

DAILY CURRENT AFFAIRS (DCA)

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EARLY ONSET OF INDIAN MONSOON

In Context

- As per the IMD, there are chances of early onset of the southwest monsoon. The normal onset date of the monsoon over Kerala is June 1 and it usually takes about 10 days for the system to reach Kerala from the Nicobar islands.

Mechanism of the Indian Monsoon: The Driving Forces

- Differential Heating of Land and Sea:** In summer, India's landmass heats faster than the ocean, creating low pressure over land and drawing in moisture-laden winds from the sea.
- Inter-Tropical Convergence Zone (ITCZ):** The ITCZ, where trade winds meet near the equator, shifts north during summer, intensifying low pressure over the Indo-Gangetic plain and drawing in monsoon winds.
- Tibetan Plateau:** Its high elevation heats up, creating an upper-air low-pressure zone that strengthens vertical circulation and attracts monsoon winds.
- Tropical Easterly Jet:** Develops during summer, strengthening monsoon trough and rainfall.
- ENSO:**
 - El Niño: Warms Pacific waters, usually weakening Indian monsoon.
 - La Niña: Cools Pacific, often strengthening monsoon.
- Indian Ocean Dipole (IOD):**
 - Positive IOD:** Strengthens monsoon with warm western Indian Ocean.
 - Negative IOD:** Weakens monsoon.

Onset and Advancement

- Arabian Sea Branch:** Hits Kerala around June 1, moves up the west coast, bringing heavy rain to Western Ghats and inland states.
- Bay of Bengal Branch:** Reaches Northeast India in early June, then moves westward along the Indo-Gangetic plain. India is usually fully covered by mid-July.
- Retreat of the Monsoon:** Retreat begins in October from northwest India. Clear skies and residual moisture cause hot, humid conditions called "October heat."
- Reversal of wind direction brings rain to the southeastern coast, notably Tamil Nadu and Andhra Pradesh.

Impact of the Monsoon

- Agriculture:** Essential for Kharif crops like **rice and maize**. A good monsoon improves yields; a poor one leads to drought.

- Economy:** Monsoon-linked agriculture influences GDP, rural income, and food prices.
- Water Resources and Hydropower:** Rains recharge rivers and reservoirs, crucial for drinking water, irrigation, and electricity.
- Environment and Culture:** Supports biodiversity and cultural traditions like festivals celebrating rain.
- Disasters:** Heavy rains can trigger floods, landslides, and other disasters, especially in vulnerable regions.

Recent Government Initiatives to Improve Monsoon Forecasting

- Monsoon Mission:** Launched in 2012 by the Ministry of Earth Sciences it was a major initiative aimed at enhancing the accuracy of monsoon forecasting.
- National Supercomputing Mission:** Aimed at enhancing computational infrastructure needed for running high-end dynamical weather models.
- ICAR & IMD Collab:** The IMD, in collaboration with the Indian Council of Agricultural Research (ICAR), provides Agromet Advisory Services.

Source: TH

FREE TRADE AGREEMENT (FTA) SIGNED BETWEEN UK-INDIA

Context

- India and the United Kingdom have signed a landmark Free Trade Agreement (FTA) after nearly three years of negotiations.

What is a Free Trade Agreement or FTA?

- FTAs are arrangements between two or more countries or trading blocs that primarily agree to **reduce or eliminate customs tariff and non tariff barriers** on substantial trade between them.
 - They can cover both goods and services.
- FTAs also address issues such as investment, mobility of professionals, and regulatory cooperation.
- The India-UK FTA negotiations were formally launched in **2022**, as part of efforts to deepen economic cooperation and boost bilateral trade.

Key highlights of FTA

- Tariff Elimination:** Nearly **99% of Indian exports to the UK** will now be **tariff-free**.
 - Key sectors to benefit include: textiles, marine products, leather, footwear, sports goods, toys, gems and jewellery, engineering goods, auto components, and organic chemicals.

- **Services Sector Gains:** UK has offered its most ambitious market access commitments for Indian service providers.
- Indian professionals in the UK will be exempt from **paying UK social security contributions** for up to three years, reducing employment costs and increasing competitiveness.
- **Enhanced Mobility:**
 - ♦ Simplified visa and mobility norms for Indian professionals and intra-corporate transferees.
 - ♦ Special quotas for Indian workers in select UK sectors.

Benefits for the UK

- **Whisky and Gin:** Tariffs to be halved from **150% to 75%** immediately, and further reduced to **40% in 10 years**.
- **Automobile Exports:** India to reduce import duty on cars to **10%** under a quota system.
- **Other sectors benefitting:**
 - ♦ Cosmetics, medical devices, aerospace
 - ♦ Electrical machinery, chocolate, soft drinks, lamb.

Trade and Economic Impact

- India was Britain's **11th largest trade partner in 2024** and accounted for **2.4%** of total UK trade.
- India's exports to the UK were worth **\$34 billion (£25.5 billion) in 2024**, and UK exports to India amounted to **\$22.8 billion (£17.1 billion) in 2024**.

Why was the FTA needed?

- **Post-Brexit Strategy:** The UK needed new trade partnerships after losing access to the EU market and India's large and growing economy offers a viable alternative.
- **China-Plus-One Policy:** Western nations are reducing dependence on Chinese supply chains, seeking diversified trade ties.
- **India's Global Trade Realignment:** The India-UK FTA is part of India's broader strategy to diversify trade partners and reduce dependence on China and multilateral blocs like RCEP, which India opted out of in 2019 over concerns of trade imbalances and inadequate safeguards.
- **Global Trade Uncertainties:** With US tariffs and geopolitical instability, the FTA provides a more stable and predictable trade relationship.

Concerns

- **Limited Additional Benefits:** The Global Trade Research Initiative (GTRI) suggests that the FTA might yield only marginal gains, as many Indian goods already faced low or zero tariffs.

- **Environmental Tariffs:** The UK's carbon border tax proposal on imports like metals posed a potential barrier for Indian exporters which needed further negotiation.

Concluding remarks

- The India-UK FTA is a significant stride in India's evolving trade architecture.
- While its immediate economic impact may be modest, strategically it enhances India's global trade integration, supports domestic reforms, and lays the groundwork for deeper economic engagement with developed nations.
- Successful implementation and follow-up negotiations in sensitive sectors will be key to realizing its full potential.

Source: AIR

SUTLEJ-YAMUNA LINK (SYL) CANAL

Context

- The Supreme Court recently termed **Punjab's de-notification of land acquired for the construction of the Sutlej-Yamuna Link (SYL) canal** an act of "high-handedness".

About

- The court reminded Punjab of its **2017 order to maintain status quo on canal-related land and property**.
- **The SYL canal** was conceptualised for the effective allocation of **water from the Ravi and Beas rivers**.
 - ♦ The project envisaged a **214-km canal**, of which 122 km was to be constructed in Punjab and 92 km in Haryana.

Background of the Dispute:

- **1981 Agreement:** Between Punjab, Haryana, and Rajasthan for sharing Ravi-Beas waters; SYL canal was a key part.
- **1996 Suit:** Haryana filed a case seeking completion of the canal.
- **2002 Verdict:** Supreme Court ruled in favor of Haryana; Punjab was directed to complete its share.
- **2004 Action:** Punjab passed the Termination of Agreements Act, halting construction unilaterally.
- **2016 Ruling:** A Constitution Bench struck down Punjab's 2004 Act as unconstitutional.

Recent Court Directions:

- The apex court appointed Union Home Secretary, Punjab Chief Secretary, and DGP Punjab as Receivers to oversee land-related issues.

- It urged Punjab, Haryana, and the Centre to work towards a mutually agreeable solution.
- If unresolved, the matter will be listed again on August 13.

Dispute Resolution Mechanism for Inter-State Water Sharing in India

- **Constitutional Provisions: Article 262** of the Indian Constitution **empowers Parliament** to legislate for adjudication of inter-state river water disputes.
 - ♦ **Bars the jurisdiction of the Supreme Court** or any other court in such matters if a law is made under this provision.
- **Parliament enacted the below-mentioned Acts according to Article 262** of the Indian Constitution:
 - ♦ **River Board Act, 1956:** The Act empowered the Central Government to establish boards for Interstate Rivers and river valleys in consultation with State Governments. However, no board has been created to date.
 - ♦ **Inter-State Water Dispute Act, 1956:** If the State Government(s) approach the Central Government for the constitution of the Tribunal, the Centre may form a Tribunal after trying to resolve the dispute through consultations.
 - The Supreme Court shall not question the Award or formula given by the Tribunal but it can question the working of the Tribunal.

Tribunal	Date of Constitution	States Involved
Godavari Water Disputes Tribunal	April 1969	Maharashtra, Andhra Pradesh, Karnataka, Madhya Pradesh, and Orissa
Krishna Water Disputes Tribunal-I	April 1969	Maharashtra, Andhra Pradesh, and Karnataka
Narmada Water Disputes Tribunal	October 1969	Maharashtra, Rajasthan, Madhya Pradesh and Gujarat
Ravi and Beas Water Tribunal	April 1986	Punjab, Haryana, and Rajasthan
Cauvery Water Disputes Tribunal	June 1990	Kerala, Karnataka, Tamil Nadu, and Puducherry
Krishna Water Disputes Tribunal-II	April 2004	Maharashtra, Andhra Pradesh, and Karnataka
Vansadhara Water Disputes Tribunal	February 2010	Andhra Pradesh and Odisha
Mahadayi Water Disputes Tribunal	November 2010	Goa, Karnataka, and Maharashtra
Mahanadi Water Disputes Tribunal	March 2018	Chhattisgarh and Odisha

The Inter-State River Water Disputes Act, 1956 was amended in 2002, to include the major recommendations of the Sarkaria Commission.

- The Tribunal has to be constituted **within a year of getting the request**.
- The tribunal **must give the award within the maximum period of 5 years**.

- The Tribunal award is **not immediately implemented** and the concerned parties **may seek clarification within 3 months** of the award.
- Tribunal Awards will have the **same force as the order or decree of the Supreme Court**. The award is final and beyond the jurisdiction of the Supreme Court.

Issues with Inter-State River Disputes Tribunals

- **Prolonged Proceedings and Delays:** Tribunal decisions often take decades, defeating the objective of timely resolution.
 - ♦ The Cauvery Water Disputes Tribunal took nearly 17 years (1990–2007) to deliver its final award.
 - ♦ Even after a decision, implementation lags due to lack of enforcement mechanisms.
- **Judicial Review:** Although the Inter-State River Water Disputes Act declares tribunal decisions as final, States or affected parties approach the Supreme Court under Article 136 (Special Leave Petition) and Article 32, by invoking Article 21 (Right to Life).
- **Tribunal Composition Lacks Multidisciplinarity:** Tribunals are typically headed by retired or sitting judges.
 - ♦ It leads to overreliance on judicial reasoning instead of technical-scientific evaluation.
- **Inadequate and Non-Transparent Water Data:** No centralized or publicly accessible repository of authoritative water flow and usage data.
 - ♦ States often withhold or manipulate data to suit their legal arguments.
- **Complex Federal Structure and Procedural Hurdles:** Overlapping roles of state and central agencies lead to bureaucratic red tape.

Recent and Proposed Reforms:

- **Inter-State River Water Disputes (Amendment) Bill, 2019** (Pending in Parliament):
 - ♦ Proposes permanent tribunal with time-bound adjudication.
 - ♦ Creates a Dispute Resolution Committee (DRC) for pre-tribunal negotiation.
- The tribunal must include **technical experts** (engineers, hydrologists, ecologists) as permanent members.
- An **independent water data authority** can be established under the Central Water Commission (CWC).
- **Alternative Dispute Resolution (ADR):** Negotiations and Mediation by neutral parties or the Centre can resolve disputes effectively.

Source: TH

REVISED SHAKTI (SCHEME FOR HARNESSING AND ALLOCATING KOYALA TRANSPARENTLY IN INDIA) POLICY FOR COAL ALLOCATION

Context

- The Cabinet Committee on Economic Affairs (CCEA) has accorded its approval for the **Revised SHAKTI** (Scheme for Harnessing and Allocating Koyala Transparently in India) Policy for **Coal Allocation to Power Sector**.

SHAKTI Policy

- It was introduced in **2017** and there was a paradigm shift of the coal allocation mechanism **from a nomination-based regime** to a more transparent way of allocation of coal linkages **through auction / tariff-based bidding**.
- The current revision with innovative features will further enhance the scope and impact of the SHAKTI policy and support the power sector through:
 - Greater flexibility
 - Wider eligibility and
 - Better accessibility to coal.
- It will **ensure coal linkage to all power producers** leading to generation of more power, cheaper tariffs and an overall positive impact on the economy.

Coal Sector of India

- Production:** India surpassed **one billion tonnes of coal production** in FY 2024-25, with a **4.99% growth in output** compared to the previous year.
 - India is the **second largest coal producing country** globally.
- Import:** Imports **decreased by 8.4%**, leading to substantial foreign exchange savings and a reduction in import dependency.
- Importance in Energy Mix:** With the fifth-largest coal reserves and as the second-largest consumer, coal remains crucial, **contributing 55% to the national energy mix** and fuelling over **74% of total power generation**.
- Coal Fields:** The major coal fields in India are located in the eastern states of Jharkhand, Odisha, and West Bengal, as well as in central states like Chhattisgarh and Madhya Pradesh.

Key contributions:

- Railways & revenue:** Coal stands as the single largest contributor to railway freight, with an average share of nearly **49% of total freight income**.

- Government earnings:** The coal sector contributes over Rs. 70,000 Crore annually to the central and state governments through **royalties, GST, and other levies**.
- Employment:** The sector **provides jobs** to over 239,000 workers in Coal India Ltd and thousands more in contractual and transport roles.

Challenges Faced by the Coal Sector of India

- Environmental Impact:** The coal sector faces significant environmental challenges, including air pollution, greenhouse gas emissions, and the impact of coal mining on local ecosystems and communities.
- Dependence on Coal Imports:** Despite being the world's 5th largest coal reserve holder, India still imports significant quantities of coal (especially coking coal for steel and high-GCV thermal coal).
 - Import dependency increases foreign exchange outflow and vulnerability to global price volatility.
- Slow Environmental Clearances & Land Acquisition:** Delays in forest/environmental clearances and land acquisition hinder timely development of coal blocks.
- Underutilization of Mining Capacity:** Coal India and other miners often operate below capacity due to demand uncertainties, regulatory hurdles, and infrastructure delays.
- India's Green Commitments:** Coal is the most carbon-intensive fossil fuel. India's commitment to global climate goals (e.g., Paris Agreement, Net Zero by 2070) puts pressure to reduce coal dependency.
- Low Private Sector Participation:** Despite reforms, coal mining remains dominated by PSUs (Coal India Ltd. and SCCL), limiting competition and innovation.

Government Initiatives for Coal Sector in India

- Commercial Coal Mining:** Launched in 2020, allowing private companies to mine coal for commercial sale without any end-use restrictions.
 - Encourages competition, improves supply efficiency, and aims to reduce import dependency.
- Single Window Clearance Portal:** Launched in 2021 to provide a centralized platform for obtaining all approvals and clearances (e.g., land, forest, environmental) for coal mining projects.
 - Aims to streamline project execution and reduce delays.
- Auction of Coal Blocks for Non-Regulated Sectors:** Coal blocks are regularly auctioned for use in sectors like steel, cement, and aluminum, promoting diversified usage.

- **Coal Gasification and Liquefaction Promotion:** The government aims to gasify 100 million tonnes of coal by 2030.
 - ♦ Promotes cleaner usage of coal and aligns with India's energy transition goals.
- **Technology & Automation Push:** Use of drone surveillance, GPS tracking, online coal sale portals, and automated loading systems in mines.
 - ♦ Enhances transparency, safety, and production tracking.
- **Coal Logistics Reforms:** Development of coal corridors, dedicated freight corridors, and first-mile connectivity projects to improve coal evacuation.
- **Coal Allocation to Small Consumers:** Through e-auctions, even small and medium enterprises can now access coal at market-determined prices.

Conclusion

- While coal will continue to play a vital role in India's energy landscape in the near to mid-term, a balanced and strategic transition towards cleaner energy sources is essential.
- The Ministry of Coal is strengthening domestic production to enhance energy security and advance Viksit Bharat, ensuring a self-reliant, sustainable energy framework for long-term growth.

Source: PIB

SUPREME COURT REVIEWS PMLA RULING, 2022

Context

- Recently, the Supreme Court of India has **initiated a review of its 2022 ruling** on the **Prevention of Money Laundering Act (PMLA)**, which granted extensive powers to the **Directorate of Enforcement (ED)**.

About the PMLA 2002

- It is India's primary legislation to combat money laundering and financial crimes, enforced since July 1, 2005.
- It empowers authorities to investigate, prosecute, and confiscate assets linked to illicit financial activities.
- It **aligns with global anti-money laundering frameworks**, including recommendations from the **Financial Action Task Force (FATF)**.

Key Provisions of PMLA

- **Definition of Money Laundering:** Money laundering involves concealing, acquiring, or using proceeds from criminal activities.

- ♦ The Act criminalizes direct or indirect involvement in laundering illicit funds.
- **Enforcement and Investigative Powers: ED** is the primary agency responsible for investigating and prosecuting money laundering cases.
 - ♦ Authorities can attach, freeze, and confiscate assets linked to financial crimes.
- **Obligations for Financial Institutions:** Banks, financial institutions, and intermediaries must verify client identities, maintain transaction records, and report suspicious activities.
 - ♦ Non-compliance can lead to penalties and legal action.
- **Special Courts and Appeals:** The Act establishes **Special Courts** to handle money laundering cases.
 - ♦ Appeals can be filed before the **Appellate Tribunal and High Court**.

Key Issues Under Judicial Review

- **Access to Enforcement Case Information Report (ECIR):** The ECIR functions like an FIR in money laundering cases but is not shared with the accused, limiting transparency.
 - ♦ The **Supreme Court's 2022 ruling** upheld the ED's discretion to withhold ECIR copies.
 - ♦ A **recent Supreme Court judgment** contradicts this stance, stating that ECIR copies must be shared, prompting reconsideration.
 - ♦ It is argued that **denying access to ECIR violates fundamental rights**, making legal defense difficult.
- **Burden of Proof on the Accused:** The burden of proof shifts to the accused under PMLA, requiring them to prove their innocence rather than the prosecution establishing guilt.
 - ♦ It was argued that this **undermines due process and fair trial rights**.
 - ♦ The Supreme Court's review may reconsider this provision **to align with constitutional safeguards**.
- **Expanding Scope of PMLA:** Amendments have broadened the definition of money laundering, raising concerns about potential misuse.
 - ♦ The Act now covers predicate offenses under various laws, increasing compliance burdens.

Conclusion

- While the PMLA strengthens financial crime enforcement, concerns over ECIR access and burden of proof highlight the need for judicial scrutiny and legal reforms. Ensuring transparency, fair trial rights, and procedural safeguards will be crucial in balancing enforcement powers with constitutional protections.

Source: TH

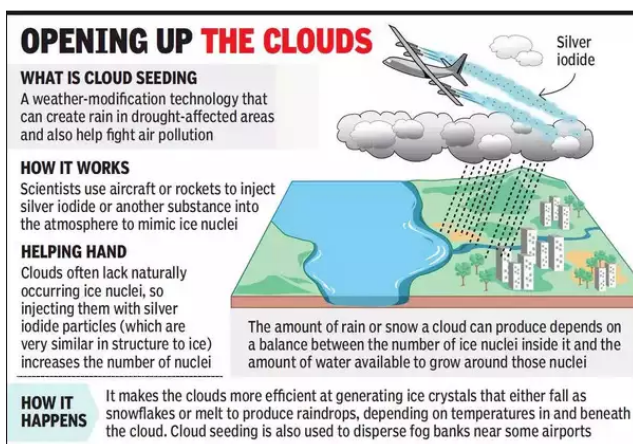
CLOUD-SEEDING TRIALS ACROSS NATIONAL CAPITAL REGION (NCR)

Context

- The Delhi Cabinet approved a Rs 3.21-crore project for conducting **five cloud-seeding trials** across the National Capital Region (NCR) amid the fight against pollution.

What is Cloud Seeding?

- Cloud seeding is a **weather modification technique** aimed at enhancing precipitation from clouds by introducing substances that act as cloud condensation or ice nuclei.
- Method:** Aircraft or rockets disperse seeding agents like **silver iodide, potassium iodide, or dry ice (solid carbon dioxide), or liquid propane** into the atmosphere.
- Purpose:** Stimulate rainfall, reduce dust, suppress hailstorms, and improve air quality by settling particulates.



Suitable Conditions for Cloud Seeding

- Cloud seeding **requires existing clouds**; it will not produce rain out of thin air.
- Not all types of clouds are suitable for seeding. Clouds must be deep enough and of a suitable temperature (**between -10 and -12 degrees Celsius**) to be seeded effectively.
- The wind must be below a certain speed. These conditions are most common in mountainous areas.

Concerns with Cloud Seeding

- Use of Chemicals:** Some chemicals are potentially harmful to the natural environment. There is concern about **soil and water contamination**, especially affecting **plants and crops** that rely on rainwater for nourishment.
- Redistribution of Rainfall:** Artificially inducing rainfall in one area may **deprive adjacent areas** of their natural precipitation, potentially triggering drought-like conditions elsewhere.

- High Cost:** Cloud seeding requires **specialized aircraft, meteorological expertise, and precision timing**, making it a cost-intensive initiative.

Concluding remarks

- Cloud seeding offers a technological solution to mitigate the immediate impact of air pollution in NCR, especially during critical months.
- However, it should be part of a **multi-pronged approach** involving emissions control, green infrastructure, and public health measures.

Source: TH

NEWS IN SHORT

INDIA'S PAST MILITARY OPERATIONS AGAINST PAKISTAN

In News

- Operation Sindoor marks a shift in India's approach to naming military actions, moving from traditional displays of power to a more emotional tribute.
- Unlike earlier operations with conventional or mythological names like Riddle, Meghdoot, and Bandar, this name reflects a more human-centric narrative.

Operation Riddle (1965 Indo-Pak War)

- It was the Indian military's response to the offensive launched by Pakistan under the code names of **Operation Gibraltar and Grand Slam** in 1965.
- As Pakistan violated the Line of Control (LoC) and entered Jammu and Kashmir, India launched this operation, targeting Lahore and Kasur on September 6, 1965.
- The operation had a crippling effect on the Pakistan military.

Operation Ablaze (1965 Indo-Pak War)

- It was India's pre-emptive military mobilisation in April 1965, launched in response to escalating tensions with Pakistan, especially in the Rann of Kutch.
- Though it didn't lead to immediate combat, it showcased India's readiness and set the stage for the later conflict.
- Along with Operation Riddle, these actions successfully countered Pakistan's offensives and culminated in the Tashkent Agreement, brokered by the Soviet Union.

Operation Cactus Lily (1971 Indo-Pak War)

- It is also known as The Meghna Heli Bridge or the Crossing of the Meghna.
- It was an air assault operation conducted in December 1971 during the Bangladesh Liberation War.
- It was conducted by the Indian Army and Indian Air Force to cross the Meghna River, bypass a Pakistani stronghold at Ashuganj/Bhairab Bazar and reach Dhaka.

Operations Trident and Python (1971 Indo-Pak War)

- Both were offensive operations launched by the Indian Navy on Pakistan's port city of Karachi during the Indo-Pak War of 1971.
- **Operation Trident** saw the first use of anti-ship missiles in combat in the region.
- The operation was conducted on the night of December 4-5, 1971 and inflicted heavy damage on Pakistani vessels and facilities.
 - ♦ Pakistan lost and Bangladesh was created.

Operation Meghdoot (Siachen conflict)

- It was launched in April 1984 and it was India's preemptive military action to counter Pakistan's growing presence and claims in the Siachen region.
- With intelligence of an impending Pakistani move, India deployed troops and supplies to key heights on the glacier using the IAF and helicopters.
 - ♦ By the time Pakistan responded, Indian forces had secured vital peaks and passes, giving India a significant tactical advantage in the region.

Operation Vijay (1999 Kargil conflict)

- It was the codename for the Indian military operation launched in May 1999 to reclaim areas occupied by Pakistani forces during the Kargil War.
 - ♦ The operation successfully forced Pakistani troops to withdraw and recapture critical positions, leading to India's victory.

Operation Safed Sagar (1999 Kargil conflict)

- Operation Safed Sagar was the codename for the **Indian Air Force's role in the 1999 Kargil War.**
- It involved a series of airstrikes to flush out Pakistani troops from Indian positions in the Kargil sector along the Line of Control.
 - ♦ This was the first large-scale use of air power in the region since the 1971 Indo-Pakistani War.
 - ♦ India successfully regained all strategic heights in Kargil.

Unnamed operation (2016 surgical strikes)

- It was conducted by Indian special forces in response to the Uri attack, and was not given any specific name other than surgical strikes.
 - ♦ It targeted terrorist launch pads across the LoC in Pakistan-administered Kashmir.
 - ♦ It marked a shift toward proactive counter-terror operations.

Operation Bandar (2019 Balakot air strikes)

- It was India's response to the February 2019 Pulwama terror attack that killed 40 CRPF personnel.
 - ♦ Under this operation, the Indian Air Force conducted air strikes on a **Jaish-e-Mohammed training camp** in Balakot, Pakistan, marking the first cross-LoC air strike since 1971.
 - ♦ The operation led to brief aerial skirmishes between India and Pakistan.

Source :IE

QUAD CONCLUDES INDO-PACIFIC LOGISTICS NETWORK SIMULATION

In News

- The Quad countries held a Tabletop Exercise at the Asia-Pacific Centre for Security Studies in Honolulu, Hawaii to advance the launch of the Quad Indo-Pacific Logistics Network (IPLN).

Indo-Pacific Logistics Network (IPLN)

- IPLN is an initiative that enables Quad partners to leverage shared logistics capabilities in the Indo-Pacific to support civilian response to natural disasters more rapidly and efficiently across the region.
- It reflects the Quad's commitment to ensuring a free and open Indo-Pacific and highlights the value of strengthening practical cooperation to address regional challenges.

Quad

- It comprises India, Japan, Australia, and the United States and it was initially formed after the 2004 Indian Ocean tsunami to coordinate disaster relief.
- It was formalised in 2007 by Japanese Prime Minister Shinzo Abe
- The group struggled early on due to internal divisions and perceptions of it being an anti-China bloc.
 - ♦ It dissolved but was revived in 2017 in response to China's growing regional influence, with an expanded focus beyond maritime security.

- The Quad held its first virtual summit in March 2021, followed by its first in-person meeting in Washington, D.C.

Objectives

- The Quad's main objectives include ensuring maritime security, tackling climate change, fostering regional investment, and promoting technological innovation.
- It aims to work for a free, open, prosperous and inclusive Indo-Pacific region.

Source :Air

KARTARPUR CORRIDOR

Context

- **Kartarpur Corridor**, the only open surface link from India to Pakistan, was closed after Operation Sindoor.

Agreement to operate the Kartarpur Corridor

- The agreement was signed in **2019** and was operationalised for the **550th birth anniversary of Guru Nanak**, the founder of Sikhism and the first of the ten Sikh Gurus.
- It provides for **visa-free travel of Indian pilgrims**, as well as **Overseas Citizen of India (OCI) cardholders**, from India on a daily basis, throughout the year, however, all pilgrims are required to return the same day.

What is the Kartarpur Corridor?

- It serves as a **visa-free border crossing and religious corridor**, linking the Gurdwara Darbar Sahib Kartarpur in Pakistan to Gurdwara Dera Baba Nanak in Punjab.
- The Indian part of the corridor involves a 4.1-km-long, four-lane highway from Dera Baba Nanak to the international border.
- Pakistani Sikhs cannot visit Dera Baba Nanak in India without first obtaining an Indian visa.

Source: TH

CENTRAL COUNCIL FOR RESEARCH IN AYURVEDIC SCIENCES REVIVES TWO RARE AYURVEDIC MANUSCRIPTS

Context

- The Central Council for Research in Ayurvedic Sciences (CCRAS) has revived two rare and significant Ayurvedic manuscripts—**Dravyaratnākara Nighaṇṭu** and **Dravyanamākara Nighaṇṭu**.

About

- The manuscripts were **critically edited and translated** by renowned manuscriptologist, **Dr. Sadanand D. Kamat**.
 - ♦ These are expected to serve as invaluable resources for students, researchers, academicians, and Ayurveda practitioners.
- **Dravyaratnākara Nighaṇṭu**: Authored by **Mudgala Paṇḍita in 1480 AD**, it consists of **eighteen chapters** offering in-depth knowledge on drug synonyms, therapeutic actions, and medicinal properties.
 - ♦ It draws from classical Nighaṇṭus like Dhanvantari and Raja Nighaṇṭu while documenting numerous novel medicinal substances from plant, mineral, and animal origins.
- **Dravyanamākara Nighaṇṭu**: Attributed to Bhisma Vaidya, this work serves as a standalone appendix to the Dhanvantari Nighaṇṭu, focusing exclusively on homonyms of drug and plant names.
 - ♦ It compasses 182 verses and two colophon verses.

The Central Council for Research in Ayurvedic Sciences (CCRAS)

- It is an **autonomous body** of the **Department of AYUSH** (Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy), **Ministry of Health & Family Welfare**.
- **Functions**: Its functions include formulating research strategies, conducting research programs, supporting research institutions, and facilitating knowledge exchange.

Source: PIB

GUT MICROBIOTA

In News

- A recent study highlights how **climate change-induced food insecurity** may disrupt **human gut microbiota**, with wide-ranging health consequences.

Key Highlight

- **Impact on Food Yield and Quality**: Elevated CO₂ concentrations reduce essential nutrients such as iron, zinc, protein, and potassium in major crops like wheat, maize, and rice.
- **Food Insecurity and Poor Diets**: In low- and middle-income countries (LMICs), where dietary diversity is already limited, climate-induced food scarcity exacerbates undernourishment, reducing the diversity of gut microbes and increasing vulnerability to infections and chronic diseases.

- **Heatwaves and Enteric Infections:** Higher ambient temperatures are associated with foodborne and waterborne illnesses. These not only cause immediate gastrointestinal distress but also alter long-term microbial compositions in the gut.

Who is Most at Risk?

- **Indigenous Communities:** These groups, often reliant on local food systems, tend to have more diverse gut microbiota. However, their dependence on natural ecosystems makes them disproportionately vulnerable to climate-induced changes.
- **Urban Poor in LMICs:** Exposure to high pollution, poor sanitation, and low diet quality creates a compounded risk of gut dysbiosis.

What is Gut Microbiota and Why Does It Matter?

- The human gut houses over 100 trillion microbes, including **bacteria, fungi, protozoa, and viruses**. This vast microbial ecosystem—referred to as the **gut microbiota**—plays a pivotal role in the human biological system.
- Disruptions in the microbial balance (**known as dysbiosis**) and can lead to various health issues.

Source: TH

ULTRASOUND-ACTIVATED PIEZOELECTRIC NANOSTICKERS

Context

- Researchers have developed ultrasound-activated piezoelectric nanostickers to boost stem cell regeneration, offering a promising non-invasive treatment to Traumatic Brain Injury (TBI).

What is Piezoelectricity?

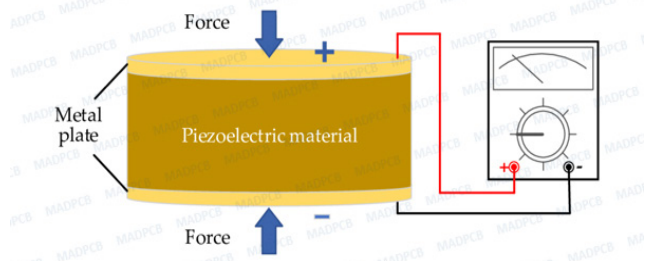
- **Piezoelectric Effect** is the ability of certain materials to generate an electric charge in response to applied mechanical stress.
- **History:** Piezoelectricity was discovered in **1880 by Pierre and Paul-Jacques Curie**, who found that when they compressed certain types of crystals including **quartz, tourmaline, and Rochelle salt**, along certain axes, a voltage was produced on the surface of the crystal.

Piezoelectric Principle

- **Principle:** The piezoelectric effect arises from certain materials with **asymmetric crystal structures**.
 - Under mechanical stress, this **asymmetry causes a shift in electric charge distribution**, producing a small electric current.

- Some materials also exhibit the inverse piezoelectric effect, where applying an electric current leads to mechanical deformation.

Direct Piezoelectric Effect Principle



What are Piezoelectric Nanostickers?

- Piezoelectric nanostickers are tiny, hybrid materials made of **barium titanate and reduced graphene oxide (BTO/rGO)** that attach to the surface of neural stem cells.
- When stimulated by ultrasound, they generate electrical signals that accelerate the cells' growth and transformation into neurons.

Other Applications of piezoelectric materials

- Both direct and inverse piezoelectric materials are used in **pressure sensors, accelerometers, and acoustic devices** – where their ability to convert mechanical signals into electrical signals is crucial.
- The material is also used in devices such as **microphones, phonograph pickups, and wave filters** in telephone-communications systems.

What is Traumatic Brain Injury (TBI)?

- TBI is caused by an external mechanical force leading to brain dysfunction, commonly resulting from a blow or jolt to the head.
- It can cause symptoms ranging from mild headaches to severe cognitive impairment or death.
- Long-term treatment is hindered by the brain's inability to regenerate lost neurons effectively.

Source: NATURE

INDEX ASIA 2025

Context

- Indian Naval Ship INS Kiltan arrived in Singapore to participate in **INDEX Asia 2025 at the Changi Exhibition Centre**.

About

- It is **Asia Pacific's premier naval and maritime defence exhibition**, held in **Singapore** and was established in **1997**.

- It is a biennial **event that brings** together naval leaders, maritime defence companies, and technology innovators from around the world.
- **The 2025 edition** features over 230 exhibitors from 25 countries and welcomes more than 12,000 attendees from 70 nations.

Source: PIB

WORLD RED CROSS DAY

Context

- World Red Cross Day — also known as Red Crescent Day — is observed every year on **8 May**, a tradition that began in **1948**.

About

- The day marks the birth anniversary of **Henry Dunant** (1828–1910), the founder of the **International Red Cross and Red Crescent Movement** and the first recipient of the **Nobel Peace Prize**.
- Dunant was profoundly influenced by the horrors he witnessed at the **Battle of Solferino** in 1859 between France and Austria, where he assisted **40,000** wounded alongside local residents.
- Founded in **1863**, the International Red Cross and Red Crescent Movement has grown into the **largest humanitarian network in the world** — present in **191 countries** and supported by more than **16 million volunteers**.
- The **theme** for this year is “Keeping Humanity Alive” – a call to celebrate those who give their time, and sometimes their lives, to ease the suffering of others and protect their inherent human dignity.

Source: AIR

UN VESAK DAY

In News

- During the UN Day of Vesak 2025 celebrations in Vietnam, an MoU was signed between the International Buddhist Confederation (IBC) and the National Vietnam Buddhist Sangha (VBS) to deepen cooperation and promote shared Buddhist values of compassion, wisdom, and peace.

UN Vesak Day

- It is observed on the full moon in May and it is the most sacred day for Buddhists.
- It was on the Day of Vesak two and a half millennia ago, in the year 623 B.C., that the **Buddha was born**.
 - ♦ It was also on the Day of Vesak that the **Buddha attained enlightenment**
 - ♦ It was on the Day of Vesak that the **Buddha** in his **eightieth year passed away**.
- **It was** recognized by the UN General Assembly in 1999.
- It is celebrated annually at UN Headquarters and offices worldwide

Importance

- The day reflects the Buddha's teachings of compassion, peace, and service to humanity.
- It honors Buddhism's enduring contributions to global spirituality.

Source :PIB

