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WEEK 5
APRIL 2025

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- CASTE CENSUS IN INDIA
- RIGHT TO DIGITAL ACCESS

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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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IAS PRELIMS 2025

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SECTION -A

MAINS ISSUES

AIRSPACE BLOCKADE

Context

In a recent tit-for-tat move, **India decided to shut down its airspace** to all **Pakistan-owned and operated aircraft**, after **Pakistan first imposed similar restrictions** on Indian carriers following escalations over the **Pahalgam terror attack**.

More on News

- India has deployed **advanced jamming systems** along its western border to disrupt the **Global Navigation Satellite System (GNSS) signals** used by Pakistani military aircraft, significantly degrading their navigation and strike capabilities.
- The Indian jamming systems are capable of interfering with multiple satellite-based navigation platforms, including **GPS (US), GLONASS (Russia), and Beidou (China) -** all of which are used by Pakistani military craft.

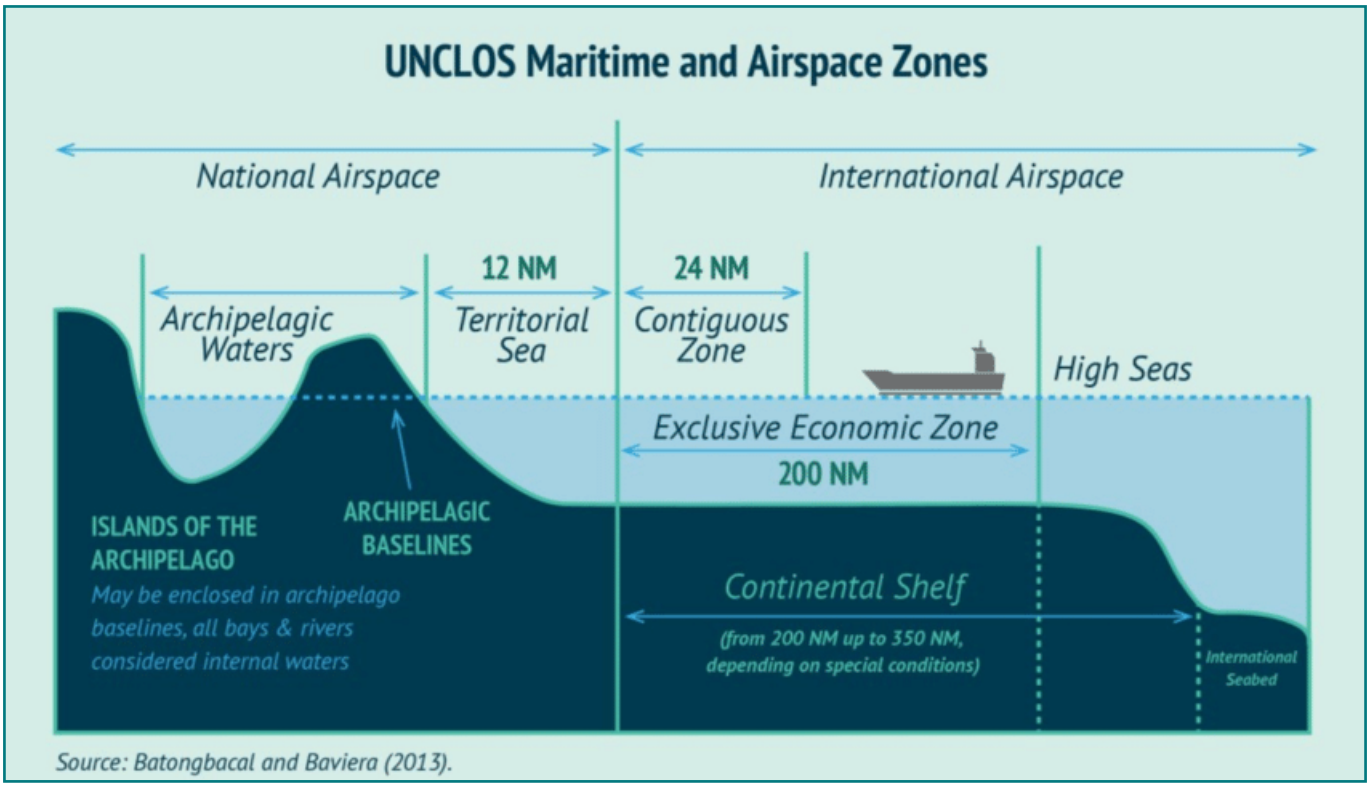

Figure No. 01

Who Owns and Controls Airspace?

- Under **Article 1 of the Chicago Convention (1944)**, a **country has full and exclusive sovereignty** over the airspace above its territory — including land and **12 nautical miles from its coastline**.
- This means no foreign aircraft can fly over, land, or even transit through a nation's airspace **without prior permission** from the concerned government.
- Airspace **beyond these territorial limits** is considered **International Airspace**, often managed by global or regional authorities like **ICAO**, or designated to countries through mutual agreements (e.g., USA managing parts of Pacific airspace).
- **Overflight and Landing Permits**: When airlines fly from one country to another, they need special permissions known as **Flight Permits**, which are issued for safety, security, and regulatory compliance:
  - **Overflight Permit**: Required when an aircraft enters, crosses, and exits a country's airspace **without landing**.
  - **Landing Permit**: Needed if the flight intends to **land or stop** at a country's airport.
  - **Diplomatic Permit**: Compulsory for **government or military aircraft**, issued through diplomatic channels.
- Each country has its **own rules and charges** for granting these permits — including **navigation fees**, **landing and parking charges**, and **terminal charges**.

Legal and Regulatory Framework in India

- **Directorate General of Civil Aviation (DGCA)** is India's key aviation regulator. It issues permits, ensures safety compliance, registers aircraft, and coordinates with the **International Civil Aviation Organization (ICAO)**.
- **Airports Authority of India (AAI)** manages the **air traffic control**, **communication, navigation, and surveillance systems** across Indian airspace.
- Flights using Indian airspace — even without landing — pay **Route Navigation Facility Charges (RNFC)** and other fees. These are determined by DGCA and managed by AAI.
- After the **2017 revision**, international flights flying over Indian territory contribute significantly to **India's aviation revenue** through these charges.

CASTE CENSUS IN INDIA

Context

The **Cabinet Committee on Political Affairs (CCPA)** has recently approved the inclusion of **caste enumeration** in the upcoming population census, reversing the Union government's previous stand. This comes amid increasing political demand for caste-based data, especially from the Opposition, and growing public discourse around **social justice and representation**.

What is a Caste Census?

- A **caste census** involves the enumeration of people based on their caste identity, along with other standard demographic data collected during the decadal Census.
- While **data on Scheduled Castes (SCs) and Scheduled Tribes (STs)** is already part of every Census post-independence, **Other Backward Classes (OBCs) and general caste groups** have not been officially counted since **1931**.
- India continues to rely on outdated or sample-based estimates (like from the **Mandal Commission** or **National Sample Survey**) for assessing the population of OBCs, leading to uncertainty in policy formulation and resource distribution.

Pre-Independence & Post-Independence Practice

- The **last full caste enumeration** took place in **1931**. In 1941, caste data was collected but not published due to administrative and financial constraints during WWII.
- From **1951 to 2011**, the Census has included only **SC and ST data**, not other caste groups.
- The **Socio-Economic Caste Census (SECC)** in **2011**, conducted alongside the Census but under a different framework, gathered caste data—but that data has **never been officially released**.

- **State caste surveys**: Three governments — Karnataka, Telangana and Bihar — have conducted caste surveys so far. Karnataka is yet to release the survey report.

Why is there a demand for Caste Census?

- **Legal Necessity:** Accurate caste data is crucial for implementing and monitoring reservation policies in education, employment, and political representation. Supreme Court rulings **(Indra Sawhney v. Union of India (1992), M. Nagaraj v. Union of India (2006), J.K. Industries Ltd. v. Union of India (2007), State of Uttar Pradesh v. Pradhan Sangh (2008), Vikram Dev Dutt v. Union of India (2022))** have emphasized the need for detailed caste data to uphold and define backward class reservations.
- **Data for Targeted Welfare and Representation:** Without updated caste data, it's difficult to assess whether reservation policies, welfare schemes, and economic development programs are reaching the right communities. OBCs are estimated to be around **50-52% of India's population** (**Mandal Commission**), but no official figure exists.
- **Need for Evidence-Based Social Justice:** Caste remains a powerful determinant of social and economic inequality in India. Many backward caste groups argue that caste data is essential to ensure fair representation in education, employment, and politics.
- **State-Level Initiatives:** Some states (e.g., Bihar) have already conducted their own caste surveys, creating momentum for a national-level enumeration.

Arguments Against Caste Census

- **Risk of Reinforcing Caste Identities:** Caste enumeration may further entrench caste divisions, which the Constitution aims to eliminate. They point to the vision of a casteless society championed by Dr. B.R. Ambedkar, warning that formalizing caste data could hinder long-term social cohesion.
- **Complexity and Classification Challenges:** Issues like overlapping caste names, state-specific variations, and the presence of open-ended or ambiguous categories (like orphans or converts) make data categorization highly challenging.
    - Migrants, inter-caste marriages, and regional inconsistencies further complicate the classification process.
- **Politicization of Identity**: There is concern that caste census data could be misused for vote bank politics, electoral segmentation, and identity-based polarisation, rather than genuine welfare planning.

FACT BOX

India's Caste System

India's caste system is among the world's oldest forms of social stratification surviving to this day.

- There are four castes are the
    - Brahmins (priests, teachers)
    - Kshatriyas (rulers, warriors)
    - Vaishyas (landowners, merchants)
    - Sudras (servants)
- The 5th group is the group of the **untouchables, called Dalits.**
- India has 3,000 castes and 25,000 sub-castes, and each caste is associated with a specific occupation.

RIGHT TO DIGITAL ACCESS

Context

The **Supreme Court of India** made a landmark declaration that the **right to digital access is an intrinsic part of the Right to Life under Article 21 of the Constitution**. This judgment came in response to a set of petitions demanding easier digital access for **acid attack survivors and visually impaired individuals**, particularly in essential services like banking and e-governance.

Key-takeaways from the SC's Judgment

- The two-judge bench stated that:
    - In today's world, access to services and entitlements happens primarily through **digital means.**
    - Digital access is **no longer a privilege**—it is central to living a life of dignity.
    - Therefore, "bridging the digital divide" has become a constitutional imperative, directly linked to the **Right to Life and Dignity under Article 21**.
- The state's obligations under Article 21—read in conjunction with **Articles 14, 15 and 38** of the Constitution—must encompass the responsibility to ensure that digital infrastructure, government portals, online learning platforms, and financial technologies are **universally accessible.**
- The Court noted that exclusion from digital services undermines basic rights like:
    - Access to welfare schemes
    - Financial inclusion
    - Legal identity
    - Public services (e.g., pensions, subsidies, healthcare)
- **Assistive technology:** Technology can empower, but only if it is designed with accessibility in mind. The judgment recognizes that AI-driven assistive technologies like **Screen readers, voice commands, and gesture recognition, or Alternatives to biometric authentication (e.g., iris scans, text-based OTPs),** can open up new possibilities for inclusion.

Digital Divide in India

- **Digital India, Ambitious But Unequal:** India's rapid digitisation, via **Aadhaar, UPI, e-Governance portals, DigiLocker, Jan Dhan accounts**, has enabled vast improvements in transparency and service delivery. However, digital readiness and access are not equal:
    - As per NFHS-5 (2019-21), only 33% of women in rural India use the internet.
    - PwDs face severe barriers due to non-compatible websites, lack of assistive tech, and inadequate training.
- **Legal Identity and Exclusion:** Mandatory Aadhaar-based authentication, e-KYC, and biometric requirements have excluded people with disabilities, old-age illnesses, and disfigurements from accessing banking, pensions, and healthcare schemes.
- **Lack of Accessibility Norms**: Many government websites and apps do not comply with accessibility guidelines (like WCAG 2.0 or GIGW – Guidelines for Indian Government Websites), despite obligations under the **Rights of Persons with Disabilities Act, 2016.**

Who is affected by the Digital Divide?

- **People with disabilities**, especially those with visual impairments or disfigurements, often find digital services inaccessible due to reliance on visual interfaces.
- **Rural and poor households** lack access to devices like smartphones or broadband, making it difficult to access schemes like **MGNREGA**, **PM-Kisan**, or banking services.
- **Senior citizens and linguistic minorities** struggle with digital literacy, user-unfriendly interfaces, and complex verification procedures.
    - For instance, a person unable to blink (as required for live photo capture in e-KYC) is **denied a bank account**, pushing them further into economic marginalisation.

Digital Access and Evolving Rights

- **Intersection with Disability Rights:** Under the Rights of Persons with Disabilities Act, 2016, the government is obligated to ensure equal access to ICT (Information and Communication Technology) infrastructure, including:
  - Accessible digital platforms,
  - Reasonable accommodation,
  - Assistive technology support.
- **Evolving Jurisprudence on Digital Rights:** This judgment aligns with recent cases that expanded digital rights, such as:
  - **Right to internet access** as a fundamental right (**Anuradha Bhasin case, 2020**)
  - **Right to privacy** in digital life (**Puttaswamy case, 2017**)
  - **Digital education** as a part of the right to education during COVID-19

FACT BOX

People with disabilities in India

- According to 2011 census, about 2.68 cr - 1.50 cr male and 1.18 cr female - Indians live with disabilities, constituting 2.21% of the population.
- Of these, around 50.6 lakh individuals have visual impairments, and 19.9 lakh have speech or vocal disabilities.

THE TRUMP TURMOIL IN BOND MARKETS

Context:

U.S. President Donald Trump's aggressive trade policies, particularly his tariffs, have stirred a lot of turbulence in global financial markets. One of the key impacts of this turmoil has been the increasing instability in **U.S. bond markets**, affecting both U.S. assets and international investors.

What is a Bond?

- A bond market is a marketplace for **debt securities**.
- This market covers both **government-issued and corporate-issued debt securities**.
- It allows capital to be transferred from savers or investors to issuers who want funds for projects or other operations.
- The **debt, fixed-income, or credit market** are all terms used to describe this sector.
- Bonds are often seen as safer investments than stocks because they offer fixed returns over time.
- **Bond yield** refers to the return on investment that a bondholder gets from holding a bond until it matures. The price of bonds fluctuates in the market: when the price of a bond goes up, the yield goes down, and vice versa.
  - For example, if a bond has a face value of USD 100 and is bought for USD 90, the yield would be around 11.11%. Investors care about bond prices because these influence the yield they can earn, and yields are an important indicator of economic health.

Types of bond markets (based on buyers):

- **Primary Market:** The primary bond market allows issuers to raise capital by selling bonds directly to investors, who can purchase them through public offerings or private placements. The transactions determine the initial pricing and terms of the bonds.
- **Secondary Market**: In the secondary bond market, bonds issued in the primary markets are bought and sold among investors. Bonds issued in the primary market are available to trade on various platforms, such as stock.

- **Types of Bond Markets (based on Type of Bond)**: Treasury Bonds, Agency Bonds, Municipal Bonds, Corporate Bonds, Savings Bonds, Corporate Bonds

How do Inflation and Interest rates affect bonds?

- **Inflation** is the increase in prices over time. It makes money less valuable because you can buy less with the same amount of money.
- If inflation rises, **interest rates** tend to rise too. The **Federal Reserve** raises interest rates to control inflation, and this affects bond yields. When inflation is expected to rise, investors expect the Fed to raise interest rates, which pushes bond prices **down** and bond **yields up**.
- **Trump's Impact on Bonds**: Trump's tariffs (taxes on imports) make goods more expensive, which can lead to higher inflation. Investors, worried about this, start **selling U.S. bonds** because they're afraid that inflation will eat into their profits. As a result, bond **prices fall** and **yields rise**.

Why Does This Matter for the Global Economy?

- **Falling Dollar:** As investors move away from U.S. bonds, the **dollar** loses value. A weaker dollar makes U.S. goods cheaper abroad, but it also means foreign investors lose money if their currency gets stronger.
- **Higher Borrowing Costs:** Rising bond yields cause **interest rates** to go up. This makes borrowing more expensive not just in the U.S., but worldwide.
- **Capital Flight to Safer Assets:** As U.S. assets become less attractive, investors may look for safer places to put their money, such as **German bonds**, which are seen as stable.

VIETNAM WAR AND ENVIRONMENTAL CATASTROPHE

Context

The **Vietnam War (1955–1975)** was not only a humanitarian disaster but also a massive environmental catastrophe. Even **50 years after the war ended**, Vietnam's ecosystems still bear the consequences of military operations that involved **chemical defoliation, forest burning, and land clearing**.

How was the Environment Weaponized?

- **Agent Orange:** The U.S. military sprayed over 75 million liters of herbicides (including Agent Orange) across 6.4 million acres to strip forests and destroy crops.
  - **Agent Orange** was a **chemical herbicide and defoliant** used by the U.S. military during the **Vietnam War** (1961–1971).
  - It was part of a broader chemical warfare program known as **Operation Ranch Hand**.
  - Composition: Agent Orange is a **mixture** of two herbicides:
    - **2,4-D** (2,4-dichlorophenoxyacetic acid)
    - **2,4,5-T** (2,4,5-trichlorophenoxyacetic acid)
  - It was contaminated with **TCDD (2,3,7,8-tetrachlorodibenzo-p-dioxin)** — an extremely toxic **dioxin compound**.

Use of Incendiary Weapons and Machinery

- Weapons like **napalm bombs** and **"Rome Plows"** (armored bulldozers) destroyed vast areas, **scorching soil** to infertility.
- **Daisy Cutter bombs** created large concussive impacts, killing **entire ecosystems** within a 900-meter radius.
- These actions left landscapes vulnerable to **invasive grasses** and loss of **biodiversity**.

Weather Modification as a War Tactic

- **Project Popeye** (1967–1972): U.S. tried to extend the monsoon season by **cloud seeding** with silver iodide to disrupt North Vietnamese supply lines.
- This raised ethical and legal concerns about **climate warfare**, leading to a global treaty in **1978 banning weather modification for military use**.

- Although the **Geneva Conventions** (1977 protocol) and **ENMOD Treaty (1978)** prohibit environmental destruction during war, **enforcement is weak**.

The Lasting Damage

Even after 50 years, Vietnam's environment is still suffering:

- **Destroyed Mangrove Forests**: Vital coastal ecosystems were wiped out, affecting fish populations and livelihoods.
- **Loss of Biodiversity**: Many areas that were chemically defoliated never fully recovered. Entire species of birds, mammals, and plants disappeared.
- **Contaminated Soil and Water**: **Dioxin** from Agent Orange has remained in the soil and food chain, leading to ongoing health problems for both humans and animals.

FACT BOX

Concept of Ecocide

- The term **"ecocide"** emerged during the Vietnam War to describe **widespread environmental destruction as a form of warfare**.
- Vietnam was the **first country** to define ecocide as a crime in its national law (in its penal code), but **no prosecutions have occurred** despite many pollution cases.
- The idea of ecocide is now being debated **as a potential addition to the Rome Statute** of the **International Criminal Court (ICC),** alongside war crimes and crimes against humanity.

PEGASUS ROW

Context

The **Supreme Court of India** has clarified that the **technical panel's report on the Pegasus spyware investigation will not be made public**, citing concerns over **national security and sovereignty**. The Court was responding to petitions seeking disclosure and further action over the alleged use of **Israeli spyware Pegasus** to surveil journalists, politicians, and activists.

Background: What Is the Pegasus Case About?

- In **2021**, media reports claimed that **Pegasus spyware**, developed by Israeli firm NSO Group, was used in India for unauthorized surveillance.
- Alleged targets included **civil society members, opposition leaders, and journalists**.
- The **Supreme Court appointed a three-member technical committee**, monitored by **Justice R.V. Raveendran**, to investigate the matter.
- In **August 2022**, the Court revealed that **malware** was found in **5 out of 29 phones**, but there was **no conclusive proof** that Pegasus was used.

What the Supreme Court Said?

- **Using spyware is not inherently wrong** if it serves national interest; the issue is **how and against whom it is used**.

- Reports that affect **"national security or sovereignty" cannot be made public**.
- **Individual concerns**, such as people who suspect their phones were compromised, can be addressed privately.
- Public discourse cannot be allowed on matters that could **compromise national intelligence operations**.

Key Legal and Security Dimensions

- **Right to Privacy (Article 21) vs. National Security:** The case hinges on the balance between privacy rights and the State's right to safeguard national interests. The Puttaswamy judgment (2017) affirmed privacy as a fundamental right, but allowed restrictions in the interest of national security.
- **Judicial Oversight and Transparency**: The Court's refusal to publish the report raises concerns about transparency and accountability in surveillance matters.
  - However, it reinforces the idea that courts act as guardians of both individual rights and national security interests.
- **Cybersecurity and Tech Sovereignty**: The case reflects growing anxieties around digital surveillance, state-sponsored hacking, and the need for a robust cybersecurity legal framework. Pegasus, being a military-grade spyware, raises international legal and ethical concerns.

INDIA DEFENCE SPEND 2024

Context

The **Stockholm International Peace Research Institute (SIPRI)** released its **Trends in World Military Expenditure 2024** report, highlighting the global military spending landscape, with a focus on the increase in military budgets due to geopolitical tensions, ongoing conflicts, and modernization programs.

Key Highlights from the Report

India vs. Pakistan Military Spending (2024):

- **India's military expenditure** reached **USD 86.1 billion**, representing the **5th largest** globally, marking a **1.6% increase** from the previous year.
- **Pakistan's military expenditure** was much lower at **USD 10.2 billion**, making it **almost nine times less** than India's spending.
- This stark contrast in military spending underscores the growing strategic imbalance between the two nuclear-armed neighbors.

Global Military Expenditure:

- The **top five military spenders** in the world—**United States, China, Russia, Germany, and India**—accounted for **60% of total global military spending**, totaling **USD 1,635 billion**.
- **China's spending** increased by **7%** to **USD 314 billion**, reflecting continued military modernization and expansion of its nuclear and cyber capabilities.
- **Russia's military spending** surged by **38%** to **USD 149 billion**, driven largely by its ongoing war in Ukraine.
- **Germany's military spending** jumped by **28%** to **USD 88.5 billion**, marking it as the **4th largest spender** globally.

Europe's Rising Military Spending:

- Europe's military expenditure rose **17%** in 2024, driven largely by the war in Ukraine. European military spending has now surpassed Cold War levels.
- **Germany**, as the largest spender in Europe, has significantly increased its budget, signaling its commitment to NATO and regional defense.
- Other European nations like **Poland** saw **31% growth**, with military spending reaching **USD 38 billion** (4.2% of its GDP).

Ukraine's Military Burden:

- Ukraine's military expenditure grew by **2.9%** to **USD 64.7 billion** in 2024, making up **43% of Russia's military budget**. It has the highest military burden, with military expenditure accounting for **34% of its GDP**.
- Ukraine's **military spending** is disproportionately high due to the ongoing conflict with Russia, with the country reportedly spending nearly all of its **tax revenue** on defense.

Global Military Trends:

- The overall increase in global military spending in 2024 was largely driven by the war in Ukraine, NATO's defense initiatives, and the ongoing arms race in Asia.
- **Russia**'s military spending increase was a response to its conflict with Ukraine, and **China** continues to modernize its forces, including its naval and cyber capabilities.
- Military expenditures in **central and eastern Europe** saw substantial increases, with **Poland** and **Germany** among the biggest contributors to the rise in European defense budgets.

About SIPRI

- **Established in:** 1966
- SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament.
- SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.
- Based in **Stockholm,** SIPRI is regularly ranked among the most respected think tanks worldwide.

RNA-BASED ANTIVIRAL PROTECTION AGAINST CMV

Context

Scientists have developed a new RNA-based antiviral spray that offers strong protection against the Cucumber Mosaic Virus (CMV), a plant virus causing heavy crop losses, especially in India.

Plant Viruses and Crop Losses

- Farmers around the world lose **nearly 40% of their crops** every year to pests and diseases, according to the UN FAO.
- **Plant viruses alone** cause about **USD 30 billion** in global agricultural losses annually.
- Unlike bacteria or fungi (which can be treated with pesticides or fungicides), there is **no direct cure for viral infections** in plants.
- **Cucumber Mosaic Virus (CMV)** is a major culprit — it infects over **1,200 plant species** including **bananas, cucumbers, pumpkins, melons, cereals, and medicinal plants**.
- In India, CMV leads to **25-30% losses in banana plantations** and up to **70% infection rates** in crops like cucumbers and melons.
- CMV spreads easily through **sap-sucking insects** like **aphids**, making it hard to control outbreaks.

Why traditional methods fall short?

- Plants naturally defend themselves using a method called **RNA silencing**, where they chop up the virus's RNA to stop it from multiplying.
- However, this defence is **imperfect** — many small RNAs produced are **not very effective**, and **viruses mutate fast**, escaping plant immunity.
- Earlier techniques like:
  - **HIGS (Host-Induced Gene Silencing):** Genetic modification of plants to produce virus-fighting RNA.
  - **SIGS (Spray-Induced Gene Silencing):** Spraying RNA onto plants instead of modifying their DNA.

But these methods had issues:

- Random RNAs were not always effective.
- Genetic modification faced **regulatory hurdles** and **public resistance**.
- Sprayed RNA degraded quickly outdoors (sunlight, rain, microbes).

What is the new solution?

- Researchers developed a **new form of dsRNA (double-stranded RNA)** designed to create **only the most effective virus-fighting small RNAs (siRNAs)**.
- Instead of random results, they **chose and assembled the best siRNAs** against CMV — called "**effective dsRNA**".
- When sprayed on plants, this method:
  - **Triggered a stronger immune response**.
  - **Reduced the viral load by 80%** or even provided **complete protection** in some cases.
  - **Worked against multiple strains** of the virus at once.

FACT BOX

Key Concepts

- **Cucumber Mosaic Virus (CMV):** It is a plant virus that infects a huge number of crops (more than 1,200 species) like banana, cucumber, melon, pumpkin, cereals, etc.
  - **Spread:** Through tiny insects called aphids that suck sap from plants.
  - It causes stunted growth, mosaic discoloration (patchy light and dark areas on leaves), and poor-quality fruits, leading to massive yield losses.
- **RNA Silencing (Natural Plant Defence):** It is a natural immune system in plants where they destroy the virus's RNA to stop infection.
  - When a virus enters, it brings double-stranded RNA (dsRNA). The plant's enzymes called Dicer-like enzymes (DCLs) chop this dsRNA into small interfering RNAs (siRNAs).
  - These siRNAs guide the plant's machinery to find and destroy the virus's RNA.
- **Small Interfering RNA (siRNA):** Tiny RNA pieces that act like "target-seeking missiles" — they guide the plant to specifically attack the virus's genetic material.
  - Not all siRNAs are strong; some are weak and not very helpful.
- **Double-Stranded RNA (dsRNA):** It is a form of RNA made of two strands — similar to how DNA has two strands. It is used to trigger the RNA silencing mechanism in plants.
- **HIGS (Host-Induced Gene Silencing):** It is a method where plants are genetically modified to make their own virus-fighting dsRNA.

SECTION -B

QUICK BYTES

SRI KANCHI KAMAKOTI PEETHAM

Context

Sri Kanchi Kamakoti Peetham appointed 25-year-old Ganesha Sharma Dravida from Andhra Pradesh as its 71st Acharya, with the monastic name Sri Satya Chandrasekharendra Saraswathi Swamigal, continuing its unbroken spiritual lineage.

About Kanchi Kamakoti Peetham

- **Location:** Kanchipuram, Tamil Nadu
- The **Kanchi Kamakoti Peetham** is believed to have been established by **Adi Shankaracharya in the 8th century CE**.
- Out of the four traditional **mathas (monastic institutions)** that Adi Shankara is credited with establishing in the four corners of India (Sringeri, Puri, Dwaraka, Badrinath), **Kanchi is a later addition**, but one that has emerged as a **profound centre of scholarship, dharmic leadership, and Vedic revival**, especially in South India.
- It has maintained an **unbroken spiritual lineage** of 71 Acharyas (pontiffs), with each Acharya playing a key role in **preserving ritual traditions, teaching Vedanta, and guiding communities in ethical and religious matters**.
- The matha has maintained a **continuous line of acharyas** (pontiffs), each succeeding the previous through a carefully chosen and spiritually trained disciple, often at a young age.
- It is known for:
  - Propagation of Sanatana Dharma, Vedic studies
  - Preservation of Sanskrit texts
  - Social service

FACT BOX

About Adi Shankaracharya

- Adi Shankaracharya was one of the greatest spiritual philosophers of India. He was born in 500 BCE in the southern Indian state of Kerala.
- His Guru was Govind Bhagavatpada.
- He was also the founder of Four Mathas (monasteries).
- **Four Mathas (monasteries).**
  - Jyotirmath (Joshimath, Uttarakhand)
  - Shringeri Math (Karnataka)
  - Govardhan Math (Puri, Odisha)
  - Dwarka Math (Dwarka, Gujarat)
- He revitalized Advaita Vedanta—the non-dualistic school of Hindu philosophy that views the individual soul (Atman) and the universal spirit (Brahman) as one and the same.
- In a short life span of 32 years, Sankarāchārya contributed significantly to the
  - revival of the 'Sanātana Dharma'
  - development and propagation of Advaita Vedanta philosophy

Vedas:

- The Vedas are the oldest sacred texts in the Indian tradition, composed in Vedic Sanskrit and classified into four –
  - Rig Ved
  - Sama Ved

- Yajur Ved
- Atharva Ved

- Each Veda comprises layers of content, such as Samhitas (hymns), Brahmanas (rituals), Aranyakas (meditative texts), and Upanishads (philosophical reflections), forming the foundation of both ritual practice and metaphysical thought.
- Regarded as shruti (revealed knowledge), the Vedas are central to the Vedic and Vedantic systems.

Figure No. 01

RAJA RAVI VARMA (1848-1906)

Context

On the occasion of the **177th birth anniversary** of **Raja Ravi Varma**, the **Kilimanoor Palace**, his birthplace, will release a **musical album** (Pranamam) as a tribute to the legendary artist.

About Raja Ravi Varma

- Kilimanoor-born Raja Ravi Varma (1848-1906) is known to be one of the leading figures in the history of modern art in India.
- He is often called the **Father of Modern Indian Art.**
- His depictions of the Hindu gods and goddesses went on to influence their portrayal in art and cinema for years.
- He started a **lithographic printing press in 1894**, which was eventually sold to a printing technician from Germany.
  - The oleographs produced by the press, mainly depicting gods, goddesses, and scenes from **Mahabharata, Ramayana and Puranas.**
- Raja Ravi Varma was closely related to the royal family of Travancore of present-day Kerala state in India.

Figure No. 02

Key-features of his painting:

- Varma had a unique talent for mixing traditional Indian themes with
- Western art techniques. His paintings are known for their bright colors and detailed designs.
- They often show mythological characters and Indian royalty, which challenged the art norms of his time

SHAHID RAJAEE PORT

Context

Shahid Rajaee Port, Iran's largest port and the main hub for the country's international maritime trade, located in southern Hormozgan province, was rocked by a massive explosion, resulting in nearly 700 casualties.

About

- Shahid Rajaee Port is situated on the northern shore of the **Strait of Hormuz**, a global chokepoint for 20 percent of the world's oil trade, or in the narrower sense, on the **Khuran (Clarence) Strait** that separates the Iranian island of **Qeshm** from the mainland.
- Administratively, it is part of **Bandar Abbas County** in **Hormozgan Province**, about eight kilometers west of the city limits of **Bandar Abbas**.
- It is one of two cargo and five city ports, located between **Shahid Bahonar Port** to the east and the Iran Shipbuilding & Offshore Industries Complex to the west.
- Hormozgan province has 32 active ports, including **Shahid Bahonar, Jask, Lengeh, Tiab, Aftab, and Kish,** which act as backups to Shahid Rajaee.
- One of the two coastal branches of the national railway network connects it to the country's main industrial provinces, while the other leads to Khuzestan province in the north of the **Persian Gulf.**
- Its geographical location at the closest point to the **Strait of Hormuz** and the entrance to the Persian Gulf

is considered the most important import and export gateway of Iran due to its short distance from the main intercontinental shipping route.

Figure No. 03

- The port also lies on the **International North-South Transport Corridor (INSTC),** connecting the **Indian Ocean and Persian Gulf to the Caspian Sea, Russia, and Northern Europe.**
- This position facilitates trade and transit between **Asia, Africa, and Europe**, making it a vital hub for regional connectivity.
- The port is also a **Special Economic Zone (SEZ).**

FACT BOX

Other Key-Locations

Strait of Hormuz

- The Strait of Hormuz is a narrow waterway that connects the **Persian Gulf** and the **Gulf of Oman** – the only passage from the oil-rich gulf to the Indian Ocean for maritime traffic.
- The Strait is among the world's most important oil chokepoints.
- It is located between **Oman and Iran**, connects the **Persian Gulf** with the **Gulf of Oman and the Arabian Sea.**

Figure No. 04 on next page

International North-South Transport Corridor (INSTC)

- The INSTC project was initiated by **Russia, Iran and India** in 2000.
- At present, there are 13 Members of INSTC, namely- **India, Iran, Russia, Azerbaijan, Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Ukraine, Belarus, Oman and Syria.**
  - Bulgaria has joined as an Observer State.
- The INSTC is a multi-modal, cost and time effective from India to Northern and Western Europe.
- The route links the Indian Ocean and Persian Gulf to the Caspian Sea via Iran and onwards to northern Europe.
- It envisages the movement of goods from Mumbai, **India to Bandar Abbas**, Iran by sea, and from Bandar Abbas to Bandar-e Anzali, an Iranian port on the Caspian Sea, by road.
- From Bandar-e-Anzali, the route proceeds to the Russian port city of Astrakhan by ship across the Caspian Sea, and thereafter from Astrakhan to the other regions of the Russian Federation and further into Europe via Russian Railways.

Figure No. 05 on next page

UPSC PYQ

Q: Consider the following pairs: (2019)

Sea	Bordering country
Adriatic Sea	Albania
Black Sea	Croatia
Caspian Sea	Kazakhstan
Mediterranean Sea	Morocco
Red Sea	Syria

Which of the pairs given above are correctly matched?

(a) 1, 2 and 4 only
(b) 1, 3 and 4 only
(c) 2 and 5 only
(d) 1, 2, 3, 4 and 5

Solution: (b)

Figure No. 04

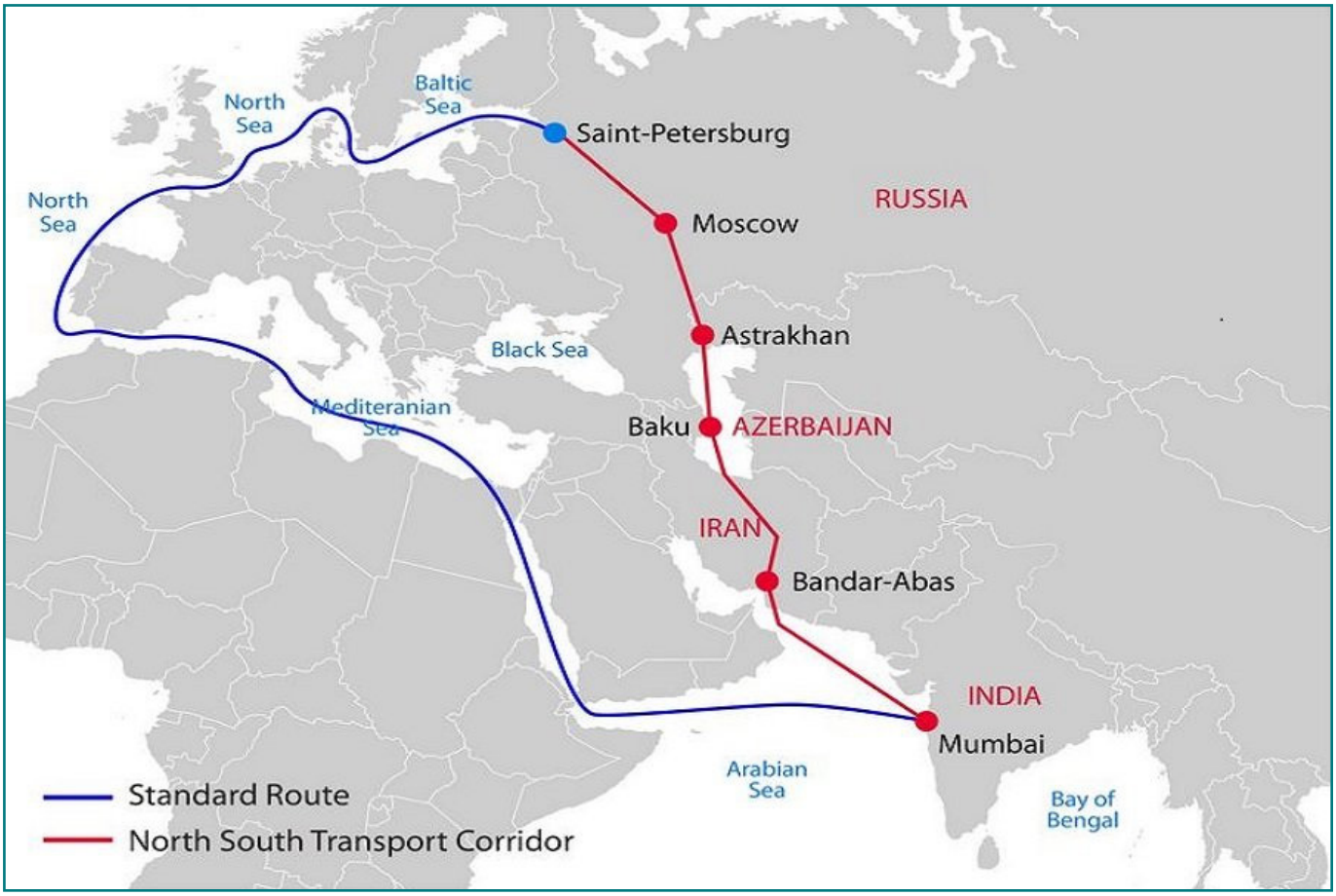

Figure No. 05

Q: Consider the following pairs: (2018)

Town sometime mentioned in news	Country
Aleppo	Syria
Kirkuk	Yemen
Mosul	Palestine
Mazar-i-Sharif	Afghanistan

Which of the pairs given above are correctly matched?

(a) 1 and 2
(b) 1 and 4
(c) 2 and 3
(d) 3 and 4

Solution: (b)

SANDY CAY REEF

Context

China and the Philippines defended their claims to a disputed reef in the South China Sea, after Manila accused Beijing of seeking to "intimidate and harass" with a state media report that suggested the area had been seized.

About the disputed Reef

- The Sandy Cay reef lies near **Thitu Island, or Pag-asa,** where the Philippines stations troops and maintains a coast guard monitoring base.
- The reef is part of the **Spratly Islands**.
- It is just a sand bank measuring little more than 200 square metres.
- Sandy Cay has strategic value for China because **international law** grants it a **territorial sea**.
- That **12-nautical-mile radius** overlaps with **Thitu Island**, the South China Sea reef the Philippines uses to track Chinese moves in the area.

Figure No. 06

FACT BOX

What is the South China Sea Dispute?

- The South China Sea is a crucial waterway between the Indian Ocean and Northeast Asia. It connects ports of countries like **China, Japan, Korea, and Russia.**
- **The Territorial Dispute:** Several countries, including **China**, **Vietnam**, the **Philippines**, **Malaysia**, and **Brunei**, have competing territorial claims over parts of the South China Sea.
- **China's Claim (Nine-Dash Line):** China claims nearly the entire South China Sea, demarcated by the **"nine-dash line"** which dates back to a 1947 map. China argues that these islands and waters have been part of its territory for centuries. **Taiwan**, which also claims the area, mirrors China's position.

Disputes from Other Countries:

- **Vietnam** contests China's claims, saying it has ruled the **Paracels and Spratlys** since the 17th century and has documents to prove it.
- **The Philippines** also claims the **Spratlys,** emphasizing its proximity to the islands and also claims the **Scarborough Shoal**, which China disputes.
- **Malaysia and Brunei** claim parts of the sea within their **Exclusive Economic Zones (EEZ), defined by international law (UNCLOS).**

- **International Legal Developments: The 2016 UN Arbitration Ruling:** In 2013, the Philippines took China to court over its claims. The **Permanent Court of Arbitration** in The Hague ruled in **favor of the Philippines** in 2016, declaring that China's claims based on the **nine-dash line** were illegal. This ruling was grounded in the **United Nations Convention on the Law of the Sea (UNCLOS)**, an international treaty governing maritime laws, which China, despite being a signatory, rejected.

UPSC PYQ

Q: Which one of the following statements best reflects the issue with Senkaku Islands, sometimes mentioned in the news? (2022)

(a) It is generally believed that they are artificial islands made by a country around South China Sea.

(b) China and Japan engage in maritime disputes over these islands in East China Sea.

(c) A permanent American military base has been set up there to help Taiwan to increase its defence capabilities.

(d) Though International Court of Justice declared them as no man's land, some South-East Asian countries claim them.

Solution: (b)

1972 SIMLA AGREEMENT

Context:

In response to India's decision to suspend the 1960 Indus Waters Treaty in the aftermath of the Pahalgam terror attack, Pakistan's government said it could hold the **1972 Simla Agreement** and "all other bilateral agreements with India" in abeyance.

What is the Shimla Agreement?

- The **Simla Agreement**, formally known as the **Agreement on Bilateral Relations between India and Pakistan**, was signed on **July 2, 1972**, in Shimla, India, following the **1971 Indo-Pak war** and the subsequent **Bangladesh Liberation War**.
- The agreement was a significant diplomatic effort to normalize relations between the two countries and outline a framework for future bilateral negotiations.
- The agreement was signed by **Indira Gandhi**, the Prime Minister of India, and **Zulfikar Ali Bhutto**, the Prime Minister of Pakistan, with the primary goal of establishing peaceful relations and resolving disputes that had plagued Indo-Pakistani relations, especially regarding **Jammu and Kashmir**.

Key Terms in the Simla Agreement:

- **Restoration of Peaceful Relations:** The agreement aimed to restore normal diplomatic and peaceful relations between India and Pakistan after the war of 1971, which had led to the creation of Bangladesh.
- **Resolution of Jammu and Kashmir Dispute:** Both sides agreed to resolve the dispute bilaterally without third-party intervention.
- **Line of Control (LoC):** The agreement effectively **renamed** the existing **Ceasefire Line** (CFL), established post-1948 after the first war, as the **Line of Control (LoC)**.
- **Return of Prisoners of War (POWs):** Both countries agreed on the **return of prisoners of war** captured during the 1971 conflict.
- **No War Pact:** Both countries agreed not to resort to the use of force for solving future issues and to seek peace through dialogue. This laid the groundwork for various **confidence-building measures (CBMs)** that would follow.

Line of Control (LoC):

- The **LoC** became the *de facto* boundary between **Indian-administered Jammu and Kashmir** and **Pakistan-administered Kashmir**.
- It was considered an **unofficial, military-controlled border**, with the understanding that it would not be altered unilaterally.
- The LoC was a shift from the earlier **Ceasefire Line**, which had been established after the 1948 war between India and Pakistan.
- The Simla Agreement established that both parties would respect the LoC and avoid any attempts to cross it or alter its status.

Figure No. 07

INDIA'S EXPANDED MARITIME CLAIM AND THE CONTINENTAL SHELF DISPUTE

Context

In a recent move, **India** has increased its claim over the **Central Arabian Sea** as part of its **extended continental shelf**. This new claim, covering approximately **10,000 square kilometers**, is part of India's broader strategy to assert its rights over vast oceanic areas. India has also made **modifications** to avoid a longstanding maritime boundary dispute with **Pakistan** over the **Sir Creek area**.

What is the Continental Shelf and Extended Continental Shelf?

- The **continental shelf** refers to the **shallow seabed surrounding** a country's landmass that extends into the ocean.
- Countries can claim rights over their continental shelf and the resources beneath it. This includes the **right to mine** for **minerals, polymetallic nodules, and extract oil reserves**.
- Typically, a coastal country has an **Exclusive Economic Zone (EEZ)** extending up to **200 nautical miles** from its coastline, within which it holds exclusive rights to exploit marine resources, such as fishing, mining, and oil exploration.
  - An "**exclusive economic zone," or "EEZ"** is an area of the ocean, generally extending **200 nautical miles (230 miles)** beyond a nation's territorial sea, within which a coastal nation has jurisdiction over both living and nonliving resources.
  - The concept of an **exclusive economic zone (EEZ)** was adopted through the **1982 United Nations Convention on the Law of the Sea.**
- However, if a country's continental shelf extends beyond this 200-nautical-mile zone, it can claim the **extended continental shelf**, provided it can scientifically demonstrate that the seabed extends naturally from its landmass to the ocean floor.
- Countries submit their claims for this extended shelf to a UN body called the **Commission on the Limits of the Continental Shelf (CLCS)**, which evaluates the scientific data submitted to determine whether the claim is valid.

India's Claims and Dispute with Pakistan

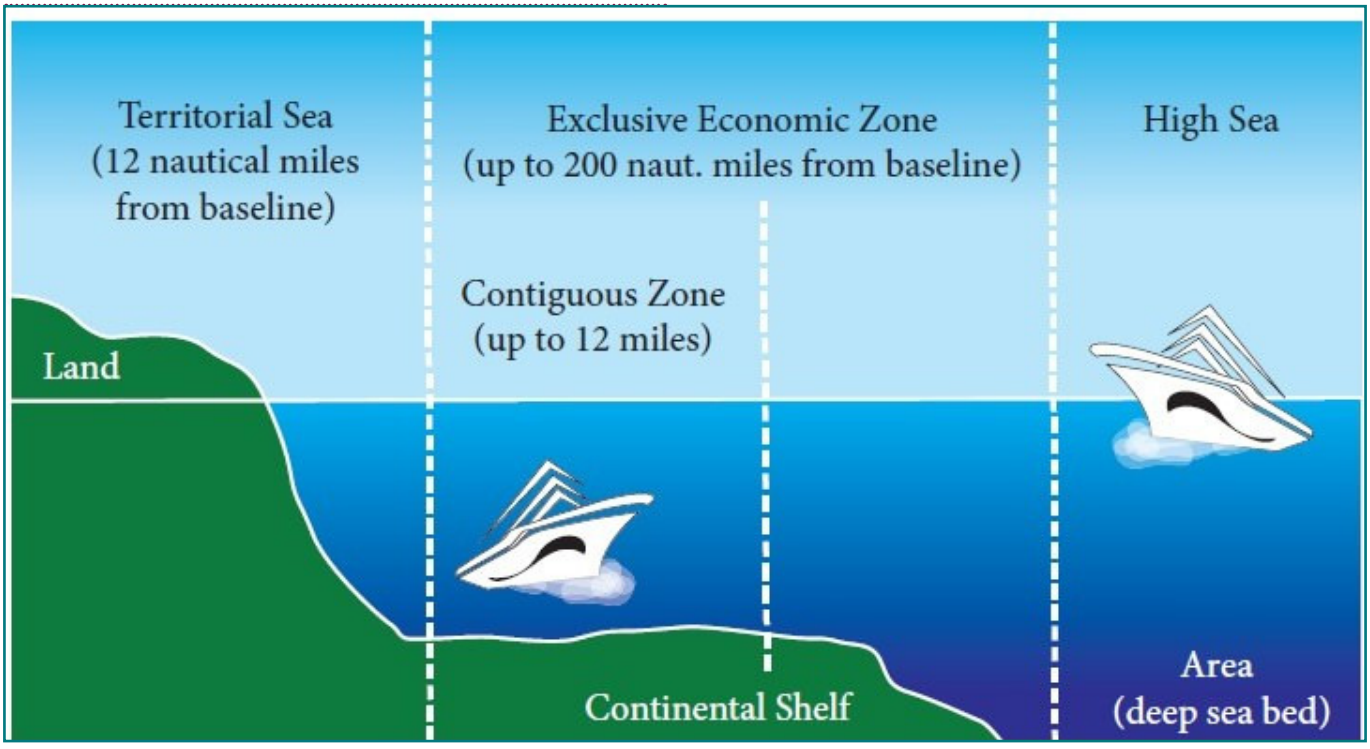

Figure No. 08

- India made its first submission for an extended continental shelf in **2009**, which covered vast stretches of the **Bay of Bengal**, the **Indian Ocean**, and the **Arabian Sea**.
- As per these claims, India sought rights to valuable marine resources far beyond its original 200 nautical miles of EEZ.
- However, **Pakistan** raised objections to parts of India's claim in the **Western Arabian Sea**.
- The main area of contention lies in the **Sir Creek**. Pakistan's objections were formally lodged in **2021**, and this led to the **CLCS** rejecting India's original claim in the Arabian Sea in **March 2023**.
- The Commission, however, allowed India to submit **modified claims** to address the concerns raised by Pakistan.
- India's revised claim includes an **additional 10,000 square kilometers** based on newly gathered data, expanding its total claim to an area roughly the size of **India's landmass**—around **3.2 million square kilometers**—almost doubling its existing **EEZ**.

Sir Creek

- Sir Creek is a 96-km strip of water disputed between India and Pakistan in the **Rann of Kutch marshlands.**
- The Creek opens up in the Arabian Sea and roughly divides the Kutch region of Gujarat from the Sindh Province of Pakistan.
- The **Sir Creek dispute** is not just a minor territorial issue—it involves access to valuable maritime resources.
- The dispute lies in the interpretation of the maritime boundary line between Kutch and Sindh.

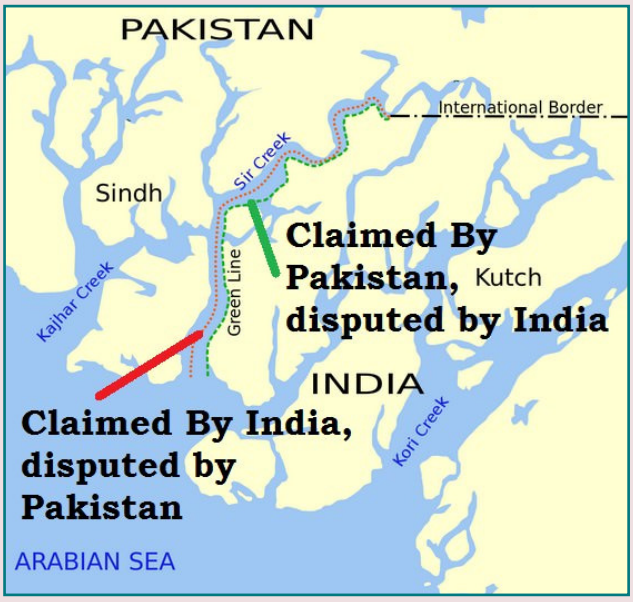

Figure No. 09

'SACHET' APP

Context

Prime Minister Narendra Modi, during his 'Mann Ki Baat' address, urged people to use the 'Sachet' mobile app, launched by the National Disaster Management Authority (NDMA), which helps in getting a headstart on escaping natural disasters.

What is the 'Sachet' app?

The Sachet mobile application provides **real-time geo-tagged early warning alerts of disasters**.

Key-features:

- It functions on **common alert based protocol (CAP)** and provides information based on current location. Users can subscribe to any state/district in India to receive alert notifications.
  - CAP is an international standard format for emergency alerts, designed to ensure that warnings can be consistently structured and disseminated across various platforms and technologies, enhancing interoperability.
- Sachet will alert users in case of **"flood, cyclone, landslide, tsunami, forest fire, avalanche, storm, hurricane or lightning".**
  - Furthermore, the app also provides **weather reports and forecasts** from **Indian Meteorological Department (IMD)** for day to day weather updates.
  - The app can be operated across **12 Indian languages** currently.
  - It also provides various useful resources such as **Dos & Don'ts, helpline numbers, alert affected area and satellite receiver connectivity** feature.
- **Implementing Agency:** The **Centre for Development of Telematics (C-DOT**), the Government of India's Research & Development Telecom Technology Centre, serves as the **pan-India implementation partner** for Phase 1 of the Sachet project.

India's Vulnerability to Natural Disasters

- As a country with vast geographic and environmental diversity, India's vulnerability to natural disasters remains high.
  - 58.6 per cent of its area is prone to **earthquakes**
  - More than 12 per cent is susceptible to **floods and river erosion**
  - 68 per cent of cultivable land is at risk of **drought**
  - India's 7,516-kilometre coastline is highly susceptible to **cyclones and tsunamis**
- **Key-agencies for disaster management:** National Disaster Response Force (NDRF), State Disaster Response Forces (SDRF), paramilitary units, Aapda Mitra and the army.

Other important initiatives:

- The **BhooKamp app** was launched for real-time earthquake updates.
- **NDMA's Earthquake Risk Indexing (EDRI) project** assesses earthquake risks in 50 cities, with plans to cover 16 more cities.

SMILE SCHEME

Context

While the **SMILE scheme** has made notable progress in identifying and rehabilitating beggars in urban areas, it still faces challenges in terms of the **scale of implementation** and **underreporting** of the issue

What is SMILE Scheme?

- **Launched in**: 2022
- The **SMILE scheme** (Support for Marginalised Individuals for Livelihood and Enterprise) is a **government initiative** launched by the **Union Ministry of Social Justice and Empowerment**.
- The scheme is aimed at **rehabilitating individuals involved in begging** and addressing the issue of **beggary** in urban spaces, particularly in **religious**, **tourist**, and **historical cities**.
- The initiative also includes a **sub-scheme for the empowerment of transgender persons**.

Key Objectives of the SMILE Scheme:

- Identification and Rehabilitation of Beggars
- Empowerment of Transgender Persons

- **Progress so far:** By **December 2024**, the scheme had successfully identified **9,958 individuals** engaged in begging across the **81 cities**. Out of these, **970 individuals** have been rehabilitated, with **352 children** among those rehabilitated.

Beggars in India

- The **2011 Census** recorded over **3.7 lakh beggars** across India, while the **Socio-Economic and Caste Census (SECC)** of the same year revealed that **over 6.62 lakh households in rural India** rely on begging or charity for survival.

NATIONAL INVESTIGATION AGENCY (NIA)

Context

The National Investigation Agency (NIA) began the process of taking over the investigation of the Pahalgam terror attack, following orders from the Union Ministry of Home Affairs (MHA).

What is the National Investigation Agency (NIA)?

- The **National Investigation Agency** is the **specialised Central agency** to investigate the terror cases in India.
  - Notably, the other key central agency, the **Central Bureau of Investigation (CBI),** mainly investigates corruption cases, economic offences and other serious organised crimes.
- Terror cases often involve "complex inter-State and international linkages, and possible connection with other activities like the smuggling of arms and drugs, pushing in and circulation of fake Indian currency, infiltration from across the borders, etc."
- **NIA Act:** The NIA Act was enacted in 2008, the year of the **deadly 26/11 terror attacks** on Mumbai.
  - It created an agency to "investigate and prosecute offences affecting the sovereignty, security and integrity of India, security of State, friendly relations with foreign States", and actions violating existing Acts and international treaties.

Jurisdiction of the NIA:

- The NIA Act, amended in 2019, lists the offences the agency is empowered to investigate under a schedule. These include offences covered under
  - sections of the criminal code
  - the Information Technology Act
  - the Arms Act
  - the Anti-Hijacking Act, among others

However, in December 2024, the Supreme Court held that it also has the power to investigate offences **"connected" to the main Scheduled Offence** already under investigation — even if it was committed by a separate person not accused in the **Scheduled Offence.**

- Further, if the Central government believes that a Scheduled Offence has been committed and is to be investigated under the Act, it may, *suo motu (on its own),* direct the agency.
- NIA cases are tried at NIA courts.

NATIONAL SECURITY ADVISORY BOARD

Context

The government has revamped the **National Security Advisory Board** amid tensions over the Pahalgam terror attack, appointing former intelligence chief **Alok Joshi** as its chairman.

About NSAB

- The National Security Advisory Board (NSAB) is an **advisory body** under the **National Security Council (NSC)** structure of India.
- It is chaired by the Prime Minister and supported by the **NSA and the NSCS**.

- The NSAB was established in **1998**, after the **Pokhran-II nuclear tests**, as part of the institutionalisation of India's national security architecture.
- It is not a decision-making body, but it plays a key role in providing long-term, non-partisan, strategic inputs on national security issues.
- The NSAB reports to the **National Security Council Secretariat (NSCS),** which functions under the **National Security Advisor (NSA).**
- It comprises experts from defence, intelligence, diplomacy, academia, and civil services.

REITS AND INVITS

Context

REITs and InVITs offer retail investors an opportunity to invest in large infrastructure and real estate projects in India, previously accessible only to institutional players, democratizing access to high-value assets with lower capital requirements.

What are REITs?

- **Real Estate Investment Trusts (REITs)** allow to invest in real estate without physically owning it.
- They work like **mutual funds**, pooling money from various investors to buy properties.
- The income from these properties (through rent or property sales) is then distributed to investors in the form of dividends.
- **Here, income** is generated through rents or capital gains.
- **Dividends** are paid to investors based on the units they own.
- REITs are regulated by the **SEBI (Real Estate Investment Trusts) Regulations of 2014.**

What are InVITs?

- **Infrastructure Investment Trusts (InVITs)** let retail investors invest in large infrastructure projects, which were previously accessible only to institutional investors.
- By investing in InVITs, one can get steady income from dividends and potential long-term capital appreciation as the economy grows.
- **Income** is received from infrastructure projects (toll plazas, highways, energy projects).
- **Capital Appreciation** is possible as the economy grows.
- InVITs fall under the purview of the **SEBI (Infrastructure Investment Trusts) Regulations, 2014.**

Key-Difference

	REITs	InVITs
Asset Type	Focus on real estate assets such as commercial properties, malls, and residential buildings.	Invest in infrastructure assets like toll roads, power plants, and pipelines.
Income Generation	Earn income through rents from properties	Earn income through usage fees, tolls, or tariffs from infrastructure projects.
Risk Profile	Generally less risky because they focus on diversified property portfolios that generate stable rental income.	Can carry higher risk due to operational and regulatory challenges inherent in infrastructure projects.
Liquidity	Are traded on stock exchanges, providing higher liquidity.	Are also listed but may have lower liquidity than REITs due to the nature of infrastructure assets.
Regulation	Both REITs and InVITs are regulated by SEBI but under different regulations (REITs Regulations 2014 for REITs and InVITs Regulations 2014 for InVITs).	

INDIA'S IIP GROWS 3% IN MARCH

Context

India's industrial activity continued its recovery momentum with the **Index of Industrial Production (IIP)** growing 3 per cent year-on-year in March 2025, according to data released by the **Ministry of Statistics and Programme Implementation.**

March 2025 IIP Performance

- Industrial output grew by 3% year-on-year in March 2025.
- This was below market expectations (3.3%) but an improvement over February's 2.7% (which was a six-month low).

Sector-wise Performance

Sector	March Growth	February (Revised)
Manufacturing	3.0%	2.8%
Mining	0.4%	1.6%
Electricity	6.3%	3.6%

So, while electricity generation was strong (likely due to increased demand), mining slowed significantly, pulling down the overall number.

- **Consumer Durables (like appliances, vehicles):** Grew 6.6% in March, up from 3.7% in February – suggests rising household demand, possibly due to festival-season spillover or improving rural sentiments.
- **Capital Goods (like industrial machinery, tools):** Slowed to 2.4%, from a strong 8.2% previously – a sign that private sector investment is still cautious, possibly due to global uncertainties and trade issues.

FACT BOX

Industrial Output

- **Industrial output** refers to the total production of industrial goods in the country—mainly from **manufacturing, mining, and electricity sectors**.
- In India, this is measured using the **Index of Industrial Production (IIP)**, which acts as a crucial **economic indicator**.
- IIP is a **monthly economic indicator** that measures the growth rate and performance of various industrial sectors in an economy over a given period.
- In simple terms, it tracks how much **industrial production (like goods from factories, mines, and power plants)** has increased or decreased compared to a **reference point (called the base year).** ***Base year = 2011-12.***
  - **A higher IIP** suggests industrial activity is expanding, which typically supports job creation, GDP growth, and better income levels.
  - **Conversely, slow growth** can signal stress in the real economy, especially in manufacturing-heavy sectors like automobiles, electronics, etc.
- **Broad sectors covered under IIP:** Manufacturing, Mining, Electricity
- The **National Statistical Office (NSO)** under the **Ministry of Statistics and Programme Implementation (MoSPI)** releases the IIP data every month.
- The data is now released on the 28th of every month (starting from 2025), earlier than the previous schedule.
- Before the IIP is released, the **Index of Eight Core Industries (ICI)** is prepared every month and released by the Office of the Economic Adviser (OEA), Department for Promotion of Industry and Internal Trade (DPIIT), and Ministry of Commerce & Industry.

Components to calculate the ICI:

- **Coal** – Coal production, excluding Coking coal.
- **Electricity** – Electricity generation of thermal, nuclear, hydro, imports from Bhutan.
- **Crude Oil** – Total crude oil production.
- **Cement** – Production in large plants and mini plants.
- **Natural Gas** – Total production of natural gas.
  - **Steel –** Production of alloy and non-alloy steel only.
  - **Refinery Products** – Total refinery production.
  - **Fertilizer** – Urea, ammonium sulfate, calcium ammonium nitrate, complex grade fertilizer, and single superphosphate, among others.

UPSC PYQ

Q: In India the overall Index of Industrial Production, the Indices of Eighth Core Industries have combined weight of 37.90%. Which of the following are among those Eight Core Industries? (2012)

(1) Cement
(2) Fertilizers
(3) Natural Gas
(4) Refinery products
(5) Textiles

Select the correct answer using the codes given below:

(a) 1 and 5 only
(b) 2, 3 and 4 only
(c) 1, 2, 3 and 4 only
(d) 1, 2, 3, 4 and 5

Solution: (c)

Q: In the 'Index of Eight Core Industries', which one of the following is given the highest weight? (2015)

(a) Coal production
(b) Electricity generation
(c) Fertilizer production
(d) Steel production

Solution: (b)

BANGLADESH'S BAN ON YARN

Context

Recently, **Bangladesh closed its land ports** for Indian yarn imports, restricting yarn imports to **sea routes only**.

Key-highlights

- India is a **major exporter of cotton yarn**, especially to countries like **Bangladesh and China**.

- Bangladesh is **India's largest buyer of yarn,** accounting for about **45% of India's yarn exports.**
  - Bangladesh has been the fastest growing market for India's cotton yarn with its exports growing at a Compound Annual Growth Rate (CAGR) of 25% during the last five years.
- Until now, about 30% of India's yarn exports to Bangladesh were transported through land ports **(Benapole, Bhomra, Sonamasjid, Banglabandha, and Burimari land ports**). Land transport was a faster and cheaper method compared to sea transport.
- Textile will now have to export through the **Mundra, Thoothukudi, or Nhava Sheva ports** and it will lead to higher costs.

FACT BOX

ndia's Textile Industry

- The **textile and apparel industry** contributes **2.3%** to **GDP**, **13%** to **industrial production**, and **12%** to **exports**.
- India exported textile items worth **USD 34.4 billion** in **2023-24**, with **apparel** constituting **42%** of the export basket, followed by **raw materials/semi-finished materials** at **34%** and **finished non-apparel goods** at **30%**.
  - India primarily exports cotton to **Bangladesh, China, Vietnam, Indonesia, Taiwan, Thailand**, and other countries, with **Bangladesh and China** being the largest importers of Indian cotton, according to a 2024 Ministry of Textiles report.
- It is also the **second largest employment generators**, after agriculture, with **over 45 million people** employed directly, including many **women** and the **rural** population.
- The Indian textile market currently ranks **fifth globally**, and the government is actively working to accelerate this growth to a rate of **15-20%** over the next five years.

Key-Schemes/Initiatives

- Production Linked Incentive (PLI) Scheme for Textiles
- PM MITRA (Mega Integrated Textile Region and Apparel) Parks
- Amended Technology Upgradation Fund Scheme (ATUFS)
- Samarth (Scheme for Capacity Building in Textile Sector)
- Textile Cluster Development Scheme (TCDS)
- National Technical Textiles Mission (NTTM)

Yarn

- Yarn is a long continuous strand made from cotton, synthetic fibres, or blends.
- It is the raw material used to make fabric and textiles.
- India exports two main types of yarn:
  - Cotton yarn
  - Man-Made Fibre (MMF) yarn

UPSC PYQ

Q: Consider the following statements: (2020)

(1) The value of Indo-Sri Lanka trade has consistently increased in the last decade.

(2) "Textile and textile articles" constitute an important item of trade between India and Bangladesh.

(3) In the last five years, Nepal has been the largest trading partner of India in South Asia.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 3 only

(d) 1, 2 and 3

Solution: (b)

URBAN SPIDERS BUILDING SOUNDPROOF WEBS

Context

In response to rising urban noise pollution, a study found that **funnel-weaving spiders (*Agelenopsis pennsylvanica*)** adapt by **building webs that filter out disruptive vibrations**, helping them detect prey more accurately. This highlights how even small urban wildlife species are behaviorally adjusting to environmental stress caused by human activity.

Key-findings of the Study

- Researchers studied a **funnel-weaving spider** species found across North America: ***Agelenopsis pennsylvanica***.
- These spiders don't build sticky orb webs. Instead, they create **funnel-shaped, non-sticky webs** and hide inside.
- They detect prey when it lands on the web by sensing vibrations and then quickly jump out to attack.
- The researchers collected **two sets of spiders**:
  - One from a **noisy urban** area

- One from a **quiet rural** area

- In the lab, they exposed both sets to **loud and quiet white noise** and allowed them to spin webs. Then they tested how well the webs transmitted vibrations that might signal prey.

Key Discovery:

- **City spiders built webs** that **filtered out a wide range of noisy vibrations** — much like how soundproofing works.
- **Rural spiders built webs** that **amplified important vibrations** in their quieter surroundings.

FACT BOX

Noise Pollution

- Noise pollution is considered to be any unwanted or disturbing sound that affects the health and well-being of humans and other organisms.
- Sound is measured in **decibels.**
- There are many sounds in the environment, from
  - rustling leaves (20 to 30 decibels)
  - a thunderclap (120 decibels)
  - wail of a siren (120 to 140 decibels)
- Sounds that reach 85 decibels or higher can harm a person's ears.
- Sound sources that exceed this threshold include familiar things, such as power lawn mowers (90 decibels), subway trains (90 to 115 decibels), and loud rock concerts (110 to 120 decibels).
- **WHO's standard:** The World Health Organization (WHO) had recommended a 55 db standard for residential areas in the 1999 guidelines, while for traffic and business sectors, the limit was 70 db.
  - The WHO set the limit of noise pollution on the road at 53 db in 2018, taking into account health safety.

NATURAL HYDROGEN

Context

Hydrogen has long been viewed as a clean energy fuel of the future. While much attention has been given to green hydrogen (produced using renewable energy), scientists and industry leaders are now turning to naturally occurring hydrogen — also called white hydrogen — as a potentially abundant, low-cost, and zero-carbon energy source.

What is Natural Hydrogen?

- Unlike **grey hydrogen** (from natural gas, emits CO_2) and **green hydrogen** (from water via electrolysis using renewables), **natural hydrogen** occurs **freely in the Earth's crust**, formed by **natural geological processes** such as:
  - **Serpentinisation**: A reaction between water and iron-rich rocks.
  - **Radiolysis**: Breakdown of water by naturally radioactive rocks.
  - **Organic decomposition**: Breakdown of buried organic matter deep underground.
- It seeps out through fractures in the earth or accumulates in underground reservoirs — much like natural gas or helium.

Global Potential

- **US Geological Survey (USGS)** estimates **tens of trillions of tonnes** of hydrogen may exist underground.
- Even **2% of that**, if usable, could power the world's hydrogen needs for **over 200 years**.
- Recent finds in **France (Moselle region)** alone are valued at **$92 billion**, roughly **half the current global hydrogen production**.
- Countries with known or probable hydrogen seeps include:
  - **Australia** (Eyre Peninsula)
  - **U.S.** (Nebraska, Kansas)
  - **Spain, France, Albania**
  - **Colombia, South Korea, Canada**, and possibly **India**.
- **India's Natural Hydrogen Potential:** Though still largely unexplored, India is geologically well-positioned to host natural hydrogen reserves:
  - **Ophiolite complexes** in the Himalayas and Andaman Islands (formed from seafloor crust).
  - **Greenstone belts** in **Dharwar and Singhbhum cratons**.
  - **Hot springs**, **basaltic formations** (e.g., Deccan Traps), and **sedimentary basins** like Vindhyan and Gondwana.
- These areas show signs of **radiolysis and serpentinisation**, suggesting natural hydrogen could be present.

S8 PARAMETER

Context

A new study using Japan's **Subaru Telescope** has reignited debate over the **S8 parameter**, which measures how matter is distributed—or clumped—in the universe. Conflicting measurements of S8 have created a major puzzle in cosmology, known as the **S8 tension**.

What is the S8 Parameter?

- In simple terms, **S8 (or Sigma-8)** is a **statistical measure** used by cosmologists to describe **how much matter is clumped together** in the universe.

- A **higher value** of S8 means matter (like galaxies and dark matter) is more **clustered**.
- A **lower value** means matter is more **evenly spread out**.

- S8 is especially important because it helps scientists understand **how the early universe evolved into the large-scale structure we observe today** — galaxies, clusters, voids, and filaments.

Why Is There a Disagreement – The 'Tension'?

- There are **two major methods** to estimate S8, and they produce different results:
  - **Cosmic Microwave Background (CMB) Method:** Uses data from **early universe radiation** — the CMB, emitted just 380,000 years after the Big Bang. This method gives a **higher S8 value** (more clumpiness).
    - **Example:** Data from **Planck satellite** gives S8 ≈ 0.83.
  - **Cosmic Shear Surveys (Gravitational Lensing):** Looks at **how light from distant galaxies is distorted** by gravitational effects (like a cosmic magnifying glass). These distortions (called **cosmic shear**) help map **current matter distribution**, especially **dark matter**.
    - This method gives a **lower S8 value** (less clumpiness).
    - **Example:** Subaru HSC study estimates S8 ≈ 0.747.
- This persistent mismatch between early universe predictions and present-day observations is what cosmologists refer to as the **"S8 tension"**.

SEMICRYOGENIC ENGINE HOT TEST

Context

The **Indian Space Research Organisation (ISRO)** successfully conducted a **short-duration hot test** of its **semicryogenic engine** at the **ISRO Propulsion Complex (IPRC)** in Mahendragiri, Tamil Nadu. This was the **second major milestone** in the testing phase of the semicryogenic engine after the first successful hot test held in **March**.

Key-highlights

- The recent test was a **short duration hot test** of the **Engine Power Head Test Article (EPHTA)**. It included all critical systems of the engine **except the thrust chamber** (the part where actual thrust is produced).
- **What is EPHTA?** It is a test version of the engine that includes **all critical engine systems except the thrust chamber**, allowing engineers to focus on the performance of specific components.

What is a Semicryogenic engine?

- A **semicryogenic engine** uses a **liquid oxidizer** (like **liquid oxygen**) and a **kerosene-based fuel** (such as **RP-1**) that are **kept at very low temperatures** but **not as extremely cold** as fully cryogenic fuels like liquid hydrogen.
- In comparison, a full **cryogenic engine** uses both fuel and oxidizer at extremely low (cryogenic) temperatures.
- Semicryogenic engines are more powerful than traditional engines.
- Once inducted, it will help ISRO's launch vehicles like **Gaganyaan**, **future GSLV Mk III upgrades**, and potential heavy-lift vehicles to carry **heavier payloads** into space.
- Most major space powers like the **United States, Russia, and China** already use semicryogenic engines.

ACTIVE COOLED SCRAMJET SUBSCALE COMBUSTOR

Context

The Defence Research and Development Organisation (DRDO) recently tested a crucial component of a **hypersonic missile engine**. This component is called the **Active Cooled Scramjet Subscale Combustor**. With this successful test, DRDO aims to move towards full-scale flight-worthy combustor testing soon.

About Active Cooled Scramjet Subscale Combustor

- The combustor is a core component of the **scramjet engine**, where fuel is mixed with compressed air to ignite and create thrust.
- The success of this test shows that India is capable of handling the extreme temperatures and pressures generated during hypersonic flight.
- Active cooling involves circulating a **coolant (often the same fuel used for combustion)** through channels in the combustor walls to absorb heat and prevent overheating.
- This keeps the engine from melting or failing under the extreme conditions of hypersonic flight.

What is a Scramjet?

- A **scramjet (Supersonic Combustion Ramjet)** is a type of **air-breathing engine** designed for **high-speed flight** at **hypersonic speeds**, which are speeds greater than five times the speed of sound (Mach 5), or roughly 6,000 km/h.
- **Unlike traditional jet engines** that compress air before combustion, scramjets rely on the high-speed airflow that enters the engine to compress the air in the combustion chamber.
- This allows them to operate efficiently at speeds where other propulsion systems would fail.
- The primary advantage of scramjets is that they allow vehicles to travel at extremely high speeds for long distances without carrying large amounts of oxidizer (such as liquid oxygen), which is typical in rocket-based systems.

- This makes them more efficient for long-range hypersonic travel.
- **Challenges in Hypersonic Flight:** Hypersonic speeds create extreme aerodynamic heating, with temperatures exceeding 2,000°C, which can damage engine components. This makes sustaining scramjet engines a complex task.

26 RAFALE-M JETS

Context

India signed a **Rs 63,000 crore government-to-government deal** with **France** to procure **26 Rafale M (Marine) naval fighter jets** for the Indian Navy. The agreement was cleared by the **Cabinet Committee on Security (CCS)** amid the urgent need to replace the ageing **MiG-29K** fleet and strengthen India's maritime air power, especially for deployment on **INS Vikrant** and **INS Vikramaditya**.

About Rafale M (Marine) naval fighter jets

- The **Rafale M** is a **naval variant** of the **Dassault Rafale**, a **multirole fighter aircraft** designed for **carrier-based operations**.
- It is specifically engineered to operate from aircraft carriers, providing the **Indian Navy** with enhanced maritime air power, complementing its existing fleet of naval aircraft.

Key Features and Capabilities:

- **Carrier Compatibility:** The Rafale M is designed to operate from **40,000-tonne class aircraft carriers**. Its landing gear, wings, and overall structure are reinforced to withstand the **harsh environment** of aircraft carrier decks.
  - The **folding wings** feature allows the aircraft to fit into the limited storage space aboard carriers, making it **space-efficient**.
  - **Landing and Takeoff:** It is equipped with **tailhooks** for landing on short aircraft carrier decks.
  - **Multirole Capability:**
    - The Rafale M is a **multirole fighter** that can perform **air superiority**, **ground attack**, and **anti-ship missions**.
    - It can be used for **intelligence gathering**, **surveillance**, and **air-to-air refuelling** as well.
    - The aircraft's ability to carry a range of weapons, including **air-to-air missiles**, **bombs**, and **precision-guided munitions**, adds versatility in both offensive and defensive roles.
  - **Advanced Avionics:** The Rafale M is equipped with advanced **radar systems** (like the **RBE2 AESA radar**) and **electronic warfare (EW) capabilities**, making it a formidable asset in modern aerial combat scenarios.
  - **Engine and Performance:**
    - It is powered by **M88-2 engines**, the aircraft has high thrust-to-weight ratio, ensuring superior agility and acceleration for carrier operations.
    - The **maximum speed** is around **1.8 Mach** (approximately 2,220 km/h), with a range of about **1,000 km** without refuelling.
  - **Operational Use:**
    - The **French Navy** currently uses the Rafale M aboard its **Charles de Gaulle aircraft carrier**.
    - The **Indian Navy** plans to deploy the Rafale M on **INS Vikrant** and **INS Vikramaditya** to enhance its strike capabilities and **maritime dominance** in the **Indian Ocean Region**.
    - **Aerial Refuelling Capabilities:** Rafale M comes with **buddy-buddy aerial refuelling**, which allows one fighter to act as a refueller for another, extending operational endurance and range.

Key Differences between Rafale M and IAF's Rafale C:

Feature	Rafale M (Naval)	Rafale C (Air Force)
Carrier Compatibility	Designed for aircraft carrier ops	Land-based operations
Landing Gear	Reinforced for carrier landings	Standard landing gear
Wings	Folding wings for space efficiency	Fixed wings
Role	Multirole, carrier-based operations	Multirole, air force missions
Variants	Single-seat and twin-seat trainer	Single-seat only

ARTHRITIS

Context

Smoking is a **major risk factor** for **rheumatoid arthritis**.

What is Arthritis?

- **Arthritis** is not a single disease but a **clinical condition** marked by **inflammation of the joints** such as the knee, hip, wrist, shoulder, ankle, and elbow.
- It manifests through **pain, swelling, stiffness**, and **restricted movement**, significantly affecting day-to-day activities.
- Arthritis can also have **systemic effects** beyond joints, leading to issues like **eye inflammation** and **spinal fusion**.

Types of Arthritis

- **Rheumatoid Arthritis (RA)**: It is an **autoimmune disorder** where the body's immune system attacks its own joints, causing chronic inflammation and joint damage.
- **Psoriatic Arthritis**: Linked to psoriasis, this form of arthritis causes joint pain along with skin issues.
- **Osteoarthritis**: It is **degenerative** form where cartilage wears down over time. It is often seen with aging but not limited to elderly people.
- **Gout**: It is caused by **uric acid crystal deposition** in joints, leading to sudden, severe attacks of pain and swelling.

WORLD MALARIA DAY

Context

Observed every year on **April 25, World Malaria Day** is a global WHO-led initiative to raise awareness and galvanise action. The 2025 theme, "**Malaria ends with us: Reinvest, Reimagine, Reignite,"** underscores the urgent need to re-energise global, national, and community-level efforts.

About Malaria

- Malaria is an acute febrile illness caused by Plasmodium parasites, which are spread to people through the bites of infected female Anopheles mosquitoes. It is preventable and curable.
- It is both preventable and curable.
- It is not contagious.
- **Transmission:** There are 5 Plasmodium parasite species that cause malaria in humans:
  - **P. falciparum** is the deadliest malaria parasite and the most prevalent on the African continent.
  - **P. vivax** is the dominant malaria parasite in most countries outside of sub-Saharan Africa.
  - Other malaria species: **P. malariae, P. ovale and P. knowlesi.**
- **Causes**: Malaria is caused by a single-celled parasite of the genus plasmodium. The parasite is transmitted to humans most commonly through mosquito bites.
- **Symptoms**: Fever, Chills, General feeling of discomfort, Headache, Nausea and vomiting, Diarrhea, Abdominal pain, Muscle or joint pain, Fatigue, Rapid breathing, Rapid heart rate, Cough.
- **Treatment:** Artemisinin-based combination therapies (ACTs) are the most effective antimalarial medicines.
- **Vaccine:** In 2021, WHO recommended the **RTS,S/AS01 (RTS,S) vaccine** to prevent malaria among children living in regions with moderate-to-high *P. falciparum* malaria transmission.

World Malaria Report 2024 (Global Malaria Trend)

- According to the Report, significant progress was observed in global malaria elimination efforts during 2023–24.
- The number of malaria-endemic countries dropped from 85 in 2022 to 83.
- Impressively, by 2024, 26 countries that were endemic in 2000 reported zero indigenous cases for three consecutive years.
- In 2023, global malaria deaths were estimated at 597,000, with a mortality rate of 13.7 per 100,000—a decline from 622,000 deaths and a 14.9 mortality rate in 2020, reflecting consistent global progress.
- India's remarkable strides in Malaria elimination
  - India exited the High Burden to High Impact (HBHI) group in 2024, owing to sustained progress.
  - India's estimated malaria cases fell from 6.4 million in 2017 to 2 million in 2023—a 69% reduction.
  - Likewise, estimated malaria deaths declined from 11,100 to 3,500, showing a 68% decrease.
  - This significant drop aligns with **India's national goal to eliminate malaria by 2030.**

Key-Policy & Health Infrastructure

- **National Framework for Malaria Elimination (NFME):** Launched in 2016, the National Framework for Malaria Elimination (NFME) laid out the country's long-term roadmap. Its operational arm, the **National Strategic Plan for Malaria Elimination (2023–2027),** emphasises enhanced surveillance, efficient case management, and real-time data monitoring through the **Integrated Health Information Platform (IHIP).**
- **National Reference Laboratories (NRLs):** To improve diagnostic accuracy, National Reference Laboratories (NRLs) have been established.
- **Integrated Vector Management (IVM) strategies—like Indoor Residual Spraying (IRS) and Long-Lasting Insecticidal Nets (LLINs)—**have effectively curbed mosquito populations.
- **Ayushman Bharat initiative** ensures care reaches even the most vulnerable. **Community Health Officers and Ayushman Arogya Mandirs** are playing a pivotal role in service delivery at the grassroots level.

GREENHOUSE GASES EMISSION INTENSITY TARGET RULES, 2025

Context

India, under its Paris Agreement commitments, aims to reduce the emissions intensity of its GDP by 45% by 2030. To support this, the Draft Greenhouse Gas Emission Intensity (GEI) Target Rules, 2025 introduce emission intensity targets for key industrial sectors, linked to a domestic carbon market.

Why this draft rule is important now?

- India has committed under the **Paris Agreement** to reduce the **emissions intensity of its GDP by 45% by 2030**, compared to 2005 levels. To operationalize this climate commitment and support a **domestic carbon market**, the government notified the **Carbon Credit Trading Scheme (CCTS), 2023**.
- The **Draft GEI Target Rules, 2025**, released by the **Ministry of Environment, Forest and Climate Change (MoEFCC)**, aim to implement sector-specific emissions intensity targets and integrate industrial units into this carbon trading framework.

What are the Draft GEI Target Rules, 2025?

- The draft rules propose a framework where **selected industrial sectors** will have to **reduce the intensity of their greenhouse gas emissions** — not necessarily the total emissions, but the amount of emissions **per unit of product** they manufacture.
  - For example, if a cement plant emits 800 kg of CO_2 for every tonne of cement produced, it will now have to lower that number over time.
- This approach allows for **continued production and even expansion**, but requires companies to make their processes cleaner and more efficient.
- **Sectors Covered Under These Rules:** The rules will apply to four sectors that are known to be **energy-intensive and high-emission**:
  - **Cement** (186 units)
  - **Aluminium** (13 units)
  - **Pulp and Paper** (53 units)
  - **Chlor-alkali** (30 units)
- These sectors were chosen because they are both **major contributors to industrial emissions** and also have a **potential to improve** through better technology or cleaner fuels.
- Each unit in these sectors will be assigned an **emission intensity target**, based on their performance in the **baseline year (2023–24)**. Then they must show improvement in the **target years 2025–26 and 2026–27**.

How will the system work?

- **Monitoring Emissions**: Each company will report how many greenhouse gases they emit, measured in **tonnes of carbon dioxide equivalent (tCO_2e)** per unit of product. This will be checked and verified by third-party auditors.
- **Meeting or Missing Targets**: If a company **meets or beats** its emissions intensity target, it will earn **carbon credit certificates**. If it **misses** the target, it must **purchase credits** from others or pay a **penalty**.
- **Carbon Market Mechanism**: All this happens within a **national carbon market**, created under the **Carbon Credit Trading Scheme (CCTS), 2023**. This market is regulated by institutions like the **Bureau of Energy Efficiency (BEE)** and the **Central Pollution Control Board (CPCB)**.

How is this different from earlier schemes?

- India already runs the **Perform, Achieve, Trade (PAT)** scheme, which is about **energy efficiency**. That means reducing the energy used per unit of production. But the **GEI Target Rules go further** by focusing on **climate-impacting gases** like CO_2, methane, etc.
- Also, the PAT scheme uses **energy as a measure**, while GEI rules use **emissions**, which is a more climate-relevant metric.

Comparison with Existing Schemes

	PAT Scheme	GEI Target Rules
Launched in	2012	2025 (Draft)
Focus	**Energy Efficiency**	**Greenhouse Gas Emissions**
Measured in	Energy units (toe)	tCO_2e per unit of product
Regulated by	Bureau of Energy Efficiency (BEE)	Ministry of Environment, Forest and Climate Change (MoEFCC), Central Pollution Control Board (CPCB), Bureau of Energy Efficiency (BEE)

Emission Intensity

- It is defined as the **quantity of greenhouse gases (GHGs) emitted per unit of product output**.
- It is expressed as **tCO_2e/unit of product**, where tCO_2e means *tonnes of carbon dioxide equivalent* — a standard that converts various GHGs (like methane, nitrous oxide) into a CO_2-equivalent measure based on their global warming potential.

Carbon Market

- A **carbon market** is a **market-based solution** to the problem of pollution. Instead of only using fines or strict regulations, it allows **companies to choose how to meet their targets**.
- If reducing emissions is too expensive for one firm, it can buy credits from another firm that has reduced emissions at a lower cost.

- This:
  - Encourages **innovation** and **cost-effective solutions**
  - Rewards **cleaner companies**
  - Promotes a shift toward **low-carbon technologies**

PROTEST IN TRIPURA

Context

Protests are being held in Tripura against the construction of embankments by the Bangladesh government along the border with Tripura. These embankments, reportedly built close to the **zero line (within 150 yards of the border),** may violate bilateral agreements like the **1974 Indira-Mujib pact.**

About

- Tripura shares an 856-kilometre-long border with Bangladesh, which forms about 21% of the total India-Bangladesh border.

- The state is surrounded by Bangladesh on three sides - north, west, and south - while its eastern side is bordered by the Indian states of **Assam and Mizoram**.
- Key border districts include **South Tripura, Gomati, Sepahijala, West Tripura, Khowai, Dhalai, North Tripura, and Unakoti.**
- Towns like **Belonia (in South Tripura)** and **Kailashahar (in Unakoti)** are located close to the international boundary.
- The border is marked by rivers such as the **Muhuri,** which flows near Belonia.

FACT BOX

India-Bangladesh Dispute

- India and Bangladesh share the 4,096-kilometre-long border of which a 2,216.7 km border area is in West Bengal of this around 20 per cent stretch is unfenced.
- **West Bengal, Assam, Meghalaya, Tripura and Mizoram** are the States which share the border with Bangladesh.
- A dispute exists between the two countries along various sections of the border.
- Some segments like **Comilla-Tripura (6.5 km)** remain **undemarcated**, causing tension.
- **Water Sharing Disputes**
  - **Farakka Barrage Dispute**: Farakka Barrage was built by India in 1975 to increase the flow in the Hooghly River. Bangladesh complains of **insufficient water in dry season** and **flooding during monsoons** due to excess release.
  - **Teesta River Dispute**: Teesta is vital for irrigation in north Bangladesh. A proposed agreement (India 42.5%, Bangladesh 37.5%) was blocked due to **West Bengal's opposition**. Although the **1996 Ganga Waters Treaty** remains functional, other river disputes remain unresolved.

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