Current Affairs - 08 November 2026

INDIA'S CRITICAL MINERAL PROCESSING SCHEME - STRENGTHENING DOMESTIC CAPACITY AND SUPPLY CHAIN SECURITY

- The Union Cabinet has approved the Critical Mineral Processing Scheme - a **₹2,814-crore** Capital Expenditure (Capex) Support Scheme to develop domestic processing capacity for critical minerals, particularly lithium and nickel.
- The initiative seeks to address India's dependence on imported refined materials, reduce strategic vulnerability arising from China's dominance and strengthen the domestic critical mineral value chain.

Key Features of the Scheme:

- **Financial assistance and capacity targets:**
  - **Total outlay**: ₹2,814 crore.
  - **Duration**: Five years, from FY 2026-27 to FY 2030-31.
  - **Capital subsidy**: 30% of eligible capital investment.
  - **Processing facilities**: Four plants — two for lithium and two for nickel.
  - **Capacity and financial support:** For Lithium, minimum capacity per plant will be 30,000 tonnes, while maximum capital support per beneficiary will be ₹500 crore (Nickel - 50,000 tonnes, ₹900 crore).
- **Processing objectives:** The scheme aims to convert lithium and nickel ores and intermediate products into high-purity compounds. Nickel processing is also expected to facilitate the recovery of cobalt as a by-product.

Significance of the Scheme:

- **Reducing import dependence:**
  - India has limited domestic processing capacity and relies heavily on imports of refined critical minerals, including lithium, nickel, cobalt, rare earth elements (REEs) and silicon.
  - The scheme will -
    - Promote domestic beneficiation and processing infrastructure.

- Reduce dependence on imported refined intermediates and high-purity materials.
- Enhance **domestic value addition** and strengthen supply chain resilience.

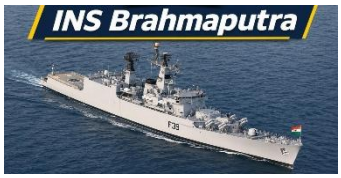
- **Addressing China's strategic dominance:**
  - China controls approximately **90%** of global critical mineral processing capacity and can use this dominance as leverage during trade tensions.
  - India's limited processing capabilities expose it to supply disruptions, price volatility and geopolitical risks.
  - Developing indigenous processing capacity is essential for economic security, technological self-reliance and **strategic autonomy.**
- **Supporting strategic industries:** Domestic processing facilities are expected to strengthen mineral supplies for -
  - Electric mobility and electric vehicle batteries.
  - Battery Energy Storage Systems (**BESS**).
  - Electronics and semiconductor-related industries.
  - Defence and speciality steel.
  - Chemicals, catalysts and pharmaceuticals.

Way Forward:

- India must **combine** capital incentives with technology development, reliable raw-material access, skilled manpower, sustainable processing practices and international mineral partnerships.
- **Developing** domestic processing capacity alongside recycling and strategic stockpiling will be crucial to reducing import dependence and ensuring long-term supply chain security.

Conclusion: The scheme represents an important step towards transforming India from a predominantly import-dependent consumer of critical mineral compounds into a competitive domestic processing and **value-addition hub**.

INS BRAHMAPUTRA



- INS Brahmaputra (**F31**) is the **first indigenously built Brahmaputra-class guided missile frigate** of the Indian Navy.
- It was **built** by **Kolkata-based Garden Reach Shipbuilders and Engineers Limited (GRSE).**
- It was **commissioned** into the Indian Navy on April 14, **2000**.
- It takes on various roles such as **coastal and offshore patrolling,** monitoring sea routes, conducting maritime diplomacy, and carrying out **counter-terrorism and anti-piracy missions.**

Features:

- Its crest features a grey, one-horned Indian rhinoceros, which is native to the Brahmaputra valley, set against a brown background with white and blue sea waves.
- The ship has a **displacement** of **5,300 tonnes,** a length of 125 metres, and is 14.4 meters wide.
- **Propulsion** is via 2 x **steam turbines** producing 30,000 hp on 2 x shafts below the stern.
- It can reach speeds over 27 knots (about 50 km/h).
- It is equipped with **medium- and close-range guns, anti-aircraft weapons,** surface-to-surface and surface-to-air **missiles**, and **torpedo launchers.**
- It is equipped with a range of sensors for all aspects of maritime warfare and can **operate Sea King and Chetak helicopters.**
- The ship is manned by a crew of 40 officers and 330 sailors.

Cross And Climb

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GAIA MISSION



Recently, a team led by Indian astronomers redefine star cluster UBC 63 as a double cluster system spotted after close flyby using data from the European Space Agency's (ESA) Gaia mission.

- It was originally named **Global Astrometric Interferometer for Astrophysics** (GAIA), later simplified to Gaia.
- It was launched in 2013 by **the European Space Agency (ESA).**
- It aimed to create the **most precise 3D map of the Milky Way** through astrometry.
- It is placed at **Lagrange Point 2** (L2), 1.5 million km from Earth (behind Earth when viewed from the Sun).

Scientific Instruments:

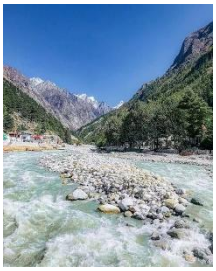
  - **Twin Telescopes:** Captured light from different directions.
  - **Digital Camera:** Nearly 1 billion pixels, the largest ever flown in space.
- **Three Key Instruments:**
  - **Astrometer:** Measures precise locations of celestial bodies.
  - **Photometer:** Determines brightness and temperature of stars.
  - **Spectrometer:** Identifies chemical composition and motion of objects.

What is UBC 63?

- It is poorly **populated group of stars,** bound loosely by gravity (Galactic open cluster) about 4892 light years away from the Earth.
- It was previously identified as a single star cluster, has now **been found to be composed of two distinct star clusters.**

Cross And Climb

KEY FACTS ABOUT BHAGIRATHI RIVER



- It is a **perennial Himalayan river** flowing through the state of **Uttarakhand**.
- It is **one of the two main headstreams of the Ganges** River, the **other being** the **Alaknanda**

- Bhagirathi's reputation as the source stream of Ganga is based on mythology. As regards the length and discharge, Alaknanda is considered the source stream.
- **Course**:
  - It **originates** from the **Gaumukh Glacier** located at the **base of the Khatling and Gangotri Glaciers** in the **Garhwal Himalayas** of **Uttarakhand**, where the **melting ice** gives birth to the river.
  - Further, the river passes through the Tehri Garhwal district, including the towns of Uttarkashi and Tehri, where it encounters cliffs, rapids, and waterfalls.
  - From its main source, the Bhagirathi River **flows 205 km before meeting the Alakananda** River at **Devprayag**.
  - The **combined waters** of the two rivers then **flow as the Ganges River**, and this river eventually empties into the Bay of Bengal.
- Major Tributaries:
  - Bhilangna River (largest tributary)
  - Jadh Ganga River
  - Kedar Ganga River
  - Asi Ganga River
  - Solani River
- **Major Dams:**
  - **Tehri Dam (one of the largest dams in India)**
  - Maneri Dam, Koteshwar Dam.

Cross And Climb

WHAT IS THE ATOMIC ENERGY REGULATORY BOARD (AERB)?



- It is **India's premier regulatory authority** for **nuclear and radiation safety.**

- **Background**:
  - The AERB was **constituted** on November 15, **1983**, by the **President of India** by **exercising the powers** conferred by the **Atomic Energy Act, 1962.**
  - The **regulatory authority** of AERB is **derived** from the rules and notifications promulgated under the **Atomic Energy Act** and the **Environment (Protection) Act, 1986.**
- **Objective**: To ensure the **use of ionizing radiation and nuclear energy** in India **does not cause undue risk** to the health of **people and the environment.**
- **Headquarters: Mumbai.**
- **Composition**:
  - It comprises **six members,** of which **two** are **full-time members including** the **chairman**.
  - The other whole-time member is the executive director of the AERB Secretariat, who is an ex-officio member of the Board.
  - The **other four members** are **eminent experts** from various disciplines relevant to the mandate of the board.
  - The Board **reports to the Atomic Energy Commission (AEC), which in turn reports to the Prime Minister.**
- **Regional Regulatory Centres (RRCs)** of AERB set up at **Kolkata, Chennai,** and **New Delhi** carry out regular surveillance of the radiation facilities in eastern, southern, and northern zones, respectively.
- AERB has a **Safety Research Institute (SRI) located at Kalpakkam, Tamil Nadu,** which carries out research in safety-related topics.

Cross And Climb

- **Functions**:
  - **Develop safety policies** in nuclear, radiation, and industrial safety areas **for facilities under its purview.**
  - **Develop Safety Codes**, Guides, and **Standards for siting, design, construction, commissioning**, **operation,** and **decommissioning** of different types of **nuclear and radiation facilities.**
  - **Grant consents** for siting, construction, commissioning, operation, and decommissioning, after an **appropriate safety review and assessment,** for the **establishment of nuclear and radiation facilities.**
  - **Ensure compliance with the regulatory requirements** prescribed by AERB during all stages of consenting through a system of review and assessment, regulatory inspection, and enforcement.
  - **Prescribe** the **acceptance limits of radiation exposure to occupational workers** and **members of the public** and **acceptable limits of environmental releases** of **radioactive substances**.
  - **Review the emergency preparedness plans** for nuclear and radiation facilities and **during transport** of large **radioactive sources, irradiated fuel,** and fissile material.
  - **Review the training program, qualifications,** and **licensing policies for personnel** of nuclear and radiation facilities and **prescribe the syllabi for training** of personnel in safety aspects at all levels.
  - Take such steps as necessary to **keep the public informed** on major issues of radiological safety significance.
  - Maintain liaison with statutory bodies in the country as well as abroad regarding safety matters.
  - **Promote research and development** efforts in the areas of safety.
  - **Review** the **nuclear and industrial safety aspects** in nuclear facilities under its purview.

INTERNATIONAL SOLAR ALLIANCE

Abbreviation:	ISA
Formation:	30 November 2015
Founded at:	Paris, France
Purpose:	Bring together a group of nations to endorse clean energy, sustainable environment, public transport and climate
Headquarters:	National Institute of Solar Energy, Gurugram, Haryana, India
Region served:	All members of UN
Fields:	Renewable energy
Members:	120+ members of UN, incl. Japan, France, Brazil, Argentina, Chile, Algeria and Australia etc.
Official language:	French, English
Director General:	Dr. Ashish Khanna
President:	India
Co-President:	France



World map with the Torrid Zone, the area between the Tropics of Cancer and Capricorn, highlighted in red.

The **International Solar Alliance** (**ISA**) is an alliance of more than 112 member and 14 signatory countries, most being **sunshine countries**, which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn. The primary objective of the alliance is to work for the efficient consumption of solar energy to reduce dependence on fossil fuels. This initiative was first proposed by Indian Prime Minister Narendra Modi in a speech in November 2015 at Wembley Stadium in which he referred to sunshine countries as *Suryaputra* ("Sons of the Sun").

The alliance is a treaty-based inter-governmental organization. Countries that do not fall within the Tropics can join the alliance and enjoy all benefits as other members, with the exception of voting rights.

Headquarters: The ISA is headquartered in Haryana, India. In January 2016, Narendra Modi, and the then French President François Hollande jointly laid the foundation stone of the ISA Headquarters and inaugurated the interim Secretariat at the National Institute of Solar Energy (NISE) in Gwal Pahari, Gurugram, India.
The alliance is also called International Agency for Solar Policy and Application (IASPA).

Objective: The focus is on solar power utilization. India has pledged a target of installing 175 GW of renewable energy of which 100 GW will be solar energy by 2022 and reduction in emission intensity by 33–35% by 2030 to let solar energy reach to the most unconnected villages and communities and also towards creating a clean planet. India's pledge to the Paris summit offered to bring 40% of its electricity generation capacity (not actual production) from non-fossil sources (renewable, large hydro, and nuclear) by 2030. It is based on world cooperation.

Geographical importance: The area of Earth located in between the Tropic of Cancer and Tropic of Capricorn is called the tropical (torrid) zone. This is the part of the world in which the sun can appear directly overhead, and that more-direct exposure means that the sun's actual effect is greater here; anywhere north or south of this zone, sunlight always reaches the earth's surface at an angle and is correspondingly less intense.

Cross And Climb