National Critical Mineral Mission

For Prelims: Critical minerals, Offshore areas, Public Sector Undertakings, Electric vehicle, Magnetic Resonance Imaging , European Union, Semiconductors, Geological Survey of India, KABIL

For Mains: National Critical Mineral Mission, Critical Minerals in Clean Energy Transition, India's Self-reliance in Critical Minerals

Source: TH

Why in News?

The Union Cabinet approved the **National Critical Mineral Mission (NCMM)** with a **total outlay of Rs 34,300 crore over seven years**.

- The mission aims to **strengthen India's self-reliance in critical minerals**, in alignment with the **Atmanirbhar Bharat** vision.

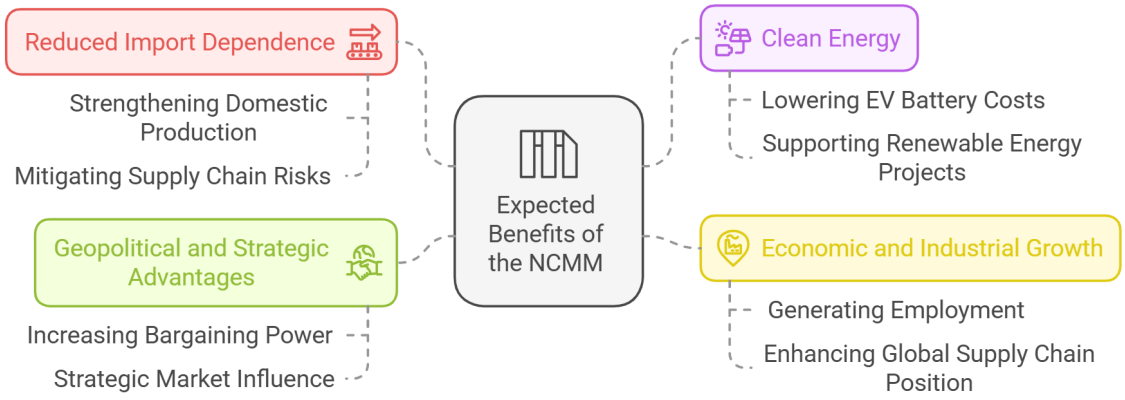
What is the National Critical Mineral Mission (NCMM)?

- **Objective**: The NCMM aims to reduce India's dependence on imports of critical minerals and ensure **self-reliance for high-tech industries**, clean energy, and **national defense.**
  - The mission will cover **all stages**, including mineral exploration, mining, beneficiation, processing, and recovery from end-of-life products.
  - The mission will intensify the **exploration of critical minerals within the country and in its offshore areas.**
- **Approach**: The NCMM will adopt a **"whole-of-government"** approach, working closely with various ministries, **Public Sector Undertakings (PSUs)**, private companies, and research institutions.
  - A fast-track approval process will be established to expedite mining projects for critical minerals.
- **Stockpiling Minerals**: NCMM provisions to **develop stockpiles of critical minerals** will ensure that India has sufficient reserves to meet future demands.
- **International Strategy**: Encourages Indian companies to acquire critical mineral **assets abroad** and build trade ties with resource-rich nations.
- **Infrastructure:** The mission will establish **mineral processing parks,** promote recycling of critical minerals, and support research in related technologies, including the creation of a **Centre of Excellence for Critical Minerals.**
  - Encourages industries to **establish processing units within India** through financial incentives.
  - Expands **Promoting Innovations in Individuals, Startups And MSMEs (PRISM) initiative** to fund **startups and Micro, Small and Medium Enterprises (MSME)** in the critical minerals sector.

What is the Need for NCMM?

- **Role of Critical Minerals:**
  - **Green Energy Transition:** Critical Minerals are essential for **solar panels, wind turbines, electric vehicle (EV) batteries, and hydrogen fuel cells.**
  - **Electronics & Telecommunications:** Used in **semiconductors, fiber optics, and circuit boards**.
  - **Defense & Aerospace:** Required in **missile guidance systems, aircraft, and satellite technologies**.
  - **Medical Equipment:** Key component in **Magnetic Resonance Imaging (MRI) machines, pacemakers, and other advanced healthcare technologies**.
- **India's Dependence on Imports: India heavily depends on China** for six critical minerals (bismuth, lithium, silicon, titanium, tellurium, and graphite) highlighting its vulnerability to supply disruptions.
  - The **30% annual growth in lithium-ion battery demand,** driven by EV adoption, makes NCMM essential to support this surge.
- **Global Context**: **China dominates the global supply chain** for critical minerals like lithium, cobalt, and rare earths, refining over **60% of these minerals.**
  - The US, **European Union**, and Japan have implemented policies to secure their own supplies.
  - India needs a strong strategy for long-term access to critical minerals, making NCMM crucial for global competitiveness.

//



What are the Recent Developments Related to Critical Minerals?

- **Critical Mineral List:** India has released a **list of 30 critical minerals for India.**
  - These minerals are Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE,Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium,Zirconium, Selenium and Cadmium.
- **Legislative Amendments**: The **Mines and Minerals (Development and Regulation) Act, 1957,** was amended in 2023 to streamline critical mineral exploration, resulting in the auction of 24 strategic mineral blocks.
  - The 2023 amendment to the **Offshore Areas Mineral (Development and Regulation) Act (OAMDR), 2002,** introduces a transparent auction process for offshore mineral rights, mandates composite licenses for exploration and production.
- **Exploration Projects**: The **Geological Survey of India (GSI)** has completed 368 critical mineral exploration projects, with 195 ongoing in 2024-25, and 227 planned for 2025-26.

- **Customs Duty Elimination**: The FY25 Union Budget removed customs duties on critical minerals to promote domestic production and encourage processing facilities.
- **International Collaboration**: **Khanij Bidesh India Ltd (KABIL)**, a joint venture of the Ministry of Mines, acquired 15,703 hectares in **Catamarca, Argentina**, for lithium exploration and mining.

Drishti Mains Question:

Q. Discuss the significance of the National Critical Mineral Mission to address India's challenges in securing these essential resources?

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims:

Q1.Consider the following minerals: (2020)

1. Bentonite
2. Chromite
3. Kyanite
4. Sillimanite

Q. In India, which of the above is/are officially designated as major minerals?

(A) 1 and 2 only

(B) 4 only

(C) 1 and 3 only

(D) 2, 3 and 4 only

Ans: D

Q2.Recently, there has been a concern over the short supply of a group of elements called 'rare earth metals'. Why? (2012)

1. China, which is the largest producer of these elements, has imposed some restrictions on their export.
2. Other than China, Australia, Canada and Chile, these elements are not found in any country.
3. Rare earth metals are essential for the manufacture of various kinds of electronic items and there is a growing demand for these elements.

Which of the statements given above is/are correct?

(A) 1 only

(B) 2 and 3 only

(C) 1 and 3 only

(D) 1, 2 and 3

Ans: C

Mains:

Q. Discuss the multi-dimensional implications of uneven distribution of mineral oil in the world. **(2021)**