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MAY, 2025

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DISCLAIMER

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION -A

MAINS ISSUES

CYCLONIC CIRCULATION LAY OVER ANDAMAN SEA

Context

The **India Meteorological Department (IMD)** recently announced the **onset of the southwest monsoon** over parts of the **south Bay of Bengal and Andaman Sea**. At the same time, **meteorological signals are emerging that hint at a possible cyclone developing (Cyclone Shakti) over the Bay of Bengal**. Though not yet confirmed, multiple systems—such as **upper air cyclonic circulations and likely low-pressure areas**—are forming, which could influence monsoon dynamics and weather patterns across the Indian subcontinent.

Key-highlights

- **Southwest Monsoon Onset**: The **Southwest Monsoon**, critical for India's agriculture, has **advanced into parts of the Bay of Bengal and Andaman Sea**, signaling the start of its annual progression over the subcontinent.
  - The **northern limit of monsoon (NLM)** is now traced through key coordinates, and further advancement is likely soon.
- **Cyclonic Activity Over Bay of Bengal**: A **cyclonic circulation** has been observed in the **upper atmospheric layers** over the Andaman Sea.
  - IMD and regional meteorological centers are **monitoring the formation of a low-pressure area**, a precursor to potential cyclone development.
  - A **Bangladeshi meteorologist** has forecasted the potential intensification into a full-fledged **cyclone later in May**, possibly to be named **Cyclone 'Shakti'**.
- **Widespread Weather Disturbances**: Several upper air circulations have formed over **northern and eastern India**, influencing **rainfall and thunderstorm patterns** across states like **Punjab, Delhi, Rajasthan, and the Northeast**.
  - The influence of these systems is expected to bring **rainfall with thunder, lightning, and gusty winds** in different regions, especially in **northeast and southern India**.

Southwest Monsoon:

- The Southwest Monsoon is the chief rainy season for the country.
- Over 70 per cent of the country receives the majority of its annual rainfall during the June to September season.
- Every year, the monsoon winds first arrive over the **Andaman Sea** and the **Bay of Bengal** around the third week of May and further progress into mainland India.
- **Onset and progress:** IMD declares the monsoon onset over India when it hits Kerala, where the normal onset date is June 1. Through June and mid-July, the monsoon brings continuous rainfall before covering the entire country by around July 15. This year, the monsoon onset over Kerala is expected to be early by 5 days and would be around May 27.

Why Does the Monsoon Occur?

- **Differential Heating of Land and Sea:** During summer, the land (especially North India) heats up faster than the sea. This creates a low-pressure zone over land and high pressure over the Indian Ocean. Moisture-laden winds from the ocean move toward the land to fill this void.

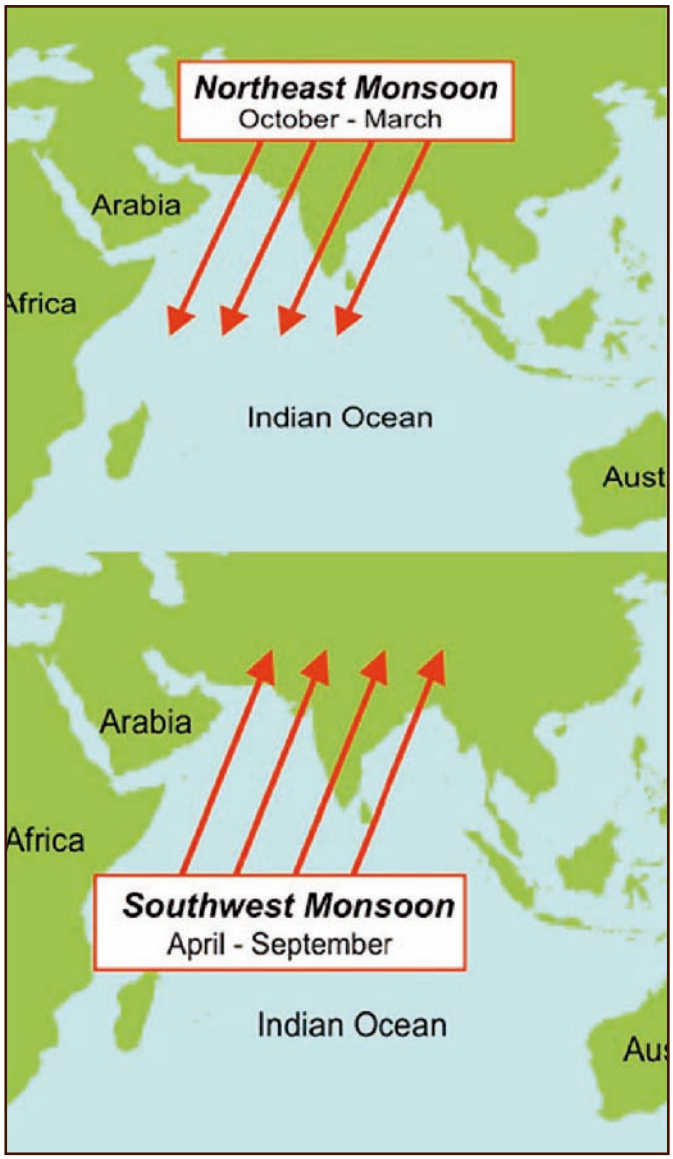


Figure No. 01

- **Inter-Tropical Convergence Zone (ITCZ):** The ITCZ is a belt of low pressure near the equator where trade winds converge. In Indian summer, the ITCZ shifts northward (near the Tropic of Cancer) because the northern hemisphere is tilted toward the Sun. This pulls monsoon winds deep into the Indian subcontinent.
- **Coriolis Force:** Due to Earth's rotation, the winds deflect to the right in the northern hemisphere. This turns the southeast trade winds into southwest monsoon winds over India.

Other Climatic Factors Affecting Monsoon

- **El Niño:** Warming in central/east Pacific Ocean. It weakens Indian monsoon (can cause droughts)
- **La Niña:** Cooling in the Pacific. It strengthens monsoon
- **Indian Ocean Dipole (IOD):** Positive IOD (warmer west Indian Ocean). It enhances monsoon
- **Equatorial Indian Ocean Oscillation**: Affects monsoon build-up and variability
- **Western Disturbances:** Interact with monsoon and winter weather over North India

AFRIKANER 'REFUGEES' WELCOMED BY THE US

Context

The **United States** has officially welcomed a group of **Afrikaners from South Africa as 'refugees'**, citing racial discrimination against them in their home country.

Who are the Afrikaners?

- Afrikaners are **descendants of mostly Dutch, French, and German settlers** who arrived in South Africa between the 17th and 18th centuries.
- They speak **Afrikaans**, a language derived from Dutch, and have historically identified as a distinct white ethnic group with a deep-rooted presence in Africa.

Historical Origins:

- In **1652**, the **Dutch East India Company** set up a halfway station at the **Cape of Good Hope** to support trade with Asia.
- Early settlers included **Dutch**, **French Huguenot (Protestants fleeing persecution)**, and **Germans**.
- The settlers also brought **slaves from India, Indonesia, Madagascar, and East Africa**, some of whom were absorbed into settler families through a practice called **'paternalism'**.
- These settlers gradually formed a unique identity, calling themselves **Afrikaners** or **Boers (farmers)**.

Why is the US Accepting Afrikaners as Refugees?

According to the statement from the Trump-aligned administration:

- Afrikaners are considered a **"vulnerable group facing unjust racial discrimination."**
- The move reflects the administration's **selective refugee policy**, where priority is given to **certain groups over others**, often aligning with **political and ideological narratives** (e.g., Christian minorities from the Middle East, Cubans from Communist rule).

This decision has **sparked accusations of racial bias**:

- Critics argue that **white Afrikaners**, who have historically held power, are being prioritized over **non-white refugees** from conflict zones such as Sudan, Yemen, or Myanmar.
- The **idea of Afrikaners as 'refugees'** is itself contentious, as many still possess **wealth, land, and relatively better living standards** than most Black South Africans.

Refugee Definition:

- A refugee is generally someone who leaves their home country due to persecution or fear of harm.
- Refugees are persons who are outside their country of origin for reasons of **feared persecution, conflict, generalized violence, or other circumstances** that have seriously disturbed public order and, as a result, require international protection.
- The refugee definition can be found in the **1951 Refugee Convention** and regional refugee instruments, as well as **UNHCR's Statute.**

India's International Obligations:

- While India is not legally bound by the **Refugee Convention**, it is still bound by **international human rights**.
  - The **International Covenant on Civil and Political Rights (ICCPR)** and **Convention Against Torture** require India to refrain from **refouling** individuals to places where they may face **torture** or **cruel, inhuman** treatment.
- India does not have a **refugee law** but uses laws like the **Foreigners Act, 1946** and the **Passport Act, 1967** to treat Rohingya refugees as **illegal migrants**.

US'S INTEREST IN GREENLAND

Context

A report in the Wall Street Journal (WSJ) revealed that U.S. intelligence officials had been gathering intelligence on Greenland — particularly:

- Greenland's independence movement
- Public opinion on U.S. mineral extraction projects

The Backdrop (Trump's 2019 "Buy Greenland" Proposal)

- In **2019**, then-President **Donald Trump publicly floated the idea** of **buying Greenland** from Denmark.
- Denmark and Greenland **outright rejected** the idea.
- Trump then **cancelled a state visit to Denmark**, calling the PM's reaction "nasty" — which strained diplomatic relations.
- Trump later said he was serious about the idea due to Greenland's strategic value.

US's interests in Greenland

Greenland, a semi-autonomous part of Denmark, became strategically important for the U.S. during **World War II** when the U.S. established its military base, which remains today as **Pituffik Space Base**. Greenland is increasingly seen as **strategically critical** due to three major factors:

- **Arctic Military Importance**: The **Arctic is melting rapidly** due to climate change, opening new **shipping lanes** and **access to natural resources**.
  - The U.S. operates the **Thule Air Base** in northern Greenland — a key radar and missile warning site.
  - Greenland sits between **North America and Europe**, making it important for **ballistic missile tracking** and **early warning systems**.
- **Mineral & Resource Richness**: Greenland is believed to hold vast deposits of **rare earth minerals**, **oil**, **natural gas**, and **uranium**- resources critical to modern electronics and defense industries. As countries decarbonize, competition over such critical minerals is intensifying, especially between the **U.S. and China**.
- **China's Arctic Ambitions**: China is investing in infrastructure and mining in Greenland and calls itself a **"near-Arctic state"**. The U.S. sees this as part of **China's polar strategy** to gain a foothold in the Arctic.

Hence, the U.S. sees Greenland as **strategically vital to national security, economic interests, and great power rivalry** in the Arctic.

Implications for India

- **Arctic geopolitics** now involves **strategic minerals, shipping routes, and climate science** — all important for India's energy security and foreign policy.
- India is an **observer in the Arctic Council** and has released its **Arctic Policy (2022)**. Events like this shape the **rules-based order** India wants to see in the region.
- Also raises questions for India's **own intelligence diplomacy** — how to balance cooperation with key allies while avoiding similar controversies.

About Greenland

- **Greenland** is the world's largest island (not a continent), located in the **Arctic** between the North Atlantic and Arctic Oceans.
- Located geographically within North America, Greenland has been controlled by Denmark – nearly 3,000km (1,860 miles) away – for about 300 years.
- It is a **semi-autonomous territory of the Kingdom of Denmark**. It governs most of its domestic affairs but **foreign affairs, defense, and security** are handled by **Denmark**.
- Greenland has a population of only about **56,000 people**, most of them **Indigenous Inuit**.
- Greenland hosts **Pituffik Space Base**, formerly **Thule Air Base**, a U.S. military installation key to missile early warning and defense as well as space surveillance.
- Greenland is also part of the **GIUK Gap (Greenland-Iceland-United Kingdom),** an anti-submarine warfare chokepoint in the **North Atlantic** during the Cold War**.**

Figure No. 02

- It occupies a key position along two potential shipping routes through the Arctic:
  - **Northwest Passage**, along the northern coastline of North America
  - **Transpolar Sea Route**, through the center of the Arctic Ocean
- While it is politically tied to Europe (Denmark), **geographically** it is closer to **North America**, and strategically situated in the **Arctic region**.
  - Arctic governance is governed by treaties such as the **UN Convention on the Law of the Sea (UNCLOS).**
  - Arctic countries have **exclusive economic zones (EEZs)** and territorial rights in the region.
  - The **Arctic Council** promotes cooperation among Arctic states (including **Denmark** and the **U.S.),** but Greenland is not a member independently.

IMF'S APPROVAL FOR PAKISTAN

Context

The **International Monetary Fund (IMF)** has authorised the **"immediate disbursement"** of a billion-dollar bailout to Pakistan's troubled economy. The Washington-based global lender said its decision allows for an **"immediate disbursement of around USD 1 billion, bringing total disbursements under the arrangement to about USD 2.1 billion".**

Who Decides at the IMF?

- At the **core of the IMF's governance structure** is the **Executive Board**, which is responsible for making most of the operational decisions—including approvals of loans, reviewing economic performance, and setting policy directions.
  - The **Executive Board consists of 25 Executive Directors**.
  - Each Director **represents either one country** (like the **U.S., China, India**) or a **constituency/group of countries** (especially smaller or developing economies that pool their representation).
  - The Board meets **regularly in Washington, D.C.**, and acts like the IMF's **steering committee**.

How Do They Vote? – Weighted Voting System

- Unlike the **UN's "one country, one vote"** system, the IMF uses a **"quota-based" voting system**.
- A country's **voting power is proportional to its economic size**—i.e., the bigger and richer your economy, the more say you have.

- **No "No" Votes – Only "Yes" or "Abstain":** In IMF decision-making, Executive Directors cannot vote **"No."**

The only options are:

- **Yes**
- **Abstain** (used to show dissent or reservations). **Abstention** becomes the **strongest form of protest** within the IMF framework. It signals **non-approval** without breaching procedural norms.

India's Role and Recent Abstention

- India is a member of the Executive Board and **represents a constituency of South Asian countries**.
- In the recent case of IMF loans to Pakistan, India chose to **abstain** to express **strong disapproval**, citing:
  - Risk of **funds being misused**
  - Pakistan's **track record with previous programmes**
  - **Security concerns** related to terrorism

India's Objection:

India has **strongly objected** to the IMF's financial support to Pakistan.

- **Misuse of Funds**: India fears that financial assistance may be **diverted to support state-sponsored terrorism**, especially **cross-border terrorism** targeting India.
- **Poor Track Record**: Pakistan has a **history of non-compliance** with IMF conditions. India argues that **repeated bailouts without accountability** undermine the credibility of reform-based lending.
- **Geopolitical Risk**: Such funding may **indirectly empower military establishments** in Pakistan, especially when **India-Pakistan tensions are high**.
- **Reputational Risk**: Lending to a country with unresolved issues of terrorism and non-transparency **risks the IMF's global reputation** and its commitment to responsible governance.

India **abstained** from the vote and issued a strong protest note, saying this support sends a **"dangerous message"** to the global community.

IMF and Lending Controversies

- **Western Dominance**: Decision-making is heavily influenced by major shareholders like the **USA**, leading to charges of **geopolitical bias**.
- **Austerity Burdens**: IMF programmes often impose **harsh conditions** like subsidy cuts, tax increases, and privatisation—these hurt the poor and increase inequality.
- **Moral Hazard**: Countries that repeatedly fail to reform may **still receive bailouts**, encouraging irresponsible economic behaviour.
- **Lack of Local Context**: IMF's one-size-fits-all approach **ignores ground realities** in borrowing countries.
- **Undermining Sovereignty**: IMF-mandated reforms are often seen as **external interference** in national policymaking.

What is the IMF?

- The **International Monetary Fund (IMF)** is an international financial institution established in 1944 at the Bretton Woods Conference.
- It functions under the UN system but operates with considerable independence. It has **190+ member countries**.
- **Key roles of the IMF** include:
  - Ensuring **global monetary cooperation**
  - Facilitating **international trade**
  - Promoting **economic growth and employment**
  - Providing **financial assistance** to countries facing **balance of payments crises**
  - Offering **policy advice and technical assistance**
- **IMF Lending Programs (Important Schemes):** Stand-By Arrangement (SBA); Extended Fund Facility (EFF); Rapid Financing Instrument (RFI); Resilience and Sustainability Trust (RST)
- The IMF is governed by and accountable to 191 countries that make up its near-global membership. **India is a founding member of the IMF.**
  - **Quota share:** 2.75% (India is among the top 10 largest quota-holding countries).
  - India has a permanent seat on IMF's 24-member Executive Board.
- Each country (or a group of countries) at the IMF is represented by an **Executive Director.**

PAKISTAN-TURKEY NEXUS

Context

India thwarted a large-scale drone assault by Pakistan along its western front. Over 300 drones targeted both civilian and military sites. Investigations revealed these were Turkish-made **Asisguard Songar drones**, deepening concerns about the growing **Pakistan–Turkey defence partnership**.

Why are Pakistan and Turkey so close?

- Both countries have a **long history of solidarity based on Islamic identity**, dating back to the **Cold War era**, when they were part of Western-sponsored alliances like **CENTO** (Central Treaty Organization).
- Turkey and Pakistan were also founding members of **RCD (Regional Cooperation for Development)**, highlighting an early intent to foster close regional cooperation.
- **Turkey has consistently supported Pakistan's position on Kashmir**, vocally opposing India's revocation of Article 370 in 2019 and reiterating that stance even during major bilateral visits, such as Erdogan's trip to Pakistan in 2025.
- **Military and Defence Ties:** Turkey is now Pakistan's second-largest arms supplier, after China. In recent years, Turkish military exports to Pakistan have included:
  - **Bayraktar TB2 drones**
  - **Kemankes cruise missiles**
  - **Asisguard Songar drones**
  - A USD 1 billion deal for **four Turkish corvettes** (Ada-class) for Pakistan Navy.

- Turkish firms are modernising Pakistan's **Agosta 90B submarines**, bypassing original French suppliers, showing high levels of trust and strategic depth in military collaboration.

Turkey's Larger Ambitions (What's in it for Ankara?)

- **Regional Leadership in the Muslim World:** Turkey sees itself as a leader of the Islamic world, challenging the Gulf states—particularly Saudi Arabia and the UAE—who have traditionally held this position.
- **Strategic Footprint in the Indian Ocean Region (IOR):** Turkey has strengthened its military presence in East Africa (Somalia) and is deepening ties with Maldives through drone sales. Close collaboration with Pakistan — whose navy is among the largest in the IOR — gives Turkey indirect access to a region of growing global importance.
- **Economic and Defence Industry Growth:** Turkey is diversifying its defence export markets, and Pakistan serves as a reliable buyer. This helps Turkey promote indigenous defence firms like STM, Baykar, and Asisguard, reducing reliance on NATO countries.

How has India responded?

India has not remained passive. While it has lodged formal protests against Turkish interference in Kashmir, its response has been **strategically multi-layered**, aiming to counterbalance the Pak-Turkey axis through **geopolitical, defence, and diplomatic initiatives**:

Strengthening Ties with Turkey's Regional Rivals

- **Greece and Cyprus**: India has long supported **Cyprus** and its territorial integrity, opposing Turkish claims over Northern Cyprus. Greece has reciprocated by backing India's Kashmir stance.
- **Armenia**: India has emerged as Armenia's **largest arms supplier** in 2024, surpassing Russia. Armenia is in a long-standing conflict with **Turkey-backed Azerbaijan**, which is also allied with Pakistan.

- **Enhanced Presence in the Middle East:** Despite the traditional Pakistan-Gulf link, India now enjoys strong economic and security partnerships with Saudi Arabia and the UAE.
- **Strategic Projects that Bypass Turkey: India-Middle East-Europe Economic Corridor (IMEC),** launched at the **G20 summit** in 2023, excludes Turkey, which has historically seen itself as a key land bridge between Asia and Europe.

Why does the Pakistan–Turkey nexus matter for India?

- **Security Threat**: Turkey's drone exports and naval cooperation with Pakistan pose **direct threats to Indian borders and maritime interests**.
- **Diplomatic Headwinds**: Turkey amplifies Pakistan's voice on Kashmir at global platforms, such as the UN and OIC.
- **Regional Competition**: As Turkey expands its presence in the **IOR and Central Asia**, India must recalibrate its own regional influence strategies.
- **Challenging Multilateral Balances**: The Pak-Turkey-Azerbaijan bloc is **increasingly visible in Islamic geopolitics**, pushing against India's alignment with **Israel, Armenia, Greece**, and **moderate Arab states**.

Turkey's Songar drones

- Developed by defence company **ASISGUARD**, Songar is Turkey's first national armed drone system.
- The **unmanned aerial vehicle (UAV)** is equipped with 5.56 calibre 45 mm NATO standard firearms, as per the website of the Turkish defence firm.
- Songar boasts **automatic fire stabilisation** and can be effectively deployed for military and security operations.
- Its **autonomous take-off and landing capability** enables it to respond to any threat around the clock.
- With an operational range of 3-5 km, the drone can fly at altitudes up to 2800 meters.
- The Songar drone's maximum take-off weight is 45 kg and its flight time is up to 30 minutes without payload.

PAKISTAN'S NUCLEAR CAPABILITIES

Context

Prime Minister Narendra Modi addressed the nation following Operation Sindoor, a retaliatory strike conducted by India against Pakistan in response to the 22 April Pahalgam terror attack. In a significant policy assertion, he declared that "no nuclear blackmail will be tolerated by India". India would no longer be deterred by Pakistan's nuclear capabilities, which had long been perceived as a shield for cross-border terrorism.

Pakistan's Nuclear Weapons Capability

- **Nuclear Doctrine and Policy:** Pakistan does not adhere to a **No First Use policy**, meaning it reserves the right to use nuclear weapons first if it perceives a serious threat to its sovereignty or national survival.
- **Command and Control Structure:** Pakistan's nuclear arsenal is controlled by the **National Command Authority (NCA),** which is officially chaired by the Prime Minister.
- **Nuclear plants in operation in Pakistan**: Pakistan has six operable reactors.
  - Chashma Nuclear Power Plant 1 (C-1)
  - Chashma Nuclear Power Plant 2 (C-2)
  - Chashma Nuclear Power Plant 3 (C-3)
  - Chashma Nuclear Power Plant 4 (C-4)
  - Karachi Nuclear Power Plant (K-2)
  - Karachi Nuclear Power Plant (K-3)

- **Nuclear Delivery Systems:** Pakistan has developed a wide range of delivery systems, though it does not yet have a fully operational nuclear triad.
  - **Land-based missile systems** include **Shaheen I and II**, **Ghauri**, and the recently tested **Ababeel** missile, which is reported to be capable of carrying **Multiple Independently Targetable Reentry Vehicles (MIRVs)**. The short-range **Nasr (Hatf-IX)** missile is Pakistan's tactical nuclear weapon, intended for battlefield use.
  - **Air-based delivery systems** include **F-16s and Mirage aircraft**, which have been modified to carry **Ra'ad air-launched cruise missiles (ALCMs)** and free-fall nuclear bombs. The Ra'ad has a range of about 350 km, offering strategic strike options within the region.
  - **Sea-based capability** is still under development. Pakistan has tested the **Babur-3** submarine-launched cruise missile (SLCM), with a range of approximately 450 km, from an underwater platform. However, it does not yet possess a nuclear-powered ballistic missile submarine (SSBN), meaning its **second-strike capability remains limited and under development**.
- **Nuclear Weapons Storage & Airbases:** Sargodha Weapons Storage Complex, Sargodha Air Base, Shahbaz Air Base (Jacobabad)
- **Uranium Enrichment & Nuclear Facilities:** Kahuta, Khushab, Chashma, Wah, Nilor, Fateh Jang, Garhwal
- **Pakistani missiles capable to carry nuclear warheads:** Shaheen-I/A (Hatf-4), Nasr (Hatf-9), Abdali (Hatf-2), Ghaznavi (Hatf-3), Ghauri (Hatf-5) and Shaheen-2 (Hatf-6) missiles.
- **Estimated Nuclear Arsenal:** As of 2025, Pakistan is estimated to have around **170 nuclear warheads**.

Nuclear Policy/Doctrine

(Table No. 01 at bottom)

India's nuclear policy

- India's nuclear weapons are under strict civilian control, overseen by the **Nuclear Command Authority (NCA)**.
- As of 2025, India is estimated to possess approximately **180 nuclear warheads**.
- **Command and Control Structure**: The Political Council of the NCA, chaired by the Prime Minister, has the sole authority to authorize the use of nuclear weapons. The operational aspects are managed by the **Strategic Forces Command (SFC).**
- **Nuclear Delivery Systems:** India has a **nuclear triad**, meaning it can deliver nuclear weapons from land, air, and sea:
  - **Land-based Missiles**:
    - **Agni series** (Agni I to V): Range from 700 km to over 5,000 km.
    - **Prithvi missiles**: Short-range ballistic missiles.
  - **Air-based Delivery**: Modified aircraft like **Mirage 2000**, **Jaguar**, and **Sukhoi-30 MKI** can deliver nuclear weapons.
  - **Sea-based Systems**:
    - **INS Arihant & INS Arighaat**: Nuclear-powered submarines with SLBMs.
    - SLBM (e.g., **K-15**, **K-4**) give second-strike capability.
  - **Missile Defence Systems:** Developing two-tier Ballistic Missile Defence (BMD):
    - **PAD (Prithvi Air Defence)** for high-altitude interception.
    - **AAD (Advanced Air Defence)** for low-altitude interception.
    - Uses **Swordfish radar** to detect and track incoming threats (up to 1,500 km)

RIGHT TO REPAIR MOVEMENT

Context

Over the years, consumers in India and globally have faced increasing difficulties in repairing electronic products like smartphones, laptops, washing machines, and air

Table: 01 - Nuclear Policy/Doctrine

Aspect	India	Pakistan
Declared Doctrine	No First Use (NFU) — India pledges not to use nuclear weapons unless first attacked by nuclear weapons.	First Use (Conditional) — Pakistan reserves the right to use nuclear weapons first, especially if its existence is threatened.
Posture	Credible Minimum Deterrence — Aimed at deterring adversaries, not warfighting.	Full-Spectrum Deterrence — Includes tactical and strategic nuclear options to counter conventional and nuclear threats.
Strategic Messaging	Nuclear use only in retaliation; any nuclear strike (tactical or strategic) will lead to massive retaliation.	Emphasizes nuclear deterrence in response to India's conventional superiority; threats occasionally publicized by political figures.

conditioners. These products either break down frequently or are deliberately made difficult or expensive to repair—a practice known as **planned obsolescence**. As a result, consumers are often forced to buy new products instead of repairing existing ones, leading to financial strain and increased electronic waste.

What is the Right to Repair?

- The *Right to Repair* is a global movement demanding that:
  - Consumers should be allowed to **repair their products themselves** or go to **third-party repair shops**.
  - Companies should **not monopolise repair services** by limiting access to spare parts or repair information.

What has the Indian Government done recently?

- India has initiated steps toward formalising the *Right to Repair* through a new **Repairability Index (RI)**, aimed at making electronic goods more consumer- and environment-friendly.
- The **Department of Consumer Affairs (DoCA)** has received a **report on creating a "Repairability Index" (RI)** for electronic goods.
- This Index would **score products based on how easy they are to repair**, taking into account:
  - Availability and price of spare parts
  - Access to repair manuals and technical documentation
  - Software update availability
  - Time and cost involved in repairs

The idea is that when consumers buy electronics, they will be able to **see a repairability score** (just like energy efficiency ratings) and choose products that are easier and cheaper to maintain.

Why is this important?

- **Consumer Protection:** Products should last longer or be easy to repair. Consumers are entitled to a fair choice and reasonable post-sale service.
- **Cost of Living:** Reducing the need to frequently replace gadgets or appliances will lower household expenses.
- **Environmental Impact:** Encouraging repair reduces electronic waste and decreases dependence on freshly mined ("virgin") metals—many of which India imports.
- **Circular Economy:** Repairing and recycling are key parts of India's efforts to move towards a circular economy, where materials are reused and reintegrated into the supply chain.

India vs. U.S. Approach:

- **India's Approach:** The government launched a Right to Repair portal listing official service centres and repair manuals from manufacturers. This approach is non-confrontational and works within existing systems.
- **U.S. Approach**: Consumer groups and lawmakers in the U.S. have taken a more aggressive stance—pushing laws to break manufacturer monopolies, ensure third-party repair access, and require companies to disclose repair and maintenance costs.

STATE OF THE WORLD'S NURSING 2025 REPORT

Context

On **International Nurses Day (May 12)**, the **World Health Organization (WHO)**, along with the **International Council of Nurses (ICN)** and other partners, released the **State of the World's Nursing 2025** (SoWN) report. This report provides a **global snapshot of the nursing workforce**, examining data from 194 countries and reflecting on trends since the previous report in 2020.

Key Highlights from the Report

Growth in Nursing Workforce (but Unequal Distribution)

- The global nursing workforce increased from **27.9 million (2018)** to **29.8 million (2023)**.
- However, **78% of all nurses are concentrated in countries that represent only 49% of the global population**, revealing a **major imbalance**.
- Many **low-income and middle-income countries** (LMICs) still **struggle with nurse shortages**, affecting their ability to deliver basic healthcare services.

Underserved region:

- The global nursing shortfall has reduced from **6.2 million (2020)** to **5.8 million (2023)**. By **2030**, it may fall to **4.1 million**—but this masks regional disparities.
- **Sub-Saharan Africa, parts of Asia, and conflict-affected regions** remain severely underserved.

- **Graduation vs Employment Mismatch in LMICs:** Many poor countries are increasing the number of nursing graduates, but these gains are often wiped out by:
  - **High population growth**
  - **Insufficient job creation**
  - **Low government spending on health**

- **Ageing Workforce in Rich Countries**
  - In **high-income countries**, a significant portion of nurses is nearing **retirement age**.
  - **19% of global nurses are expected to retire by 2035**, with some countries facing higher rates than they can replenish.

International Migration and Dependency

- **1 in 7 nurses globally** are **foreign-born**.

- In **high-income countries**, this rises to **23%**, showing heavy dependence on international recruitment.
- **Low-income countries**, ironically, lose nurses to richer nations while facing shortages themselves.

Key-Challenges faced by Nurses

- **Working Conditions and Mental Health**: Only 42% of countries have mental health support systems for nurses. COVID-19 and increasing workloads have led to burnout, trauma, and stress—especially in underfunded settings. Improving well-being and work-life balance is essential to retain talent.
- **Gender and Equity**: 85% of the global nursing workforce are women. Yet, gender pay gaps, limited leadership roles, and underrepresentation in policy decisions continue to undermine gender equity in healthcare professions.
- **Rise in Advanced Practice Nursing**: 62% of countries now recognize Advanced Practice Nurses (APNs)—specialist nurses who can deliver higher-level care. These roles help expand access to health services, especially in rural and underserved areas.
- **Leadership and Regulation**: 82% of countries have a senior government nursing officer, but leadership training remains limited in low-income countries (only 25% offer structured development). Strong leadership is key to guiding nursing policy and workforce planning.

Relevance for India

- India has increased the number of **nursing institutions and graduates**, but still faces:
  - Urban-rural disparities in nurse availability
  - Poor working conditions in public facilities
  - Limited career advancement pathways for nurses
- Investing in **public sector recruitment, training, and retention** is crucial to reduce outmigration and improve rural health access.
- India should also build stronger systems for **nursing leadership**, **mental health support**, and **primary care deployment**.

Policy Priorities for 2026–2030

The report outlines a roadmap for countries to address gaps and inequalities:

- **Invest in creating nursing jobs**, especially in low-resource regions.
- **Strengthen domestic nursing education** and align it with health system needs.
- Ensure **better pay, safer working conditions, and mental health support**.
- Expand **Advanced Practice Nursing** and update regulations accordingly.
- Promote **gender equity**, particularly in leadership roles.
- Prepare nurses for **climate-related health challenges**.
- Use **digital tools and technologies** to boost efficiency and reach.
- Ensure equitable access to **nursing leadership training** across all countries.

STATE OF PRESS FREEDOM

Context

The **23rd Annual South Asia Press Freedom Report 2024–25**, titled *"Frontline Democracy: Media and Political Churn"*, has been released.

Key Highlights of the Report

- Out of 180 countries assessed, 160 face significant challenges regarding the **financial stability of media outlets**, notably affected in the **United States** (ranked 57th, a decline of 2 places from the previous year)
- Nepal stands at 90th, followed by the Maldives (104), Sri Lanka (139), Bangladesh (149), India (151), Bhutan (152), Pakistan (158), and Afghanistan (175).

Non-Press Freedom Challenges:

- Shrinking job opportunities and freelance insecurity
- **AI-driven content** reducing demand for human journalists
- **Decline in advertising revenue**
- **Contractualisation** under new labour codes
- **Corporate consolidations** harming editorial independence

- **India-Specific Observations:** India ranked 151st with a total score of 32.96 in the World Press Freedom Index in 2025, moving up 8 places from 159th last year.
  - **Systemic Suppression of Media:** The report states that Indian media is being "shackled" under a **systemic strategy to cripple independent journalism**.
  - **Legal Intimidation**: Increasing use of laws such as **defamation, sedition, UAPA, and PMLA** has created a **hostile legal environment**. These laws are often used to target media houses critical of the government.
  - **Chilling Effect and Self-Censorship**: Due to legal harassment, surveillance, and arbitrary detentions, **self-censorship is on the rise**, weakening press accountability.
  - **IT Cells and Disinformation**: Political party "IT cells" are contributing to **hate speech, propaganda, and disinformation**, exacerbating the trust deficit in media.
  - **State Pressure Tactics**:
    - Income Tax and ED raids
    - Withholding of government advertisements
    - Surveillance and intimidation of journalists
  - **National Security as Pretext**: Restrictions on speech and press freedom are being justified in the name of **public order, national security**, and **countering misinformation**.

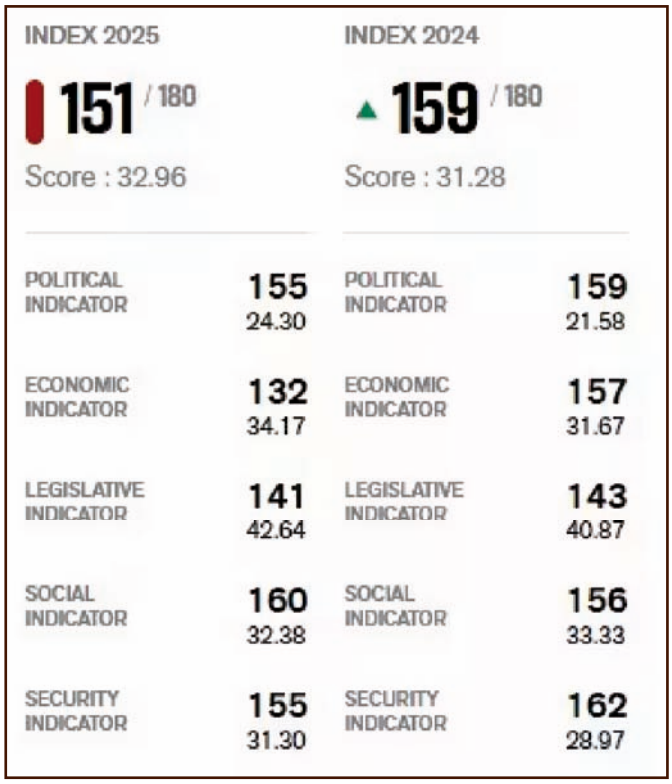


Figure No: 04

- **Misinformation as a Global Risk:** Referring to the Global Risks Report 2024, India is identified as the country facing the highest risk from misinformation and disinformation.

World Press Freedom Index 2025

- **Published by:** Reporters Without Borders (RSF) – ***Reporters Sans Frontières***, an independent international non-profit based in **Paris**. RSF works globally to defend freedom of information and the rights of journalists.
- **Frequency:** It is published annually since 2002.
- It measures the level of press freedom in 180 countries and territories.
- It aims to assess the ability of journalists to report freely and safely.

ANI V WIKI CASE

Context

The **Supreme Court of India (SC)** recently overturned a **Delhi High Court order** that had **directed Wikipedia to take down a page related to an ongoing defamation case filed by ANI**, stating that courts should not direct media or platforms to delete content unless it amounts to contempt. The ruling has sparked important discussions on **media freedom, judicial transparency, and criticism of court proceedings**.

Background of the Case

- The case involves a legal conflict between:
  - **ANI (Asian News International)** – a news agency that filed a **defamation suit**,
  - and **Wikimedia Foundation**, the non-profit that hosts Wikipedia.
- The matter originated when ANI objected to a **Wikipedia page** that contained:
  - Details of court proceedings in its defamation case.
  - Critical remarks or editorial discussions on the court's handling of the issue.
    - Specifically, the page criticized a **Delhi High Court judge's direction** to reveal the identities of Wikipedia editors involved in the page content.
- In **October 2024**, a **division bench of the Delhi High Court** ordered Wikimedia to take down the page, considering it **interference with court proceedings** and a **possible violation of the sub judice principle**.

What the Supreme Court Said?

- The **Supreme Court of India** made some key constitutional observations:
- **Freedom of the Press and Judicial Criticism:** The Court strongly defended the idea that public institutions, including the **judiciary,** should remain open to **public scrutiny and criticism**.
- It said that **constructive debates** and criticism about court proceedings—even those ongoing—are vital for democracy.
  - *"Courts should welcome debate... even if the issue is before a court."*
- It is **not the role of courts** to tell the media or digital platforms what content to delete or retain.

This draws a clear line between **judicial responsibility** and **editorial discretion** or **platform moderation**.

Key Legal and Constitutional Dimensions

- **Freedom of Speech & Expression (Article 19(1)(a)):** The ruling strengthens the constitutional guarantee of free speech, particularly freedom of the press and freedom to report on judicial processes.
  - Criticism of a court's order, even if sharp, is **not automatically contempt**, unless it undermines public confidence in the judiciary in a malicious manner.
- **Contempt of Court vs Legitimate Criticism**: The Court clarified that if any article scandalises the judiciary or judges, proper contempt proceedings can be initiated.
  - But courts must **not pre-emptively restrict publication** unless there's **clear and present danger** to the administration of justice.
  - This brings in the standard from the **Contempt of Courts Act, 1971**, where *"fair criticism"* is not contempt.
- **Doctrine of Sub Judice:** The High Court had claimed that the Wikipedia article violated the sub judice rule — meaning, public discussion of ongoing cases could influence judicial outcomes.

- The SC, however, took a broader view: **public discussion of pending cases isn't inherently wrong**, especially when it's **informative or critical** rather than prejudicial.

This shows a shift away from a "**paternalistic view of public discourse"**, toward "**greater transparency"**.

Digital Rights & Platform Autonomy

- The case also has a **digital governance angle**. Wikipedia is an open-source, collaborative platform.
- The ruling protects platforms like **Wikipedia from judicial overreach** unless **absolutely necessary**, preserving **digital autonomy** and **free flow of information**.

This is especially relevant as India tightens regulations on digital platforms through rules like the **IT Rules, 2021**.

Significance of the Judgment

- The Judgment sets a **strong precedent for press freedom** in reporting court matters.
- **It protects online platforms** from broad and vague take-down orders.
- **It defines limits of *contempt of court***, ensuring judges and courts aren't insulated from criticism.
- **It reasserts judiciary's openness** to democratic oversight and transparency.
- **Furthermore, it encourages a more mature public discourse**, without the fear of judicial censorship.

India's legal system for permitting digital speech

- **Constitutional Foundations:** The Constitution of India upholds the basic right to freedom of speech and expression **Article 19(1)(a).** This right is subject to ***reasonable limitations*** in the sake of, among other things, sovereignty, security, public order, and morality.
- **Information Technology Act, 2000**: It controls different facets of digital expression in India.
  - Online marketplaces, search engines, and social media platforms are among the intermediaries that are protected under Section 79 of the ITA, sometimes known as the "safe harbor" provision.
- **Digital Personal Data Protection Act (DPDP) of 2023:** It aims to establish a framework for processing digital personal data in India, ensuring individual rights and balancing data processing needs.
- **Judicial Interpretation:** The right to privacy has been acknowledged as a basic right in landmark instances including the **Puttaswamy ruling (2017).** Similarly, the **Shreya Singhal case (2015**) established the idea that both online and offline expression are protected under the constitution.
- **International Covenant on Civil and Political Rights:** ICCPR (ratified by India) stresses the value of freedom of expression, but they also recognize that there may be restrictions imposed by national laws and security considerations.

US-CHINA TARIFF DEAL

Context

In a surprise move, the United States and China agreed to roll back major portions of their tariff war in a temporary deal that marks the most significant thaw in their trade tensions since 2018. The deal is a 90-day truce, with both countries slashing tariffs and pausing non-tariff retaliatory actions.

Brief Background

- The US-China trade war began in 2018. The US imposed steep tariffs citing:
  - Unfair trade practices by China
  - Intellectual property theft
  - Technology transfer issues
  - Massive trade deficits
- **Escalation (2018–2023):** China responded with its own tariffs. Both countries imposed duties on hundreds of billions of dollars of goods.
- Over time, tariffs increased:
  - **US tariffs** peaked at **145%** on select Chinese goods.
  - **Chinese tariffs** rose to **125%** on US imports.

What has been agreed upon?

- **Tariff reduction**: The US has agreed to reduce its tariffs on Chinese goods from **145% to 30%**. China will cut its tariffs on US goods from **125% to 10%**.
- **Time frame**: This rollback is valid for **90 days** from May 14, 2025, during which both sides will continue negotiations.
- **Non-tariff measures**: China has also agreed to suspend:
  - Export restrictions on critical minerals (including rare earth elements).
  - Anti-monopoly investigations on American firms like DuPont.
  - Use of "unreliable entity list" against US companies.
- **Exceptions**: The US has retained a **20% levy related to fentanyl control**, aiming to pressure China to act against illegal opioid trade.

Why are tariffs controversial?

Impact on economies:

- The US economy witnessed its first quarterly contraction since early 2022 as importers rushed to beat high tariffs.

- China's **exports to the US declined sharply**, affecting its manufacturing sector. April 2025 saw Chinese factory output shrink at the **fastest pace in 16 months**.

Impact on global trade and markets:

- The trade war disrupted global **supply chains**, particularly in electronics and chemicals.
- It increased costs for consumers and businesses.
- Investor confidence was shaken globally, triggering **stock market volatility** and recession concerns.

What is a trade war?

- A trade war is an economic conflict in which countries implement and increase tariffs and other nontariff barriers against each other.
- It typically arises from extreme economic protectionism and usually features so-called tit-for-tat measures, where each side increase tariffs in response to each other.

INDIA NOTIFIES WTO OF PLAN TO RETALIATE AGAINST U.S. METAL TARIFFS

Context

In a significant trade development, **India has formally notified the World Trade Organization (WTO)** of its decision to **suspend trade concessions extended to the United States**. This move comes as a counteraction to **continued U.S. safeguard tariffs** on Indian steel, aluminium, and related products.

What are these U.S. Tariffs?

- Since **2018**, the U.S. has imposed **tariffs on steel and aluminium imports** citing national security concerns (Section 232 of U.S. Trade Law).
- These tariffs were **renewed in February 2025** through a presidential proclamation, continuing to hurt India's exports.
- Although the U.S. presents them as **"national security" measures**, India classifies them as **safeguard measures in disguise**, meant to protect the U.S. industry from competition rather than security threats.

Why is India retaliating?

- India estimates that these tariffs have impacted **USD 7.6 billion worth of Indian exports**, resulting in **USD 1.91 billion in additional duties** paid by Indian exporters.
- India now seeks to **recover this economic loss** by increasing **tariffs on selected U.S. products** as a **WTO-sanctioned countermeasure**.

India's trade tools under WTO

- **Retaliatory Tariffs:** Suspension of concessions under WTO Articles
- **WTO Dispute Settlement**: Legal complaint to challenge WTO violations
- **Bilateral Consultations:** Attempt to resolve dispute before formal action
- **Truce Agreements**: Temporary resolution to avoid escalation

Key Concepts and Doctrines

- **Safeguard Measures (WTO):** These are temporary restrictions (usually tariffs or quotas) imposed by a WTO member on imports to protect a domestic industry from a sudden surge in imports causing serious injury. They are regulated by **Article XIX of GATT & the WTO Agreement on Safeguards.**
- **Right to Retaliate (Article 12.5):** If proper consultation and notification under **Article 12.3** is not followed, the affected member can suspend concessions (i.e., retaliate). India's current action is based on this clause, as the U.S. extended tariffs without prior discussions.
- **Most Favoured Nation (MFN) Principle:** Under WTO rules, a country must treat all trading partners equally unless part of a regional/trade agreement or allowed by exceptions (e.g., safeguard or retaliatory measures). India's selective tariff hike against the U.S. is an exception permitted under retaliation provisions.
- **Trade Retaliation**: It is a form of countermeasure where a country withdraws previously granted trade benefits or imposes new tariffs in response to perceived violations. It is allowed under WTO but must be proportionate and reported.

CLIMATE FINANCE TAXONOMY

Context

The **Department of Economic Affairs (DEA), Ministry of Finance**, has officially released the draft framework, marking a critical step in building a structured and credible climate finance system in the country.

What is the Climate Finance Taxonomy?

- A **climate finance taxonomy** is a classification system that defines what counts as a **"green"** or **"climate-aligned"** investment.
- It helps governments, investors, and businesses identify and prioritize financial flows toward activities that support climate change mitigation (reducing emissions) and adaptation (adjusting to climate impacts).
- India's taxonomy is being developed in line with the Union Budget 2024-25 announcement and is guided by **India's national climate goals**, such as:

India's National Climate Goals

- India aims to achieve net-zero economy by 2070.
- ***Panchamrit* commitments** (from COP26)
- Nationally Determined Contributions (NDCs)
- reducing the emission intensity of GDP by 45% by 2030, from the 2005 level
- ensuring that 50% of electricity capacity comes from non-fossil sources by 2030
- and the broader vision of **Viksit Bharat by 2047.**

- **Objectives:** The taxonomy aims to:
  - Facilitate finance for **mitigation** (reducing emissions),
  - Support **adaptation** (resilience to climate impacts),
  - Enable **transition** of hard-to-abate sectors (like steel, cement),
  - Prevent **greenwashing** (false green claims),
  - Align with India's development and energy security goals.
- **Principles Guiding the Taxonomy:** It is based on eight key principles, such as:
  - **Alignment with India's** climate goals and development priorities
  - "Do No Significant Harm" **to other environmental/ social objectives**
  - **Support for** transition pathways **(especially in complex or carbon-intensive sectors)**
  - Indigenous technologies **and domestic innovation**
  - **Proportional support for** MSMEs
  - **Flexibility and** interoperability **with international frameworks**
  - **Emphasis on** science-based **and measurable outcomes**

Why is India developing its own Taxonomy?

While several global taxonomies exist (e.g., EU Taxonomy), India needs a **customized framework** for several reasons:

- **Context-Specific Needs**: India is a developing country with pressing developmental priorities like energy access, job creation, and industrial growth.
- **India's climate finance gap is massive:** Over USD 2.5 trillion needed by 2030 (only for NDC targets). Green finance currently makes up just 3% of total FDI (Climate Policy Initiative, 2022). IFC estimates USD 3.1 trillion climate-smart investment potential in India by 2030, led by:
  - **Electric vehicles**: USD 667 billion,
  - **Renewable**s: USD 403.7 billion,
  - Green buildings, water management, and climate-resilient agriculture.
- **Just Transition**: The taxonomy must balance climate ambition with equity and affordability.
- **Attracting Finance**: A clear taxonomy builds investor confidence and encourages both domestic and international green finance flows.
- **Avoiding Greenwashing**: It ensures that only genuinely climate-supportive activities get labelled as "green," avoiding misleading claims.

Global Alignment

- Many countries have either started to work on their taxonomy or finalised one. **South Africa, Colombia, South Korea, Thailand, Singapore, Canada, and Mexico** are some of the countries which have developed taxonomies. The **European Union** has done this as well.
- India's taxonomy is informed by international practices (like the **EU, China, South Africa, and ASEAN taxonomies**), but it is adapted to Indian needs.
- It acknowledges that **developing countries need transition periods**, and hence includes "transition" and "enabling" categories not emphasized in all global taxonomies.

SHIPPING INDUSTRY & EMISSIONS

Context

The **83rd session** of the **International Maritime Organisation 's Marine Environment Protection Committee (MEPC-83)** discussed introducing a **Market-Based Measure (MBM)** to curb **shipping emissions** through a global levy, marking a potential first in mandatory sector-wide carbon pricing.

Key-highlights of the Session

- The MEPC-83 session marked a critical step by **agreeing in principle to introduce a Market-Based Measure (MBM)** to reduce greenhouse gas (GHG) emissions from international shipping.
- **Global Emissions Levy**: The committee supported moving towards an **emissions pricing mechanism**, where shipping companies would pay a set fee per tonne of CO_2 emitted.
- This would make international shipping the **first global sector with a universal carbon pricing structure**, if adopted.
- The MBM framework is intended to help meet the goals of the IMO's Revised GHG Strategy, which aims to achieve:
  - Net-zero GHG emissions from international shipping by or around 2050.
  - **Intermediate checkpoints**: 20-30% reduction by 2030 and 70-80% by 2040, compared to 2008 levels.
- The committee agreed to finalise the MBM design and adopt a legally binding measure by 2025.

What Were the Positions of Different Countries and Blocs?

- **Oil-exporting nations**, led by **Saudi Arabia**, opposed the move. Their primary concern was to protect their fossil fuel-based economies.
- **Small Island Developing States (SIDS)** and **Least Developed Countries (LDCs)** supported a strong carbon levy, hoping to **channel revenues into green development** and climate resilience.
- **China and other major shipping nations** backed minimal levies, seeking to protect their **competitive advantage** in global trade while slowly transitioning to alternative fuels.
- **Scandinavian countries**, such as **Norway**, sought recognition for their **early investments** in clean shipping technologies, proposing **credit systems** to reward past efforts.
- **Brazil** pushed for a **rapid transition to methanol** as a marine fuel.
- **Maritime powers like Greece** remained sceptical about the levy, citing concerns about economic feasibility and implementation complexity.

What Does This Mean for India?

India is expected to benefit in multiple ways from the new emissions framework:

- **Short-Term Impact**: According to UNCTAD estimates, India's **shipping logistics costs** may increase by only **5–8% by 2030** and up to **33–35% by 2050**. However, the **actual trade volumes are unlikely to be significantly affected**.
- **Limited Exposure**: India operates 236 large ships, but only 135 are involved in **international voyages**, which are subject to the MBM. Domestic fleets are **not covered** by this framework.
- **Fuel Cost Increase**: India currently spends about **$400 million per year on ship fuel**. This may rise by approximately **$108 million by 2030**—a manageable increase in the context of India's growing economy.
- **Green Hydrogen Opportunity**: India's **National Hydrogen Mission** aims to make the country a **global exporter of green fuels**. Indian hydrogen standards already meet IMO's emission thresholds, making it **eligible for reward mechanisms** under the levy system.
- **Strategic Ports**: Indian ports such as those in **Gujarat and Andhra Pradesh** are preparing to offer **green hydrogen bunkering services**, placing India at the forefront of future maritime energy hubs.

Current State of India's Shipping Industry

- India operates a fleet of around **1,500 merchant vessels**, including about **236 ships above 5,000 gross tonnage**. However, only **135 of these larger vessels are engaged in international voyages**, which makes them subject to global decarbonisation measures like the IMO's proposed emissions levy.
- **India's Maritime Trade Dependency**: Roughly **95% of India's trade by volume** and **around 70% by value** is carried by sea. While India owns and operates a domestic fleet, a significant portion of trade is still dependent on foreign-flagged vessels.
- India currently spends approximately **USD 400 million annually** on marine fuel for its international fleet. If decarbonisation measures are implemented (like the MBM), this could increase by around **USD 108 million by 2030**—a manageable burden in relation to overall trade volume.
- MBMs apply only to international shipping. India's **coastal and domestic shipping sector**, which plays a key role in regional logistics, remains outside the purview of these global emissions levies.

Why the Global Shipping Industry is a major polluter?

- **Heavy use of Fossil Fuels**: Ships predominantly run on **heavy fuel oil (HFO)** or marine diesel—both high in carbon content. These fuels emit large quantities of **CO_2, sulfur oxides (SOx), nitrogen oxides (NOx)**, and **particulate matter**, contributing significantly to air pollution and climate change.
- **Sheer Scale of Operations**: Global shipping handles **over 80% of world trade by volume**, operating across long distances with large, fuel-intensive vessels. This makes it inherently **energy- and emissions-intensive**, even when compared to other transportation sectors.
- **Difficulties in Decarbonisation**: Unlike road or rail, shipping lacks cost-effective, scalable alternatives to fossil fuels. Clean technologies like **green hydrogen, ammonia, or methanol** are in nascent stages and face infrastructural, technical, and financial hurdles.
- **International Nature of Shipping**: Ships frequently cross multiple jurisdictions. This complicates emissions regulation and enforcement, as no single country is fully accountable—creating a regulatory gap in climate governance.

Impact

- The shipping sector emits approximately **one billion metric tonnes of CO_2 annually**, accounting for about **2.8% of total global greenhouse gas emissions**.
- If it were a country, it would be the **sixth-largest emitter** globally—between Germany and Japan.
- Apart from greenhouse gases, shipping causes **acid rain (due to SOx and NOx)** and contributes to **black carbon** pollution, which accelerates the melting of Arctic ice.

SECTION -B

QUICK BYTES

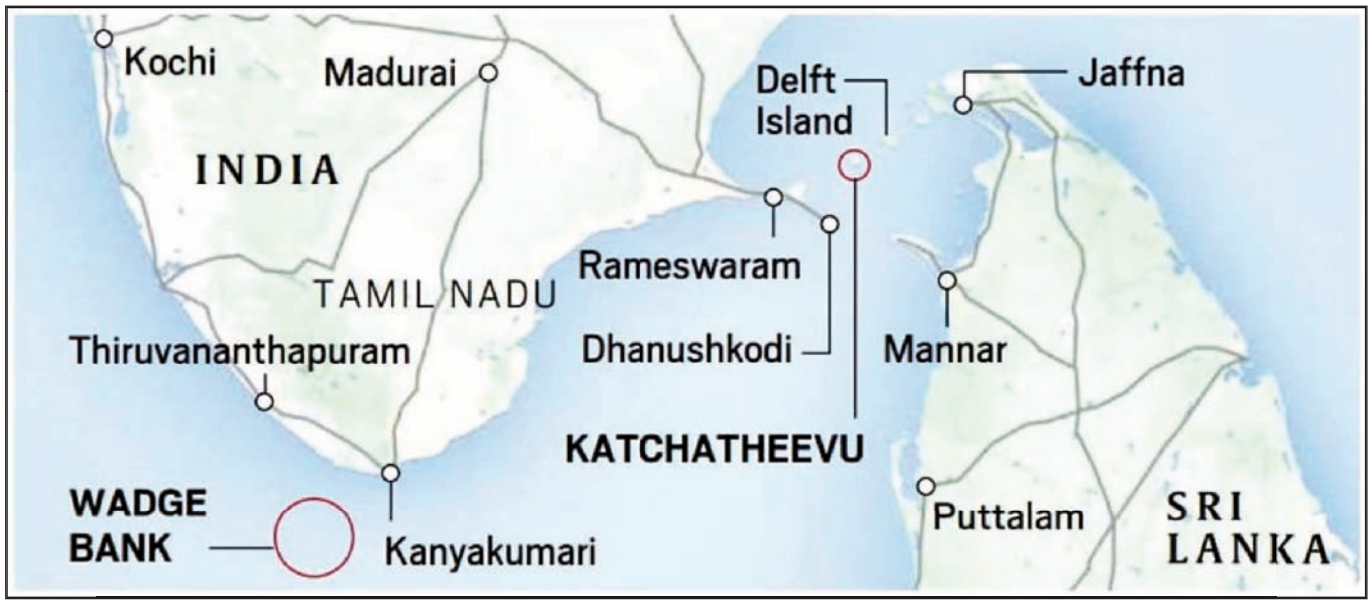
WADGE BANK

Context

The **Union Ministry of Petroleum and Natural Gas** has invited bids for hydrocarbon exploration near **Wadge Bank,** south of **Cape Comorin** in Tamil Nadu, under the **Hydrocarbon Exploration and Licensing Policy (HELP).** This has sparked strong opposition from local fishermen and environmental groups, who fear the project will harm marine biodiversity and fishing livelihoods in a highly productive and ecologically sensitive zone.

What is Wadge Bank?

- **Wadge Bank** is a shallow, ecologically rich part of the ocean floor in the Indian Ocean.
- It is known for its **abundant fishery resources** and **high marine productivity**.
- **Location**: South of Cape Comorin (Kanniyakumari), extending into the Indian Ocean.
- Wadge Bank is a **continental shelf** area that creates **ideal conditions for fish breeding** due to upwelling, nutrient-rich waters, and suitable temperatures.
- It supports the fishing communities of multiple Tamil Nadu districts—**Kanniyakumari, Tirunelveli, Thoothukudi, Ramanathapuram**—and parts of **Kerala**.
- **Strategic Value**: It also acts as a **natural barrier**, absorbing shockwaves from oceanic disturbances like tsunamis and cyclones, reducing disaster vulnerability for the Tamil Nadu coastline.



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POPE LEO XIV

Context

Robert Francis Prevost, 69, has become the 267th occupant of the throne of St Peter and he will be known as **Leo XIV.** He is the first American to fill the role of pope. Although American by birth, Prevost has strong ties to **Latin America**, particularly **Peru**, where he served as a **missionary and church leader** for many years.

About

- The **Pope** is the **spiritual leader of the Roman Catholic Church**, which has over **1.3 billion followers worldwide**.
- He also holds the title of **Bishop of Rome** and is considered the **successor to Saint Peter**, one of Jesus Christ's apostles.
  - The Roman Catholic Church is the largest denomination within Christianity. This means the papacy plays a significant role in how Christianity is perceived globally.
- The office of the pope is referred to as the **papacy.**
- The Pope is the **supreme authority in doctrinal, moral, and administrative matters** within the Church.
- He presides over the **Holy See**, the central governing body of the Church, and the **Vatican City State**, a sovereign city-state enclave within Rome.
- Popes are elected by a **conclave of cardinals**—senior church officials—who gather in the **Sistine Chapel**.
- The elected pope traditionally adopts a **new papal name**, symbolising spiritual rebirth and continuity.

KARNATAKA'S B-SMILE SCHEME

Context

The Karnataka government has launched B-SMILE with an initial Rs 7,000 crore commitment to fast-track **major infrastructure projects** in Bengaluru, marking a key step under the upcoming Greater Bengaluru Governance Act, 2024.

What is B-SMILE?

- **Bengaluru Smart Infrastructure Limited (B-SMILE)** is a newly created **Special Purpose Vehicle (SPV)** launched by Karnataka to plan, fund, and implement **large-scale infrastructure projects in Bengaluru**.
- This initiative marks a shift from fragmented urban planning to a **centralised, professionally governed body** focused on long-term urban transformation, especially in a rapidly expanding and traffic-congested city like Bengaluru.
- B-SMILE is not just another civic body. It is a **dedicated company**, fully government-owned but designed to **attract private investment** as well, giving it the flexibility to execute big-ticket projects outside routine bureaucratic processes.
- **Need:** Bengaluru has long struggled with: **Traffic congestion, uncoordinated infrastructure, slow project implementation, overlapping authorities** among BBMP, BDA, BWSSB, etc. To overcome these challenges, B-SMILE has been designed as a **central executing body** for all major infrastructure projects in the city, especially those that span across multiple administrative zones.
- B-SMILE will be governed by an **11-member Board of Directors**, with a **full-time CEO (an IAS officer)**.

Other similar projects:

- Smart City SPVs
- Delhi Mumbai Industrial Corridor Development Corporation (DMICDC) – Central Govt
- Mumbai Metropolitan Region Development Authority (MMRDA) – Maharashtra
- Chennai Unified Metropolitan Transport Authority (CUMTA) – Tamil Nadu
- Ahmedabad Urban Development Authority (AUDA) – Gujarat

DUPLICATION OF EPIC NUMBERS

Context

The **Election Commission of India** recently announced that it has resolved the issue of **duplicate EPIC numbers** in the electoral rolls, a problem that had persisted for years. This duplication posed risks to the integrity of elections by allowing the possibility of **multiple voter entries under the same identification number**.

What is an EPIC Number?

- **EPIC** stands for **Electors Photo Identity Card**.
- It is the **10-digit alphanumeric number** on a voter ID card issued by the **Election Commission of India (ECI)**.
- This number is **meant to be unique for every voter**, like a personal voter identity code.
- It helps ensure that a person can vote **only once and in one constituency**, avoiding impersonation or bogus voting.

Problem:

- **Duplication** means that **more than one voter** had the **same EPIC number**, which defeats the very purpose of having a unique ID.
- This was a **long-pending issue**, especially in cases where:
  - A person had moved between states or districts and re-registered.
  - There were errors during the digitisation or migration of older voter lists.
- It posed risks like **double voting**, **administrative confusion**, and **trust issues** in the electoral process.

FRAMEWORK FOR DECLARATION OF WAR IN INDIA

Context

India and Pakistan are witnessing heightened military tensions following Pakistan's failed drone and missile attacks on Indian bases, and India's retaliatory strikes under **Operation Sindoor**. This has renewed focus on how India formally declares war, especially given the absence of explicit constitutional provisions for it.

What constitutes a 'war'?

- Under international law, a "war" is typically defined by:
  - Sustained hostilities between states
  - Use of armed force
  - Violation of territorial sovereignty
- The UN Charter allows use of force only in:
  - Self-defence (Article 51)
  - UNSC-authorised actions
- India usually frames military actions as counter-terror operations or acts of self-defence to maintain strategic and diplomatic space.

Is a Formal Declaration Required?

- **No**. India does not have a **specific law or constitutional article** that defines or mandates a *formal declaration of war*.
- Most Indian military engagements—including 1965, 1971, and Kargil—**did not involve a formal war declaration**.
- **Pas Wars**: In major military conflicts, India **never issued a formal war declaration**:
  - **1947–48 (First Kashmir War):** Responded after the accession of J&K; no war declaration.
  - **1962 (India-China War):** Chinese offensive; India reacted without a formal declaration.
  - **1965 (India-Pakistan War):** Triggered by Operation Gibraltar; both sides escalated without formal declaration.
  - **1971 (Bangladesh Liberation War):** Initiated after Pakistan's air strikes; no formal declaration.
  - **1999 (Kargil War):** A limited conflict under Operation Vijay; no declaration from either side.

Constitutional and Legal Framework for War in India

Aspect	Provision / Authority
Supreme Commander of Armed Forces	President of India (Article 53(2))
Actual War Decision-Making	Union Cabinet, led by Prime Minister (Article 74)
Constitutional Mechanism Closest to War Declaration	Article 352 – National Emergency on grounds of "war" or "external aggression"
Parliament's Role	Ratifies Emergency Proclamation within 1 month, continues it every 6 months by special majority

UP-AGRIS AND AI PRAGYA

Context

In order to benefit farmers through tech-driven agri projects, the Uttar Pradesh government and **World Bank** launched two flagship programmes:

- **UP-AGRIS** – to boost agriculture and rural livelihoods
- **AI Pragya** – to train the youth in emerging digital technologies like Artificial Intelligence (AI)

What is UP-AGRIS?

- '**UP-AGRIS**' stands for **Uttar Pradesh - Advanced Growth of Rural and Inclusive Sustainable Agriculture**.
- It is a **Rs 4,000 crore World Bank-supported programme** to modernize agriculture and related sectors in UP.

Key Objectives

- Promote **technology-driven farming** in **Purvanchal** and **Bundelkhand** (historically underdeveloped regions).
- Enhance **farm productivity** and **climate resilience**.
- Empower **10 lakh farmers**, including a focus on women and marginalized groups.

- **Why Purvanchal and Bundelkhand?** These regions:
  - Face frequent droughts, low productivity, and rural poverty.
  - Have large agrarian populations with limited access to modern inputs.
  - Need targeted investments to bridge the development gap with western UP.

What is AI Pragya?

- AI Pragya is a programme to train **10 lakh youth** across UP in: Artificial Intelligence (AI). Machine Learning (ML), Data Analytics and Cybersecurity and more.

Main Aims

- Prepare the workforce for **Industry 4.0**.
- Boost **employment** and **entrepreneurship**.
- Make UP an **AI and tech hub**.

- Youth will get **certified training**.
- The initiative promotes **tech-based startups**, especially in semi-urban and rural areas.
- It supports **Digital India** and **Skill India** missions.

INDIA'S RETAIL INFLATION

Context

India's **April 2025 retail inflation falling to 3.16%**, which is the lowest since July 2019.

Key-findings

- **Retail Inflation (CPI)** fell to 3.16% in April 2025, the lowest since July 2019, down from 3.34% in March 2025.
- **Food inflation** declined to 1.78% from 2.69% in March.
- **Vegetable prices** dropped by 11% YoY, compared to 7.04% in March.
- **Cereal price inflation** slowed to 5.35% (from 5.93%), while pulses prices fell by 5.23% (vs. 2.73% fall in March).
- Economists expect inflation to remain around 3% in the next two months, aided by low commodity prices and expectations of an above-normal monsoon.
- The RBI may consider a 25 basis point rate cut in June 2025 due to easing inflation.
- RBI's CPI inflation projection for FY 2025–26 is 4% average, with quarterly forecasts: Q1 – 3.6%, Q2 – 3.9%, Q3 – 3.8%, Q4 – 4.4%.

What is Retail Inflation?

- Retail Inflation is measured by tracking the price movements of several commodities being sold across India.
- **CPI (Consumer Price Index)** is a measure used to calculate retail inflation.
- It tracks the price changes of a basket of goods and services that households typically buy for everyday living. The CPI helps determine how much the cost of living has changed over a specific period.
- **The CPI Formula is: (Price of basket in current period / Price of basket in base period) x 100**
  - This formula shows how much prices have increased or decreased compared to a reference period, which is called the base period.
  - If CPI rises, it indicates inflation (prices have gone up). If CPI falls, it indicates deflation (prices have gone down).

PREDATORY PRICING

Context

The Competition Commission of India (CCI) has introduced the **Competition Commission of India (Determination of Cost of Production) Regulations, 2025**, aiming to modernize the assessment of predatory pricing, especially pertinent in the evolving digital economy.

What is Predatory Pricing?

- Predatory pricing involves a dominant company setting prices below its production costs to eliminate competitors and establish market dominance.
- Under **Section 4(2)(a)(ii) of the Competition Act, 2002**, this practice is deemed abusive when it aims to reduce competition or eliminate competitors.

Key Features of the 2025 Regulations

- **Primary Benchmark – Average Variable Cost (AVC):** AVC is adopted as the standard measure for assessing predatory pricing, serving as a proxy for marginal cost. This approach aligns with international best practices and provides a consistent basis for evaluation.
- **Flexibility with Alternative Cost Measures:** Recognizing the diversity of industries, the CCI may consider other cost concepts such as:
  - **Average Total Cost (ATC)**
  - **Average Avoidable Cost (AAC)**
  - **Long Run Average Incremental Cost (LRAIC)**
  - These alternatives allow for a nuanced assessment tailored to specific market dynamics.
- **Sector-Agnostic Framework:** The regulations are designed to be applicable across various sectors, including digital markets like e-commerce and quick commerce. This ensures adaptability to different industry structures and practices.
- **Expert Involvement:** To enhance accuracy, the CCI or the Director General may engage experts in cost determination. Parties under investigation can also request expert analysis, bearing the associated costs.
- **Clarification of Cost Definitions:** The regulations provide detailed definitions, such as LRAIC encompassing all variable and fixed costs, including sunk costs, directly or indirectly attributable to a product or service. In multi-product firms, it includes a proportionate share of common costs.

FACT BOX

Competition Commission of India (CCI)

- The Competition Commission of India (CCI) is a **statutory body** of the Government of India responsible for enforcing the **Competition Act, of 2002**, it was duly constituted in March 2009.
- The **Monopolies and Restrictive Trade Practices Act, 1969 (MRTP Act)** was repealed and replaced by the Competition Act, 2002, on the recommendations of the **Raghavan committee**.

- **Composition:** The Commission consists of one Chairperson and six Members who shall be appointed by the Central Government.

The Competition Act, of 2002:

- The Competition Act, 2002, regulates competition in the Indian market and prohibits anti-competitive practices such as cartels, abuse of dominant market position, and mergers and acquisitions that may have an adverse effect on competition.
- The Act has been amended by the **Competition (Amendment) Act, 2007.**
- The **Competition Commission of India (CCI)** is responsible for implementing and enforcing the Act.

Judicial bodies:

- The **Competition Appellate Tribunal** is a **statutory body** created in accordance with the Competition Act, 2002 to hear and regulate on appeals against any rules made, decisions made, or orders made by the Competition Commission of India.
- The government replaced the Competition Appellate Tribunal with the **National Company Law Appellate Tribunal (NCLAT) in 2017.**

INDIA'S MATERNAL MORTALITY RATIO (MMR)

Context

India's **Maternal Mortality Ratio (MMR)** has declined to **93 per 1,00,000 live births** in 2019–21, continuing a downward trend in recent years. This has been reported by the **Registrar General of India** using data from the Sample Registration System (SRS).

India's Maternal Mortality Situation (Key-Findings)

- **Declining National Trend:** MMR has reduced from **97 (2018–20)** to **93 (2019–21)** per 1,00,000 live births. The report shows steady improvement from **103 in 2017–19**.
- **Age-wise Impact:** Highest maternal deaths occurred in the **20–29 years age group** (prime reproductive age). Second highest in the **30–34 years** age group.
- **States with High MMR (per 1,00,000 live births):**
  - **Madhya Pradesh** – 175
  - **Assam** – 167
  - **Uttar Pradesh** – 151
  - **Odisha** – 135
  - **Chhattisgarh** – 132
  - **West Bengal** – 109
  - **Haryana** – 106

Southern State Performance:

- **Karnataka**: MMR reduced to **63**, but still highest among southern states.
- Other southern states likely performing better (not individually listed in this data).

- **Global Benchmark (UN SDG Target):** India's current MMR of **93** is still **above the SDG target** of **less than 70** per 1,00,000 live births.
- **Cause of Death (as per WHO):** Most maternal deaths are due to **preventable causes** during pregnancy, childbirth, or shortly after delivery.
  - Causes include complications like **hemorrhage, infection, high blood pressure, unsafe abortion**, etc.

WHO 2023 Global Concern:

- Over **700 women die daily** worldwide from pregnancy-related causes.
- **90% of maternal deaths** happen in **low- and lower-middle-income countries**.

What is Maternal Mortality Ratio (MMR)?

- **Definition (WHO):** MMR is the number of maternal deaths per 100,000 live births in a given time period.
- **Maternal Death:** The death of a woman while pregnant or within 42 days of termination of pregnancy, from causes related to or aggravated by pregnancy or its management—not from accidental or incidental causes.

Maternal Health Schemes under NHM

NHM is central to India's maternal health initiatives through its comprehensive **RMNCAH+N strategy**—covering **Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition**.

- **Janani Suraksha Yojana (JSY)**: Launched in 2005, it provides cash incentives to promote institutional delivery among BPL, SC, and ST women to reduce maternal and neonatal mortality.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY)**: Offers ₹5,000 maternity benefit for the first live birth, with an additional incentive under PMMVY 2.0 for a second girl child to promote positive behaviour.
- **Janani Shishu Suraksha Karyakram (JSSK)**: Ensures free delivery (including C-section), diagnostics, medicines, transport, diet, and blood for pregnant women and sick infants in public health institutions.
- **Surakshit Matritva Aashwasan (SUMAN)**: Launched in 2019, it guarantees free, respectful, and quality maternal and newborn healthcare with zero service denial.
- **Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA)**: Provides fixed-day, free antenatal care on the 9th of every month, focusing on high-risk pregnancies; over 5.9 crore women examined till March 2025.

- **LaQshya**: Launched in 2017, aims to improve quality care in labour rooms and maternity OTs for safe and respectful childbirth.
- **MDSR (Maternal Death Surveillance and Response)**: Tracks maternal deaths at community and facility levels to identify causes and improve obstetric care.
- **VHSND (Village Health, Sanitation and Nutrition Day)**: Monthly outreach for delivering maternal and child health services and nutrition counselling at the village level.
- **MCP Card & Safe Motherhood Booklet**: Distributed to educate pregnant women about diet, danger signs, and available maternal health services.
- **RCH Portal**: Web-based tracking system for antenatal, delivery, and postnatal care of pregnant women and newborns.
- **Anaemia Mukt Bharat (AMB)**: Strategy under POSHAN Abhiyan to reduce anaemia among pregnant women and adolescents through testing, treatment, and awareness.

INDIA-CHINA ENGAGEMENT ON GERMANIUM EXPORT RESTRICTIONS

Context

India's embassy in Beijing confirmed that the Indian government has formally taken up the issue of **export restrictions on germanium** with Chinese authorities. This follows grievances raised by Indian industry players affected by China's tightening control over exports of certain critical minerals, particularly **germanium**, which is essential for electronics, semiconductors, fiber optics, and solar panels.

About

Germanium (Ge) is a **metallic element** with high conductivity and thermal conductivity, which makes it an important component in the semiconductor industry.

Germanium wafers are thin, circular slices of pure germanium that serve as the foundation for many electronic devices.

Germanium is a metalloid that possesses **metal and nonmetal properties**.

- While germanium is **not classified as a rare earth element**, it plays a crucial role in high-technology industries.
- Ge is a metallic element used in:
  - Fiber optic cables (as germanium dioxide in preform cores)
  - Infrared optics
  - Solar photovoltaic cells (especially for satellites and space applications)
- It is critical for high-tech industries, and its supply is concentrated in China, which accounts for over 50% of global production.
- India is highly dependent on imports for most critical minerals, including **germanium and gallium**.
- **Clemens Winkler**, a German scientist, discovered germanium in 1886.

Economy

KHARIF SOWING SURGES IN 2025

Context

The **Ministry of Agriculture and Farmers Welfare** reported a significant increase in the sowing of **paddy, pulses, coarse grains, oilseeds, and vegetables (onion, potato, tomato)** during the ongoing **Kharif season (2024–25)**.

Key Findings from the Ministry's Update:

- Increase in Kharif Sowing (as of May 2025):

Crop Type	2023–24 Area	2024–25 Area	Net Increase
Paddy	28.57 lakh ha	32.02 lakh ha	+3.44 lakh ha
Pulses	18.47 lakh ha	20.67 lakh ha	+2.20 lakh ha
→ Moong	-	-	+1.70 lakh ha
→ Urad	-	-	+0.50 lakh ha
Onion	9.76 lakh ha	12.58 lakh ha	+2.82 lakh ha
Potato	-	-	+0.47 lakh ha

- Tomato sowing is ongoing smoothly along with onion.

Paddy (Rice) Cultivation:

- **Season**: Grown predominantly in **Kharif season** (June–October), some regions grow in Rabi.
- **Top producing states**: West Bengal, UP, Punjab, Andhra Pradesh, Tamil Nadu.
- **Water-intensive crop**: Requires flooded fields; dependent on monsoons or irrigation.
- **Government Support**:
  - MSP (Minimum Support Price)
  - Procurement through FCI
  - PMFBY (Crop insurance)
  - NFSM-Rice under National Food Security Mission

Pulses Cultivation:

- India is the **largest producer and consumer** of pulses globally.
- **Major Pulses**: Moong (Green gram), Urad (Black gram), Arhar (Pigeon pea), Gram (Chickpea), Lentils.
- **Sown in both Kharif and Rabi seasons**.

- **Top producers**: Madhya Pradesh, Maharashtra, Rajasthan, UP, Karnataka.
- **Government Support**:
  - NFSM-Pulses
  - MSP and Price Stabilization Fund
  - Pulse buffer stock to control prices
  - Promotion of climate-resilient pulse varieties

NEERA PRODUCTION

Context

The **Bihar government launched the 'Mukhyamantri Neera Samvardhan Yojana',** to support toddy tappers and promote **Neera** as a non-alcoholic health drink. The new scheme provides **financial incentives** to both tappers and palm tree owners.

About 'Mukhyamantri Neera Samvardhan Yojana'

- Mukhyamantri Neera Samvardhan Yojana (2025) aims to promote Neera as a sustainable livelihood alternative to toddy for marginalized communities like the **Pasi Dalit community**.
- **Implemented by:** Prohibition, Excise and Registration Department & Jeevika (Bihar Rural Livelihoods Promotion Society)
- **Toddy Season:** April to July

What is Neera?

- **Neera** is the **unfermented sap (nectar)** extracted from palm trees (before sunrise), making it **non-alcoholic**.
- It naturally ferments into toddy if not consumed fresh or preserved. Once fermented, it becomes toddy, which contains about 4% alcohol and is regulated under state excise laws.
- **Nutritional value**: It is rich in **calcium, iron, potassium, sodium, phosphorus**, and **antioxidants**.
- It is a **natural probiotic** that helps in **boosting immunity** and **increasing hemoglobin** levels.

SNAIL INFESTATION IN IDUKKI'S CARDAMOM PLANTATIONS

Context

The cardamom-growing regions of **Idukki district in Kerala** have recently witnessed a significant **infestation of small snails**, which are causing **extensive damage** to cardamom crops.

About

- Green cardamom, often called the **"Queen of Spices,"** is one of the world's most valuable spices, ranking just after saffron and vanilla.
- It belongs to the ***Zingiberaceae*** family.
- It is a **high-value cash crop** and a major component of India's spice exports.
- The seeds from ***Elettaria cardamomum*** are used to make the commercial green cardamom spice, widely used in cooking, sweets, and beverages.
- As a result, these discoveries hold economic significance as they may lead to better
- It is one of the three most economically important species in the ginger family.
- It is native to the evergreen rain forests of Western Ghats in South India.
- **Major Cardamom producing Indian states:** Kerala, Sikkim, Nagaland, Arunachal Pradesh, Karnataka.
- **Other major cardamom producing countries**: Gautemala, Srilanka, Thailand and Cambodia.
- **Soil and climate:** Thick shady areas with loamy soil are ideal for cultivating cardamom. This crop can be grown at an elevation from 600 to 1500 m. It is grown in forest loamy soils which are usually acidic in nature with a pH range of 5.0 – 6.5
- **Season:** June – December is found to be optimum.

About Snail Attack

- Snail infestations are typically linked with **increased moisture**. The snails have become active **earlier than usual** — infestation that was noticed in **October last year** began in **early May this year**.
- Snails are **nocturnal**, becoming **active after 7 p.m.**
- They feed on the **soft, developing parts of the cardamom plant** — especially flowers and panicles.
- **Response:** Many farmers are using ***metaldehyde pellets*** (a chemical molluscicide) to control snails.

INDIA-NEW ZEALAND FTA TALKS

Context

India and New Zealand concluded the first round of negotiations for a proposed **Free Trade Agreement (FTA).**

Key-highlights

- India and New Zealand's **bilateral trade relationship** has seen a sharp upward trajectory in recent years with merchandise trade between the two countries reaching USD1.3 billion in 2024–25, a growth of 48.6 percent on-year.
- The FTA is expected to further elevate trade and investment potential, improve supply chain integration, and foster a predictable and transformative trading environment for businesses on both sides.

Key-items for trade:

- **Exports to New Zealand** include clothing, fabrics, and home textiles; medicines and medical supplies;

refined petrol; agricultural equipment and machinery such as tractors and irrigation tools; auto; iron and steel; paper products; electronics; shrimps; diamonds; and basmati rice.

- **Imports from New Zealand:** Agricultural goods, minerals, apples, kiwifruit, meat products such as lamb, mutton, milk albumin, lactose syrup, coking coal, logs and sawn timber, wool, and scrap metals

- India has recently agreed upon a FTA with UK and is currently negotiating trade deals with a slew of nations and blocs including **European Union, United States and Oman.**

Why India and New Zealand Matter to Each Other?

India's Importance for New Zealand

- **Large Market**: India's 1.4 billion population and rising middle class offer strong demand for **dairy, meat, and wine exports**.
- **Skilled Manpower**: India is NZ's **largest source of skilled migrants** and **2nd-largest source of international students**.
- **Digital Ecosystem**: India's **880 million internet users** offer opportunities for **digital services, AI, and fintech**.
- **Strategic Alignment**: India's Indo-Pacific role supports NZ's **regional stability** concerns.

New Zealand's Importance for India

- **Agricultural Modernization**: Expertise in **dairy, food logistics, and horticulture** supports Indian farm reforms.
- **Education & Skill Development**: Offers **vocational training** and **high-quality tertiary education**.
- **Climate Tech Partner**: NZ firms feature in **HolonIQ Indo-Pacific Climate Tech 100**—relevant to India's green goals.
- **Maritime & Defence**: Potential buyer of **Indian radars, patrol vessels**, aligning with NZ's Pacific maritime concerns.

MUSA INDANDAMANENSIS

Context

The *Musa indandamanensis*, a **wild banana species endemic to the Andaman and Nicobar Islands**, has produced the **world's longest banana infructescence (fruit bunch axis)** — measuring about **4.2 metres**. This marks a significant botanical record and sheds light on the **rich but lesser-known biodiversity of the Andaman and Nicobar Islands**.

What is an infructescence?

- ***Infructescence*** is the **fruiting structure** (or fruit bunch) that develops from an inflorescence (flower cluster).
- In bananas, it's the **long axis bearing all the banana fruits**.
- Typically, the infructescence of **cultivated bananas** is about **1 metre** long.
- This wild banana species has an infructescence of **4.2 metres**, the **longest ever recorded**.

Figure No. 02

About the Species: *Musa indandamanensis*

- **The species was discovered** in 2012 from the **Botanical Survey of India (BSI).**
- It is found in **Little Andaman and Campbell Bay** (Nicobar).
- It grows in **humid forest patches**, usually **near waterfalls and streams**.
- **Tree height:** Approx. **11 metres**, with a stem girth up to **110 cm**.
- It bears **golden-yellow fruits** with **irregular seeds** — not commercially cultivated, but **genetically important**.
- **Conservation Status: It is c**lassified as **"Critically Endangered"**.
- It is rarely found, vulnerable to habitat disturbance.

MORPHOLOGICAL RIDGE

Context

The Supreme Court order issued show-cause notices to Delhi government officials, the MCD commissioner, for allegedly violating the 1996 Supreme Court directive by approving a housing project in **Morphological Ridge**, an **ecologically sensitive area**, without the required clearances.

About

- The **Morphological Ridge** is part of the larger **Delhi Ridge**, which marks the tail end of the **Aravalli mountain range**.
- This ridge stretches approximately **35 kilometers** from **Mahipalpur** in the southwest to **Wazirabad** in the northeast of Delhi.
- The Morphological Ridge, though not officially designated as forest land, shares similar ecological features with the main Delhi Ridge, making it an important part of the region's environmental landscape.
- **Ecological Importance:** The **Morphological Ridge** plays a critical role in maintaining Delhi's ecological balance. The area is characterized by:
  - **Rocky outcrops** and **shallow soils**.
  - **Dry thorn forests** with drought-resistant plant species like **bistendu** and **dhak**.
  - **Uncultivable rocky hills**, often referred to as **gair mumkin pahad** in revenue records.
- These features contribute to the Ridge's role as a natural **green lung** for Delhi, helping to:
  - Absorb pollutants and reduce air pollution.
  - Prevent **desertification** and mitigate the effects of **sandstorms**.
  - Provide a habitat for native flora and fauna, contributing to biodiversity.
- **Legal and Regulatory Framework:** The **1996 Supreme Court Directive** in the case **M.C. Mehta vs. Union of India** established clear guidelines to protect ecologically sensitive areas like the Delhi Ridge and its extensions, including the Morphological Ridge. The directive specifically:
  - **Bans encroachment** and **non-forest use** without prior **Court approval**.
  - Requires approval from the **Ridge Management Board (RMB)** and the **Central Empowered Committee (CEC)** before any changes in land use.
- Despite not being officially designated as a **Reserved Forest** under the **Indian Forest Act, 1927**, the Ridge and its extensions are afforded protection through these legal mechanisms. This regulatory framework ensures that any urban development in the area must undergo thorough scrutiny to prevent damage to the ecosystem.

TSARAP CHU CONSERVATION RESERVE

Context

The **Himachal Pradesh Government** officially **notified the Tsarap Chu Conservation Reserve** under **Section 36A(1) of the Wildlife (Protection) Act, 1972**. This makes it the **largest conservation reserve** in India and a major biodiversity landmark in the fragile and remote **Spiti Valley**.

About

- **Tsarap Chu** is located in the **Spiti Valley**, a high-altitude cold desert in **Lahaul and Spiti district** of Himachal Pradesh.
- It lies near the border with **Ladakh**, and is surrounded by **Kibber Wildlife Sanctuary** to the east and **Chandratal Wildlife Sanctuary** to the west.
- It is at the confluence of the **Unam River** and **Charap Nala** and also acts as the **catchment area** of the Charap Nala.
- This area serves as a vital **wildlife corridor**, facilitating the movement of species between the **Kibber** and **Chandratal** sanctuaries.
- The reserve is **rich in high-altitude Himalayan biodiversity**, offering critical habitat to several rare and endangered species.
- **Flagship Species**: **Snow Leopard** (*Panthera uncia*), **Tibetan Wolf**, **Bharal (Blue Sheep)**, **Himalayan Ibex**, **Kiang (Tibetan Wild Ass)**, and **Tibetan Argali**
- **Avifauna:** Rare and adapted bird species include the **Rose Finch**, **Tibetan Raven**, and **Yellow-billed Chough**, which indicate the region's ornithological richness.

Conservation Reserve

- A **Conservation Reserve** is a category of **protected area** in India, created on **government-owned land** that lies **outside existing National Parks and Wildlife Sanctuaries**.
- These areas serve as **ecological corridors or buffer zones**, enabling the **movement of wildlife** between larger protected areas, and are designated to conserve **important habitats, landscapes, and biodiversity**.
- They are legally notified under **Section 36A of the Wildlife (Protection) Act, 1972**.
- They are managed through participatory approaches involving **local communities, Panchayats, and conservation stakeholders**.
- The **Wildlife (Protection) Act, 1972**, under **Section 36A**, allows states to declare any area (excluding national parks and sanctuaries) as a **conservation reserve** for:
  - Protecting landscapes, habitats, flora and fauna,
  - Maintaining biodiversity and ecological processes,
  - Involving local communities in participatory conservation.
- Tsarap Chu is now **Himachal Pradesh's fifth conservation reserve**, joining: Darlaghat, Naina Devi, Potter Hill and Shilli.

National and Global Conservation Implications

- India is a **signatory to the Convention on Biological Diversity (CBD)** and is committed to conserving **30% of its land and marine areas by 2030** under the **"30 by 30" target**. Such reserves contribute directly to this goal.
- International organisations like **WWF** and **Snow Leopard Trust** consider the **Himalayas and Trans-Himalayas** as global priority landscapes for conservation.

INSECT EVOLUTION AND CLIMATE CHANGE

Context

The rapid decline in insect populations, coupled with the challenges posed by invasive species and climate change, highlights the urgent need to understand species' evolutionary responses and ecological resilience. In particular, the **Pacific field crickets'** adaptation to an **invasive parasitoid fly** exemplifies the dynamic interplay of evolution under environmental pressures.

Key Findings:

- **Insect Extinction Rates:** Insects face extinction rates estimated to be **eight times higher** than birds, mammals, or reptiles, with populations declining in many regions globally.
- **Invasive Species:** Climate change is driving species to cross invisible natural borders, sometimes leading to the invasion of new ecosystems. These invasions disrupt native species, forcing them to either evolve or face extinction.

Pacific Field Crickets' Evolution:

- In **Hawaii**, Pacific field crickets have adapted to avoid predation from an invasive parasitoid fly (*Ormia ochracea*) by **mutating their song**.
- Some crickets now produce a **muted song**, while others have altered their song's **frequency** and **amplitude**, allowing them to evade detection by the flies while still attracting mates.

- **Fly Adaptation:** The parasitoid flies are **evolving rapidly** in response, expanding their hearing range to detect a broader spectrum of sounds (from 4-6 kHz to 6-20 kHz), making it more challenging for crickets to avoid detection.
- **Co-Evolution Dynamics:** The evolutionary battle is not a straightforward, step-by-step process. The flies are not just tracking the crickets' changes incrementally but are instead broadening their ability to detect a range of altered cricket sounds.
- **Female Cricket Behavior:** Female crickets have also **become less selective** about male songs, allowing the new mutated songs to be successful. Without this change, mutated males would have gone extinct locally.
- **Insect Vulnerability:** Insects are highly vulnerable to climate change and **rapid evolution** due to their short life cycles and fast reproduction rates. However, this makes them more susceptible to sudden environmental changes and extreme conditions.
- **Global Threats to Species Adaptation:** Climate change, extreme weather, and biological invasions are making it harder to predict how species will adapt to compounded pressures.
- **Challenges for Long-term Survival:** Rapid evolution in some species, such as insects, might explain why certain invaders succeed or why some species manage to adapt, offering insights into future ecological outcomes.

Species in Focus:

- **Pacific Field Cricket (Teleogryllus oceanicus):** Native to Hawaii, these crickets are now facing evolutionary pressure from the invasive **Ormia ochracea**, a parasitoid fly.
  - To avoid predation, male crickets have developed a **mutation** where their wings no longer produce the usual mating calls, making them silent to avoid detection by the fly.
  - Recently, however, crickets have started producing **altered songs**, with new sounds that help them attract mates while evading the fly's detection.
- **Ormia ochracea (Parasitoid Fly):** This fly, native to tropical America, has spread to Hawaii, where it preys on male Pacific field crickets.
  - The fly uses its acute hearing to locate singing males, lay eggs in their bodies, and kill them as larvae develop.
  - In response to the cricket's evolving silence and altered song patterns, the fly has **evolved a broader hearing range**, allowing it to adapt to the crickets' changing behavior.

TUBERCULOSIS (TB)

Context

Prime Minister Narendra Modi called for scaling up targeted interventions and successful strategies in early detection to eliminate tuberculosis (TB), while chairing a high-level meeting to review progress under the **National TB Elimination Programme (NTEP).**

About Tuberculosis (TB)

- TB is caused by a bacterium known as *Mycobacterium tuberculosis*, which belongs to a family of around 200 bacteria species called *Mycobacteriaceae*.

- **Types of TB:** TB primarily affects the lungs (pulmonary TB) in humans. However, it can also affect other organs (extra-pulmonary TB).
- **Historical Context:** TB is an ancient disease, with evidence of its existence dating back to 3000 BC in Egypt.
- **Treatability:** TB is treatable and curable with appropriate medication and management.
- **Transmission:** TB spreads from person to person through the air. When individuals with lung TB cough, sneeze, or spit, they release TB germs into the air, which can be inhaled by others.
- **Treatment:** Current biomedical strategies to reduce new infections include the
  - **BCG vaccine**, which protects against severe forms of childhood TB
  - **Tuberculosis preventive treatment (TPT)** which aims to cover other household contacts, clinical-risk groups apart from children younger than five years and household contacts with HIV
  - **Effective rifamycin-based regimes**

WHO's Global Tuberculosis Report 2024

- India tops the list of 30 high-burden TB countries, accounting for 26 per cent of the global TB burden.
- There is an 18 per cent reduction in TB incidence in India—from 237 to 195 per 100,000 population—between 2015 and 2023, which is nearly double the global pace of around 9 per cent.
- TB mortality in India fell by 21 per cent, while treatment coverage rose to 85 per cent.
- **Key-Government Initiatives:**
  - India has set 2025 as its target year for TB elimination—five years ahead of the Sustainable Development Goals (SDG) target of 2030.
  - **PM Ni-kshay scheme**: Launched in 2018, the scheme provides financial support to TB patients through direct benefit payments of Rs 1,000 per month to help them afford nutritious food during their treatment.
  - **100-day TB Mukt Bharat Abhiyaan:** The recently concluded 100-day TB Mukt Bharat Abhiyaan, which screened 129.7 million people in 445 high-focus and aspirational districts across India. The campaign led to the detection of around 719,000 new TB cases, of which 285,000 were asymptomatic.
  - National TB Elimination Programme (NTEP)
  - National Strategic Plan (NSP) for Tuberculosis Elimination (2017-2025)
  - TB Harega Desh Jeetega Campaign
  - TB Free India Campaign

AIR DEFENCE SYSTEM

Context

India announced that the Indian Armed Forces had **"neutralised"** an **air defence system** located in Lahore, Pakistan. India's **Integrated Counter-UAS Grid and Air Defence Systems** successfully intercepted and neutralised those incoming threats. In retaliation, India struck back, targeting air defence radars and systems at various locations in Pakistan.

What is an Air Defence System?

- An **air defence system** is a **multi-layered military setup** used to **detect, track, and neutralise aerial threats**—such as enemy aircraft, missiles, and drones.
- These systems are critical for protecting cities, military installations, and strategic infrastructure.

Core Components:

- **Radars** – to **detect and track** incoming objects using radio waves.
- **Command and Control Units** – to **process information** and decide whether to engage.
- **Surface-to-Air Missiles (SAMs)** – to **intercept and destroy** the threat in mid-air.
- **Jammers and Signal Disruptors** – to **confuse enemy guidance systems**.
- **Alert Systems** – including air raid sirens and communication networks.

- **Working of the System:** Radar is an acronym for "Radio Detection and Ranging", and it works by emitting a burst of radio waves and then listening for their reflection off objects. The system operates by transmitting **electromagnetic waves (radio or microwaves)** and analyzing the **reflected signals (echoes)** to provide real-time information about potential threats.
  - **Detection:** Radar stations continuously monitor airspace for any suspicious or fast-moving object.
  - **Identification:** Once something is detected, systems assess whether it's a friend or foe using identification protocols.
  - **Engagement Decision:** If identified as a threat, the system calculates:
    - How fast and high it is moving
    - What direction it's coming from
    - What kind of threat it is (missile, aircraft, drone, etc.)
  - **Interception:** A surface-to-air missile (SAM) or another weapon is launched. It either **destroys the aircraft or missile**, or **detonates it mid-air** before it can reach its target.

Note: A missile is **self-propelled and guided**, while a bomb typically falls freely under gravity. This distinction affects how air defences respond.

What does 'Neutralised' mean in Military Terms?

To **neutralise** an air defence system generally means that it has been:

- **Destroyed**
- **Disabled or jammed**
- **Rendered inoperable** through cyber or electronic warfare
- **Targeted in a way that removes its ability to detect or respond to air threats**

In this case, **Lahore's air defence system** was likely **taken out either physically (by missile/airstrike)** or through **electronic/cyber interference**, making the city vulnerable to further aerial attacks, if India chose to proceed.

India's Air Defence Systems

- India has three kinds of defence systems
- Long range, with a reach of between 40 to 4,000 km.
  - **S-400** is India's long-range defence system. The S-400 Triumf can intercept cruise missiles or aircraft at altitudes of up to 30 kilometres.
  - **Ballistic Missile Defence (BMD)**: BMD involves the Prithvi Air Defence for intercepting and destroying missiles outside the Earth's atmosphere. It can strike targets at a speed of **Mach 5** and has a range of up to 2,000 km.
  - The **Advanced Air Defence** for lower altitude targets, which can strike targets at an altitude of 15 to 30 km and has a range of up to 300 km.
  - India is also developing a homegrown defense system called **Project Kusha**, a programme under the DRDO and a **long-range surface-to-air missile (LR-SAM)** that aims to be on par with the S-400 or the Iron Dome.
- Medium-range systems, with a reach of 30 to 70 km.
- **Akash-NG:** It is designed by DRDO to intercept and destroy high-speed aerial threats like fighter jets, drones, and cruise missiles at ranges up to 70 km. It is served by the **Rajendra III radar**, which is the primary sensor for the Akash weapon system.
- Besides these homegrown systems, India also has the **Barak-8,** jointly developed with Israel, which is a surface-to-air missile that counters airborne threats like aircraft, helicopters, anti-ship missiles, UAVs, cruise missiles, and even short-range ballistic missiles.
- **Short-range systems, which hit targets between 30 to 70 km.**
  - India relies on the **Quick Reaction Surface-to-Air Missile (QRSAM)** for rapid response and to protect moving armoured columns from aerial attacks.
  - India has also procured the **Spyder defence system** from Israel, which is armed with **Python and Derby missiles.**
- **Radar & Command Systems:** India's airspace is constantly monitored by:
  - **Swordfish Radar –** long-range detection used in BMD.
  - **Rajendra III Radar –** for Akash system, tracks multiple threats.
  - The entire system is coordinated by the **Akashteer system**, which digitally integrates radar data for real-time decision-making and reduces the risk of friendly fire. This mobile system is capable of functioning even if communications are disrupted.

S-400 SYSTEM (SUDARSHAN CHAKRA)

Context

The **Russian S-400 system** and the **Rafale Jets** with **SCALP Missiles** — these twin weapons have proved to be the aces for India in **Operation Sindoor** and in the ongoing conflict with Pakistan.

About S-400 System

- The S-400 is a **modern long-range surface-to-air missile (MLR SAM) system** developed by Russia.
- It is the **world's premier long-range air defence weapon**, capable of tracking and engaging multiple aerial targets within a range of up to 600 kilometre.
- It is widely regarded as one of the most advanced and formidable **surface-to-air missile (SAM) systems** in the world.
- Introduced into service in 2007, the S-400 is designed to provide a **multi-layered air defence** shield capable of intercepting a broad spectrum of aerial threats, including fighter jets, ballistic and cruise missiles, drones and stealth aircraft.

India's air and missile defence systems:

- Long-Range Systems
  - **S-400 Triumf**
  - **Ballistic Missile Defence (BMD)**
    - Prithvi Air Defence (PAD)
    - Advanced Air Defence (AAD)
  - **Project Kusha** (under development)
- **Medium-Range Systems**
  - **Akash-NG**
  - **Barak-8** (India-Israel)
- **Short-Range Systems**
  - **QRSAM (Quick Reaction Surface-to-Air Missile)**
  - **Spyder** (Israel)

Figure No. 03

- **Surveillance & Command Systems**
  - **Swordfish Radar**
  - **Rajendra Radar**
  - **Akashteer**
  - **IACCS (Integrated Air Command and Control System)**
- **Naval Air Defence**
  - Barak-8 (Naval variant)
  - SRSAM (Short-Range Surface-to-Air Missile)

Key Components and Capabilities

- It has three components: **Missile launchers, a powerful radar and a command centre**. It can hit aircraft, cruise missiles and even fast-moving intermediate range ballistic missiles.
- The system integrates several advanced radars and missile launchers coordinated by a command and control centre.
- Its **multifunction radar suite** includes the **92N2E Grave Stone tracking radar** and the **96L6 Cheese Board acquisition radar**, which provide **360-degree surveillance** and can detect targets up to **600 kilometres away.** The S-400 can simultaneously track up to **300 targets** and engage up to 36 threats at once.
- The S-400 employs four types of missiles to create a layered defence:
  - **40N6**: A long-range missile with a reach of up to 400 km, capable of intercepting high-value targets at great distances.
  - **48N6**: A medium-range missile effective up to 250 km.
  - **9M96E and 9M96E2**: Short to medium-range missiles with ranges between 40 and 120 km, designed to strike fast-moving targets such as fighter jets and precision-guided munitions.
  - These missiles can engage targets flying at speeds up to **Mach 14 (approximately 17,000 km/h)** and at altitudes ranging from 10 metres to 30 kilometres, including ballistic missiles at the edge of space.
- Inside the Indian Air Force, it is termed as the **'Sudarshan Chakra'** which can detect, track, and destroy a wide variety of airborne threats — from fighter aircraft, to UAVs and ballistic missiles.
- India procured 36 Rafale fighter jets since 2020 from France in a government-to-government deal, which significantly enhanced the air prowess of India, giving it an edge over the US made **F-16 fighter jets** with Pakistan.
- India had to fight a lot of pressure exerted by the US when India decided to procure the S-400 defence system since 2018 in a USD 5 billion deal with Russia.

India vs Pakistan: Military Power Comparison (2025)

Category	India	Pakistan
Global Rank	4th (Global Firepower 2025)	12th
Military Budget (2024)	USD 86 billion (2.3% of GDP)	USD 10.2 billion (2.7% of GDP)

Category	India	Pakistan
Total Personnel	5,137,550 personnel	1,704,000 personnel
Combat Aircraft	2,229	1,399
Combat Tanks	3,151	1,839
Naval Assets	293 (over 6,100 km coastline)	121 (1,046 km coastline)
Nuclear Weapons	Both possess; India has longer-range, more diversified delivery systems	

BALLISTIC MISSILE

Context

Pakistan fired its ballistic missile **Fatah-II,** an improved version of the **Fatah-I system** with better range and accuracy, but was successfully intercepted by the Indian defence system in Haryana's Sirsa.

What is a ballistic missile?

- A ballistic missile is a missile which uses **projectile motion** (something which moves in the air when launched, under the influence of gravity, with air resistance neglected) to hit the target.
- Most of the flight of these missiles are **unpowered**, as the weapons are powered **only for short periods.**
- There are two types of ballistic missiles –
  - Short-range (SRBM), typically used during wars and satellites within the Earth's atmosphere
  - larger ones have the capability to travel outside it
    - ICBM (intercontinental ballistic missile) are the ballistic missiles with the greatest range, capable of full orbital flight.

Types of ballistic missiles

- **Tactical ballistic missile (TBM):** Range less than 300 km
- **Short-range ballistic missile (SRBM):** Range from 300 to 1,000 kilometres (190 to 620 mi)
- **Medium-range ballistic missile (MRBM):** Range from 1,000 to 3,500 kilometres (620 to 2,170 mi)
- **Intermediate-range ballistic missile (IRBM):** Range from 3,500 to 5,500 kilometres (2,200 to 3,400 mi)
- **Intercontinental ballistic missile (ICBM**): Range greater than 5,500 kilometres (3,400 mi)

FACT BOX

Fatah-II

- **Fatah-II** falls in the SRBM category with a range of **250-400 km.**
- It is a guided artillery rocket system, was developed by the Pakistan Army, which was officially tested in 2021.
- It is typically made for use during war to target enemy bases.
- Like every ballistic missile, Fatah-II combines the basic features of striking military positions and installations with conventional warheads with additional features of terminal guidance system.

(See Figure No. 04 on next page)

DISTRIBUTED DENIAL-OF-SERVICE (DDOS) ATTACK

Context

To counter the surge in cyberattacks on Indian digital entities following the Pahalgam terror attack, the Computer Emergency Response Team (CERT-In), has issued special instructions to financial institutions and critical sectors to strengthen their cyber defences. Most recent cyber incidents have involved distributed **denial-of-service (DDoS) attacks** and attempts to deface Indian websites.

About

- **Distributed Denial-of-Service (DDoS) Attack** is a cybercrime in which the attacker floods a server with internet traffic to prevent users from accessing connected online services and sites.
- It is a type of **DoS attack** that comes from many distributed sources such as a botnet DDoS attack.
  - A **denial-of-service (DoS) attack** is a type of cyber attack in which a malicious actor aims to render a computer or other device unavailable to its intended users by interrupting the device's normal functioning.
- DDoS attacks disrupt websites by flooding servers with traffic, causing downtime and potential financial losses.
- Defacement of websites involve vandalising the website to spread a message, usually political in nature.

THALASSEMIA

Context

'World Thalassaemia Day' is celebrated every year on 8 May to spread awareness about this disease.

What is Thalassemia?

- **Thalassemia** is an **inherited blood disorder** that affect the body's ability to produce **normal hemoglobin**, leading to **chronic anemia**.
- It is caused by **mutations in the HBB gene** responsible for beta-globin production.
- Hemoglobin is made of two proteins:

Figure No. 04

- Alpha globin
- Beta globin

- Thalassemia occurs when there is a variant in a gene that helps control production of one of these proteins.
- It leads to excessive destruction of red blood cells and causing anemia.
- It is genetic and can range from mild to severe, requiring regular blood transfusions or lifelong management.
- There are **two main types**:
  - **Thalassemia Minor (carrier state)** – usually asymptomatic.
  - **Thalassemia Major (disease state)** – requires lifelong transfusions.
- The disease burden is aggravated by low awareness, intra-community marriages, and poor early screening practices.
- India sees 10,000 to 15,000 babies born with Thalassemia Major every year (NHM 2016).

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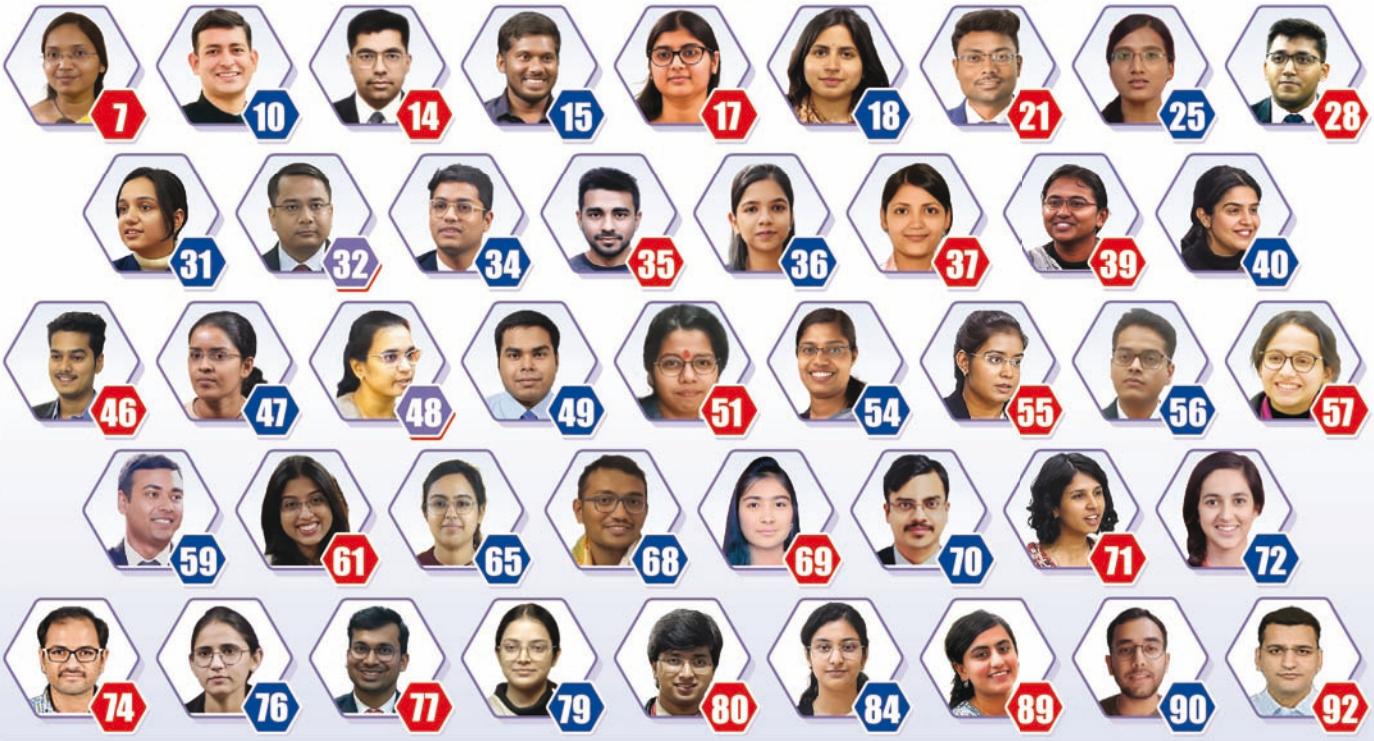

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