CORPORATE OFFICE
Delhi Office
706 Ground Floor Dr. Mukherjee Nagar Near Batra Cinema Delhi – 110009
Noida Office
Basement C-32 Noida Sector-2 Uttar Pradesh 201301

Yojna IAS
yojnaias.com
योजना है तो सफलता
website : www.yojnaias.com
Contact No. : +91 859539070

16 – January 2023

SWEDEN FINDS THE LARGEST EU RARE EARTH ELEMENTS DEPOSIT

This article covers "Daily current events "and the topic is about 'Rare Earth elements' which is in news, it covers the "Geography" In GS-1, and the following content has relevance for UPSC.

For Prelims: Facts about Rare earth elements (REEs) – Overview
For Mains: GS-1, Rare earth elements (REEs) – Overview, Applications, Value, Distribution, REEs & India

What makes news?
More than a million tonnes of rare earth oxides have been found in Sweden's north, according to the state-owned mining corporation LKAB**.**

ABOUT RARE EARTH ELEMENTS
The 17 chemical elements in the periodic table known as REEs, or rare earth metals, include the 15 lanthanides as well as scandium and yttrium.

Light RE elements (LREE) and heavy RE elements are two categories for REEs (HREE).

These metals have chemical characteristics with lanthanides and frequently exist in the same ore sources.

There are 17 different rare earth elements: 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 (Y).

USES OF RARE EARTH ELEMENTS

- Consumer electronics, computers and networks, communications, clean energy, modern transportation, healthcare, environmental mitigation, and national defense, among other technologies, all depend on these elements.
- Fluorescent lights and televisions both use scandium, while cancer and rheumatoid arthritis medications use yttrium.
- Space shuttle parts, jet engine turbines, and drones all use rare earth elements.
- For instance, cerium is crucial to the NASA Space Shuttle Program**.**

WHY HAVE RARE EARTH BECOME EVEN MORE SIGNIFICANT RECENTLY

- The technologies of consumer electronics, computers and networks, communications, clean energy, cutting-edge transportation, healthcare, environmental mitigation, and national defense, among others, all depend on these components.
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IMPORTANCE OF RARE EARTH AND ITS ELEMENT

- Green energy has become more and more in demand in recent years.
- As a result, there is a higher demand for materials used in wind turbine motors, such as neodymium and dysprosium.
- Additionally, the attempt to transition from internal combustion to electric vehicles has increased demand for batteries and rare earth magnets derived from neodymium, boron, and iron.
- The production and distribution of rare earth elements.

RARE EARTH (RE) METALS AND INDIA

- India generates 1% of the world's output but holds 6% of the deposits of rare earth.
- India has access to certain REEs, including lanthanum, cerium, neodymium, praseodymium, and samarium.
- Other HREE-classified elements like dysprosium, terbium, and europium are not present in sufficient quantities in Indian deposits.
- As a result, there is a reliance on nations like China to produce HREE. China is one of the top producers of RE, accounting for an estimated 70% of global output.

- Indian Rare Earths Ltd. has been working with heavy mineral mining and beneficiation.
- According to the Foreign Trade Policy, 2015-2020, the import of rare earth metal ores, concentrates, and rare earth oxides, including rutile sand, is completely legal.

THE SIGNIFICANCE OF THE FINDING FOR EUROPE

Western nations are in relief

The latest discovery has been welcomed in light of the tense relations between China and other western nations.

Destroying the Chinese monopoly

China is the sole producer of rare earth on a global scale after the United States withdrew due to safety and environmental concerns.

China has frequently promoted its geopolitical objectives by abusing its stranglehold on the rare earths market.

Beijing restricted Japan's access to rare earth elements in 2010 because Tokyo had detained a Chinese fishing boat captain.

The Minerals Security Partnership gets a boost (MSP)

- The current Swedish discovery will help advance the goals of the Minerals Security Partnership (MSP).
- The US and ten other Partners joined together to form the MSP alliance in August 2022.
- Canada, Australia, Finland, Germany, France, Japan, the Republic of Korea, Sweden, the United Kingdom, the United States, and the European Commission are partners.
- The MSP's objective is to make certain that essential minerals are produced, processed, and recycled in a way that promotes nations' ability to reap the maximum economic development advantage of their geological endowments.
- The partnership was believed to be largely focused on developing a rival to China.

Piyush Singh