US Army to process Rare Earths

Why in News?

The United States (US) Army plans to fund the construction of a Rare Earths processing facility to secure the domestic supply of these minerals.

Why this decision was taken?

- The decision comes after **China threatened to stop exporting Rare Earth** materials to the US amid the ongoing trade war between the countries.
- The US took this decision also **to secure the domestic supply of minerals** that are used to make military weapons and electronics.
- The US wants the supply of materials that are vital to sustaining its technological strength.
- At present, China refines approximately 80%-90% of the world's Rare Earths, thereby having substantial control over their supply.
- This processing facility will be the first financial investment by the US Army into commercial-scale Rare Earths production since the Manhattan Project to build the first atomic bomb during World War II.

What are Rare Earths?

- Rare Earth Elements or Rare Earth Metals are a set of **17 chemical elements** in the periodic table.
- They comprise the 15 lanthanides along with the scandium and yttrium, which tend to occur in the same ore deposits as the lanthanides, and have similar chemical properties.
- Despite their classification, most of these elements are not really "rare".
- According to the Rare Earth Technology Alliance (RETA), the estimated size of the Rare Earth sector is between $10 billion and $15 billion.
- About 100,000-110,000 tonnes of Rare Earth elements are produced annually around the world.

What are Rare Earths used for?

- Rare Earth elements are used in building consumer electronics, in healthcare and advanced transportation.
- These are also important in technologies of computers and networks, communications, clean energy, environmental mitigation, etc.

- They are especially important for governments because of their use in manufacturing defence equipment.
- These 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.
- Scandium is used in televisions and fluorescent lamps.
- Yttrium is used in drugs to treat rheumatoid arthritis and cancer.

How and why does China dominate the sector?

- In China, the mining of Rare Earths began in the 1950s.
- But it remained a cottage industry until the 1970s, when the chemist Xu Guangxian found a way to separate the Rare Earth elements.
- After the Cultural Revolution in China ended, the country focussed on exploiting its natural resources.
- In 1992, China's paramount leader Deng Xiaoping compared the status of Rare Earth reserves to that of oil in the Middle East.
- He said that these elements are of extreme strategic significance and should be handled properly to make them advantageous for the country.
- Since 2010 when China curbed shipments of Rare Earths to Japan, the US, and Europe, production units have come up in Australia, and the US along with smaller units in Asia, Africa, and Latin America.
- Even so, the dominant share of processed Rare Earths lies with China.

Source: The Indian Express

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