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Minerals Security Partnership (MSP)

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What's in News?

There is growing concern in the Government over India not finding a place in the Minerals Security Partnership.

Minerals Security Partnership:

Minerals Security Partnership (MSP) is a **USA led initiative** to bolster critical mineral supply chains.

MSP partners – including **Australia, Canada, Finland, France, Germany, Japan, the Republic of Korea, Sweden, the United Kingdom, the United States, and the European Commission.**

The goal of the MSP is **to ensure that critical minerals are produced, processed, and recycled in a manner that supports the ability of countries to realize the full economic development benefit of their geological endowments.**

Demand for critical minerals, which are essential for clean energy and other technologies, is projected to expand significantly in the coming decades.

The MSP will help catalyze investment from governments and the private sector for strategic opportunities —across the full value chain —that adhere to the highest environmental, social, and governance standards.

This new alliance is seen as being **primarily focused on evolving an alternative to China**, which has created processing infrastructure in rare earth minerals and has acquired mines in Africa for elements such as cobalt.

The grouping could focus on the supply chains of minerals such as Cobalt, Nickel, Lithium and also the 17 “rare earth” minerals.

Critical Minerals:

Critical minerals are elements that are the building blocks of essential modern-day technologies, and are at risk of supply chain disruptions.

These minerals are now used everywhere from making mobile phones, computers to batteries, electric vehicles and green technologies like solar panels and wind turbines.

Based on their individual needs and strategic considerations, different countries create their own lists.

Demand for critical minerals such as rare earth elements has increased in recent years with the spread of high-tech devices for personal and commercial use

Rare earth comprises **17 elements** and are classified as light RE elements (LREE) and heavy RE elements (HREE).

The **most common distinction between rare-earth elements is made by atomic numbers**; those with low atomic numbers are referred to as light rare-earth elements (LREE), those with high atomic numbers are the heavy rare-

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earth elements (HREE)

Some rare earth elements are - lanthanum, cerium, neodymium, samarium, europium, scandium, yttrium.

One of the Rare Earths, **promethium, is radioactive.**

Importance of Critical Minerals:

As the world transitions to a clean energy economy, global demand for these critical minerals is set to skyrocket by 400-600 per cent over the next several decades

Minerals such as lithium and graphite used in electric vehicle (EV) batteries, demand will increase by even more — as much as 4,000 per cent

They are critical as the world is fast shifting from a fossil fuel-intensive to a mineral-intensive energy system.

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.

Neodymium is the most critical one as it is extensively used in **all mobile phones, medical equipment and electric vehicles.**

While **Cobalt, Nickel and Lithium are required for batteries used in electric vehicles**

Supply risks exist due to rare availability, growing demand and complex processing value chain.

Many times the complex supply chain can be disrupted by hostile regimes, or due to politically unstable regions.

China's Dominance:

Rare Earth Minerals are difficult and costly to mine and process cleanly.

China hosts most of the **world's processing capacity** and supplied 80% of the rare earths imported by the United States from 2014 to 2017.

China is responsible for some 70% and 60% of global production of cobalt and rare earth elements, respectively, in 2019.

The level of concentration is even higher for processing operations, where China has a strong presence across the board.

China's share of refining is around 35% for nickel, 50-70% for lithium and cobalt, and nearly 90% for rare earth elements.

It also controls cobalt mines in the Democratic Republic of Congo, from where 70% of this mineral is sourced.

California's Mountain Pass mine is the only operating U.S. rare earths facility.

Rare earths are also mined in India, South Africa, Canada, Australia, Estonia, Malaysia and Brazil.

India's Rare Earth:

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India, as a reservoir of 49 major critical and non-fuel minerals, as reported by the Council on Energy, Environment, and Water (CEEW) and the Ministry of Science & Technology, can be a sustainable source for the manufacturing sector.

Despite having a rich deposit of monazite on beach sand, India is 100 per cent import dependent for its rare earth supplies due to its mining being restricted to public sector undertakings (PSUs), particularly, the Indian Rare Earth Limited (IREL) and Kerala REL.

The reforms in the Indian mining and downstream sector of critical minerals can boost not only its domestic high-tech manufacturing, but also its green future goals.

Rather ironically, India was one of the pioneers in the rare earth industry.

The Public Sector Undertaking (PSU), Indian Rare Earths Limited (IREL), has been up and running since 1949.

One of the most vexing problems arising from India's policy structure is that rare earths with super specialised uses but across multiple industries become vested within just one domain- atomic energy and with the monopoly under the atomic agencies.

Thus, the present system ends up separating the rare earths ecosystem from other R&D ecosystems like electronics or metallurgy.

Concerns of India over MSP:

One of the key elements of **India's growth strategy** is **powered by an ambitious shift in the mobility space** through the conversion of a large part of public and private transport to **electric vehicles**.

This, alongside a concerted electronics manufacturing push, underlines the **need to secure the supply of critical minerals**.

India's exclusion from the MSP comes when there is renewed cooperation with Washington DC on multiple other fronts, including the 'Quad' informal grouping that brings together the US, Japan, Australia and India.

Subsequent to the Quad, India was included as a member of a new economic grouping alongside Israel, the UAE and the US — the I2U2 — that focuses on six key areas of cooperation: health, water, transportation, food security, space and energy.

In July 2022, Australia confirmed that it would "commit A\$5.8 million to the three-year India-Australia Critical Minerals Investment Partnership".

In mid-2020, India, through a newly floated state-owned company, had signed an agreement with an Argentinian firm to jointly prospect lithium in the South American country that has the third largest reserves of the metal in the world.

India is seen as a late mover in attempts to enter the lithium value chain, coming at a time when EVs are predicted to be a sector ripe for disruption.

One reason India would not have found a place in the grouping is because the country does not bring much expertise to the table.

In the group, countries like Australia and Canada have reserves and also technology to extract them and countries like Japan have the technology to process.

Way Forward:

India is exploring the possibility of joining the 11 member MSP group.

Apart from this, India can

i. Acquire key capabilities

ii. Create a Department of Rare Earths (DRE) within the Ministry of Mines to co-ordinate the efforts.

iii. Eliminating the monopoly and liberalising the sector

iv. Twin strategies of setting up domestic R&D centres of excellence along with the acquisition of foreign data and talent

v. Take up recycling to recovery rare earth from wastes.