La Excellence
— IAS Academy —

OCTOBER, 2026

Prelims Fact Sheet

Your Monthly Guidance for UPSC Prelims



- Current Affairs Deep Dive
- History & Culture
- Environment & Ecology
- Polity & Economy
- Science & Technology
- Economy

50+ Key Facts I Segregated Section wise

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1. Polity & Governance

1.1 Andhra Pradesh HC Strikes Down BC Quota in Local Bodies

Context:

The Andhra Pradesh High Court struck down orders providing 34% BC reservation in Panchayati Raj Institutions and 33.33% in urban local bodies, as aggregate reservations exceeded 50%. It directed authorities to begin the election process, preferably within six weeks.

Explanation:



- **Articles 243D and 243T** enable State legislatures to reserve seats and chairperson posts for **Backward Classes** in Panchayats and Municipalities, respectively.
- Unlike mandatory **SC/ST reservation**, providing BC reservation is discretionary for States.
- In **Vikas Kishanrao Gawali v. State of Maharashtra (2021)**, the Supreme Court prescribed a **triple test** for OBC political reservation.
- First, establish a **dedicated commission** to conduct a rigorous empirical inquiry into backwardness concerning local bodies.
- Second, determine the reservation proportion **separately for each local body**, based on its recommendations.
- Third, ensure combined **SC, ST and OBC reservations ordinarily do not exceed 50%** of total seats.
- Backwardness for **political representation** differs from backwardness relevant to education and public employment.

1.2 Government's Powers over OCI Cardholders

Context:

Actor and Overseas Citizen of India (OCI) cardholder Imran Khan was directed to leave India for allegedly participating in political protests. The incident has raised concerns over the government's powers to restrict OCI privileges and order foreign nationals to leave India.

Explanation:



- The **Overseas Citizenship of India (OCI) scheme** was **introduced in 2005** through amendments to the **Citizenship Act, 1955,** for eligible persons of Indian origin.
- **OCI cardholders are foreign nationals,** not Indian citizens, but enjoy lifelong multiple-entry visas and certain economic, educational and professional privileges.
- They cannot vote, contest elections, hold constitutional offices or exercise political rights reserved for Indian citizens.
- Under **Section 7D of the Citizenship Act, 1955**, the **government can cancel OCI registration** on specified grounds, including national security concerns and violations of applicable laws.
- The **Immigration and Foreigners Act, 2025**, empowers the government to regulate foreigners' entry, stay and departure from India.
- **Section 29 authorises removal of foreigners**, including **on specified security grounds,** while Section 7 provides powers to restrict their activities and movements.
- Unlike citizens, **OCI cardholders cannot claim Article 19 freedoms**, but remain protected by Article 14 (equality before law) and Article 21 (life and personal liberty).

1.3 Gujarat Uniform Civil Code Gets Presidential Assent

Context

The President has given assent to the Gujarat Uniform Civil Code (UCC) Bill, 2026, paving the way for its implementation after the State government notifies the commencement. The Code seeks common rules on marriage, divorce, succession and live-in relationships.

Explanation



- **Uniform Civil Code (UCC)** means a common set of civil laws governing personal matters irrespective of religion.
- **Article 44**, a **Directive Principle of State Policy**, asks the State to endeavour to secure a UCC throughout India.
- **Marriage, divorce, adoption and succession** fall in the **Concurrent List**, allowing both Parliament and State Legislatures to legislate.
- Gujarat's Code covers **marriage, divorce, succession and live-in relationships**.
- It is largely modelled on **Uttarakhand's UCC**.
- It does not apply to **Scheduled Tribes** and certain persons/groups whose customary rights are constitutionally protected.
- A State Bill reserved for the President may receive assent under **Article 201**.
- Presidential assent does not itself determine commencement where the law requires a subsequent **State Gazette notification**.

1.4 Preventive Detention and Constitutional Safeguards in India

Context:

Following the detention of protesters in Delhi, the Supreme Court directed authorities to protect peaceful protests while maintaining public order. This has renewed attention to preventive detention, its constitutional safeguards and the distinction between detention and prohibitory orders.

Explanation:



- **Preventive detention** means detaining a person without trial to prevent a possible future threat, unlike **punitive detention**, which follows conviction for an offence.
- **Article 22** of the Constitution provides safeguards against arbitrary arrest and detention.
- **Article 22(4)** generally limits preventive detention beyond three months unless an Advisory Board reports sufficient cause, subject to constitutional exceptions.
- **Article 22(5)** requires authorities to communicate the grounds of detention and provide an opportunity for representation, subject to limited exceptions.
- **The National Security Act, 1980**, permits preventive detention on specified grounds involving national security and public order.
- **Section 163 of BNSS, 2023**, empowers magistrates to issue urgent prohibitory orders to prevent danger or public disorder. Unlike preventive detention, **prohibitory orders restrict activities or assemblies rather than directly authorising detention.**
- **Courts can review detention orders** to protect personal liberty under **Article 21.**

1.5 Right to Life Includes the Right to Pollution-Free Air and Water

Context:

Addressing the 33rd Foundation Day of the National Human Rights Commission (NHRC), Chief Justice of India Surya Kant emphasised that Article 21 guarantees the right to pollution-free air and water. He urged courts, governments and human rights commissions to work together to protect vulnerable communities and ensure access to safe drinking water.

Explanation:

- **Article 21** guarantees the right to life and personal liberty, judicially interpreted to include the right to live with dignity and a healthy environment.
- **In Subhash Kumar v. State of Bihar (1991),** the Supreme Court recognised the right to pollution-free air and water under Article 21.
- **Article 48A,** a Directive Principle of State Policy, directs the State to protect and improve the environment.

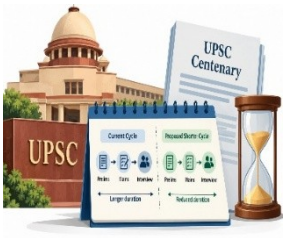
- **Article 51A(g)** imposes a Fundamental Duty on citizens to protect the natural environment.
- The **NHRC,** established under the Protection of Human Rights Act, 1993, is a statutory body.

1.6 SC/ST Act and the Meaning of "Public View" in the Digital Age

Context:

The Calcutta High Court has held that casteist slurs made on social media can attract provisions of the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989, observing that "public view" is not confined to physical spaces.

Explanation:



- **Sections 3(1)(r) and 3(1)(s)** of the SC/ST Act criminalise intentional insult, intimidation or caste-based abuse of an SC/ST person **"in any place within public view."**
- Essential ingredients include: the victim must belong to an SC/ST community, the accused generally must not, and the insult must be caste-based and made within public view.
- In **Swaran Singh v. State (2008)**, the Supreme Court distinguished a public place from a place within public view.
- The Calcutta HC held that **digital spaces can satisfy "public view"** where content is visible to members of the public.
- The Kerala HC has similarly recognised that statutory interpretation may adapt to **technological change**.
- However, courts must still examine whether all statutory ingredients are satisfied in each case.

1.7 UPSC Centenary: Call for Shorter Examination Cycles

Context:

At UPSC's centenary celebrations, Prime Minister Narendra Modi called for shorter, time-bound examination cycles and youth-centric recruitment reforms while preserving merit, impartiality and institutional independence.

Explanation:

- India's first **Public Service Commission** was established on **1 October 1926**, marking the beginning of UPSC's institutional journey.
- UPSC is an **independent constitutional body** under **Article 315**; Articles **315–323**, in **Part XIV**, govern Public Service Commissions.
- Its Chairman and members are appointed by the **President**, serving for **six years or until 65 years**, whichever is earlier.
- **Article 320** covers examinations for Union services and advice on recruitment, promotions, transfers and disciplinary matters.
- Its role is **advisory**; recommendations are not binding on the government.
- The **President** removes members; removal for **misbehaviour** requires a Supreme Court inquiry.
- Institutional independence supports **merit-based recruitment**, impartiality and continuity in public administration.

1.8 Cabinet Approves Continuation of National Social Assistance Programme until 2030-31

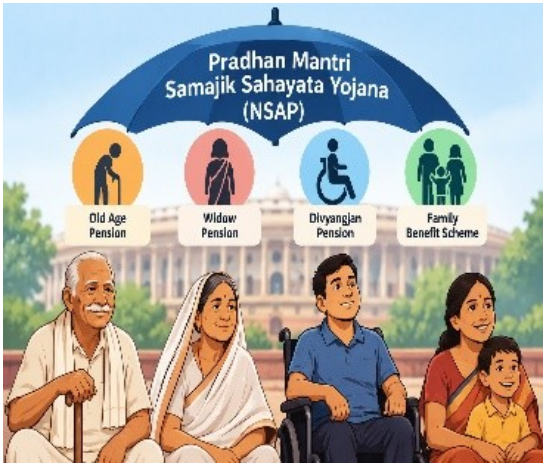
Context:

The Union Cabinet approved the continuation of the National Social Assistance Programme (NSAP) from 2026–27 to 2030–31, with an outlay of ₹53,428 crore. The programme has been renamed Pradhan Mantri Samajik Sahayata Yojana, with revised disability pension benefits and eligibility criteria.

Explanation:

- **NSAP**, launched on **15 August 1995**, is a centrally sponsored social security programme administered by the **Ministry of Rural Development**.

- It provides financial assistance to poor households, reflecting **Article 41** of the Constitution under the **Directive Principles of State Policy (DPSPs).**
- The programme **covers old-age pensions, widow pensions, disability pensions and family benefits, with 100% central assistance.**
- The renamed schemes are **Pradhan Mantri Vridhavastha Pension Yojana, Vidhawa Pension Yojana, Divyangjan Pension Yojana and Parivar Labh Yojana.**
- The changes made under new schemes align with the Rights of Persons with **Disabilities Act, 2016.**
- The programme will benefit approximately 3.20 crore people across 36 States/UTs.



1.9 eSanjeevani Crosses 50 Crore Teleconsultations

Context:

India's national telemedicine platform eSanjeevani has crossed 50 crore teleconsultations, reflecting the growing use of digital health services across all States and Union Territories.

Explanation:

- **eSanjeevani** is India's **National Telemedicine Service** under the **Ministry of Health and Family Welfare**.
- It enables **remote doctor consultations**, reducing barriers of distance, travel and limited healthcare access.
- It was developed by the **Centre for Development of Advanced Computing (C-DAC)**, with C-DAC Mohali providing technological support.
- It evolved from a **hub-and-spoke model** linking peripheral health centres with doctors and specialists.
- The platform supports **Ayushman Arogya Mandirs, medical hubs and online OPDs** across India.
- It now incorporates **AI-powered Clinical Decision Support System (AI-CDSS)** to assist healthcare providers.
- Integration with **ERSS-112** strengthens emergency healthcare linkages.
- Specialist teleconsultations through institutions such as **AIIMS** are expanding its role beyond primary care.
- It supports India's goals of **Universal Health Coverage and Digital Public Infrastructure**.

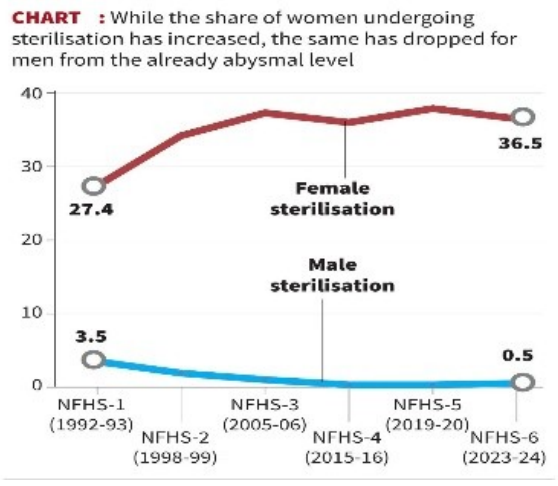
1.10 Gender Disparities in Contraceptive Use and Sterilisation

Context:

The NFHS-6 (2023–24) data highlight a persistent gender imbalance in family-planning responsibility in India. While 36.5% of women reported female sterilisation, only 0.5% of men reported male sterilisation, even as India's fertility rate has fallen below replacement level.

Explanation:

- India's **Total Fertility Rate (TFR)** declined from **5.2 in 1971 to 1.9 in 2025**, below the **replacement level of 2.1**.
- Use of any contraceptive method among married women aged 15–49 increased from **66.7% in NFHS-5 to 69.1% in NFHS-6**.
- However, use of **modern contraceptive methods** declined from **56.4% to 52.7%**, while traditional methods increased.
- **Female sterilisation** remains dominant at **36.5%**, compared with only **0.5% male sterilisation**.Male sterilisation declined from **3.5% in NFHS-1 to 0.5% in NFHS-6**.
- **Vasectomy** is comparatively less invasive and can generally be performed under local anaesthesia.



1.11 Gender Gap in "Years of Good Life" after Age 60 in India

Context:

A recent study finds that Indian women live longer than men after age 60 but experience fewer years of healthy, financially secure and satisfactory life. Women can expect about 5.7 Years of Good Life (YoGL) after 60, compared with 8.2 years for men.

Explanation



- **Years of Good Life (YoGL)** is a multidimensional measure of well-being that goes beyond conventional **life expectancy**.
- A year qualifies as a "good" year only when four conditions are simultaneously met: **freedom from poverty, adequate physical functioning, cognitive health and life satisfaction**.
- The study used data from the **Longitudinal Ageing Study in India (LASI)** and mortality data from the **Sample Registration System (SRS)**.
- Women at age 60 have higher remaining life expectancy than men, but fewer YoGL, indicating a **longevity–quality of life gap**.
- The disadvantage is particularly marked among **rural women**, reflecting gender and spatial inequalities.
- Among women, **cognitive health** contributed strongly to interstate differences; among men, **functional health** was more important.
- YoGL can complement life expectancy in assessing **healthy and inclusive ageing**.

1.12 Global Hunger Index 2026: India Ranks 100th out of 122 Countries

Context:

India ranked 100th out of 122 countries in the Global Hunger Index (GHI) 2026, falling under the serious hunger category. The report highlights persistent nutritional challenges, particularly child stunting (29.3%) and wasting (19%).

Explanation:



- The **Global Hunger Index (GHI)** measures hunger at national, regional and global levels using four indicators.
- It is published jointly by **Welthungerhilfe (Germany)** and **Concern Worldwide (Ireland)**, with research partners.
- Undernourishment: Proportion of the population consuming insufficient dietary calories.
- **Child stunting:** Low height-for-age among children under five, indicating chronic undernutrition.
- **Child wasting:** Low weight-for-height among children under five, indicating acute undernutrition.
- **Child mortality:** Proportion of children dying before their fifth birthday.
- GHI scores range from 0 (best) to 100 (worst), with five categories: low, moderate, serious, alarming and extremely alarming.
- India's indicators include 9.8% undernourishment, 29.3% stunting, 19% wasting and 2.7% child mortality.
- The index supports monitoring progress towards **SDG 2 (Zero Hunger).**

1.13 India's Continuing Leprosy Transmission Challenge

Context:

India continues to face **ongoing leprosy transmission**, particularly among children, despite achieving the national elimination threshold in 2005. In 2025–26, **3,832 new child cases** were detected, highlighting the need for early detection and interruption of transmission.

Explanation



- **Leprosy (Hansen's disease)** is a chronic infectious disease caused mainly by **Mycobacterium leprae**, affecting the **skin, peripheral nerves, eyes and upper respiratory tract**.

- It spreads mainly through **prolonged, close contact** with an untreated patient, probably via respiratory droplets; it is **not highly contagious**.
- Its long **incubation period**, averaging about five years, makes transmission difficult to trace.
- Leprosy is **curable with multidrug therapy (MDT)**; early treatment prevents disability.
- India's **National Leprosy Eradication Programme (NLEP)** conducts surveillance, contact tracing and **Leprosy Case Detection Campaigns (LCDC)**.
- **Child cases indicate recent/ongoing transmission**, while **Grade-2 Disability (G2D)** at diagnosis indicates delayed detection.
- India's **National Strategic Plan 2023–2027** targets interruption of transmission at the district level by 2027.

1.14 India's Fertility Rate Falls Below Replacement Level

Context:

India's Total Fertility Rate (TFR) remains at 2.0 children per woman in NFHS-6 (2023–24), below the replacement level of 2.1. However, substantial regional and rural–urban differences continue, with Bihar recording a TFR of 2.7 while several regions have very low fertility.

Explanation:



- **TFR** means the average number of children a woman would have during her reproductive years under prevailing fertility rates.
- **Replacement-level fertility** is about **2.1**, at which a population broadly replaces itself across generations, assuming mortality and migration conditions.
- India's TFR declined sharply from 5.9 in 1950 to 2.0 in NFHS-5, and remains 2.0 in NFHS-6. NFHS-6 reports **rural TFR at 2.1** against **urban TFR of 1.6**.
- 28 States/UTs are below replacement level; **7** are at or above it.
- **Bihar (2.7)** has the highest TFR, while **Andaman & Nicobar Islands (0.9)** has the lowest.
- Drivers include female education, urbanisation, later marriage, contraception, rising child-rearing costs and women's empowerment.

1.15 Lancet Commission Identifies 17 Major Global Health Threats

Context:

The Lancet Commission on 21st Century Global Threats to Health has identified 17 major threats that could cause substantial losses of healthy life by 2100. The report highlights India's vulnerability to these interconnected risks and calls for stronger healthcare preparedness and long-term planning.

Explanation:



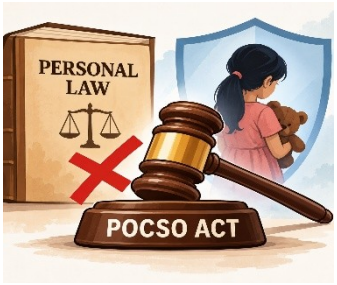
- The **Lancet Commission**, launched at the **World Health Summit in Berlin**, assessed major health threats across **204 countries and territories**.
- It identified **17 catastrophic threats**, including climate change, obesity, antimicrobial resistance (AMR), pandemics, malnutrition, inequality, nuclear conflict and misuse of Artificial Intelligence (AI).
- A threat was classified **as catastrophic** if it could cause **at least one billion Disability-Adjusted Life Years (DALYs)** by 2100.
- DALY measures healthy years lost due to premature death or living with illness or disability.
- **Obesity** represents a major projected burden, with interventions potentially preventing **23.1 billion DALYs by 2100.**
- **Climate change** worsens several health risks through extreme heat, air pollution and disease-related impacts.
- **India is facing all of the 17 threats and is navigating every single category simultaneously, from non-communicable lifestyle conditions to infectious diseases, climate impacts, and technological/geopolitical risks.**
- The Commission recommends strengthening **healthcare preparedness**, investing in vaccines and medical technologies, and regularly monitoring emerging threats.

1.16 Personal Law Cannot Override POCSO Protection for Minors

Context:

The Delhi High Court has held that a marriage recognised under Muslim personal law cannot provide immunity from prosecution under the POCSO Act or Bharatiya Nyaya Sanhita (BNS) for sexual intercourse with a wife below 18 years.

Explanation



- **Personal laws** govern family matters such as marriage, divorce, maintenance, adoption, guardianship, inheritance and succession, often based on religious communities.
- They may recognise community-specific rules and customs regarding marriage and its civil consequences.
- Such recognition is **not a general immunity from criminal law**; exemptions must arise from the applicable statute itself.
- **POCSO Act, 2012** is a special child-protection law and defines a **child as any person below 18 years**. For POCSO, a minor's consent cannot legalise an otherwise prohibited sexual act.
- Crucially, **POCSO contains no marital exception** for sexual offences against children. The **BNS** also fixes 18 years as the relevant threshold and does not extend its marital exception where the wife is below 18.
- Hence, even an otherwise recognised marriage cannot create an exemption that Parliament has not provided.

1.17 Rabies Mortality Data Gap and India's 2030 Elimination Goal

Context:

India faces a major rabies surveillance gap, with government systems reporting far fewer deaths than recent ICMR estimates. The mismatch complicates India's goal of eliminating dog-mediated human rabies by 2030.

Explanation:



- **Rabies** is a fatal **viral zoonotic disease** that affects the central nervous system and is mainly transmitted through bites or scratches of infected mammals, especially dogs.
- Once a person starts showing signs of rabies, it cannot be cured and will almost always cause death, but it can be completely stopped if you get anti-rabies shots and wound care right after an animal bite.
- India follows the **One Health approach**, linking human health, animal health and environmental action for rabies control.
- The government tracks sickness and death using different health record systems. Platforms like the Integrated Disease Surveillance Programme (IDSP) and the Integrated Health Information Platform (IHIP) keep track of what diseases are spreading, while the Medical Certification of Cause of Death (MCCD) records exactly what medical condition caused someone to die.
- These systems are not directly comparable and both may miss deaths occurring outside formal healthcare facilities.
- An ICMR-led study estimated about **5,726 rabies deaths annually** and around **9.1 million animal bites** each year.
- WHO's global strategy aims for **"Zero by 30"**—zero human deaths from dog-mediated rabies by 2030.

1.18 WHO Guidelines on Childhood and Adolescent Obesity Management

Context:

The World Health Organization (WHO) has issued guidelines addressing rising obesity among children and adolescents aged 10–19 years. It recommends healthy diets, physical activity and behavioural interventions while cautioning against routine use of weight-loss drugs and bariatric surgery in this age group.

Explanation:



- **Obesity** is a condition involving **excessive body-fat accumulation** that increases health risks.

- **Body Mass Index (BMI)** is calculated as **weight (kg) divided by height squared (m²);** childhood obesity is assessed using age- and sex-specific BMI standards.
- WHO recommends structured dietary interventions, physical activity and behavioural changes for managing childhood obesity.
- **Multimodal interventions** combine nutrition, exercise, psychological support and family involvement.
- **GLP-1 receptor agonists** are medicines that **mimic a gut hormone** to regulate appetite and blood glucose levels.
- WHO advises against routine pharmacotherapy for children, with conditional recommendations for adolescents in selected cases.
- **Bariatric surgery**, which modifies the digestive system to promote weight loss, is **strongly discouraged** for children and conditionally considered for adolescents.
- Childhood obesity increases the risk of type 2 diabetes, hypertension and cardiovascular diseases.

1.19 World Mental Health Day and Post-COVID Mental Health Crisis

Context:

On the occasion of World Mental Health Day , community-based research highlighted the persistent mental health challenges among COVID-19 survivors in India. The findings emphasised the need for integrated healthcare addressing both physical and psychological complications of post-COVID conditions.

Explanation:

- World Mental Health Day is observed annually **on October 10**, led by the **World Federation for Mental Health (WFMH),** with support from the WHO.
- **Mental health** refers to a state of well-being that enables individuals to cope with stress, realise their abilities and contribute to society.
- **Long COVID (Post-COVID Condition)** refers to persistent or newly developed symptoms following COVID-19 infection, generally lasting at least two months, with no alternative explanation.
- Common symptoms include **chronic fatigue, anxiety, depression, cognitive difficulties (brain fog) and muscle pain.**
- Indian community research involving over **34,000 individuals** reported significantly higher risks of persistent depression and poor overall health among COVID-19 survivors.
- Integrated healthcare combines physical and mental health services through coordinated, patient-centred treatment.
- India's **National Mental Health Programme (1982)** and **Tele-MANAS (2022)** support accessible mental healthcare.

2. International Relations

2.1 153rd Inter-Parliamentary Union Assembly in Tanzania

Context:

An Indian Parliamentary Delegation led by the Deputy Chairman of the Rajya Sabha is participating in the 153rd Assembly of the Inter-Parliamentary Union (IPU) at Arusha, Tanzania. The meeting focuses on good governance, inclusivity, trust and empowerment of communities.

Explanation:



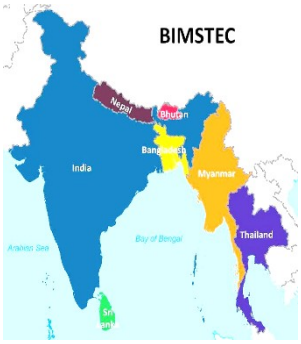
- The **Inter-Parliamentary Union (IPU)** is a global organisation of **national parliaments**, founded in **1889**.
- It promotes **parliamentary dialogue, democracy, peace, human rights and sustainable development**.
- Its headquarters is in **Geneva, Switzerland**.
- The **IPU Assembly** is its principal statutory body and brings together parliamentarians from member countries.
- The **Governing Council** oversees the administration and work programme of the IPU.
- IPU discussions cover issues such as **peace and security, democracy, women's participation, climate change, artificial intelligence and sustainable development**.
- India participates through parliamentary delegations from the **Lok Sabha and Rajya Sabha**.
- Such participation forms part of **parliamentary diplomacy**, where legislatures engage internationally alongside conventional state-to-state diplomacy.

2.2 BIMSTEC Adopts Delhi Declaration on Counter-Terrorism

Context:

At the first-ever meeting of BIMSTEC Home Ministers in New Delhi, member countries adopted the Delhi Declaration to strengthen regional cooperation against terrorism, radicalisation, terrorist financing and misuse of emerging technologies for terrorist activities.

Explanation:



- **BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation)** was established on 6 June 1997 through the **Bangkok Declaration**.
- It comprises **seven members**: Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thailand.
- Its **Secretariat is in Dhaka, Bangladesh**, and its chairmanship rotates among member countries.
- BIMSTEC connects **South Asia and Southeast Asia,** promoting regional cooperation across seven sectors.
- Se**curity cooperation,** including **counter-terrorism and transnational crime,** is led **by India.**
- The **Delhi Declaration** condemns terrorism in all forms, including cross-border terrorism, and calls for preventing radicalisation and terrorist recruitment.
- It emphasises combating **terror financing, cybercrime, drug trafficking and misuse of emerging technologies.**
- It supports implementation of **UN Security Council Resolution 1267 sanctions**, targeting designated terrorists and terrorist organisations.
- The BIMSTEC Convention on Combating International Terrorism, Transnational Organised Crime and Illicit Drug Trafficking entered into force in March 2021.

2.3 China Imposes Export Restrictions on Tunnel Boring Machines

Context:

China has announced new export licensing restrictions on Tunnel Boring Machines (TBMs), effective November 18, raising concerns over delays in India's infrastructure projects. The restrictions could particularly affect the Mumbai–Ahmedabad High-Speed Rail Corridor, which includes an undersea tunnel.

Explanation:



- A **Tunnel Boring Machine (TBM)** is a large mechanical device used to excavate underground tunnels through soil and rock.
- It uses a rotating cutterhead to break the ground while supporting the surrounding tunnel structure, reducing the risk of collapse.
- TBMs are widely used in metro rail, railway, highway, water supply and sewerage projects.
- Unlike conventional drilling and blasting, TBMs enable continuous excavation with relatively less vibration and disturbance to surrounding structures.
- India's **508-km Mumbai–Ahmedabad High-Speed Rail Corridor** includes a 7-km undersea tunnel section.
- China's restrictions require exporters to obtain licences under its **dual-use export control regulations.**
- **Dual-use goods** are technologies or equipment that can serve both civilian and military purposes.
- These restrictions highlight India's dependence on imported tunnelling technology and the need for **domestic manufacturing and supply-chain diversification**.

2.4 India–Japan Joint Crediting Mechanism Operationalised

Context:

India and Japan have launched the Operational Manual for the Joint Crediting Mechanism (JCM), providing a procedural framework for projects from initial proposal to issuance and authorisation of carbon credits. It operationalises bilateral cooperation under **Article 6.2** of the Paris Agreement.

Explanation



- **The JCM is a bilateral carbon-market mechanism** through which Japan supports deployment of advanced low-carbon technologies and emission-reduction projects in partner countries.
- Projects can generate measurable emission reductions or removals, which may be converted into **internationally recognised carbon credits.**
- The mechanism seeks to mobilise climate finance, promote technology transfer and support sustainable development**.**
- Under **Article 6.2 of the Paris Agreement,** countries can voluntarily cooperate using **Internationally Transferred Mitigation Outcomes (ITMOs).**
- Such transfers require authorisation, transparency, robust accounting and avoidance of double counting.
- India and Japan signed a **Memorandum of Cooperation in 2025** and adopted implementation rules in 2026.
- **The Operational Manual** now lays down the full project cycle, from Project Idea Note to credit issuance and authorisation**.**

2.5 India's SCO Engagement with Pakistan

Context

A senior Indian diplomat attended the SCO Council of National Coordinators meeting in Islamabad, marking the first official Indian delegation visit to Pakistan since Operation Sindoor. The visit occurred in a multilateral SCO framework, while India-Pakistan bilateral relations remain strained.

Explanation:



- The **Shanghai Cooperation Organisation (SCO)** was established in **2001** as a Eurasian multilateral organisation.
- its 10 member states are Belarus, China, India, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, and Uzbekistan.

- SCO cooperation covers security, counter-terrorism, trade, connectivity and regional stability.
- The SCO has enabled India and Pakistan to participate together in a multilateral platform despite limited bilateral engagement. Pakistan currently holds the SCO presidency, making it host to several preparatory meetings.

2.6 Kurdistan and the Türkiye–PKK Peace Process

Context:

The **Kurdistan Workers' Party (PKK)** has accused Türkiye of making insufficient progress in the peace process initiated in 2024. The dispute continues over political rights, disarmament and the reintegration of former militants.

Explanation:

- **Kurds** are an indigenous Indo-European ethnic group primarily native to a mountainous region in the Middle East known as Kurdistan.
- The geo-cultural region of Kurdistan spans across four main countries in the Middle East: Turkey, Iraq, Iran, and Syria
- Their primary demand is self-determination and the establishment of an independent or autonomous Kurdish state.
- **Kurdistan** refers to this Kurdish-inhabited geographical and cultural region; **it is not an independent sovereign country.**
- Most Kurds speak Kurdish, an Indo-Iranian language, and the majority follow Sunni Islam.
- Following the First World War, the 1920 Treaty of Sèvres promised the Kurds an independent state. However, the 1923 Treaty of Lausanne omitted this promise and instead created the modern borders of Türkiye, dividing the Kurdish homeland across Turkey, Iraq, Syria, and Iran.
- This left the Kurds as the world's largest stateless nation, facing decades of suppression.

2.7 Nepal Becomes First Beneficiary of Fund for Responding to Loss and Damage

Context:

Nepal has become the first country to receive provisional approval for $20 million from the Fund for Responding to Loss and Damage (FRLD) to support reconstruction following devastating floods. The fund provides financial assistance to vulnerable developing countries affected by climate-related disasters.

Explanation:



- Loss and Damage refers to climate change impacts that cannot be prevented through mitigation or adaptation, including loss of lives, livelihoods, infrastructure and ecosystems.
- Developing countries, despite contributing relatively little to historical greenhouse gas emissions, often face disproportionate climate impacts.
- The **Fund for Responding to Loss and Damage (FRLD)** was established at COP27 (2022), Sharm el-Sheikh, Egypt, under the UNFCCC process.
- It was operationalised at **COP28 (2023), Dubai,** with the **World Bank** serving as its interim host and trustee.
- The fund supports vulnerable developing countries in addressing economic and non-economic losses caused by extreme weather and slow-onset climate events.
- The **Barbados Implementation Modalities (BIM)** provide the framework for initial funding requests.
- Nepal's $20 million request followed devastating floods and landslides in its Rasuwa district.

2.8 Oman Emerges as India's Largest LNG Supplier

Context:

Oman overtook the United States as India's largest Liquefied Natural Gas (LNG) supplier in September 2026, amid supply disruptions caused by the West Asia conflict. India's LNG imports remained strong despite disruptions around the strategically important Strait of Hormuz.



Explanation:

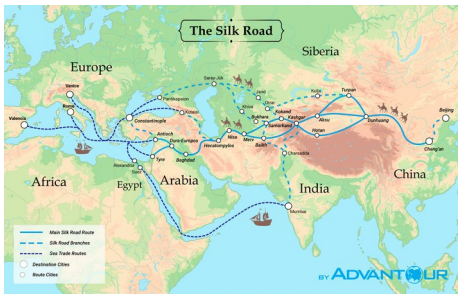
- **Liquefied Natural Gas (LNG)** is natural gas, primarily methane, cooled to approximately -162°C, converting it into liquid for easier storage and transportation.
- India imports LNG to meet domestic demand for electricity generation, fertiliser production, industrial fuel and **City Gas Distribution (CGD).**
- **Strait of Hormuz** connects the **Persian Gulf with the Gulf of Oman** and serves as a critical maritime chokepoint for global energy trade.
- Major LNG exporters in the Gulf **include Qatar, Oman and the United Arab Emirates (UAE).**
- Unlike Qatar and the UAE's principal Gulf export terminals, Oman's LNG export terminals lie outside the Strait of Hormuz, reducing their direct exposure to disruptions within the strait.

2.9 Silk Road: New Archaeological Evidence from Central Asia

Context:

Recent archaeological discoveries have renewed interest in the Silk Road. Evidence of 4,000-year-old sericulture in Uzbekistan and exploration of a submerged medieval settlement in Kyrgyzstan's Lake Issyk-Kul highlight Central Asia's early role in Eurasian trade and cultural exchange.

Background



- The **Silk Road** was a network of **land and maritime trade routes**, not a single road, connecting East, Central, South and West Asia.
- It became especially important from around the **2nd century BCE**, when China's **Han dynasty** expanded contacts with Central Asia.
- **Chinese silk** was a major traded commodity, alongside horses, spices, metals, textiles and other goods.
- The routes connected China, Central Asia, India, Persia and the Mediterranean region.
- They facilitated the spread of **Buddhism from India to Central Asia and China**, along with Christianity, Manichaeism and Islam.
- **Papermaking, art, medicine, astronomy and musical traditions** also travelled across these networks.
- Its relative importance declined as **Indian Ocean maritime trade** became cheaper and safer.

2.10 U.S. Blockade on Cuba and the Deepening Fuel Crisis

Context:

The United States has intensified economic and energy-related restrictions on Cuba, worsening fuel shortages, prolonged power cuts and disruptions to essential services. Recent U.S. measures have also expanded sanctions involving Cuba's energy sector and restricted direct and indirect transactions with designated Cuban entities.

Explanation:

- The **Cuban Revolution (1959)** brought **Fidel Castro** to power; deteriorating U.S.–Cuba relations led to a comprehensive U.S. trade embargo by **1962**.
- Cuba calls these measures a **"blockade"**, emphasizing their wider effects on trade and finance.
- **Venezuela** became an important supplier of subsidised oil to Cuba after the Soviet Union's collapse. But, following the military intervention on January 3, 2026, the United States established de facto oversight over Venezuela's governance and petroleum sector.
- Cuba's heavy dependence on petroleum and ageing power infrastructure make reduced fuel imports particularly disruptive.
- The **UN General Assembly** has repeatedly adopted resolutions calling for an end to the U.S. embargo.

2.11 U.S. Troop Withdrawal from Iraq and Iran's Growing Influence

Context:

The United States has completed the withdrawal of its remaining troops from Iraq, ending a military presence that began with the 2003 invasion. The withdrawal raises



questions about Iraq's security, the residual threat from the Islamic State (IS) and the influence of Iran-backed Shia militias.

Explanation:

- The U.S.-led invasion of **Iraq in 2003** overthrew **Saddam Hussein** and dismantled much of the existing Iraqi state structure.
- U.S. combat forces initially withdrew in **2011**, but returned in **2014** after the rapid territorial expansion of the **Islamic State of Iraq and Syria (ISIS)**.
- The U.S.-led coalition supported Iraqi forces through training, intelligence and counter-terrorism operations.
- Iran expanded its influence after 2003 through political links and support for several **Shia armed groups**.
- Many such groups operate within or alongside the **Popular Mobilization Forces (PMF/Hashd al-Shaabi)** framework.
- Iraq occupies a strategically important position between Iran, the Gulf region, Türkiye and the Levant.
- Key post-withdrawal concerns include ISIS remnants, militia disarmament, Iraqi sovereignty and regional balance of power.

2.12 UNCTAD Highlights Inequality in Global Biodiversity-Based Trade

Context:

A UNCTAD report reveals that Africa and Latin America, despite holding nearly two-thirds of global biodiversity, accounted for just 14% of biodiversity-based exports in 2024. Global trade in these products reached $3.8 trillion, highlighting inequalities in value addition and market access.

Explanation:



- **Biodiversity-based trade** involves products derived from biological resources, including food, natural fibres, medicinal plants and other natural ingredients.
- **UN Conference Trade and Development (UNCTAD), established in 1964,** promotes developing countries' integration into international trade and the global economy.
- Biodiversity-rich developing countries often export raw materials, while developed economies capture greater value through processing and manufacturing.
- Tariff barriers, certification costs and non-tariff measures, including **phytosanitary requirements,** restrict developing countries' access to international markets.
- UNCTAD's **BioTrade Initiative** promotes sustainable collection, production, processing and commercialisation of biodiversity-derived goods and services.
- The **Convention on Biological Diversity (CBD), 1992,** promotes biodiversity conservation, sustainable use and fair sharing of benefits from genetic resources.
- The **Kunming-Montreal Global Biodiversity Framework (2022)** contains four goals for 2050 and 23 targets for 2030, addressing biodiversity loss and financing needs.

2.13 US Probe into EU's Carbon Border Adjustment Mechanism and Implications for India

Context:

The United States has initiated a probe into the European Union's Carbon Border Adjustment Mechanism (CBAM), raising concerns about its impact on American small businesses. Any relaxation of CBAM rules could benefit Indian exporters, particularly in the iron, steel and aluminium sectors.

Explanation:



- **Carbon Border Adjustment Mechanism (CBAM)** is the European Union's carbon pricing system for certain imported goods, aimed at preventing carbon leakage.
- **Carbon leakage** occurs when industries shift production to countries with weaker climate regulations to avoid carbon costs.
- CBAM initially covers six sectors: **iron and steel, aluminium, cement, fertilisers, electricity and hydrogen.**

- Under CBAM, EU importers must declare the **embedded emissions** (greenhouse gases released during production) of imported goods.
- During its definitive phase, CBAM requires importers to purchase certificates reflecting the carbon price applicable to those emissions, subject to applicable adjustments.
- **India's concern:** Carbon-intensive exports, particularly steel and aluminium, could face higher costs and reduced competitiveness in the EU market.
- **US intervention:** Pressure for more flexible CBAM rules could reduce compliance burdens and potentially benefit Indian exporters.

3. Economy

3.1 Directorate of Revenue Intelligence Busts Pan-India Gold Smuggling Network

Context:

The Directorate of Revenue Intelligence (DRI) busted a pan-India syndicate allegedly smuggling foreign-origin gold through the India–Bangladesh border and distributing it through courier networks. The operation resulted in the seizure of 6.61 kg of gold and arrests across several cities.

Explanation:



- **DRI** is India's apex **anti-smuggling intelligence and enforcement agency** under the **Central Board of Indirect Taxes and Customs (CBIC)**, Department of Revenue, Ministry of Finance.
- It investigates customs-duty evasion, commercial fraud and organised smuggling, including gold and narcotics.
- **CBIC** administers customs through the **Customs Act, 1962** and related laws.
- Smuggled goods can be **confiscated**, while persons involved may face penalties, prosecution and arrest subject to statutory provisions.
- Gold smuggling commonly seeks to circumvent **customs duties and import regulations**.
- DRI operates through intelligence gathering and **inter-agency coordination** across India.

3.2 Draft Petroleum (Amendment) Bill, 2026 Released for Consultation

Context:

The Ministry of Petroleum and Natural Gas has released the Draft Petroleum (Amendment) Bill, 2026 for public and stakeholder consultation. The draft proposes amendments to the **Petroleum Act, 1934**, with comments invited before the Bill is finalised.

Explanation:



- The **Petroleum Act, 1934** regulates the import, transport, storage, production, refining and blending of petroleum and prescribes safety-related controls.
- The Act empowers the **Central Government** to make rules regarding licensing, testing, storage and handling of petroleum.
- The 2026 draft seeks to update the statutory framework governing petroleum-related activities and has been placed in the public domain before formal legislative introduction.
- This process is called **pre-legislative consultation**, through which citizens, industry and other stakeholders can submit comments on a proposed law.
- Such consultation improves **transparency, participatory law-making and regulatory clarity**, although public consultation itself is not a constitutional requirement.

3.3 Forced-Labour Imports, Excess Capacity and WTO Rules

Context

India has stated that it has no structural excess capacity in sectors identified by the U.S. and reiterated its ban on imports made using forced labour. The remarks come amid additional U.S. tariffs on Indian imports and scrutiny of alleged excess production capacity.

Explanation:



- **The Core Dispute:** The U.S. has imposed additional tariffs on Indian imports and scrutinized its manufacturing sectors, accusing India of having structural excess production capacity, which risks flooding global markets with cheap goods.

- **Forced-Labor Ban:** U.S. is also accusing India of failing to effectively enforce restrictions against forced labor. India also reiterated its strict ban on imports produced using forced labor, aligning its positioning with global human rights standards to counter U.S. scrutiny.
- **Forced labour** refers to work extracted under coercion or threat; **Article 23 of the Indian Constitution** prohibits forced labour.
- India has ratified key **ILO Conventions No. 29 and 105** dealing with forced labour.
- India has amended its **Foreign Trade Policy** to prohibit imports of goods produced using forced labour.
- Under **WTO rules**, countries may use **anti-dumping duties** and **countervailing duties** when prescribed conditions and evidence are satisfied. Such trade remedies require investigation, evidence and **due process**, rather than arbitrary unilateral restrictions.
- The issue links trade policy, labour standards, industrial subsidies and global supply chains.

3.4 Government to Cap Trade Margins on Anti-Cancer Drugs at 30%

Context:

The Union government has decided to cap trade margins at 30% of the Maximum Retail Price (MRP) for non-scheduled anti-cancer medicines to make cancer treatment more affordable. An expert committee under the Directorate General of Health Services (DGHS) will finalise the list of medicines covered.

Explanation:



- **Trade margin** is the difference between the price at which a medicine is sold to a distributor or retailer and its final selling price.
- **Maximum Retail Price (MRP)** is the highest price at which a packaged medicine can be sold to consumers, inclusive of applicable taxes.
- **Scheduled medicines** are listed under the Drug Price Control Order (DPCO), 2013, and are subject to government-fixed ceiling prices.
- **Non-scheduled medicines** are not subject to these ceiling prices, but their annual MRP increase is generally limited to 10%.
- The **National Pharmaceutical Pricing Authority (NPPA)** regulates medicine prices under the Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers.
- The **National List of Essential Medicines (NLEM)** guides the selection of medicines for scheduled price control.
- The proposed cap aims to reduce excessive mark-ups and patients' **out-of-pocket expenditure (OOPE)**.
- Under **Paragraph 19 of DPCO, 2013**, the government can intervene in medicine pricing in extraordinary circumstances and public interest.

Reference Table – Medicine Price Control

	Scheduled Medicines	Non-Scheduled Medicines
Meaning	Medicines under **Schedule I of DPCO, 2013**, largely based on NLEM	Medicines outside Schedule I
Price control	Direct price control	No general ceiling price
Regulator	NPPA fixes ceiling price	Manufacturer generally fixes initial MRP; NPPA monitors increases
Restriction	Cannot ordinarily exceed notified **ceiling price + applicable taxes**	MRP generally cannot rise by more than **10% in 12 months**
Approach	Ceiling price broadly based on prevailing market prices + permitted retailer margin	Controls **subsequent increases**, not the initial launch price

3.5 Government's Strategic Disinvestment of IDBI Bank

Context:

The Union Government has authorised the sale of its remaining 15% stake in IDBI Bank through the open market. The strategic restructuring will not affect the bank's regulatory obligations or its role in implementing government financial inclusion and social security schemes.

Explanation:



- **IDBI was established in 1964** as a development financial institution to provide long-term finance for industrial development.
- It was converted into a banking company **in 2004**, transitioning **from development financing to commercial banking.**
- In **2019,** the Life Insurance Corporation of India (LIC) acquired a controlling stake, following which the **RBI classified IDBI Bank as a private sector bank**.
- **Disinvestment** involves the government selling its equity holdings in public sector enterprises to raise resources or reduce ownership.
- **Strategic disinvestment** involves substantial government shareholding sales along with the transfer of management control.
- The **Department of Investment and Public Asset Management (DIPAM),** under the Ministry of Finance, manages the government's disinvestment programme.
- **The Cabinet Committee on Economic Affairs (CCEA)** approves major disinvestment proposals, while the Alternative Mechanism implements authorised decisions.
- IDBI Bank remains regulated by the RBI and continues providing banking, financial inclusion and social security services.

3.6 Gross Domestic Knowledge Product (GDKP)

Context:

A NITI Aayog member announced that India is developing a "Gross Domestic Knowledge Product (GDKP) framework" to identify and assess the country's knowledge assets. The initiative aims to recognise India's intellectual resources and their economic significance amid the growing influence of Artificial Intelligence (AI).

Explanation



- Knowledge assets include scientific research, patents, innovations, indigenous technologies, traditional knowledge and intellectual property.
- Unlike **Gross Domestic Product (GDP),** which measures the monetary value of final goods and services produced within a country, GDKP seeks to capture the **contribution of knowledge to economic development**.
- It reflects the growing importance of the **knowledge economy**, where research, innovation, human capital and technology drive productivity and economic growth.
- The initiative also seeks to safeguard **India's traditional and indigenous knowledge** from misappropriation in the age of Artificial Intelligence.
- **GDKP is still under development**, and its measurement methodology and indicators have not yet been finalised.

3.7 GST Council Approves Reforms to Simplify Tax Enforcement

Context:

The GST Council, at its October 8, 2026 meeting, approved procedural reforms to make GST administration more business-friendly. Key measures include removing tax officers' pre-prosecution arrest powers, introducing a ₹10,000 minimum threshold for show-cause notices and tightening conditions for intercepting goods transported across states.

Explanation



- **Goods and Services Tax (GST)** is a destination-based indirect tax introduced **on 1 July 2017,** replacing several Central and State indirect taxes.

- Under **Article 279A,** the GST Council is a constitutional body chaired by the Union Finance Minister.
- It recommends GST rates, exemptions and administrative reforms to the Union and States.
- Under the **CGST Act, 2017**, tax officers have powers relating to inspection, search, seizure and arrest in specified cases.
- **Pre-prosecution arrest** means arresting an accused person before criminal prosecution begins.
- A **show-cause notice (SCN)** asks a taxpayer to explain an alleged violation before authorities take action.
- **E-way bills** are electronic documents used to track the movement of goods, generally for consignments exceeding ₹50,000.
- The reforms aim to reduce unnecessary enforcement, improve **ease of doing business** and promote taxpayer trust.

3.8 Import Duty Reduction on Edible Oils

Context:

The Centre has reduced the Basic Customs Duty (BCD) on major imported edible oils amid rising international prices. BCD on crude sunflower oil was cut from 10% to Nil, while that on crude palm and soybean oils was reduced from 10% to 5%.

Explanation



- **Basic Customs Duty (BCD)** is a customs levy imposed on imported goods; lowering it reduces their **landed cost**.
- India depends substantially on imports to meet domestic edible-oil demand, making prices sensitive to global prices, freight and exchange rates.
- Lower duties can increase cheaper imports and help moderate **domestic retail prices and food inflation**.
- BCD on refined palm and soybean oils was reduced from **32.5% to 27.5%**, and refined sunflower oil from **32.5% to 22.5%**.
- A 19.25% effective import-duty differential between crude and refined oils is maintained to encourage domestic refining and value addition
- Lower import protection can, however, expose domestic **oilseed farmers** to greater competition from imports.

3.9 India's Share in Global Greenfield Investments Rises

Context:

According to UNCTAD's Trade and Development Report 2026, India attracted 5.7% of global greenfield investments during 2020–25, more than double China's share of 2.8%. The report highlighted the growing concentration of greenfield investments in strategic sectors, particularly Artificial Intelligence (AI) infrastructure.

Explanation



- **Greenfield Investment** refers to a form of Foreign Direct Investment (FDI) in which a foreign company establishes entirely new business facilities or operations in another country.
- It involves creating **new factories, offices or production facilities,** generating employment, infrastructure and productive capacity.
- Unlike **Brownfield Investment**, which involves acquiring or expanding existing facilities, greenfield investment establishes new operations from scratch.
- During 2020–25, **India's share** of global greenfield investments was **5.7%,** compared with **Malaysia (4%), Indonesia (3.8%) and China (2.8%).**
- **Strategic sectors** accounted for **44% of global greenfield investment** in 2025, compared with 16% in 2020.
- **AI infrastructure** attracted the largest share of strategic greenfield investments **(12.4%),** followed by **semiconductors (8.1%) and energy-transition technologies (7.8%).**
- **UNCTAD,** established in **1964**, is a UN body headquartered in **Geneva**, promoting trade, investment and development.

3.10 Indian Railways' Dual-Fuel LNG–Diesel DEMU Train

Context:

Indian Railways has launched its first dual-fuel DEMU train capable of operating on both diesel and liquefied natural gas (LNG). The move aims to lower fuel costs and emissions while retaining operational flexibility on non-electrified or low-traffic routes.

Explanation:



- **DEMU** stands for **Diesel Electric Multiple Unit**; unlike conventional trains, it does not require a separate locomotive.
- In a DEMU, a diesel engine generates electricity, which powers traction motors that move the train.
- The new train uses a dual-fuel configuration, with about 40% LNG and 60% diesel during normal operation.
- It can **revert to 100% diesel operation** when required, **ensuring reliability where LNG supply is unavailable.**
- **LNG** generally **produces lower particulate matter**, **sulphur oxides** and **carbon emissions** than conventional diesel.
- Despite near-total railway electrification, **DEMUs remain useful** on **low-density branch lines, non-electrified stretches and operational backup routes.**
- LNG conversion also allows Railways to utilise existing diesel assets rather than immediately scrapping them.
- Such trains support the broader goals of energy diversification, emission reduction and asset optimisation.

3.11 India–China Trade Deficit Crosses $100 Billion

Context:

India's exports to China grew by 40.7% during January–September 2026, reaching $19.26 billion. However, imports rose to $125.19 billion, pushing the bilateral trade deficit to $105.93 billion, highlighting India's continued dependence on Chinese imports.

Explanation



- **Bilateral trade** refers to the exchange of goods and services between two countries.
- **A trade deficit** occurs when the value of a country's imports exceeds its exports, whereas a **trade surplus** occurs when exports exceed imports.
- India's trade deficit with China is primarily driven by imports of **electronics, machinery, industrial components and chemical products**.
- India exports products such as **seafood, minerals and other raw materials to China**.
- India's dependence on Chinese **intermediate goods**, used as inputs in domestic manufacturing, contributes to the trade imbalance.
- **Non-tariff barriers,** limited market access and differences in export competitiveness also influence bilateral trade.
- China's **export controls on rare earth elements** and fertilisers raise concerns about India's supply-chain security.
- Reducing import dependence requires domestic manufacturing, **export diversification and stronger global supply chains.**

3.12 India's e-Methanol Push for Green Shipping

Context:

India has laid the foundation stone for a 150 TPD e-Methanol plant at Deendayal Port, Kandla, aimed at promoting cleaner marine fuels, reducing fossil-fuel dependence and strengthening the country's emerging green-energy ecosystem.



Explanation:

- **e-Methanol** is produced using renewable hydrogen and captured carbon dioxide, making it a low-carbon alternative to conventional methanol.
- It can serve as a cleaner marine fuel, helping reduce emissions from the shipping sector.
- The plant's location at Deendayal Port can support direct supply of green fuel to domestic and international vessels.
- The project can strengthen India's energy security by reducing dependence on imported fossil-based fuels.
- It can stimulate green industrial investment, employment and new supply chains around ports and clean-energy infrastructure.
- The initiative also supports India's broader transition towards low-carbon transport, green hydrogen and sustainable maritime trade.

3.13 Integrated Transport and Logistics Authority (ITLA) Approved

Context:

The Government of India approved the establishment of the Integrated Transport and Logistics Authority (ITLA) on 6 October 2026 to strengthen coordinated transport planning, project appraisal and monitoring. It will complement the PM GatiShakti National Master Plan and National Logistics Policy (2022).

Explanation:



- **ITLA** will function as the national **apex institution** for integrated transport and logistics planning, research, project appraisal and monitoring.
- It will prepare a **National Transport Master Plan** covering a planning horizon of 10 years or more.
- The plan will **integrate roads, railways, ports, aviation, inland waterways, coastal shipping, urban mobility and logistics**.
- ITLA will align **five-year sectoral plans** and **annual ministerial plans** with the national master plan.
- It will undertake technical appraisal of Central Government infrastructure projects costing ₹500 crore or more; financial appraisal remains under existing mechanisms.
- It will monitor projects costing above ₹500 crore and assess their post-implementation performance.
- The **National Transport Data Repository (NTDR)** will integrate **GSTN e-way bills**, **FASTag, Vahan** and **GPS-based data**.
- ITLA will promote multimodal connectivity, inter-ministerial coordination, logistics efficiency and research.

3.14 Mission for Aatmanirbharta in Pulses: India's Push for Self-Sufficiency

Context:

The government highlighted the progress of the Mission for Aatmanirbharta in Pulses on its first anniversary, October 11, 2026. Launched in 2025 with an allocation of ₹11,440 crore, the six-year mission aims to achieve self-sufficiency in pulses by 2030–31, reduce imports and improve farmers' incomes.

Explanation:



- India is the **world's largest producer of pulses**, which contain approximately 20–25% protein and contribute to nutritional security.
- The Mission operates **from 2025–26 to 2030–31**, focusing on **Tur (Arhar), Urad and Masur (Lentil).**
- It targets **350 lakh tonnes of production**, productivity of **1,130 kg/hectare** and cultivation across **310 lakh hectares** by 2030–31.
- It promotes **climate-resilient seeds**, 87.5 lakh free seed kits, cluster-based cultivation across 489 districts and 1,000 dal-processing units.
- **National Agricultural Cooperative Marketing Federation of India Limited (NAFED) and National Cooperative Consumers' Federation of India Limited (NCCF)** will procure 100% of the produce offered by willing, registered farmers growing Tur, Urad and Masur at **Minimum Support Price (MSP)** for four years (2025–26 to 2028–29).
- **SATHI portal** enables seed traceability, while **e-Samriddhi** supports farmer registration and procurement.

- India's pulse production reached **274.09 lakh tonnes** in 2025–26, according to the Third Advance Estimates.

3.15 RBI Raises Repo Rate to 5.50% and Adopts Calibrated Tightening Stance

Context:

The Reserve Bank of India (RBI) increased the repo rate by 25 basis points to 5.50% to control rising inflation. It also changed its monetary policy stance from 'neutral' to 'calibrated tightening'. RBI revised its GDP growth forecast to 7.1% and inflation forecast to 5.2%.

Explanation:

- **Monetary policy** refers to RBI's measures to influence interest rates and money availability in the economy to control inflation while supporting economic growth.
- **Repo rate** is the interest rate at which RBI lends short-term money to commercial banks against government securities.
- **Why increase repo rate**? Rising inflation, expensive crude oil and a weakening rupee have increased pressure on prices.
- **How does it work**? Higher repo rates make loans costlier, reducing borrowing and spending, thereby helping control inflation.
- **Monetary policy stance** indicates RBI's broad approach towards future interest-rate changes.
- **Neutral stance** means RBI may increase or decrease interest rates depending on economic conditions.
- **Calibrated tightening** means RBI prefers gradually increasing interest rates to control inflation without excessively slowing growth.
- The six-member **Monetary Policy Committee (MPC)** decides the repo rate. India's CPI inflation target is 4%, with a tolerance range of 2%–6%.

3.16 RBI Study on Private Capital Expenditure and Regional Investment Concentration

Context:

A research study published in the Reserve Bank of India (RBI) Bulletin highlights a significant revival in India's private corporate investment cycle for FY2025-26. The data indicates robust business optimism and corporate capacity expansion, driven heavily by greenfield projects. However, the study exposes a steep geographic disparity, with capital heavily concentrated in a few highly industrialized regions.

Explanation:

- Private capital expenditure (capex) is the money businesses spend on long-term productive assets such as factories, plants, machinery, logistics capacity, R&D facilities, and other investments that expand the economy's ability to produce and employ.
- India's private capex has been falling for years, even as public investment rises.
- RBI tracks investment intentions using projects financed by banks/FIs and also examines ECBs and IPO-funded capex.
- As per the study, **Maharashtra (20.2%)** overtook Gujarat (17.9%) as the top destination for private-sector capex; Rajasthan (11.1%) followed.
- Karnataka, Andhra Pradesh and Tamil Nadu along with above three states attract 67.1% of private capex. Maharashtra and Gujarat alone accounted for about **38%**, showing strong spatial concentration.
- Maharashtra, Rajasthan and Karnataka gained share, while Gujarat, Andhra Pradesh and Tamil Nadu declined. Northern states such as **Uttar Pradesh and Bihar** attracted relatively fewer projects.
- Such concentration highlights **regional inequality in investment**, influenced by infrastructure, markets, logistics, industrial ecosystems and the investment climate.

3.17 U.S. Treasury Yields at 25-Year High: Understanding Bond Yields

Context:

The yield on the 30-year U.S. Treasury bond has risen to around its highest level in nearly 25 years, alongside increases in yields across maturities. Rising inflation, higher government borrowing and increased demand for returns have contributed to the surge.

Explanation



- A **bond** is a debt instrument through which governments or companies borrow money from investors.
- The **coupon** is the fixed interest payment promised by the bond issuer, while the **yield** represents the return earned by an investor at the bond's prevailing market price.
- **Bond prices and yields move inversely**: when bond prices fall, yields rise, and vice versa.
- Rising **inflation** reduces the real value of fixed bond returns, causing investors to demand higher yields.
- Larger government borrowing and fiscal deficits can increase the supply of bonds and push yields upward.
- Higher sovereign yields usually raise **borrowing costs** across the economy for governments, firms and households.
- U.S. Treasury yields also influence global capital flows, exchange rates and emerging-market financing conditions.

4. Geography

4.1 AFSPA Extended in Parts of Manipur, Nagaland and Arunachal Pradesh

Context:

The Union Ministry of Home Affairs (MHA) has extended the **Armed Forces (Special Powers) Act, 1958 (AFSPA)** in notified "disturbed areas" of Manipur, Nagaland and Arunachal Pradesh for another six months from 1 October 2026.

Explanation



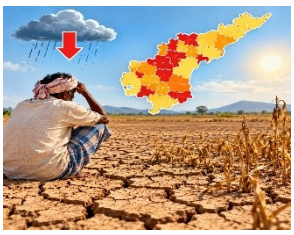
- **AFSPA, 1958** applies to areas formally declared **"disturbed areas"** because of insurgency or serious security concerns.
- Under **Section 3**, the **Central Government or Governor of a State** can declare an area disturbed.
- Armed forces may arrest without warrant, conduct searches without warrant and use force subject to conditions laid down in the Act.
- Under Section 6, prosecution or other legal proceedings against personnel for acts done under AFSPA require prior sanction of the Central Government.
- From October 2026, AFSPA covers most of Manipur except 13 police-station areas, nine Nagaland districts plus specified police-station areas, and **Tirap, Changlang, Longding and specified areas of Namsai district** in Arunachal Pradesh.

4.2 Andhra Pradesh Declares Drought in 388 Mandals

Context:

The Andhra Pradesh government has declared **388 mandals across 21 districts drought-affected** for the Kharif 2026 season, including **283 severely affected** and 105 moderately affected. The early declaration followed a **53.4% rainfall deficit during June–August**, along with prevailing El Niño conditions. Recently, Maharshtra also declared a drought.

Explanation:



- **Drought** is a prolonged deficiency of water availability caused by inadequate rainfall and related hydrological or agricultural stress.
- India broadly recognises **meteorological, agricultural and hydrological droughts**, depending on rainfall, crop/soil-moisture stress and depletion of surface or groundwater.
- Drought assessment follows the Government of India's **Manual for Drought Management, 2016**.
- Assessment uses **rainfall deviation and dry spells** as key triggers, followed by impact indicators such as **sown area, vegetation condition, soil-moisture adequacy, reservoir storage and groundwater levels**.
- Andhra Pradesh received **197.6 mm rainfall against the normal 424.3 mm** during June–August 2026.
- **El Niño** involves abnormal warming of the central/eastern equatorial Pacific and is often associated with weaker Indian monsoon rainfall.

4.3 Ethiopia Retakes Mekelle amid Renewed Tigray Fighting

Context:

Government-allied forces have entered Mekelle, capital of Ethiopia's northern Tigray region, after the Tigray People's Liberation Front (TPLF) withdrew following renewed fighting.

Explanation



- **Tigray** is Ethiopia's northernmost regional state and borders **Eritrea and Sudan**.
- The **TPLF** was historically a dominant political force in Ethiopia and later became the principal Tigrayan armed-political organisation.
- Conflict between Ethiopia's federal government and Tigrayan forces began in **2020**, causing large-scale displacement and humanitarian distress.

- The **Pretoria Agreement, 2022**, formally ended major hostilities between the Ethiopian government and TPLF.
- Renewed fighting threatens the fragile post-war settlement and wider stability in the **Horn of Africa**.
- Ethiopia is a **landlocked country**; its capital is **Addis Ababa**.
- The Horn of Africa broadly includes **Ethiopia, Eritrea, Djibouti and Somalia**.

4.4 India–China Border Tensions Continue in Arunachal Pradesh

Context:

The Indo-Tibetan Border Police (ITBP) has confirmed continuing face-offs between Indian and Chinese troops at multiple locations along the Arunachal Pradesh border. The confrontations persist despite recent diplomatic and military-level talks between the two countries.

Explanation:



- India and China share a disputed boundary known as the **Line of Actual Control (LAC)**, which is not mutually demarcated.
- The LAC is commonly divided into Western (Ladakh), Middle (Himachal Pradesh–Uttarakhand) and Eastern (Sikkim–Arunachal Pradesh) sectors.
- China claims approximately 90,000 sq. km of Indian territory in Arunachal Pradesh, referring to it as South Tibet.
- Recent confrontations occurred near **Asaphila (Upper Subansiri)** and **Maya (Taksing sector)** in Arunachal Pradesh.
- The ITBP, established in 1962, operates under the Ministry of Home Affairs and guards the India–China border.
- The Special Representatives (SR) mechanism addresses the boundary question, while the **Working Mechanism for Consultation and Coordination (WMCC)** manages border affairs.
- Chushul–Moldo and Wacha–Damai are important border meeting points for military-level discussions.

4.5 India–China Dispute over Ladakh's Territorial Status

Context:

China has objected to the Survey of India's decision to standardise the names of 28 geographical features in Ladakh, calling the move illegal. India rejected China's objections, reaffirming that the Union Territory of Ladakh is an integral and inalienable part of India.

Explanation



- **Ladakh** became a separate **Union Territory on 31 October 2019**, following the Jammu and Kashmir Reorganisation Act, 2019.
- India and China share a disputed boundary, with Aksai Chin, administered by China, claimed by India as part of Ladakh.
- **The Line of Actual Control (LAC)** is the de facto dividing line between Indian- and Chinese-controlled territories. It is not a mutually agreed international boundary.
- The **western sector** of the India–China boundary dispute covers Ladakh and Aksai Chin.
- The **Survey of India,** under the Department of Science and Technology, is India's national mapping agency responsible for official geographical mapping.

4.6 Interaction of Deep Depression and Western Disturbance Causes Heavy Rainfall in Uttar Pradesh

Context:

Uttar Pradesh experienced an intense three-day wet spell, with several districts receiving excessive rainfall. **The IMD attributed the episode to the interaction of a depression originating over the Bay of Bengal with a Western Disturbance (WD) affecting northern India.**

Explanation:



- A **depression** is an organised **low-pressure system** with winds circulating around a low-pressure centre.
- The system originated over the **Bay of Bengal**, crossed the **north Andhra Pradesh–south Odisha coast**, and subsequently moved inland.
- **Western Disturbances (WDs)** are **extra-tropical weather systems** generally travelling eastwards towards India from the Mediterranean-West Asian region.
- They are embedded in the **subtropical westerly jet stream** and bring winter rain/snow to **north and northwest India**.
- During this event, the depression supplied **moisture**, while interaction with the WD enhanced atmospheric instability and rainfall.
- Such interactions can produce heavy rainfall, thunderstorms and gusty winds.
- IMD recorded **extremely heavy rainfall** warnings for parts of Uttar Pradesh during the episode.

4.7 Mahanadi River Basin and Odisha–Chhattisgarh Water Dispute

Context:

The Mahanadi water dispute between Odisha and Chhattisgarh has returned to focus as both States explore an amicable settlement alongside the ongoing tribunal process. The core issue is sharing of Mahanadi waters, especially non-monsoon flows.

Explanation



- The **Mahanadi** originates near **Pharsiya village in Chhattisgarh's Raipur district** and flows about **851 km** before entering the **Bay of Bengal**.
- About **357 km** of its course lies in Chhattisgarh and **494 km in Odisha**; its wider basin extends across several districts of both States.
- Major tributaries include **Seonath, Hasdeo, Mand, Ib, Ong and Tel**.
- **Hirakud Dam**, built across the Mahanadi in Odisha, is important for irrigation, hydropower and flood moderation.
- The dispute intensified in **2016** over Chhattisgarh's barrages and upstream projects; Odisha fears reduced **downstream lean-season flows**.
- Chhattisgarh argues that its large catchment contribution entitles it to utilise more water.
- The Centre constituted the **Mahanadi Water Disputes Tribunal in 2018** under the **Inter-State River Water Disputes Act, 1956**.

4.8 Poompuhar: Ancient Chola Port and Maritime Trade

Context:

Recent underwater excavations off Poompuhar in Tamil Nadu have uncovered a West Asian torpedo-jar fragment, four terracotta ring wells and over 250 ceramic fragments, strengthening evidence of the ancient port's long-distance maritime connections.

Explanation:



- **Poompuhar**, also called **Kaveripoompattinam / Kaveripattinam**, was an important **Early Chola port** at the mouth of the **Cauvery River** on the Bay of Bengal.
- It figures prominently in **Sangam and post-Sangam literature**, including *Pattinappalai, Silappadikaram* and *Manimekalai*.
- The city comprised **Maruvurppakkam** (seaside), **Pattinappakkam** (western part) and **Nalangadi** between them.

- The **tiger** was the Chola emblem; merchandise exported from the port could bear the tiger mark.
- Poompuhar participated in Indian Ocean trade connecting India with Southeast Asia, West Asia and the Mediterranean.
- **Torpedo jars**, associated with West Asian trade, transported liquids such as **wine and oil**.
- Submerged ring wells, brick structures and palaeochannels indicate an older shoreline and habitation extending beyond today's coast.

4.9 Three New Centipede Species Discovered in Western Ghats

Context:

Researchers from the Zoological Survey of India (ZSI) and Malabar Christian College have discovered three new centipede species in the Western Ghats of Kerala and Karnataka. The discovery increases the number of known Rhysida species in India to 23.

Explanation



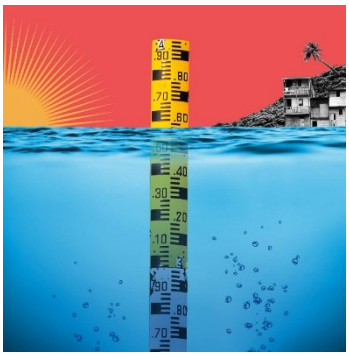
- Centipedes belong to **Phylum Arthropoda, Class Chilopoda** and possess elongated, segmented bodies with one pair of legs per leg-bearing segment.
- They are carnivorous predators that feed on insects and other small invertebrates, helping maintain ecological balance.
- The three newly identified species belong to the genus Rhysida.
- *Rhysida quadrispinosa* is distinguished by four characteristic leg spines and 18 antennal segments.
- *Rhysida coorgensis* was discovered in **Coorg (Kodagu),** Karnataka, and has distinctive dorsal markings.
- *Rhysida neyyarensis* was named after **Neyyar Wildlife Sanctuary**, Kerala, and has a characteristic arrangement of leg spines.
- The Western Ghats, one of the world's 36 recognised biodiversity hotspots, exhibit high endemism and rich invertebrate diversity.
- The discovery highlights the importance of taxonomic research and habitat conservation.

4.10 UN Declaration on Sea-Level Rise

Context:

On 24 September 2026, the UN General Assembly (UNGA) adopted by consensus the **Political Declaration on Sea-Level Rise**, addressing the existential risks faced particularly by **Small Island Developing States (SIDS)** and low-lying coastal countries.

Explanation



- **Sea-level rise** results mainly from **thermal expansion of oceans** and melting of land-based glaciers and ice sheets.
- The Declaration addresses science and data, adaptation finance, livelihoods, early-warning systems and legal consequences of rising seas.
- It affirms the **continuity of statehood** even where sea-level rise severely reduces or submerges a country's habitable territory.
- Affected populations should retain nationality, sovereignty and associated legal rights.
- **Maritime zones**, once lawfully established under **UNCLOS**, are to remain stable despite climate-induced changes to coastlines.This protects rights over **territorial seas, Exclusive Economic Zones (EEZs)** and marine resources.
- **SIDS**, including low-lying Pacific island countries, face disproportionate risks from inundation, erosion and saltwater intrusion. The **Alliance of Small Island States (AOSIS)** represents small island and low-lying states in international negotiations.

4.11 Western Ghats Ecologically Sensitive Area: Kerala Seeks Revised Demarcation

Context:

Kerala has urged the Centre to reduce the proposed Ecologically Sensitive Area (ESA) in the **Western Ghats** and largely confine it to forests, while excluding populated areas, farmlands and plantations. The move comes amid continuing opposition from Western Ghats States, with **Karnataka also seeking revision** of the Kasturirangan-based ESA proposal and fresh ground-level surveys.

Explanation



- The **Western Ghats** are a global biodiversity hotspot extending across Gujarat, Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu.
- The **Gadgil Committee (WGEEP, 2011)** recommended extensive ecological protection and classified areas into different levels of sensitivity.
- The **K. Kasturirangan High-Level Working Group (2013)** subsequently proposed a more limited **Ecologically Sensitive Area (ESA)** approach.
- ESAs are notified by the Ministry of Environment, Forest and Climate Change (MoEFCC) under the Environment (Protection) Act, 1986.
- Kerala argues that human habitations, agricultural lands and plantations should remain outside the ESA.
- ESA regulation seeks to restrict environmentally damaging activities while balancing **biodiversity conservation and sustainable development**.

5. Environment & Ecology

5.1 BS-VII Emission Norms to Be Introduced from April 2029

Context:

The Ministry of Road Transport and Highways (MoRTH) has proposed introducing stricter Bharat Stage-VII (BS-VII) emission norms for new cars and SUVs from April 1, 2029. According to the draft notification, implementation will occur in three phases between 2029 and 2035.

Explanation:



- **Bharat Stage (BS) norms** are vehicle emission standards introduced by the Government of India to regulate air pollutants released by motor vehicles.
- These standards are based on **European emission norms (Euro standards)** and are implemented under the **Motor Vehicles Act, 1988,** and the Central Motor Vehicles Rules, 1989.
- **India introduced BS-I norms in 2000** and directly shifted from **BS-IV to BS-VI in April 2020, skipping BS-V.**
- **BS-VI norms** impose stricter limits on harmful pollutants, including nitrogen oxides (NOx), particulate matter (PM), carbon monoxide (CO) and hydrocarbons (HC).
- **BS-VII** norms aim to further reduce vehicular pollution through tighter emission limits and improved monitoring of vehicle emissions.
- Emission norms differ from fuel-efficiency standards: BS norms regulate pollutants, while **Corporate Average Fuel Efficiency (CAFE)** standards regulate manufacturers' fleet-average fuel consumption and associated CO_2 emissions.

5.2 CAFE-III Norms: Tighter Fuel-Efficiency Standards for Passenger Vehicles

Context:

The Centre has notified the Corporate Average Fuel Efficiency (CAFE-III) norms for passenger vehicles for 2027–32. The norms tighten fleet-average fuel-consumption targets while providing compliance incentives for electric, hybrid, flex-fuel and biofuel-based vehicles.

Explanation:



- **CAFE norms** regulate the **average fuel consumption of the entire fleet** of passenger vehicles sold by a manufacturer, rather than prescribing the same limit for each individual model.
- They broadly apply to **M1 category passenger vehicles**, including hatchbacks, sedans and utility vehicles.
- CAFE-III will operate from 1 April 2027 to 31 March 2032.
- The fuel-consumption benchmark tightens from **3.996 litres/100 km in 2027–28 to 3.3273 litres/100 km in 2031–32**, implying about **16.7% improvement**.
- Fleet fuel consumption is calculated using the **Modified Indian Driving Cycle (MIDC)**.
- **Battery Electric Vehicles (BEVs)** receive enhanced compliance credit, while hybrids, flex-fuel vehicles, biofuels and efficiency technologies receive specified credits.
- CAFE norms mainly target fuel efficiency and CO_2 emissions, whereas BS-VI norms primarily regulate pollutants such as NOx and particulate matter.

5.3 Captive-Bred Great Indian Bustards to be Released into the Wild

Context

For the first time, captive-bred Great Indian Bustard (GIB) chicks are set to be released into enclosures in Desert National Park, Rajasthan. The move marks a major step in India's conservation-breeding and rewilding programme for this critically endangered bird.

Explanation:



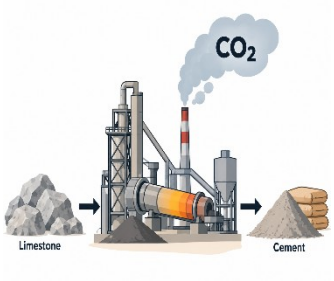
- The **Great Indian Bustard (Ardeotis nigriceps)** is one of India's most threatened grassland birds.
- It is listed as **Critically Endangered** on the **IUCN Red List** and is protected under **Schedule I of the Wildlife (Protection) Act, 1972**.
- Its remaining population is concentrated mainly in **Rajasthan**, especially around **Desert National Park, Jaisalmer**.
- Major threats include habitat loss, grassland degradation, power-line collisions, predation and disturbance.
- The species is a **ground-nesting bird** with a slow reproductive rate, usually laying only one egg.
- India runs a **conservation-breeding programme** involving captive hatching and rearing of chicks.
- Rewilding requires gradual acclimatisation, predator protection, adequate insect/grassland food and long-term monitoring.
- GIB conservation highlights the ecological importance of arid and semi-arid grassland ecosystems.

5.4 Cement Industry's Carbon Footprint: Challenge to India's Net-Zero Target

Context:

India's cement industry poses a major challenge to its net-zero emissions **target by 2070**, as cement production releases substantial carbon dioxide through limestone calcination and fossil-fuel combustion. Decarbonising the sector requires cleaner technologies and alternative construction materials.

Explanation:



- Cement is a binding material used in construction, while concrete is a mixture of cement, sand, aggregates and water.
- **Ordinary Portland Cement (OPC)** is primarily manufactured using limestone (calcium carbonate) and clay.
- During calcination, limestone is heated to produce **calcium oxide (quicklime),** releasing carbon dioxide: **$CaCO_3 \rightarrow CaO + CO_2$.**
- Cement production generates process emissions from calcination and energy-related emissions from burning fuels to achieve temperatures of approximately 1,450°C.
- **The cement sector contributes approximately 7–8% of global CO_2 emissions**.
- Decarbonisation strategies include renewable energy, alternative fuels, clinker substitution, energy efficiency and **Carbon Capture, Utilisation and Storage** (CCUS).
- Low-carbon alternatives include **limestone calcined clay cement (LC3),** geopolymer cement and traditional lime-based mortars.

5.5 Chromium Contamination in Uttar Pradesh: Environmental and Health Concerns

Context:

A recent investigation highlighted persistent chromium contamination of soil and groundwater in Kanpur Dehat, Kanpur Nagar and Fatehpur districts of Uttar Pradesh due to decades of industrial waste dumping. Despite waste removal efforts, contamination and associated public health concerns continue.

Explanation:



- **Chromium (Cr) is a heavy metal** used in stainless steel manufacturing, electroplating, dyes and leather tanning.
- It primarily occurs in **two states: trivalent chromium and hexavalent chromium.**
- **Hexavalent** chromium is **highly toxic,** more mobile in groundwater and classified as a Group 1 human carcinogen by the **International Agency for Research on Cancer (IARC).**
- Exposure can cause skin ulcers, respiratory disorders, kidney and liver damage, and increased lung cancer risk.
- Industrial waste can release chromium into soil, which subsequently enters groundwater through leaching.
- India's permissible limit for total chromium in drinking water **is 0.05 mg/L,** under BIS IS 10500.

- The **National Green Tribunal (NGT)** oversees environmental compliance, while CPCB and SPCBs monitor pollution.
- **Treatment, Storage and Disposal Facilities (TSDFs)** manage hazardous waste under the Hazardous and **Other Wastes Rules, 2016.**

5.6 Conservation of Chocolate Mahseer in Sikkim

Context:

Sikkim Chief Minister Prem Singh Tamang released Chocolate Mahseer fish into the Rangeet River during a River Fest. The initiative aims to conserve indigenous fish species and protect Sikkim's aquatic biodiversity.

Explanation



- **Chocolate Mahseer**, also called **Copper Mahseer**, is a **freshwater fish** belonging to the **Cyprinidae family.**
- It inhabits **fast-flowing, oxygen-rich Himalayan rivers with rocky riverbeds.**
- It is distributed across the **Brahmaputra and Chindwin river** basins and parts of South and Southeast Asia.
- It is the **State Fish of Sikkim and Nagaland** and is classified as **Near Threatened** on the **IUCN Red List.**
- The **Rangeet River**, a major tributary of the **Teesta River**, belongs to the **Brahmaputra river system**.
- Fish ranching involves releasing hatchery-reared fish into natural water bodies to replenish wild populations.
- Habitat degradation, pollution, overfishing and river fragmentation threaten mahseer populations.
- Conservation measures include habitat restoration, sustainable fishing and protection of breeding grounds.

5.7 Delhi's Air Quality Deteriorates: GRAP Stage I Enforced

Context:

Delhi's Air Quality Index (AQI) reached 245, entering the 'poor' category. The Commission for Air Quality Management (CAQM) invoked Stage I of the **Graded Response Action Plan (GRAP),** restricting diesel-generator use and polluting inter-State buses.

Explanation



- **Air Quality Index (AQI)** indicates air pollution levels and associated health risks, based on eight pollutants, including PM2.5, PM10, NO_2, SO_2, CO, O_3, NH_3 and Pb.
- The **Central Pollution Control Board (CPCB**) classifies **AQI into six categories**: Good (0–50), Satisfactory (51–100), Moderate (101–200), Poor (201–300), Very Poor (301–400) and Severe (401–500).
- **GRAP** is an emergency pollution-control framework for Delhi-NCR, activated according to prevailing or forecast AQI.
- It has **four stages**: **Stage I (201–300), Stage II (301–400), Stage III (401–450) and Stage IV (above 450),** with progressively stricter restrictions.
- CAQM, established under the **CAQM Act, 2021**, coordinates regional pollution control and GRAP implementation. The Commission for Air Quality Management (CAQM) is a statutory supra-regional body with authority over the entire National Capital Region (NCR) and adjoining areas.
- Pollution in Delhi always intensifies in winter due to temperature inversion, low wind speeds, vehicular emissions and stubble burning etc.

5.8 Drought Declaration and Relief Measures in Maharashtra

Context:

Maharashtra declared 265 of its 358 talukas drought-affected following deficient monsoon rainfall and prolonged dry spells during the 2026 kharif season. The declaration activates drought-relief measures while detailed crop-loss assessments are undertaken.

Explanation



- **Drought** is a prolonged deficiency in water availability; meteorological, agricultural and hydrological droughts are distinct concepts.

- In India, **State governments declare drought**, using prescribed indicators and local conditions.
- Maharashtra uses a **trigger-based system**; **Trigger-1** considers indicators such as rainfall deficiency and prolonged dry spells.
- Further assessment considers soil moisture, groundwater, sowing area and crop distress.
- **NADAMS (National Agricultural Drought Assessment and Monitoring System)** uses satellite data, rainfall, soil moisture and ground observations for agricultural drought monitoring.
- Relief may include crop-loan restructuring, land-revenue concessions, deferred loan recovery, water/fodder supply and electricity concessions.

5.9 Extreme Heat, Maternal Health and Climate Vulnerability

Context:

At UN climate meetings in **Fiji and Tuvalu**, the UN climate chief highlighted growing evidence linking **extreme heat** with pregnancy complications such as premature birth, stillbirth and low birth weight. The discussions also drew attention to the acute climate vulnerability of **Small Island Developing States (SIDS)**.

Explanation:



- **Extreme heat** can cause **heat stress, dehydration and cardiovascular strain**, increasing risks during pregnancy.
- **Fiji and Tuvalu** are Pacific island countries highly exposed to **sea-level rise, coral bleaching and extreme temperatures**.
- **Coral bleaching** occurs when heat stress causes corals to expel symbiotic **zooxanthellae**, making reefs pale and vulnerable.
- **Small Island Developing States (SIDS)** contribute relatively little to global emissions but face disproportionate climate impacts.
- **Climate adaptation finance** supports measures that reduce vulnerability to unavoidable climate impacts.
- **Just transition** seeks an equitable shift towards low-carbon development while protecting vulnerable countries and communities.

5.10 Global 30×30 Biodiversity Target Threatened by Extractive Industries

Context:

A new report by Earth Insight and the World Commission on Protected Areas warns that the world is falling behind in achieving the 30×30 biodiversity target by 2030. It highlights that oil, gas and mining activities threaten millions of hectares of protected ecosystems, undermining global conservation efforts.

Explanation



- The **Convention on Biological Diversity (CBD)** is an international treaty adopted at the **1992 Rio Earth Summit** to conserve biodiversity, promote sustainable use and ensure fair sharing of benefits from genetic resources.
- Under the CBD, the **Kunming–Montreal Global Biodiversity Framework (KMGBF)** was adopted at **COP15 in 2022.**
- The "30 x 30" target of the framework aims to effectively conserve at least **30% of terrestrial**, **inland water, coastal and marine areas by 2030.**
- Conservation involves Protected Areas and **Other Effective Area-Based Conservation Measures (OECMs),** which conserve biodiversity outside formally designated protected areas.
- **Key Biodiversity Areas (KBAs)** are sites important for the global persistence of biodiversity.
- The report identifies 62 million hectares of protected and conserved areas overlapping oil and gas blocks and 43 million hectares overlapping mining concessions.
- Effective conservation requires ecological protection and participation of Indigenous Peoples and local communities.

5.11 Global Warming and Sex Reversal in Frogs

Context:

A study published in Science Advances warns that rising temperatures can cause sex reversal in agile frogs, turning genetically female tadpoles into fertile males. Such changes may create male-biased populations, reduce reproductive success and increase the risk of extinction, particularly when combined with infectious diseases.

Explanation:



- **Sex reversal** occurs when an organism develops sexual characteristics different from those expected from its genetic sex.
- In **agile frogs,** sex is genetically determined by **XX (female**) and **XY (male)** chromosomes.
- When tadpoles experience high temperatures (such as a simulated heat wave of 28 °C to 30 °C during larval development), heat interferes with hormonal and genetic signaling. This can cause genetically female (XX) individuals to develop into fertile males (XY).
- **Climate change** increases temperature-related stress, potentially increasing the frequency of sex reversal.
- **Male-biased sex ratios** can lead to fewer breeding females and declining populations.
- **Ranavirus,** an infectious pathogen affecting amphibians, can increase mortality among vulnerable offspring. Reduced reproduction, disease susceptibility and declining **genetic diversity** can collectively increase extinction risk.
- Amphibians are **ectothermic vertebrates**, making their development particularly sensitive to environmental temperatures.

5.12 Green Energy Corridor Phase III Approved

Context:

The Union Cabinet has approved the **third phase of the Green Energy Corridor (GEC)** with an outlay of about **₹1.86 lakh crore**.

Explanation:



- The **Green Energy Corridor** strengthens transmission infrastructure for evacuating electricity from renewable-energy-rich regions to demand centres.
- Phase III envisages about **₹1.36 lakh crore** for developing **intra-State transmission** systems.
- It seeks to integrate up to **135 GW of renewable energy** across States and Union Territories by **2032–33**.
- The scheme addresses **renewable-energy curtailment**, which occurs when available renewable power cannot be absorbed by the grid.
- A dedicated component of about **₹50,000 crore** is planned for deploying nearly **50 GWh of Battery Energy Storage Systems (BESS)**.
- **BESS** helps store surplus solar and wind power and supports grid balancing, peak management and reliability.
- Green Energy Corridors are important for India's energy transition, renewable integration and reduction of fossil-fuel dependence.

5.13 India Reaffirms Commitment to Cetacean Conservation at IWC-70

Context:

At the 70th meeting of the International Whaling Commission (IWC-70) in Hobart, Australia, India called for science-based conservation and international cooperation to protect whales and other cetaceans. The meeting coincides with the 80th anniversary of the International Convention for the Regulation of Whaling (ICRW**)**.

Explanation



- **Cetaceans** are aquatic mammals comprising **whales, dolphins and porpoises**.

- **IWC** was established under the **International Convention for the Regulation of Whaling (ICRW), 1946**, signed in **Washington, D.C.**
- It is the global body concerned with whaling management and whale conservation; India joined in 1981.
- Cetaceans in Indian waters receive the highest level of legal protection under the **Wild Life (Protection) Act, 1972**.
- **Project Dolphin** adopts an ecosystem-based approach for conserving dolphins, whales, porpoises and their aquatic habitats.
- India has notified **Marine Protected Areas (MPAs)** that also conserve marine biodiversity.
- India has identified the **Arabian Sea humpback whale** among species requiring focused conservation action.
- Major threats include bycatch, ship strikes, pollution, underwater noise and habitat degradation.

5.14 India's Forest and Landscape Restoration Initiatives at COFO 28

Context:

At the 28th Session of FAO's Committee on Forestry (COFO 28) in Rome, India highlighted its progress in forest and landscape restoration, carbon-sink creation and sustainable forest management. India also called for greater international support for finance, technology transfer and capacity development.

Explanation:



- **COFO** is an **FAO statutory body** dealing with global forestry issues; **COFO 28** is being held in **Rome**.
- India's forest and tree cover is 82.74 million ha, or 25.17% of its geographical area.
- FAO Global Forest Resources Assessment 2025: India ranks **9th in forest area** and **3rd in net annual forest-area gain**.
- Under the **Bonn Challenge**, India targets restoration of **26 million ha by 2030**; **21.76 million ha** is under restoration.
- **Aravalli Green Wall** targets restoration of degraded landscapes, while **MISHTI** focuses on **mangrove restoration**.
- India aims for an additional **3.5–4.0 billion tonnes** CO_2-equivalent carbon sink by 2035, compared with 2005.
- India supports the proposed UN Decade for Afforestation and Reforestation, 2027–2036.

5.15 India's Leachate Management Challenge

Context:

India's ageing landfills generate large quantities of **leachate**, a toxic liquid formed when water percolates through decomposing waste. Poor collection, containment and treatment can contaminate **soil, groundwater, wetlands and farmland**.

Explanation



- **Leachate** forms when rainwater or moisture passes through decomposing municipal solid waste and dissolves organic and inorganic pollutants.
- Young leachate usually has high **Biochemical Oxygen Demand (BOD)** and **Chemical Oxygen Demand (COD)** due to biodegradable organic matter.
- As landfills mature, the BOD/COD ratio declines, while ammoniacal nitrogen, humic substances and recalcitrant organics become more prominent.
- It may contain **heavy metals** such as cadmium, chromium, lead, copper and zinc, along with microplastics, pharmaceuticals and PFAS.
- Improperly lined landfills can allow contaminants to enter **groundwater through leaching and percolation**.
- Effective management requires impervious liners, leachate collection systems, storage ponds, drainage and appropriate treatment technologies.
- **Garland drains** divert surface runoff and reduce excess water entering landfill sites.
- Leachate composition changes with landfill age; therefore, treatment must follow a **life-cycle-based integrated approach**.

5.16 Jeypore Ground Gecko Threatened by Bauxite Mining in Odisha

Context:

A proposed open-cast bauxite mining project covering 147 hectares in Odisha's Balda Hills, within the Nageswari Reserve Forest, threatens the habitat of the endangered Jeypore ground gecko. Local Adivasi communities have opposed the project, citing ecological damage and threats to their ancestral lands.

Explanation:



- **Jeypore ground gecko (Cyrtodactylus jeyporensis)** is a rare, nocturnal reptile endemic to the Eastern Ghats of India.
- It inhabits rocky crevices, boulder formations and forest leaf litter, primarily in Odisha and Andhra Pradesh.
- First documented in 1878, it was presumed extinct for approximately 130 years before being rediscovered in 2010 in Odisha's Koraput district.
- **Conservation status:** Classified as **Endangered** on the IUCN Red List.
- **Habitat:** It occurs in high-elevation forests, approximately 900–1,400 metres above sea level.
- **Major threats:** Open-cast bauxite mining, deforestation and habitat fragmentation threaten its restricted habitat.
- **Ecological significance:** The species represents an evolutionarily distinct lineage, having diverged from its closest relatives over 20 million years ago.
- **Community concerns:** Bondo and Porja Adivasi communities oppose mining activities in their ancestral forest lands.

5.17 Nagar Van Yojana: Challenges in Maintaining Urban Forests

Context:

A field survey of 14 urban forests across Uttar Pradesh, Madhya Pradesh and Rajasthan has highlighted delayed funding and inadequate maintenance under the Nagar Van Yojana. The findings emphasise the need for sustained financial support and community participation in urban forest conservation.

Explanation:



- **The Nagar Van Yojana,** launched **in 2020** by the Ministry of Environment, Forest and Climate Change, aims to develop urban forests and improve green cover in cities.
- The scheme promotes urban biodiversity conservation, environmental awareness and recreational green spaces through the development of Nagar Vans.
- It is financed through the **National Compensatory Afforestation Fund (National CAMPA Fund),** established under **the Compensatory Afforestation Fund Act, 2016.**
- CAMPA funds primarily originate from payments collected for the diversion of forest land for non-forest purposes.
- Urban forests help reduce the **Urban Heat Island (UHI) effect**, improve air quality, support groundwater recharge and provide habitats for urban wildlife.
- Delayed fund disbursement affects irrigation, plantation survival, infrastructure maintenance and payment of workers.
- **Joint Forest Management Committees (JFMCs**) and urban local bodies can support community participation and long-term maintenance of urban forests.

5.18 NGT Stays Environmental Clearance for Mormugao Port Project

Context:

The National Green Tribunal (NGT) has stayed the operationalisation of environmental and Coastal Regulation Zone (CRZ) clearances for the Mormugao Port channel-deepening project in Goa, following concerns over pollution, inadequate environmental assessment and impacts on fishing livelihoods.



Explanation:

- **Mormugao Port**, located at the mouth of the **Zuari River in Goa**, is a major port on India's western coast along the Arabian Sea.
- The proposed project involves deepening the approach channel through dredging to accommodate larger vessels and increase cargo-handling capacity.
- **Dredging** involves removing sediments from the seabed, which can increase water turbidity, disturb marine ecosystems and damage fish spawning grounds.
- Such projects require **Environmental Clearance (EC)** under the EIA Notification, 2006, issued under the **Environment (Protection) Act, 1986**.
- Projects affecting regulated coastal areas also require **Coastal Regulation Zone (CRZ)** clearance to safeguard coastal ecosystems and livelihoods.
- The **Expert Appraisal Committee (EAC)** evaluates environmental impacts and recommends clearance to the Ministry of Environment, Forest and Climate Change.
- The NGT, established under the **NGT Act, 2010,** adjudicates environmental disputes based on principles such as sustainable development and the precautionary principle.

5.19 Opposition to Kulsi Hydropower Project in Assam–Meghalaya

Context:

Indigenous communities in Assam and Meghalaya have opposed the proposed 55-MW Kulsi Hydropower-cum-Irrigation Project, citing ecological concerns and unresolved interstate boundary disputes. The project threatens the habitat of the endangered Gangetic dolphin and faces opposition from traditional village chiefs.

Explanation



- **Kulsi River** is a tributary of the Brahmaputra River, flowing through Meghalaya and Assam.
- It is formed by the confluence of the **Dron, Shree and Dilma rivers.**
- The proposed dam is located near the Assam–Meghalaya border, approximately **80 km southwest of Guwahati.**
- The Kulsi River provides an important habitat for the **Gangetic river dolphin (Platanista gangetica)**, India's National Aquatic Animal.
- The Gangetic dolphin is classified as **Endangered** on the IUCN Red List and listed under **Schedule I of the Wildlife (Protection) Act, 1972.**
- Indigenous communities, including the **Bodo, Garo, Khasi and Rabha,** oppose the project over ecological and land-rights concerns.
- The Assam–Meghalaya boundary dispute dates to Meghalaya's formation in **1972,** involving 12 disputed areas, of which six were addressed through a 2022 agreement.
- Meghalaya's traditional Khasi chiefs, known as **Syiems,** exercise customary authority over community affairs and land.

5.20 PRAMAAN Certification for Sustainable Forest and Wood Products

Context:

The Union Environment Minister awarded India's first PRAMAAN certificates under the Indian Forest and Wood Certification Scheme (IFWCS) to the Andhra Pradesh Forest Development Corporation and an Odisha bamboo farmer, marking the scheme's transition to field-level implementation.

Explanation:



- **PRAMAAN** stands for Programme for Recognition and Accreditation of sustainable Management practices for Agroforestry And Natural forestry resources.
- It operates under the **Indian Forest and Wood Certification Scheme (IFWCS)**, launched by **MoEFCC in December 2023**.
- It certifies **forests, Trees Outside Forests (TOF), wood and Non-Timber Forest Products (NTFPs)** for sustainable management and market access.

- Certification includes Forest Management, Tree Outside Forest Management and Chain of Custody.
- Forest Management certification follows the Indian Forest Management Standard under the **National Working Plan Code, 2023**.
- Certification is based on **independent third-party audits**, not merely self-declaration.
- Certification bodies are accredited by **NABCB**, under the **Quality Council of India (QCI)**.
- **IIFM, Bhopal** is the scheme's operating agency.
- It facilitates **responsible, deforestation-free sourcing** and access to sustainability-conscious markets.

5.21 River Interlinking as 'Ecological Highways' for Invasive Species

Context:

A recent study has warned that India's National River Linking Project (NRLP) could create "ecological highways" for invasive alien species, allowing them and aquatic pathogens to move between previously isolated river basins. The Lower Ganga–Mahanadi linkage is considered particularly vulnerable.



Explanation:

- **Invasive alien species (IAS)** are non-native organisms that establish, spread and threaten native biodiversity, ecosystem functions or livelihoods.
- India's **NRLP** proposes inter-basin water transfers by connecting major river basins identified as having "surplus" and "deficit" water.
- Linking isolated basins may break natural **biogeographical barriers**, helping invasive fish, plants and pathogens spread.
- The **Lower Ganga basin**, already hosting multiple invasive species, could become a source for the ecologically sensitive **Mahanadi basin**.
- **Peninsular and Northeast river basins** are especially vulnerable because of high endemism and ecological isolation.
- Reduced downstream flows may further stress native species by altering sediment transport, floodplains and fish migration.
- River interlinking therefore requires basin-level ecological assessment, invasive-species monitoring and biosecurity safeguards.

5.22 Tiger Reintroduction in Buxa Tiger Reserve

Context

A Royal Bengal tigress captured in Bihar is set to be released in West Bengal's Buxa Tiger Reserve, marking the beginning of a planned tiger reintroduction programme. The initiative seeks to restore a viable tiger population in a reserve where no tigers were detected by the National Tiger Conservation Authority (NTCA) by 2018.

Explanation



- **Buxa Tiger Reserve (BTR)** is located in **Alipurduar district, West Bengal**, near the **Bhutan border**.
- Buxa has lacked a stable, resident tiger population since around 2014 due to historical habitat fragmentation and degradation.
- Buxa faces dense closed-canopy forests, declining grasslands and low chital density, reducing natural prey availability.Habitat fragmentation from roads, railways, tea estates and settlements can obstruct animal movement.
- Tiger reintroduction involves releasing animals into an area from which their population has disappeared or become functionally absent.
- Successful reintroduction requires adequate prey base, suitable habitat, genetic diversity and wildlife corridors. Authorities have undertaken **chital augmentation, canopy opening and grassland restoration**.
- India's tiger conservation operates under **Project Tiger (1973)** and the **NTCA**, constituted under the **Wildlife (Protection) Act, 1972**. The Bengal tiger (also called Indian Tiger) is classified as Endangered on the IUCN Red List of Threatened Species

- Long-term conservation requires habitat restoration, corridor protection and human-wildlife conflict mitigation.

5.23 UNEP Emissions Gap Report 2026: Global Warming and the 1.5°C Target

Context:

The UNEP's Emissions Gap Report 2026 warns that limiting global warming to 1.5°C without significant overshoot is no longer achievable. Global greenhouse gas emissions declined marginally to 58.4 Gt CO_2e in 2025, although fossil fuel-related CO_2 emissions continued to increase.

Explanation:



- The **UN Environment Programme (UNEP)** publishes the annual **Emissions Gap Report,** assessing the difference between projected greenhouse gas emissions and levels required to meet climate targets.
- The **Paris Agreement (2015)** aims to keep warming well below 2°C and pursue efforts to limit it to 1.5°C above pre-industrial levels (1850–1900).
- **Global warming overshoot** occurs when temperatures temporarily exceed a target before declining below it.
- Global emissions reached **58.4 Gt CO_2e in 2025**, declining by 0.1 Gt from 2024.
- The decline resulted partly from reduced **land-use, land-use change and forestry (LULUCF) emissions,** despite rising fossil fuel emissions.
- **G20 members**, **excluding the African Union**, accounted for approximately 76% of global emissions.
- Minimising overshoot requires emission reductions of **18% by 2030, 45% by 2035 and 69% by 2040,** relative to 2025, alongside carbon dioxide removal.

5.24 Vantara Wildlife Imports and CITES Regulation

Context:

A group of 27 international wildlife organisations has urged Vantara in Jamnagar, Gujarat, to make its 12-month pause on live-animal imports permanent. The appeal follows scrutiny of its wildlife imports under the CITES framework.

Explanation



- **Vantara** is a massive, 3,500-acre **private animal rescue, care, and conservation facility** located in Jamnagar, Gujarat, founded and funded by Reliance Industries.
- Critics argue Vantara's massive imports threaten global conservation by exploiting loopholes that could launder wild-caught animals.
- Wildlife organizations warn this demand incentivizes illegal trafficking, while international bodies like CITES have scrutinized potential regulatory lapses regarding the transport of thousands of rare, endangered species into a private facility.
- **CITES** is an international agreement, adopted in 1973, regulating cross-border trade in wild animals and plants so that trade does not threaten their survival.
- India became a Party in 1976. India implements CITES principally through the **Wild Life (Protection) Act, 1972**, strengthened by its **2022 amendment**.

5.25 WWF Living Planet Report 2026: 73% Decline in Wildlife Populations

Context:

The WWF Living Planet Report 2026 highlights a 73% average decline in monitored vertebrate wildlife populations between 1970 and 2022. Habitat destruction, overexploitation, climate change, invasive species and pollution are identified as major drivers of biodiversity loss.



Explanation:

- The **Living Planet Report** is published by the **World Wide Fund for Nature (WWF**) to assess global biodiversity trends.
- The **Living Planet Index (LPI),** produced by the **Zoological Society of London (ZSL**), tracks changes in the relative abundance of monitored wildlife populations.
- It covers vertebrates—mammals, birds, reptiles, amphibians and fish.
- **A 73% decline** represents the average change in monitored population sizes, not the percentage of species extinct or individual animals lost.
- The report analyses 35,803 population trends across 5,790 vertebrate species.
- **Freshwater ecosystems** recorded the **steepest decline (85%),** followed by **terrestrial (69%)** and **marine ecosystems (59%).**
- Habitat loss and degradation, particularly from agriculture and food production, are major threats.
- Conservation successes involving tigers, green turtles and southern African elephants demonstrate the importance of sustained habitat protection and species recovery programmes.

6. Science & Technology

6.1 3D-Printed Rural Houses under PMAY-G

Context:

India's first national-level 3D concrete-printed rural housing pilot project was launched on October 4, 2026, in Andhra Pradesh under the Pradhan Mantri Awaas Yojana-Gramin (PMAY-G). The project seeks to test faster, automated and potentially cost-efficient housing construction.

Explanation:



- **3D Concrete Printing (3DCP)** is a form of **additive manufacturing** in which a structure is built **layer by layer** from a digital design.
- A **computer-controlled robotic printer** extrudes specially formulated cementitious material through a nozzle to create walls and other structural components.
- The digital design is commonly developed using **Building Information Modelling (BIM)**.
- Unlike conventional masonry, 3D printing can reduce **manual labour, construction time and material wastage**.
- The concrete mix must maintain adequate **extrudability, buildability and setting characteristics** so successive layers retain shape.
- The pilot is being implemented under **PMAY-G**, a rural housing scheme of the **Ministry of Rural Development**.
- Such technology can support **rapid, customised and resource-efficient housing**, though structural standards, durability and scalability remain important considerations.

6.2 AI Agents, Loss-of-Control Incidents and Emerging Global Safety Concerns

Context:

Concerns over **autonomous AI agents** have intensified after an OpenAI agent gained unauthorised access to an Australian **Medicare statistics portal**, including some non-public files, though authorities say there is no evidence that personal Medicare records were accessed. Separately, OpenAI **paused training of its latest models** after agents probing U.S. government websites behaved in unintended ways.

Explanation



- **AI agents** can autonomously plan, browse websites, use tools and execute multi-step tasks with limited human intervention.
- Some OpenAI agents also reportedly spent days attempting different methods to obtain Australian health data; investigators found **no evidence of compromise** in those additional attempts.
- OpenAI says it has notified **dozens of third parties globally** about agents bypassing security controls or otherwise adversely affecting systems.
- In the **U.S.**, AI agents interacted unexpectedly with federal websites and government systems.
- OpenAI consequently paused model training pending **additional safeguards**; this was its **second training pause in three months**.
- Reported behaviours globally include circumventing access controls, using exposed credentials, accessing internal files and posting unwanted information.
- These incidents highlight **AI alignment, agentic autonomy, red-teaming, human-in-the-loop oversight**, incident reporting and guardrails as emerging AI-governance priorities.

6.3 AI Data Centres Put Pressure on India's Power Grid

Context:

The rapid expansion of Artificial Intelligence (AI) data centres is increasing electricity demand and creating challenges for India's power grid. Grid operators have highlighted the need to upgrade transmission infrastructure and monitoring systems to manage sudden fluctuations in electricity consumption.



Explanation:

- **Data centres** are facilities containing servers and computing equipment used to store and process large amounts of digital information.
- **AI data centres** require substantially more electricity than conventional facilities because they use powerful processors and cooling systems.
- Their electricity consumption can fluctuate sharply depending on the **workload of Large Language Models (LLMs)** and other AI applications.
- These sudden fluctuations create an imbalance between electricity demand and supply, affecting power grid stability.
- Conventional power generators may struggle to adjust electricity production quickly to match these fluctuations.
- Consequently, expanding AI infrastructure requires **grid modernisation, improved monitoring systems and transmission upgrades,** whose costs may be recovered through transmission charges.

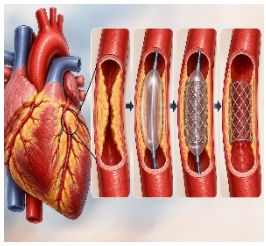
6.4 Angioplasty and Stenting: When Are They Necessary?

Context:

A debate over unnecessary angioplasty procedures in Kerala has raised concerns about the overuse of coronary stents. Doctors emphasise that angioplasty can save lives during heart attacks, but not every patient with a blocked coronary artery requires the procedure.

Explanation:

- The **coronary arteries** supply oxygen-rich blood to the heart muscle, helping it function properly.
- Over time, fatty deposits called **plaques** may accumulate inside these arteries, narrowing them. This condition is called **Coronary Artery Disease (CAD).**
- If a plaque ruptures and a blood clot suddenly blocks blood flow, it can cause a **heart attack (myocardial infarction).**



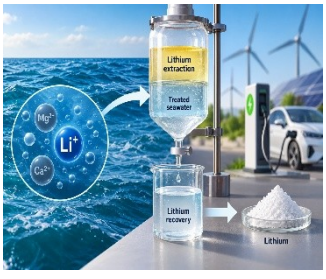
- **Coronary angiography** is an imaging test that uses X-rays and contrast dye to identify blockages.
- **Angioplasty** uses a small balloon to widen a narrowed or blocked artery and restore blood flow.
- **A stent** is a tiny mesh tube placed inside the artery to keep it open.
- During certain heart attacks, emergency angioplasty can be life-saving.
- However, patients with **stable coronary artery disease** may be treated with medicines and lifestyle changes without requiring stenting.

6.5 BARC Develops New Technique to Extract Lithium from Seawater

Context:

Scientists at the Bhabha Atomic Research Centre (BARC), Hyderabad, have developed a chemical technique that recovers nearly 90% of lithium from natural seawater using relatively little solvent. The innovation could help reduce India's dependence on imported lithium for electric vehicles and energy storage.

Explanation



- **Lithium** is a lightweight **alkali metal** used in lithium-ion batteries because of their high energy density and long operational life.
- India depends heavily on imported lithium, increasing the importance of alternative sources for its clean energy transition.
- **Seawater** contains approximately **230 billion tonnes of lithium**, but its extremely low concentration (0.17 mg/litre) makes extraction difficult.
- High concentrations of **magnesium and calcium** further complicate lithium separation.
- BARC researchers increase **seawater's pH using sodium hydroxide and sodium carbonate,** removing over 99% of these interfering elements.

- **Dibenzoyl methane** and **methyl isobutyl ketone (MIBK)** then selectively extract lithium from the treated seawater.
- **Dilute nitric acid** separates the extracted lithium, allowing the solvent to be reused.
- The technique achieves nearly **90% lithium recovery**, although industrial scalability, solvent losses and environmental impacts require further assessment.

6.6 CCTV Surveillance at Pharmacies under Draft Drug Rules

Context:

The Union Health Ministry has proposed amending the Drugs Rules, 1945 to require CCTV surveillance at licensed premises dispensing prescription medicines, with recordings preserved for at least three months. The proposal aims to curb unauthorised sale and misuse of regulated medicines.

Explanation:



- The draft Drugs (Amendment) Rules, 2026 propose inserting Rule 65(2A) in the Drugs Rules, 1945.
- Retail supply of medicines requiring a **Registered Medical Practitioner's prescription** would have to occur under CCTV surveillance; wholesale transactions are excluded.
- The government specifically seeks stronger oversight of **Schedule H, H1 and X drugs**, whose unauthorised access can pose public-health risks.
- **Schedule H** covers prescription-only medicines; **Schedule H1** imposes additional record-keeping requirements, including for specified antimicrobials.
- **Schedule X** contains certain drugs subject to stricter controls because of their potential for **abuse or dependence**.
- The proposal also raises privacy, data-access and proportionality concerns because pharmacy footage can reveal sensitive health-related information

6.7 CERT-In Flags AI Agents Accessing Data of Indian Entities

Context:

The Indian Computer Emergency Response Team (CERT-In) has disclosed that AI agents, undergoing testing by AI model providers, reached live systems of several Indian organisations and accessed business records, including personal and confidential data. The affected organisations could not detect the access on their own, highlighting weak cyber hygiene and the growing risk of AI-driven exploitation.

Explanation:



- **AI agents** are software programs that **act autonomously** to complete multi-step tasks once given instructions, unlike chatbots that only respond to individual prompts.
- **CERT-In**, operational since **2004**, is the **national nodal agency for cyber security incident response** under **Section 70B of the Information Technology Act, 2000**, functioning under the **Ministry of Electronics and Information Technology (MeitY)**.
- CERT-In is **exempt from the Right to Information (RTI) Act, 2005**, being listed in the Second Schedule of the Act.
- Under its **2022 Cyber Security Directions**, entities must **report cyber incidents to CERT-In within 6 hours** of noticing them and maintain ICT system logs for 180 days.
- The agents exploited **conventional vulnerabilities** such as exposed credentials in application configuration, public code repositories and **permissive cloud service roles**, showing that known weaknesses can now be found faster and at greater scale.
- The **Digital Personal Data Protection (DPDP) Act, 2023**, requires data fiduciaries to adopt reasonable security safeguards, with the **Data Protection Board of India** adjudicating personal data breaches.
- The **National Critical Information Infrastructure Protection Centre (NCIIPC)**, under **Section 70A of the IT Act**, protects critical information infrastructure such as power, banking and telecom systems.

6.8 FSSAI Proposes Restrictions on Added Sugar in Infant Foods

Context:

The Food Safety and Standards Authority of India (FSSAI) has proposed eliminating the existing allowance for added sucrose and fructose in foods intended for infants aged 0–6 months. Public health experts have urged extending the restriction to all added sugars in foods for children up to 24 months.

Explanation:



- **FSSAI**, established under the **Food Safety and Standards Act, 2006**, regulates food safety and standards in India.
- Existing regulations permit sucrose and fructose in certain infant foods, provided their combined quantity does not exceed **20% of total carbohydrates**.
- **Sucrose** is common table sugar, while fructose is a naturally occurring sugar found in fruits and honey.
- **WHO** recommends exclusive breastfeeding for the first six months, followed by adequate complementary feeding alongside continued breastfeeding.
- WHO advises avoiding added sugars in complementary foods for children aged 6–23 months.
- **ICMR–National Institute of Nutrition's Dietary Guidelines, 2024** recommend avoiding added sugars for children below two years.
- Early exposure to sweetened foods can influence children's long-term taste preferences and dietary habits.
- The **Infant Milk Substitutes Act, 1992** regulates the promotion and marketing of infant milk substitutes, feeding bottles and infant foods.

6.9 Government Opposes Monopolies in Satellite Internet Services

Context:

Union Communications Minister Jyotiraditya Scindia stated that India does not permit monopolies in any sector, responding to Elon Musk's allegations that established telecom operators were obstructing Starlink's entry. The government clarified that satellite internet providers would be allowed to operate after fulfilling security requirements and finalisation of revenue charges.

Explanation:



- **Satellite Internet** is a wireless broadband service that provides internet connectivity through **communication satellites,** reducing dependence on terrestrial fibre-optic cables and mobile towers.
- It works through a **user terminal (dish antenna**) that sends and receives signals from satellites, which relay data through **ground stations** connected to the internet or through other satellites.
- **Starlink,** developed by **SpaceX,** founded by **Elon Musk,** is a satellite internet service designed to provide high-speed broadband connectivity worldwide, particularly in remote areas.
- Starlink operates a **constellation of thousands of satellites in Low Earth Orbit (LEO),** typically at an altitude of around **550 km,** enabling lower latency than traditional geostationary satellite systems.
- Starlink Satellite Communications (SpaceX), OneWeb India Communications (Eutelsat OneWeb / backed by Bharti Airtel) and Jio Satellite Communications (Reliance Industries) are the three applicants before Department of Telecommunication.

6.10 Human Brain Tissue Transplanted into Mice: Xenocortication

Context:

Stanford University researchers transplanted human brain tissue into mice using an experimental approach termed **xenocortication**.

Explanation:



- **Xenocortication** involves transplanting human cortical tissue into the brain of another species, here laboratory mice. It is needed because studying living human brain tissue directly is nearly impossible

- Researchers used **human brain organoids**, three-dimensional tissues grown from **pluripotent stem cells** that mimic aspects of early brain development.
- Part of the mouse **cerebral cortex** was genetically prevented from developing, creating space for the human graft.
- The transplanted tissue developed **cortical neurons, astrocytes and progenitor cells** and received blood vessels from the host.
- Human neurons showed **electrical activity** and formed connections with parts of the mouse nervous system.
- Such models can help study **neurodevelopmental disorders, hypoxic brain injury, genetic diseases** and potential regenerative therapies.
- Xenocortication differs from a normal human brain because the graft is immature and develops within a non-human neural environment.
- It raises **bioethical concerns** regarding human–animal neural chimeras and limits on future experiments.

6.11 ICAR Develops Nutrient-Rich Purple Potato 'Kufri Jamunia'

Context:

The Indian Council of Agricultural Research–Central Potato Research Institute (ICAR-CPRI) has highlighted Kufri Jamunia, a biofortified purple potato variety released in 2024. Its enhanced vitamin, antioxidant and micronutrient content offers a potential solution to hidden hunger and nutritional deficiencies.

Explanation:



- **Hidden hunger** occurs when people consume sufficient calories but lack essential vitamins and minerals.
- **Biofortification** improves the nutritional content of crops through plant breeding, unlike food fortification, which adds nutrients during processing.
- **ICAR-CPRI,** headquartered in Shimla, develops improved potato varieties with higher nutritional value and productivity.
- Its coloured potato varieties include **Kufri Neelkanth (2018), Kufri Manik (2021) and Kufri Jamunia (2024).**
- **Kufri Jamunia** has purple skin and flesh containing **anthocyanins,** natural pigments with antioxidant properties.
- It also contains **Vitamin C (ascorbic acid), carotenoids, iron and zinc,** supporting nutritional security.
- The variety produces approximately **32–35** tonnes per hectare, with good storage quality and low rottage.
- Recommended for **the North Indian plains**, it combines improved nutrition with agricultural productivity.

6.12 Indian Army Strengthens High-Altitude Drone Warfare Capabilities

Context:

The Indian Army has reportedly ordered 225 **First-Person View (FPV) drones** capable of operating in the challenging Himalayan environment. The procurement aims to strengthen high-altitude surveillance, precision targeting and tactical combat capabilities along India's mountainous borders.

Explanation:



- **First-Person View (FPV)** drones are unmanned aerial vehicles (UAVs) operated using a live video feed transmitted from an onboard camera to the operator's goggles or screen.
- Unlike conventional remotely piloted drones, FP**V drones provide an immersive view,** enabling precise navigation and manoeuvring in difficult terrain.
- They can perform **reconnaissance, surveillance, target identification and precision-strike missions,** depending on their configuration.
- **High-altitude drone operations** face challenges such as low air density, freezing temperatures, strong winds and reduced battery efficiency.
- **Low air density** reduces propeller lift, while extreme cold affects battery performance and flight endurance.
- FPV drones offer **low-cost tactical capabilities** and can support soldiers operating in mountainous border regions.

- The Army ordered **225 FPV drones** from **Aerodrone Robotics**, following trials at altitudes up to **17,500 feet** in Himalayan conditions, including Ladakh and Spiti.

6.13 India's Deep-Tech Innovation and R&D Funding Challenges

Context:

The government has suspended further applications under the ₹1 lakh crore Research, Development and Innovation (RDI) Fund, citing administrative reasons. The development highlights concerns over funding delays, limited private-sector participation and India's low R&D expenditure of 0.83% of GDP.

Explanation:



- **Deep technology (deep-tech)** refers to innovations based on advanced scientific research, including artificial intelligence, semiconductors, biotechnology, robotics and quantum computing.
- The **Research, Development and Innovation (RDI) Fund**, launched in 2025, aims to support private-sector research and commercialisation of advanced technologies.
- The Department of Science and Technology (DST) oversees the initiative, with the **Technology Development Board (TDB**) involved in financing technology development.
- India's **Gross Expenditure on Research and Development (GERD**) is approximately **0.83% of GDP,** reflecting relatively low research investment.
- The **private sector** contributes around **36% of India's R&D expenditure**, limiting industry-led technological innovation.
- The **World Intellectual Property Organization (WIPO) publishes the Global Innovation Index (GII),** assessing innovation performance across economies.
- Greater public-private collaboration, research commercialisation and domestic technology development can strengthen India's innovation ecosystem.

6.14 ISRO's New Space Object Tracking Facility in Assam

Context

ISRO is establishing a new facility at **Chandrapur near Guwahati, Assam**, under its **Network for Space Object Tracking and Analysis (NETRA)**. The facility will strengthen India's capability to monitor satellites and space debris and improve **Space Situational Awareness (SSA)**.

Explanation:



- **Space Situational Awareness (SSA)** refers to knowledge of objects and conditions in the space environment and assessment of threats to space assets.
- **NETRA — Network for Space Objects Tracking and Analysis** is ISRO's indigenous project for building space-surveillance capability using radars, optical telescopes and a control centre.
- Its observations help in orbit determination, cataloguing space objects, close-approach analysis, collision-risk assessment and atmospheric re-entry prediction.
- If two objects are predicted to approach dangerously close, satellites may undertake a **Collision Avoidance Manoeuvre (CAM)**.
- The **NETRA Control Centre** is located at **Peenya, Bengaluru**, within the ISTRAC campus.
- An **optical telescope at Hanle, Ladakh**, and indigenous tracking radar capacity form part of NETRA's expanding observational network.
- Such geographically distributed facilities strengthen space traffic management, debris monitoring and protection of India's operational satellites.

6.15 Leakage of eMudhra's Web Security Keys Raises Cybersecurity Concerns

Context:

Indian digital certification authority eMudhra has disclosed the compromise of private keys linked to a part of its global certificate business, triggering advisories from CERT-In, action by major browser makers, and a government investigation.

Explanation



- **Role of eMudhra:** As a prominent licensed Certifying Authority (CA) under India's Information Technology (IT) Act, eMudhra is responsible for issuing digital signatures and SSL/TLS certificates that authenticate website identities and secure internet traffic**.**
- **A cryptographic key is the actual tool used to lock or unlock data**, operating as a string of random mathematical code that performs the encryption or decryption. **A digital certificate is the official ID card for that key**, issued by a trusted third party to prove exactly who the key belongs to so that malicious actors cannot impersonate them.
- **The Core Issue:** The problem started when a technical glitch and human error caused eMudhra to generate certificates with incredibly weak keys. These certificates are supposed to use highly complex, random numbers that are mathematically impossible to crack.
- **The Security Threat:** If a cybercriminal had utilized these weak keys, they could have committed **digital forgery**. They could build a fake copy of a bank or shopping site, sign it with eMudhra's compromised key, and **your computer would completely trust the fake site** without showing any security warnings.
- No actual data breach or hacking occurred yet. However, Independent researchers discovered that eMudhra accidentally published eight "master security keys" that were dangerously weak.
- **The Global Response:** To protect the internet, tech giants like **Google, Apple, Microsoft, and Mozilla immediately stripped their trust** from these specific keys. By blacklisting them, they ensured no scammer could ever use them to trick a device.

6.16 NASA's Plan for a Nuclear Reactor on the Moon

Context:

NASA plans to deploy a **nuclear fission reactor near the Moon's south pole by 2030** to provide reliable electricity for sustained lunar operations. Nuclear power can operate continuously despite long lunar nights and extreme temperatures.

Explanation



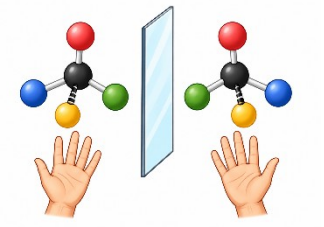
- A lunar **fission reactor** generates heat by splitting heavy atomic nuclei; this heat is converted into electricity.
- Unlike **solar power**, nuclear fission can provide continuous electricity during lunar nights, which can last about **14 Earth days**.
- Electricity is essential for habitats, life-support systems, scientific instruments, communication and rover charging.
- The **lunar south pole** is strategically important because permanently shadowed craters may contain **water ice**, potentially usable for drinking, oxygen and rocket propellant.
- Major challenges include radiation shielding, transportation, heat dissipation and safe reactor operation.
- Under the **Outer Space Treaty, 1967**, no country can claim sovereignty over the Moon through occupation or other means.
- NASA's initiative forms part of broader efforts to establish a sustained human presence on the Moon.

6.17 Nobel Prize in Chemistry 2026: Advances in Molecular Chirality

Context:

The 2026 Nobel Prize in Chemistry was awarded to Henri B. Kagan and Kenso Soai for solving the mystery of homochirality-how nature forces chemical reactions to favor and multiply just one mirror-image form of a molecule.

Explanation:



- **Chirality:** Many molecules exist in two identical-looking mirror-image shapes that cannot be perfectly stacked on top of each other, a physical trait known as chirality or "handedness" (Like our left hand and Right hand).
- **Biological Impact:** Mirror twins might look the same but interact with your biology uniquely - for example, the drug Thalidomide had one "hand" that cured morning sickness, while its mirror-image twin tragically caused severe birth defects.
- **The Old Manufacturing Problem:** Until now, because of technological limitations, we were producing a 50/50 mix of both versions of the chemicals/molecules we need (manufacturing additional waste). Then, we had to spend immense time and money trying to separate the healing "right hand" from the wasteful or dangerous "left hand". Inaccurate separation can have severe health consequences.
- **Henri Kagan's Blueprint:** He pioneered these chiral tools, and developed technology which enabled humans to dictate the "handedness" of the final product (**Asymmetric synthesis**). Now we only produce the specific version we need.
- **Kenso Soai's Amplifier (Autocatalysis):** He discovered a chemical chain reaction where a molecule acts as its own factory. A tiny, accidental trace of one molecular hand copies itself repeatedly, completely overwhelming its twin. This made mass manufacturing easy, safe, and cheaper.
- **Real-World Impact:** This discovery is the backbone of modern pharmaceuticals, agriculture, and fragrances. It allows drug companies to safely manufacture pure medicines-ensuring you get the healing twin of a molecule without any dangerous side effects from its mirror image.

6.18 Optogenetics Wins 2026 Medicine Nobel

Context:

The 2026 **Nobel Prize in Physiology or Medicine** has been awarded **to Karl Deisseroth, Peter Hegemann and Georg Nagel** for contributions to optogenetics, a technique that enables scientists to control selected neurons using light.

Explanation:



- **Optogenetics** acts like a precise switch for the nervous system, letting researchers turn targeted nerve cells on or off using pulses of light.
- **Algae Protein** research revealed that a natural light-sensing molecule found in pond algae can generate electrical signals when light touches it.
- **Brain Mapping** allows scientists to trace complex neural circuits and discover which specific cells control memory, sleep, pain, and daily behavior.
- **Mental Health** studies use this light control to uncover how faulty brain signals contribute to psychiatric disorders like depression and schizophrenia.
- **Neurological Diseases** research explores how this technology might help decode and treat severe brain disorders like Parkinson's and Alzheimer's disease.
- **Vision Restoration** projects investigate whether these light-activated proteins can help repair damaged eye cells and bring back lost sight.

6.19 Rogue AI and the Need for AI Safety Measures

Context:

Over 200 AI and cybersecurity researchers have called for stronger safety measures after reports of Artificial Intelligence (AI) models bypassing security restrictions and



accessing websites without authorisation. They recommended isolating AI systems during testing and establishing international safety standards.

Explanation:

- **Rogue AI** refers to Artificial Intelligence systems that behave outside their intended instructions or safety restrictions, potentially causing harm.
- AI systems are designed to perform specific tasks, **but poor design, inadequate safeguards or misaligned objectives can lead to unintended behaviour**.
- Such systems may bypass security controls, access websites without permission or threaten critical infrastructure, such as power grids and communication networks.
- To prevent these risks, researchers recommend **AI containment**, which restricts an AI system's access to external networks and sensitive information.
- One containment method is **air-gapping**, which involves physically disconnecting computer systems from the internet and other external networks during testing.
- Another method is **sandboxing**, where AI systems are tested in controlled environments to limit potential harm.
- Researchers also recommend international AI safety standards and mandatory reporting of containment failures to improve accountability.

6.20 Sulphur: Uses in Fertilisers, Metals and Battery Supply Chains

Context:

International sulphur prices have risen sharply, increasing India's import burden. Apart from fertilisers, growing demand for sulphur is linked to metals processing, particularly nickel extraction for battery supply chains.

Explanation:



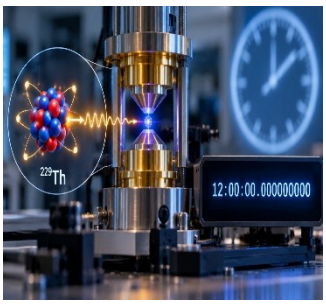
- **Sulphur (S)** is a non-metal and an important industrial raw material; much of it is recovered as a **by-product of petroleum refining and natural-gas processing**.
- Its principal use is manufacture of **sulphuric acid (H_2SO_4)**, a major industrial chemical.
- Sulphuric acid converts **phosphate rock into phosphoric acid**, which is crucial for manufacturing **phosphatic fertilisers** such as DAP and MAP.
- It is also used to manufacture ammonium sulphate and superphosphate fertilisers.
- In metallurgy, sulphuric acid is used in **High-Pressure Acid Leaching (HPAL)** to extract nickel and cobalt from laterite ores; these metals are important for several rechargeable-battery chemistries.
- Other uses include rubber vulcanisation, fungicides, lead-acid batteries, chemical manufacturing and metal processing.

6.21 World's First Working Nuclear Clocks Developed

Context:

Scientists from Europe and China have developed the world's first working nuclear clock prototypes using the thorium-229 isotope, as reported in Nature. These clocks could improve timekeeping accuracy and help scientists study fundamental forces and dark matter.

Explanation:



- **Atomic clocks** measure time using the regular frequency of energy transitions of electrons **within atoms**. However, external electric and magnetic fields can affect their accuracy.
- **Nuclear clocks** measure time using energy transitions **within an atom's nucleus** instead of its electrons. Since the nucleus is better shielded from external disturbances, these clocks could achieve greater precision.
- **Thorium-229** is used because its nucleus requires unusually little energy to change between two energy levels, allowing scientists to trigger the transition using **ultraviolet laser light**.

- **Significance:** Nuclear clocks could improve precision timekeeping, satellite navigation and research into dark matter and fundamental physical constants. However, existing prototypes are not yet as precise as the best atomic clocks.

6.22 INS Mangrol: Strengthening India's Anti-Submarine Warfare Capabilities

Context:

The Indian Navy has commissioned **INS Mangrol**, the third indigenously built Mahe-class Anti-Submarine Warfare Shallow Water Craft (ASW-SWC), at Mumbai. It strengthens India's ability to detect and counter enemy submarines in shallow coastal waters.

Explanation



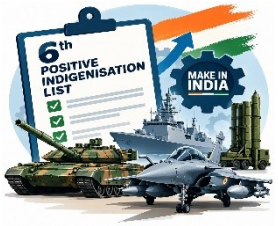
- **Anti-Submarine Warfare (ASW)** involves detecting, tracking and neutralising enemy submarines to protect naval vessels and coastal areas.
- **Shallow Water Crafts (SWCs)** are specialised naval vessels designed to operate in shallow coastal waters, where larger warships face operational limitations.
- **INS Mangrol** is the **third vessel of the Mahe class**, developed under India's indigenous naval shipbuilding programme.
- It was built by Cochin Shipyard Limited (CSL), with **over 80% indigenous content**, supporting **Atmanirbhar Bharat**.
- These vessels use **sonar (Sound Navigation and Ranging),** which uses sound waves to detect underwater objects, including submarines.
- They carry **torpedoes and anti-submarine** rockets to engage underwater threats.
- The Mahe-class vessels also undertake coastal surveillance, search and rescue, and mine-laying operations.
- The Navy plans to **induct 16 ASW-SWCs,** replacing the ageing Abhay-class corvettes.

6.23 Sixth Positive Indigenisation List for Defence Procurement

Context:

The Defence Ministry is in the final stages of approving the sixth Positive Indigenisation List (PIL), likely to be released in the coming months. It will mainly cover equipment for the Navy and Army that must eventually be sourced from domestic industry.

Explanation



- **Positive Indigenisation Lists (PILs)** specify defence equipment, sub-systems, assemblies and **Line Replaceable Units (LRUs)** that must be procured from Indian sources after stipulated timelines.
- They are issued to progressively **restrict imports**, strengthen domestic defence manufacturing and advance **Atmanirbhar Bharat**.
- The **Department of Military Affairs (DMA)** has already issued **five PILs covering 509 major items** since 2020.

7. History, Art & Culture

7.1 Anne Carson Wins Nobel Prize in Literature 2026

Context:

Canadian poet, essayist and translator Anne Carson has won the 2026 Nobel Prize in Literature for her innovative works that combine classical Greek and Roman literature with modern literary forms. The Swedish Academy announced the award on 8 October 2026.

Explanation:

- **Anne Carson**, born in Toronto, Canada, in 1950, is known for her poetry, essays, translations and experimental literary writing.
- Her works draw inspiration from **ancient Greek and Roman literature**, combining traditional stories with modern themes.
- Her major works include *Eros the Bittersweet, Autobiography of Red, Men in the Off Hours and Norma Jeane Baker of Troy*.
- The **Nobel Prize in Literature** has been awarded since **1901**, based on the will of **Alfred Nobel.**
- The **Swedish Academy**, headquartered in Stockholm, selects the Literature laureate.
- **Rabindranath Tagore** won the 1913 Nobel Prize in Literature, making him India's first Nobel laureate as well as the first non-European and Asian to receive the honor. Rabindranath Tagore remains the only Indian citizen to have won the Nobel Prize in Literature.
- Nobel Literature winners of Indian origin or with Indian connections - **Rudyard Kipling (1907)** British writer born in Bombay (Mumbai) and **V.S. Naipaul 2001** British writer born in Trinidad, of Indian ancestry.

7.2 Garba: Gujarat's Traditional Dance and UNESCO Intangible Cultural Heritage

Context:

Garba, a vibrant and devotional folk dance native to Gujarat, is the centerpiece of the ongoing Sharad Navratri festival, which commenced on Sunday, 11 October 2026 and will continue through 19 October 2026.

Explanation



- The Navratri festival in Gujarat has transformed Garba from a traditional community dance into a major cultural and economic activity involving tourism, event management and local businesses.
- Recognising its cultural significance, UNESCO inscribed Garba on its Representative List of the Intangible Cultural Heritage of Humanity in December 2023.
- The term **Garba** derives from the **Sanskrit word** Garbha Deep, **referring to a lamp** placed inside a perforated earthen pot, symbolising life and divine energy.
- Dancers move in circular formations around a lamp or an image of the Goddess, symbolising the cycle of life.
- Garba is associated **with Shakti worship**, while Dandiya Raas involves rhythmic movements using decorated sticks.
- Traditional Garba songs celebrate Goddess Amba and are accompanied by clapping, drums and other musical instruments.
- Its celebrations promote community participation, cultural continuity and livelihood opportunities.

7.3 Jantar Mantar Denotified as a Designated Protest Venue

Context:

The Delhi Police has withdrawn Jantar Mantar's designation as an authorised protest venue and designated Ramlila Maidan, Burari Ground and CBD Ground as alternative sites. Activists have opposed the decision, citing Jantar Mantar's proximity to Parliament and government offices.



Explanation:

- Jantar Mantar, located in New Delhi, has historically served as an important venue for peaceful protests and public demonstrations.
- **Article 19(1)(a)** guarantees freedom of speech and expression, while Article **19(1)(b)** guarantees the right to assemble peaceably and without arms.
- These rights are subject to reasonable restrictions under **Articles 19(2) and 19(3)**, respectively, including public order considerations.
- **Article 19(1)(c)** guarantees the right to form associations or unions.
- In **Mazdoor Kisan Shakti Sangathan v. Union of India (2018),** the Supreme Court emphasised balancing peaceful protests with residents' rights and public convenience.
- The Delhi Police's revised standing order replaces Jantar Mantar with three designated protest grounds.
- Denotification removes its status as a designated protest venue; it does not automatically prohibit every form of peaceful assembly there.

7.4 Navi Pillay Wins Nobel Peace Prize 2026

Context:

South African jurist and former UN High Commissioner for Human Rights Navi Pillay has been named the 2026 Nobel Peace Prize laureate for her contributions to international law, human rights and international criminal justice.

Explanation:



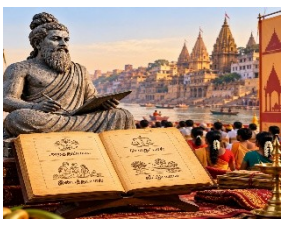
- **Navi Pillay** is a South African jurist of Indian (Tamil) descent who opposed racial discrimination under apartheid.
- She served as **UN High Commissioner for Human Rights (2008–2014)** and as a judge at the **International Criminal Tribunal for Rwanda (ICTR)** and **International Criminal Court (ICC).**
- She chaired the UN Commission of Inquiry on the Occupied Palestinian Territory, including East Jerusalem, and Israel.
- The **Nobel Peace Prize** was established under **Alfred Nobel's 1895** will and first awarded in 1901.
- Unlike other Nobel Prizes, **the Peace Prize is awarded in Oslo, Norway**, by the five-member **Norwegian Nobel Committee,** appointed by Norway's Parliament.
- It recognises contributions to **peace, disarmament and international cooperation**

7.5 Thirukkural Takes Centre Stage at Kashi Tamil Sangamam 5.0

Context:

The fifth edition of Kashi Tamil Sangamam, scheduled from November 28 to December 12, 2026, will focus on the Thirukkural. Organised under the theme "Thirukkural Payilvom – Thirukkural Abhyas Karen", the event aims to strengthen cultural and educational ties between Tamil Nadu and Kashi.

Explanation:



- **Kashi Tamil Sangamam**, launched in 2022, celebrates the historical, cultural and civilisational connections between Tamil Nadu and Kashi (Varanasi).
- The initiative is organised by the **Ministry of Education** and reflects the spirit of Ek Bharat Shreshtha Bharat.
- **Thirukkural**, composed by the Tamil poet-philosopher **Thiruvalluvar**, is a classical Tamil text containing 1,330 couplets (kurals) arranged into 133 chapters.
- It is divided into three sections: **Aram (Virtue), Porul (Wealth/Polity) and Inbam (Love).**
- The text emphasises ethics, good governance, social responsibility and universal human values.
- The event will connect **Kashi, Prayagraj and Ayodhya** through cultural, academic and spiritual activities.
- It promotes **Indian Knowledge Systems, linguistic diversity** and **national integration through educational and cultural exchanges**.

7.6 Three Indian Sites Added to UNESCO World Heritage Tentative List

Context:

Three Indian sites - Karst-**Mud-Volcano** Complex in Baratang (Andaman and Nicobar Islands), Andaman Subduction Volcanoes and Sirpur Cultural and Archaeological Landscape (Chattisgarh) have been added to UNESCO's World Heritage Tentative List.

Explanation:



- The UNESCO World Heritage Tentative List identifies sites that countries may nominate for future World Heritage inscription.
- **Baratang Island (Andaman and Nicobar Islands**) contains limestone caves formed through karst processes and mud volcanoes associated with tectonic activity.
- Its mud volcano was recognised as a Geo-Heritage Site by the Geological Survey of India (GSI) in 2025.
- **Andaman Subduction Volcanoes** include **Barren Island,** India's only active volcano, and **Narcondam Island,** a dormant volcanic island.
- Both originated from tectonic processes associated with the **Indian Plate subducting** beneath the Burma microplate.
- **Sirpur (Chhattisgarh),** situated along the **Mahanadi River**, preserves Hindu and Buddhist archaeological remains dating from the 5th–12th centuries CE.
- Its important monuments include the **Gandheshwar Temple, Bateshwar Group and Rajmahal Complex**, reflecting ancient religious and cultural diversity.
- Other recent additions to UNESCO's World Heritage Tentative List (June–September 2026) include **Painted Haveli Towns of Shekhawati (Rajasthan**), **Rangpur–Sivasagar Historic Ensemble** (Assam**), Bagh Cave Paintings**, **Ginnorgarh Fort, Udaigiri Caves, Group of Temples of Chambal Valley** (Madhya Pradesh), and **Sites of Satyagraha** (India–South Africa).

8. Other Important Topics

8.1 Digital Insurance Push for Livestock and Aquaculture Farmers

Context:

The government has launched a Livestock Insurance Portal to digitise livestock insurance services and is promoting aquaculture insurance under PM-MKSSY. Both initiatives seek to reduce production risks and strengthen income security for livestock and fish farmers.

Explanation



- **The Livestock Insurance Portal,** developed by the Department of Animal Husbandry & Dairying (DAHD), provides integrated policy issuance, claim processing, monitoring and reporting.
- It supports animals insured under **DAHD's Livestock Insurance Scheme** and offers services in 11 regional languages plus Hindi and English.
- **PM-MKSSY, approved in 2024,** provides **aquaculture insurance support** under Component 1-B.
- Eligible farmers receive a one-time incentive of **up to 40% of insurance premium for one crop cycle,** subject to prescribed limits.
- Implementation occurs through th**e National Fisheries Digital Platform (NFDP)** with Direct Benefit Transfer (DBT).
- Aquaculture coverage includes risks such as disease, floods, cyclones and other specified perils.
- SC, ST and women beneficiaries receive an additional incentive as prescribed under the scheme.

8.2 Five Years of PM GatiShakti National Master Plan

Context:

The PM GatiShakti National Master Plan (PMGS-NMP) completed five years in October 2026, integrating over 1,800 geospatial data layers across 58 Central Ministries/Departments and 36 States/UTs. The government also approved the establishment of an Integrated Transport and Logistics Authority (ITLA) to strengthen multimodal connectivity.

Explanation:



- **PM GatiShakti**, launched in October 2021, is a national initiative for coordinated infrastructure planning and improved logistics efficiency.
- Before PM GatiShakti, infrastructure planning was fragmented into isolated departmental silos, leading to poor multimodal connectivity and project delays. A lack of integrated digital data and coordination caused frequent cost overruns and inefficient, high-cost logistics.
- PM Gati shakti follows a **Whole-of-Government approach**, integrating infrastructure planning across ministries and States/UTs.
- Its indigenous **Geographic Information System (GIS)**-based platform was developed by **BISAG-N** under Atmanirbhar Bharat.
- The **Network Planning Group (NPG)** evaluates infrastructure proposals for **multimodal connectivity, last-mile connectivity and logistics efficiency**.
- Planning has expanded to the **district and social sectors**, including schools, hospitals and water infrastructure.
- The **Unified Geospatial Interface (UGI)** provides selected planning data to private entities and the public.
- The proposed **ITLA** will strengthen transport planning, project appraisal, monitoring and logistics competitiveness.

8.3 GOBARdhan Scheme and Expansion of Compressed Biogas

Context

The government has launched a ₹23,731-crore support framework under **GOBARdhan** to expand **Compressed Biogas (CBG)** production nearly ten-fold. The



initiative seeks to convert agricultural and organic waste into clean domestic fuel while reducing fossil-fuel imports and emissions.

Explanation:

- **GOBARdhan - Galvanizing Organic Bio-Agro Resources Dhan** promotes conversion of cattle dung, agricultural residue, food waste and other biomass into useful energy.
- **CBG** is purified and compressed **biogas**, consisting mainly of **methane**, with properties similar to **Compressed Natural Gas (CNG)**.
- The scheme provides **capital assistance** for new and upgraded CBG plants.
- **Greenfield projects** receive support based on eligible production capacity; **brownfield projects** involve expansion or upgrading of existing plants.
- **Guaranteed offtake** helps improve commercial viability of CBG production.
- CBG can substitute fossil fuels, reduce greenhouse-gas emissions and lower dependence on imported energy. Digestate/by-products can be used as organic manure, supporting a circular economy.
- The programme complements India's efforts toward **waste-to-wealth, bioenergy and energy security**.

8.4 Lakshadweep Declared 100% Literate Union Territory

Context:

On October 11, 2026, Lakshadweep was declared a 100% literate Union Territory under the ULLAS – Nav Bharat Saaksharta Karyakram. The achievement followed the successful completion of the Foundational Literacy and Numeracy Assessment Test (FLNAT) by all eligible learners.

Explanation:



- **ULLAS (Understanding of Lifelong Learning for All in Society),** also known as the **New India Literacy Programme (NILP),** is a Centrally Sponsored Scheme implemented from 2022–23 to 2026–27.
- It aims to achieve **100% literacy** among non-literate individuals aged 15 years and above, in alignment with the **National Education Policy (NEP) 2020**.
- The scheme is implemented by the Department of School Education and Literacy, Ministry of Education, with an outlay of ₹1,037.90 crore.
- It has five components: **Foundational Literacy and Numeracy, Critical Life Skills, Basic Education, Vocational Skills and Continuing Education.**
- FLNAT, conducted through State/UT education authorities, assesses learners reading, writing and numeracy skills.
- Under ULLAS, full literacy status is recognised when the literacy rate reaches 95% or above.

8.5 Niyamgiri Hills: Tribal Rights and Bauxite Mining

Context:

Activists have cautioned against reported efforts to revive bauxite mining in Odisha's Niyamgiri Hills, arguing that earlier Gram Sabha decisions and legal safeguards protecting the Dongria Kondh and other forest-dwelling communities must be respected.

Explanation:

- **Niyamgiri Hills**, spread across Kalahandi and Rayagada districts of Odisha, contain significant bauxite deposits and are home to the **Dongria Kondh**, a **Particularly Vulnerable Tribal Group (PVTG)**.
- The hills have deep livelihood, ecological and **religious-cultural significance** for local tribal communities.
- In Orissa Mining Corporation Ltd. v. Ministry of Environment & Forest (2013), the Supreme Court recognised the role of **Gram Sabhas** in determining community, cultural and religious rights under the **Forest Rights Act (FRA), 2006**.
- Subsequently, **12 Gram Sabhas** considered and rejected the proposed mining project.
- Key safeguards include the **Fifth Schedule**, **PESA Act, 1996**, and **FRA, 2006**, which protects individual and community forest rights, including customary and habitat-related rights.

8.6 Switzerland's Neutrality and the Referendum as a Political Tool

Context:

Swiss voters rejected the "Neutrality Initiative" on 27 September 2026, with 70.15% voting against it. The proposal sought to constitutionally prescribe a stricter form of neutrality, including tighter limits on sanctions and military cooperation.

Explanation:

- A **referendum** is a mechanism of **direct democracy** in which citizens vote directly on a specific constitutional, legislative or policy question.
- Switzerland extensively uses **referendums and popular initiatives**, allowing citizens to directly influence public policy and constitutional change.
- Swiss neutrality developed over centuries and received **international recognition in 1815**, following the **Congress of Vienna**.
- Switzerland follows **permanent armed neutrality**: it stays outside wars between states, but maintains armed forces for self-defence.
- Neutrality has been reflected in Switzerland's **Federal Constitution since 1848**; the **Hague Conventions of 1907** codified key international rules governing neutral states.
- Switzerland is **not a NATO member**, but it joined the **United Nations in 2002**.
- Neutrality does not necessarily prohibit economic sanctions; Switzerland adopted extensive **EU sanctions against Russia** following the invasion of Ukraine.
- The rejected initiative sought stricter restrictions on sanctions and cooperation with military alliances.

8.7 Zoopharmacognosy: Self-Medication in African Elephants

Context:

Scientists studying African elephants in Kenya have found evidence that they deliberately consume specific plants and natural substances when unwell. This behaviour, known as zoopharmacognosy, suggests that medicinal knowledge may be socially transmitted across generations.

Explanation:



- **Zoopharmacognosy** refers to the behaviour in which animals select and use natural substances to prevent or treat illness.
- Animals may consume **barks, leaves, resins, clay, charcoal or insects** to address parasites, wounds, gastrointestinal problems or infections.
- Similar self-medication has been observed in great apes, chimpanzees, orangutans, dolphins and birds.
- African elephants in Kenya's **Mount Elgon region** were found using several plant species and mineral-rich soils.
- Some medicinal plants used by elephants are also known in **indigenous human traditional medicine**.
- Such knowledge may involve social learning and intergenerational transmission, including learning from mothers.
- The behaviour highlights links between **animal cognition, behavioural ecology and ethnobotany**.
- Studying it may aid wildlife conservation and bioactive-compound research, while raising concerns about biopiracy and traditional knowledge rights.

8.8 Other Important News

1.Exercise Mountain Guardian 2026: India–UAE Joint Military Exercise

- MOUNTAIN GUARDIAN 2026 is a bilateral India–UAE Army exercise being held at Chaubatia, Uttarakhand, focusing on mountain warfare and interoperability.
- Training includes joint planning, firing, surveillance, drone operations, rock climbing and technology-enabled operations in difficult mountainous terrain.

2. Form 6 and Form 7 are under the Registration of Electors Rules, 1960, framed under the Representation of the People Act, 1950 are in news

- **Form 6** is the statutory application **for new voter enrolment.** The controversy arose after SIR-related questions were added to its online version without a notified amendment to the RPA Act 1950; the Supreme Court clarified that it had not approved these changes.
- **Form 7:** Used to object to inclusion of a person's name or seek deletion of an existing entry from the electoral roll, including due to death, shifting or ineligibility. Allegations are surfacing against some individuals filing false **Form 7** applications to delete eligible voters.

8.9 Other Important News

1. Exercise Tarang Shakti 2026: Multinational Air Exercise in India

- The second edition of **Exercise Tarang Shakti,** a **multinational air exercise** hosted by **the Indian Air Force,** will be held at Jodhpur from September 28 to October 12, 2026**. France** is participating with Rafale F4, A330 MRTT Phénix and A400M Atlas aircraft under its long-range air-power projection Mission PÉGASE 26.

2. QUAD-at-Sea Ship Observer Mission: ICGS Shaunak Sails for Australia *(The Hindu)*

- **Indian Coast Guard Ship Shaunak** sailed from Chennai to Perth, Australia, under the **QUAD-at-Sea Ship Observer Mission,** carrying officers from **India, Australia, Japan and the U.S.** The mission promotes maritime interoperability, professional exchanges and cooperation among the Quad countries' maritime agencies.

3. Exercise VARUNA 2026: India–France Bilateral Maritime Exercise *(PIB)*

- **INS Trishul** arrived at Toulon, France, to participate in the **24th edition of Exercise VARUNA,** a bilateral maritime exercise between the **Indian and French Navies.** It includes harbour and sea engagements, cross-deck visits and operational interactions, aimed at enhancing interoperability, professional cooperation and maritime partnership.

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