

## NASA ARTEMIS II MISSION - EXAM HIGHLIGHTS

### Mission Introduction

Artemis II is NASA's most ambitious project to take humans into lunar orbit. This is the first mission to send astronauts to the vicinity of the Moon since the 'Apollo' missions of 1972.

### Mission Objectives

- **Crewed Flyby:** This is not a lunar landing mission. Four astronauts in the Orion spacecraft will orbit the Moon and return to Earth.
- **Technology Testing:** The primary goal is to test life support, communication, and navigation systems necessary for establishing future lunar habitats (Artemis III).

### The Crew (Historical Significance)

Among the four astronauts participating in this mission, three are set to make history:

- **Victor Glover:** The first person of color selected for a lunar mission.
- **Christina Koch:** The first woman selected for a lunar mission.
- **Jeremy Hansen:** The first non-American astronaut (Canada) to participate in such a mission.
- **Reid Wiseman:** He will serve as the Mission Commander.

### Key Hardware

- **SLS (Space Launch System):** The most powerful rocket ever designed by NASA.
- **Orion Capsule:** The spacecraft in which the astronauts will travel.
- **European Service Module (ESM):** Supplies essential electricity, water, and oxygen to the astronauts.

### Phases of the Artemis Program

- **Artemis I (2022):** Uncrewed test mission (Successful).
- **Artemis II (2026):** Crewed orbital journey (Current mission).
- **Artemis III (2027-28):** The mission to land the first woman and first person of color on the Moon's South Pole.

### Conclusion and Future Goals

If successful, this mission will pave the way for constructing a space station called 'Gateway' in lunar orbit. NASA aims to eventually use the Moon as a launching pad for future missions to Mars.

## PAK-AFGHAN PEACE TALKS AND CHINESE MEDIATION

### Context

According to information officially confirmed by the Pakistan Foreign Ministry, peace talks between representatives of Pakistan and Afghanistan have commenced in the city of Urumqi, North China. The primary objective of these discussions is to halt the border clashes that have resulted in hundreds of deaths over the past few weeks.

## Key Points of the Discussions

- **China's Role:** China is acting as a mediator in these talks. It has taken this initiative to ensure regional stability and the security of its Belt and Road Initiative (BRI) projects.
- **Pakistan's Demand:** Pakistan wants the Taliban government to take strict action against terrorist groups (especially the TTP - Tehrik-i-Taliban Pakistan) that are using Afghan soil to launch attacks on Pakistan.
- **Afghanistan's Response:** The Afghan Taliban government hopes for a ceasefire at the borders and the removal of obstacles to trade and transit.

## Importance for Exams (International Relations - GS 2)

- **Regional Security:** Instability in Afghanistan affects neighboring countries like Pakistan, India, and Central Asian nations.
- **China's Expansionism:** Following the U.S. withdrawal, China is emerging as a crucial 'power broker' in Afghan politics. This increases China's influence in South Asia.
- **Impact on India:** Chinese mediation between Afghanistan and Pakistan could potentially lead to strategic isolation for India in this region.

## Geopolitical Strategy

- **Urumqi:** This city is located in China's Xinjiang province. Peace in this region, which shares a border with Afghanistan, is essential for China.
- **Durand Line:** The disputed border line between Pakistan and Afghanistan. Conflicts regarding its recognition have persisted between the two countries for decades.

## HISTORICAL DISCOVERY: DANISH WARSHIP 'DANNEBROGE'

### Context

Researchers from the 'Viking Ship Museum' in Denmark announced the discovery of the wreckage of the warship 'Dannebrog', which sank during the 1801 Battle of Copenhagen. The remains were found on the seabed of Copenhagen Harbor after 225 years.

### Battle of Copenhagen (1801)

- **Who was the battle between?** It was fought between the British Navy (led by Admiral Horatio Nelson) and the Danish-Norwegian Navy.
- **The Cause:** Britain launched this attack to separate Denmark from the 'League of Armed Neutrality' formed by Russia, Prussia, Sweden, and Denmark.
- **Nelson's Victory:** This battle remains in history as one of the greatest victories achieved by Admiral Nelson.

### Significance of the Dannebrog

- It served as the flagship for the Danish Navy, commanded by Commodore Olfert Fischer.
- During the battle, the ship caught fire due to British artillery fire, exploded, and sank into the sea.
- **Archaeological Evidence:** At a depth of 15 meters, researchers found cannons, uniforms, shoes, bottles, and skeletal remains of sailors.

### Scientific Methods for Exams

- **Dendrochronology:** The study of 'tree rings' was used to determine the age of the wood used in the ship's construction. This confirmed it as an 18th-century vessel.
- **Marine Archaeology:** The process of removing seafloor sediment to collect and preserve historical evidence.

### Construction Project - Lynetteholm

- The wreckage was uncovered primarily due to the ongoing 'Lynetteholm' mega-housing project.
- This artificial island being built in Copenhagen Harbor is expected to be completed by 2070. The archaeology department conducted excavations beforehand to ensure historical artifacts were not damaged by construction.

### Importance for Exams (UPSC Perspective)

- **World History:** It highlights the alliances between European nations and the importance of British naval power during the Napoleonic Wars.
- **Science & Technology:** Questions may arise regarding the use of dendrochronology and underwater excavation technologies in archaeological research.
- **Environment:** There are ongoing discussions regarding the construction of artificial islands like 'Lynetteholm' as a defense against rising sea levels.

### INDONESIA EARTHQUAKE (MOLUCCA SEA) - KEY HIGHLIGHTS

#### Context

A massive earthquake with a magnitude of 7.6 on the Richter scale struck the Northern Molucca Sea in Indonesia. Although it initially triggered tsunami warnings, officials later confirmed there was no further danger.

#### Geographic Location and Intensity

- **Magnitude:** 7.6.
- **Epicenter:** Northern Molucca Sea.
- **Agency:** Indonesian Agency for Meteorology, Climatology, and Geophysics (BMKG).

#### Importance for Exams (Geography - GS 1)

- **Pacific Ring of Fire:** Indonesia's location within this region makes it prone to frequent earthquakes and volcanic eruptions. This is caused by the movement of **tectonic plates**.
- **Tsunami Warning System:** Warnings are issued immediately after an earthquake if there is a potential for a tsunami. However, these warnings are withdrawn if no significant change in sea level is observed.
- **Earthquake Classification:** Earthquakes with a magnitude greater than 7.0 are classified as 'Major Earthquakes,' which can cause extensive damage to property and loss of life.

#### Disaster Management (GS 3)

- **Early Warnings:** Timely information provided by agencies like BMKG can significantly reduce the loss of life.
- **Richter Scale vs. Mercalli Scale:** While the **Richter scale** measures the 'energy' (magnitude) released by an earthquake, the **Mercalli scale** measures the 'intensity' or the actual damage caused by it.

## Conclusion

This earthquake serves as a reminder of Indonesia's geological instability. For exam purposes, it is important to remember the mapping of Indonesia's major islands (**Sumatra, Java, Moluccas**) and their surrounding seas.

### STRAIT OF HORMUZ CRISIS - INTERNATIONAL RESPONSE

## Context

Indian Foreign Secretary Vikram Misri participated in a high-level meeting of 60 nations led by the United Kingdom. In light of Iran closing the strait and disrupting global energy supplies, India demanded its immediate reopening.

## India's Primary Arguments

- **Freedom of Navigation:** There should be no obstruction to the free movement of vessels in international waters.
- **Unimpeded Transit:** Energy transport must continue smoothly to ensure the global economy is not adversely affected.
- **Adherence to UNCLOS:** The United Nations Convention on the Law of the Sea (UNCLOS) must be respected by all parties.

## Geographical Significance of the Strait of Hormuz

- **Location:** It is a narrow waterway located between the Persian Gulf and the Gulf of Oman.
- **Key Borders:** It is bordered by Iran on one side and Oman and the UAE on the other.
- **Strategic Importance:** Approximately 20% of the world's total petroleum consumption (about 21 million barrels per day) passes through this strait.

## Key Points for Exams (UPSC Perspective)

- **India's Energy Security:** A majority of the crude oil and LNG (Liquefied Natural Gas) required by India arrives through this route. Closure of the strait could lead to a spike in petrol prices and trigger **inflation** in India.
- **Global Supply Chain:** The UK described Iran's actions as an "attempt to hold the global economy hostage," noting that it severely damages the global supply chain.
- **Diplomatic Challenge:** As a member of the **QUAD** and a leader of the **Global South**, India must balance its relationship with Iran while upholding international maritime rules.

## Conclusion

Using maritime routes, known as "**Global Commons**" (areas where all have equal rights), for warfare purposes is a violation of international law. Reopening the Strait of Hormuz is essential not only for energy security but also for global peace and stability.

### INDIA-RUSSIA BILATERAL RELATIONS - RECENT DEVELOPMENTS

## Context

Russia's First Deputy Prime Minister Denis Manturov met with Prime Minister Modi in Delhi to review the implementation of decisions made during the 23rd India-Russia Annual Summit held in December 2025.

## Key Discussion Points

- **Economic Partnership:** Strengthening trade, investment, and industrial cooperation.
- **Energy Security:** Discussions focused on increasing the supply of LNG (Liquefied Natural Gas) and LPG from Russia to overcome energy shortages caused by the ongoing war in West Asia.
- **Connectivity:** Accelerating trade by improving transport corridors and logistics routes.
- **Agriculture:** Russia continues to be a vital partner for India in the consistent supply of fertilizers.

## Defense Cooperation

- **S-400 Missile Systems:** India has cleared the acquisition of 5 new batches of S-400 Air Defense Systems from Russia.
- **Background:** As part of a \$5 billion deal signed in 2018, 3 squadrons have already been delivered, with the remaining units expected to arrive this year.

## Importance for Exams (UPSC Perspective)

- **Special & Privileged Strategic Partnership:** The relationship between India and Russia is categorized as a "Special and Privileged Strategic Partnership," moving beyond mere commercial trade.
- **Significance of BRICS:** Russian Foreign Minister Sergey Lavrov is set to attend the BRICS Foreign Ministers' meeting scheduled for May 14-15 in New Delhi.
- **Multipolar World:** India's continued engagement with Russia despite Western sanctions is a prime example of its **Strategic Autonomy**.

## Current Challenges

- **West Asia Crisis:** The month-long war in West Asia has led to a global spike in energy prices, posing a challenge to India. Russia appears to be a reliable alternative to mitigate this impact.

## Conclusion

India is further strengthening its ties with Russia to secure its defense and energy needs. Simultaneously, by making its voice heard on international platforms like **BRICS**, India continues to follow a balanced and independent foreign policy.

## DEFENSE SUPPLY DELAYS AND HAL STRATEGIC PROJECTS

### Context

Ongoing bombings between Iran and Israel have led to the closure of defense manufacturing plants in Israel. It has been revealed that this may cause delays in the supply of military equipment to India. However, officials clarified that India currently maintains sufficient stock for the present year.

### Key Defense Equipment from Israel

India relies significantly on Israel for its defense needs, particularly in the manufacturing of the **LCA Tejas** fighter jet:

- **Radars:** Systems used to detect enemy aircraft.
- **Electronic Warfare (EW) Suite:** Technology designed to jam enemy signals and communications.
- **Helmet Mounted Display (HMD):** Advanced helmets that provide real-time combat data directly to pilots.

- **Other Supplies:** Drones (UAVs), sensors, and missiles.

### Future Project: CATS Warrior

Observing current warfare trends, **HAL (Hindustan Aeronautics Limited)** has shifted focus toward the production of Unmanned Combat Aerial Vehicles (UCAVs).

- **Design:** It is a **Low-observable UCAV**, meaning it is a stealth drone designed to evade radar detection.
- **Capacity:** A 3-ton prototype is currently under preparation, with plans to scale up to 5-ton and 7-ton variants in the future.
- **Performance:** It can be controlled remotely and is capable of carrying precision weapons.

### Tejas MK 1A and GE Engine Updates

- **Engine Supply:** India is awaiting **F-404 engines** from the US-based **GE Aerospace**. GE has assured the delivery of 20 engines between June and December.
- **Regulations:** If there are further delays in supply, there is a provision to impose **Liquidated Damages** (penalties) on GE as per the contract.
- **Software Update:** Following an incident last month, a glitch in the 'braking software' of Tejas aircraft was identified and rectified. These jets are expected to return to duty next week.

### Importance for Exams (UPSC Perspective)

- **Atmanirbharta in Defense (Self-reliance):** This situation highlights how crucial indigenous manufacturing (like the CATS Warrior) is when foreign supply chains are disrupted.
- **Strategic Partnerships:** Balancing defense relationships with Israel, the USA, and Russia.
- **Su-57 (Russia):** Presentations were given to the **Indian Air Force (IAF)** regarding the capabilities of Russia's 5th-generation fighter, the **Su-57**. There is a possibility of it being integrated into Indian carrier operations in the future.

### Conclusion

To overcome supply chain vulnerabilities arising from global conflicts, it is inevitable for India to strengthen its domestic defense industry through organizations like HAL.

### INDIAN DEFENSE EXPORTS: RECORD GROWTH IN 2025-26

#### Key Statistics

- **Total Export Value:** ₹38,424 crore (a 62.66% increase over the previous year).
- **Previous Year Value:** ₹23,622 crore.
- **Growth Trend:** Export value has nearly tripled over the last five years.
- **Global Reach:** India currently exports defense equipment to more than 80 countries.
- **Number of Exporters:** Increased from 128 to 145 (13.3% growth).

#### Sector-wise Contribution

The performance of Defense Public Sector Undertakings (DPSUs) has been extraordinary this year:

Sector	Share (%)	Value (in Crores)	Growth Rate
Defense Public Sector Undertakings (DPSUs)	54.84%	₹21,071	151%
Private Sector	45.16%	₹17,353	14%

### Reasons for Growth

- **Global Acceptance:** Growing international confidence in the quality of Indian defense products.
- **Simplified Procedures:** The 'Department of Defense Production' has streamlined export processes through online portals and simplified Standard Operating Procedures (SOPs).
- **Atmanirbhar Bharat:** Increased domestic manufacturing capacity and the integration of Indian companies into global supply chains.

### Budget and Capital Outlay

- **Budget Utilization:** The Ministry of Defense fully utilized the ₹1.86 lakh crore capital outlay allocated for the 2025-26 financial year.
- **Acceptance of Necessity (AoN):** The Ministry approved 109 proposals worth ₹6.81 lakh crore this year (compared to only ₹1.76 lakh crore last year).
- **Contracts:** A total of 503 procurement contracts worth ₹2.28 lakh crore were signed.

### Importance for Exams (UPSC Perspective)

- **Defense Export Targets:** While the goal was to reach ₹35,000 crore in exports by 2024-25, surpassing it to reach ₹38,424 crore in 2025-26 indicates that India's dream of becoming a 'Defense Manufacturing Hub' is being realized.
- **Public vs. Private Sector:** It is noteworthy that DPSUs are leading the charge with a massive 151% growth rate.
- **Strategic Self-Reliance:** Shifting from import dependency to becoming a global arms supplier marks a significant change in **Geopolitics**.

### Conclusion

The Indian defense sector is rapidly evolving from being a 'consumer' to becoming a 'producer and exporter.' This not only strengthens the national economy but also showcases India's defense prowess on the global stage.

### CAPF (GENERAL ADMINISTRATION) BILL 2026 - KEY HIGHLIGHTS

#### Context

The Lok Sabha passed this bill via a **voice vote**, following its approval by the Rajya Sabha on the preceding Wednesday.

## Primary Objectives of the Bill

- **IPS Deputation:** To continue and regulate the deputation of IPS (Indian Police Service) officers within CAPF units such as the CRPF, BSF, and ITBP.
- **Overriding Supreme Court Ruling:** The bill effectively nullifies a previous Supreme Court directive which stated that the number of IPS officers in Senior Administrative Grade (SAG) positions within CAPF units should be gradually reduced.

## Major Controversies and Criticisms

- **Interests of Cadre Officers:** Opposition leaders (such as Mahua Moitra) argued that reserving top-tier positions for IPS officers is unfair to **Cadre Officers** who joined the CAPFs directly, as it stifles their promotional avenues.
- **Martyr Status:** There was significant debate regarding the classification of paramilitary personnel killed in the line of duty as 'Operational Casualties' rather than granting them formal '**Martyr Status**'.
- **Political Allegations:** Allegations were raised that the Central Government uses this to appoint favored IPS officers to CAPFs during elections, bypassing state-level officials.

## Importance for Exams (UPSC Perspective)

- **Scope of CAPF:** This includes forces such as the CRPF, BSF, ITBP, CISF, SSB, NSG, and Assam Rifles (AR). These operate under the jurisdiction of the **Ministry of Home Affairs (MHA)**.
- **Article 312:** This pertains to the powers of Parliament regarding the rules and regulations of **All India Services**.
- **Cadre Review:** Although the Supreme Court mandated a cadre review within six months, this bill allows the government to retain significant administrative control over appointments.

## Government's Stance (MoS Nityanand Rai)

The government maintains that the bill will enhance the efficiency of the forces and remove administrative bottlenecks. The Centre accused the opposition of politicizing a matter of national security.

## Conclusion

Addressing the imbalance between direct-entry cadre officers and officers on deputation is vital for internal security. It is essential for the government to make comprehensive decisions that ensure the **morale** of the forces remains intact.

## JAN VISHWAS BILL & AMARAVATI CAPITAL BILL - KEY HIGHLIGHTS

### Jan Vishwas (Amendment) Bill, 2026

The primary objective of this bill is to promote **Ease of Doing Business** and the **Decriminalization** of minor offenses.

- **Amendments:** Through this bill, 784 provisions across 79 central laws are set to be amended.
- **Key Changes:**
  - Imprisonment clauses have been completely removed from 57 provisions.
  - Fines have been abolished in 158 provisions.
  - For minor technical lapses, criminal punishments have been replaced with **civil penalties**.

- **Motor Vehicles Act (MV Act):** It provides the flexibility to register vehicles anywhere across the state and offers a 30-day grace period after the expiry of a driving license.
- **Drug Regulation:** There will be no jail term for minor procedural errors; however, strict criminal penalties remain intact for those manufacturing **spurious drugs**.
- **Benefits:** This will reduce the burden of cases on the judiciary and prevent unnecessary harassment of small-scale entrepreneurs.

### Amaravati Capital Bill

The Rajya Sabha has passed the bill recognizing Amaravati as the capital of Andhra Pradesh.

- **Recognition:** The Central Government has officially recognized Amaravati as the **sole capital** of Andhra Pradesh.
- **Political Support:** All political parties supported the bill, with the exception of the YSR Congress Party (YSRCP).
- **Significance:** The passage of this bill resolves the legal and administrative hurdles surrounding the construction and development of the capital. It further bolsters the allocation of funds from the Centre.

### Importance for Exams (UPSC Perspective)

- **Ease of Doing Business:** The Jan Vishwas Bill aligns with the principle of '**Minimum Government – Maximum Governance**', making India a more attractive destination for investment.
- **Decriminalization vs. Stringency:** The government has maintained a balance by simplifying laws while ensuring public health (in the case of medicines) and farmers' interests are not compromised.
- **Federalism:** The Amaravati Bill highlights the role of the Centre in matters concerning state capitals and its impact on regional development.
- **Zonal Councils:** The role of Zonal Councils and Parliamentary legislation is crucial in resolving such intra-state or state-capital disputes.

### Conclusion

Through the Jan Vishwas Bill, the government aims to end the '**Inspector Raj**' culture in the country. Similarly, the recognition of Amaravati paves the way for stable administration and development in Andhra Pradesh.

## CHILDHOOD CANCER IN INDIA - REPORT HIGHLIGHTS

### Context

Childhood cancer is a significant health challenge in India, ranking as the 10th leading cause of death among children in the country. While global trends show a decline in mortality, the rate of improvement in South Asia remains relatively slow.

### Key Statistics (2023)

- **Rank in India:** Cancer is the 10th leading cause of death among children in India.
- **Global Standing:** It ranks as the 8th leading cause globally (ahead of smallpox, tuberculosis, and HIV/AIDS).
- **Mortality:** Approximately 17,000 children died due to cancer in India in 2023.
- **Global Share:** South Asia accounts for 20.5% of global childhood cancer deaths.

### Global Trends

- **New Cases:** 3.77 lakh new cases were recorded worldwide in 2023.
- **Disparities:** 85% of new cases and 94% of deaths occur in Low and Middle-Income Countries (LMICs).
- **Decline in Mortality:** Since 1990, global cancer deaths have decreased by 27%, but in South Asia, this reduction is only 16.9%.

### Main Types of Cancer

The most common cancers observed in children include:

1. **Leukemia:** Blood cancer.
2. **Brain/Central Nervous System (CNS) Cancers.**
3. **Non-Hodgkin Lymphoma:** Cancer affecting the immune system.

### Challenges & Prevention

- **Preventable Deaths:** A majority of deaths in low-income countries can be prevented if diagnosed in a timely manner.
- **Major Hurdles:** Delays in diagnosis, lack of access to essential treatment, and gaps in the healthcare infrastructure.
- **Policy Gap in India:** Experts have expressed concern that childhood cancer is not yet specifically integrated into India's **National Cancer Control Planning (NCCP)**.

### Importance for Exams (UPSC Perspective)

- **Disease Burden:** Understanding the impact of cancer on the national economy and human resource development.
- **Government Initiatives:** Analyzing support for cancer treatment under the **National Health Mission (NHM)** and **Ayushman Bharat**.
- **Need for Registries:** The report emphasizes that maintaining accurate **Cancer Registries** is crucial for effective policy formulation.

### Conclusion

To reduce childhood cancer mortality, early diagnosis, a steady supply of essential medicines, and robust **Supportive Care** are imperative. There is an urgent need to include childhood cancer among national health priorities.