

Europe's largest known deposit of rare earth elements found in Sweden

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In news— Swedish state-owned mining company, LKAB has recently announced that it has discovered more than one million tonnes of rare earth oxides in the northern area of the country which is the largest known deposit in Europe.

Key updates-

- **Currently, no rare earths are mined in Europe** and it mostly imports them from other regions.
- According to a report in the BBC, **98 percent of rare earths used by the European Union were sent by China.**
- The recent discovery can prove to be a significant turning point not just for the EU but also for other western countries as they have been trying to reduce their reliance on China for the import of these rare earth elements and other key industrial supplies, especially since the outbreak of the coronavirus pandemic.
- Over the years, China has repeatedly used its monopoly in the rare earths market for furthering its geopolitical agendas.
- For instance, in 2010, Beijing blocked Japan's access to rare earth elements over Tokyo's detention of a Chinese fishing trawler captain.
- Therefore, it didn't come as a surprise when last year in August, the US and 10 other nations including Australia, Canada, Finland, France, Germany, Japan, the Republic of Korea (South Korea), Sweden, the United Kingdom, and the European Commission came together in a bid to break China's dominance in the global market and

formed the **Minerals Security Partnership (MSP)**.

What are rare earths?

- **Rare earth elements or rare earth metals are a set of 17 chemical elements in the periodic table, the 15 lanthanides, plus scandium and yttrium**, which tend to occur in the same ore deposits as the lanthanides, and have similar chemical properties.
- **The 17 rare earths are** cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu), neodymium (Nd), praseodymium (Pr), promethium (Pm), samarium (Sm), scandium (Sc), terbium (Tb), thulium (Tm), ytterbium (Yb), and yttrium (Y).
- **Despite their classification, most of these elements are not really “rare”**. One of the rare earths, promethium, is **radioactive**.
- **These elements are important in technologies of consumer electronics**, computers and networks, communications, clean energy, advanced transportation, healthcare, environmental mitigation, and national defence, among others.
- **Scandium is used in televisions and fluorescent lamps**, and yttrium is used in drugs to treat rheumatoid arthritis and cancer.
- **Rare earth elements are used in space shuttle components, jet engine turbines**, and drones. Cerium, the most abundant rare earth element, is essential to NASA's Space Shuttle Programme.
- In recent years, rare earths have become even more important because there has been an increase in demand for green energy.
- **Elements like neodymium and dysprosium, which are used in wind turbine motors, are sought-after more than ever** as wind mills across the world continue to grow.
- Moreover, the push for switching from internal

combustion cars to electric vehicles has also led to a rise in demand for rare earth magnets – made from neodymium, boron, and iron – and batteries.

Further reading:
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