+ TYPE - LIGHT AND HEAVY REES

| Element | Symbol | Atomic Number | Element | Symbol | Atomic Number |
|-------------------|--------|---------------|-------------------|--------|---------------|
| <i>Light REES</i> | | | <i>Heavy REES</i> | | |
| Lanthanum | La | 57 | Terbium | Tb | 65 |
| Cerium | Ce | 58 | Dysprosium | Dy | 66 |
| Praseodymium | Pr | 59 | Holmium | Ho | 67 |
| Neodymium | Nd | 60 | Erbium | Er | 68 |
| Samarium | Sm | 62 | Thulium | Tm | 69 |
| Europium | Eu | 63 | Ytterbium | Yb | 70 |
| Gadolinium | Gd | 64 | Lutetium | Lu | 71 |
| | | | Yttrium | Y | 39 |

+ PRINCIPAL SOURCE

- Carbonatites:** Host world's largest REE deposits
- Alkaline Igneous Systems:** Comprise a group of uncommon igneous rock types (Deficient in silica, relative to sodium, potassium, and calcium)
- Ion-Absorption Clay Deposits:** Southern China (World's primary source of heavy REEs.)
- Monazite-Xenotime-Bearing Placer Deposits:** Principal source of rare earths and thorium in India



+ APPLICATIONS

- In lights, screens, and glass
- As catalysts
- In magnets, electronics and steel alloys
- In defence and energy sectors

+ ISSUES

- Sufficiently available but extraction/ utilisation unviable economically
- Heavy REEs not available in extractable quantities

+ INTERNATIONAL PRODUCTION

- China's monopoly (accounts for 60% of total)

World Reserves of Rare Earths (By Principal Countries)
(In '000 tonnes of REO equivalent content)

| Country | Reserves |
|----------------------------|----------|
| World: Total (rounded off) | 120000 |
| Australia | 3300 |
| Brazil | 22000 |
| Myanmar | NA |
| Burundi | NA |
| Canada | 830 |
| China | 44000 |
| Greenland | 1500 |
| India | 6900 |
| Madagascar | NA |
| Russia | 12000 |
| South Africa | 790 |
| Tanzania | 890 |
| Thailand | NA |
| USA | 1400 |
| Vietnam | 22000 |
| Other countries | 310 |