



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

Asian Buddhist Summit

INDIA IS SET TO HOST THE FIRST ASIAN BUDDHIST SUMMIT (ABS) IN NEW DELHI ON NOVEMBER 5-6, 2024, ORGANIZED BY THE MINISTRY OF CULTURE IN COLLABORATION WITH THE INTERNATIONAL BUDDHIST CONFEDERATION (IBC).

CURRENT AFFAIRS 30

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GENERAL STUDIES – 1

Topics: Indian culture will cover the salient aspects of Art Forms, Literature and Architecture from ancient to modern times.

1. PREAMBLE

Context:

The Supreme Court dismissed petitions challenging the inclusion of “socialist” and “secular” in the Preamble of the Indian Constitution, added through the 42nd Amendment during the Emergency in 1976.

Case and Its Judgment:

- **Case Names:**
 1. Dr. Balram Singh v. Union of India
 2. Dr. Subramanian Swamy v. Union of India
 3. Ashwini Upadhyay v. Union of India

Judgment Highlights:

- The Supreme Court upheld the inclusion of “socialist” and “secular,” affirming their consistency with the Constitution’s [basic structure](#), as established in **Kesavananda Bharati v. State of Kerala (1973)** and **S.R. Bommai v. Union of India (1994)**.
- The Court clarified that the amendment power of Parliament extends to the Preamble under Article 368.
- It dismissed the petitions as flawed and lacking a legitimate cause after 44 years since the 42nd Amendment.

Preamble Amendment:

- The Preamble of the Indian Constitution was revised only once through the **42nd Amendment Act of 1976**, following the **Sardar Swaran Singh Committee’s** recommendations.
- **Passed in 1976** during the Emergency by the Indira Gandhi government.
- This amendment introduced the terms **Socialist and Secular** between *Sovereign* and *Democratic*, while **Unity of the Nation was updated to Unity and Integrity of the Nation**.
- While the **44th Amendment** (1978) reversed many Emergency-era changes, it retained these terms.

Meaning of “Socialist” and “Secular”:

- **Socialist:** Represents a **welfare state** ensuring economic and social justice, reducing inequalities, and promoting collective well-being without eliminating private enterprise.
- **Secular:** Implies **equal treatment of all religions** without favor or discrimination, ensuring religious freedom while maintaining the state’s neutrality in

religious matters.

Reasons Behind Inclusion:

1. **Strengthening Constitutional Values:** To emphasize principles already embedded in the Constitution’s framework (e.g., Fundamental Rights, Directive Principles).
2. **Addressing Emergency-Era Criticism:** To project India’s commitment to inclusivity and equality during politically challenging times.
3. **Global Alignment:** Align India with modern states that prioritize democratic socialism and secularism.

Socialist and Secular Programs by the Government:

- **Socialist Initiatives:**
 - **MGNREGA:** Guaranteeing rural employment.
 - **Public Distribution System (PDS):** Food security for all.
 - **Right to Education (RTE):** Ensuring free and compulsory education.
 - **Awas Yojana:** Housing for economically weaker sections.
- **Secular Initiatives:**
 - **Minority Welfare Programs:** Scholarships and skill development for minorities.
 - **Places of Worship Act, 1991:** Protecting the religious character of sites.
 - **Special Courts for Communal Violence:** Ensuring justice and harmony.
 - **Constitutional Safeguards:** Equal religious rights under Articles 25-28.

Limitations and Challenges:

- **Misuse of Secularism:** Politicization of the term for electoral gains.
- **Economic Inequality:** Persistent income gaps challenge socialist goals.
- **Religious Intolerance:** Increasing communal tensions hinder secular ideals.
- **Implementation Issues:** Inefficient delivery mechanisms for welfare programs.

About Preamble:

- **Features of the Preamble:**
 - **Introduction to the Constitution:** Provides a concise overview of the philosophy and objectives of the Indian Constitution.
 - **Core Values:** Highlights the commitment to sovereignty, socialism, secularism, democracy, and a republican form of government.
 - **Guaranteed Ideals:** Ensures justice (social, economic, and political), liberty (thought, expression, belief, faith, and worship), equality (status and opportunity), and fraternity (national unity and dignity).

- **Guiding Principle:** Reflects the aspirations and ideals of the people, acting as the moral and philosophical essence of the Constitution.
- **Components of the Preamble:**
 - **Source of Authority:** Declares that the Constitution derives its power from the people of India.
 - **Nature of the State:** Defines India as a Sovereign, Socialist, Secular, Democratic, and Republic entity.
 - **Objectives:** Establishes justice, liberty, equality, and fraternity as the goals.
 - **Date of Adoption:** Specifies November 26, 1949, as the date of adoption.
- **Preamble as an Integral Part of the Constitution:**
 - **Berubari Union Case (1960):** Initially ruled that the Preamble is not part of the Constitution but could aid in interpretation.
 - **Kesavananda Bharati Case (1973):** Reversed the earlier view, declaring the Preamble an integral part of the Constitution and pivotal for interpreting its provisions.
 - **LIC of India Case (1995):** Reaffirmed the Preamble's status as part of the Constitution, though not enforceable in courts.

Conclusion:

The inclusion of “socialist” and “secular” in the Preamble underscores India’s commitment to justice, equality, and inclusivity. While challenges persist, these principles remain pivotal in guiding India’s democratic journey. Strengthening their practical implementation will uphold the vision of the Constitution.

Insta Links:

1. [Preamble-is-a-powerful-expression](#)

PYQ:

1. What was the exact constitutional status of India on 26th January, 1950? (UPSC-2021)
 - a) A Democratic Republic
 - b) A Sovereign Democratic Republic
 - c) A Sovereign Secular Democratic Republic
 - d) A Sovereign Socialist Secular Democratic Republic

Answer: b)

2. Discuss each adjective attached to the word ‘Republic’ in the ‘Preamble’. Are they defensible in the present circumstances? (UPSC-2016)

2. 75 YEARS OF INDIAN CONSTITUTION

Context:

On November 26, 2024, India celebrates the 75th anniversary of the adoption of its Constitution. This moment serves as a reminder of the historic contributions made by the Constituent Assembly and the enduring framework that has guided the world’s largest democracy toward justice, equality, and progress.

Background of the Indian Constitution:

- **Government of India Act, 1935:** Laid a basic constitutional framework but was rejected by the Indian National Congress for perpetuating British control.
- **Cabinet Mission Plan, 1946:** Proposed a Constituent Assembly with representatives from Congress, the Muslim League, and princely states.
- **Constituent Assembly:**
 - First session: **December 9, 1946.**
 - Chaired by **Dr. Rajendra Prasad**, with **Dr. B. R. Ambedkar** heading the Drafting Committee.
 - Draft completed in 1949 with **243 articles** and **13 schedules.**
 - Experts like **B. N. Rau** (constitutional advisor) and **S. N. Mukherjee** (chief draftsman) provided critical assistance.

Framework of the Indian Constitution:

- **Parliamentary System:** Aligns with India’s traditions and ensures collective responsibility.
- **Federal Structure:** Balances central and state powers, granting greater authority to the Union.
- **Comprehensive Design:** Details roles for the legislature, executive, and judiciary.
- **Fundamental Rights and Directive Principles:**
 - **Fundamental Rights** safeguard individual freedoms.
 - **Directive Principles of State Policy (DPSPs)** aim for socio-economic justice.

Key Achievements of India’s Constitution in 75 Years:

- **Democratic Foundation:**
 - Established a sovereign, socialist, secular, and democratic republic.
 - Ensures checks and balances among the executive, legislature, and judiciary.
- **Protection of Rights:**
 - Guarantees Fundamental Rights, promoting equality and social justice.
 - Enabled landmark judgments like **Kesavananda Bharati (1973)** upholding the Basic Structure Doctrine.
- **Social Transformation:**
 - Facilitated affirmative action, including **reservation policies** for marginalized communities.
 - Empowered women with **33% reservation**

in local bodies and recent legislation for Lok Sabha and Vidhan Sabhas.

- **Economic Reforms:**
 - Enabled LPG (Liberalization, Privatization, Globalization) reforms under a constitutional framework.
 - Encouraged policies balancing development with constitutional principles.
- **Civic Responsibility:**
 - Strengthened civic literacy and responsibilities through movements like Digital India and environmental safeguards.
- **Independent Institutions:**
 - Maintained the autonomy of bodies like the Supreme Court, Election Commission, and CAG.

Threats to Constitutional Values:

- **Decline in Press Freedom:**
 - Ranked 159th in World Press Freedom Index 2024.
 - Increasing censorship and intimidation of dissent.
- **Erosion of Individual Rights:**
 - Alleged misuse of laws like UAPA and sedition laws.
 - Cases such as Stan Swamy and Umar Khalid highlight rights violations.
- **Weakened Parliamentary Debates:**
 - Decline in debates and discussions; 2023 Budget passed without discussion.
- **Criminalization and Corruption in Politics:**
 - Over 46% of MPs in 2024 Lok Sabha have criminal cases.
- **Corporate-Driven Policies:**
 - Allegations of policies prioritizing corporate interests over citizens' rights, e.g., labor reforms and environmental clearances.

Way Forward:

- **Limit State Power:** Strengthen institutional checks to prevent overreach.
- **Enhance Democratic Values:** Democracy must emphasize accountability and free speech beyond elections.
- **Uphold Directive Principles:** Policies must align with socio-economic goals outlined in DPSPs.
- **Judicial Independence:** Safeguard judiciary's autonomy for upholding constitutional morality.
- **Parliamentary Reforms:** Revive debates, discussions, and oversight mechanisms in Parliament.
- **Civic Engagement:** Promote constitutional literacy and citizen participation in governance.

Conclusion:

India's Constitution remains a beacon of democratic values and social justice. By addressing emerging challenges, safeguarding institutions, and fostering inclusivity, the nation can ensure that the Constitution continues to guide

its progress for generations to come.

NOTE: 75 years of constituent assembly is significant, so try to cover info on constituent assembly and constitution as much as possible.

Insta Links:

1. [Indian-Constitution](#)

PYQ:

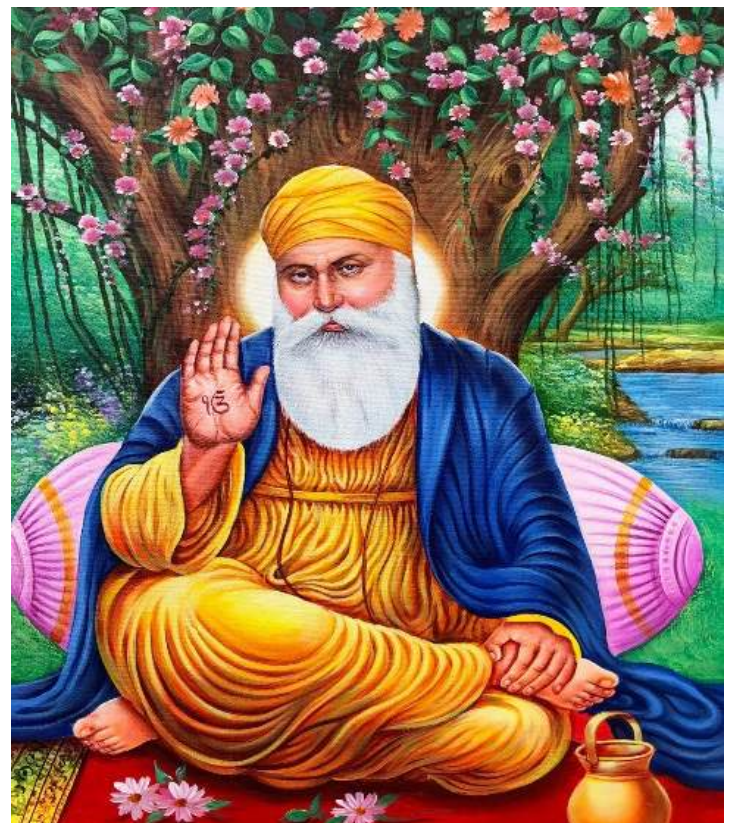
1. What can France learn from the Indian Constitution's approach to secularism? (UPSC-2019)
2. Examine the scope of Fundamental Rights in the light of the latest judgement of the Supreme Court on Right to Privacy. (UPSC-2017)

Topics: Modern Indian history from about the middle of the eighteenth century until the present- significant events, personalities, issues.

3. GURU NANAK

Context:

Guru Nanak Jayanti or Gurburab is being celebrated with religious fervour across India and the world today. This year marks the 555th birth anniversary of Guru Nanak Dev Ji.



About Guru Nanak Dev:

- **Birth:** Born in Talwandi (now Nankana Sahib, Pakistan) in 1469.
- **Founder of Sikhism:** Initiated a new faith emphasizing

equality and devotion to one God.

- **Revolutionary Leader:** Challenged caste discrimination, idol worship, and ritualistic practices.
- **Death:** Passed away in 1539 at Kartarpur, Punjab.
- **Legacy:** His teachings are enshrined in the *Guru Granth Sahib*, the holy scripture of Sikhism.

Teachings of Guru Nanak Dev:

- **Oneness of God and Humanity:**
 - Guru Nanak Dev emphasized the concept of **Ek Onkar Satnam** – “There is One Creator, One Truth.”
 - He believed that God resides in everyone and that all humans are equal, irrespective of caste, creed, religion, or gender.
- **Equality and Brotherhood:**
 - Guru Nanak advocated for a casteless and egalitarian society. He introduced practices such as:
 - **Langar:** Community kitchen offering free meals, symbolizing equality.
 - **Pangat:** Eating together without distinctions of caste or social status.
 - **Sangat:** Collective worship and decision-making.
- **Honest Living and Hard Work (Kirat Karni):**
 - He urged his followers to earn an honest livelihood through physical or mental labor while upholding moral and ethical principles.
- **Sharing and Community Service (Vand Chakna):**
 - Guru Nanak encouraged his followers to share their earnings and resources with the needy.
 - He institutionalized **Dasvandh** (donating one-tenth of one’s income) to support community welfare and uplift the less fortunate.
- **Spirituality with Responsibility (Naam Japna):**
 - He emphasized **Naam Japna** – meditating on God’s name – as a way to stay connected to the divine while fulfilling worldly responsibilities.
 - Guru Nanak taught that spirituality and worldly duties go hand in hand and should not be viewed as separate pursuits.
- **Rejecting Ritualism and Blind Faith:**
 - He opposed ritualistic practices, idol worship, and pilgrimages without purpose.
 - He taught that true devotion comes from within through love, selflessness, and ethical living.
- **Gender Equality:**
 - Nanak stressed that men and women are equal before God. He declared, **“Why call her inferior, who gives birth to kings?”**
 - He uplifted women’s status by encouraging their participation in spiritual and social activities.
- **Social Justice and Environmental Harmony:**

- Guru Nanak viewed the world as God’s creation and encouraged people to live harmoniously with nature.
- He criticized exploitation and oppression, advocating for justice and fair treatment of all.

Relevance of Guru Nanak Dev’s Teachings

- **Social Equality:** His principles of egalitarianism can inspire the fight against caste and gender discrimination.
- **Justice and Sharing:** Encourages creating a just society through honest work and sharing resources.
- **Environmental Harmony:** His belief in the oneness of creation aligns with modern environmental ethics.
- **Peace and Tolerance:** His teachings on universal brotherhood promote communal harmony in a diverse world.
- **Women’s Empowerment:** His respect for women highlights the importance of gender equality in contemporary society.

Conclusion:

Guru Nanak Dev’s teachings transcend time, offering lessons on equality, compassion, and responsibility. His vision of a harmonious and inclusive society is a guiding light for addressing modern societal challenges.

Insta Links:

1. [Guru Nanak](#)

PYQ:

1. Consider the following Bhakti Saints: (UPSC-2013)
 1. Dadu Dayal
 2. Guru Nanak
 3. Tyagaraja

Who among the above was/were preaching when the Lodi dynasty fell and Babur took over?

- a) 1 and 3
- b) 2 only
- c) 2 and 3
- d) 1 and 2

Answer: b)

Topics: Population and associated issues, poverty and developmental issues.

4. IMPACTS OF DECLINING POPULATION

Context:

India is witnessing a demographic shift, with falling fertility rates and a rapidly ageing population in several states, especially in the south. Policymakers are grappling with the implications of this transition, including its socio-economic and political impacts.

Present Demographic Status in India

- **Declining Fertility Rates:**
 - National average: 2.0 (below replacement level of 2.1).
 - Southern states (Tamil Nadu, Kerala): 1.4-1.5.
 - Bihar and Uttar Pradesh: Above 2.5.
- **Ageing Population:**
 - Senior citizens in India: 10.1% in 2021, projected to rise to 15% by 2036 (UNFPA).
 - Kerala: Elderly population projected to be 22.8% by 2036.
 - States like Tamil Nadu, Andhra Pradesh, and Himachal Pradesh face high old-age dependency ratios.
- **Old-Age Dependency Ratio:**
 - Kerala: 26.1%, Tamil Nadu: 20.5%, compared to 7.7% in Bihar.

Impacts of Declining Population:

- **Positive Impacts**
 - **Reduced Strain on Resources:** Slower population growth reduces pressure on infrastructure, natural resources, and basic services.
 - **Increased per capita resources:** Smaller population size allows for better distribution of resources per individual.
 - **Environmental benefits:** Reduced demand for energy, water, and land leads to lower ecological footprints.
- **Negative impacts**
 - **Economic slowdown:** Lower working-age population reduces productivity and GDP growth. Decline in sectors reliant on youth demand (education, entertainment, sports).
 - **Federal issue:** Uneven population growth is set to shake up the federal structure, with the current freeze on the number of seats in Parliament set to expire in 2026.
 - **Higher healthcare costs:** Increased focus on geriatric care and rising health expenses for ageing populations.
 - **Labour shortage:** Shrinking workforce impacts industries, services, and agriculture.
 - **Social security challenges:** Fewer contributions to pension systems strain financial resources for elderly care.
 - **Geopolitical risks:** Reduced youthfulness may weaken national defense capabilities, increasing susceptibility to threats.

Case studies:

- The **study by James and Kriti** estimated that Uttar Pradesh is likely to gain 12 seats, followed by Bihar (10) and Rajasthan (7), while Tamil Nadu is set to lose nine seats, followed by Kerala (6) and Andhra Pradesh (5), due to their falling share in national population.
- **Japan** faces a housing crisis with over nine

million **vacant homes, or akiya**, due to low birth rates and an ageing population, spreading even to urban centers like Tokyo. This demographic shift threatens economic vibrancy, increases urban decay, and demands urgent global attention.

Way ahead:

- **Pro-natalist policies with caution:** Incentivize childbearing but focus on gender-equitable policies like parental leave, affordable childcare, and workplace flexibility.
- **Leverage migration:** Attract and retain economic migrants to balance population gaps and meet labour demands.
- **Extend working lifespan:** Encourage policies for delayed retirement and retraining older workers to remain economically active.
- **Strengthen social security:** Develop robust pension systems and healthcare frameworks to support the ageing population.
- **Boost Productivity with Technology:** Invest in automation, AI, and robotics to offset labour shortages and enhance efficiency.

Conclusion:

While India transitions to an ageing society, proactive measures are essential to harness opportunities and mitigate challenges. Policies must balance promoting sustainable fertility rates, improving social security, and ensuring economic stability to maintain India's growth trajectory.

Insta Links:

2. [Population-control-vs-population-management-in-India](#)

PYQ:

1. Discuss the main objectives of Population Education and point out the measures to achieve them in India in detail. (UPSC-2021)
2. "Empowering women is the key to control the population growth." Discuss. (UPSC-2019)
3. Critically examine whether growing population is the cause of poverty or poverty is the main cause of population increase in India. (UPSC-2015)

[Topics: Urbanization, their problems and their remedies.](#)

5. SHAPING SUSTAINABLE CITIES: THE YOUTH IMPACT

Context:

World Cities Day is observed on October 31, highlighting urban challenges and opportunities worldwide.

- This year's theme, "**Youth Climate Changemakers:**

Catalysing Local Action for Urban Sustainability,”

reflects the focus on sustainable urban growth led by younger generations.

Definition and Present Status of Urbanisation:

Definition: Urbanisation refers to the increase in population within urban areas, leading to expansion and development.

- **Urban Population:** About 40% (500 million) of India’s population now lives in urban areas (World Bank, 2023).
- **Urban Growth Rate:** Grew from 27.7% in 2001 to 31.1% in 2011, with a 2.76% annual rate (Census 2011).
- **Regional Distribution:**
 - **Maharashtra:** 50.8 million (13.5% of urban population).
 - **Uttar Pradesh:** 44.4 million.
 - **Tamil Nadu:** 34.9 million (Ministry of Housing and Urban Affairs).
- **Shift to Medium Towns:** Growth focus is shifting from Tier-1 cities to mid-sized towns due to factors like employment and lifestyle (ADB, 2019).
- **Global Context:** India contributes significantly to the global urban population of 4.7 billion (57.5%) with projections to double by 2050 (UN).
- **Housing Demand:** Shortfall of 18.78 million urban housing units, mostly affecting low-income groups (Ministry of Housing and Urban Affairs, 2012-27).

Types of Urbanisations:

- **Natural urbanisation:** Growth within urban populations due to natural birth rates.
- **Migration-driven urbanisation:** Influx of people from rural to urban areas seeking better job opportunities, services, and lifestyle.
- **Peripheral urbanisation:** Expansion of cities into surrounding rural areas, forming peri-urban regions.
- **Economic urbanisation:** Driven by industrialisation, business hubs, and employment opportunities.

Challenges in Urbanisation:

- **Environmental issues:** Air pollution and urban heat islands; 9 of the 10 most polluted cities globally are in India (World Air Quality Report, 2023).
- **Inadequate housing:** Around 40% of urban Indians live in slums, with an estimated housing shortfall of 18.78 million units.
- **Water scarcity:** Cities like Bengaluru and Chennai face recurring water crises due to poor management.
- **Traffic and mobility:** Congestion costs are rising, with cities like Bengaluru seeing average peak traffic speeds as low as 18 km/h.
- **Waste management:** India generates 62 million tons of waste annually, with only 20% treated (CPCB).

Government Initiatives:

- **Smart Cities Mission:** Developing sustainable and citizen-friendly urban infrastructure.
- **AMRUT:** Improving basic services in cities, including water supply, sanitation, and public transport.
- **Pradhan Mantri Awas Yojana-Urban (PMAY-U):** Aiming to address housing shortages in urban areas.
- **Swachh Bharat Mission-Urban:** Promoting cleanliness and waste management.
- **Deen Dayal Antyodaya Yojana - National Urban Livelihoods Mission (DAY-NULM):** Aims at poverty reduction and livelihood opportunities in urban areas.

Way forward:

- **Environmental initiatives:** Adoption of the “Sponge City” concept to manage rainwater and reduce urban flooding.
- **Digital urban planning:** Implementation of urban digital twins for data-driven urban governance.
- **Smart water management:** Use of technology to detect and manage water distribution efficiently.
- **Cybersecurity for Urban Systems:** Protecting critical urban digital infrastructure from cyber threats.

Conclusion:

India’s urbanisation must align with the SDG Goal 11 for sustainable cities and NITI Aayog’s Urban Transformation Strategy, emphasizing inclusive growth, resilience, and sustainable infrastructure. Through multi-level planning and technological integration, India can work towards achieving urban sustainability and inclusivity in line with global standards.

Insta Links:

1. [Urbanization](#)

PYQ:

1. With reference to the Indian economy after the 1991 economic liberalization, consider the following statements: (UPSC-2020)
 1. Worker productivity (Rs. per worker at 2004-05 prices) increased in urban areas while it decreased in rural areas.
 2. The percentage share of rural areas in the workforce steadily increased.
 3. In rural areas, the growth in non-farm economy increased.
 4. The growth rate in rural employment decreased.

Which of the statements given above is/are correct?

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

Answer: b)

Topics: [Social empowerment, communalism, regionalism & secularism.](#)

6. THE REAL HURDLE: JOBS, NOT CONSTRAINTS

Context:

India has witnessed remarkable progress in women's empowerment across education, societal participation, and personal efficacy. However, access to employment opportunities remains stagnant, limiting women's potential contribution to the economy.

Women empowerment and its types:

- **Economic empowerment:** Equal access to employment, markets, and entrepreneurship opportunities.
- **Political empowerment:** Women's participation in decision-making and leadership roles in politics.
- **Social empowerment:** Ensuring equal rights in health, family decisions, marriage, and societal engagement.

Social constraints are not holding women back:

- **Educational gains:** Gender gap in education has disappeared; 26% of young women now have college degrees (up from 12% in 2011-12).
- **Marriage and Autonomy:** Marriage age is delayed; more women (52%) have a say in choosing their partners.
- **Societal engagement:** Women's mobility and political engagement have increased; Self-Help Group (SHG) participation doubled to 18%.
- **Family support:** 80% of women report family approval for work, indicating social norms are no longer the main barrier.

Lack of employment opportunities holding women back:

- **Stagnation in wage labour:** Women's participation in wage labour declined from 18% in 2012 to 14% in 2022.
- **Mismatch in job availability:** Women are willing to work but lack suitable job opportunities.
- **Role in unpaid work:** Most women contribute to family farms but lack access to formal employment.

Other challenges to women empowerment:

- **Economic challenges:**
 - Persistent pay gaps and overrepresentation in informal sectors.
 - Motherhood penalty and unpaid care work reduce women's economic participation.

- **Political challenges:**
 - Low representation in legislative bodies and lack of intra-party democracy.
- **Social challenges:**
 - Health burdens from limited access to menstrual hygiene and healthcare.
 - Threats to safety, including domestic violence and workplace harassment.

Government schemes for women empowerment:

- **Economic empowerment:**
 - Maternity Benefit Act (2017) for paid leave.
 - Mudra Yojana for financial support to women entrepreneurs.
- **Political empowerment:**
 - Nari Shakti Vandana Adhiniyam (33% reservation in Lok Sabha and Assemblies).
 - 73rd and 74th Amendments provide reservations in local bodies.
- **Social empowerment:**
 - Prohibition of Child Marriage Act (2006) and MTP Amendment Act (2021) ensure reproductive and marital rights.
 - Digital India Land Records Modernisation Programme for securing women's land rights.

Way ahead:

- **Enhance employment opportunities:** Create public and private sector jobs tailored to women's needs and implement skilling initiatives.
- **Ensure workplace safety:** Strict enforcement of the [POSH Act](#) (2013) for harassment-free work environments.
- **Improve basic amenities:** Focus on health, hygiene, and education for rural women to enhance workforce participation.
- **Promote women-led development:** Shift the narrative from women's welfare to enabling them as drivers of progress in all sectors.

Insta Links:

1. [Empowering-women-digitally](#)

PYQ:

1. "Empowering women is the key to control population growth". Discuss. (UPSC-2019)
2. Discuss the positive and negative effects of globalization on women in India? (UPSC-2015)

GENERAL STUDIES – 2

Topics: [Indian Constitution- historical underpinnings, evolution, features, amendments, significant provisions and basic structure; Comparison of the Indian constitutional scheme with that of other countries.](#)

1. ALIGARH MUSLIM UNIVERSITY CASE

Context:

The Supreme Court's verdict in the Aligarh Muslim University (AMU) case reaffirmed that institutions of national importance can retain their minority character under **Article 30** of the Constitution.

- The ruling resolves debates on the **coexistence of "national" and "minority" traits** in institutions.

What is a Minority Institution?

- Constitutional provisions:**
 - Article 30(1):** Grants minorities the right to establish and administer educational institutions of their choice.
 - Article 28:** Restricts religious instruction in institutions maintained by state funds but allows it in minority institutions.
- Legal provisions:**
 - National Commission for Minority Educational Institutions Act, 2004:** Provides legal recognition and safeguards for minority educational institutions.
 - Supreme Court Interpretation:** Recognizes the rights of religious and linguistic minorities.

Judgement on Aligarh Muslim University Case:

- Holistic Outcome:**
 - National and Minority Coexistence:** Institutions of national importance can also hold minority status, and these attributes are not mutually exclusive.
 - Fundamental Rights:** Article 30(1) rights cannot be subservient to parliamentary declarations under Entries 63 and 64.
 - Preservation of Rights:** Establishing and administering institutions must remain vested with the minority community to uphold constitutional guarantees.
- Significance:**
 - Protects the dual identity of institutions like AMU.
 - Strengthens the autonomy of minority institutions in India.

Previous Cases and Verdicts on Minority Institutions:

- St. Stephen's College v. University of Delhi (1992):** Affirmed that minority institutions have the right to set their admission policies but must adhere to national standards for quality education.
- T.M.A Pai Foundation v. State of Karnataka (2002):** Laid down guidelines for determining minority status and the extent of autonomy in administration.
- Pramati Educational and Cultural Trust v. Union of India (2014):** Exempted minority institutions from the Right to Education (RTE) Act's reservation provisions.

Criteria for Classification as Minority Institution:

- Establishment and Administration:** The institution must be established and administered by a religious or linguistic minority.
- Genesis and Intent:** Purpose must predominantly benefit the minority community.
- Administration:** Need not be exclusively managed by the minority but should reflect minority interests.
- Funding Sources:** Minority status is unaffected by state aid or contributions from other communities.
- Historical Context:** Institutions established pre-Constitution can claim minority status.
NOTE: Key criteria for determining an educational institution's entitlement to minority rights protection under Article 30(1) of the Indian Constitution were explicitly discussed in the judgment.

Role of Minority Institutions in India:

- Promoting education:** Minority institutions ensure access to quality education for disadvantaged groups.
E.g. St. Xavier's College (Kolkata), Jamia Millia Islamia (New Delhi).
- Cultural Preservation:** Act as hubs for preserving linguistic and religious diversity.
E.g. Aligarh Muslim University, Gurukul Kangri Vishwavidyalaya.
- Fostering inclusivity:** Contribute to nation-building by integrating marginalized communities.
E.g. Madrasas providing secular education alongside religious studies.
- Skill development:** Equip minorities with skills for socio-economic upliftment.
E.g. Vocational programs at Christ University (Bengaluru).

Conclusion

Minority institutions in India play a pivotal role in preserving cultural identity while contributing to educational and social equity. The Supreme Court's judgment reinforces the balance between national

integration and constitutional protection of minority rights.

Insta Links:

2. [Issues-minority-educational-institutions-minority-status](#)

PYQ:

1. In India, if a religious sect/community is given the status of a national minority, what special advantages it is entitled to? (UPSC-2011)
 1. It can establish and administer exclusive educational institutions.
 2. The President of India automatically nominates a representative of the community to Lok Sabha.
 3. It can derive benefits from the Prime Minister’s 15-Point Programme.

Which of the statements given above is/are correct?

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

Answer: c)

[Topics: Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.](#)

2. URBAN CIVIC BODIES

Context:

A recent RBI report highlights challenges in municipal corporations’ revenue generation, heavy dependence on government transfers, and insufficient capacity to meet urban development demands.

Data Facts on Urban Civics (Source: RBI Report on Municipal Finances)

- **Property Tax Revenue:**
 - Contributes 0.12% of GDP (2023-24).
 - Accounts for 16% of municipal revenue receipts and 60% of own tax revenue.
- **Revenue Receipts:**
 - Municipal receipts: 0.6% of GDP in 2023-24, compared to 9.2% (Central) and 14.6% (State governments).
 - Top 10 MCs generate 58% of municipal revenue receipts.
- **Grants and Transfers:**
 - Central government grants increased by 24.9% (2022-23).
 - State transfers grew by 20.4%.
- **Municipal Bonds:**
 - Total outstanding bonds: ₹4,204 crore (March 2024), only 0.09% of total corporate

bonds.

- **Digitalisation:**

- GIS-based property tax mapping can improve compliance and reduce revenue leakages.

Issues Plaguing Urban Bodies:

- **Low Revenue Generation:**

- Property tax collection remains abysmally low.
- Dependence on government transfers undermines financial autonomy.

- **Operational Inefficiencies:**

- Poor enforcement of tax laws.
- Leakages in revenue collection systems.

- **Underutilized Financing Options:**

- Limited use of municipal bonds and PPPs.

- **Infrastructure and Service Delivery Gaps:**

- Insufficient funds to maintain roads, drainage, and sanitation systems.

- **Dependence on Upper Tiers:**

- Over-reliance on state and central transfers stifles long-term planning.

Way Ahead:

- **Strengthen Own Revenue Sources:**

- Reform property tax structures to reflect real valuation.
- Introduce GIS-based property tax mapping.

- **Enhance Non-Tax Revenues:**

- Regularly revise user charges for services like water and waste management.
- Adopt digital platforms for efficient fee collection.

- **Leverage Innovative Financing:**

- Expand municipal bond market participation.
- Promote PPPs in urban transport, waste management, and renewable energy.

- **Optimize Expenditures:**

- Digitize operations to streamline costs.
- Automate processes to free resources for capital investments.

- **Ensure Timely Transfers:**

- Develop rule-based frameworks for predictable state and central transfers.

- **Capacity Building:**

- Provide technical training for local bodies to improve planning and enforcement.

Conclusion:

Strengthening revenue sources, leveraging technology, and fostering collaborative frameworks can enhance their capacity to deliver essential services. This transformation is essential for sustainable urban growth and improved quality of life.

Insta Links:

2. [Report-on-municipal-finances](#)

PYQ:

1. Consider the following: (UPSC-2023)
 1. Demographic performance
 2. Forest and ecology
 3. Governance reforms
 4. Stable government
 5. Tax and fiscal efforts

For the horizontal tax devolution, the Fifteenth Finance Commission used how many of the above as criteria other than population area and income distance?

- a) Only two
- b) Only three
- c) Only four
- d) All five

Answer: b)

2. According to the Constitution of India, it is the duty of the President of India to cause to be laid before the Parliament which of the following? (UPSC-2012)
 1. The Recommendations of the Union Finance Commission
 2. The Report of the Public Accounts Committee
 3. The Report of the Comptroller and Auditor General
 4. The Report of the National Commission for Scheduled Castes

Select the correct answer using the codes given below:

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

Answer: c)

Topics: Structure, organization and functioning of the Executive and the Judiciary; Ministries and Departments of the Government; pressure groups and formal/informal associations and their role in the Polity.

3. 'QUOTA-WITHIN-QUOTA' SYSTEM

Context:

Recent debates, spurred by a Supreme Court ruling, have questioned whether a 'quota-within-quota' system is needed to ensure that affirmative action policies are more equitable across SC subgroups.

Existing Reservation Quotas:

- **Scheduled Castes (SC):** 15% reservation in education and public employment.
- **Scheduled Tribes (ST):** 7.5% reservation.
- **Other Backward Classes (OBC):** 27% reservation with a "creamy layer" exclusion.
- **Economically Weaker Sections (EWS):** 10% reservation without caste restrictions.

Constitutional Articles and Court Judgments on Subcategorization:

- **Article 15(4) and Article 16(4):** Enable the State to make special provisions for backward classes.
- **2004 E V Chinnaiiah Case:** Held that SC/ST categories should remain homogenous.
- **2024 Verdict:** Overturned the 2004 ruling, allowing States to create subcategories within SCs and STs to enhance social justice for the most marginalized groups.

Case Study: Punjab's SC Quota Subdivision

In Punjab, the SC quota was subdivided in 1975 to provide special provisions for the Balmiki and Mazhabi Sikh communities, who were among the most marginalized. This policy led to improvements in representation for these groups, enabling them to access more educational and employment opportunities. However, continuous monitoring and updated data were essential to assess its efficacy, demonstrating the need for sustained evaluation in quota-subdivision models.

Advantages of Quota-within-Quota:

- **Targeted Assistance:** Quota-within-quota ensures that benefits reach the most disadvantaged subgroups within SC/ST categories, addressing the issue of unequal access among subgroups.
- **Reduces monopolization:** It prevents dominant subgroups from cornering benefits, promoting a fairer distribution across various SC/ST communities.
- **Enhanced representation:** By focusing on the most marginalized, this approach helps ensure that diverse subgroups have improved representation in education and employment.
- **Flexible policy design:** It allows States to customize affirmative action policies to better address the socio-economic conditions specific to different regions and communities.
- **Promotes social justice:** By narrowing the gap within the broader SC/ST categories, quota-within-quota policies help achieve a more equitable approach to social upliftment.

Limitations of Quota-within-Quota:

- **Data Deficiency:** Lack of recent, accurate caste-based data complicates identifying the subgroups that need the most assistance, making implementation challenging.
- **Political influence:** The policy can be exploited for political gains, as seen in some states, which may lead to arbitrary or biased allocation of sub-quotas.
- **Implementation challenges:** Administering multiple sub-quotas within existing reservations can create logistical and administrative complexities, potentially leading to inefficiencies.
- **Dilution of Reservation Impact:** Fragmenting quotas within a group can reduce the overall

effectiveness of reservations by creating competition among subgroups rather than promoting collective upliftment.

- **Increased social fragmentation:** Subcategorization may deepen social divisions within SC/ST groups, potentially leading to inter-group tensions and undermining unity.

Way ahead:

- **Strengthen access:** Ensure all eligible SC groups have equal access to reservation benefits by improving administrative reach.
- **Updated census data:** Conduct a detailed caste-based Census to make data-driven policy decisions.
- **Transparent criteria:** Establish clear guidelines for subcategorization to avoid political misuse.
- **Public awareness:** Increase awareness on eligibility and rights within SC groups to bridge gaps in reservation accessibility.
- **Monitoring and Evaluation:** Regularly assess the impact of quota policies to address any emerging inequities.

Conclusion:

The introduction of a “quota-within-quota” is a step toward achieving more nuanced affirmative action. By acknowledging intra-category differences within SCs, policymakers can ensure a fairer distribution of resources. However, careful planning, clear criteria, and updated data are essential to ensure these policies fulfill their intended purpose without political manipulation.

Insta Links:

1. [Sub-classification-within-SC & ST](#)

PYQ:

1. What are the two major legal initiatives by the State since Independence addressing discrimination against Scheduled Tribes (STs). (UPSC-2017)

4. BULLDOZER JUSTICE

Context:

The Supreme Court in **Demolition of Structures v. and Ors case judgement** laid down a series of guidelines to ensure that due process is followed for demolishing the properties of citizens.

What is Bulldozer Justice?

“Bulldozer justice” refers to the practice of using bulldozers and heavy machinery to demolish properties of individuals accused of crimes, often without due legal process. The term symbolizes instant punitive action by the state, bypassing judicial adjudication and procedural safeguards.

Examples of Bulldozer Justice

- **Madhya Pradesh:** Houses demolished after communal clashes in Khargone.
- **Haryana:** Demolitions in Nuh post-communal violence.
- **Delhi:** Jahangirpuri demolitions in April 2022 following riots.

Concerns Regarding Bulldozer Justice:

- **Violation of Rule of Law:** Actions bypass legal procedures like prior notice and hearings.
- **Breach of Fundamental Rights:** Violates the right to shelter under Article 21 of the Indian Constitution.
- **Presumption of Innocence:** Penalizes individuals before being proven guilty in court.
- **Targeting minorities:** Reports of disproportionate action against Muslims, raising questions of communal bias.
- **Authoritarian Practices:** Undermines democratic governance, consolidating power with the executive.
- **Ethical Concerns:** Punishes entire families, conflates roles of judge, jury, and executioner.

Supreme Court Judgments on Demolitions:

- **Olga Tellis vs. Bombay Municipal Corporation, 1985:** Evictions without notice violate the right to livelihood.
- **Municipal Corporation of Ludhiana vs. Inderjit Singh, 2008:** Demolitions require prior notice and hearings.
- **Punjab and Haryana HC (Nuh, 2023):** Stopped demolitions citing lack of due process and ethnic targeting.

Supreme Court’s Summary Guidelines:

- **Notice Period:** Minimum 15 days’ notice before demolition.
- **Transparency:** Notices and orders to be uploaded in real-time on digital portals.
- **Hearing and Final Order:** Must include reasons why demolition is the only option.
- **Post-Order Period:** 15-day window to allow appeals or voluntary evacuation.
- **Videography and Accountability:** Demolition must be recorded, and officials involved listed.
- **Punitive Measures for Violations:** Personal accountability for restoring properties and paying damages.

Way Ahead:

- **Strengthening Rule of Law:** Ensure strict adherence to due process in demolitions.
- **Judicial Oversight:** Establish specialized tribunals for cases of illegal demolitions.
- **Community Engagement:** Foster dialogue with

affected communities to address grievances.

- **Accountability:** Implement robust mechanisms to hold officials accountable for misuse of power.
- **Training and Awareness:** Sensitize authorities about constitutional safeguards and legal procedures.

Insta Links:

1. [Bulldozer-justice-must-end-SC-warns-states](#)

PYQ:

1. Effectiveness of the government system at various levels and people's participation in the governance system are interdependent". Discuss their relationship in the context of India. (UPSC-2016)

Topics: Appointment to various Constitutional posts, powers, functions and responsibilities of various Constitutional Bodies.

5. COMPTROLLER & AUDITOR GENERAL

Context:

During the 4th Audit Diwas event in New Delhi, Lok Sabha Speaker Shri Om Birla highlighted the critical role of the Comptroller & Auditor General (C&AG) in promoting accountability, transparency, and good governance.

About Comptroller and Auditor General of India (CAG):

Basics:

- **Independent Constitutional Office:** Established under Article 148, CAG ensures accountability in public financial administration.
- **Guardian of Public Purse:** Oversees the entire financial system at both Central and State levels.
- **Appointment and Tenure:**
 - Appointed by the President by warrant under his hand and seal.
 - Holds office for six years or until age 65, whichever is earlier.
- **Salary and Service Conditions:** Determined by Parliament and charged upon the Consolidated Fund of India.
- **Non-Eligibility for Further Office:** Post-retirement, the CAG cannot hold office under Central/State Governments.

Relevant Articles:

- **Article 149:** Parliament defines CAG's duties and powers.
- **Article 150:** Determines the format of Union and State accounts on CAG's advice.
- **Article 151:** CAG reports submitted to the President and laid before Parliament.
- **Article 279:** Certifies net proceeds of taxes, binding on the government.

Powers and Duties of CAG:

- **Audit Financial Transactions:** Audits expenditures from the Consolidated, Contingency, and Public Accounts of India and states. Also examines receipts, debts, and remittances of the government.
- **Scrutiny of Revenue:** Ensures effective rules for revenue assessment, collection, and allocation.
- **Audit of Local Bodies:** Audits transactions of local authorities and government-funded bodies upon request.
- **Formulation of Accounts:** Advises the President on the format for maintaining Union and State accounts.
- **Reporting to Legislatures:** Submits audit reports to the President (Centre) and Governors (States) for legislative scrutiny.
- **Public Accounts Committee Role:** Acts as a guide and advisor to PAC, assisting in scrutinizing government expenditures.

Challenges and Issues:

- **Limited Powers:** Cannot enforce compliance for timely information.
- **Ambiguity in Scope:** Lack of clarity on auditing Public-Private Partnerships (PPPs) and power distribution companies.
- **Secret Service Expenditure:** Cannot audit such expenditures; relies on administrative certifications.
- **Delays in Reporting:** Significant reduction in CAG reports over recent years.
- **Conflict of Interest:** Appointment process influenced by the Executive, raising transparency concerns.
- **Single-Member Structure:** Debate on converting the CAG into a multi-member body for better decision-making.

Recommendations for Reform

- **Expand Audit Scope:** Include PPPs, Panchayati Raj Institutions, and government-funded societies.
- **Strengthen Appointment Process:** Create a collegium-style mechanism for CAG selection.
- **Enhance Powers:** Amend the CAG Act of 1971 to include punitive measures for non-compliance.
- **Timely Access to Information:** Mandate access to records within seven days; penalize undue delays.
- **Transparency and Independence:** Adopt international best practices to ensure independence in selection and functioning.
- **Capacity Building:** Equip CAG to audit emerging areas like SDGs and Goods and Services Tax (GST).

Conclusion:

The CAG is indispensable for ensuring financial accountability and transparency in governance. Strengthening its powers and operational framework will enhance its effectiveness, fostering public trust in fiscal administration.

Insta Links:

2. [Comptroller-and-auditor-general-of-India](#)

PYQ:

1. “The Comptroller and Auditor General (CAG) has a very vital role to play.” Explain how this is reflected in the method and terms of his appointment as well as the range of powers he can exercise. (150 words, 10 marks)

Topics: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes.

6. EMPOWERING TRIBAL SOCIETY

Context:

India’s tribal communities, 8.6% of the population, are vital to the nation’s diversity and development. The government has launched initiatives to address their socio-economic challenges and promote cultural heritage, healthcare, education, and self-reliance.

Tribes in India:

- **Who They Are:** Tribes in India, also referred to as Adivasis, are Indigenous communities with distinct cultures, languages, and traditions.
- **Types:**
 - **Scheduled Tribes (STs):** Identified under Article 366(25) of the Constitution, defined by distinct characteristics such as geographical isolation, economic backwardness, and cultural uniqueness.
 - **Particularly Vulnerable Tribal Groups (PVTGs):** A subgroup of STs identified by pre-agricultural technology, low literacy, and economic backwardness. There are 75 PVTGs across 17 states and one Union Territory.
- **Data:**
 - **Population:** 104.2 million (8.6% of India’s population).
 - **States/UTs with Major Tribes:**
 - **Jammu & Kashmir:** Sippi, Beda.
 - **Arunachal Pradesh:** Kuki, Mikir.
 - **Madhya Pradesh:** Gond, Kol.
 - **Rajasthan:** Bhil, Dhanka.

Schemes for the Welfare of Tribes:

1. **Dharti Aaba Janjatiya Gram Utkarsh Abhiyan:**
 - **Launched:** October 2, 2024.
 - **Budget:** ₹79,156 crore.
 - **Focus:** Infrastructure, education, health, and livelihoods in 63,843 tribal villages.
2. **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN):**
 - **Launched:** November 15, 2023.
 - **Target:** Improve housing, water, education,

and connectivity for PVTGs.

3. **Pradhan Mantri Adi Adarsh Gram Yojana (PMAAGY):**
 - **Focus:** Basic infrastructure in 36,428 villages with significant tribal populations.
4. **Eklavya Model Residential Schools (EMRS):**
 - **Aim:** Quality education for tribal students.
 - **Progress:** 728 schools approved; ₹2,800 crore invested in 2024.



Key Government Scholarships for Tribal Empowerment

1. **Pre-Matric and Post-Matric Scholarships:** For ST students from Class IX to post-graduation.
2. **National Overseas Scholarship:** Supports ST students for postgraduate and doctoral studies abroad.
3. **National Fellowship for ST Students:** Digital processing ensures timely assistance for higher education.

Financial Support and Self-Employment Schemes:

1. **National Scheduled Tribes Finance and Development Corporation (NSTFDC):** Offers concessional loans for self-employment projects.
2. **Adivasi Mahila Sashaktikaran Yojana (AMSY):** Loans up to ₹2 lakh per unit for tribal women.
3. **Micro Credit Scheme for SHGs:** Loans up to ₹5 lakh per SHG and ₹50,000 per member.
4. **Adivasi Shiksha Rin Yojana (Education Loan):** Financial aid up to ₹10 lakh for professional education.

Initiatives for Better Health Outcomes:

1. **Sickle Cell Anaemia Elimination Mission:** Focus on screening and affordable care for tribal populations.
2. **Mission Indradhanush:** Ensures immunization for children and pregnant women, including free COVID-19 vaccines.
3. **Nikshay Mitra Initiative:** Aims to improve TB treatment and outcomes for tribal communities.

Research and Cultural Preservation Initiatives:

1. **Support to Tribal Research Institutes (TRIs):** Focus on research in welfare, languages, and traditions.
2. **Development of PVTGs:** Dedicated to addressing socio-economic gaps for 75 PVTGs.
3. **Tribal Research Information, Education, Communication, and Events (TRI-ECE):** Organizes cultural festivals, exhibitions, and awareness campaigns.

Conclusion:

The government’s multidimensional approach aims to empower tribal communities through targeted welfare schemes, education, healthcare, and cultural preservation. These efforts ensure that India’s tribal population is integrated into the broader national development narrative, embodying the vision of “Sabka Saath, Sabka Vikas.”

Insta Links:

1. [Tribal-groups-in-India](#)

PYQ:

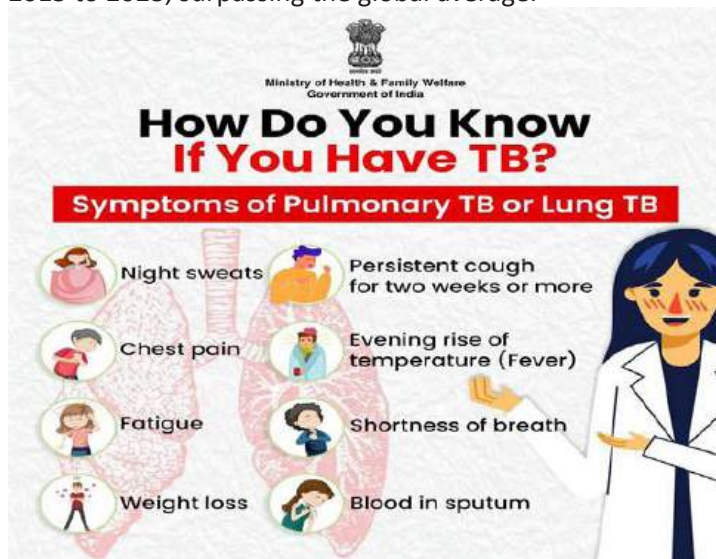
1. How do you explain the statistics that show that the sex ratio in Tribes in India is more favourable to women than the sex ratio among Scheduled Castes? (UPSC-2015)

Topics: Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

7. TUBERCULOSIS IN INDIA

Context:

India has made notable progress in its mission to eliminate tuberculosis (TB), with a 17.7% decline in TB incidence from 2015 to 2023, surpassing the global average.



Strategies and Targets for Ending Tuberculosis in India:

- **SDG Goal 3.3:** Target to end TB by 2025, five years ahead of the global 2030 deadline.

Key targets:

- 80% reduction in TB incidence from 2015 levels.
- 90% reduction in TB mortality.
- Zero TB-affected households facing catastrophic expenses.

India’s approach:

- **National tuberculosis elimination programme (ntep):** Implements the National Strategic Plan (NSP) 2017–2025 for TB elimination.
- **Diagnosis expansion:** Increased access to sputum smear and nucleic acid amplification tests.
- **Treatment support:** Direct Benefit Transfer (DBT) via Ni-kshay Poshan Yojana; incentives for ASHA workers, TB champions, and family caregivers.
- **Community engagement:** Pradhan Mantri TB Mukta Bharat Abhiyaan (PMTBMBA) drives community involvement with support from over 1.5 lakh Ni-kshay Mitras.
- **Holistic care:** Focuses on coexisting health conditions like malnutrition, diabetes, HIV, and substance abuse through inter-ministerial partnerships.

Challenges:

- **High TB Burden:** India continues to bear the world’s highest TB burden.
- **Resource constraints:** Limited healthcare infrastructure and workforce in remote areas.
- **Awareness and Stigma:** Social stigma and low awareness impact treatment adherence.
- **Drug resistance:** Increasing drug-resistant TB strains present treatment challenges.

Way forward:

- **BCG studies:** Research on adult BCG vaccination.
- **Expanded preventive therapy:** scale up Tuberculosis Preventive Therapy (TPT) with new, shorter regimens.
- **Improved diagnostics:** Broaden access to molecular diagnostic tests.
- **Decentralized care:** TB service delivery through Ayushman Arogya Mandirs.
- **Enhanced Community Support:** Strengthen community-based care via PMTBMBA.

Insta Links:

1. [Global-TB-report-2023](#)

PYQ:

1. “Besides being a moral imperative of a Welfare State, primary health structure is a necessary precondition for sustainable development.” Analyse. (UPSC-2021)

8. DECLINE IN OUT-OF-POCKET EXPENDITURE

Context:

The National Health Accounts (NHA) 2021-22 data highlights a significant decline in Out-of-Pocket Expenditure (OOPE) on healthcare, attributed to increased government investments, enhanced public healthcare infrastructure, and expanded health insurance coverage.

What is Out-of-Pocket Expenditure (OOPE)?

- **Definition:** OOPE refers to direct payments made by individuals for healthcare services such as consultations, medicines, diagnostics, and hospitalizations.
- **Impact:** High OOPE often burdens low-income families, leading to financial hardships, debt, and reduced access to essential healthcare services.

Recent trends in OOPE:

- OOPE as a percentage of Total Health Expenditure (THE) has consistently declined over the years.
- Increased government spending and social security initiatives have helped reduce the financial burden on individuals.
- Per capita health expenditure tripled from ₹1,108 in 2014-15 to ₹3,169 in 2021-22.

Government Health Expenditure (GHE) and Out-Of-Pocket Expenditure (OOPE) as % of Total Health Expenditure (THE)



Reasons for Decline in OOPE:

- **Increased Government Health Expenditure (GHE):** GHE as a percentage of GDP rose from 1.13% in 2014-15 to 1.84% in 2021-22. Greater funding improved public healthcare services and affordability. **E.g.** Investments in rural healthcare centres.
- **Expansion of Social Security Expenditure (SSE):** SSE on health grew from 5.7% to 8.7% of THE between 2014-15 and 2021-22. Shielded vulnerable populations from catastrophic health expenditures. **E.g.** Rashtriya Swasthya Bima Yojana.
- **Government-funded insurance schemes:** Programs like Ayushman Bharat provided insurance coverage to economically weaker sections. Reduced dependence on personal savings for healthcare. **E.g.** Ayushman Bharat PM-JAY covering 50 crore beneficiaries.
- **Focus on Public Health Infrastructure:** Investments in healthcare facilities and workforce training made services more accessible.

E.g. Setting up primary healthcare centres in underserved regions.

- **Covid-19 response:** Pandemic-driven health investments laid the groundwork for affordable long-term healthcare.

E.g. Increased funding for ICU and ventilator facilities.

Implications of Reduced OOPE:

- **Improved Healthcare Accessibility:** Affordable services encourage timely medical interventions, especially in rural areas. **E.g.** Free diagnostic services in government hospitals.
- **Stronger public healthcare system:** Reduced OOPE allows public health systems to cater to broader populations. **E.g.** Enhanced capacity for vaccination drives.
- **Better health outcomes:** Access to preventive care reduces severity and costs of illnesses. **E.g.** Regular screenings for non-communicable diseases.
- **Increased financial stability:** Families can allocate resources toward essentials like education and nutrition. **E.g.** Low-income families spending less on emergency healthcare.
- **Foundation for Universal Health Coverage (UHC):** Strengthened public funding aligns with India's goal of achieving UHC. **E.g.** Affordable healthcare for marginalized groups.

Way ahead:

- **Expand health insurance coverage:** Ensure broader access to government-funded health insurance programs.
- **Strengthen primary healthcare:** Enhance rural healthcare infrastructure and workforce training.
- **Public awareness campaigns:** Educate citizens about health schemes and preventive care.
- **Digital health solutions:** Leverage technology for accessible and cost-effective healthcare delivery.
- **Focus on Non-Communicable Diseases (NCDs):** Increase investment in NCD prevention and management programs.

Conclusion:

The declining OOPE reflects India's commitment to an inclusive healthcare system. With continued investments in public health infrastructure and insurance schemes, the nation is moving closer to achieving Universal Health Coverage (UHC). This shift ensures financial protection for households, equitable access to quality healthcare, and a healthier population.

Insta Links:

1. [OOPE](#)

PYQ:

1. “Besides being a moral imperative of a Welfare State, primary health structure is a necessary precondition for sustainable development.” Analyse. (UPSC-2021)

9. ANTIMICROBIAL RESISTANCE

Context:

Antimicrobial Resistance (AMR) poses a grave threat to human, animal, and environmental health worldwide, including India. Despite advancements in medical sciences, AMR challenges global health progress, with projections of 10 million deaths annually by 2050.


What is AMR?

- **Definition:** AMR occurs when microorganisms such as bacteria, viruses, fungi, and parasites evolve to resist antimicrobial drugs, rendering them ineffective.
- **Impact:** AMR complicates treatments, increases healthcare costs, prolongs illnesses, and risks lives globally.

Causes of AMR:

- **Overuse of Antibiotics:** Unregulated sale and over-the-counter availability of antibiotics. Over-prescription for minor or non-bacterial infections.
- **Underuse or Misuse:** Non-adherence to prescribed dosages or courses.
- **Industrial Agriculture Practices:** Antibiotics used as growth promoters in livestock, fisheries, and poultry. Poor waste management from farms increases AMR in the environment.
- **Lack of Diagnostic Infrastructure:** Inadequate facilities for proper disease diagnosis and treatment.
- **Inadequate Training:** Healthcare providers often lack awareness of rational antibiotic use.
- **COVID-19 Pandemic Misuse:** Rampant and indiscriminate use of antibiotics during the pandemic

exacerbated AMR.

India's Approach to AMR:

- **National Action Plan (NAP):** Launched in 2017, it focuses on rational antibiotic use and AMR surveillance.
- **AMR Surveillance and Research Network (AMRSN):** Established by ICMR in 2013, monitoring resistance patterns across 30 tertiary hospitals.
- **One Health Approach:** Focus on interconnected health across human, animal, and environmental sectors. Collaborative initiatives like Integrated One Health Surveillance Network.
- **National One Health Mission:** Approved in 2022, it targets AMR, zoonotic diseases, and environmental health.
- **Policy Guidelines:** NCDC developed national guidelines for treatment and infection control.
- **Zoonotic Disease Programmes:** National Programme for Prevention and Control of Zoonoses under One Health.

Challenges yet to be addressed:

- **Lack of behavioural and social science data:** Limited understanding of community-level antibiotic usage patterns.
- **Structural disparities:** Unequal access to healthcare, particularly in rural and underserved regions.
- **Insufficient community engagement:** Poor implementation of awareness campaigns and behavioural change initiatives.
- **Inadequate workforce training:** Outdated curricula and lack of inter-sectoral training for professionals.
- **Surveillance gaps:** Inconsistent data collection from community and tertiary levels.

Way ahead:

- **Strengthen surveillance systems:** Expand monitoring to include community-level data for better health planning.
- **Enhance public awareness:** Implement targeted campaigns on antibiotic stewardship and AMR risks.
- **Policy implementation:** Enforce stricter regulations on over-the-counter antibiotic sales.
- **Inter-sectoral collaboration:** Strengthen the One Health approach across human, animal, and environmental sectors.
- **Update curricula and training:** Regularly revise professional training to include AMR and integrated health strategies.
- **Focus on resource allocation:** Ensure equitable distribution of resources for implementing AMR strategies effectively.

Conclusion

Addressing AMR is critical for sustaining global health progress and achieving SDG targets. India's initiatives, including the One Health Mission and AMR surveillance, provide a robust foundation. However, success requires

bridging regulatory, social, and infrastructural gaps through a collaborative, multi-sectoral approach that ensures equitable healthcare for all.

Insta Links:

2. [Antimicrobial-resistance](#)

PYQ:

1. Which of the following are the reasons for the occurrence of multi-drug resistance in microbial pathogens in India? (UPSC-2019)

1. Genetic predisposition of some people
2. Taking incorrect doses of antibiotics to cure diseases
3. Using antibiotics in livestock farming
4. Multiple chronic diseases in some people

Select the correct answer using the code given below.

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

Answer: b)

10. DIABETES – A NON COMMUNICABLE DISEASE

Context:

World Diabetes Day, observed on November 14 to honour Sir Frederick Banting, highlights the global fight against diabetes and its management.

Diabetes Data: Key Points

- **Global Prevalence:**
 - **Total adults with diabetes globally (2022):** 828 million.
 - **India:** 212 million (**25%** of global cases).
 - **Other nations:** China (148M), USA (42M), Pakistan (36M), Indonesia (25M), Brazil (22M)
- **Risk Factors:**
 - **Global:** Obesity and poor diets.
 - **India:** Dietary habits, lack of exercise, and socio-economic disparities.
- **Treatment Gap:**
 - **Global untreated cases (2022):** 445 million (59% of diabetics).
 - **India untreated cases (2022):** 133 million (64M men, 69M women).
 - Lack of treatment leads to severe complications like heart disease, kidney failure, and premature death.

Source: Lancet Report

About Diabetes:

- **What is Diabetes?**

- Diabetes is a chronic condition where the body fails to regulate blood glucose levels effectively due to insufficient insulin production or impaired insulin response.
- **Types of Diabetes:**
 - **Diabetes mellitus:**
 - Diabetes mellitus, the **most prevalent form of diabetes**, occurs when the body cannot effectively produce or utilize insulin, leading to unregulated blood sugar levels.
 - It is categorized into two main types:
 - **Type 1 Diabetes (T1D):**
 - Autoimmune condition; pancreas produces little or no insulin.
 - Typically affects children and young adults.
 - **Type 2 Diabetes (T2D):**
 - Caused by insulin resistance and reduced insulin production.
 - Associated with lifestyle factors like obesity and inactivity.
 - **Gestational Diabetes:**
 - Gestational diabetes occurs in pregnant women, leading to elevated blood sugar levels without an obvious cause.
 - Develops during pregnancy and usually resolves after childbirth.
 - **Diabetes Insipidus:**
 - Diabetes insipidus arises when the hypothalamus fails to produce or respond to antidiuretic hormone (ADH), which helps the kidneys regulate body water levels.
 - Without this hormone, the kidneys excrete a large volume of diluted and odourless urine.

Symptoms:

- Frequent urination.
- Excessive thirst and hunger.
- Unexplained weight loss.
- Blurred vision.
- Fatigue.
- Slow-healing wounds.

Role of Insulin in Resolving Diabetes:

- **Function:**
 - Insulin is a hormone produced by the pancreas that facilitates glucose absorption into cells for energy production.
- **In Diabetes:**
 - **Type 1 Diabetes:** Insulin injections or pumps are essential for survival.
 - **Type 2 Diabetes:** Insulin or other medications may be needed alongside lifestyle modifications.

Government Initiatives to Counter Diabetes:

- **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS):**
 - Focuses on awareness, early diagnosis, and management.
- **National Health Policy (2017):**
 - Aims to reduce premature deaths from non-communicable diseases by 25% by 2025.
- **Ayushman Bharat - Health and Wellness Centres:**
 - Provides free screenings and consultations for diabetes and other non-communicable diseases.
- **Eat Right Movement:**
 - Promotes healthier dietary habits to combat obesity and diabetes.
- **School Health Programs:**
 - Focuses on inculcating healthy lifestyles among children to prevent early onset of Type 2 Diabetes.

Way Ahead:

- **Awareness and Education:**
 - Increase awareness about diabetes prevention and management.
 - Promote regular screenings for early detection.
- **Policy Interventions:**
 - Strengthen healthcare infrastructure for diabetes care.
 - Subsidize medications and treatments for low-income groups.
- **Lifestyle Modifications:**
 - Encourage healthier diets and physical activity.
 - Develop urban planning that facilitates outdoor exercise.
- **Research and Innovation:**
 - Invest in diabetes cure research.
 - Expand access to technologies like continuous glucose monitors.

Insta Links:

1. [National-programme-for-prevention-control-of-non-communicable-diseases](#)

PYQ:

1. Aspartame is an artificial sweetener sold in the market. It consists of amino acids and provides calories like other amino acids. Yet, it is used as a low-calorie sweetening agent in food items. What is the basis of this use? (UPSC-2011)
 - a) Aspartame is as sweet as table sugar, but unlike table sugar, it is not readily oxidized in human body due to lack of requisite enzymes
 - b) When aspartame is used in food processing, the sweet taste remains, but it

- becomes resistant to oxidation
- c) Aspartame is as sweet as sugar, but after ingestion into the body, it is converted into metabolites that yield no calories
- d) Aspartame is several times sweeter than table sugar, hence food items made with small quantities of aspartame yield fewer calories on oxidation.

Answer: d)

Topics: Important aspects of governance, transparency and accountability, e-governance applications, models, successes, limitations, and potential; citizens charters, transparency & accountability and institutional and other measures.

11. INDIA’S COOPERATIVE MOVEMENT

Context:

India’s cooperative movement, rooted in the ethos of *Vasudhaiva Kutumbakam* (“the world is one family”), has played a transformative role in fostering inclusive growth, empowering marginalized communities, and driving rural development.

What are Cooperative Societies?

Cooperative societies are voluntary organizations where individuals with shared interests collaborate to achieve common economic goals. They operate on principles of self-help, mutual assistance, and prioritizing community welfare over profit. Members pool resources, collectively use them, and derive shared benefits.

Types of Cooperatives in India

1. **Consumers’ Cooperative Societies:** Provide goods at reasonable prices, bypassing middlemen.
 - **Examples:** Kendriya Bhandar, Apna Bazar.
2. **Producers’ Cooperative Societies:** Support small producers with resources like raw materials.
 - **Examples:** Haryana Handloom, APPCO.
3. **Marketing Cooperative Societies:** Help market products of small producers collectively.
 - **Example:** AMUL.
4. **Credit Cooperative Societies:** Offer financial assistance to members at reasonable interest rates.
 - **Examples:** Urban Cooperative Banks, Village Service Cooperative Societies.
5. **Farming Cooperative Societies:** Facilitate benefits of large-scale farming for small farmers.
 - **Examples:** Lift-irrigation cooperatives.
6. **Housing Cooperative Societies:** Provide affordable housing by pooling resources.
 - **Examples:** Employees’ Housing Societies.

The Cooperative Spirit



Definition
A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.

Cooperative Values
Cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity, and solidarity. In the tradition of their founders, cooperative members believe in the ethical values of honesty, openness, social responsibility and caring for others.

Cooperative Principles

- ✓ Voluntary and Open Membership
- ✓ Democratic Member Control
- ✓ Member Economic Participation
- ✓ Autonomy and Independence
- ✓ Education, Training, and Information
- ✓ Cooperation among Cooperatives
- ✓ Concern for Community



Cooperatives at a Glance

- **Sectors:** Agriculture, credit, banking, housing, and women's welfare.
- **Role:** Promote financial inclusion, provide affordable credit, and reduce socio-economic disparities.
- **Examples:** AMUL (dairy), NCDC (rural credit), Urban Cooperative Banks (finance).

Conclusion:

India's cooperative movement embodies the principles of inclusivity and self-reliance. By leveraging cooperatives as engines of rural development and economic empowerment, the government aims to achieve equitable growth.

Insta Links:

1. [Cooperative-sector-and-its-role-in-indian-farming](#)

PYQ:

1. "In the Indian governance system, the role of non-state actors has been only marginal." Critically examine this statement. (UPSC-2016)

"In the villages itself no form of credit organisation will be suitable except the cooperative society." – All India Rural Credit Survey. Discuss this statement in the background of agricultural finance in India. What constraints and challenges do financial institutions supplying agricultural finance face? How can technology be used to better reach and serve rural clients? (UPSC-2014)

Evolution of Cooperative Movement in India:

Pre-Independence Era:

- **1904:** Cooperative Credit Societies Act—recognized cooperatives legally but limited to credit societies.
- **1912:** Cooperative Societies Act—expanded scope to include marketing and artisan societies.
- **1914:** Maclagan Committee recommended a three-tier cooperative banking system.
- **1925:** Bombay Cooperative Society Act—first provincial cooperative legislation.
- **1942:** Multi-Unit Cooperative Societies Act—regulated cooperatives across provinces.

Post-Independence Era:

- Cooperatives integrated into Five-Year Plans, emphasizing economic decentralization and social justice.
- **1963:** National Cooperative Development Corporation (NCDC) established to support rural credit.
- **1982:** NABARD founded to aid cooperative financing.
- **2002:** National Policy on Cooperatives introduced to harmonize the legal framework.
- **2023:** MSCS Amendment Act enhanced transparency and governance.

Resurgence of the Cooperative Movement in India:

The Ministry of Cooperation, formed in 2021, has launched initiatives to modernize the sector:

1. **Model Bye-Laws for PACS:** Enable diversified activities, adopted by 32 states.
2. **Computerization of PACS:** ₹2,516 crore project covering 63,000 societies.
3. **Decentralized Grain Storage Plan:** Reduces food grain waste at PACS level.
4. **PACS as Common Service Centers:** Provide over 300 e-services to rural citizens.
5. **PM Bhartiya Jan Aushadhi Kendras:** 2,475 PACS approved to sell generic medicines.

12. BAIL & UNDERTRIALS

Context:

India's judicial and prison systems face challenges, with undertrial prisoners forming a major portion of inmates. Amendments under the [Bharatiya Nagarik Suraksha Sanhita](#) (BNSS) aim to streamline bail and reduce prison overcrowding, reinforcing justice and rights.

Bail and Its Types:

- **Definition:** Bail refers to the temporary release of an accused person awaiting trial, often under specified conditions.
- **Types of Bail:**
 - **Regular Bail:** Granted to those in police custody (Sections 437 & 439 of CrPC).
 - **Interim Bail:** Temporary relief until a regular or anticipatory bail hearing.
 - **Anticipatory Bail:** Pre-arrest bail under Section 438 of CrPC for individuals fearing arrest.

Modifications in BNSS Regarding Bail:

- **First-Time Offenders:** Entitled to bail after serving one-third of their maximum sentence (excluding cases with life imprisonment or death penalties).

- **Mandatory Bail:** Courts must consider bail upon charge sheet filing unless there are compelling reasons to deny it.
- **Special Provisions:** Focus on vulnerable groups like women, children, and sick individuals.
- **Timely Disposal:** Emphasis on reducing delays in bail application processes.

Recent Trends in Undertrial Prisoners in India:

- **Population Statistics:** As of 2022, undertrials constitute 75.8% of the prison population (4,34,302 out of 5,73,220 prisoners).
 - **Gender Analysis:** 76.33% of incarcerated women are undertrials.
 - **Duration:** 8.6% of undertrials have been imprisoned for over three years.
- Source:** NCRB Prison Statistics India, 2022

- **Political Will:** Prioritize reforms with sustained funding and commitment.

Insta Links:

1. [Bail-is-the-rule-and-jail-is-the-exception](#)

PYQ:

1. Discuss how emerging technologies and globalisation contribute to money laundering. Elaborate measures to tackle the problem of money laundering both at national and international levels. (UPSC-2021)

Topics: India and its neighbourhood- relations.

13. INDIA'S NEIGHBOURHOOD POLICY

Context:

India's neighbourhood policy is under scrutiny as its relations with several neighbouring countries face challenges. With a history of deep cultural and historical ties, India's approach to its neighbours must balance its growing global aspirations with regional sensitivities.

India's Neighbourhood Policy:

- **Neighbourhood First Policy:**
 - Emphasizes prioritizing relations with immediate neighbours.
 - Seeks economic integration, development partnerships, and cultural ties.
- **Gujral Doctrine:**
 - Advocates non-reciprocity and goodwill gestures toward neighbours.
 - Focuses on non-interference, respect for sovereignty, and peaceful dispute resolution.
- **Act East Policy:**
 - Connects India with Southeast Asia for trade, security, and cultural integration.
 - Strengthens ties with Myanmar, Bangladesh, and ASEAN countries.

Present Diplomatic Means to Handle Neighbours:

- **Economic Initiatives:**
 - Trade agreements and infrastructure projects like BBIN and SAARC.
 - Investments in energy, transport, and connectivity in Nepal, Bhutan, and Bangladesh.
- **Security Cooperation:**
 - Joint exercises and counter-terrorism efforts, e.g., BIMSTEC and Quad.
 - Border management agreements with Bhutan, Nepal, and Bangladesh.
- **Cultural Diplomacy:**
 - Leveraging historical and religious ties with Nepal and Sri Lanka.
 - Promoting Indian soft power through educational scholarships and cultural exchanges.

Key Supreme Court Judgments on Bail:

1. **Satender Kumar Antil vs. CBI (2023):** Established guidelines for timely disposal of bail applications and emphasized "bail, not jail."
2. **Hussainara Khatoon vs. State of Bihar (1979):** Ensured the right to free legal aid for fair trials.
3. **Charles Sobhraj vs. Superintendent, Central Jail, Tihar (1978):** Highlighted prisoner rights, including access to humane living conditions.
4. **Shaheen Welfare Association vs. Union of India (1996):** Allowed bail for undertrials with prolonged detention exceeding two years.
5. **Upendra Baxi vs. State of U.P. (1983):** Stressed dignity and humane treatment for inmates.

Challenges:

- **Implementation Gaps:** Delayed compliance with bail conditions despite legal provisions.
- **Economic Barriers:** Inability to afford bail amounts or arrange sureties.
- **Judicial Discretion:** Inconsistent application of bail principles across cases.
- **Administrative Delays:** Prolonged processing time for bail applications.
- **Documentation Issues:** Lack of identity proof and legal representation hampers undertrial release.
- **Social Barriers:** Marginalized individuals face systemic biases in accessing bail.

Measures:

- **Reform Legislation:** Develop comprehensive laws to streamline bail processes.
- **Focus on Rehabilitation:** Implement programs to support reintegration and reduce recidivism.
- **Open Prison Models:** Expand systems like Rajasthan's "open prisons" for eligible inmates.
- **Strengthen Legal Aid:** Enhance access to legal aid services for undertrials.
- **Streamline Processes:** Ensure jail superintendents promptly notify courts about eligible undertrials.

- **Aid and Assistance:**
 - Humanitarian assistance during crises (e.g., earthquake relief in Nepal).
 - Development aid to Bhutan, Maldives, and Afghanistan.

Positive Impacts:

- **Economic Growth:**
 - Enhanced trade and energy cooperation with Bangladesh and Bhutan.
 - Cross-border projects like Maitree Super Thermal Power Project with Bangladesh.
- **Regional Stability:**
 - Cooperation on counter-terrorism and maritime security in the Indian Ocean region.
 - Proactive measures in disaster management strengthen goodwill.
- **Soft Power:**
 - Popularity of Indian culture, films, and educational initiatives in neighboring countries.
 - Religious tourism initiatives, such as Ramayana Circuit.

Negative Impacts:

- **Trust Deficit:**
 - Perceptions of India as a “big brother” in Nepal and Sri Lanka.
 - Accusations of interference in internal politics, e.g., Maldives and Nepal.
- **Chinese Influence:**
 - China’s Belt and Road Initiative offers economic alternatives to India’s neighbours.
 - Strategic encirclement through infrastructure projects like Hambantota Port in Sri Lanka.
- **Security Concerns:**
 - Rise in anti-India sentiment used for political gains in Bangladesh and Maldives.
 - Border disputes with Nepal strain bilateral ties.

Measures to Prioritize Neighbour Relations:

- **Respect Sovereignty:**
 - Avoid overt interference in domestic politics of neighboring countries.
 - Uphold the principle of non-reciprocity in bilateral agreements.
- **Strengthen Economic Ties:**
 - Enhance cross-border infrastructure and connectivity projects.
 - Promote regional trade blocs like BIMSTEC and BBIN.
- **Collaborate on Shared Challenges:**
 - Partner in addressing climate change, disaster management, and health crises.
 - Ensure equitable sharing of water resources in transboundary rivers.

- **Engage Strategically:**
 - Counterbalance Chinese influence by offering competitive investments and aid.
 - Focus on soft-power diplomacy through cultural and educational exchanges.
- **Transparent Communication:**
 - Regular summits and dialogues to address grievances and foster trust.
 - Encourage people-to-people contact to mitigate misunderstandings.

Conclusion

India’s neighbourhood policy must focus on fostering trust, mutual respect, and collaboration. Strengthening ties with its neighbours through economic, cultural, and diplomatic initiatives is crucial for regional stability and India’s global aspirations.

Insta Links:

1. [Neighbourhood First Policy](#)
2. [PYQ](#)

PYQ:

1. “China is using its economic relations and positive trade surplus as tools to develop potential military power status in Asia”. In the light of this statement, discuss its impact on India as her neighbour. (UPSC-2017)

14. INDIA – BANGLADESH

Context:

A day after Bangladesh police arrested Hindu monk on sedition charges and a court on Tuesday denied him bail, India expressed “deep concern” and urged authorities “to ensure the safety and security of Hindus and all minorities” in the neighbouring country.



History Between India and Bangladesh:

- **Pre-Partition Bond:** Cultural and linguistic ties were disrupted by the Partition of 1947, leading to large-scale family separations and migration.
- **1971 Liberation War:** India’s military and moral support were instrumental in Bangladesh’s independence from Pakistan, marking the

- hunger and poverty.
- **Features:** Focus on cash transfers, school feeding programs, and microfinance.
- 2. **Task Force on a Global Mobilization Against Climate Change (TF-CLIMA):**
 - **Aim:** Address structural barriers and foster private capital for climate action.
 - **Features:** Mainstream climate change into financial agendas and explore transparent credit rating systems.
- 3. **Tropical Forest Forever Facility (TFFF):**
 - **Aim:** Conserve forests through innovative financing mechanisms.
 - **Features:** Mobilize funds to support developing countries in combating deforestation.
- 4. **G20 Bioeconomy Initiative (GIB):**
 - **Aim:** Promote sustainable economic growth through bio-based innovations.
 - **Features:** Adoption of 10 voluntary principles for bioeconomy development.
- 5. **Principles for Just and Inclusive Energy Transitions:**
 - **Aim:** Ensure equitable and inclusive energy transitions globally.
 - **Features:** Triple renewable energy capacity and improve energy efficiency by 2030.
- 6. **Voluntary Contributions for Pandemic Preparedness:**
 - **Aim:** Strengthen global health systems and universal health coverage.
 - **Features:** Enhanced cooperation for vaccine access and local health innovation.
- 7. **Roadmap for Multilateral Development Banks (MDBs):**
 - **Aim:** Reform MDBs for increased lending capacity and better resource mobilization.
 - **Features:** Capital adequacy reforms and integration with private capital.
- 8. **Digital Economy and AI Governance:**
 - **Aim:** Promote responsible AI use while addressing risks.
 - **Features:** Establishment of guidelines for AI in workplaces and promoting digital inclusion.

Positives:

- **Focus on Inclusion:** Emphasis on reducing inequalities through sustainable and inclusive policies.
- **Climate Action Leadership:** Strong commitment to net-zero targets and biodiversity conservation.
- **Health and Education:** Strengthened investment in health systems and digital education.
- **Global Collaboration:** Improved coordination among G20 nations for global governance reforms.

Limitations:

- **Ambiguity in Funding:** Lack of concrete timelines or clear financial commitments for many initiatives.
- **Limited Consensus:** Divergences in national

circumstances delay uniform climate action and financial reforms.

- **Exclusion of Certain Nations:** The framework still favors major economies, leaving smaller nations with limited representation.
- **Lack of Enforcement Mechanisms:** Most initiatives rely on voluntary participation without binding commitments.

Insta Links:

1. [G20-new-delhi-leaders-declaration](#)

PYQ:

1. In which one of the following groups are all the four countries members of G20? (UPSC- 2020)
 - a) Argentina, Mexico, South Africa and Turkey
 - b) Australia, Canada, Malaysia and New Zealand
 - c) Brazil, Iran, Saudi Arabia and Vietnam
 - d) Indonesia, Japan, Singapore and South Korea

Answer: a)

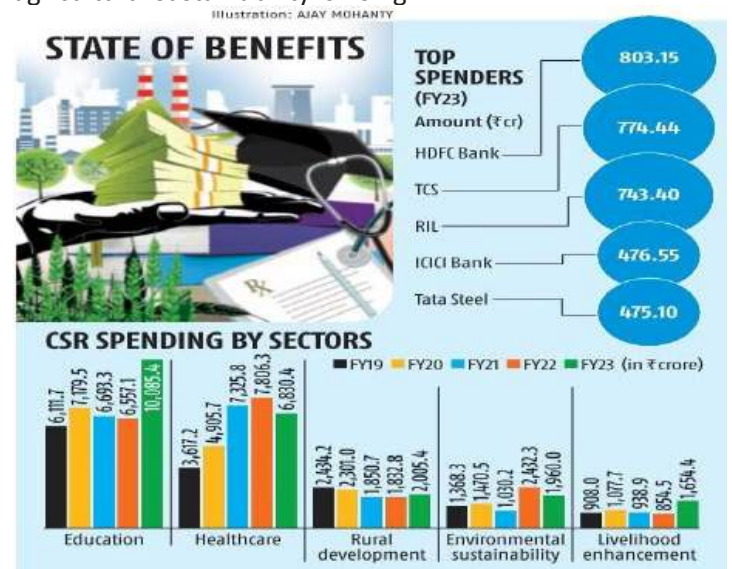
GENERAL STUDIES – 3

Topics: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

16. CORPORATE SOCIAL RESPONSIBILITY

Context:

India, the first country to mandate Corporate Social Responsibility (CSR), has seen **over ₹1.84 lakh crore invested through CSR from 2014 to 2023**. With agriculture employing nearly half of the workforce and contributing 16.73% to GDP, interest in directing CSR funds toward agricultural sustainability is rising.



About Corporate Social Responsibility (CSR):

- **Definition:** CSR involves corporate initiatives focused on societal, environmental, and economic development, enabling companies to positively impact communities.
- CSR Framework in India:
 - **Legal Basis:** Governed by Section 135 and Schedule VII of the Companies Act, 2013, and Companies (CSR Policy) Rules, 2014, which outline eligibility criteria, implementation, and reporting requirements for CSR activities.
 - **Criteria for CSR:** Mandatory for companies meeting any of the following:
 - Net worth of ₹500 crore or more,
 - Annual turnover of ₹1,000 crore or more,
 - Net profit of ₹5 crore or more.
 - Such companies are required to allocate 2% of their average net profits from the past three years toward CSR.
 - **Penal Provisions:** If a company fails to meet CSR obligations, it faces fines ranging from ₹50,000 to ₹25 lakh. Responsible officers may face imprisonment (up to three years), fines between ₹50,000-₹5 lakh, or both.
 - **2019 Amendment:**
 - Prior to 2019, unspent CSR funds could be carried forward to the next fiscal.
 - Post-amendment, unspent funds must be transferred to a specified Schedule VII fund by the end of the fiscal year and utilized within three years, failing which, they must be deposited in a government-specified fund.

CSR Contribution to Agriculture:

- **Employment significance:** Agriculture employs 47% of India’s workforce, far above the global average.
- **Economic role:** Contributing 16.73% to GDP, agriculture is central to India’s economic growth and sustainability.
- **Focus on Sustainability:** Corporates are increasingly supporting sustainable agricultural practices, including climate action and resource conservation, through their CSR funds.
- **CSR initiatives:** Corporates increasingly support agriculture through CSR, focusing on projects like grain banks, farmer education, [sustainable irrigation](#), and water conservation.

Challenges:

- **Tracking issues:** Lack of specific classification for agriculture-related CSR efforts complicates tracking and monitoring.

- **Sector overlap:** CSR activities in agriculture often fall under multiple categories in Schedule VII, diluting agriculture-specific reporting.
- **Inadequate reporting focus:** Current CSR reports lack dedicated attention to agriculture, limiting accurate assessment of impact on agricultural sustainability.
- **Ambiguity in Schedule VII:** Broad categories under Schedule VII result in a mix of activities, affecting transparency and the potential to track agriculture-specific CSR contributions effectively.

Way Ahead:

- **Designate Agriculture as a Separate CSR Sector:** Define agriculture clearly within CSR guidelines to ensure more targeted and transparent funding.
- **Revise Reporting Framework:** Shift to a sector-based reporting structure to enhance accuracy in fund allocation and impact tracking for agricultural projects.
- **Identify Critical Issues:** Recognize key sustainability challenges in agriculture to direct CSR funds toward the most pressing areas for improvement.
- **Encourage Sustainable Practices:** Leverage CSR to drive sustainable agricultural practices, such as conservation, water management, and agroforestry, to support India’s environmental goals.

Conclusion:

To enhance CSR’s impact on agriculture, India should refine its reporting framework by designating agriculture as a distinct sector, promoting transparency, and focusing funds on specific sustainability challenges. This approach aligns CSR with national priorities, better supports farmers, and advances sustainable agriculture.

Insta Links:

1. [Impact-of-CSR-funds](#)

PYQ:

1. Corporate social responsibility makes companies more profitable and sustainable. Analyse. (UPSC-2017)

17. FORMALISATION OF ECONOMY

Context:

India’s economy is transitioning to formality, improving employment security, social benefits, and economic stability. This shift enhances workers’ quality of life through access to social security, regulated conditions, and financial safety nets, with institutions like EPFO driving workforce formalization.

What is Formalization of the Economy?

Formalization is the process of shifting economic activities from the informal sector—characterized by unregistered businesses and daily-wage workers—into the formal sector, where jobs are legally regulated.

Features of a Formal Economy

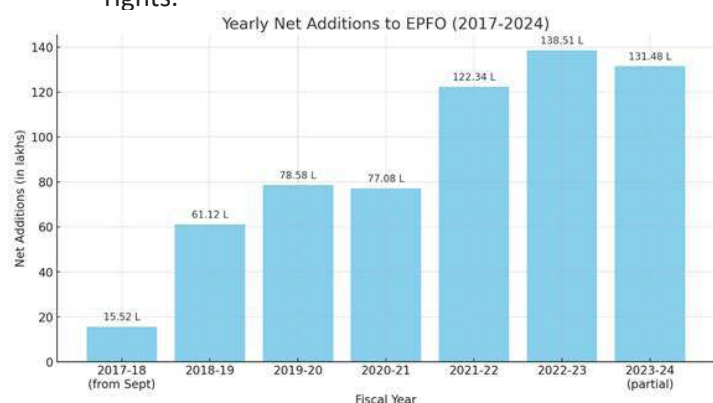
- **Legal Protections:** Workers have contracts ensuring job security and legal rights.
- **Social Security:** Access to benefits such as retirement savings, health insurance, and paid leave.
- **Stable Income:** Workers receive fixed salaries through official channels.
- **Transparency:** Economic activities comply with tax laws and government regulations.
- **Economic Participation:** Greater access to financial services, credit, and government programs.

What is EPFO and How Does it Benefit Workers?

The **Employees' Provident Fund Organisation (EPFO)** is a government body managing long-term savings and social security benefits for salaried workers in India.

Benefits of EPFO:

1. **Retirement Fund:** Ensures financial security for employees' post-retirement.
2. **Insurance:** Life coverage under schemes like Employees' Deposit Linked Insurance (EDLI).
3. **Pension:** Monthly income after retirement through the Employees' Pension Scheme (EPS).
4. **Emergency Support:** Allows partial withdrawals for medical needs, education, or housing.
5. **Job Security:** Formal EPFO registration indicates compliance with labor laws, ensuring employee rights.



How EPFO Registration Reflects Increased Formalization:

EPFO registrations indicate a shift toward formal employment.

Key Data from EPFO (2022-2024):

- **6.91 crore members joined** EPFO from September 2017 to July 2024.
- In **2022-23, 1.38 crore new members registered.**
- **July 2024** saw a record **20 lakh new registrations**, indicating robust labor market growth.
- Rising participation from youth, women, and job-switching employees reflects the increasing formalization of the workforce.

Government Schemes for Formalization:

1. **Pradhan Mantri Rojgar Protsahan Yojana (PMRPY):** Provides employers' contribution to EPF for three years to encourage job creation and formalize employment.

2. **Aatmanirbhar Bharat Rozgar Yojana (ABRY):** Incentivizes job creation during the COVID-19 recovery phase by reimbursing employers for EPF contributions.
3. **PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi):** Provides affordable loans to street vendors for capital and business expansion, aiming to integrate them into the formal economy.

Challenges in Formalization:

1. **Increased Costs:** Compliance with labor laws raises operational costs, particularly for small businesses.
2. **Credit Access:** MSMEs face difficulty obtaining credit due to a lack of formal documentation.
3. **Bureaucracy:** Lengthy and complicated registration processes deter small enterprises.
4. **Displacement Risks:** Informal workers may lose jobs as employers adjust to formal sector requirements.
5. **Economic Vulnerabilities:** Informal sector workers are disproportionately affected by policies like GST or demonetization without adequate safeguards.

Way Ahead:

1. **Simplify Regulations:** Streamline registration and compliance processes for small businesses.
2. **Expand Credit Access:** Offer collateral-free loans and credit support for MSMEs and informal workers.
3. **Support Informal Workers:** Create self-help groups to address issues like working conditions and social security.
4. **Comprehensive Data Collection:** Build a robust statistical framework to monitor informal sector dynamics and tailor policies.
5. **Invest in Infrastructure:** Provide public amenities like water, waste collection, and workspace for informal workers to enhance productivity and accountability.

Insta Links:

1. [Formalization-of-Economy](#)

PYQ:

1. How globalization has led to the reduction of employment in the formal sector of the Indian economy? Is increased informalization detrimental to the development of the country? (UPSC-2016)

18. PRODUCTION LINKED INCENTIVE SCHEME

Context:

India's Production Linked Incentive (PLI) Scheme, launched in 2020, aims to transform the country's manufacturing sector into a global hub by encouraging investments, innovation, and self-reliance.

What is the PLI Scheme?

The PLI Scheme incentivizes companies (domestic

and foreign) to manufacture in India by offering financial rewards based on incremental production and revenue over five years. Initially targeting three industries, it was later expanded to 14 critical sectors to drive import substitution, employment generation, and high-tech industrial development.

Features and Sectors Covered

1. Features:

- Performance-driven financial incentives.
- Promotes advanced technologies and economies of scale.
- Focus on self-reliance and boosting exports.
- Encourages job creation and import substitution.

2. Sectors Covered:

- Large-scale electronics manufacturing (LSEM).
- Pharmaceuticals and medical devices.
- Automobiles and auto components.
- Telecom and networking products.
- Renewable energy and [solar PV modules](#).
- Advanced chemistry cell (ACC) batteries.
- White goods, drones, textiles, food products, and specialty steel.

Budget Outlay:

- Total allocation: ₹1.97 lakh crore (~\$24 billion).
- Strategic funding across 14 sectors to enhance domestic manufacturing, exports, and technological development.



Achievements and Impact:

1. Overall Impact:

- ₹1.46 lakh crore investments realized by August 2024.
- ₹12.50 lakh crore production generated.
- ₹4 lakh crore exports and 9.5 lakh jobs created.

2. Sector-Specific Achievements:

- **Electronics:** Transition from a net importer to a net exporter of mobile phones. Production grew to 33 crore units (2023-24), with exports reaching 5 crore units.
- **Pharmaceuticals and Medical Devices:** India became the 3rd largest producer by volume, exporting 50% of production and reducing import dependency on bulk drugs.

- **Automotive:** Attracted \$8 billion in investments and boosted production of high-tech automotive components.
- **Renewable Energy:** Solar PV module production expanded with 65 GW manufacturing capacity under the second tranche.
- **Telecom:** Achieved 60% import substitution and became a major exporter of 4G and 5G equipment.
- **Drones:** Sector witnessed seven-fold growth, driven by MSMEs and start-ups.

Challenges:

1. **Limited Value Addition:** Over-reliance on assembly rather than end-to-end manufacturing.
2. **WTO Constraints:** Rules limit tying incentives to domestic value addition.
3. **Ambiguity in Disbursal:** Lack of standardized parameters for fund allocation.
4. **Data Gaps:** Absence of centralized databases for tracking outcomes.
5. **Complex Supply Chains:** Difficulty in developing high-tech industries like semiconductor manufacturing.

Way Ahead:

1. **Policy Evaluation:** Assess cost per job, production outcomes, and export growth.
2. **Transparent Incentives:** Standardize criteria for fund disbursal and maintain accountability.
3. **Strengthening Value Addition:** Focus on entire supply chains to deepen domestic manufacturing.
4. **Database Development:** Create centralized systems for tracking investments, jobs, and exports.
5. **Expand Sectors:** Target emerging industries like green hydrogen, semiconductors, and AI.

Conclusion:

The PLI Scheme has significantly bolstered India’s manufacturing capabilities, attracting investments, increasing production, and fostering innovation. Addressing challenges and building a robust ecosystem will ensure sustained growth and secure India’s position as a global manufacturing powerhouse.

Insta Links:

1. [PLI](#)

PYQ:

1. Consider, the following statements: (UPSC-2023)
Statement-I: India accounts for 3.2% of global export of goods.
Statement-II: Many local companies and some foreign companies operating in India have taken advantage of India’s ‘Production-linked Incentive’ scheme.
 Which one of the following is correct in respect of the above statements?
 a) Both Statement-I and Statement-II are

- correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
 - Statement-I is correct but Statement-II is incorrect
 - Statement-I is incorrect but Statement-II is correct

Answer: d)

Topics: Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

19. DEDICATED FREIGHT CORRIDORS

Context:

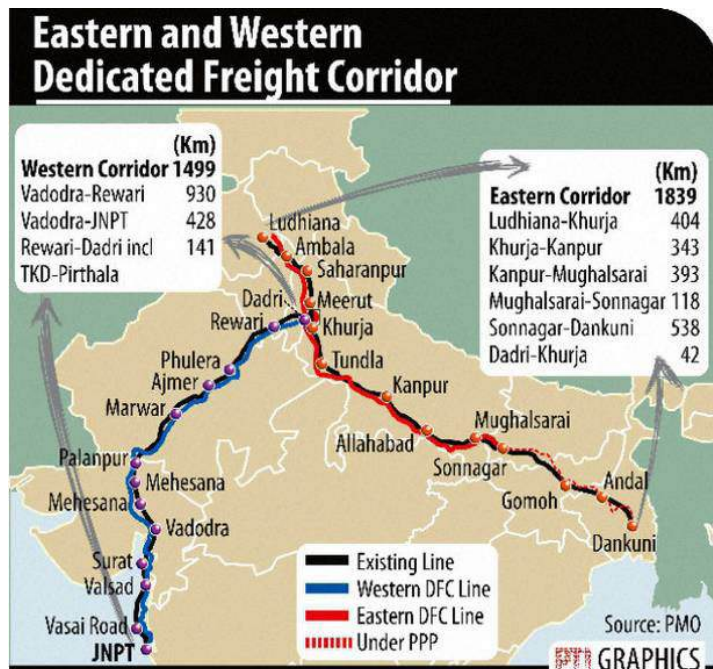
As India's economy grows, dedicated freight corridors are proving instrumental in boosting the Railways' revenue and contributing to GDP growth, with significant impacts on freight efficiency, connectivity, and infrastructure development.

What are Dedicated Freight Corridors (DFCs)?

DFCs are specialized railway tracks designed solely for freight transport. These corridors, utilizing double-stack container and heavy-haul trains, increase capacity and ensure faster freight transit.

Currently, two DFCs are operational:

- Eastern dedicated freight corridor (EDFC):**
 - Route:** Covers approximately 1,856 km from Ludhiana (Punjab) to Dankuni (West Bengal).
 - Key sections:** Kanpur-Mughalsarai and Khurja-Bhaupur.
 - Operations:** Fully commissioned, handling nearly 200 trains daily, primarily transporting coal, steel, and agricultural products.
 - Impact:** Relieves congestion on existing tracks, improves passenger train punctuality, and boosts regional economic activities.
- Western dedicated freight corridor (WDFC):**
 - Route:** Stretches about 1,504 km from Dadri (Uttar Pradesh) to Jawaharlal Nehru Port Trust (JNPT) in Maharashtra.
 - Key sections:** Rewari-Palanpur and Palanpur-Makarpura.
 - Operations:** 93% complete, facilitating around 125 trains per day, with full completion expected by December 2025.
 - Impact:** Enhances port connectivity, reduces transit time for goods, and significantly lowers logistics costs for exports and imports.



Need for Dedicated Freight Corridors:

- Congestion relief:** Existing railway corridors, particularly the Golden Quadrilateral, are heavily burdened with over 50% of freight traffic on only 16% of track length, causing delays and inefficiencies.
- Boost to Freight Share:** Railways' share in national freight traffic was declining; DFCs aim to elevate this to 45% by 2030, addressing the need for a more sustainable and efficient freight system.
- Economic efficiency:** Faster, dedicated freight lines lower overall logistics costs, helping reduce commodity prices and fostering economic growth.

Present Status of DFCs: (Source: DFCCIL Report)

- DFCs now handle over **10% of Indian Railways' freight**.
- An average of 325 trains run on DFC tracks daily**, a 60% increase from previous years.
- Since their inception, DFCs have managed **over 232 billion Gross Tonne Kilometres (GTKMs) and 122 billion Net Tonne Kilometres (NTKMs)**, underscoring their role in enhancing rail freight capacity.

Dedicated Freight Corridors (DFCs) Contribute to India's GDP:

- Reduction in Logistics Costs:** DFCs have reduced freight costs and transit time, lowering commodity prices by up to 0.5%, thus boosting industrial competitiveness.
- Revenue Growth for Railways:** DFCs contributed 2.94% to the Indian Railways' revenue growth between FY 2018–19 and FY 2022–23, enhancing infrastructure profitability.
- Increased Freight Capacity:** Handling over 10% of Railways' freight and reducing congestion on

traditional routes allows better resource allocation and efficient goods transport.

- **Boost to Export-Import Traffic:** Faster transit on DFC routes, especially in the WDFC linked to major ports, supports increased trade volumes, fueling GDP growth.
- **Employment and Investment:** Construction and operation of DFCs have generated jobs and attracted investments, directly contributing to economic activity and growth.
- **Enhanced Supply Chain Efficiency:** By improving freight reliability and decongesting passenger tracks, DFCs support a smoother, faster supply chain that benefits various sectors.

Challenges to DFCs:

- **Completion delays:** The WDFC's final section has an extended deadline until July 2025, impacting projected timelines and efficiencies.
- **Escalating costs:** Delays have raised project costs significantly, with a reported avoidable expenditure of Rs 2,690 crore, pushing total spending to Rs 94,091 crore as of March 2024.
- **Loss of Intended Benefits:** Delays reduce the immediate benefits of decongestion and increased capacity, impacting the Railways' revenue potential.

Way Ahead:

- **Timely completion:** Fast-track the completion of ongoing DFC segments to avoid further delays and financial overruns.
- **Expansion plans:** Expedite development on four proposed corridors to extend DFC benefits nationwide, including the East Coast and East-West sub-corridors.
- **Enhanced efficiency:** Continuous investment in technology and infrastructure to ensure DFCs remain efficient and competitive in handling future freight demands.

Conclusion:

Dedicated Freight Corridors **symbolize 'Viksit Bharat'**, aligning with India's goal of modernizing infrastructure and enhancing logistics efficiency. Once fully operational, DFCs will drive economic growth, support industry, and strengthen India's position as a logistics hub.

Insta Links:

1. [DFC](#)

PYQ:

1. With reference to bio-toilets used by the Indian Railways, consider the following statements: (UPSC-2015)
 1. The decomposition of human waste in the bio toilets is initiated by a fungal inoculum.
 2. Ammonia and water vapour are the only end products in this decomposition which are released into the atmosphere.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: d)

20. WORLD SOLAR REPORT SERIES

Context:

The International Solar Alliance (ISA), an international coalition focused on promoting solar energy solutions, released the 3rd edition of its World Solar Report series at the 7th Assembly, highlighting solar growth, investment trends, technological advancements, and green hydrogen's potential in Africa.

About ISA:

- **Origin:** Established in 2015 at COP21, jointly launched by India and France.
- **Headquarters:** Gurgaon, India.
- **Aim:** Mobilize \$1 trillion in solar investments by 2030, advance solar technology, and transition to a carbon-neutral future.
- **Members:** 120 Member and Signatory countries, focusing on regions with high solar potential.
- **Criteria:** Open to countries lying fully or partially between the Tropics of Cancer and Capricorn, though other interested countries may join.

Recently Released Reports:

1. **World Solar Market Report**
 - **Global Solar Growth:** From 1.22 GW in 2000 to 1,418.97 GW in 2023; projected to reach up to 7,203 GW by 2030.
 - **Manufacturing & Affordability:** Solar manufacturing capacity to exceed 1,100 GW by 2024; module prices below \$0.10/watt.
 - **Employment:** Solar sector supports 7.1 million jobs globally, with 86% concentrated in ten countries.
2. **World Investment Report**
 - **Growth in Energy Investments:** Investments rising from \$2.4 trillion in 2018 to \$3.1 trillion by 2024.
 - **Solar Dominance:** Solar accounts for 59% of renewable energy investments, with APAC as the top investing region.
 - **Regional Investment:** APAC at \$223 billion, EMEA at \$91 billion, and AMER at \$78 billion in 2023.
3. **World Technology Report**
 - **Efficiency & Innovation:** Record solar PV efficiency at 24.9%; 88% reduction in silicon use since 2004.

- **Cost Reduction:** Utility-scale PV costs have dropped 90% since 2010, now at \$0.044/kWh.
 - **Material Advancements:** Multijunction perovskite cells promising enhanced efficiency and lower production costs.
4. **Green Hydrogen Readiness Assessment for African Countries**
- **Potential for Decarbonization:** Green hydrogen seen as a sustainable substitute for fossil fuels in industries.
 - **Production via Renewables:** Hydrogen generated through renewable-powered electrolysis supports Africa’s transition to green energy.
 - **Target Countries:** Focuses on Egypt, Morocco, Namibia, among others, for developing a green hydrogen economy.

- **Foster international collaboration:** Leverage partnerships like ISA to share best practices, pool resources, and drive down costs globally.

Conclusion:

ISA’s efforts in promoting solar technology and green hydrogen mark a significant step in the global green push, accelerating sustainable growth. Solar energy is emerging as a cornerstone of the world’s transition to a cleaner, more resilient energy future.

Insta Links:

1. [International-solar-alliance](#)

PYQ:

1. India has immense potential for solar energy though there are regional variations in its developments. Elaborate. (UPSC-2020)

Key positives:

- **Massive solar capacity growth:** Global solar capacity rose from 1.22 GW in 2000 to 1,418.97 GW in 2023, making renewable energy more accessible.
- **Cost reductions:** Solar PV costs have dropped significantly, with utility-scale PV now at \$0.044/kWh, making solar energy more affordable.
- **Employment opportunities:** The solar industry supports 7.1 million jobs globally, fueling economic growth in many countries.
- **Green hydrogen potential:** Solar-powered green hydrogen is positioned to decarbonize key industries in regions like Africa, aiding the clean energy transition.

Key negatives:

- **High initial investment:** Setting up solar infrastructure and green hydrogen facilities still requires substantial financial investments.
- **Dependency on Technological Advancements:** Solar’s future efficiency depends on continuous breakthroughs in technology and materials.
- **Uneven regional growth:** Investment and infrastructure development are uneven across regions, with APAC leading while others lag.
- **Resource intensity:** Despite improvements, solar manufacturing remains resource-intensive, with ongoing concerns over silicon use and waste.

Way ahead:

- **Boost regional investments:** Encourage more balanced solar investments across regions, especially in EMEA and Africa.
- **Focus on Innovation:** Prioritize research and development to improve solar efficiency and reduce manufacturing resource needs.
- **Support green hydrogen projects:** Promote green hydrogen infrastructure, particularly in resource-rich regions like Africa, for industrial decarbonization.

21. WIND ENERGY

Context:

Tamil Nadu, a pioneer in wind power, is facing challenges regarding outdated wind turbines, repowering policies, and land constraints. The **Tamil Nadu Repowering, Refurbishment and Life Extension Policy - 2024** aims to address these issues but has received opposition from stakeholders citing financial and operational concerns.

India’s Wind Energy Capacity and Potential: (Source: National Institute of Wind Energy)

- **Potential:**
 - **At 150m height:** 1,163.86 GW
 - **At 120m height:** 695.51 GW (including 68.75 GW in Tamil Nadu).
 - **Utilized nationally:** ~6.5%; Tamil Nadu: ~15%.
- **Installed Capacity:**
 - **Total:** 44.89 GW (as of 2024).
 - **Tamil Nadu:** 10,603.5 MW, second largest in India.
 - **Leading states:** Gujarat, Tamil Nadu, Karnataka, Maharashtra, Rajasthan, Andhra Pradesh (~93% of total).

| State | Installed Capacity (MW) | Potential at 120m (GW) | Potential at 150m (GW) |
|----------------|-------------------------|------------------------|------------------------|
| Tamil Nadu | 10,603.5 | 68.75 | 1,163.86 |
| Gujarat | ~10,000 | ~60 | ~1,000 |
| Karnataka | ~8,000 | ~50 | ~800 |
| Maharashtra | ~7,000 | ~45 | ~700 |
| Rajasthan | ~6,000 | ~40 | ~600 |
| Andhra Pradesh | ~5,000 | ~35 | ~500 |
| Other States | ~10,000 | ~60 | ~900 |
| Total | 44,890 | 695.51 | 1,163.86 |

(Source: MNRE Database – Read image from prelims perspective too, Eg: highest wind potential state at 120m and 150m, order wise potential etc..)

Maintenance of Wind Turbines:

- **Repowering:** Complete replacement of old turbines (<2 MW) with modern ones for higher efficiency.
- **Refurbishing:** Enhancements such as taller towers, new blades, or upgraded gearboxes.
- **Life Extension:** Safety measures to extend the lifespan of existing turbines.
- **Challenges:** Requires investment in land, technology, and evacuation infrastructure.

Repowering and Refurbishing:

- **Advantages:**
 - Increased generation capacity (e.g., replacing a 250kW turbine with a 2.5 MW turbine).
 - Efficient land use at high-potential sites.
- **Challenges:**
 - Land constraints due to habitation.
 - Loss of banking facilities for repowered turbines (Tamil Nadu).
 - Inadequate transmission infrastructure (e.g., Aralvaimozhi site).

Pros and Cons of Wind Energy:

| Pros | Cons |
|---|---|
| Green energy: No emissions; reduces carbon footprint. | Intermittency: Wind is not a constant energy source. |
| Renewable source: Endless availability. | High upfront costs: Installation and manufacturing. |
| Low operational costs: Cost-effective post-installation. | Wildlife threat: Risks to birds and bats. |
| Space-efficient: Generates high output on small land. | Noise and Visual Impact: Aesthetic concerns. |
| Dual land use: Can co-exist with grazing or farming. | Remote locations: Transmission challenges to demand centers. |
| Falling costs: 80% cost reduction since 1980. | Land use issues: Regulatory and clearance delays. |

Way ahead:

- **Policy refinements:** Address financial and operational challenges to incentivize repowering.
- **Infrastructure development:** Strengthen evacuation and transmission networks at high-potential sites.
- **Sustainability measures:** Ensure balance between environmental concerns and energy needs.
- **Technology adoption:** Leverage modern turbines for higher efficiency and land optimization.

Conclusion:

India’s wind energy sector holds immense potential to drive renewable energy goals. While repowering and refurbishing offer significant benefits, addressing financial,

land, and infrastructure challenges is crucial for long-term sustainability and increased contribution to energy needs.

Insta Links:

1. [MNRE](#)

PYQ:

1. “Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs)”. Comment on the progress made in India in this regard. (UPSC-2018)

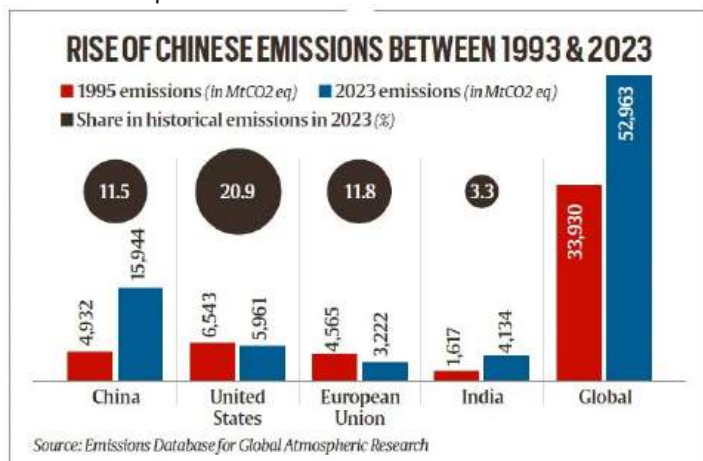
22. CHINA AND RENEWABLE ENERGY

Context:

China, the largest greenhouse gas emitter and a renewable energy leader, plays a pivotal role in global climate action. Reducing its emissions is vital but poses challenges for renewable energy supply chains and global transitions.

China’s Status in Solar Power:

- **Global Leader:** China dominates over 80% of global solar panel manufacturing and 60% of wind turbine production.
- **Renewable Growth:** Added 300 GW of renewable energy capacity in 2023, nearly meeting its 1,200 GW renewable energy target six years ahead of schedule.
- **Cost Competitiveness:** Solar PV production costs in China are 10–35% lower than in India, the US, and Europe.



China Paradox:

- **Necessity of Emission Reductions:** Needs to reduce emissions by 66% by 2030 to comply with the [Paris Agreement 1.5°C target](#).
- **Reliance on Fossil Fuels:** Despite renewables growth, coal still generates over half of China’s electricity, supporting industries like solar and wind manufacturing.
- **Impact on Global Supply Chains:** Reducing

emissions too rapidly could disrupt China's fossil fuel-dependent manufacturing processes, slowing renewable energy deployment globally.

Unique Advantages of China in Renewable Energy:

- **Cost Leadership:** Solar PV manufacturing costs are 10-35% lower than in India, the US, and Europe.
- **Manufacturing Dominance:** Controls over 80% of global solar panel and 60% of wind turbine production.
- **Integrated Supply Chain:** Monopoly across all steps of the solar PV supply chain, from raw materials to finished products.
- **Scale of Production:** Massive industrial scale enabling economies of scale and competitive pricing.
- **Government Support:** Proactive policies and subsidies driving renewable energy growth and exports.
- **Technological Edge:** Advanced manufacturing techniques and extensive R&D in clean energy technologies.

Impact of China's Emission Reductions and Transition to Renewables:

- **Impact on China:**
 - **Industrial Slowdown:** Rapid fossil fuel phase-out could hinder manufacturing, including renewable energy equipment.
 - **Economic Challenges:** Strain on industries heavily dependent on coal and fossil fuels.
- **Impact on India:**
 - **Supply Chain Vulnerability:** India's solar module imports (85% from China) could face disruptions, affecting its renewable energy goals.
 - **Rising Costs:** Dependence on Chinese imports makes it vulnerable to cost escalations in solar PV and wind equipment.
- **Impact on the World:**
 - **Global Renewable Targets:** Reduced Chinese production might delay the global renewable energy tripling target by 2030.
 - **Dependency Risks:** Highlights the need for diversifying supply chains and reducing over-reliance on China for critical technologies.

India's Potential as a Competitor to China:

- **Ambitious Goals:** Aims to achieve 280 GW of solar energy out of 500 GW of renewable capacity by 2030.
- **Domestic Manufacturing Push:** Current annual solar module manufacturing capacity of 15 GW, with plans to scale up.
- **Government Support:** Policies and subsidies to promote renewable energy and reduce import dependence.
- **Geographical Advantage:** High solar insolation and vast land availability for renewable energy projects.

Conclusion:

While China's emission cuts are vital for global climate goals, they pose risks to renewable energy supply chains. Diversifying production and enhancing India's manufacturing capacity are critical to reducing global dependency on China and ensuring a balanced energy transition.

Insta Links:

1. [Indias-achievements-in-renewable-energy](#)

PYQ:

1. "Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs)". Comment on the progress made in India in this regard. (UPSC-2018)

Topics: Science and Technology- developments and their applications and effects in everyday life Achievements of Indians in science & technology; indigenization of technology and developing new technology.

23. IMPACTS OF SOCIAL MEDIA ON DEMOCRACY

Context:

Social media has revolutionized communication and information dissemination globally. While it fosters democratic values by empowering voices and facilitating debates, it also poses challenges through misinformation, hate speech, and monopolistic control.

Social Media and Its Types:

- **Definition:** Social media platforms allow users to create, share, and interact with content online.
- **Types:**
 - **Social Networks:** Platforms like Facebook, LinkedIn for connections.
 - **Microblogging sites:** Platforms like X (formerly Twitter) for quick updates and news sharing.
 - **Media sharing platforms:** Instagram, YouTube for visual and video content.
 - **Discussion forums:** Reddit, Quora for topic-based discussions.

Recent Examples of Social Media Impacting Democracy:

1. **US Elections:** X and Facebook played significant roles in spreading political campaigns and misinformation during elections.
2. **Palestine conflict:** social media brought real-time updates about the situation, showcasing atrocities and fostering global awareness.
3. **Sri lanka riots:** Lack of local content moderation on Facebook exacerbated the spread of hate speech.
4. **Farmer Protests in India:** social media amplified protests, leading to global attention and support.

Positive Impacts of Social Media on Democracy:

- **Enhanced political participation:** Empowers citizens to engage in discussions and hold governments accountable.
E.g. Youth-led campaigns during climate protests.
- **Global connectivity:** Enables sharing of ideas and real-time updates across borders.
E.g. Ukraine-Russia conflict updates mobilized international aid.
- **Amplification of Marginalized Voices:** Offers a platform for underrepresented groups to voice concerns.
E.g. #MeToo movement started global conversations about gender justice.
- **Transparency and Accountability:** Brings government actions under public scrutiny.
E.g. Social media whistleblowers exposing corruption.

Negative Impacts of Social Media on Democracy:

- **Spread of Misinformation:** Unverified content can manipulate public opinion.
E.g. Fake news during COVID-19 led to vaccine hesitancy.
- **Polarization and Echo Chambers:** Algorithms amplify like-minded content, reinforcing biases.
E.g. Partisan political debates in the US.
- **Hate Speech and Extremism:** Platforms fail to control harmful content.
E.g. Rohingya crisis in Myanmar exacerbated by Facebook posts.
- **Monopolistic control:** Ownership by individuals or corporations affects neutrality.
E.g. Elon Musk’s influence on X.
- **Censorship:** Governments can suppress dissent by manipulating platform policies.
E.g. Internet shutdowns during protests in authoritarian regimes.

Suggested measures:

- **Strengthen moderation:** Increase local-language moderators to manage hate speech and misinformation.
E.g. Facebook should hire moderators fluent in regional languages.
- **Regulate algorithms:** Make algorithms transparent to prevent the amplification of harmful content.
- **Promote decentralized platforms:** Encourage platforms like Mastodon and Bluesky to reduce monopolistic influence.
- **Legal safeguards:** Enact stringent laws to prevent misuse of social media for spreading fake news.
- **Media literacy:** Integrate information verification techniques in school curriculums.
- **Independent oversight:** Set up international bodies to monitor the neutrality of platforms.

Conclusion:

Social media is a powerful tool for democracy,

amplifying voices and enabling transparency. However, its potential to harm through misinformation and monopolistic control necessitates regulation, decentralization, and education to ensure it serves democratic ideals responsibly.

Insta Links:

1. [Social-Media-on-Society](#)

PYQ:

1. What are social networking sites and what security implications do these sites present? (UPSC-2013)
2. Child cuddling is now being replaced by mobile phones. Discuss its impact on the socialization of children. (UPSC-2023)

Topics: Awareness in space.

24. BLACK HOLE TRIPLE SYSTEM

Context:

For the first time, scientists have discovered a rare “black hole triple” system located around 8,000 light years away in the constellation of Cygnus. This unique configuration comprises a black hole consuming a nearby star, with another distant star orbiting the system.

About Black Hole Triple

- **Definition:** A “black hole triple” system consists of a black hole with two companion stars. In the discovered system, one star orbits the black hole closely, while the second star is positioned at a far greater distance, orbiting every 70,000 years.
- **Discovery:**
 - The black hole, named **V404 Cygni**, was identified by researchers while examining a repository of astronomical observations.
 - Located in the **constellation Cygnus**, V404 Cygni has a mass approximately nine times that of the Sun.
 - The presence of gravitational interactions among the two stars confirmed the system’s triple configuration.
- **Significance:**
 - **Challenges traditional theories:** The discovery questions the conventional understanding of black hole formation, which typically involves a supernova explosion that ejects nearby stars.
 - **Direct collapse formation:** V404 Cygni is thought to have formed through a “direct collapse” or “failed supernova,” where the star collapsed into a black hole without an explosive event.
 - **Retention of nearby stars:** This gentler formation process enabled the black hole

to retain its nearby stars, which would have been ejected in a supernova scenario.

- **Implications for binary systems:** This finding suggests that some known binary black hole systems could have originally been triple systems, with the black hole later consuming one of its companions.

Insta Links:

1. [Black-holes](#)
2. [Quasar](#)

PYQ:

1. Recently, scientists observed the merger of giant ‘blackholes’ billions of light-years away from the Earth. What is the significance of this observation? (UPSC-2019)
 - (a) ‘Higgs boson particles’ were detected
 - (b) ‘Gravitational waves’ were detected.
 - (c) Possibility of inter-galactic space travel through ‘wormhole’ was confirmed.
 - (d) It enabled the scientists to understand ‘singularity’

Answer: b)

Topics: Awareness in the fields of IT, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

25. RNA EDITING

Context:

Recently, companies like Wave Life Sciences have made significant strides in RNA editing, with the first clinical application of this technology.

About RNA Editing:

- **Definition:** RNA editing involves making precise changes to RNA molecules, which carry instructions from DNA to produce proteins. This process allows scientists to correct errors in RNA before they are translated into proteins.
- **Mechanism:** One method uses enzymes like adenosine deaminase acting on RNA (ADAR) to convert adenosine to inosine, which mimics guanosine, restoring normal protein function.
- **Guide RNA (gRNA):** gRNA directs ADAR enzymes to specific mRNA regions to correct mutations linked to genetic disorders.

Difference Between RNA and DNA Editing:

- **Permanency:** DNA editing makes permanent changes to the genome; RNA editing makes temporary changes, reducing long-term risk.
- **Safety:** DNA editing uses proteins from bacteria,

which may cause immune reactions; RNA editing utilizes ADAR enzymes already present in the human body, lowering immune risks.

- **Flexibility:** RNA editing allows effects to fade over time, enabling doctors to stop treatment if side effects arise.

Challenges in RNA Editing:

- **Specificity:** ADAR enzymes may cause unintended edits in non-targeted mRNA regions, which could lead to side effects.
- **Transient Effects:** The temporary nature of RNA edits requires repeated treatments for sustained benefits.
- **Delivery Limitations:** Current delivery methods, like lipid nanoparticles, struggle with transporting large molecules, limiting effectiveness.

Applications in Various Fields:

- **Genetic Disorders:** Treats single-point mutations in conditions like Huntington’s disease, Duchenne muscular dystrophy, and alpha-1 antitrypsin deficiency.
- **Neurological Conditions:** Companies are exploring RNA editing for diseases like Parkinson’s.
- **Oncology:** Rnznomics’ trials focus on using RNA editing to regulate protein production related to liver cancer.
- **Ophthalmology:** Treating ABCA4 retinopathy, which is caused by mutations affecting protein expression in the eye.

Conclusion:

RNA editing offers a promising, flexible approach to treating genetic disorders with fewer risks than DNA editing. As clinical applications expand, RNA editing is poised to become a vital tool in precision medicine. Ongoing research and collaboration are key to unlocking its full potential.

Insta Links:

1. [Gene-editing](#)

PYQ:

1. With reference to agriculture in India, how can the technique of ‘genome sequencing’, often seen in the news, be used in the immediate future? (UPSC-2017)
 1. Genome sequencing can be used to identify genetic markers for disease resistance and drought tolerance in various crop plants.
 2. This technique helps in reducing the time required to develop new varieties of crop plants.
 3. It can be used to decipher the host-pathogen relationships in crops.

Select the correct answer using the code given below:

- a) 1 only

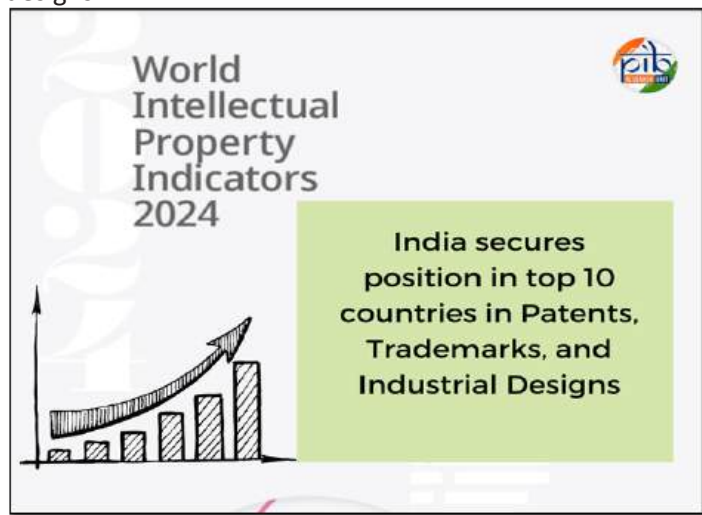
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

Answer: d)

26. INTELLECTUAL PROPERTY RIGHTS

Context:

The World Intellectual Property Organization (WIPO) has highlighted India's exceptional performance in its 2024 **World Intellectual Property Indicators (WIPI)** report, showcasing India as a rising leader in patents, trademarks, and industrial designs.



What are Intellectual Property Rights (IPR)?

- **Definition:** Intellectual Property Rights (IPR) protect creations of the human mind, including innovations, literary works, designs, and symbols.
- **Objectives:**
 - Promote innovation by granting creators exclusive rights.
 - Encourage fair competition while balancing public interest.
 - Protect traditional knowledge and cultural heritage.

Types of IPR:

- **Patents:** Protection for inventions meeting novelty, non-obviousness, and industrial applicability.
- **Copyrights:** Rights over artistic, literary, and creative works (e.g., books, music, software).
- **Trademarks:** Distinctive signs or symbols identifying goods/services.
- **Industrial Designs:** Aesthetic and functional designs of products.
- **Geographical Indications:** Protection for products linked to specific regions (e.g., Darjeeling Tea).
- **Trade Secrets:** Confidential business information protected against unauthorized use.

International Conventions:

- **Paris Convention (1883):** Protects industrial property internationally.
- **Berne Convention (1886):** Governs international copyright protection.
- **Patent Cooperation Treaty (1970):** Simplifies global patent application processes.
- **Budapest Treaty:** Ensures recognition of micro-organism deposits in patent procedures.
- **Marrakesh Treaty:** Facilitates access to published works for visually impaired persons.

Laws Governing IPR in India:

- **Patents Act, 1970:** Governs patent filings and protection.
- **Designs Act, 2000:** Protects industrial designs.
- **Trademarks Act, 1999:** Regulates trademark registration.
- **Geographical Indications Act, 1999:** Protects GIs specific to regions.
- **Copyright Act, 1957:** Ensures protection of creative works.
- **CIPAM (Cell for IPR Promotion and Management):** Implements National IPR Policy.

India's Performance in WIPO 2024 Intellectual Property Report:

- **Patent Growth:**
 - India ranked **6th globally** with **64,480 filings** (+15.7% growth in 2023).
 - **55.2% of filings by residents**, reflecting a shift towards local innovation.
- **Trademark Filings:**
 - India ranked **4th globally**, with a **6.1% increase** in 2023.
 - **90% filings by residents**, highlighting domestic brand awareness.
- **Industrial Designs:**
 - **36.4% growth** in applications, emphasizing product innovation.
- **Patent-to-GDP Ratio:**
 - Improved from **144 (2013)** to **381 (2023)**, reflecting an innovation-driven economy.

Advantages of IPR:

- **Promotes Innovation:** IPR incentivizes creators and inventors by offering exclusive rights, motivating them to invest in developing new ideas, products, and technologies.
- **Economic Growth:** Licensing and commercialization of IPR assets generate revenue, contributing to the national and global economy.
- **Encourages Fair Competition:** Protects intellectual creations, ensuring businesses maintain unique identities and build trust in the marketplace.
- **Supports Research:** Allows researchers access to

patented information, fostering further development and innovation in technology and science.

- **Cultural Preservation:** Safeguards traditional knowledge and practices, ensuring they are credited and economically benefit indigenous communities.

Government Initiatives:

- **National IPR Policy, 2016:** A comprehensive framework to streamline IPR laws and procedures, making them accessible and efficient.
- **KAPILA Program:** Focuses on creating awareness among students and faculty about IP filing processes and their benefits.
- **Startup India:** Encourages startups to innovate by providing IP support and reducing associated costs for filing patents and trademarks.
- **Atal Innovation Mission (AIM):** Promotes problem-solving skills and entrepreneurship through initiatives like Tinkering Labs and Incubation Centers.
- **Digital Modernization:** Enhances IP processes by digitizing filings, reducing processing times, and improving transparency.
- **SPRIHA Program:** Strengthens academia’s role in IP awareness and research by integrating IPR education into higher learning institutions.

Issues and Disadvantages:

- **Cost Barrier:** High registration and enforcement costs deter small businesses and individuals from seeking IP protection.
- **Evergreening:** Companies misuse patents to extend monopoly rights, especially in pharmaceuticals, affecting accessibility to affordable drugs.
- **Piracy:** Despite legal protections, unauthorized use or copying of IP continues, harming the original creator’s financial interests.
- **Global Inequities:** Differences in IPR laws across countries create challenges for innovators to secure consistent protection worldwide.
- **Limited Awareness:** Lack of knowledge about IPR, especially in rural areas and MSMEs, results in underutilization of IP protection benefits.

Conclusion:

India’s performance in WIPO’s 2024 report cements its position as a global innovation hub, reflecting a mature IP ecosystem and effective government support. Continued reforms, education, and enforcement are essential to sustain this momentum and leverage IPR for economic growth.

Insta Links:

1. [WIPI-2024](#)

PYQ:

1. With reference to the ‘National Intellectual Property Rights Policy’, consider the following statements: (UPSC-2017)
 1. It reiterates India’s commitment to the

Doha Development Agenda and the TRIPS Agreement.

2. Department of Industrial Policy and Promotion is the nodal agency for regulating intellectual property rights in India.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: c)

2. Consider the following statements: (UPSC-2019)
 1. According to the Indian Patents Act, a biological process to create a seed can be patented in India.
 2. In India, there is no Intellectual Property Appellate Board.
 3. Plant varieties are not eligible to be patented in India.

Which of the statements given above is/are correct?

- a) 1 and 3 only
- b) 2 and 3 only
- c) 3 only
- d) 1, 2 and 3

Answer: c)

27. CENTRIFUGAL PROCESS & URANIUM ENRICHMENT

Context:

Iran announced plans to launch advanced centrifuges in response to a censure resolution by the UN’s [International Atomic Energy Agency](#) (IAEA), escalating tensions over its nuclear program.



About Centrifugal Process:

- **Definition:** Centrifuges spin uranium gas at high speeds to enrich uranium by increasing the

concentration of the fissile isotope U-235.

- **Uses:** Low-enriched uranium (LEU) is used for nuclear reactors, while highly enriched uranium (HEU) can be used for nuclear weapons.
- **Efficiency:** Advanced centrifuges enrich uranium faster and require fewer machines compared to older designs.
- **Origins:** Iran's centrifuge program began in the 1980s using designs and components acquired from A.Q. Khan's proliferation network.
- **International Concerns:** The process raises fears of nuclear weapons development due to its dual-use nature.

About Uranium Enrichment:

- **Definition:** Enrichment is the process of increasing the proportion of U-235 isotope in uranium to make it suitable for use in nuclear reactors or weapons.
- **Natural Uranium Composition:** Contains 0.7% U-235 (fissile isotope) and 99.3% U-238 (non-fissile).
- **Purpose:** Enhances U-235 concentration from 0.7% to 3-5% for standard nuclear reactors (LEU) or up to 20% for specialized reactors (HALEU).
- **Fission Process:** [U-235](#) undergoes nuclear fission to produce heat for energy generation in reactors.
- **Methods of Enrichment:** Isotope separation techniques like gas centrifuges and gaseous diffusion are commonly used.

Topics: Conservation related issues, environmental pollution and degradation, environmental impact assessment.

28. 1.5°C GOAL & CLIMATE CRISIS

Context:

As world leaders prepare for the annual climate conference in Baku, a renewed focus on climate finance and stringent emission reduction is crucial to prevent severe climate repercussions.

Unabated rise of emissions:

- **Current emissions:** In 2023, global emissions reached 57.1 billion tonnes of CO₂ equivalent, marking a 1.3% increase from 2022.
- **Historical trend:** Emissions have increased yearly except in 2020, when the COVID-19 pandemic briefly reduced global activity.
- **Necessary target:** To meet the Paris Agreement's 1.5°C goal, emissions must peak by 2025 and steadily decline by at least 43% from 2019 levels by 2030. Current projections fall significantly short of this target.

Why there is no quick relief from warming?

- **Accumulated greenhouse gases:** Global warming is driven by accumulated CO₂ in the atmosphere,

which can persist for hundreds of years.

- **Data point:** Carbon dioxide concentrations reached 420 ppm in 2023, over 150% higher than pre-industrial levels.
- **Slow impact of reducing emissions:** Even if emissions peak and decline, the impact on warming will be gradual due to the long atmospheric lifespan of pollutants.
- **Methane and nitrous oxide levels:** Other gases like methane and nitrous oxide have also reached record concentrations, further intensifying warming.

Missing the targets:

- **Temperature threshold breach:** In 2023, the global temperature was 1.45°C above pre-industrial levels, the highest on record.
 - **WMO projection:** Average annual global temperatures could breach the 1.5°C threshold within the next few years.
- **2030 Milestone:** The IPCC recommends a 43% reduction in emissions by 2030 from 2019 levels; however, current projections show only a 2.6% reduction, far from the required target.
- **Decadal average:** Between 2014-2023, global temperatures averaged 1.2°C above pre-industrial levels, pushing closer to the 1.5°C threshold.

Way Ahead

- **Accelerated clean energy transition:** Countries must expedite the shift to renewable energy sources to reduce dependence on fossil fuels.
- **Climate finance agreement:** The upcoming Baku climate conference should finalize a global finance deal to support ambitious climate actions, especially in developing nations.
- **Enhanced carbon reduction commitments:** Nations should revise their 2030 emissions targets with more stringent reductions to approach the 43% goal.
- **Invest in carbon capture:** Technologies like carbon capture and storage should be scaled up to address the excess greenhouse gases in the atmosphere.
- **Focus on methane reductions:** Reducing non-CO₂ emissions, especially methane, can have immediate benefits in slowing warming rates.

Conclusion:

Without drastic and immediate action, the 1.5°C target will likely remain out of reach. As UN Secretary-General António Guterres said, "**The climate crisis is a code red for humanity.**" Achieving meaningful progress requires unwavering global commitment, substantial financial resources, and enhanced climate policies across all nations.

Insta Links:

1. [GHG-bulletin](#)
2. [Climate-change-and-associated-issues](#)

PYQ:

1. Discuss global warming and mention its effects on the global climate. Explain the control measures to bring down the level of greenhouse gases which cause global warming, in the light of the Kyoto Protocol, 1997. (UPSC-2022)
2. Describe the major outcomes of the 26th session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). What are the commitments made by India in this conference? (UPSC-2021)

29. CONVENTION ON BIOLOGICAL DIVERSITY – THE COP RESULTS

Context:

The 16th meeting of the Conference of the Parties (**COP-16**) to the **Convention on Biological Diversity (CBD)**, was held in **Cali, Colombia**, where 190 countries discussed measures to achieve global biodiversity goals, including the ambitious 30-by-30 target.

About COP-16:

- The COP-16 aims to finalize mechanisms for implementing the Kunming-Montreal Global Biodiversity Framework (KMGBF) targets, which were set in 2022.
- The primary focus was on ensuring biodiversity conservation, reducing pollution, and establishing fair benefit-sharing systems, especially for Digital Sequence Information (DSI).
- The conference emphasized integrating biodiversity into national and global policies and aligning climate change actions with biodiversity goals.

About Convention on Biological Diversity (CBD)

- **Origin:** Opened for signature in 1992 at the Rio Earth Summit; entered into force on December 29, 1993.
- **Aim:** To promote the conservation of biodiversity, the sustainable use of its components, and equitable sharing of benefits arising from genetic resources.
- **Features:**
 - Ratified by 196 countries (excluding the United States).
 - Has three primary objectives: conservation, sustainable use, and equitable benefit-sharing.
 - Supplementary agreements include the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access and Benefit-Sharing.

Key Outcomes from COP-16:

- **30-by-30 Commitment:** Aiming to conserve 30% of land and ocean areas by 2030 and restore 30% of degraded ecosystems.
- **Inclusion of Indigenous Voices:** Establishment of a body to include indigenous groups in biodiversity discussions.
- **Digital sequence information (DSI):** Ongoing debates on fair benefit-sharing from the use of genetic data, with plans for a multilateral mechanism yet unresolved.
- **Implementation support:** Agreement on technical support for biodiversity mainstreaming, addressing invasive species, and enhancing biodiversity-climate synergy.

India’s Contribution at COP-16:

- **Financial commitment:** India presented an updated biodiversity plan, projecting an expenditure of ₹81,664 crore for biodiversity and conservation from 2025-30, building on the ₹32,207 crore spent from 2018-22.
- **Call for International Funding:** India emphasized the need for international finance, as outlined in KMGBF’s Target 19, to support biodiversity goals beyond government funds.
- **National biodiversity strategy:** India highlighted its National Biodiversity Strategy and Action Plan (NBSAP), reinforcing its commitment to biodiversity conservation through targeted actions.
- **Initiatives in Conservation:** India cited the establishment of the International Big Cat Alliance for the conservation of big cats, indicative of its efforts in global wildlife conservation.
- **Expansion of Ramsar Sites:** India raised its number of Ramsar sites (wetlands of international importance) from 26 in 2014 to 85 and aims to reach 100, underscoring its dedication to wetland conservation.

Drawbacks of COP-16:

- **Funding gaps:** Only a fraction of the estimated \$200 billion required annually for biodiversity goals has been pledged.
- **Unresolved issues:** No consensus on contributions to the DSI fund or mechanisms for financial and technical resource allocation.
- **Non-binding framework:** The KMGBF targets remain non-binding, potentially impacting global commitment to these goals.

Way ahead:

- **Securing financing:** Mobilize international funding, as indicated in KMGBF’s Target 19, to close the biodiversity financing gap.
- **Strengthening implementation:** Improve frameworks for monitoring progress toward the 30-by-30 targets and ensure nations adhere to biodiversity policies.

- **Enhancing collaborative action:** Foster partnerships with indigenous communities and local governments to promote sustainable biodiversity practices.

Conclusion

The COP-16 underlined the urgent need for committed global cooperation and robust financial support to address the biodiversity crisis. Aligning efforts with Sustainable Development Goals and models like the NITI Aayog’s focus on sustainability, India and other nations must work collectively to secure a healthy ecosystem for future generations.

Insta Links:

1. [International-conventions](#)

PYQ:

1. “Momentum for Change: Climate Neutral Now” is an initiative launched by (UPSC-2018)
 - (a) The Intergovernmental Panel on Climate Change
 - (b) The UNEP Secretariat
 - (c) The UNFCCC Secretariat
 - (d) The World Meteorological Organisation

Answer: c)

2. How is the Government of India protecting traditional knowledge of medicine from patenting by pharmaceutical companies? (UPSC-2019)

30. INDIA’S GREEN LEAP: A SHIFT FROM FOSSIL FUELS TO CLEAN ENERGY

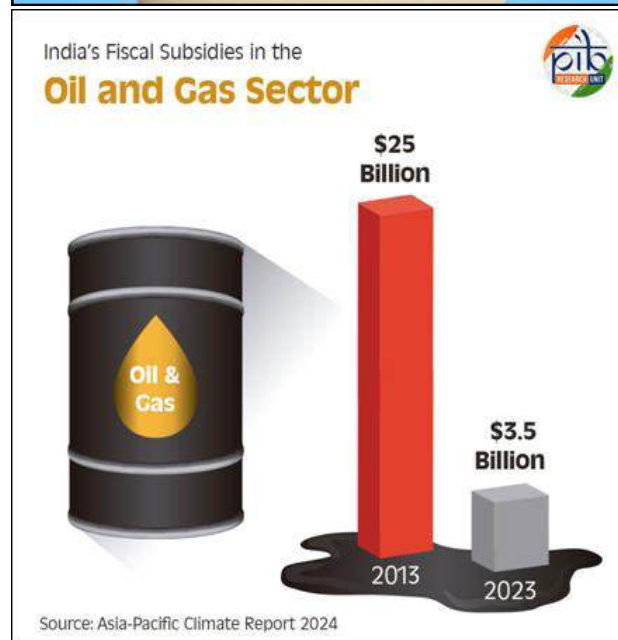
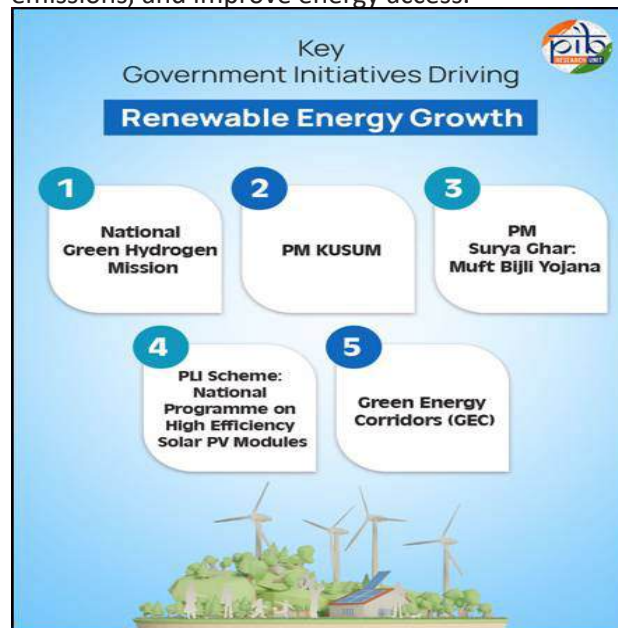
Context:

The Asia-Pacific Climate Report from the Asian Development Bank (ADB) highlights India’s efforts and accomplishments in the major shift from fossil fuels to [clean energy domain](#), which include key reforms and subsidy reallocations.

Key Findings in the Asia–Pacific Climate Report:

- **Reduction in Fossil Fuel Subsidies:** India’s reforms have led to an 85% reduction in fossil fuel subsidies, from \$25 billion in 2013 to \$3.5 billion in 2023.
- **Taxation for Renewable Energy:** India implemented a cess on coal production from 2010 to 2017, funding clean energy projects like the Green Energy Corridor and National Solar Mission.
- **Targeted subsidy redirection:** Tax hikes on petrol and diesel redirected funds toward renewable initiatives, with LPG access for rural communities also enhanced.
- **Investment in Clean Energy:** National programs, including the Green Hydrogen Mission and PM-

KUSUM, aim to support green infrastructure, cut emissions, and improve energy access.



Positive Impact on Climate Goals: The report emphasizes India’s progress toward its 2070 net-zero target, setting a model for other nations.

Positives of India’s Energy Transition:

- **Significant Subsidy Reduction:** Redirecting funds from fossil fuels to renewables represents a major shift towards sustainability.
- **Rural Energy Access:** Improved access to LPG and clean energy in rural areas supports both social welfare and environmental goals.
- **Investment in New Energy Technologies:** Programs in green hydrogen and solar energy showcase India’s commitment to next-generation energy solutions.
- **Strengthened Renewable Energy Infrastructure:** Projects like the Green Energy Corridor enhance transmission networks for renewable energy.
- **Economic and Environmental Benefits:** Reduced

dependency on fossil fuels benefits both the economy and the environment by lowering emissions.

Limitations of India's Energy Transition:

- **Tax Reallocation Challenges:** Funds from the coal cess were diverted to GST compensation post-2017, impacting clean energy funding.
- **Dependency on Fossil Fuels:** Despite reforms, fossil fuels still play a significant role in India's energy mix, indicating slow progress in a complete shift.
- **Limited Access to Subsidies:** Disparities exist in accessing clean energy subsidies, especially in remote or underserved areas.
- **High Cost of Technology Transition:** Advanced clean energy technologies require significant investments and can be costly for initial rollout.
- **Political and Fiscal Adjustments:** Shifting subsidies and adjusting tax structures are complex processes with potential for political challenges.

Way Ahead:

- **Strengthen Funding Mechanisms:** Ensure stable funding for clean energy projects by revisiting cess allocations and reducing fiscal dependency on fossil fuel-based revenue.
- **Scale Renewable Initiatives:** Expand programs like PM-KUSUM to cover more regions and increase solar and wind energy capacity.
- **Support Clean Energy R&D:** Invest in research and development for technologies like green hydrogen and advanced battery storage to make them economically viable.
- **Enhance Rural Access:** Strengthen infrastructure for rural clean energy adoption, ensuring equitable access to sustainable resources.
- **Policy Consistency:** Maintain a steady and transparent policy framework to encourage private investments in clean energy.

Conclusion:

India's shift from fossil fuels to clean energy demonstrates its strong commitment to sustainable growth. The ADB's Asia-Pacific Climate Report highlights India's progress in reducing fossil fuel subsidies and advancing renewables, positioning **it as a leader in energy reform.** With ongoing investment and inclusive policies, India is well-placed to achieve its 2070 net-zero goal.

Insta Links:

1. [Green-energy](#)

PYQ:

1. "Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs)". Comment on the progress made in India in this regard. (UPSC-2018)

31. STATE OF THE CLIMATE 2024 REPORT

Context:

The WMO State of the Climate 2024 Update once again issues a Red Alert at the sheer pace of climate change in a single generation, turbo-charged by ever-increasing greenhouse gas levels in the atmosphere.

Summary of State of the Climate 2024 Report:

- **Temperature and Greenhouse Gases:**
 - 2024 is on track to be the warmest year, with global temperatures 1.54°C above pre-industrial levels.
 - Greenhouse gas levels (CO₂, CH₄, N₂O) hit record highs in 2023, continuing to rise in 2024.
- **Ocean and Sea Level Rise:**
 - Ocean heat content reached record levels in 2023, absorbing 3.1 million TWh of heat.
 - Global sea level rise accelerated to 4.77 mm/year (2014-2023), doubling the rate of 1993-2002.
- **Cryosphere (Polar Ice and Glaciers):**
 - Arctic and Antarctic Sea ice extent in 2024 remained below historical averages.
 - Glaciers lost an unprecedented volume of ice equivalent to five times the water in the Dead Sea in 2023.
- **Precipitation and Water Resources:**
 - 2023 was the driest year for global rivers in over 30 years.
 - Extreme precipitation events caused significant flooding, but overall water availability declined globally.
- **Extreme weather events:**
 - Devastating floods, heatwaves, droughts, and wildfires affected millions globally in 2024, with extensive socio-economic impacts.
- **Early Warning Systems and Climate Services:**
 - Progress made in implementing Multi-Hazard Early Warning Systems (MHEWS), with 108 countries adopting them.
 - Significant gaps persist, especially in vulnerable regions like Africa and small island nations.
- **Renewable Energy and Climate Finance:**
 - Renewable energy capacity increased globally, with improvements in wind and solar generation.
 - Climate finance and integrated policies emphasized to meet adaptation and mitigation targets.

Factors Impacting Climate:

Anthropological factors:

| | |
|---------------------------------|--|
| Greenhouse Gas Emissions | Rising concentrations of CO ₂ , CH ₄ , and N ₂ O from fossil fuels, agriculture, and industrial activities. |
| Land Use Changes | Deforestation, urbanization, and agricultural expansion altering natural carbon and water cycles. |
| Industrial Activities | Energy-intensive processes releasing heat-trapping gases and pollutants. |
| Transportation | Emissions from vehicles and aviation contributing to CO ₂ and particulate matter levels. |
| Waste Management | Methane emissions from unmanaged landfills and improper waste handling. |

Natural factors:

| | |
|-----------------------------|--|
| El Niño and La Niña | Cyclical warming (El Niño) and cooling (La Niña) of ocean waters driving global temperature and weather changes. |
| Volcanic Activity | Periodic eruptions releasing aerosols that temporarily cool or warm the atmosphere. |
| Solar Variability | Changes in solar radiation influencing Earth's energy balance. |
| Ocean Circulation | Variations in currents like the Gulf Stream affecting heat distribution. |
| Natural Carbon Sinks | Forests, oceans, and soil absorbing less CO ₂ due to degradation or warming-induced changes. |

Recommendations from the State of the Climate 2024 Report

- **Mitigation of Climate Change:**
 - Accelerate efforts to limit global warming below 1.5°C through stronger commitments to reducing greenhouse gas emissions.
- **Climate adaptation:**
 - Scale up climate adaptation strategies, including investments in resilient infrastructure and integrated water management.
- **Early warning systems:**
 - Expand **Multi-Hazard Early Warning Systems (MHEWS)** globally, with a focus on vulnerable regions like Africa and small island nations.
- **Renewable energy:**
 - Triple renewable energy capacity and double energy efficiency by 2030 to meet climate mitigation targets.
- **Strengthen climate services:**
 - Enhance National Meteorological and Hydrological Services (NMHS) to improve data collection, modelling, and forecasting

for effective decision-making.

- **Cryosphere protection:**
 - Implement policies to mitigate glacial loss and ensure sustainable management of polar and high-altitude ecosystems.

About State of the Global Climate Report:

- **Purpose:** Provides an **annual summary** of key climate indicators and updates.
- **History:** Published annually by the **WMO since 1993** to complement IPCC's less frequent Assessment Reports.
- **Updates for COP:** Since 2016, the report includes preliminary findings presented before the UNFCCC COP each year.

About World Meteorological Organization (WMO):

- **Overview:** An intergovernmental organization with 192 member states and territories.
- **Origin:** Evolved from the International Meteorological Organization (IMO), established in 1873.
- **Establishment:** Officially formed on 23rd March 1950 through the WMO Convention.
- **Role and Affiliation:** A specialized United Nations agency focusing on meteorology, climate, operational hydrology, and geophysical sciences.
- **Headquarters:** Based in Geneva, Switzerland.
- **India's Membership:** India is an active member of WMO.
- **Purpose:** Promotes international cooperation, data exchange, and research in weather, climate, and water sciences.

Insta Links:

1. [State-of-climate-2024-update-COP29](#)

PYQ:

1. In the context of India's preparation for Climate-Smart Agriculture, consider the following statements: (UPSC-2021)
 1. The 'Climate-Smart Village' approach in India is a part of a project led by the Climate Change, Agriculture and Food Security (CAAFS), an international research programme.
 2. The project of CCAFS is carried out under Consultative Group on International Agricultural Research (CGIAR) headquartered in France.
 3. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India is one of the CGIAR's research centres.

Which of the statements given above are correct?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

Answer: d)

2. Describe the major outcomes of the 26th session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). What are the commitments made by India in this conference? (UPSC-2021)

32. HIGH-PERFORMANCE BUILDINGS

Context:

High-Performance Buildings (HPBs) are essential for achieving sustainable living in the face of climate change, rising urbanization, and energy demands. Designed to conserve resources, enhance energy efficiency, and withstand extreme weather, HPBs represent the future of sustainable construction and urban resilience.

High-Performance Buildings:

- **Definition:** HPBs are designed to optimize energy efficiency, reduce resource consumption, and provide resilience against unpredictable climatic conditions.
- **Need:**
 - **Carbon Emissions:** Buildings account for 28% of global energy-related emissions; in India, the sector contributes 20% of national emissions.
 - **Urbanization:** India's urban population is projected to reach 600 million by 2030, increasing the demand for energy-efficient infrastructure.
 - **Global Goals:** Meeting the UN's goal of a 30% energy efficiency improvement in buildings by 2030 requires immediate action.
- **Integrative Design:**
 - Encourages collaboration among architects, engineers, and building owners to achieve measurable performance goals.
 - Uses **digital modeling** for predicting outcomes and refining designs before construction, ensuring operational efficiency and cost-effectiveness.

Example: Passive design strategies optimize natural sunlight and thermal mass to reduce heating and cooling needs.
- **Sustainable Materials:**
 - Prioritize materials with **low embodied carbon** and high recycled content.
 - Use low-emission materials to enhance indoor air quality by minimizing volatile organic compounds (VOCs).

Example: Indian Institute of Human Settlements (IIHS) uses lifecycle assessments

to choose durable materials for its Bengaluru campus.

- **Energy Efficiency:**
 - **Passive Strategies:** Utilize natural light, building orientation, and thermal mass to minimize reliance on mechanical systems.
 - **Active Strategies:** Employ energy-efficient HVAC systems, smart technologies, and renewable energy sources to achieve net-zero energy goals.

Example: Infosys Hyderabad campus uses radiant cooling systems and daylighting controls to reduce energy use.
- **Water Conservation**
 - **Efficient Fixtures:** Low-flow faucets and dual-flush toilets conserve water.
 - **Reuse Systems:** Rainwater harvesting and wastewater recycling for irrigation and sanitation.

Example: Infosys campuses recycle 100% of wastewater using advanced treatment systems.
- **Handling Climate Risks**
 - Incorporate **climate-resilient features** like flood protection, durable materials, and renewable energy systems.
 - Ensure **passive survivability** to maintain habitability during power outages.

Example: Infosys Crescent building in Bengaluru uses advanced cooling systems and consumes far less energy than standard office buildings.

India's Initiatives for Energy-Efficient Buildings:

- **Eco-Niwas Samhita:** A code for energy-efficient residential buildings.
- **Energy Conservation Building Code (ECBC):** Sets energy performance standards for commercial buildings.
- **Energy Conservation (Amendment) Act, 2022:** Aims to improve energy efficiency across sectors.
- **NEERMAN Awards:** Recognizes innovation in energy-efficient buildings.
- **Green Rating for Integrated Habitat Assessment (GRIHA):** Promotes sustainable building practices.

Limitations:

- **Operational Neglect:** Focus on initial costs often overlooks long-term operational efficiency.
- **Diverse Typologies:** Energy efficiency varies across building types, complicating standardization.
- **Split Incentives:** Mismatch in benefits between owners and tenants reduces support for energy-efficient upgrades.
- **Loss of Indigenous Knowledge:** Overreliance on foreign technologies sidelines cost-effective local

solutions.

- **Fragmented Systems:** Lack of integration between design, construction, and operations reduces overall building performance.

Conclusion:

High-Performance Buildings are indispensable for sustainable urbanization and achieving global energy goals. Despite limitations, India’s initiatives are fostering progress. As practices become more widespread, HPBs can set benchmarks for future-ready, climate-resilient construction.

Insta Links:

1. [Global-energy-efficiency-alliance](#)

PYQ:

1. “Investment in infrastructure is essential for more rapid and inclusive economic growth.” Discuss in the light of India’s experience. (UPSC- 2021)

33. DELHI AIR POLLUTION

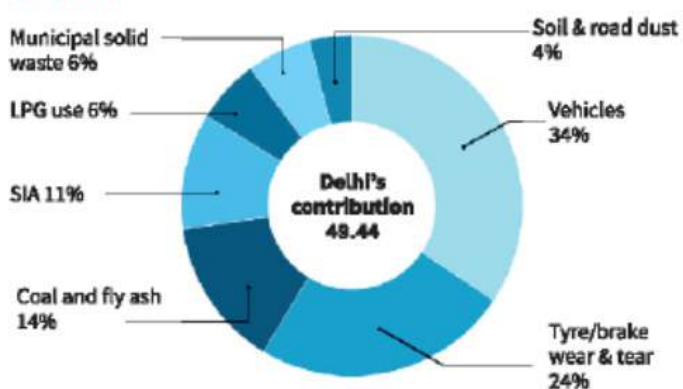
Context:

Delhi’s air pollution crisis is worsening, with high levels of particulate matter (PM2.5 and PM10) and other pollutants creating severe health and environmental issues.

Delhi Air Pollution Status:

- **Air Quality Index (AQI):** Frequently hovers between 300-500, indicating “very poor” to “severe” air quality.
- **PM2.5 Dominance:** Major contributor to unhealthy AQI levels.
- **Seasonal Variation:** Worse during winters due to temperature inversion and slow wind speeds.
- **Health Impact:** Significant rise in cardio-respiratory and neurological issues.

Chart 3: Source apportionment of PM2.5 from within Delhi



Causes of air pollution in Delhi:

- **Natural causes:**
 - **Temperature inversion:** Traps pollutants close to the surface during winters.
 - **Low wind speed:** Reduces dispersion of

pollutants.

- **Dust storms:** Transport particulate matter from surrounding regions.
- **Anthropogenic causes:**
 - **Vehicle emissions:** Accounts for 58% of PM2.5 levels.
 - **Stubble burning:** Seasonal contribution from neighbouring states.
 - **Industrial emissions:** Pollutants from power plants and factories.
 - **Construction activities:** Dust and particulate emissions.
 - **Waste burning:** Unregulated burning of municipal and agricultural waste.

Consequences of Air Pollution:

1. **Health impacts:**
 - Increased risk of **cardiovascular diseases, strokes, asthma, and lung cancer.**
 - Vulnerable populations (children, elderly) disproportionately affected.
 - Cognitive decline linked to prolonged exposure.
2. **Environmental damage:**
 - Reduced visibility, soil acidification, and water pollution.
 - Impacts biodiversity, including urban greenery.
3. **Economic costs:**
 - Healthcare expenses for pollution-related illnesses.
 - Productivity loss due to poor health.

Government measures to reduce pollution:

1. **Initiatives for Controlling Air Pollution**
 - **National Clean Air Programme (NCAP):**
 - Aims to reduce particulate matter (PM2.5 and PM10) by **20-30% by 2024** in 122 cities.
 - Focuses on long-term measures, including city-specific action plans.
 - **System of Air Quality and Weather Forecasting and Research (SAFAR):**
 - Provides real-time air quality monitoring and forecasting.
 - Helps public and authorities take timely measures to combat pollution.
 - **Commission for Air Quality Management (CAQM):**
 - A statutory body to monitor and control air pollution in Delhi-NCR and adjoining areas.
 - Facilitates inter-state coordination for pollution management.
 - **Graded Response Action Plan (GRAP):**
 - Implements emergency measures like banning diesel generators and stopping construction activities based on AQI levels.

2. Initiatives for reducing vehicular pollution:

- **BS-VI Emission Standards:**
 - Strict emission norms for vehicles to reduce pollutants like nitrogen oxides and particulate matter.
 - **National Electric Mobility Mission Plan (NEMMP):**
 - Promotes the adoption of electric vehicles (EVs) to reduce dependency on fossil fuels.
 - Includes subsidies and incentives for EV buyers and manufacturers.
 - **Promotion of Public Transport:**
 - Expansion of metro networks, introduction of e-buses, and carpooling incentives.
- ## 3. Legal and policy support:
- **Right to Pollution-Free Environment:** Declared as part of the fundamental Right to Life (Article 21) by the Supreme Court in **M.C. Mehta vs. Union of India**.

Resolving the issue of air pollution:

- **Promote public transport:** Expand metro, bus services, and electric fleets with last-mile connectivity.
- **Adopt clean energy:** Transition to solar and wind energy in industries and households.
- **Enforce green construction practices:** Strict monitoring of dust control and material usage.
- **Encourage behavioural changes:** Promote carpooling and ban single-use plastic.
- **Enhance monitoring and data use:** Leverage AI and IoT for real-time air quality tracking and actionable insights.

Conclusion

Delhi's air pollution crisis demands comprehensive solutions, combining government action, community participation, and sustainable practices. Only a multi-stakeholder approach can protect public health and restore environmental balance.

Insta Links:

1. [Air Pollution](#)

PYQ:

1. Describe the key points of the revised Global Air Quality Guidelines (AQGs) recently released by the World Health Organisation (WHO). How are these different from its last update in 2005? What changes in India's National Clean Air Programme are required to achieve revised standards? (UPSC-2021)

34. AIR POLLUTION CRISIS

Context:

Delhi's persistent air pollution crisis has highlighted the severe impact of air pollution on public health, the environment, and socio-economic conditions, emphasizing the urgency for collective measures to mitigate this issue.

What is Air Pollution?

Air pollution refers to the contamination of the atmosphere by harmful substances, such as gases, particulates, and biological molecules, which pose risks to human health, ecosystems, and climate stability.

Categorization of Pollution:

- **Primary Pollutants:** Emitted directly into the air (e.g., carbon monoxide, sulfur dioxide).
- **Secondary Pollutants:** Formed through chemical reactions in the atmosphere (e.g., smog, ground-level ozone).

Sources of Air Pollution:

- **Industrial Emissions:** Burning fossil fuels for energy and manufacturing processes.
- **Vehicle Emissions:** Exhaust from automobiles contributes to urban air pollution.
- **Domestic Combustion:** Burning wood, coal, or biomass for cooking and heating.
- **Agricultural Practices:** Stubble burning and fertilizer use release harmful chemicals.
- **Natural Sources:** Dust storms, forest fires, and volcanic eruptions.

Impacts of Air Pollution:

- **Health:**
 - Respiratory diseases (asthma, [bronchitis](#)).
 - Cardiovascular issues and reduced life expectancy.
 - Cognitive impairments, especially in children.
- **Environment:**
 - Damage to ecosystems and biodiversity.
 - Acid rain affecting soil and water quality.
 - Contribution to climate change through greenhouse gases.
- **Economy:**
 - Increased healthcare costs.
 - Reduced agricultural productivity.
 - Property and infrastructure damage.

Government Measures:

1. **Legislative Steps:**
 - **National Clean Air Programme (NCAP):** Targets reducing air pollution by 20-30% by 2024.
 - **Pollution Under Control (PUC) Certificate:** Mandatory for vehicles.
2. **Technological Interventions:**

- Adoption of **CNG** for public transport in Delhi.
 - Encouragement of electric vehicles and renewable energy sources.
3. **Awareness Campaigns:**
 - Promoting individual actions like tree plantation and reduced vehicle usage.
 4. **Infrastructure Development:**
 - Installation of air quality monitoring systems.
 - Development of green belts in urban areas.

Role of Multinational Cooperation:

- **Shared Solutions:** Transboundary pollution necessitates collaborative efforts among South Asian nations.
- **Technology Sharing:** Exchange of air pollution mitigation technologies.
- **Policy Coordination:** Joint regulations to control industrial and vehicular emissions.
- **Global Initiatives:** Participation in frameworks like the Paris Agreement and Climate Action Plans.

Way Ahead:

- **Stronger Implementation:** Enforcing stricter regulations and penalties for non-compliance.
- **Public Participation:** Encouraging citizen-driven initiatives like carpooling and waste composting.
- **Sustainable Practices:** Promoting renewable energy and efficient waste management systems.
- **Regional Collaboration:** Developing joint air quality management plans with neighboring countries.

Conclusion:

Addressing air pollution demands a comprehensive, multi-faceted approach involving government policies, technological innovation, and global cooperation. Only through concerted efforts can we ensure clean air and a sustainable future.

Insta Links:

1. [Online-schooling-due-to-air-pollution](#)

PYQ:

1. Describe the key points of the revised Global Air Quality Guidelines (AQGs) recently released by the World Health Organisation (WHO). How are these different from its last update in 2005? What changes in India's National Clean Air Programme are required to achieve revised standards? (UPSC-2021)

35. COP 29 – OUTCOME

Context: The 29th UN Climate Change Conference (COP29) concluded in Baku, Azerbaijan, focusing on scaling up climate finance, adaptation, and global cooperation to combat climate change.

Outcomes of COP29:

1. Climate Finance:

- **New Collective Quantified Goal (NCQG):**
 - Triple climate finance for developing countries to **USD 300 billion annually by 2035.**
 - Scale finance from public and private sources to **USD 1.3 trillion annually by 2035.**

2. Carbon Markets (Article 6 of the Paris Agreement):

- Finalized frameworks for **country-to-country trading** of carbon credits (Article 6.2).
- Operationalized the **Paris Agreement Crediting Mechanism** (Article 6.4), ensuring environmental and human rights safeguards.
- Supported capacity-building for least developed countries to participate in carbon markets.

3. Transparency:

- 13 countries submitted their **Biennial Transparency Reports (BTRs)** under the Enhanced Transparency Framework.
- UNFCCC organized **#Together4Transparency**, promoting transparent climate action with 42 events.

4. Adaptation:

- **Baku Adaptation Roadmap** launched to expedite National Adaptation Plans (NAPs).
- Established a support program for NAP implementation in least developed countries (LDCs).
- High-level dialogues emphasized financing and technical support for adaptation.

5. Indigenous Peoples and Local Communities:

- Adopted the **Baku Workplan** and renewed the **Local Communities and Indigenous Peoples Platform (LCIPP)** Facilitative Working Group.

6. Gender and Climate Change:

- Extended the **Lima Work Programme on Gender and Climate Change** for another 10 years.
- Mandated a new **Gender Action Plan** to be developed by COP30.

7. Civil Society and Inclusivity:

- Over **55,000 attendees**, including civil society, Indigenous Peoples, youth, and businesses.
- Strengthened **Action for Climate Empowerment (ACE)** for integrating public engagement into national climate policies.

8. Global Climate Action:

- Showcased real-world solutions under the **Marrakech Partnership for Global Climate Action.**
- Launched the 2024 **Yearbook of Global Climate Action**, emphasizing non-Party stakeholder contributions.

9. Forests and REDD+:

- UK pledged **£3 million** to enhance REDD+ transparency and implementation for halting deforestation by 2030.
10. **Nationally Determined Contributions (NDCs):**
- Stronger climate plans (NDC 3.0) due in 2025, covering all greenhouse gases and sectors.
 - UK and Brazil committed to ramping up climate action in their updated NDCs.

India's Initiatives at COP29:

- **Resilient Infrastructure:** Highlighted [CDRI](#) and IRIS initiatives for disaster-resilient infrastructure and SIDS adaptation.
- **Industrial Decarbonization:** Co-hosted LeadIT Member Meet with Sweden; promoted hydrogen-based solutions and CO2 capture.
- **SIDS Adaptation Finance:** Advocated finance unlocking and disaster-resilient support for SIDS.
- **Solar Energy Leadership:** Promoted solar adoption with ISA, targeting a 20-fold increase by 2050.
- **Gender-Inclusive Action:** Showcased women-led clean energy solutions and gender-inclusive climate policies.
- **LeadIT Summit:** Reaffirmed commitment to heavy industry decarbonization under the Paris Agreement.

Limitations of COP29:

- **Inadequate Finance:** Funding commitments termed “**too little, too distant**”, failing to meet immediate needs.
- **Private Sector Dependency:** Heavy reliance on non-guaranteed private contributions.
- **Unmet Emission Goals:** Insufficient pledges to meet the **1.5°C target**, with global emissions rising in 2023.
- **Geopolitical Conflicts:** Disputes over [CBAM](#) and unfair procedural practices highlighted mistrust.

Way Ahead:

- **Strengthen Finance:** Ensure **binding, timely, and grant-based** funding mechanisms.
- **Boost Cooperation:** Improve negotiation fairness and address trade disputes in separate forums.
- **Accelerate NDCs:** Expand **Nationally Determined Contributions (NDCs)** to include all sectors.
- **Focus on Adaptation:** Increase support for LDCs and SIDS with **dedicated resources**.
- **Science-Driven Action:** Align decisions with **scientific assessments** and expand renewable energy.

Conclusion:

COP29 achieved critical milestones in scaling up climate finance, operationalizing carbon markets, and advancing adaptation and transparency. While significant

progress was made, challenges remain, necessitating stronger global efforts at COP30 and beyond.

Insta Links:

1. [COP-29-climate-finance-and-carbon-markets](#)

PYQ:

1. In light of COP-29 discussions, critically analyse how climate finance can be a pathway for both adaptation and mitigation in developing countries. Discuss the barriers faced by these countries in accessing climate finance and achieving equitable carbon market participation.” (250 words)

36. MENACE OF MICROPLASTIC

Context:

As the world moves toward the finalization of the Global Plastics Treaty, reducing microplastic pollution has become an urgent priority, demanding a multi-pronged approach involving regulations, innovative technologies, and global cooperation.

What are Microplastics and Their Classifications

- **Definition:** Plastics less than 5 mm in diameter, formed through fragmentation or intentionally manufactured for specific uses.
- **Classifications:**
 1. **Primary Microplastics:** Manufactured for commercial use, such as microbeads in cosmetics, plastic pellets, and synthetic fibers.
 2. **Secondary Microplastics:** Formed from the breakdown of larger plastics, such as water bottles, due to solar radiation, ocean waves, and mechanical forces.

Applications of Microplastics

1. **Medical and Pharmaceutical:** Used in drug delivery systems due to their ability to absorb and release chemicals effectively.
2. **Industrial:** Utilized in air-blasting technology and in producing synthetic textiles.
3. **Personal Care Products:** Found in exfoliating agents like facial scrubs, toothpaste, and other cosmetics.

Impacts of Microplastics:

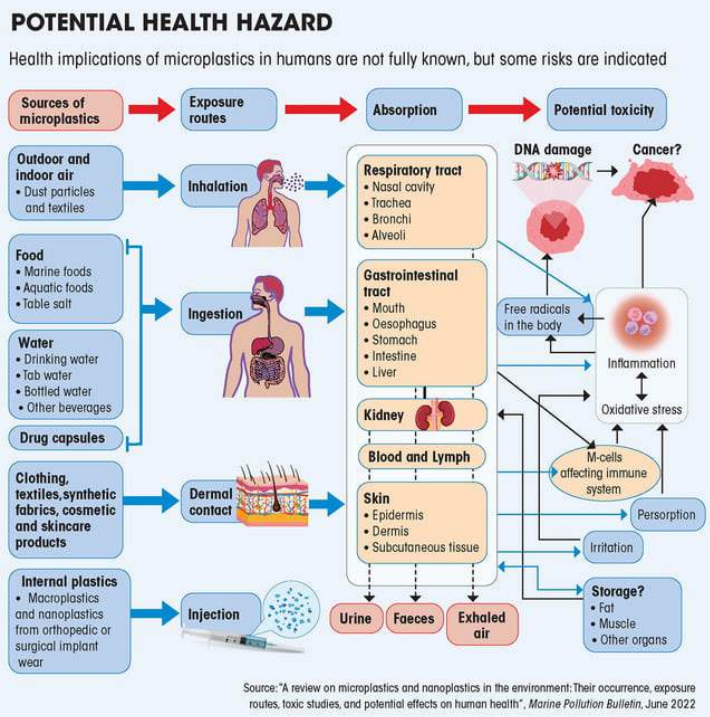
1. **On the Environment:**
 - **Soil Degradation:** Reduces soil quality, alters chemical properties, and disrupts water retention and nutrient cycles.
 - **Aquatic Pollution:** Bioaccumulates in marine organisms and contributes to toxic chemical leaching into water bodies.
2. **On Animals:**
 - **Trophic Transfer:** Microplastics consumed by smaller organisms are passed through

the food chain, affecting higher predators.

- **Reproductive and Growth Impacts:** Causes stunted growth, reduced fertility, and cell damage in aquatic and terrestrial species.

3. On Humans:

- **Health Risks:** Linked to oxidative stress, inflammation, DNA damage, and disruptions in metabolism and reproduction.
- **Organ Accumulation:** Detected in the brain, lungs, placenta, and even heart tissues, increasing risks of stroke, heart attacks, and immune disorders.



products.

- **Recycling and Waste Management:** Promote efficient recycling systems and reduce overall plastic production.
- **Awareness Campaigns:** Educate industries and consumers about the impact of microplastics and encourage sustainable alternatives.
- **Standardized Monitoring:** Implement global protocols for detecting and assessing microplastic concentrations in the environment.

Best Practice: The EU’s REACH Regulation (2023) bans intentionally added microplastics in products like detergents, cosmetics, and fertilizers, aiming to reduce their environmental and health impacts.

Conclusion

Microplastics represent a global challenge with significant risks to ecosystems, wildlife, and human health. While efforts like the Global Plastics Treaty and national policies are steps in the right direction, a collective approach involving innovation, regulation, and public awareness is crucial to mitigate this threat and protect our environment.

Insta Links:

1. [Managing-microplastic-pollution-in-India](#)

PYQ:

1. What are the impediments in disposing the huge quantities of discarded solid waste which are continuously being generated? How do we remove safely the toxic wastes that have been accumulating in our habitable environment? (UPSC-2018)

Measures Taken:

- **Global Level:**
 - **UNEA Resolution:** Mandated the creation of the Global Plastics Treaty to combat plastic pollution, including microplastics.
 - **New Zealand Microbead Ban (2017):** Banned sale and manufacture of products containing microbeads.
- **India Level:**
 - **Plastic Waste Management Rules (2016, 2018, 2024):** Provides frameworks to manage and reduce plastic waste.
 - **Ban on Single-Use Plastics:** Nationwide ban on items like plastic straws and cutlery to reduce plastic pollution.
 - **India Plastics Pact:** Encourages industries to minimize plastic use and enhance recycling practices.

Measures to Mitigate Microplastics:

- **Innovative Technologies:** Develop advanced filtration systems like electrocoagulation for wastewater treatment to remove microplastics.
- **Regulating Production:** Ban microbeads and control the use of secondary plastic sources in consumer

37. BIOMEDICAL WASTE

Context:

HIV epidemic and incidents like the “Syringe Tide” highlighted the hazards of improper biomedical waste disposal, prompting global and national reforms to safeguard public health and the environment.

Historical Background

1. **HIV Epidemic (1983):** Identification of HIV by Luc Montagnier and Robert Gallo triggered global fear and stigma, emphasizing the risks of medical waste.
2. **Syringe Tide (1987):** Beaches in the U.S. were polluted with medical waste, sparking public outrage and highlighting the need for regulatory action.
3. **India’s Scenario:** The first HIV case in India (1986) and lack of biomedical waste legislation exposed gaps in waste management.

Outcomes of Global and National Responses:

United States:

1. **Medical Waste Tracking Act (1988):** Categorized

hospital waste as hazardous, enforcing systematic handling and disposal protocols.

2. **Transparency and Accountability:** Benchmarked regulatory frameworks for other nations.

India:

1. **Judicial Interventions:** Supreme Court in **Dr. B.L. Wadehra vs. Union of India (1996)** criticized Delhi's waste mismanagement, prompting nationwide action.
2. **Biomedical Waste (Management and Handling) Rules (1998):** First regulation recognizing biomedical waste as hazardous, empowering pollution control boards.
3. **Amendments and Updates:** Strengthened protocols in **2016** and integrated technology advancements in **2020**.

Key Features of India's Biomedical Waste Management:

1. **Waste Segregation and Color-Coding:**
 - Mandated segregation of waste at the source into distinct categories.
 - Use of color-coded containers (**yellow, red, blue, white**) for easy identification and handling.
2. **Treatment and Disposal Technologies:**
 - Implementation of advanced waste treatment methods:
 - **Incineration:** For infectious and pathological waste.
 - **Autoclaving and Microwaving:** For disinfection of sharps and other categories.
 - **Chemical Disinfection:** For liquid waste like blood and contaminated fluids.
 - Adoption of **deep burial** in rural and resource-limited areas where incineration is not feasible.
3. **Occupational Safety for Healthcare Workers:**
 - Provision of personal protective equipment (PPE) for handling hazardous waste.
 - Regular training programs to ensure adherence to safety protocols.
 - Immunization against diseases like Hepatitis B for workers handling infectious waste.
4. **Monitoring and Compliance Mechanisms:**
 - Empowerment of **Central and State Pollution Control Boards** to monitor waste generation and disposal.
 - Requirement for healthcare facilities to obtain authorization and submit annual reports on waste management practices.
 - Surprise inspections and audits to ensure compliance with the rules.
5. **Mandatory Reporting and Record-Keeping:**
 - Healthcare facilities must maintain records

of waste generated, treated, and disposed of.

- Use of **barcode tracking systems** in some states to enhance accountability.

6. **Common Biomedical Waste Treatment Facilities (CBWTFs):**

- Establishment of shared facilities to treat biomedical waste from smaller healthcare units, reducing individual facility costs.

Limitations in Biomedical Waste Management in India:

1. **Inadequate Infrastructure:** Limited number of biomedical waste treatment facilities, especially in rural and remote areas, leading to unsafe disposal practices.
2. **Weak Enforcement and Compliance:** Poor adherence to segregation and disposal protocols, coupled with lax monitoring and enforcement by authorities.
3. **Occupational Hazards:** Insufficient training and lack of personal protective equipment (PPE) expose healthcare workers and waste handlers to health risks.
4. **Low Public Awareness:** Limited knowledge among the public and informal waste handlers about the dangers of biomedical waste leads to unsafe handling practices.
5. **Inefficiency in Common Treatment Facilities:** Uneven distribution and overburdening of CBWTFs hinder effective waste management in certain regions.

Way Ahead:

1. **Strengthen Infrastructure in Rural Areas:** Establish additional Common Biomedical Waste Treatment Facilities (CBWTFs) in underserved regions to reduce unsafe disposal practices.
Eg: **Tamil Nadu's model of CBWTFs** catering to multiple smaller healthcare units can be replicated nationwide.
2. **Enhance Monitoring and Accountability:** Implement real-time tracking systems using barcoding and GPS to ensure compliance.
Eg: **Kerala's Integrated Biomedical Waste Management Monitoring System (IBMWMS)** effectively tracks waste from generation to disposal.
3. **Improve Capacity Building and Occupational Safety:** Regular training for healthcare workers, mandatory use of PPE, and immunization for waste handlers to reduce exposure risks.
Eg: **Mumbai's municipal hospitals incorporate safety training and PPE provision** into their biomedical waste protocols.
4. **Promote Technological Innovations:** Encourage eco-friendly technologies like plasma pyrolysis and waste-to-energy plants for treating non-recyclable

waste.

Eg: **AIIMS, New Delhi, employs advanced autoclaving and disinfection** methods to minimize environmental impact.

5. **Raise Public Awareness and Community Participation:** Conduct campaigns to educate the public and informal waste handlers on biomedical waste risks and proper disposal.

Eg: **Expand the Swachh Bharat Abhiyan** to include biomedical waste awareness drives, building on its sanitation success.

Conclusion:

The HIV epidemic and incidents like the Syringe Tide marked a turning point in biomedical waste management globally. **India’s legislative and policy reforms since the 1990s highlight the potential to address challenges** through sustained effort. While gaps persist, the progress reflects the criticality of leveraging crises for long-term solutions.

Quote: “A crisis often serves as the foundation for transformative reform.”

Insta Links:

1. [Bio-medical waste](#)

CONTENT FOR MAINS ENRICHMENT

| Topic in News | Usage in Answers |
|--|---|
| <p>1. INDIA’S FOSSIL FUEL SUBSIDY REFORMS</p> | <p>Context: The Asian Development Bank (ADB) has commended India for its strategic fossil fuel subsidy reforms since 2010. By adopting a phased “remove, target, and shift” approach, India significantly cut fossil fuel subsidies while bolstering its support for renewable energy and clean technology.</p> <p>ADB Report on India - Key Points</p> <ul style="list-style-type: none"> • Fossil Fuel Subsidy Reduction: in subsidies by 85%, from \$25 billion in 2013 to \$3.5 billion in 2023. • Fuel Subsidy Phase-Out: Between 2010-2014, India gradually removed subsidies on petrol and diesel, allowing for incremental tax increases (2010-2017) to create fiscal room for clean energy initiatives. • Targeted Subsidies for LPG: Tax increases from 2014 to 2017, during low global crude prices, redirected funds to enhance LPG access for rural populations, helping reduce reliance on solid fuel. • Coal Cess for Clean Energy: From 2010-2017, a cess on coal (approx. 30%) supported India’s clean energy fund, aiding renewable projects, solar missions, and off-grid energy solutions. • Growth of Renewable Energy Support: Subsidies for renewable energy peaked in 2017, reflecting increased investments in clean technologies, and are rising again after a slight decline post-2018. |
| <p>2. INDIA VISHWAMITRA STAND</p> | <p>Context: External Affairs Minister S. Jaishankar, emphasizing India’s approach in a multi-polar world, stated that India aims to position itself as a “Vishwamitra” or a friend to all, underlining that friendships are no longer exclusive.</p> <p>Quotes and Key Statements by the Minister:</p> <ul style="list-style-type: none"> • “Friendships are no longer exclusive in a multipolar world; India aims to be a ‘Vishwamitra’ – a friend to all.” • “What one nation may see as freedom, another might perceive as interference.” • “India is not a dogmatic civilization, and there is a capability aspect, a self-confidence in how we approach the world.” |

3. FALSE CONSCIOUSNESS

Context: Recently, U.S. Republican candidate Donald Trump visited a McDonald’s in Pennsylvania to connect with working-class voters, highlighting the GOP’s focus on swing-state demographics often impacted by its policies.

False Consciousness:

- **Definition:** False consciousness is a concept derived from Marxist theory, describing a scenario where individuals act against their own economic interests due to manipulated beliefs and values.
- **Theory background:** Karl Marx posited that capitalist structures and elite-controlled institutions obscure social realities, preventing workers from recognizing the exploitation they face.
- **Media influence:** Media outlets can perpetuate false consciousness by presenting themselves as aligned with the working class while promoting elite-driven narratives.
- **Culture wars:** As observed by journalist Thomas Frank, Republicans engage in cultural battles (e.g., over abortion, immigration, and gender issues) to distract voters from economic concerns, casting these issues as central to American values and traditional morality.
- **Significance:** This ideological approach enables elites to retain power by fostering division, aligning economic grievances with identity-based struggles, and rallying support for policies that ultimately disadvantage the working class.

4. COMMITTEES ON WESTERN GHATS

Context: The Union Environment Ministry’s expert committee, led by former forest director-general Sanjay Kumar, is set to examine Goa’s proposals concerning eco-sensitive areas (ESA) in the Western Ghats.

Committees on Western Ghats:

- **Sanjay Kumar Committee:**
 1. Formed to review state objections on ESA demarcations and validate proposed exclusions.
 2. Will conduct field visits to verify if demands for village exclusions from ESA listings are justified.
 3. Seeks to finalize the ESA status for villages, restricting activities harmful to biodiversity.
- **Madhav Gadgil Committee (2011):**
 1. Established by UPA government to propose protection measures for the Western Ghats.
 2. Recommended designating the entire Western Ghats as ecologically sensitive.
 3. Proposed the creation of a dedicated ecological authority to regulate development.
 4. Report suggested rigorous conservation, but its recommendations were not fully adopted.
- **Kasturirangan Committee (2012):**
 1. Formed as a follow-up to the Gadgil Committee to provide a more moderate approach.
 2. Based ESA demarcations on 37% of the Western Ghats, focusing on forested areas.
 3. Emphasized a balance between conservation and developmental needs, allowing limited activity in specific areas.

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| <p>5. DIRECTOR GENERAL OF POLICE, UTTAR PRADESH SELECTION AND APPOINTMENT RULES</p> | <p>Context: The Uttar Pradesh government has introduced new rules for the selection of the Director General of Police (DGP).</p> <p>Key Points: New UP Rules for DGP Selection</p> <ul style="list-style-type: none"> • Selection Committee: Headed by a retired High Court judge, it includes the Chief Secretary, a UPSC nominee, the UP Public Service Commission chairperson or nominee, the Additional Chief Secretary/Principal Secretary (Home), and a retired DGP. • Eligibility Criteria: Candidates must have a minimum of six months of service remaining from the date of DGP vacancy. • Objective: To establish an independent, transparent selection mechanism for the DGP, free from political or executive interference. <p>Relevance in UPSC Syllabus</p> <ul style="list-style-type: none"> • Governance (GS Paper II): Illustrates reforms in state administration and police governance as per Supreme Court guidelines. • Indian Polity (GS Paper II): Highlights state-level autonomy in appointments, showing federal balance. • Ethics in Public Administration (GS Paper IV): Reflects accountability, transparency, and independence in police appointments, essential values in public service. |
| <p>6. CIA-CIA TRIBE</p> | <p>Context: The Cia-Cia tribe on Buton Island, Indonesia, is using Hangul, the Korean alphabet, to document and preserve their indigenous language, which has survived orally for centuries but lacks its own script.</p> <p>About Cia-Cia tribe:</p> <ul style="list-style-type: none"> • Cia-Cia tribe: Indigenous community in Buton Island, Indonesia, with a population of around 93,000. • Language status: The Cia-Cia language has existed orally for centuries without a formal script, making it vulnerable to extinction. • Preservation efforts: To prevent language loss, Cia-Cia is being transcribed using Hangul, which aligns closely with its phonetic structure. <p>About Hangul Script:</p> <ul style="list-style-type: none"> • Structure: Known for its unique phonetic system of circles and lines, representing sounds clearly. • Adoption for Cia-Cia: Introduced in 2009 for Cia-Cia as Arabic script did not suit the language's sounds. • Implementation: Used in schools, textbooks, and public signs in Cia-Cia areas. • Cultural concerns: While some fear cultural influence, others believe the adaptation helps preserve Cia-Cia's uniqueness. |
| <p>7. SPEECH AT ASIAN BUDDHIST SUMMIT</p> | <p>Context: President Droupadi Murmu inaugurated the first Asian Buddhist Summit organised by the Union Culture Ministry and the International Buddhist Confederation in New Delhi.</p> <p>President speech in Asian Buddhist Summit:</p> <ul style="list-style-type: none"> • "Buddha Dharma can bring peace, real peace, to Asia and the world — a peace free from not only physical violence but also from all forms of greed and hatred." • "If one word could capture the Buddha Dharma, it had to be karuna or compassion, which is what the world needs today." • "The preservation of the Buddha's teachings has been a great collective endeavour." • "The middle path and four noble truths of the Buddha offer timeless solutions." • "India reaffirms its commitment to strengthen the 'Dhamma Setu', the Buddhist bridge connecting Asian nations." <div style="border: 1px solid black; padding: 5px;"> <p>NOTE: Use the statement made by the president in your introduction and conclusion will fetch you an added advantage in your answer.</p> </div> |

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| <p>8. IMPACTS OF SOCIAL MEDIA ON KIDS</p> | <p>Context: The Australian government has announced plans to introduce legislation that would restrict social media access for children under 16, aiming to reduce the potential harm caused by online platforms.</p> <p>Issues Due to Social Media for Children Under 16</p> <ul style="list-style-type: none"> • Mental health: Social-media can lead to anxiety, depression, and low self-esteem as children may experience comparison and cyberbullying. • Idealized realities: Constant exposure to idealized lives can cause dissatisfaction, self-doubt, and pressure to conform to unrealistic standards. • Cyberbullying and Online Exploitation: Persistent bullying online and potential exposure to manipulative or harmful content pose serious safety concerns. • Exposure to Inappropriate Content: Children may accidentally access violent, explicit, or age-inappropriate material, leading to potential trauma. • Academic and Social Impact: Excessive social media use can hinder academic performance and real-world communication skills, affecting social relationships and cognitive development. |
| <p>9. CAFE LAMMA</p> | <p>Context: Libya, a nation recovering from years of conflict, is seeing the rise of sustainable initiatives like <i>Cafe Lamma</i> in Tripoli, which promotes eco-friendly practices and creative reuse of materials to inspire environmental awareness and community engagement.</p> <p>About Cafe Lamma:</p> <ul style="list-style-type: none"> • Sustainability and Recycling: Built entirely from recycled materials like tyres, wood, and construction waste, the cafe promotes environmental conservation in a country lacking recycling infrastructure. • Cultural and Educational Hub: Hosts art galleries, workshops, and a library, fostering community engagement and a shift toward eco-consciousness in post-war Libya. <p>Relevance in UPSC Syllabus:</p> <ul style="list-style-type: none"> • Ethics and Environment: Demonstrates ethical responsibility and innovative approaches to sustainable development. • Society and Culture: Highlights post-conflict community rebuilding through arts and sustainable practices. • Disaster Management: Reflects adaptive use of resources in war-affected regions, relevant to resilience-building strategies. |
| <p>10. QUOTES FROM CJI SPEECH</p> | <p>Context: CJI DY Chandrachud, during the Express Adda, reflected on key judicial and constitutional issues, including the judiciary’s role in societal transformation, judicial appointments, diversity, same-sex marriage debates, and the significance of open courts.</p> <p>Catchy statement from CJI Speech:</p> <ul style="list-style-type: none"> • “It’s the diversity of the nation which protects the basic structure of the Constitution.” • “The ultimate guarantee of our good behaviour lies in the written word.” • “Constitutional court function is not just to decide cases, but to promote a democratic dialogue.” |
| <p>11. ULTRA-ENFORCEMENT CONCRETE</p> | <p>Context: The Government is working to reduce the cost of the construction of bridges and metros by 25 percent with the use of ultra-enforcement concrete, a technology adapted from Malaysia.</p> <p>About Ultra-Enforcement Concrete (UEC):</p> <ul style="list-style-type: none"> • Definition: High-performance concrete offering enhanced strength, durability, and cost-efficiency. • Source: Adapted from Malaysian technology, aimed at reducing construction costs in India. • Key Feature: Reduces material usage while maintaining strength, with potential cost savings up to 25% in large infrastructure projects like bridges and metros. |

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| <p>12. COMICS COMMANDOS</p> | <p>Context: In Assam’s Goalpara district, a unique initiative called “Comics Commandos” has been launched to combat child labour and child marriage.</p> <p>About Comics Commandos</p> <ul style="list-style-type: none"> • Purpose: To campaign against social evils like child labour and child marriage using grassroots comics. • Execution: Thirty local youths trained to create comic strips with minimum text and humour for better public engagement. • Approach: Visual storytelling resonates more effectively with the community, focusing on local issues like child abuse and economic hardships. |
| <p>13. OPTING OUT OF TRADITIONAL MASCULINITY</p> | <p>Anecdote: Lalita Iyer’s journey of raising her son exemplifies the shift from enforcing traditional masculinity to nurturing good human beings. As a single mother, she created an ecosystem where her son could thrive beyond the constraints of gender roles. From rejecting the pink-and-blue binary to teaching him life skills like cooking, managing finances, and fostering empathy, she reshaped the narrative of masculinity. Her son, in turn, became an advocate of feminism, rejecting toxic masculinity and embracing values of equality and inclusivity. This story emphasizes that breaking societal norms starts at home, challenging patriarchy one step at a time.</p> |
| <p>14. PREVALENCE OF VIOLENCE</p> | <p>Context: A study published in <i>BMC Public Health</i> highlights the high prevalence of violence, particularly sexual violence, against gay and bisexual men across six Indian cities.</p> <p>Key Data Insights: (Source: <i>BMC Public Health Study</i>)</p> <ul style="list-style-type: none"> • Prevalence of Violence: <ul style="list-style-type: none"> ○ Sexual violence: Highest in Delhi (44% of men sampled). ○ Any violence (verbal, physical, or sexual): <ol style="list-style-type: none"> 1. Kolkata: 80% 2. Delhi: 72% 3. Mumbai: 58% ○ Specific groups affected: <ol style="list-style-type: none"> 1. Gay men: 78.7% faced some form of violence. 2. Bisexual men: 44% faced some form of violence. • Demographics: <ul style="list-style-type: none"> ○ Age group 18-24: Most affected by violence. ○ Openly expressing sexuality: 5x more likely to face violence. ○ Muslims: 2.6x more likely to face sexual violence than Hindus. ○ Caste-based prevalence: <ol style="list-style-type: none"> 1. General: 48.8% 2. OBC: 84.1% 3. SC/ST: 71.6% • Legal Provisions: <ul style="list-style-type: none"> ○ The BNS, replacing the IPC, lacks provisions for addressing rape against men or transgender persons. ○ Men can only complain under Sections dealing with grievous hurt, which do not directly address rape. <p>NOTE: Selectively memorise some data which can be used in mains answers.</p> |

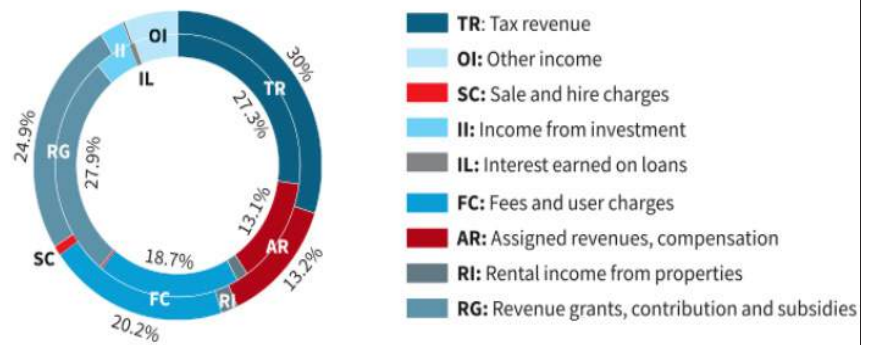
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| <p>15. SOCIAL ENGINEERING</p> | <p>Anecdote: a cyber scam at Bengaluru airport highlighted the misuse of social engineering and malicious APKs (Android Package files) to defraud unsuspecting users.</p> <p>About Social Engineering:</p> <ul style="list-style-type: none"> • Definition: Manipulating individuals into revealing confidential information or granting access to systems by exploiting trust. • Techniques used: <ul style="list-style-type: none"> ○ Fake websites: Creating replicas of trusted platforms (e.g., Loungepass.in in this case). ○ Pretexting: Posing as customer service representatives to gain credibility. ○ Phishing links: Sending links to malicious APKs via communication platforms like WhatsApp. ○ Call forwarding manipulation: Using network codes to intercept OTPs. • Impact: <ul style="list-style-type: none"> ○ Financial theft through unauthorized transactions. ○ Access to personal information like messages, photos, and sensitive data. ○ Loss of control over phone calls and outgoing communication. |
| <p>16. ADAPTIVE DEFENCE STRATEGY</p> | <p>Context: Defence Minister Rajnath Singh has emphasized the government’s commitment to developing an ‘Adaptive Defence’ strategy to address the complex and evolving security challenges faced by India.</p> <p>About Adaptive Defence:</p> <ul style="list-style-type: none"> • What it is: <ul style="list-style-type: none"> ○ Adaptive Defence refers to a strategic approach where military and defence systems evolve continuously to counter dynamic and emerging threats proactively. • Need for Adaptive Defence: <ul style="list-style-type: none"> ○ Changing nature of threats: Shift from traditional warfare to hybrid and grey-zone threats like cyber-attacks, terrorism, and information warfare. ○ Technological evolution: Rapid advances in AI, drones, swarm technologies, and quantum computing demand agile responses. ○ Geopolitical uncertainty: Increased cross-border tensions and global interdependence require a responsive and collaborative defence strategy. • Key features: <ul style="list-style-type: none"> ○ Proactive and anticipatory: Focus on predicting future threats and preparing in advance. ○ Integration of emerging technologies: Use of AI, drones, quantum technologies, and cybersecurity tools. ○ Strategic flexibility: Adaptation at tactical and operational levels for changing scenarios. ○ Collaboration and jointness: Integration among the armed forces and collaboration with global defence systems. ○ Focus on self-reliance: Promoting indigenous defence manufacturing under initiatives like ‘Make in India’ and ‘Aatmanirbhar Bharat.’ |

17. REPORT ON MUNICIPAL FINANCES

Context: The Report on Municipal Finances shows significant improvement since the first edition released two years ago. The latest report examines the fiscal position of 232 municipal corporations from 2019-20 to 2023-24.

Chart 1:

Components of revenue receipts of all municipal corporations. The inner circle corresponds to figures for 2019-20 while the outer circle corresponds to 2023-24 (BE)



About Financial Status of Municipal Corporations: (Source: RBI Report on Municipal Finances)

- **Revenue Composition (FY24 Estimates):**
 - **Own sources** (taxes, fees, user charges): 50%.
 - **Revenue grants** (Central/State governments): 25%.
 - **Other sources** (rental, compensations, investments): Remaining 25%.
- **Short-term Trends (FY20 vs. FY24):**
 - **Share of own taxes** rose from 27.3% to 30%.
 - **Share of fees and user charges** increased from 18.7% to 20.2%.
 - **Revenue grants** share dropped from 27.9% to 24.9%.
- **State Performance (FY24):**
 - **Highest own tax revenue:**
 - Karnataka (53.8%), Telangana (50.3%), Tamil Nadu (44.3%), Jharkhand (44.0%).
 - **Lowest own tax revenue:** Rajasthan, Odisha, and Uttarakhand.
- **Expenditure Trends:**
 - **Capital expenditure** increased from 56.1% (2019-20) to 61.5% (FY24).
 - **Revenue expenditure** decreased from 43.9% (2019-20) to 38.5% (FY24).

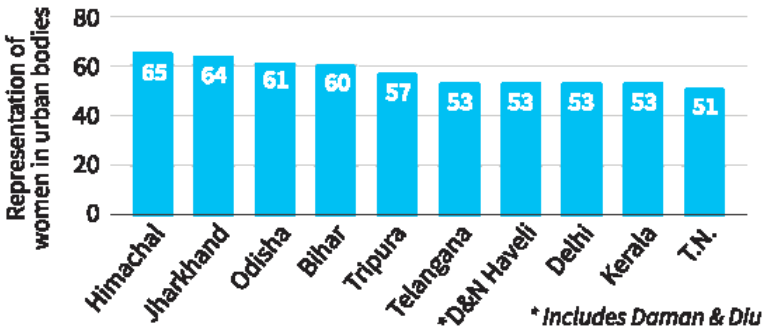
18. SOLAR FENCE PROJECT

Context: In Odisha, frequent crop losses from elephants intruding into paddy fields prompted the Forest Department to launch the Solar Fence Project—a sustainable, humane solution aimed at protecting crops and fostering peaceful coexistence with wildlife.

About Solar Fence Project:

- **Objective:**
 - To resolve human-elephant conflicts and safeguard crops through sustainable and humane methods.
- **Technology:**
 - Solar-powered fence emits a **mild electric pulse to deter animals** without causing harm.
 - Powered by solar panels, charging a battery that supplies a low-voltage shock.
- **Implementation:**
 - Farmers contribute 10% of project cost; orchard owners share 50%.
 - Proposals submitted through gram sabhas or panchayats.
- **Impact:**
 - Reduced elephant incursions into farmlands.
 - Improved farmer incomes and minimized human-wildlife conflicts.

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| <p>19. IPS OFFICER ARCHANA TYAGI</p> | <p>Context: IPS officer Archana Tyagi, faces allegations of misusing her position. A viral video purportedly shows her utilizing a fire brigade to fill the water tank at her Dehradun residence.</p> <p>Ethical issues involved:</p> <ul style="list-style-type: none"> • Misuse of Public Resources: <ul style="list-style-type: none"> ○ The fire brigade, meant for emergencies, was allegedly diverted for personal use, undermining its intended purpose. • Breach of Public Trust: <ul style="list-style-type: none"> ○ As a public servant, her actions may erode trust in law enforcement officials entrusted with ethical responsibilities. • Accountability and Transparency: <ul style="list-style-type: none"> ○ The act, if verified, highlights a lack of accountability and misuse of discretionary power. • Inequity and Privilege: <ul style="list-style-type: none"> ○ The alleged act exemplifies inequitable access to public resources, which should be equally available to all citizens. • Conflict of Interest: <ul style="list-style-type: none"> ○ Leveraging a public position for personal gain contradicts the principles of impartiality and service ethics. |
| <p>20. CAG REPORT ON URBAN LOCAL BODIES</p> | <p>Context: The Comptroller and Auditor General (CAG) of India highlighted critical gaps in the functioning of Urban Local Bodies (ULBs) across 18 states, 31 years after the 74th Constitutional Amendment was introduced to empower these self-governing institutions.</p> <p>Data on Urban Local Bodies (Source: CAG Report, 2024)</p> <ul style="list-style-type: none"> • Resource-Expenditure Gap: <ul style="list-style-type: none"> ○ ULBs face a 42% gap between their resources and expenditures. • Funding Sources: <ul style="list-style-type: none"> ○ Only 32% of revenue comes from own resources; 68% is dependent on Union and state government transfers. • Property Tax Collection: <ul style="list-style-type: none"> ○ ULBs realize only 56% of property tax demands. • Expenditure Allocation: <ul style="list-style-type: none"> ○ Only 29% of ULB expenditure is spent on programmatic and developmental work. • Staffing: <ul style="list-style-type: none"> ○ Average vacancy rate: 37% of sanctioned strength. ○ Urban bodies in 16 states have limited or no autonomy over recruitment. • Devolution of Functions: <ul style="list-style-type: none"> ○ On average, 17 out of 18 functions (as per the 74th Amendment) are devolved. ○ Nine states (e.g., Chhattisgarh, Maharashtra) devolved all 18 functions. ○ Urban planning and fire services remain the least devolved functions. • Autonomy: <ul style="list-style-type: none"> ○ Only 4 out of the devolved functions have complete autonomy. • Population Impact: <ul style="list-style-type: none"> ○ The report covers 393 ULBs catering to 241 million people across 18 states. |

| <p>21. ALL-INDIA SERVICES (CONDUCT) RULES, 1968</p> | <p>Context: Kerala has suspended two IAS officers, N. Prashant and K. Gopalakrishnan, for alleged violations of the All-India Services (Conduct) Rules, 1968.</p> <p>The All-India Services (Conduct) Rules, 1968:</p> <ul style="list-style-type: none"> • Ethical Standards: Officers must maintain high ethics, integrity, honesty, political neutrality, accountability, and transparency. • Constitutional Supremacy: Must uphold constitutional values in all actions. • Media Engagement: Officers can communicate in public media only in bona fide discharge of duties; criticism of government policies is prohibited. • Court or Press Appeal: Cannot approach courts or press to vindicate actions under criticism without prior government approval. • Omnibus Clause: Officers shall not act in a manner deemed “unbecoming of a member of the service.” • Amendments Over Time: The rules have been updated but lack explicit provisions for social media conduct. | | | | | | | | | | | | | | | | | | | | | | |
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| <p>22. CHHATTISGARH CATTLE MARKING</p> | <p>Context: Chhattisgarh reported 231 road accident deaths from stray cattle in 2.5 years, exceeding Maoist-related fatalities. The government is addressing this with awareness drives and marking cattle horns.</p> <p>Initiatives Taken:</p> <ul style="list-style-type: none"> • Painting Cattle Horns: Stray cattle horns are painted with reflective, high-quality paint to help drivers spot them at night. • Collar Belts for Cattle: Collar belts are being tied to stray cattle to increase visibility and reduce collision risks. • Awareness Drives: Chaupals (village meetings) are organized to educate rural communities about keeping roads free of cattle. | | | | | | | | | | | | | | | | | | | | | | |
| <p>23. STORY OF MORNING MAMA</p> | <p>Context: In Banda Aceh, Indonesia’s conservative province, Qurrata Ayuni defied norms to establish Morning Mama, the city’s only woman-run café. Orphaned by the 2004 tsunami, she built a sanctuary for women—free from smoke, noise, and prejudice—offering a safe space to work and thrive. Morning Mama empowers women, employs female baristas, and challenges gender biases, inspiring resilience and self-reliance across Aceh and beyond.</p> | | | | | | | | | | | | | | | | | | | | | | |
| <p>24. WOMEN IN URBAN GOVERNANCE</p> | <p>Context: The report “Roadmap for India’s City Systems Reforms,” released by the non-profit organization Janaagraha, highlights significant insights into urban governance in India</p> <p>Key Data from the Report:</p> <ul style="list-style-type: none"> • Women Representation: <ul style="list-style-type: none"> ○ Nearly 46% of councillors in India are women. ○ In 19 out of 21 capital cities with active ULBs (e.g., Patna, Shimla, Ranchi, Bhubaneswar), over 60% of councillors are women. ○ Top 10 States with the highest number of women councillors: <div style="text-align: center;"> <p>Breaking the glass ceiling Himachal Pradesh has the highest representation of women in urban local bodies (%)</p>  <table border="1"> <thead> <tr> <th>State</th> <th>Representation (%)</th> </tr> </thead> <tbody> <tr> <td>Himachal</td> <td>65</td> </tr> <tr> <td>Jharkhand</td> <td>64</td> </tr> <tr> <td>Odisha</td> <td>61</td> </tr> <tr> <td>Bihar</td> <td>60</td> </tr> <tr> <td>Tripura</td> <td>57</td> </tr> <tr> <td>Telangana</td> <td>53</td> </tr> <tr> <td>*D&N Haveli</td> <td>53</td> </tr> <tr> <td>Delhi</td> <td>53</td> </tr> <tr> <td>Kerala</td> <td>53</td> </tr> <tr> <td>T.N.</td> <td>51</td> </tr> </tbody> </table> <p>* Includes Daman & Diu</p> </div> <ul style="list-style-type: none"> ○ Women’s Quota in ULBs: <ul style="list-style-type: none"> ▪ 17 States have legislated 50% women’s reservation in ULBs, exceeding the constitutional minimum of 33%. | State | Representation (%) | Himachal | 65 | Jharkhand | 64 | Odisha | 61 | Bihar | 60 | Tripura | 57 | Telangana | 53 | *D&N Haveli | 53 | Delhi | 53 | Kerala | 53 | T.N. | 51 |
| State | Representation (%) | | | | | | | | | | | | | | | | | | | | | | |
| Himachal | 65 | | | | | | | | | | | | | | | | | | | | | | |
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| T.N. | 51 | | | | | | | | | | | | | | | | | | | | | | |

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| <p>25. WEP AND URBAN COMPANY COLLABORATION</p> | <p>Context: NITI Aayog’s Women Entrepreneurship Platform (WEP), in collaboration with Urban Company, launched a pilot program aimed at empowering women-led MSMEs in the beauty and wellness sector.</p> <p>Key Points:</p> <ul style="list-style-type: none"> • Program Focus: Aims to train women entrepreneurs managing salons and parlors in six areas: skilling, legal compliance, access to finance, market and business development, mentorship, and networking. • Objective: Enhance sustainability and scalability of women-led MSMEs in beauty and wellness, fostering a robust entrepreneurial ecosystem. • Collaboration: A significant partnership between NITI Aayog’s WEP and Urban Company to drive women’s economic empowerment. |
| <p>26. INDIA-CARICOM SUMMIT</p> | <p>Context: Prime Minister, during the India-CARICOM Summit held in Georgetown, Guyana, introduced a seven-pillar framework to enhance cooperation between India and Caribbean nations.</p> <ul style="list-style-type: none"> ○ He proposed redefining the acronym “CARICOM” to signify key areas of collaboration, reflecting India’s commitment to strengthening ties with the Caribbean Community. <p>Seven Pillars (acronym “CARICOM”) Proposed by PM:</p> <ol style="list-style-type: none"> 1. Capacity Building: <ul style="list-style-type: none"> ○ Announced 1,000 IT scholarships and proposed a regional forensic centre. ○ Expanded India’s technology centre in Belize to include all CARICOM members. ○ Online training for civil servants. 2. Agriculture and Food Security: <ul style="list-style-type: none"> ○ Shared India’s advancements in agriculture technology like drones. ○ Promoted millet cultivation for nutrition and sustainability. 3. Renewable Energy and Climate Change: <ul style="list-style-type: none"> ○ Invited CARICOM to join the International Solar Alliance and other global initiatives like the Coalition for Disaster Resilient Infrastructure and the Global Biofuel Alliance. 4. Innovation and Technology: <ul style="list-style-type: none"> ○ Shared India’s digital payment systems (UPI) and eMarketplace model. ○ Proposed collaboration on “Stack” infrastructure to support SMEs. 5. Cricket and Culture: <ul style="list-style-type: none"> ○ Offered 11 women’s cricket scholarships for each CARICOM nation. ○ Proposed cultural exchanges through Festivals of India and Bollywood film festivals. 6. Ocean Economy and Maritime Security: <ul style="list-style-type: none"> ○ Positioned CARICOM as “large ocean countries” with potential for marine resource development. ○ Pledged support for maritime security against piracy and trafficking. 7. Medicines and Healthcare: <ul style="list-style-type: none"> ○ Shared affordable healthcare solutions via the Janaushadi scheme. ○ Proposed telehealth programs and advanced cancer treatment technologies. ○ Suggested adopting the Indian Pharmacopeia to reduce healthcare costs. |

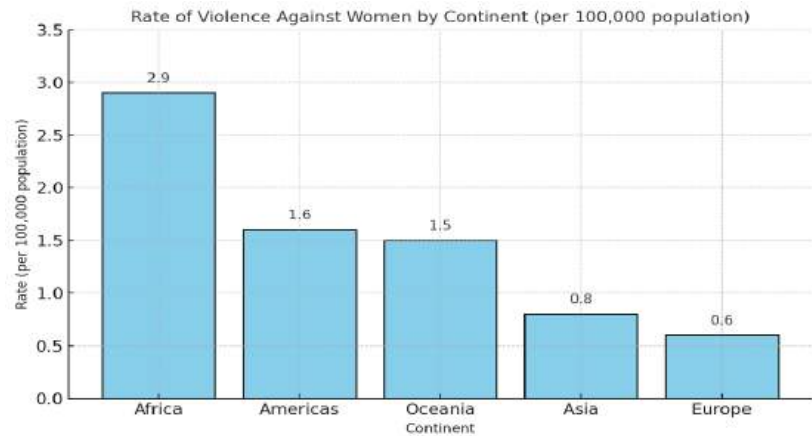
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| <p>27. NOVA, AN AI-POWERED HUMANOID</p> | <p>Context: Nova, an AI-powered humanoid, is revolutionizing education at a government school in Punalur, Kerala. With multilingual capabilities and a focus on improving communication skills, the humanoid provides an engaging, interactive learning experience, introducing children to advanced technology.</p> <p>About Humanoid Robot:</p> <ul style="list-style-type: none"> • Nova: AI-powered humanoid designed to assist in education. • Capabilities: Speaks four languages (English, Malayalam, Hindi, Arabic) and interacts with students using GPT-4o technology. • Focus: Enhances communication skills, encourages curiosity, and familiarizes students with technology. |
| <p>28. QUOTES ON SOCIALISM</p> | <p>Context: Chief Justice of India (CJI) Sanjiv Khanna clarified that socialism in India reflects the idea of a welfare state ensuring equality of opportunity, rather than imposing a rigid or dictatorial framework.</p> <p>Key Quotes and Statements by CJI:</p> <ul style="list-style-type: none"> • “Socialism in India means a welfare state that provides equality of opportunity for all, not a dictatorial dogma.” • “Socialism has never prevented the private sector from thriving; we have all benefited from it.” • “The idea of socialism runs through many Articles of the Constitution.” • “Socialism and secularism are integral parts of the Basic Structure of the Constitution.” |
| <p>29. NAYI CHETNA 3.0 – PAHAL BADLAAV KI</p> | <p>Context: Union Ministers will launch Nayi Chetna 3.0 – Pahal Badlaav Ki, a month-long campaign against gender-based violence, under DAY-NRLM to promote awareness and grassroots action.</p> <p>About Nayi Chetna – Pahal Badlaav Ki:</p> <ul style="list-style-type: none"> • Launched By: Ministry of Rural Development under DAY-NRLM. • Campaign Duration: 25th November to 23rd December 2024. • Slogan: “Ek Saath, Ek Awaaz, Hinsa Ke Khilaaf.” • Objectives: <ul style="list-style-type: none"> ○ Awareness: Raise understanding of all forms of gender-based violence. ○ Action: Encourage communities to report and demand action. ○ Support Systems: Strengthen access to support and legal mechanisms. ○ Empower Institutions: Enable local bodies to respond decisively. • Outreach: <ul style="list-style-type: none"> ○ Supported by 9 Ministries/Departments. ○ Involves Self-Help Groups (SHGs) as part of a Jan Andolan spirit. ○ Previous editions reached 3.5 crore (1st) and 5.5 crore (2nd) participants. |
| <p>30. RISE OF YASHASVI JAISWAL</p> | <p>Yashasvi Jaiswal’s rise to cricketing fame is a tale of grit and determination. Born to a shopkeeper in rural India, Jaiswal left for Mumbai at the age of 11 to pursue his cricketing dreams. With no stable shelter, he initially worked at a dairy but was thrown out for prioritizing cricket over chores. Homeless, he lived in a tent at the Muslim United Club and sold pani puri at Azad Maidan to survive, often praying his teammates wouldn’t see him. While others were supported by their families, Jaiswal cooked his own meals, often going without breakfast. Through relentless hard work and resilience, he transitioned from selling street food to being India’s most promising young batter since Virat Kohli.</p> |

31. VIOLENCE AGAINST WOMEN

Context: The United Nations has highlighted the alarming rise in violence against women and girls in domestic settings, emphasizing that homes remain the most dangerous place for them globally.

About UN Report on Women Violence:

- **Global Statistics (2023):**
 - 51,100 women and girls killed globally by intimate partners or family members (up from 48,800 in 2022).
 - On average, 140 women are killed daily in domestic settings.
- **Regional Disparities:**



- **Key Insights:**
 - 60% of female homicide victims were killed by intimate partners or family members.
 - **Men constitute 80% of global homicide victims**, but most male deaths occur outside the home.
 - **Gender stereotypes, societal norms, and impunity** for perpetrators are major drivers of violence.

Relevance in UPSC Exam

- **GS Paper I (Society):** Issues of gender inequality, patriarchy, and social norms contributing to violence.
- **GS Paper II (Governance):** Policies addressing domestic violence, role of international organizations like the UN, and comparative analysis of global initiatives.
- **GS Paper IV (Ethics):** Ethical dilemmas in family justice systems and protection of vulnerable groups.

32. E-DAAKHIL PORTAL

Context: India has fully implemented the E-Daakhil portal for consumer grievance redressal, operational nationwide, including remote areas like Ladakh.

About E-Daakhil Portal:

- **Introduced Under:** Consumer Protection Act, 2019.
- **Purpose:** Paperless and hassle-free mechanism for filing and resolving consumer complaints online.
- **Key Features:**
 1. File complaints, pay fees, and track case statuses online.
 2. Accessible via mobile number or email registration.
 3. Reduces the need for physical visits to consumer forums.
- **Impact:** Successful case rulings include compensation for faulty products and refund disputes, e.g., Sambalpur District Commission and Andaman District Commission.

33. DARK TOURISM

Context: Amid the ongoing war in Ukraine, the concept of dark tourism has gained traction, with visitors exploring war-torn locations like the destroyed Irpin bridge and tank graveyards.

About Dark Tourism:

- **Definition:** Visiting locations associated with death, tragedy, or suffering, such as battlefields, disaster zones, or memorials.
- **Origins:** Defined by John Lennon and Malcolm Foley as the interpretation of inhuman acts for visitors.
- **Popular Sites:** Auschwitz (Poland), Chernobyl (Ukraine), Ground Zero (USA), Hiroshima Peace Memorial Park (Japan).
- **Types:**
 1. **Disaster Tourism:** Focused on areas affected by major disasters.
 2. **War Tourism:** Visits to conflict zones or post-war regions.
- **Controversy:**
 - **Positive View:** Acts as a form of memorialization, education, and awareness.
 - **Criticism:** Seen by some as unethical or profiting from human suffering.
- **Emerging Market:** Increasing popularity in countries like Ukraine due to global attention and curiosity.

Insta Links:

- | |
|---------------------------------|
| 1. Dark-Tourism |
|---------------------------------|

34. STORY OF FALGUNI NAYAR

In 2012, Falguni Nayar left her successful investment banking career at 50 to start Nykaa with \$2 million and a vision to make quality beauty products accessible to Indian women. From her father’s small office, she meticulously studied consumer behavior, onboarded trusted brands, and built a seamless online platform despite skepticism. Her efforts paid off when Nykaa became India’s first woman-led unicorn in 2020, valued at \$2.3 billion. Today, as one of India’s two self-made female billionaires, Nayar’s journey exemplifies resilience, proving that success has no age limit and dreams are worth pursuing.

35. CAG REPORT ON BIHAR’S HEALTHCARE

Context: The Comptroller and Auditor General (CAG) report on Public Health Infrastructure and Management of Health Services (2016-22) highlights critical gaps in **Bihar’s healthcare** system, including a shortage of doctors, paramedical staff, and issues with blood banks and drug supplies.

Key Findings of CAG Report (2016-22):

| Category | Key Findings |
|-------------------------|--|
| Shortage of Doctors | 53% fewer doctors than WHO norms; only 58,144 doctors available against the required 1,24,919. |
| Vacancies in Healthcare | 61% (primary), 56% (secondary), 49% (tertiary), and 82% (AYUSH) positions vacant. Overall, 60% shortage. |
| Blood Banks | Many operating without valid licenses due to critical equipment shortages. |
| Drug Supply Issues | 35%-74% shelf life remaining for medicines supplied; cases of near-expiry drugs not withdrawn. |
| Ambulance Shortfalls | None of the 25 inspected ambulances had the required equipment, medicine, or consumables. |

36. ONLINE GAMING ADDICTION

Context: The Indian government, addressing online gaming addiction concerns, has introduced policies and mechanisms to ensure safe gaming and protect children from addiction, financial risks, and mental stress.

| Measure | Description |
|--|---|
| IT Rules, 2021 | Cast due diligence obligations on intermediaries, ensuring removal of harmful or illegal content related to gambling, addiction, or child harm. |
| Advisory by Ministry of Education (2021) | Educated parents and teachers about gaming addiction and disorder, emphasizing mental and physical stress prevention. |
| Guidelines for Gaming Advertisements by MIB (2020, 2024) | Restricted ads targeting children, emphasized financial risk disclaimers, banned depiction of gaming as employment or success alternatives. |
| Advisory Against Online Betting Ads by MIB (2024) | Instructed media platforms to avoid advertisements promoting online betting or surrogate products/services. |
| Cyber Crime Coordination by MHA | Established Indian Cyber Crime Coordination Centre (I4C) and National Cyber Crime Reporting Portal for addressing gaming-related crimes. |
| Toll-Free Helpline | Operationalized helpline '1930' for assistance in lodging cyber complaints, including financial and gaming-related frauds. |

FACTS FOR PRELIMS

GS-1

Art & Culture

1. TUMAINI FESTIVAL

Context:

The Tumaini Festival, an annual event held since 2014 at Malawi's Dzaleka Refugee Camp, celebrates the resilience and culture of refugees through music, art, and crafts.

About Tumaini Festival:

- **Founded:** 2014, by Menes La Plume, a Congolese poet.
- **Purpose:** To create a unique platform for cultural exchange, showcasing resilience through music, art, and crafts.
- **Visitors:** Thousands from Malawi and nearby countries, including South Africa and Zimbabwe.
- **Significance:** Builds connections and breaks stereotypes by humanizing the refugee experience, allowing people to share common experiences and celebrate cultural diversity.
- **2024 Event:** Organized by the camp's youth, many of whom were born in the camp, reflecting local pride and ownership.

About Dzaleka Refugee Camp:

- **Location:** Near Lilongwe, Malawi, originally established on a former prison site.
- **Established:** 1994, following regional conflicts, particularly in Africa's Great Lakes region.
- **Capacity:** Originally designed for 10,000 refugees but now houses over 60,000.
- **Populations:** Primarily from DRC, Rwanda, Burundi, Ethiopia, and Somalia.
- **Role:** The camp has become a focal point for humanitarian efforts and cultural exchange, aiming to uplift and empower its residents despite challenging conditions.

Insta links:

1. [Festivals](#)

2. ASIAN BUDDHIST SUMMIT

Context:

India is set to host the first Asian [Buddhist](#) Summit (ABS) in New Delhi on November 5-6, 2024, organized by the Ministry of Culture in collaboration with the International Buddhist Confederation (IBC).

| Timeline of The Spread of Buddha Dhamma | |
|--|--|
| 6th Century BCE | Siddhartha Gautama attains enlightenment. |
| Emperor Ashoka promotes Buddha Dhamma across his empire. | 268-232 BCE |
| 1st Century BCE | Emergence of Mahayana and Nikaya traditions within Buddhism. |
| Ashoka's dhammaduta establish communities in Sri Lanka, Myanmar, and beyond. | 3rd Century BCE |
| 1st Century BCE | Kasyapa Matanga and Dharmaratna spread Buddhism along the Silk Route to Central and East Asia. |
| Masters like Atisha Dipankara and Bodhidharma contribute to the dissemination of Buddha Dhamma in Tibet and East Asia. | 11th Century |

About Asian Buddhist Summit 2024:

- **Origin:** Initiated by the Government of India and IBC to promote Buddhist heritage and interfaith dialogue across Asia for the first time.
- **Ministry:** Organized by the Ministry of Culture, Government of India.
- **Location:** Bharat Mandapam, New Delhi, India.
- **2024 theme:** "Role of Buddha Dhamma in Strengthening Asia."
- **Aim:** To celebrate the cultural and spiritual heritage of Buddhism in Asia, fostering dialogue and collaboration on challenges faced by the Buddhist community.
- **Significance:**
 - **Cultural Unity:** Strengthens ties across Asia, celebrating shared Buddhist heritage and values.
 - **Spiritual development:** Promotes mindfulness, compassion, and

interconnectedness through Buddha Dhamma.

- **Global leadership:** Reinforces India's role as a leader in preserving and promoting Buddhism, aligning with India's Act East and Neighborhood First policies.
- **Tourism and Economy:** Encourages Buddhist pilgrimage tourism, supporting the local economy and cultural preservation.
- **Scientific and Well-being Insights:** Showcases the integration of Buddha Dhamma in scientific research and well-being, including mindfulness and mental health practices.

Insta links:

1. [Global Buddhist Summit](#)

3. KALKA-SHIMLA NARROW-GAUGE RAILWAY

Context:

Himachal Pradesh Chief Minister Sukhvinder Singh Sukhu has urged the Indian government to explore the possibility of using green hydrogen to power the Kalka-Shimla narrow-gauge railway, a [UNESCO World Heritage site](#).

- This initiative aligns with **Himachal Pradesh's goal to become a 'green energy State' by 2026**, and would contribute to India's climate goals

About Kalka-Shimla Narrow-Gauge Railway:

- **World heritage status:** Declared a UNESCO World Heritage Site on July 8, 2008.
- **Location:** Spans from Kalka in Haryana (elevation 2,152 ft) to Shimla, Himachal Pradesh (elevation 6,808 ft).
- **Route details:** The 96.6 km single-track railway passes through 18 stations, 102 tunnels, and 988 bridges.
- **Historical significance:** Built in 1898 to connect Shimla (then the summer capital of British India) to the Indian rail network.
- **Engineering feats:** Features 864 bridges, the world's highest multi-arc gallery bridge, and 919 curves, with the sharpest curve having a 48-degree radius.
- **Construction:** Built under the guidance of **Chief Engineer H.S. Harington**; early locomotives by Sharp, Stewart and Company, later by the Hunslet Engine Company.

Insta Links:

1. [KSR Railways](#)

4. MAHA KUMBH MELA 2025

Context:

The Maha Kumbh Mela 2025 in Prayagraj will be held from January 13 to February 26, drawing millions of pilgrims to perform sacred rituals and seek spiritual liberation.

About Maha Kumbh Mela:

- **Origin:** Rooted in Hindu mythology, the Maha Kumbh Mela began as a pilgrimage tradition thousands of years ago, with early references in Maurya and Gupta periods (4th century BCE to 6th century CE).
- **Cycle & Locations:** Occurs every 12 years, rotating between four locations — Prayagraj, Haridwar, Ujjain, and Nashik — each with its sacred rivers: Ganges, Yamuna, Shipra, and Godavari.
- **Rivers:** Prayagraj hosts the Mela at the Triveni Sangam, the confluence of the Ganges, Yamuna, and the mythical Sarasvati, considered highly auspicious for spiritual cleansing.
- **Tracing the History of Kumbh Mela**
 - **Ancient Origins:** Dates back thousands of years, with early references during the Maurya and Gupta periods (4th century BCE to 6th century CE).
 - **Growth with Hinduism:** Gained importance as Hinduism spread, with Gupta rulers elevating its status as a revered religious gathering.
 - **Medieval patronage:** Supported by dynasties like the Chola and Vijayanagar in the south, and the Delhi Sultanate and Mughals in the north.
 - **Mughal tolerance:** Emperor Akbar allowed Naga Sadhus to lead the royal procession in 1565, symbolizing religious and cultural unity.
 - **Colonial documentation:** British officials, including James Prinsep in the 19th century, recorded its rituals, large gatherings, and socio-religious impact.
 - **Post-independence significance:** Became a symbol of national unity and cultural heritage, recognized by UNESCO in 2017 as an intangible cultural heritage of humanity.
- **Significance:** Recognized as a UNESCO intangible cultural heritage, it represents a quest for spiritual purity, unity, and self-realization, attracting diverse pilgrims, sadhus, and international seekers.

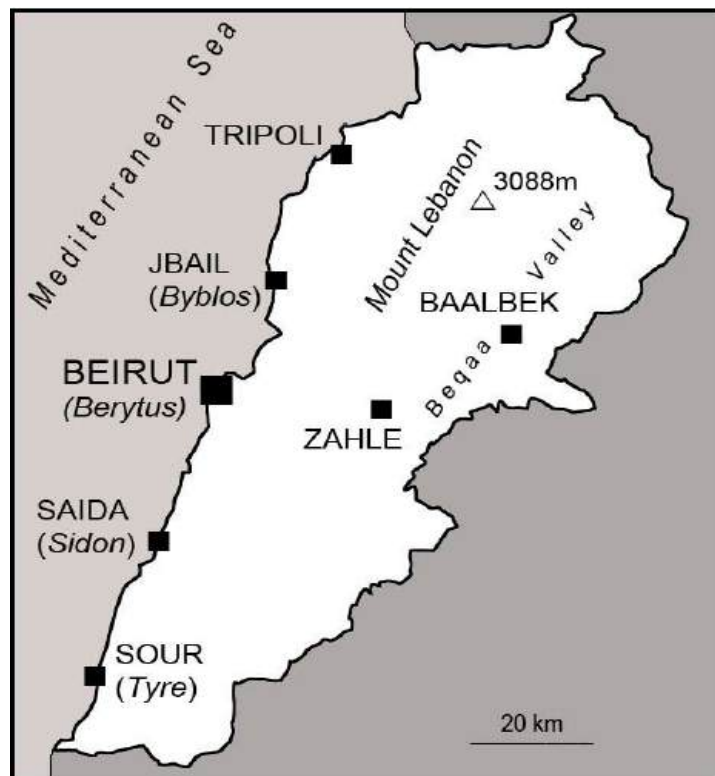
Insta links:

1. [Kumbh-mela-2019](#)

5. UNESCO SITES IN NEWS

Context:

Hundreds of cultural professionals, including archaeologists and academics, called on the United Nations to **safeguard war-torn Lebanon's heritage** in a petition ahead of a crucial UNESCO meeting.



About UNESCO Places in News:

- **Baalbek (Lebanon)**
- Ancient Roman ruins located in eastern Lebanon, designated a UNESCO World Heritage Site.
- **Tyre (Lebanon)**
- A Phoenician city in southern Lebanon, known for its historical harbour and Roman ruins.
- **Anjar (Lebanon)**
- An early Islamic city featuring Umayyad ruins, located in the Beqaa Valley.
- **Bakhmut (Ukraine)**
- Historic sites in this city face threats amid ongoing conflict with Russia.
- **Lviv (Ukraine)**
- A UNESCO World Heritage city, known for its medieval and Renaissance architecture, threatened by the Ukraine-Russia conflict.

About Hague Convention, 1954:

- **Background:** Adopted under UNESCO after observing the large-scale destruction of cultural heritage during armed conflicts.
- **Objective:** To safeguard cultural property such as monuments, archaeological sites, art, manuscripts, and scientific collections.

- **Scope:** Applies during armed conflict as well as in peacetime to ensure preparation for potential threats.
- **Symbol:** Introduced the “**Blue Shield**” emblem for marking and identifying cultural heritage sites.
- **India’s Role:** India is a signatory to the convention and actively supports its implementation.

Insta Links:

1. [Hoysala temples](#)

6. INDIRA GANDHI PRIZE FOR PEACE, DISARMAMENT, AND DEVELOPMENT, 2023

Context:

The Indira Gandhi Prize for Peace, Disarmament, and Development 2023 was awarded to **classical pianist and conductor Daniel Barenboim** and **Palestinian peace activist Ali Abu Awwad**.

About Indira Gandhi Prize for Peace, Disarmament, and Development:

- **Established:** 1986 by the Indira Gandhi Memorial Trust in honour of former Prime Minister Indira Gandhi.
- **Objective:** To recognize individuals or organizations for their efforts toward peace, disarmament, and development.
- **Components:** Includes a monetary award of ₹25 lakh and a citation.
- **Categories:** Peace, Disarmament, and Development.
- **Criteria:** Awardees are selected based on sustained efforts that positively impact global challenges, benefiting human welfare and international peace.
- **Significance:** Regarded as one of the highest accolades in the field of peace and development.

Insta Links:

1. [Indira-gandhi-peace-prize](#)

7. BRIHADEESWARAR TEMPLE

Context:

The Sadhaya Vizha, celebrated in Thanjavur, Tamil Nadu, commemorates the birth anniversary of Raja Raja Chola I, a visionary Chola emperor known for his administrative acumen, and monumental contributions to architecture and culture.



About Brihadeeswarar Temple (Rajarajeswaram)

- **Location:** Thanjavur, Tamil Nadu, part of the UNESCO “Great Living Chola Temples.”
- **Era:** Built in **1009 CE** by **Raja Raja Chola I**, it is the largest and tallest Indian temple.
- **Design:**
 - Features a massive **70-meter pyramidal vimana** with an **octagonal dome-shaped stupika**.
 - Two large **gopuras** adorned with intricate sculptures.
 - Sanctum houses a **two-storey lingam of Lord Shiva**.
- **Cultural Significance:** Repository of Tamil inscriptions detailing rituals, gifts, and the temple’s construction overseen by Raja Raja Chola himself.
- **Artistry:** Painted murals, sculptural narratives, and **stucco figures** (added later during the Maratha period).
- **Other Chola Temples:**
 - **Gangaikonda Cholapuram** (by Rajendra I).
 - **Airavatesvara Temple** (by Rajaraja Chola II).

Insta Links:

1. [Chola-empire](#)

8. ISKCON

Context:

The Dhaka High Court declined a suo motu order to ban ISKCON in Bangladesh, citing government action already taken.

About ISKCON:

- **Full form:** International Society for Krishna Consciousness.
- **Founder:** A.C. Bhaktivedanta Swami Prabhupada.
- **Founded In:** New York City, USA.
- **Year:** 1966.
- **Aim:** To promote **Krishna** Consciousness and devotional service to Krishna as the Supreme Godhead.
- **Features:**
 - Largest branch of **Gaudiya Vaishnavism**, rooted in 16th-century India.
 - Emphasizes chanting the **Hare Krishna Mahamantra**.
 - Engages in public bhakti practices like **Sankirtan, yoga seminars**, and festivals.
 - Runs social initiatives, including free food distribution, schools, eco-villages, and hospitals.

Insta links:

1. [ISKCON](#)

9. NOTRE-DAME CATHEDRAL

Context:

Notre-Dame Cathedral in Paris, a renowned symbol of French Gothic architecture and cultural heritage, is set to reopen on December 7, 2024, after extensive renovations following the devastating fire in April 2019.

About Notre-Dame Cathedral:

- **Location:** Situated on an island in the Seine River, Paris, France.
- **Architecture:** An iconic example of French Gothic style, featuring rib vaults, flying buttresses, stained-glass windows, and carved gargoyles.
- **Historical Significance:**
 - Construction began in 1160 and completed by 1260.
 - Hosted Napoleon I's coronation as Emperor in 1804.
 - Holds the Holy Crown of Thorns and relics from the crucifixion of Jesus.
- **Cultural Importance:** Setting of Victor Hugo's *The Hunchback of Notre-Dame* and celebrated worldwide in literature and film.

Insta links:

1. [Notre dame](#)

10. SHAHI JAMA MASJID IN SAMBHAL

Context:

The Supreme Court of India has directed a temporary halt to the survey of the Shahi Jama Masjid in Sambhal, Uttar Pradesh, amid claims by Hindu petitioners that it was built on a demolished Hindu temple.



About Sambhal Mosque:

- **Construction:** Built during the reign of Mughal Emperor Babur (1526–1530) by his general, Mir Hindu Beg.

Architecture:

- Positioned on a hill in Sambhal.
- Features a square mihrab hall with a dome, surrounded by arches.
- Constructed with stone masonry and plaster, similar to the Budaun mosque.

- **Historical Repairs:** Renovated during the reigns of Jahangir and Shah Jahan in the 17th century.

Cultural Beliefs:

- Local Hindu tradition claims it incorporates remnants of a Vishnu temple.
- Believed to be linked to Kalki, the tenth avatar of Vishnu.

- **Historical Debate:** Some scholars suggest earlier Tughlaq-era origins, with modifications by Babur.

Insta links:

1. [Places-of-worship-act-1991](#)

11. GREAT STUPA AT SANCHI

Context:

The two-day Mahabodhi Mahotsav is being held at the Great Stupa at Sanchi, Madhya Pradesh, a UNESCO World Heritage Site.

- The event includes religious ceremonies honoring the relics of Lord Buddha's chief disciples, **Sariputra and Maudgalyayana**, highlighting the cultural and spiritual significance of Sanchi Stupa.



About Sanchi Stupa:

- **Historical Significance:** Commissioned by Emperor Ashoka in the 3rd century BCE and later expanded by Shunga and Satavahana rulers.
- **Architectural Features:**
 - Large hemispherical dome (**Anda**) symbolizing the universe.
 - **Chatras** (umbrella structures) on top, signifying royalty and divine protection.
 - **Harmika** (balcony) atop the dome representing the abode of the gods.
 - **Medhi** stores relics and serves as the base of the stupa.
 - **Toranas:** Four elaborately carved gates

depicting Buddha's life events and Jataka tales, pointing to four cardinal directions.

- **Vedica:** Railings enclosing the stupa for sacred protection.
- **Paradakshinapatha:** Pathways for circumambulation by devotees.
- **Symbolism:** Early Buddhist aniconism; Buddha represented through symbols like footprints, wheels, or empty thrones rather than direct depictions.
- **Inscriptions:** Includes Ashokan Lion Capital and inscriptions in Brahmi and Kharosthi scripts.
- **UNESCO Status:** Declared a [World Heritage Site](#) in 1989.

Insta Links:

1. [Great-Stupa-of-Sanchi](#)

History

12. SHAHJAHANPUR & 1857 REBELLION

Context:

In Shahjahanpur, Uttar Pradesh, a remarkable cache of weapons believed to be from the 1857 Indian Rebellion was unearthed by a farmer.

Shahjahanpur in the 1857 Rebellion:

- **Formation and Context:** Shahjahanpur district, formed in 1813-14 under British administration, became a key site of the 1857 uprising due to local grievances and revolutionary fervour.
- **Role of Sepoys:** The 28th Indian Infantry, stationed in Shahjahanpur, was central to the rebellion, angered by rumours of greased cartridges and adulterated flour.
- **Initial Uprising:** On **May 31, 1857**, sepoys attacked the European gathering at the Roman Catholic Church, seized the treasury, and released prisoners from the jail.
- **Governance by Revolutionaries:** Revolutionary leaders **Qadir Ali Khan** and **Ghulam Husain Khan** were appointed joint governors, declaring British rule overthrown in the district.
- **Resistance Against British Recapture:** Freedom fighters confined British troops in a fortified jail for 10 days during the British counterattack in 1858. Betrayal by locals and reinforcements eventually allowed the British to regain control.
- **Violent Repression:** After recapturing Shahjahanpur, the British brutally suppressed the self-rule movement, quelling the revolutionary fervor in the region.
- **Significance:**
 - Shahjahanpur played a key role in the 1857 Rebellion, housing revolutionaries like [Maulvi Ahmadullah Shah and Nana Sahib](#).

- It showcased widespread discontent and the symbolic destruction of British authority.

Insta links:

1. [1857 Rebellion](#)

13. MAULANA ABUL KALAM AZAD

Context:

Prime Minister Narendra Modi paid tribute to Maulana Abul Kalam Azad on his birth anniversary, recognizing his contributions to India's freedom movement and his legacy as a beacon of knowledge and education reform.

About Maulana Abul Kalam Azad:

- **Birth and early life:**
 - Born in 1888 in Mecca, Saudi Arabia; original name: Muhiyuddin Ahmad.
 - Known as "Abul Kalam" for his eloquence and debating skills.
- **Role in Journalism and Nationalism:**
 - Founded Urdu weekly **Al-Hilal** (1912) and **Al-Balagh** (1914) to promote Indian nationalism and Hindu-Muslim unity.
 - Both journals were banned by the British for their revolutionary content.
- **Political contributions:**
 - Strong advocate for Hindu-Muslim unity and opposed Partition.
 - Joined the Indian National Congress in 1920 and became its **youngest President** in 1923.
- **Imprisonment:**
 - Arrested in 1930 during Gandhiji's Salt Satyagraha and detained in Meerut jail for 1.5 years.
- **Educationist and Reformer:**
 - First Education Minister of Independent India (1947-58); emphasized universal and liberal education.
 - Played a major role in founding IITs, IISc, and UGC.
- **Cultural and Academic Contributions:**
 - Helped establish **Jamia Millia Islamia University**.
 - Founded **Sahitya Akademi**, **Sangeet Natak Akademi**, and **Lalit Kala Akademi**.
 - Initiated the **Indian Council for Cultural Relations (ICCR)**.
- **Literary works:**
 - Authored **India Wins Freedom**, **Basic Concept of Quran**, and **Ghubar-e-Khatir**.
- **Recognition:**
 - Posthumously awarded **Bharat Ratna** in 1992.

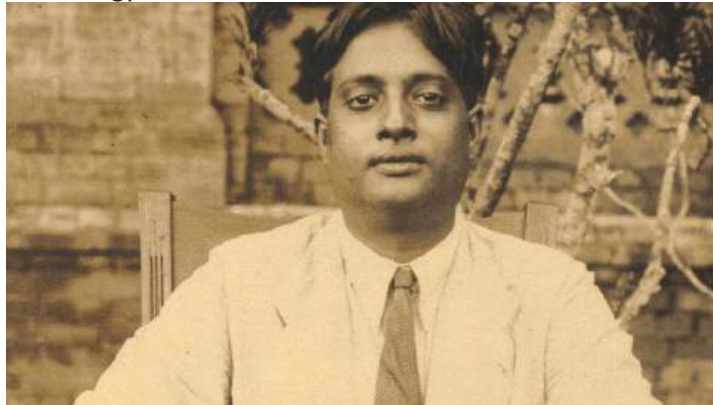
Insta links:

1. [Freedom fighters](#)

14. SATYENDRA NATH BOSE

Context:

India celebrates the centenary of Bose-Einstein Statistics, a groundbreaking contribution by physicist Satyendra Nath Bose, which revolutionized quantum mechanics and paved the way for significant advancements in physics and technology.



About Satyendra Nath Bose:

Background:

- **Born:** January 1, 1894, in Calcutta, India.
- Inspired by teachers like Jagadish Chandra Bose and Prafulla Chandra Roy.
- **Career:** Began as a physics lecturer at Calcutta University (1916), later joined Dhaka University (1921).
- Known for his groundbreaking work in quantum mechanics and statistical physics.

His Work:

- **Planck's Law and Photon Gas:**
 - Derived **Planck's law** using a novel statistical method treating light as a photon gas.
 - Developed new techniques for counting photon states, forming the basis of **Bose-Einstein statistics**.
- **Collaboration with Einstein:**
 - Sent his paper on radiation to **Albert Einstein**, who translated it into German and published it.
 - Einstein extended Bose's work to atoms, leading to the theory of **Bose-Einstein condensates** and the ideal quantum gas.
- **Bosons:**
 - Bose-Einstein statistics apply to particles with integer spins, named **bosons (by Paul Dirac)** in his honor.
 - Bosons do not obey the **Pauli Exclusion Principle**.
- **Bose-Einstein Condensates (BECs):**
 - Predicted a **new state of matter** where bosons condense into the lowest quantum state at near absolute zero temperatures.
 - Experimentally confirmed in 1995 using rubidium and sodium atoms, earning a Nobel Prize for **Eric Cornell, Carl Wieman, and Wolfgang Ketterle in 2001**.

Awards and Recognition:

- Despite his pivotal contributions, **Bose was never awarded a Nobel Prize**.
- Worked with notable scientists, including Marie Curie and Albert Einstein, during his two-year tenure in European laboratories.

Significance:

- **Foundational Work:** Bose-Einstein statistics and condensates are foundational in modern quantum mechanics and statistical physics.
- **Technological Impact:** Integral to the understanding of lasers, superconductivity, and quantum mechanics.
- **Future Implications:** BECs hold potential for unraveling mysteries like dark energy and advancing research in quantum computing.

Insta links:

2. [Fifth-state-of-matter](#)

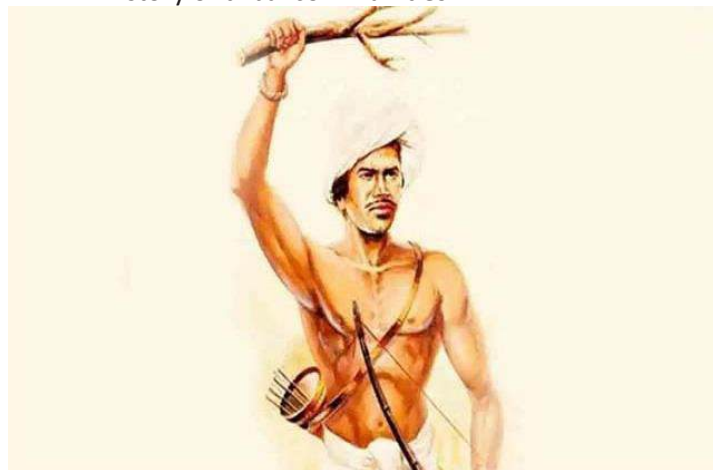
15. BIRSA MUNDA

Context:

To honor the **150th birth anniversary of tribal leader Birsa Munda**, Prime Minister will interact with beneficiaries of the Pradhan Mantri Janjati Adivasi Nyay Maha Abhiyan and launch the 'Dharti Aaba Janjatiya Gram Utkarsh Abhiyan' to uplift tribal communities across India.

About Janjatiya Gaurav Divas:

- **Launched In:** 2021
- **Aim:** To honor the contributions of tribal leader Birsa Munda and celebrate the cultural heritage and history of tribal communities.



About Dharti Aaba Janjatiya Gram Utkarsh Abhiyan:

- **Objective:** To enhance the socio-economic well-being of tribal communities through targeted development programs.
- **Scope:** National campaign focusing on education, healthcare, employment, and preservation of tribal traditions.
- **Significance:** Encourages inclusive development and empowerment of tribal regions.

About Birsa Munda:

- **Tribal Leader:** Folk hero and freedom fighter from the Munda tribe in the Chotanagpur Plateau.
- **Contributions:**
 - Led the **Munda Rebellion (Ulgulan)** against British land policies and taxes.
 - Advocated for tribal rights, self-rule, and ownership of land.
 - Instrumental in the **Chotanagpur Tenancy Act (1908)** that restricted tribal land transfer to non-tribals.
- **Religious Role:**
 - Founded the **Birsait faith**, emphasizing monotheism and tribal traditions.
 - Revered as **'Dharti Aba' (Father of the Earth)** among tribal followers.
- **Legacy:**
 - Passed away at age 25 in 1900.
 - His birth anniversary, November 15, is celebrated as **Janjatiya Gaurav Divas**.
 - The state of Jharkhand was created on his birth anniversary in 2000 in his honor.

Insta Links:

2. [Tribal-movements - Munda-rebellion](#)

16. ST. FRANCIS XAVIER

Context:

The decennial exposition of the sacred relics of St. Francis Xavier in Goa, a 45-day spiritual and cultural event, draws millions of pilgrims and tourists.

About St. Francis Xavier:

- **Name:** St. Francis Xavier, also called "Goencho Saib" (Lord of Goa).
- **Arrival in Goa:** Arrived in 1542 as a Spanish Jesuit missionary under the order of King John III of Portugal.
- **Mission:** To restore Christianity among Portuguese settlers in Goa.
- **Death:** Died in 1552 on Shangchuan Island, China, and his body was transported to Goa in 1554.
- **Relics:** The "incorruptible" body is housed in the Basilica of Bom Jesus, Old Goa, since 1624.
- **Legacy:** Canonized as a saint in 1622; revered globally, especially by Catholics.
- **Patronage:** Considered the patron saint of Goa and known for his miraculous relics.

Insta Links:

2. [St-Francis-Xavier](#)

17. KANHIRAPOIL MEGALITHIC SITE

Context:

Megalithic carvings unearthed at Kanhirapoil, Kerala, reveal India's rich prehistoric heritage, offering insights into ancient

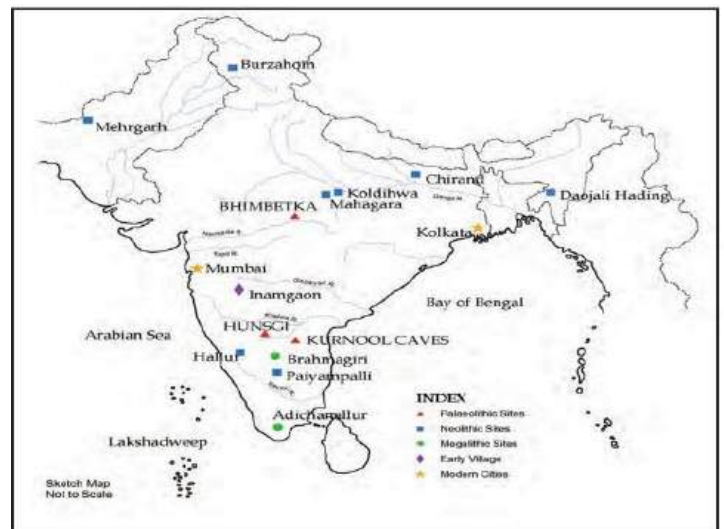
rituals and cultural practices.

About Kanhirapoil megalithic site:

- **Discovery details:** 24 pairs of carved footprints and a human figure were found on a private property in Madikkai grama panchayat, Kasaragod, Kerala.
- **Artistic features:** Carvings include footprints of varying sizes (6–10 inches), likely representing both children and adults, with a human figure accompanied by circular pits.
- **Cultural parallels:** The findings resemble prehistoric rock art at Avalakki Pera in Udupi and other sites in Kerala, including Edakkal Caves and Erikulam Valiyapara.

About Megaliths:

- **Definition:** Megaliths are monuments made of large stones, often serving as burial sites away from settlements.
- **Chronology:**
 - Megalithic cultures in South India date from the **3rd B.C. to the 1st A.D.** as per Brahmagiri excavations.
- **Geographical spread:**
 - Found in Deccan (south of Godavari), Punjab Plains, Indo-Gangetic basin, Rajasthan, Gujarat, and Burzahom in Jammu and Kashmir.
- **Iron usage:**
 - A hallmark of this period, with iron tools for agriculture and weapons discovered across sites like Junapani (Vidarbha) and Adichanallur (Tamil Nadu).
- **Cultural elements:**
 - Subsistence through agriculture, hunting, and animal husbandry; rock paintings depict hunting scenes, cattle raids, and group dances.



Insta links:

3. [Doddalathur-megalithic-site](#)

18. KANHAIYALAL MANEKLAL MUNSHI

Context:

The article was published regarding K M Munshi contribution in freedom movement.

Kanhaiyalal Maneklal Munshi (Ghanshyam Vyas)

- **Birth:** Born on 30th December 1887, in Gujarat.
- **Freedom Fighter:**
 - Active in **Indian Home Rule Movement** as Secretary in 1915.
 - Participated in **Civil Disobedience Movement (1930, 1932)** and **Individual Satyagraha (1940)**; jailed twice.
- **Political Roles:**
 - Elected to **Bombay Legislative Assembly (1927, 1937)**; resigned during Bardoli Satyagraha.
 - Served as **Home Minister of Bombay Presidency**, managing communal riots.
- **Educational Contributions:**
 - Founded **Bharatiya Vidya Bhavan** in 1938, a renowned educational trust.
- **Literary Achievements:**
 - Authored over **50 books in Gujarati and English**, including *Krishnavatara* and *Saga of Indian Sculpture*.
- **Philosophical Influences:**
 - Influenced by **Shri Aurobindo**, aligning with revolutionary ideas initially.
- **Death:** Passed away on 8th February 1971.

Insta Links:

1. [K M Munshi](#)

19. WOMEN IN THE CONSTITUENT ASSEMBLY

Context:

The Indian Constitution, a monumental framework for governance, was shaped by the contributions of **299 members** of the Constituent Assembly, including **15** remarkable women from diverse backgrounds.



About Women in the [Constituent Assembly](#):

Ammu Swaminathan (1894-1978)

- **Background:** Hailed from Palakkad, Kerala; married Subbarama Swaminathan.
- **Contributions:** Advocated for gender equality and spoke on the Hindu Code Bill despite male-dominated ridicule.

Annie Mascarene (1902-1963)

- **Background:** Born in Travancore, Latin Christian family; academic brilliance led her to law.
- **Contributions:** Advocated for universal adult franchise and a strong Centre while promoting local government autonomy.

Begum Qudsia Aizaz Rasul (1909-2001)

- **Background:** From a royal family in Punjab; opposed purdah after marriage.
- **Contributions:** Opposed separate electorates for religion and debated Muslim upliftment and Indian nationalism.
- **Post-independence:** Elected to the Rajya Sabha; promoted women's hockey.

Dakshayani Velayudhan (1912-1978)

- **Background:** First Dalit woman graduate in science; Pulaya community.
- **Contributions:** Opposed separate electorates, emphasizing nationalism and equality.

Renuka Ray (1904-1997)

- **Background:** Born in Pabna, now Bangladesh; studied at LSE after meeting Gandhi.
- **Contributions:** Advocated for Hindu Code Bill, women's rights to inheritance, and opposed women's reservation as a barrier to growth.

Insta Links:

2. [Constituent-assembly](#)

[Society](#)

20. MORAN AND MOTTOCK COMMUNITIES

Context:

The Moran and Mottock **communities in Assam** staged a large-scale protest in Tinsukia, demanding Scheduled Tribe (ST) status.



About the Moran Community:

- **Ethnic Background:**
 - Indigenous group from **Assam and Arunachal Pradesh.**
 - Of Tibeto-Burman origin, part of the **Kachari family.**
- **Language and Culture:**
 - Historically spoke Moran language, closely related to Dimasa, but now predominantly speak Assamese.
 - Former customs are now interwoven with **Vaishnavism** after conversion.
- **Current Demand:**
 - Seeking ST status for better educational, employment, and social welfare opportunities.

Other Communities in News:

- **Mottock:** Indigenous group sharing similar demands for ST status.
- **Tai Ahoms:** A prominent community in Assam with historical ties to the Ahom kingdom, demanding ST status.
- **Koch Rajbongshis:** Indigenous to Assam and Bengal, seeking recognition for their cultural and social identity.
- **Chutias:** Historically significant community, also fighting for ST categorization.
- **Adivasis:** Indigenous tribes, largely comprising tea garden workers, aiming for similar inclusion under ST status.

Insta Links:

2. [A-tribe-out-of-time](#)

21. SAMI, FOREST FINNS, AND KVENS TRIBES

Context:

The Norwegian Parliament issued a formal apology to the Sami, Forest Finns, and Kvens for the historical injustices caused by its **“Norwegianisation” policy.**

- This forced assimilation, practiced from the 18th century until the 1980s, led to cultural erasure, loss of languages, and forced relocations.



About Tribes in News:

1. **Sami People:**

- Indigenous to Norway, Sweden, Finland, and Russia.
- Traditionally reindeer herders and fishers.
- Suffered loss of language, culture, and land under assimilation policies.
- Advocacy for their land and rights continues today.

2. **Kvens:**

- Ethnic minority of Finnish descent in northern Norway.
- Historically subjected to forced assimilation and loss of language.
- Continue to seek reparations and cultural revival.

3. **Forest Finns:**

- Minority group originally from Finland who settled in Norway and Sweden.
- Practiced slash-and-burn agriculture, later marginalized by assimilation policies.
- Struggle to preserve their cultural identity and heritage.

Insta Links:

3. [Tribes-in-news](#)

22. SIDDI COMMUNITY

Context:

Rhythm of Dammam spotlights the marginalized Siddi community, descendants of African slaves brought to India centuries ago, through the lens of 12-year-old Jayaram Siddi, played by Chinmaya Siddi.



About the Siddi Tribe:

- **Descendants:** Primarily of Bantu peoples from East Africa, brought to the Indian subcontinent through the slave trade, as well as soldiers, sailors, and merchants.
- **History:**
 1. First arrived at Bharuch port in 628 AD with

Arab merchants.

2. Later brought as slaves by Arab conquerors, Portuguese traders, and Deccan Sultanates.
 3. Prominent historical figures include Malik Ambar and Jamal-ud-Din Yaqut.
- **Distribution in India:** Concentrated in Karnataka, Goa, Gujarat, Maharashtra, Andhra Pradesh, and Tamil Nadu, often in rural or forested areas.
 - **Features:**
 1. Diverse religions—Muslims, Hindus, and Christians.
 2. Unique cultural practices like the use of **dammam, duf, and gumte** instruments, and shared rituals like ancestor worship.
 3. Languages include Konkani, Urdu, Marathi, and regional dialects.

Insta Links:

2. [Tribes-in-news](#)

23. BAL VIVAH MUKT BHARAT CAMPAIGN

Context:

The Union Minister for Women and Child Development recently launched the “Bal Vivah Mukta Bharat Campaign”, a national initiative aimed at eradicating child marriage in India by engaging multiple stakeholders and leveraging technology.

- The campaign focuses on reducing child marriage **rates to below 5% by 2029.**

About Bal Vivah Mukta Bharat Campaign:

- **Objective:** To eliminate child marriage through collective efforts and focus on high-burden states and districts.
- **Target States:** West Bengal, Bihar, Jharkhand, Rajasthan, Tripura, Assam, and Andhra Pradesh, along with nearly 300 high-burden districts.
- **Child Marriage Free Bharat Portal:** A platform to raise awareness, report cases, and monitor progress with real-time tracking by Child Marriage Prohibition Officers (CMPOs).
- **Monitoring Mechanism:** Central nodal officers and state-level CMPOs will ensure accountability and support for affected individuals.
- **Goal:** Reduce child marriage rates to below 5% by 2029; rates have already dropped from 47.4% (2006) to 23.3% (2019-21).
- **Awareness Drive:** Public access to information and complaint registration via the portal.

Insta Links:

3. [Child-marriage](#)

Geography

24. PARAGLIDING

Context:

Polish paraglider Andrew Babinski was stranded in Himachal Pradesh’s Dhauladhar hills after a mid-air collision with another participant, while rescue efforts failed due to difficult terrain. Separately, an Australian competitor in the **Paragliding World Cup 2024**, which began on November 2 with 94 participants from 26 countries, sustained a leg injury before takeoff despite strict safety protocols.



About Dhauladhar Hills:

- **Location:** The Dhauladhar range is part of the Lesser Himalayan mountains, stretching from the north of Kangra and Mandi in Himachal Pradesh to near Badrinath in Uttarakhand.
- **Elevation:** The elevation ranges widely from about 3,500 meters to nearly 6,000 meters.
- **Topography:** Primarily composed of granite, with limestone and sandstone deposits in some areas.
- **Highest peak:** Hanuman Tibba is the highest peak in the Dhauladhar range.
- **Glacial lakes:** The Lam Dal Lake is a notable glacial lake located within this range.
- **Major pass:** Indrhar Pass, which serves as a boundary between the Kangra and Chamba districts in Himachal Pradesh, is a popular trekking route in the Dhauladhar.

About Bir:

- **Location:** Bir is a rural village in the Joginder Nagar Valley, situated in the **Dhauladhar range foothills** within Kangra district, Himachal Pradesh.
- **Reputation:** Known as the “Paragliding Capital of India,” attracting enthusiasts for adventure sports and international competitions.
- **Cultural significance:** Home to Tibetan Buddhist monasteries of the Nyingma, Karma Kagyu, and Sakya schools, along with a large stupa.
- **Activities:** Ecotourism, spiritual studies, meditation, and trekking draw visitors throughout the year.
- **Tibetan colony:** Established in the early 1960s as a settlement for Tibetan refugees post-1959, forming a cultural hub with Tibetan influences.

Insta links:

1. [Places-in-news](#)
2. [Himalayas](#)

25. MĀORI GROUP

Context:

New Zealand’s parliament briefly paused as Māori Party MPs performed a haka to protest the **Treaty Principles Bill**, opposing changes to the 184-year-old Treaty of Waitangi.



About Māori Group:

- **Origin:** Indigenous Polynesian people of New Zealand (Aotearoa) who migrated from East Polynesia between 1320-1350.
- **Cultural Development:** Over centuries in isolation, the Māori developed a distinctive culture, including language, mythology, crafts, and performing arts.
- **Treaty of Waitangi:** Signed in 1840 with the British, it established coexistence but has been a source of ongoing political and economic redress.
- **Population:** Māori are the second-largest ethnic group in New Zealand, following European New Zealanders (Pākehā), with over 170,000 Māori living in Australia.

About Haka:

- **Definition:** A ceremonial dance in Māori culture expressing pride, strength, and unity.
- **Origin:** Traditionally an ancient war dance performed by **both men and women**.
- **Purpose:** Used for social functions, celebrations, welcoming guests, or as a war cry/challenge.
- **Expression:** Involves vigorous movements, rhythmic chanting, foot-stomping, and body-slapping.

Insta Links:

1. [Maori group](#)

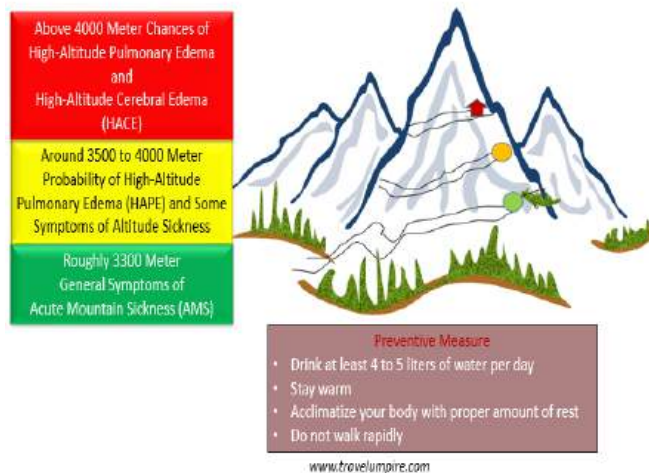
26. HIGH-ALTITUDE SICKNESS

Context:

The recent death of a trekker in Uttarakhand due to

respiratory failure highlights the critical dangers posed by high-altitude sickness in the [Himalayas](#).

Types of altitude sickness according to the Height



What is High-Altitude Sickness?

- **Definition:** High-Altitude Sickness, also known as Acute Mountain Sickness (AMS), occurs when the body struggles to acclimatize to low oxygen levels at elevations above 8,000 feet (2,400 meters).
- **Types:**
 - **HAPE:** High-Altitude Pulmonary Edema (fluid in lungs).
 - **HACE:** High-Altitude Cerebral Edema (fluid in brain).
- **Symptoms:** Headache, nausea, fatigue, shortness of breath, confusion, and, in severe cases, coma.

Why Does It Happen?

- **Low Oxygen Levels:** Reduced oxygen in the air leads to hypoxia in body tissues.
- **Physiological Strain:**
 - Hyperventilation increases breathing rate.
 - Thicker blood due to increased red blood cell production strains the heart.
- **Rapid Ascent:** Climbing too quickly without acclimatizing exacerbates risks.

Preventive and Mitigative Measures:

- **Gradual Ascent:**
 - Rest every 3-4 days at altitudes above 3,000 meters.
 - Avoid sleeping elevation increases of more than 500 meters per day.
- **Medications:**
 - **Acetazolamide:** Enhances acclimatization.
 - **Dexamethasone:** Reduces severe inflammation.
 - **Nifedipine:** Preventive for those prone to HAPE.

Insta Links:

1. [Altitude-sickness](#)

GS-2

Salient features of Indian Constitution

1. CONSTITUTION MUSEUM

Context:

India's first Constitution Museum was inaugurated at OP Jindal Global University in Sonapat, Haryana, to commemorate and celebrate the drafting, principles, and evolution of the Indian Constitution.

About Indian Constitution Museum:

- **Location:** OP Jindal Global University, Sonapat, Haryana.
- **Maintained by:** OP Jindal Global University in collaboration with the Centre for Museums.
- **Features:**
 - **Photolithographic constitution copy:** A centerpiece featuring one of 1,000 original reproductions.
 - **360-degree visual display:** Chronicles pre-Independence India and significant events in drafting the Constitution.
 - **Busts of Constituent Assembly Members:** Nearly 300 sculptures honoring their contributions.
 - **Dr. BR Ambedkar section:** Hologram and interactive displays featuring his philosophies, speeches, and writings.
 - **Multimedia presentations:** Interactive insights into the drafting and evolution of the Constitution.

Insta links:

1. [Constitution-avoids-the-tight-mould-of-federalism](#)

Elections

2. ELECTRONIC VOTING MACHINE

Context:

During the Haryana Assembly elections, Congress raised concerns about EVM battery life discrepancies, questioning why some EVMs showed 99% charge after polling

About Electronic Voting Machine (EVM):

- **Purpose:** Portable device for conducting elections to the Parliament, State Legislatures, and local bodies, enabling electronic voting over traditional paper ballots.
- **Key Features:**
 - **Voting capacity:** Records up to 2,000 votes for efficient election handling.
 - **Secure storage:** Encrypted memory ensures

- confidentiality of votes.
- **Backup power:** Alkaline batteries enable use in remote areas without electricity.
- **Multilingual options:** Supports multiple languages for voter accessibility.
- **Audit trail (VVPAT):** Voters can verify their votes with a paper trail for audit purposes.
- **Development:** Designed by the Election Commission's Technical Experts Committee, manufactured by **Bharat Electronics Limited (BEL)** and **Electronics Corporation of India Limited (ECIL)**, both Indian PSUs.

About EVM batteries:

- **Battery type:** EVMs and VVPATs use non-rechargeable alkaline batteries chosen for reliability and a five-year shelf life.
- **Voltage display:** The 99% indicator reflects a voltage range (8.2V to 7.4V) rather than exact charge. Actual percentage only appears below 7.4V.
- **Choice rationale:** Alkaline batteries were selected for their stable performance in extreme temperatures and gradual power decline, ensuring uninterrupted function.
- **Power use:** EVMs consume minimal power, remaining disconnected from networks, unlike mobile phones, which ensures battery longevity.

Insta links:

1. [Supreme-court-verdict-on-EVMs](#)

Functioning of Parliament and State Legislatures

3. PLACES OF WORSHIP ACT, 1991

Context:

The Shahi Jama Masjid in Sambhal, Uttar Pradesh, faces disputes over claims it was built on a Hindu temple site, raising protests and invoking the Places of Worship Act, 1991.

About Places of Worship Act, 1991:

- **Objective:** Prohibits the conversion of a place of worship and ensures its religious character as on **August 15, 1947**.
- **Key Provisions:**
 - **Section 3:** Bars conversion of a place of worship, either wholly or partly, to a different denomination or segment.
 - Maintains the **religious status quo** of all places of worship as of Independence Day, 1947.
 - Prohibits legal suits or claims to alter the status of any place of worship.
- **Exemptions:**
 - **Ayodhya dispute:** Excluded as the case was sub-judice at the time.
 - **Ancient monuments:** Covered under the

[Ancient Monuments and Archaeological Sites and Remains Act, 1958.](#)

- Disputes resolved by **mutual consent** or settled before the law's enforcement.
- **Significance:** Aims to maintain **communal harmony** by preventing religious conflicts over historical claims.

Insta Links:

4. [The-places-of-worship-act](#)

Judiciary

4. PROPERTY OWNERS ASSOCIATION V. STATE OF MAHARASHTRA JUDGEMENT

Context:

The Supreme Court recently held in a 7:2 decision that not all private properties can be classified as “material resources of the community” under Article 39(b) of the Indian Constitution.

Background:

- **Article 39(b):** Part of the [Directive Principles of State Policy](#), this article mandates that the state should direct policies to distribute ownership and control of resources in a way that best serves the common good.
- **Key Cases:**
 - **State of Karnataka v. Ranganatha Reddy (1978):** Justice Krishna Iyer argued that material resources of the community included all resources, whether publicly or privately owned.
 - **Sanjeev Coke Manufacturing v. Bharat Coking Coal Ltd. (1982):** Affirmed Justice Iyer's view on the broader interpretation of Article 39(b).
 - **Mafatlal Industries Ltd. v. Union of India:** Supported the notion that material resources of the community could include privately owned assets.

About 2024 Case Overview:

- **Case name:** Property Owners Association v. State of Maharashtra
- **Outcome:** The [Supreme Court](#) clarified that:
 - Only certain private resources, based on factors like their impact on the community and scarcity, could be considered material resources under Article 39(b).
 - The judgment overturned the broad interpretation by Justice Iyer, asserting that not all private properties qualify as resources to be equitably distributed by the state.

- The court upheld that material resources should primarily cover state-owned resources or private resources with significant community value.

Insta Links:

5. [DPSP](#)

Governance

5. NAMO DRONE DIDI

Context:

The Government of India has launched the “Namo Drone Didi” scheme to empower women Self-Help Groups (SHGs) under the [Deendayal Antyodaya Yojana - National Rural Livelihood Mission](#) (DAY-NRLM).

About Namo Drone Didi Scheme:

- **Origin:** Launched by the Government of India under the DAY-NRLM initiative.
- **Aim:** To provide women [SHGs](#) with drones for agriculture-related services, empowering them with new income sources while enhancing farming efficiency.
- **Ministry:** Administered by the Department of Agriculture & Farmers' Welfare, Ministry of Agriculture, in partnership with the Ministry of Rural Development.
- **Features:**
 - **Financial Support:** Central Financial Assistance covering 80% of the drone cost, capped at ₹8 lakh per drone.
 - **Loan Assistance:** SHGs can secure loans for the remaining cost through the National Agriculture Infrastructure Fund (AIF) with 3% interest subvention.
 - **Drone Package:** Includes drones with spray systems, additional battery sets, training for a pilot and drone assistant, a one-year warranty, two years of maintenance, and insurance.
 - **Training and Support:** SHG members receive 15-day training for drone operation, maintenance, and agricultural use.
 - **Implementation:** State-level Lead Fertilizer Companies (LFCs) and State Departments manage implementation, with drones allocated to SHG clusters.
 - **Monitoring:** An IT-based Management Information System (MIS) Drone Portal will monitor drone operations and service delivery.

Insta Links:

1. [Deendayal-Antyodaya-Yojana](#)

6. DIGITAL INDIA COMMON SERVICE CENTER PROJECT

Context:

The Digital India Common Service Center (DICSC) project is an initiative by the Ministry of Electronics and Information Technology (MeitY) aimed at bridging the digital divide in rural areas by providing digital services at the grassroots level.

About Digital India Common Service Center Project:

- **Origin:** Launched under the [Digital India initiative](#) by MeitY to improve rural digital access by setting up model centers in gram panchayats across select districts.
- **Aim:** Provide rural citizens with e-governance, financial, and digital services, promoting inclusion and digital literacy.
- **Ministry:** Ministry of Electronics and Information Technology (MeitY), with CSC e-Governance Services India Ltd. overseeing execution.
- **Key features:**
 - **Centers:** 4,740 centers across 10 districts, including Pilibhit and Gorakhpur.
 - **Services:** Aadhaar, banking, tele-law, telemedicine, education, and e-commerce.
 - **Infrastructure:** High-speed broadband, modern facilities, and GPS-enabled mobile vans.
 - **Economic boost:** Supports job creation and Village Level Entrepreneurs (VLEs).
 - **Budget:** ₹31.6 crore for six months, extendable to nine.

Insta Links:

1. [Digital-India](#)

7. INTERMEDIARY VS PUBLISHER

Context:

The Union government has issued a notice to Wikipedia questioning its status as an intermediary under the IT Act, citing complaints of biases and editorial control.

About Intermediary (as per the IT Act):

- **Definition:** Entities that store, receive, or transmit information created by third parties.
- **Criteria:** To qualify, they must not have editorial control over content and should not create content directly.
- **Liability Shield:** Intermediaries are not liable for third-party content hosted on their platforms.
- **Due Diligence:** They must ensure illegal content is not posted by users and adhere to the IT Rules.
- **Penalization:** If found failing to meet these standards, intermediaries' risk being classified as publishers, which can expose them to criminal liabilities.

About Publisher (as per the IT Act):

- **Definition:** Entities that produce, edit, or publish original content.
- **Criteria:** Publishers have control over what content appears on their platforms and are involved in content creation.
- **Liability:** Publishers are fully responsible for all content and are open to legal actions based on that content.
- **Due Diligence:** Publishers must comply with regulations but are directly liable for any defamatory, inaccurate, or unlawful content.
- **Penalization:** They face criminal penalties for content violations, such as defamation or misinformation, since they hold editorial authority.

Insta links:

2. [Information-technology-act-2000](#)

8. PM E-DRIVE SCHEME

Context:

The PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) scheme, launched by the Indian government, aims to accelerate electric vehicle (EV) adoption, develop necessary charging infrastructure, and create a robust EV manufacturing ecosystem in the country.



PM E-DRIVE Scheme: Eligible Categories

- e-2 Wheelers (e-2Ws)
- e-3 Wheelers (e-3Ws) including registered e-rickshaws & e-carts and L5
- e-Ambulances
- e-Trucks
- e-Buses
- Charging infra
- Upgradation of Testing Agencies

About PM E-DRIVE Scheme:

- **Launch date:** October 1, 2024.
- **Ministry:** Ministry of Heavy Industries.
- **Budget:** Financial outlay of Rs. 10,900 crores.
- **Duration:** Active until March 31, 2026.
- **Objective:** Encourage [EV adoption](#), reduce environmental impact from transport, and support domestic EV manufacturing.
- **Key components:**
 - **Subsidies:** Incentives for e-2Ws, e-3Ws, e-ambulances, e-trucks, and other EVs.
 - **Grants for Capital Assets:** Fund e-buses,

charging stations, and upgrade MHI testing facilities.

- **Administration:** Includes IEC activities and project management agency fees.
- **Eligibility criteria:**
 - **Electric two-wheelers:** Incentives are available for 24.79 lakh e-2Ws with advanced batteries, covering both private and commercial ownership.
 - **Electric three-wheelers:** Around 3.2 lakh e-3Ws, including registered e-rickshaws and L5 vehicles, qualify if used commercially and equipped with advanced batteries.
 - **Electric ambulances:** Rs. 500 crore supports e-ambulances, with standards set by the Ministry of Health and other stakeholders.
 - **Electric trucks:** Rs. 500 crore is allocated for e-trucks, requiring a scrapping certificate from a MoRTH-approved center.
 - **Electric buses:** Rs. 4,391 crore funds 14,028 e-buses for large cities, prioritizing STUs that retire older buses under MoRTH guidelines.

Insta Links:

3. [PM-E-DRIVE-scheme](#)

9. PM VIDYALAXMI SCHEME

Context:

The Union Cabinet, has approved the PM Vidyalaxmi Scheme, aimed at providing financial support to meritorious students, ensuring that financial challenges do not hinder anyone in India from pursuing quality higher education.

About PM Vidyalaxmi Scheme:

- **Objective:** To provide financial assistance to meritorious students, eliminating financial constraints in accessing quality higher education.
- **Eligibility:** Available to students admitted to top 860 [HEIs](#) in India, as per NIRF rankings, covering over 22 lakh students annually.
- **Loan features:** Offers collateral-free, guarantor-free education loans with a user-friendly, digital application process.
- **Credit guarantee:** Government provides a 75% credit guarantee on loans up to ₹7.5 lakhs, supporting banks in loan expansion.
- **Interest subvention:** For families with an annual income up to ₹8 lakhs, a 3% interest subvention

is provided on loans up to ₹10 lakhs. Full interest subvention is available to students with family incomes up to ₹4.5 lakhs under the PM-USP scheme.

- **Unified portal:** The scheme will be accessible through the “PM-Vidyalaxmi” portal, enabling easy loan applications and interest subvention processing via e-vouchers and CBDC wallets.
- **Complementary schemes:** Supplements existing schemes like CSIS and CGFSEL under PM-USP, offering comprehensive support for technical and professional courses in approved HEIs.

Insta links:

2. [Higher-education-in-India](#)

10. QS WORLD UNIVERSITY RANKINGS: ASIA 2025

Context:

The QS World University Rankings: Asia 2025 celebrates India’s significant progress in higher education, with **seven institutions in the top 100 and two in the top 50**.

- Indian universities excelled in metrics like **“Papers per Faculty”** and **“Staff with PhD,”** highlighting the nation’s focus on academic and research excellence.

Key Points from QS World University Rankings: Asia 2025:

- **Coverage:** Assessed 984 institutions across 25 Asian countries.
- **Top Rankings for India:**
 - **IIT Delhi:** Ranked 44th, India’s highest, with a 99% employer reputation score.
 - **IIT Bombay:** Ranked 48th, achieving 99.5% in employer reputation.
 - **University of Delhi:** Moved up to 81st with a 96.4% score in International Research Network.
- **Top 100 Institutions:** Seven Indian institutions made the cut, including IIT Madras (56), IIT Kharagpur (60), IISc Bangalore (62), and IIT Kanpur (67).
- **Emerging Leaders:** University of Petroleum and Energy Studies (UPES) climbed 70 spots to 148th.
- **Research Excellence:**
 - **Anna University:** Achieved a perfect score of 100 in “Papers Per Faculty.”
 - 15 universities scored above 99% in “Staff with PhD.”
 - **North Eastern Hill University and University of Agricultural Sciences,** Bangalore scored 100 in the “Faculty-Student” indicator.
- **Decade of Growth:** India now has 46 institutions in the rankings, up from 11 in 2015, marking a 318% increase.

About QS World University Rankings:

- **Organization:** Published annually by Quacquarelli Symonds (QS), a global higher education analytics

- firm based in London.
- **Focus Areas: Evaluates universities on four core dimensions:**
 - Research
 - Teaching
 - Employability
 - International Outlook
- **Performance Indicators: Uses six weighted metrics for assessment:**
 - **Academic Reputation (40%):** Reflects opinions of academic experts on teaching and research quality.
 - **Faculty/Student Ratio (20%):** Assesses teaching capacity based on student-to-teacher ratio.
 - **Citations Per Faculty (20%):** Measures research impact via citations over a five-year span.
 - **Employer Reputation (10%):** Surveys employers to gauge the perceived employability of graduates.
 - **International Faculty (5%):** Tracks the diversity of teaching staff.
 - **International Students (5%):** Indicates an institution’s global appeal to students.

Insta links:

3. [QS Ranking](#)

11. GRIEVANCE REDRESSAL ASSESSMENT AND INDEX (GRAI) 2023

Context:

The Grievance Redressal Assessment and Index (GRAI) 2023 was launched by the Union Minister, Dr. Jitendra Singh, to evaluate the effectiveness of grievance redressal mechanisms across 89 Central Ministries and Departments.

About GRAI 2023 Report:

- **Department Involved:**
 - Conceptualized and designed by Department of Administrative Reforms and Public Grievances (DARPG).
- **Departments Assessed:**
 - A total of **89 Ministries/Departments** assessed.
 - **Grouped based on grievance volume:**
 - **Group A:** >10,000 grievances (28 Ministries/Departments).
 - **Group B:** 2,000–9,999 grievances (33 Ministries/Departments).
 - **Group C:** <2,000 grievances (28 Ministries/Departments).
- **Dimensions & Indicators:**
 - **4 Dimensions:** Efficiency, Feedback, Domain, Organisational Commitment.

- **Indicators: 11 indicators** across the dimensions to evaluate performance.
- **Criteria:**
 - Data from CPGRAMS (**January–December 2023**).
- **Growth Trends:**
 - **85 out of 89** Ministries/Departments improved scores over 2022.
 - **57%** exhibited incremental growth up to 25%.

| Group | Composite Topper |
|---------|--|
| Group A | Department of Agriculture and Farmers Welfare |
| Group B | O/o Comptroller & Auditor General (CAG) |
| Group C | Department of Investment & Public Asset Management |

About Grievance Redressal Assessment and Index (GRAI):

- **Ministry:** Department of Administrative Reforms and Public Grievances (DARPG).
- **Launch Year:** 2022 (First edition released in 2023).
- **Aim:**
 - Present a comparative assessment of grievance redressal mechanisms.
 - Enhance transparency and citizen satisfaction in governance.
- **Data Source:** Centralized Public Grievance Redressal and Management System (CPGRAMS).
- **Reference Period:** January–December

Insta links:

[Grievance-redressal-mechanism](#)

12. “BHU-NEER” PORTAL

Context:

The Hon’ble Minister of Jal Shakti launched the “Bhu-Neer” portal during the ceremonial conclusion of India Water Week 2024.

About the “Bhu-Neer” Portal:

- **Ministry:** Ministry of Jal Shakti, developed by [Central Ground Water Authority](#) (CGWA) in collaboration with NIC.
- **Aim:** To regulate, manage, and monitor groundwater resources transparently and efficiently, promoting sustainability.
- **Key Features:**
 - **PAN-Based Single ID System:** Simplifies user registration for all stakeholders.
 - **NOC with QR Code:** Ensures verifiable and trackable compliance documentation.
 - **Streamlined Processes:** Simplifies permit application for groundwater withdrawal.
 - **Centralized Database:** Offers access to legal

frameworks, groundwater policies, and sustainable practices at state and national levels.

- **Ease of Doing Business:** Aligns with the Prime Minister's vision by making groundwater regulation seamless and faceless.

Insta links:

3. [Ground-water-contamination](#)

13. VISION PORTAL

Context:

Union Minister launched the **VISION Portal** (Viksit Bharat Initiative for Student Innovation and Outreach Network) to democratize startup skills and innovation among underprivileged children.

About VISION Portal:

- **Launch:** Inaugurated on **November 21, 2024**.
- **Ministry:** Operates under the **Ministry of Science and Technology**.
- **Aim:**
 1. Promote **education, skill development, and innovation** for underprivileged children.
 2. Democratize access to [startup ecosystems](#) and enable inclusivity.
- **Features:**
 1. Provides **mentorship** and **training** for students from remote areas.
 2. Facilitates access to **startup opportunities** across sectors like IT, agriculture, and biotechnology.
 3. Aligns with India's aspirations for [Vision India 2047](#), promoting economic growth and sustainability.

Insta links:

1. [Skill-development](#)

14. NATIONAL MISSION ON NATURAL FARMING

Context:

The Union Cabinet, approved the National Mission on Natural Farming (NMNF), promoting sustainable, chemical-free farming to improve soil health, cut input costs, and ensure nutritious food.

About National Mission on Natural Farming (NMNF):

- **Ministry:** Ministry of Agriculture & Farmers' Welfare.
- **Central Sponsored Scheme:** Total outlay of ₹2481 crore (Gol share ₹1584 crore; State share ₹897 crore) till FY 2025-26.
- **Aim:** To promote natural, [chemical-free farming](#) practices for sustainability, climate resilience, soil health rejuvenation, and nutritious food production.

• **Key Features:**

- Implementation in **15,000 clusters** across Gram Panchayats, covering **7.5 lakh Ha** and reaching **1 crore farmers**.
- Establishment of **10,000 Bio-input Resource Centres (BRCs)** and **2000 NF Model Demonstration Farms** at KVKs, Agricultural Universities, and farmers' fields.
- Training of **18.75 lakh farmers** and deployment of **30,000 Krishi Sakhis/CRPs** for mobilisation and handholding support.
- Certification system and common branding for marketing NF produce.
- Real-time geo-tagged monitoring via an online portal.

Insta links:

4. [Organic-and-natural-farming-in-India](#)

15. ONE NATION ONE SUBSCRIPTION

Context:

The Union Cabinet has approved the One Nation One Subscription (ONOS) scheme to provide universal access to international scholarly research articles and journals.

- This initiative aligns with the vision of [Atmanirbhar Bharat](#) and **Viksit Bharat@2047**, fostering a robust research and development culture in India.

About One Nation One Subscription (ONOS):

- **Ministry:** Department of Higher Education, Ministry of Education.
- **Central Sector Scheme:** ₹6,000 crore allocated for 2025–2027.
- **Aim:** To provide access to top-quality international research journals to government higher education institutions (HEIs) and central government R&D institutions.
- **Key Features:**
 - Coverage of **30 major international publishers** and nearly **13,000 e-journals**.
 - Access for **6,300 government HEIs and R&D institutions** benefiting **1.8 crore students, faculty, and researchers**.
 - Entirely **digital process** coordinated by **INFLIBNET** under UGC.
 - Promotes interdisciplinary and core research, especially in **tier-2 and tier-3 cities**.
 - Aligned with **NEP 2020** and supported by [Anusandhan National Research Foundation \(ANRF\)](#).

Insta links:

1. [HEI](#)

16. ATAL INNOVATION MISSION 2.0

Context:

The Union Cabinet has approved the continuation of the Atal Innovation Mission (AIM) under NITI Aayog as AIM 2.0, with an allocated budget of ₹2,750 crore until March 31, 2028.

About Atal Innovation Mission 2.0:

- **Ministry/ Department:** [NITI](#) Aayog.
- **Budget:** ₹2,750 crore till March 2028.
- **Aim:** To strengthen India’s innovation and entrepreneurship ecosystem by improving input, throughput, and output quality in innovation.
- **Key Features:**
 - **Language Inclusive Program of Innovation (LIPI):** Establish 30 Vernacular Innovation Centers in 22 scheduled languages.
 - **Frontier Program:** Develop customized innovation templates for J&K, Ladakh, NE states, and aspirational districts with 2,500 new ATIs.
 - **Human Capital Development Program:** Train 5,500 professionals to build and sustain innovation ecosystems.
 - **Deeptech Reactor:** Pilot research sandboxes for deep tech startups requiring long-term investment.
 - **State Innovation Mission (SIM):** Strengthen innovation ecosystems in states/UTs, integrated with NITI Aayog’s State Support Mission.
 - **International Innovation Collaborations:** Host Global Tinkering Olympiad, engage in 10 bilateral/multilateral collaborations, support [WIPO](#) for the Global South, and anchor Startup20 Engagement Group.
 - **Industrial Accelerator Program:** Create 10 PPP-mode accelerators for scaling startups in critical sectors.
 - **Atal Sectoral Innovation Launchpads (ASIL):** Build 10 sector-specific platforms for startup integration and procurement across key ministries.

Insta links:

1. [AIM](#)

17. PAN 2.0

Context:

A day after the Cabinet Committee on Economic Affairs approved PAN 2.0, the Income Tax Department issued a detailed clarification on the project.

About PAN:

- **Origin:** Introduced in 1972; revamped in 1995 for

improved tax compliance.

- **Department:** Issued and managed by the Income Tax Department under the Central Board of Direct Taxes ([CBDT](#)).
- **Aim:** To link individuals and entities with their tax-related transactions, ensure transparency, and streamline tax compliance.

Comparison of PAN and PAN 2.0:

| Aspect | PAN | PAN 2.0 |
|------------------------------|---|---|
| Introduction Year | 1972 (re-vamped in 1995) | 2024 (Planned Upgrade) |
| Issuance System | Hosted on multiple platforms | Unified portal for all PAN/TAN services |
| Application Process | Partially online with paper-based options | Fully online, paperless process |
| QR Code | Introduced in 2017, basic validation | Enhanced dynamic QR code with real-time data |
| Updates/Corrections | Fee-based updates | Free updates for details like name, DOB, address |
| Data Security | No centralized data vault | Mandatory PAN Data Vault for enhanced cybersecurity |
| Business Identifier | PAN used for tax-related activities | Unified business identifier for multiple systems |
| Grievance Redressal | Limited, through individual portals | Streamlined grievance system via unified portal |
| Existing PAN Validity | Remains valid | Remains valid but upgrade available for free |

Insta links:

1. [PAN](#)

18. NETWORK READINESS INDEX, 2024

Context:

India has climbed 11 ranks to secure the 49th position in the Network Readiness Index 2024 (NRI 2024), showcasing significant advancements in digital transformation and telecommunications.

About Network Readiness Index 2024:

- **Published by:** Portulans Institute, a non-profit research institute based in Washington, DC.
- **Scope:** Evaluates 133 economies on four pillars: **Technology, People, Governance, and Impact**, across 54 variables.

- **India's Rank:** Improved from 60th (2023) to 49th (2024), with a score increase from 49.93 to 53.63.
- **India's Leadership:**
 - 1st rank in **AI scientific publications, AI talent concentration, and ICT services exports.**
 - 2nd rank in **FTTH/Building Internet subscriptions and Mobile broadband internet traffic.**
 - 4th rank in **investment in telecommunication services.**
- **Global Grouping:** Ranked 2nd among lower-middle-income countries, after Vietnam

Insta links:

1. [Human-development-index-HDI-2023-24](#)

International Relations

19. INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)

Context:

Rafael Mariano Grossi, the Director-General of the International Atomic Energy Agency (IAEA), has warned about diminishing opportunities for negotiation regarding Iran's nuclear program.

About International Atomic Energy Agency (IAEA):

- **Established:** 1957 as an autonomous body under the UN system.
- **Headquarters:** Vienna, Austria.
- **Purpose:** Promote peaceful nuclear energy use and prevent nuclear weapons development.
- **Mandate:**
 - Encourage peaceful nuclear energy applications.
 - Ensure nuclear materials are not misused for military purposes.
 - Promote nuclear safety, security, and radiation protection standards.
 - Provide technical support, training, and research in nuclear technology globally.
- **Missions:**
 - **Peaceful Uses:** Support peaceful nuclear energy development.
 - **Safeguards:** Monitor and verify nuclear programs to prevent military use.
 - **Safety:** Promote nuclear safety and radiation protection.
- **Role in Non-Proliferation:**
 - Oversees compliance with the Treaty on the Non-Proliferation of nuclear weapons (NPT).
 - Conducts inspections and monitors nuclear facilities.
- **Global Impact:** Works extensively with developing nations to enhance nuclear technology for energy,

medicine, and agriculture.

Insta Links:

1. [First-ever-nuclear-energy-summit](#)

20. STUDENT DIRECT STREAM (SDS) VISA PROGRAM

Context:

The Canadian government recently announced the discontinuation of the Student Direct Stream (SDS) visa program, impacting a significant number of Indian students who seek higher education in Canada.

About SDS Visa:

- **Country:** Canada
- **Launched:** 2018
- **What is SDS Visa:** A fast-track study permit application program for students from select countries, including India, offering expedited visa processing.
- **Features:**
 - Faster processing time for eligible students (reduced from months to weeks).
 - Lower application fees compared to regular student visas.
 - Simplified documentation requirements (proof of funds, English proficiency, admission to a Designated Learning Institution).

Insta Links:

1. [India-Canada](#)

21. WORLD ANTI-DOPING AGENCY

Context:

India, in collaboration with the World Anti-Doping Agency (WADA), will host the Global Learning and Development Framework (GLDF) Results Management Training in New Delhi.

- Training aims to **standardize anti-doping procedures**, foster collaboration among nations, and strengthen the global sport integrity framework.
- This workshop is organised by the [National Anti-Doping Agency \(NADA\)](#) India in collaboration with **WADA**, with support from the **Japan Sports Agency (JSA)** and the Japan Anti-Doping Agency (JADA).

About World Anti-Doping Agency (WADA):

- **Establishment:** Formed in 1999 as an independent international agency funded equally by governments and the sports community.
- **Initiation:** Founded by the International Olympic

Committee (IOC) to lead the fight against doping in sports.

- **Headquarters:** Located in Montreal, Canada.
- **Core Activities:**
 - Conducting scientific research on anti-doping.
 - Providing education and capacity-building initiatives.
 - Monitoring the implementation of the World Anti-Doping Code, which standardizes anti-doping policies globally.

Insta Links:

1. [Doping-in-sports](#)

22. UNITED NATIONS RELIEF AND WORKS AGENCY FOR PALESTINE REFUGEES

Context:

India has fulfilled its **annual contribution of USD 5 million for the year 2024-25** to the United Nations Relief and Works Agency for [Palestine Refugees](#) in the Near East (UNRWA), with the release of the second tranche of USD 2.5 million.

About United Nations Relief and Works Agency (UNRWA):

- **Establishment:** Created by the UN General Assembly in 1949.
- **Objective:** Provides relief, health, education, and social services to Palestinian refugees who lost homes and livelihoods after the 1948 Palestine war.
- **Headquarters:** Initially based in Beirut, moved to Vienna (1978), and later to the Gaza Strip (1996) following the Oslo Accords.
- **Mandate:** Continuously renewed by the UN General Assembly; currently extended until June 30, 2026.
- **Services:** Offers education, healthcare, social relief, infrastructure improvement, microfinance, and emergency aid during conflicts.
- **Operations:** Active in Jordan, Lebanon, Syria, Gaza Strip, and West Bank (including East Jerusalem), serving over 5 million Palestinian refugees and their descendants.
- **Funding:** Primarily relies on voluntary contributions from UN Member States and receives limited UN budget support for international staffing.

Insta Links:

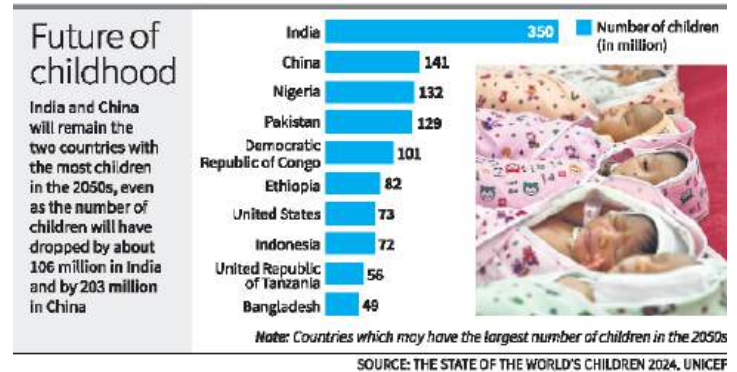
1. [UNRWA](#)

23. THE STATE OF THE WORLD'S CHILDREN 2024

Context:

The State of the World's Children 2024 report by UNICEF highlights critical challenges and opportunities shaping the

future of childhood globally.



About State of the World's Children Report 2024:

- **Published by:** UNICEF.
- **Theme:** Securing a future where children's rights are realized by addressing demographic transitions, climate crises, and technological advancements.
- **Key Insights:**
 - **Demographic Shifts:** Global child population stabilizes at 2.3 billion by 2050, with Africa hosting the highest proportion.
 - **Climate and Environment:** Over 1 billion children live in high-risk countries; exposure to hazards like floods, droughts, and heatwaves is expected to rise sharply.
 - **Frontier Technologies:** Emerging technologies like AI and renewable energy offer transformative potential but must be governed responsibly to ensure equitable access and safety.
 - **Education:** By 2050, 95.7% of children are projected to complete primary education, with significant improvements in gender equality in education globally.

About UNICEF:

- **Established:** 1946, post-World War II.
- **Mandate:** To protect the rights and futures of children worldwide, regardless of country.
- **Presence:** Active in 190+ countries and territories.
- **Funding:** Fully funded through voluntary contributions from individuals, governments, and private sector partners.
- **Awards:** Nobel Peace Prize (1965), Indira Gandhi Prize (1989), Princess of Asturias Award (2006).
- **Reports Published:** The State of the World's Children, among others.
- **Global Initiatives:**
 - Children's Rights and Business Principles with Save the Children.
 - Data Must Speak Initiative to improve access to education.
- **Headquarters:** New York City.

Insta Links:

1. [The-battle-to-end-child-marriage/](#)

24. INTERNATIONAL CRIMINAL COURT

Context:

The International Criminal Court issued arrest warrants for the Israeli Prime Minister and his former defense chief, as well as a Hamas leader, for alleged war crimes and crimes against humanity in the Gaza conflict.

About International Criminal Court (ICC):

- **Establishment:** Created by the Rome Statute in 1998; began operations in 2003.
- **Headquarters:** Located in The Hague, Netherlands.
- **Purpose:** Prosecutes individuals for **genocide, war crimes, crimes against humanity, and crimes of aggression.**
- **Membership:** 123 countries recognize ICC authority; key non-members include the **US, China, Russia, and India.**
- **Structure:**
 - **Judges:** 18 judges elected for non-renewable nine-year terms.
 - **Presidency:** Comprises a President and two Vice-Presidents.
 - **Registry:** Manages administrative and operational support.
- **Jurisdiction:**
 - Covers crimes committed in **member states or by nationals** of member states.
 - Operates only when national courts are unable or unwilling to act.
 - Jurisdiction applies only to crimes committed after July 1, 2002.
- **Relationship with UN:**
 - **Not a UN body** but cooperates through agreements.
 - The [UN Security Council](#) can refer cases to the ICC if outside its jurisdiction.

Insta Links:

1. [ICC](#)

25. THE GLOBAL ALLIANCE AGAINST HUNGER AND POVERTY

Context:

The Global Alliance Against Hunger and Poverty was launched at the G20 Summit 2024 in Rio de Janeiro under Brazil's presidency.

- It aims to address the **urgent global challenges of hunger and poverty** exacerbated by the COVID-19 pandemic, economic disparities, conflicts, and climate change.

About Global Alliance Against Hunger and Poverty:

- **Launch:** Introduced at Brazil G20 Summit 2024.
- **Objective:** Connect countries in need with partners offering technical expertise or financial support to

eradicate hunger and poverty.

- **Membership:** 81 countries (including India), 26 international organizations, 9 financial institutions, and 31 NGOs and philanthropic foundations.
- **Function:** Acts as a matchmaking platform for sharing proven policies, facilitating technical assistance, and mobilizing financial aid.
- **Key Initiatives (Sprints 2030):**
 1. School meals programs.
 2. Cash transfer schemes.
 3. Support for smallholder and family farming.
 4. Socio-economic inclusion initiatives.
 5. Maternal and early childhood interventions.
 6. Water access solutions.
- **Funding:** Operational costs (\$2-3 million annually) are covered by member countries and global institutions like FAO, [UNICEF](#), and the World Bank.

Insta Links:

1. [Rio-G20-summit](#)

26. ICA GLOBAL COOPERATIVE CONFERENCE 2024

Context:

Prime Minister will inaugurate ICA Global Cooperative Conference 2024 and launch the UN International Year of Cooperatives 2025 on 25th November at Bharat Mandapam, New Delhi.

About International Cooperative Alliance:

- **Origin:** Established in 1895 during the 1st Cooperative Congress in London, England.
- **History:** One of the oldest NGOs, representing over 1 billion cooperative members globally across 105 countries.
- **Aim:** To unite cooperatives worldwide, promote sustainable development, and support member organizations.
- **Headquarters:** Brussels, Belgium.
- **Summits:** Regular global and regional summits foster collaboration and address cooperative challenges.

2024 ICA Global Conference:

- **Host:** India, for the first time in ICA's 130-year history.
- **Location:** New Delhi.
- **Organizers:** Indian Farmers Fertiliser Cooperative Limited (IFFCO), ICA, and other cooperative entities.
- **Theme:** "Cooperatives Build Prosperity for All."
- **Aim:**
 - Showcase the role of cooperatives in promoting inclusive, sustainable development.
 - Explore innovative strategies for global cooperative growth.

- Launch the **UN International Year of Cooperatives-2025**.

Insta links:

1. [Indias-cooperative-movement](#)

27. RIYADH DESIGN LAW TREATY

Context:

After nearly two decades of deliberations, the World Intellectual Property Organization (WIPO) member states have adopted the Riyadh Design Law Treaty (DLT).

- A landmark agreement aimed at harmonizing procedural frameworks for industrial design protection.

About Riyadh Design Law Treaty (DLT):

- **Organization:** Adopted by the World Intellectual Property Organization ([WIPO](#)) member states.
- **Aim:** To standardize and streamline procedural requirements for industrial design registration globally.
- **Key Features:**
 1. Simplified registration processes across jurisdictions.
 2. Relaxed time limits and reinstatement of lost rights.
 3. Simplified procedures for recording assignments and licenses.
 4. Option to file multiple designs in a single application.
 5. Encouragement for electronic systems and exchange of priority documents.
- **India's Participation:** India signed the treaty to enhance its global competitiveness in design protection and strengthen its policy emphasis on design-driven innovation.
- **Other Treaties on Industrial Design:** The [Hague Agreement](#) on Industrial Designs, facilitating international registration of industrial designs.

Insta links:

1. [Intellectual-property-rights](#)

28. ORGANISATION FOR THE PROHIBITION OF CHEMICAL WEAPONS

Context:

The Indian Chemical Council (ICC) was awarded the 2024 OPCW-The Hague Award during the 29th Session of the Organisation for the Prohibition of Chemical Weapons (OPCW) at The Hague.

About Organisation for the Prohibition of Chemical Weapons:

- **Established:** 1997; implementing body of the

Chemical Weapons Convention (CWC).

- **Headquarters:** The Hague, Netherlands.
- **Membership:** 193 States Parties.
- **Mission:** Achieve a world free of chemical weapons and promote international chemical safety.
- **Recognition:** Awarded the Nobel Peace Prize in 2013 for efforts to eliminate chemical weapons.
- **The Hague Award:** Established in 2014 to honor individuals and organizations advancing the goals of the CWC.

About Indian Chemical Council (ICC):

- **Establishment:** Founded in 1938, ICC is the apex national body representing India's chemical industry.
- **Industries Represented:** Organic & Inorganic Chemicals, Plastics, Petrochemicals, Petroleum Refineries, Dyestuffs, Fertilizers, Pesticides, Specialty Chemicals, Paints, and more.
- **Mission:** Dedicated to the growth and sustainable development of India's \$220 billion chemical industry.
- **Key Initiatives:**
 1. **Chemical Weapons Convention Helpdesks:** Enhancing compliance and facilitating e-filing for chemical declarations.
 2. **Nicer Globe:** Ensuring chemical transportation safety with real-time monitoring and emergency response.
 3. **Responsible Care (RC) Program:** Promoting sustainable practices with a focus on chemical safety and industry security.

Insta links:

1. [Indian Chemical Council](#)

GS-3

Indian Economy

1. DIGITAL EURO

Context:

The European Central Bank (ECB) has introduced the digital euro as a central bank digital currency (CBDC) aimed at revolutionizing payment systems.

About Digital Euro:

- **What it is:** A [CBDC](#) issued directly by the ECB, enabling digital transactions without intermediaries like banks or payment gateways.
- **Launch:** The preparation phase began in November 2023, with a focus on replacing cashless payment systems and reducing dependency on non-EU financial service providers.
- **Features:**
 - Facilitates direct payments via digital

- wallets.
- Allows both online and offline transactions, ensuring anonymity for offline payments.
- Offers cost-effective micropayments by bypassing conventional service providers.
- Emphasizes European sovereignty in digital payments by reducing reliance on foreign financial entities.

About India's Digital Currency:

- India launched its Central Bank Digital Currency (CBDC), **₹ (Digital Rupee)**, under the Reserve Bank of India **in 2022**.
- **Features:**
 - Legal tender backed by the RBI, exchangeable 1:1 with physical currency.
 - Operates through blockchain-based wallets for seamless transactions.
 - Reduces costs associated with handling, transporting, and phasing out physical currency.
- **Significance:**
 - Mitigates risks of cryptocurrencies by providing a regulated digital alternative.
 - Simplifies cross-border payments and enhances transaction efficiency.
 - Boosts financial inclusion by enabling digital transactions for the unbanked.

Insta Links:

1. [CBDC](#)
2. [Project-GAIA](#)

2. WORLD INTELLECTUAL PROPERTY INDICATORS (WIPI) - 2024

Context:

The World Intellectual Property Organization (WIPO) published the **World Intellectual Property Indicators (WIPI) 2024**, highlighting significant growth in intellectual property filings worldwide.

World Intellectual Property Indicators (WIPI) 2024: Key Highlights

- **India's patent growth:**
 - **15.7% growth** in patent applications in 2023, the fastest among the top 20 origins globally.
 - India ranked **6th in patent filings** with 64,480 applications, over **55% from residents**.
 - Patent-to-GDP ratio increased from 144 to 381 in a decade.
- **Industrial design applications:**
 - India recorded **36.4% growth**, driven by sectors like textiles, tools, machines, and health.
- **Trademark filings:**

- India ranked **4th globally**, with a **6.1% rise** in trademark filings in 2023.
- **Key sectors:** Health (21.9%), Agriculture (15.3%), and Clothing (12.8%).
- Over **3.2 million active registrations**, the **2nd largest globally**.
- **Global trends:**
 - A record **3.55 million patent applications** were filed globally in 2023, marking a 2.7% increase.
 - Asia led IP filings, with India, China, South Korea, Japan, and the U.S. driving the growth.

About World Intellectual Property Organization (WIPO):

- A specialized UN agency headquartered in Geneva, Switzerland, established in 1967.
- **Objective:** Ensures that the IP framework evolves with global needs, fostering innovation and economic growth.
- **Membership:** Comprises **193 member states**, making it a nearly universal body.
- **Role and Functions:**
 - Serves as a global forum for discussions on intellectual property issues.
 - Facilitates cooperation between governments, industries, and civil society on IP matters.
- **Policy Development:** Hosts standing committees and working groups for members to negotiate changes and draft new IP rules.

Insta links:

1. [International-intellectual-property-index](#)
2. [Global-innovation-index](#)

3. DOMESTIC SYSTEMICALLY IMPORTANT BANKS

Context:

The Reserve Bank of India (RBI) on Wednesday retained the State Bank of India, HDFC Bank and ICICI Bank as Domestic Systemically Important Banks (D-SIBs).

About Domestic Systemically Important Banks (D-SIBs):

- The RBI had first announced the framework dealing with **D-SIBs in 2014**.
- **What is D-SIBs?**
 - Banks classified as **"Too Big To Fail (TBTF)"** due to their size, interconnectedness, and critical role in the economy.
 - Their failure could disrupt the financial system and economic activity.
- **Which Banks are D-SIBs?**
 - State Bank of India (SBI) (2015)
 - ICICI Bank (2016)
 - HDFC Bank (2017)

- **Need for D-SIBs**
 - Prevent systemic risk and ensure the uninterrupted availability of essential banking services.
 - Reduce moral hazard by imposing additional capital requirements and regulatory oversight.
- **Different Buckets under D-SIBs**
 - **Banks are placed in buckets based on systemic importance:**
 1. **SBI:** Bucket 4
 2. **HDFC Bank:** Bucket 3
 3. **ICICI Bank:** Bucket 1
- **Capital Requirements**
 - **Additional Common Equity Tier 1 (CET1) requirements based on bucket:**
 1. **SBI:** 0.80% of Risk Weighted Assets (RWAs).
 2. **HDFC Bank:** 0.40% of RWAs.
 3. **ICICI Bank:** 0.20% of RWAs.
 - Higher surcharges applicable from April 1, 2025.
- **Selection Criteria**
 - Banks with **size >2% of GDP** are assessed.
 - A composite score is calculated based on size, cross-jurisdictional activity, complexity, substitutability, and interconnectedness.
 - Banks above a threshold score are classified as D-SIBs.
- **Global Systemically Important Banks (G-SIBs)**
 - Identified by the Financial Stability Board (FSB) in consultation with the Basel Committee on Banking Supervision (BCBS).
 - 2023 G-SIB list **includes JP Morgan Chase, HSBC, Bank of China, BNP Paribas, etc.**

Insta Links:

1. [Basel-3-capital-framework](#)

4. CENTRAL VALUE ADDED TAX (CENVAT) CREDIT

Context:

The Supreme Court, in a landmark judgment, has allowed telecom companies to claim Central Value Added Tax (CENVAT) credit for the installation of mobile towers and prefabricated buildings (PFBs).

About Central Value Added Tax (CENVAT):

- **What is CENVAT:**
- A tax credit system allowing manufacturers or service providers to claim a set-off on excise duty or service tax paid on inputs or input services used for manufacturing or providing output services.
- **Rules Governing CENVAT:**
- Implemented under the **CENVAT Credit Rules, 2004**, it replaced the Modified Value Added Tax

(MODVAT). These rules define eligible goods, input services, and conditions for availing credit.

- **Criteria for CENVAT credit:**
 - **Inputs:** Goods used directly or indirectly in the production of final products.
 - **Capital goods:** Machinery or equipment integral to the manufacturing process.
 - **Output services:** Taxable services for which input credits can offset the service tax liability.
 - **Partial processing:** Credits are allowed for partially processed goods.
- **Significance of CENVAT:**
 - **Avoids double taxation:** Prevents repeated taxation on the same value addition.
 - **Simplifies taxation:** Reduces the tax burden on manufacturers and service providers.
 - **Promotes competitiveness:** Encourages businesses to reinvest savings in production and innovation.
 - **Consumer benefit:** Reduces the overall cost of goods and services by eliminating cascading taxes.

Insta Links:

1. [7-years-of-GST-balancing-tech-transformation](#)

5. “JOBS AT YOUR DOORSTEP” REPORT

Context:

Union Minister launched the “Jobs at Your Doorstep” **report by the World Bank.**

- This report focuses on diagnostics for the employment landscape in six Indian states and highlights strategies to align education and skilling with India’s jobs agenda.

About Jobs at Your Doorstep Report:

- **Purpose:** Provides a diagnostic roadmap to align skill education with employment opportunities.
- **Coverage:** Focuses on **six STARS states** – Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Odisha, and Rajasthan.
- **Key Features:**
 - Addresses the skills gap by aligning school trades with district-specific industry needs.
 - Promotes a **bottom-up approach** to skill development, emphasizing local market-driven training.
 - Integrates skilling into school education for grades 9-12, ensuring future workforce readiness.
 - Envisions 50% student access to skill education by 2025 and 100% by 2030 under NEP 2020.
- **STARS Program:** Supported by the [World Bank](#), this

scheme strengthens teaching, learning, and results for skill-based education in schools.

About STARS Program: (Strengthening Teaching-Learning and Results for States)

- **Launch and Duration:** Approved in October 2020, effective from 2021 for five years, till FY 2024-25.
- **Implementation:** Managed by the Department of School Education and Literacy under the Ministry of Education, with financial assistance from the World Bank.
- **Target States:** Covers six states—Himachal Pradesh, Maharashtra, Odisha, Rajasthan, Madhya Pradesh, and Kerala—to enhance the quality of school education.
- **Alignment with NEP 2020:** Focuses on improving quality-based learning outcomes in line with the objectives of the National Education Policy 2020.
- **Scope:** Carved out from [Samagra Shiksha](#), emphasizing components directly linked to educational quality enhancement.

Insta links:

1. [Stars-programme](#)

Agriculture

6. TUNA CLUSTER

Context:

The Department of Fisheries, under the Ministry of Fisheries, Animal Husbandry, and Dairying, has designated the **Andaman and Nicobar Islands as a Tuna Cluster** under the Pradhan Mantri Matsya Sampada Yojana (PMMSY).

- With approximately 6.0 lakh square km of under-utilized **Exclusive Economic Zone (EEZ)** rich in tuna resources, the region offers unique advantages in fisheries development due to its proximity to Southeast Asia, sustainable fishing practices, and conducive trade routes.

About Tuna Fish:

- **Species:** Belongs to the Thunnus genus, adapted for speed with streamlined bodies.
- **Habitat:** Found in both tropical and temperate oceans, known for extensive migrations.
- **Economic significance:** Tuna species like Skipjack, Yellowfin, and Bluefin contribute around \$41 billion annually in trade (2018).
- **Unique physiology:** Maintains a body temperature higher than surrounding water, a trait shared with Mackerel sharks and Opah.
- **Nutritional value:** High in Vitamin B12, Vitamin D, Omega-3 fatty acids, proteins, and antioxidants, supporting health and nutrition.

About Pradhan Mantri Matsya Sampada Yojana (PMMSY):

- **Launch:** Launched in 2020 as the flagship scheme of the Department of Fisheries.
- **Objective:** To boost the fisheries sector’s growth through integrated, consolidated efforts from various initiatives.
- **Components:** An umbrella scheme comprising the Central Sector Scheme (CS) and Centrally Sponsored Scheme (CSS).
- **Focus areas:** Includes enhancing productivity, post-harvest infrastructure, and regulatory frameworks for sustainable fisheries development.
- **Other clusters:**
 - The Department of Fisheries has already identified three locations as priority areas for development,
 - **Hazaribagh District** in Jharkhand for **pearl culture**
 - **Madurai District** in Tamil for **ornamental fisheries**
 - UT of **Lakshadweep** for **seaweed**.

Insta links:

1. [PMMSY](#)

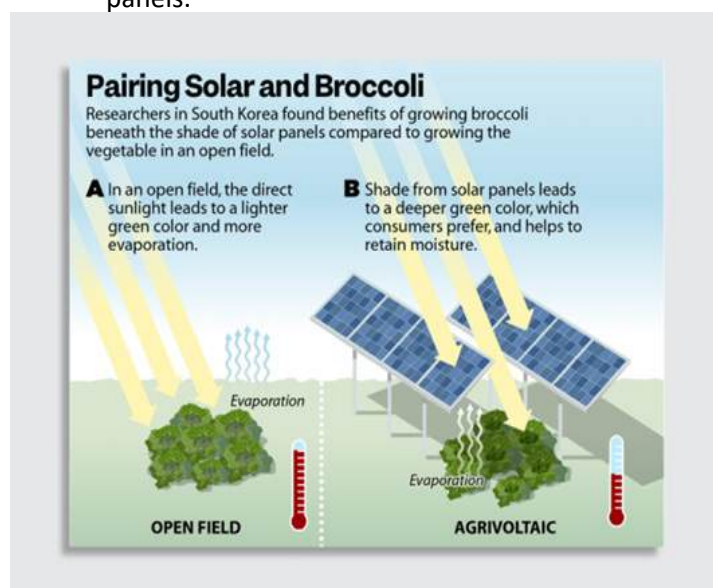
7. AGRIVOLTAIC FARMING

Context:

The Seventh Session of the **International Solar Alliance (ISA)** concluded in New Delhi, highlighting sustainable energy and agrivoltaic farming a practice that combines agriculture with solar energy generation on the same land.

About Agrivoltaic Farming:

- **Definition:** Agrivoltaic farming is the simultaneous use of land for agriculture and solar energy generation, allowing crops to grow beneath solar panels.



- **Agrivoltaic farming working:**

- **Elevated panels:** Solar panels are raised 2-3 meters, providing space for crops to grow beneath with adequate light and air.
- **Angle and Spacing:** Panels are angled and spaced to optimize sunlight for both solar energy and crop growth.
- **Shade and Protection:** Panels offer shade, reducing heat stress and protecting crops from harsh weather.
- **Water conservation:** Shading lowers evaporation, conserving soil moisture and reducing water needs.
- **Greenhouse integration:** Panels on greenhouse roofs allow light/rain for crops while generating energy.
- **Dual harvesting:** Utilizes land for both solar power and agriculture, maximizing energy and food production.
- **Significance of Agrivoltaic Farming:**
 - **Enhanced Land Use:** Maximizes land efficiency by combining agriculture and solar energy production on the same land.
 - **Climate resilience:** Provides shade to crops, reducing heat stress and water loss, and protecting from extreme weather.
 - **Renewable energy generation:** Contributes to solar power expansion, supporting climate goals and energy needs.
 - **Increased food security:** Supports sustainable food production for a growing population without needing additional land.
 - **Economic benefits:** Enables farmers to diversify income through both crop production and solar energy revenue.

Insta links:

1. [Challenges-faced-by-farm-sector-in-India](#)

8. URAD AND TUR IMPORTS

Context:

The Indian government reported a significant increase in **Urad** imports from Brazil, reaching over 22,000 metric tonnes.

- The Ministry of Consumer Affairs highlighted **Brazil's potential as a major supplier of Urad and Tur for India**, benefiting from **different cropping seasons** that align with India's crop demands.

About Urad:

- **Scientific name:** *Vigna mungo*, commonly known as black gram.
- **Origins:** Native to South Asia; widely cultivated and highly valued in India.
- **Culinary use:** Essential in Indian cuisine, often used as a dal and paired with rice or curry.
- **Season:** Grown in both Kharif and Rabi seasons in India.
- **Global cultivation:** Also grown in tropical regions like the Caribbean, Fiji, Myanmar, and Africa, introduced by Indian immigrants.

About Tur:

- **Scientific name:** *Cajanus cajan*, known as toor dal or pigeon pea.
- **Origins:** Indigenous to the Eastern Hemisphere; cultivated widely in tropical and semi-tropical regions.
- **Culinary use:** Commonly consumed as a staple in South Asia, Southeast Asia, and Africa.
- **Global spread:** Cultivated in Latin America and the Caribbean, widely used in regional dishes.

Insta links:

4. [Production-of-pulses-in-India](#)

9. STATE OF FOOD AND AGRICULTURE 2024

Context:

The State of Food and Agriculture 2024 report by the FAO highlights the hidden costs of agrifood systems globally, particularly in India, where dietary risks contribute to a \$1.3 trillion burden annually, largely due to non-communicable diseases linked to unhealthy diets.

State of Food and Agriculture 2024: Key Highlights

- **Hidden Costs in Agrifood Systems:**
 - **India:** \$1.3 trillion annually (third highest globally, after China and the USA).
 - 73% of costs stem from unhealthy dietary patterns, including overconsumption of processed foods and insufficient intake of plant-based foods.
 - **Global Estimate:** \$12 trillion annually, with \$8.1 trillion arising from dietary risks.
- **Health Impacts:**
 - Non-communicable diseases (heart disease, diabetes) dominate the hidden costs in India.
 - High processed food consumption (\$128 billion cost) and low plant-based food intake (\$846 billion cost).
- **Environmental and Social Costs:**
 - Greenhouse gas emissions and nitrogen runoff from food production significantly

contribute to environmental degradation.

- **Recommendations:**
 - **Sustainable Practices:** Provide financial incentives to promote eco-friendly food supply chain practices.
 - **Healthier Diets:** Enact policies making nutritious food affordable and accessible.
 - **Environmental Action:** Encourage reductions in emissions and harmful land use through certifications and industry-wide initiatives.
 - **Consumer Awareness:** Empower consumers with transparent information about the environmental and social impacts of food choices.

About Food and Agriculture Organization (FAO):

- **Mandate:** Improve global nutrition, agricultural productivity, rural living standards, and economic growth.
- **Functions:**
 - Conducts research, provides technical assistance, and coordinates global agricultural efforts.
 - Maintains data on production, trade, and agricultural consumption.
 - Publishes major reports, including *The State of the World's Forests*, *State of World Fisheries and Aquaculture* and *State of Agricultural Commodity Markets*.
- **Established:** October 1945.
- **Headquarters:** Rome, Italy.
- **Members:** 194 countries and the European Union.
- **Funding:** 100% funded by member contributions.

Insta Links:

1. [FAOs-committee-on-fisheries](#)

10. FINGERLING

Context:

As part of the **artificial reef project** under the Pradhan Mantri Matsya Sampada Yojana (PMMSY), the State Fisheries Department in Kerala launched a sea ranching initiative by releasing 20,000 pompano fingerlings off the Vizhinjam coast.

About Fingerlings:

- **Scientific name:**
 - **Pompano:** *Trachinotus blochii*
 - **Cobia:** *Rachycentron canadum*
- **Ministry involved:**
 - Ministry of Fisheries, Animal Husbandry, and Dairying in collaboration with [the National Fisheries Development Board](#) (NFDB).
- **Scheme:**
 - Implemented under the [Pradhan Mantri](#)

[Matsya Sampada Yojana](#) (PMMSY).

- **Budget:**
 - ₹3 crore allocated for the current phase in Thiruvananthapuram.
 - **Proposed extensions:** ₹29.76 crore for Kollam, Alappuzha, Ernakulam, and Thrissur districts; ₹25.82 crore for northern districts.
- **Aim:**
 - Replenish marine fishery resources.
 - Promote sustainable fishing practices by enhancing biodiversity.
- **Features of Fingerlings:**
 - Pompano and cobia fingerlings stocked and reared at Ayiramthengu fish farm.
 - Fingerlings weigh between **8 to 10 grams**.
 - 10 lakh fingerlings planned for release across 10 artificial reef locations off the Thiruvananthapuram coast.

About Mission Fingerling:

- **Launch year:** 2017
- **Ministry:** Union Ministry of Agriculture and Farmers' Welfare
- **Aim:**
 - Achieve the **Blue Revolution** by promoting the holistic development and management of fisheries.
 - Increase fisheries production from **10.79 MMT (2014-15) to 15 MMT by 2020-21**.

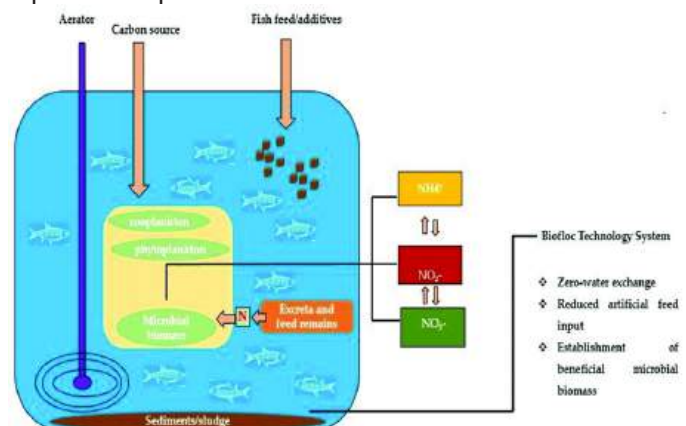
Insta links:

1. [Mission-fingerling](#)

11. BIOFLOC TECHNOLOGY AND RECIRCULATING AQUACULTURE SYSTEMS

Context:

India's aquaculture sector has undergone a significant transformation, becoming a global leader in fish production. Innovations like Biofloc Technology (BFT) and Recirculating Aquaculture Systems (RAS) are at the forefront of modern aquaculture practices.



About Biofloc Technology (BFT):

- **What it is:**
- A closed-tank aquaculture method using beneficial bacteria to convert organic waste into microbial biomass for [fish consumption](#).
- **How it works:**
 - Beneficial heterotrophic bacteria convert waste into biomass.
 - Aeration and microbial activity maintain water quality.
 - Reduces reliance on antibiotics and chemicals.

About Recirculating Aquaculture Systems (RAS):

- **What it is:**
- A tank-based farming system that recycles water through mechanical and biological filtration.
- **How it works:**
 - Water is filtered to remove waste and pathogens.
 - Provides controlled conditions for temperature, oxygen, and water cleanliness.
 - Ensures biosecurity with reduced need for antibiotics.

| Feature | BFT | RAS |
|--------------------|--|--|
| Advantages | <ul style="list-style-type: none"> - Cost-effective feed through recycled waste. - Reduces chemical and antibiotic use. - Suitable for small farmers and backyard farming. | <ul style="list-style-type: none"> - Controlled environment for optimal fish growth. - High biosecurity with minimal disease risk. - Can be set up in areas without natural water sources. |
| Limitations | <ul style="list-style-type: none"> - Promotes freshwater conservation. - High setup cost (~₹4-5 lakh). - Requires regular monitoring of water quality and microbial growth. - Limited success with species like Indian Major Carps in certain regions. | <ul style="list-style-type: none"> - Higher production rates compared to traditional systems. - Expensive initial investment and operational costs. - Constant power supply needed; prone to power outages. - Requires skilled management and maintenance of advanced systems. |

Insta links:

2. [FAOs-committee-on-fisheries](#)

12. MARINE FISHERIES CENSUS 2025

Context:

On World Fisheries Day 2024, the Centre launched transformative initiatives in the fisheries sector, including the **Marine Fisheries Census 2025** and the **National Plan of Action on Sharks**

About Marine Fisheries Census:

- **History of Census:**
 - **1948-49:** Initial survey by **CMFRI** on village-wise fishing data.
 - **1980 Census:** Covered **2132 villages, 333,038 households**, and **1442 fish landing centers**.
 - **2005 Census:** Collaboration between **CMFRI** and **DAHDF**, covering **3202 villages**.
 - **2010 Census:** Expanded coverage to **3288 villages**, emphasizing socio-economic data.
 - **2016 Census:** Joint effort by **CMFRI** and **DAHDF**, encompassing **1.2 million households**.
- **Department Involved:**
 - Conducted by **CMFRI** and the **Union Ministry of Fisheries**, with support from **3,500 staff** for the 2025 census.
- **Features of 2025 Census:**
 - Fully **digital** process using **mobile apps** and virtual servers for real-time data collection.
 - Covers **1.2 million households** across India's coastline, including remote locations like **Bitra Island** and **Campbell Bay**.
 - Collects data on **household sizes, socio-economic status, and fisherfolk engagement**.
 - **80% faster** data processing compared to previous censuses.

National Plan of Action on Sharks (NPOA-SHARKS):

- This is a follow-up of the International Plan of Action for Sharks, a **voluntary instrument** adopted by the **Food and Agriculture Organization** of the United Nations in **1999**.
- **Scope:**
 - Conservation and sustainable management of shark populations based on an **Ecosystem Approach to Fisheries (EAF)**.
 - Covers **sharks, skates, rays, and chimaeras** within India's **EEZ**, territorial waters, and the High Seas by Indian-flagged vessels.
 - Aims to bridge research gaps, understand socio-economic implications, and manage negative impacts of shark fishing.
- **Actions:**
 - Avoid promoting direct shark fishing until sufficient scientific data is available.

- Implement **monitoring, control, and surveillance (MCS)** plans promptly.
- Identify shark breeding grounds and seasons; adopt conservation measures like **seasonal bans** and **area closures**.
- Initiate species cataloging through **genetic coding** and develop species-specific indicators using survey data.
- Conduct **awareness drives** for stakeholders, fishermen, and associations to encourage monitoring and reporting of shark catches.
- Research value addition for sharks and explore eco-tourism opportunities like **reef shark diving**.
- Enforce the **fin-attached policy** and review **shark export policies** to encourage value-added products.
- Introduce **logbook systems**, develop a **national shark identification kit**, and build research capacity in taxonomy and data collection.
- Align with the [Wild Life \(Protection\) Act, 1972](#), and promote regional cooperation for better shark conservation.

Insta Links:

1. [CMFRI](#)

[Infrastructure](#)

13. SEAPLANE SERVICE

Context:

The demonstration flight of Andhra Pradesh’s first seaplane service is all set to take off from Punnami Ghat, near the Prakasam Barrage in Vijayawada, and land at a jetty in Srisaillam in Nandyal district.

About Seaplane:

- **What it is:** A seaplane is a fixed-wing aircraft designed for takeoff and landing on water.
- **Working principle:** Utilizes buoyancy provided by water for takeoff and landing; incorporates propellers or jet engines for propulsion.
- **Types:**
 1. **Flying boats:** Feature a hull that floats on water and do not operate on land.
 2. **Floatplanes:** Equipped with pontoons (floats) attached beneath the fuselage.

About India’s Seaplane Project:

- **Objective:** Enhance regional air connectivity and promote tourism through water-based aviation under the RCS-UDAN scheme.
- **India’s First Seaplane Project in India:**
 - Launched in Gujarat (2020) connecting Sabarmati Riverfront (Ahmedabad) to

Statue of Unity (Kevadia).

NOTE: High operating costs and difficulties in maintaining a foreign-registered aircraft led to the suspension of seaplane services in Gujarat since 2023.

- **Proposed Seaplane Routes under UDAN:**

- **Gujarat:** Shatrunjay Dam to Ambaji and Sabarmati Riverfront to Statue of Unity.
- **Andhra Pradesh:** Vijayawada (Prakasam Barrage) to Srisaillam.
- **Assam:** Guwahati Riverfront to Umrangso Reservoir and Shillong.
- **Andaman & Nicobar Islands:** Jal Hans project connecting Agatti, Kavaratti, and Minicoy.
- **Telangana:** Nagarjuna Sagar to Vijayawada and Hyderabad.

Insta Links:

1. [Gujarat sea plane project](#)

14. BIBEK DEBROY COMMITTEE’S ON RAILWAYS

Context:

The Bibek Debroy Committee’s 2015 report outlined transformative reforms for Indian Railways, focusing on viability and competitiveness, though several key recommendations remain unimplemented.



The infographic details the following key recommendations from the Bibek Debroy Committee's 2015 report:

- Improving Finances:** Must focus on remunerative freight segment and e-commerce segment. Leasing of parcel vans in trains through auction of carrying capacity/private parcel trains and concessioning of train services. Must encourage on-board catering through food chains & local restaurants on payment of modest license fee. Separate activities such as running of hospitals, schools, catering, security, real estate devpt, manufacturing of locomotives, coaches & wagons, from core function of running trains.
- Reforms report by an eight-member panel, headed by economist Bibek Debroy.** Committee set up in Sept 2014 when Sadananda Gowda was rail mintr. Goods Int. Railway Board had become unviable.
- Schools:** Educational needs of children of railway employees could be met by subsidizing their education in alternative schools, including KVs and private schools.
- Hospitals:** Give GMs/DRMs & employees choice to opt for services such as medical tests, pre-employment exam, safe water & food supply at stations either through Indian Railway Medical Services or private empanelled practitioners. For preventive & curative healthcare, choice may be extended to CGHS framework; subsidized healthcare in
- Security:** State govts should be persuaded to bear entire cost of GPs and GMs/DRMs should have
- Accounting Reforms:** Set up responsive, transparent accounting and costing system
- Rationalizing Staff:** Amalgamate existing service into single unified railway service. OR second option is to create two sets of services to deal with technical and non-technical aspects.

Key Recommendations of Bibek Debroy Committee (2015)

1. **Liberalization (Not Privatization):**
 - Allow entry of private operators to enhance growth and competition.
 - **Status:** Not implemented due to opposition; PPP projects limited to goods services.
2. **Empowering Field Officers:**
 - Delegation of decision-making powers to GMs and DRMs for greater autonomy.
 - **Status:** Partially implemented with increased decentralization efforts.
3. **Railway Board Restructuring:**
 - Redesignate [Chairman as CEO](#) with decision-making powers.
 - **Status:** Implemented in 2020 with

restructured Railway Board.

4. **Independent Rail Regulator:**
 - Establish Rail Development Authority (RDA) for pricing and competition promotion.
 - **Status:** RDA approved in 2017 but with limited functioning.
5. **Accounting Reforms:**
 - Transition to accrual-based accounting to improve financial transparency.
 - **Status:** Implemented across Indian Railways.
6. **Offloading Non-Core Activities:**
 - Relieve Railways of responsibilities like RPF, medical, and educational facilities.
 - **Status:** Under consideration.
7. **Safety Upgrades:**
 - Create [Rashtriya Rail Sanraksha Kosh](#) (RRSK) for safety asset renewal with ₹1 lakh crore corpus.
 - **Status:** Extended till 2027 with additional funding of ₹45,000 crore.
8. **Technology Integration:**
 - Synergize technology, exemplified by Vande Bharat trains and [KAVACH systems](#).
 - **Status:** Being actively implemented.

Insta Links:

3. [Reforms-in-India-railway](#)

Science & Technology

15. ALLULOSE

Context:

South Korea has emerged as a key market for **allulose**, a new sugar substitute gaining popularity among consumers and food manufacturers.

About Allulose:

- **Natural source:** Found naturally in figs, kiwis, and other fruits.
- **Sweetness and Calories:** 70% as sweet as sugar with almost zero calories, making it ideal for low-calorie diets.
- **Health benefits:** May aid in weight loss and help lower blood glucose levels when combined with sugars, beneficial for diabetics.
- **Health concerns:** Side effects include potential gastrointestinal issues like diarrhea and bloating if consumed in large quantities.
- **Regulatory status:** Approved in the U.S. and South Korea, but still classified as a “novel food” in the EU and Canada, with limited global regulatory approval.
- **Challenges:** High production costs and need for further research on long-term safety limit its broader commercialization.

Insta Links:

2. [Sugar-Industry-in-India](#)

16. PROCESSING-IN-MEMORY (PIM) TECHNOLOGY

Context:

Israeli researchers have created software that allows data processing directly in memory, bypassing the CPU.

- This advancement, developed at the **Israel Institute of Technology**, aims to **address the energy-intensive and time-consuming data transfers** between memory and CPU, which are bottlenecks in modern computing.
- By **reducing the CPU’s workload**, this in-memory approach promises substantial time and energy savings.

About Python Programming Language with Digital Processing-In-Memory (PIM) Technology:

- **What it is:** Combines Python with processing-in-memory (PIM) technology, enabling computations to take place directly in memory, bypassing the CPU.
- **Need:** Tackles the “**memory wall**” problem, where data transfer rates fall behind advancements in processor speeds and memory capacity.
- **How it works:**
 - PyPIM platform introduces new instructions for in-memory operations.
 - Allows developers to use Python to create software for PIM systems.
 - Includes a simulation tool to estimate performance gains from in-memory processing.
- **Significance:**
 - Reduces data transfer bottlenecks.
 - Accelerates processing for mathematical and algorithmic tasks.
 - Saves energy, making it efficient for high-performance computing needs.

NOTE:

No need to go deep into this topic; however, UPSC sometimes asks these themes from a technology point of view. For exam purposes, understand the concept; there is no need to memorize anything from this.

Insta Links:

1. [Science-and-technology](#)
2. [Neuromorphic-computing](#)

17. GUJARAT AND SEMICONDUCTOR

Context: Aligning with the vision for a developed India by 2047, the Gujarat government has introduced the **Gujarat**

Semiconductor Policy 2022-2027 to position Gujarat as a leader in semiconductor manufacturing.



More about news:

- The **Gujarat government has introduced India’s first ‘Gujarat Semiconductor Policy 2022-2027.**
- In **Dholera’s emerging ‘Semicon City,’** Tata Electronics Private Limited (TEPL) and Taiwan’s Powerchip Semiconductor Manufacturing Corporation (PSMC) are establishing **India’s first AI-enabled semiconductor fabrication facility** with an investment exceeding Rs 91,000 crore.
- Dholera, is being developed as **India’s first Greenfield Smart City.**
- **About India Semiconductor Mission (ISM):**
 - **Launch:** Initiated in 2021 under the Ministry of Electronics and IT (MeitY) with a budget of Rs. 76,000 crores.
 - **Objective:** Develop a robust semiconductor and display manufacturing ecosystem in India.
 - **Financial support:** Provides incentives for companies investing in semiconductor and display manufacturing, and design capabilities.
 - **Focus on IP and Technology Transfer:** Encourages the creation of indigenous Intellectual Property (IP) and supports the Transfer of Technologies (ToT).
 - **Key schemes:**
 - **Semiconductor fabs:** Scheme to establish semiconductor fabrication units in India.
 - **Display fabs:** Scheme to support display manufacturing facilities.
 - **Compound semiconductors & ATMP:** Scheme for setting up facilities for compound semiconductors, silicon photonics, and ATMP/OSAT units.
 - **Design linked incentive (DLI):** Incentives to boost the design ecosystem in semiconductors.

Insta links:

1. [Indias-AI-landscape-and-industry-transformation](#)

18. LUMINESCENT NANOMATERIALS

Context:

To combat the increasing issue of counterfeiting, scientists at the **Institute of Nano Science and Technology (INST)** have developed a novel security ink based on luminescent nanomaterials.

About Luminescent Nanomaterials:

- **Unique properties:** These materials, doped with rare earth ions, exhibit luminescence that varies based on the wavelength of light they’re exposed to.
- **Multi-color display:** The ink shows vibrant blue under 365 nm UV light, pink under 395 nm, and orange-red under 980 nm near-infrared light, enhancing its security features.
- **Durability:** Remains effective under a wide range of light, temperature, and humidity conditions, making it ideal for long-term use.

Counterfeiting in Currency and Other Goods:

- **Advanced security feature:** Traditional covert tags are only visible under UV light and are easily duplicated. This new ink offers enhanced security with multi-wavelength color changes.
- **Applications:** Can be applied to various items to ensure authenticity, including currency, certificates, branded goods, and medicines.
- **Ease of verification:** Enables consumers and manufacturers to verify authenticity easily, offering a practical solution to counterfeiting.

Insta links:

1. [3D - hologram-technology](#)

19. LIDAR

Context:

Scientists have detected a lost Mayan city, hidden for centuries by the dense Mexican jungle, using LiDAR.

About LiDAR (Light Detection and Ranging):

- **Definition:** Remote sensing technology using pulsed laser light to measure distances and create 3D models of Earth’s surface.
- **Components:** Comprises a laser, scanner, and GPS receiver; usually mounted on aircraft for terrain mapping.
- **Functioning:** Pulsed laser light travels to the ground, reflecting off various features. The system calculates the two-way travel time of the light to measure distances and create elevation data.
- **Data output:** Initially produces a **“point cloud”** representing reflections from structures, vegetation, and terrain; refined to form high-resolution Digital Elevation Models.

- **Applications:** Used in geography, conservation, policy planning, and archaeology for detailed surface mapping, especially useful for exploring areas obscured by vegetation.
- **Archaeological use:** Enables archaeologists to survey large areas quickly, revealing structures hidden under dense foliage, as demonstrated in the discovery of the Maya city, Valeriana, in Mexico.

Insta Links:

1. [LiDAR](#)

Space

20. ANALOG SPACE MISSION

Context: The [Indian Space Research Organisation](#) (ISRO) has launched India's first analog space mission in Leh, Ladakh.



About Analog Space Mission:

- **Objective:** Simulate interplanetary habitat conditions to assess the feasibility of a sustainable extraterrestrial base.
- **Significance of location:** Ladakh's isolation, dry climate, and high-altitude, barren terrain provide Mars- and Moon-like conditions, making it ideal for analog simulations.
- **Collaborative effort:** Led by ISRO's Human Spaceflight Centre with partners including AAKA Space Studio, the University of Ladakh, and IIT Bombay.
- **Key benefits:** Supports [Gaganyaan](#) and other future space missions by testing life-support technologies, habitat feasibility, communication systems, and behavior in isolated conditions.
- **International context:** Analog missions, also conducted by NASA, simulate space conditions on Earth to evaluate human and robotic responses, technology, and operational dynamics essential for deep-space missions.

Insta links:

2. [ISRO-third-launch-pad](#)

21. LIGNOSAT

Context:

In a groundbreaking move towards sustainable space exploration, [Japanese scientists](#) from Kyoto University and Sumitomo Forestry have developed the world's first wooden satellite, named LignoSat.

About LignoSat:

- **Developers:** Created by Kyoto University and Sumitomo Forestry.
- **Launch:** Set to launch on a SpaceX rocket next week to the International Space Station (ISS).
- **Mission purpose:** To test the resilience of wood, specifically **Japanese honoki (magnolia) wood**, in space conditions over six months.
- **Material benefits:** Wood is lightweight, resistant to shattering, and won't produce harmful particles upon re-entry as it burns up harmlessly in Earth's atmosphere.
- **Future vision:** Seen as a potential step towards building wooden structures, planting trees, and constructing sustainable habitats on the Moon and Mars.

Insta Links:

1. [India-japan-relations](#)
2. [INSAT-satellites-to-analyse-fog](#)

22. VISIBLE EMISSION LINE CORONAGRAPH

Context:

Scientists from the Indian Institute of Astrophysics (IIA) in Bengaluru have reported initial significant observations from the [Visible Emission Line Coronagraph](#) (VELC) onboard ADITYA-L1, India's first solar mission launched by ISRO.

About Recent Observation:

- The VELC on ADITYA-L1 successfully **captured and precisely estimated the onset time of a Coronal Mass Ejection (CME)** that erupted from the Sun on July 16, marking the first scientific result from India's solar mission.
- The VELC's unique capabilities allowed scientists to observe the CME close to the Sun's surface, a breakthrough as such observations are typically visible only at a greater distance from the Sun.

About Visible Emission Line Coronagraph (VELC) on ADITYA-L1:

- **Purpose:** To observe the solar corona and study [Coronal Mass Ejections](#) (CMEs) and the solar wind.
- **Structure:** Comprises a coronagraph, spectrograph, polarimetry module, and detectors with auxiliary optics.

- **Capabilities:** Enables simultaneous imaging, spectroscopy, and spectro-polarimetry near the Sun's surface.
- **Built by:** Indian Institute of Astrophysics (IIA), CREST campus, Hosakote, Karnataka, in collaboration with ISRO.
- **Functionality:** Offers continuous monitoring of the solar corona, providing critical data for understanding solar activities and modeling CMEs, especially as the Sun reaches the peak of Solar Cycle 25.

Insta links:

1. [Coronal-Mass-Ejections](#)

23. PROBA-3 SPACE SATELLITE

Context:

India, in collaboration with the [European Union](#), is set to launch the Proba-3 Space Satellite, a solar observatory mission, in December 2024.

About Proba-3 Space Satellite:

- **Objective:** Solar observation, specifically focusing on the dynamics of the **Sun's corona**.
- **Collaboration:** Joint mission by the European Union and India, highlighting international cooperation in scientific research.
- **Launch Date:** Scheduled for early December 2024 from Sriharikota, India.
- **Significance:** Marks the third Proba satellite launch by ISRO for the EU, building on past successful launches of Proba-1 and Proba-2.
- **Technology and Science:** Equipped to provide high-resolution images and data on solar corona behavior, advancing space weather research.

Insta Links:

1. [India-space-planning](#)
2. [Aditya-L1-mission](#)

24. ZHURONG ROVER MARS EXPLORATION

Context:

China's Zhurong rover, part of the Tianwen-1 Mars mission, has provided compelling evidence suggesting that Mars harboured an ocean billions of years ago.

Discovery Made by China on Mars

- **Rover and mission details:**
 - **Rover:** [Zhurong](#) (named after a mythical Chinese fire god).
 - **Mission:** Tianwen-1, China's Mars exploration program.
- **Mars location:**
 - **Utopia Planitia:** A vast plain in Mars'

northern hemisphere where geological features like troughs, sediment channels, and mud volcano formations were observed.

- **Significance of discovery:**

- Indicates the presence of an **ancient ocean approximately 3.68 billion years ago**, likely frozen in its latter stages.
- Supports **the theory of a Martian coastline** and varying marine environments, enhancing the possibility of past microbial life.
- Suggests Mars transitioned from a hospitable to a **cold and dry planet** earlier than previously thought.
- Furthers understanding of water's role in Mars' history and its implications for habitability.

Insta links:

1. [Chinas-Tianwen-1-probe](#)

Health

25. "FIRST IN THE WORLD CHALLENGE" INITIATIVE

Context:

The Indian Council of Medical Research (ICMR) has launched the "First in the World Challenge" initiative, aiming to foster groundbreaking innovations in the health sector.

About First in the World Challenge Initiative:

- **Objective:** The initiative aims to encourage bold, unique research that brings "first of its kind" innovations to the global health sector.
- **Scope:** Focuses on out-of-the-box ideas leading to breakthrough health technologies, such as novel vaccines, drugs, diagnostics, and interventions.
- **Funding criteria:** Proposals must be groundbreaking, excluding incremental advancements or process improvements. High-risk, high-reward proposals with global impact potential are prioritized.
- **Application:** Open to individual researchers or teams from single or multiple institutions.
- **Selection process:** A committee of top experts, innovators, and policymakers will evaluate and select proposals based on originality and potential for impact.

About Indian Council of Medical Research (ICMR):

- **Origin:** Founded in 1911 as the Indian Research Fund Association (IRFA), it was renamed ICMR in 1949.
- **Ministry:** Operates under the Ministry of Health and Family Welfare, Government of India.
- **Aim:** To advance biomedical research, aiming to improve public health and address national health challenges.

- **Functions:**
 - Formulates, coordinates, and promotes biomedical research.
 - Conducts and supports medical research benefiting society.
 - Facilitates the translation of medical research into public health applications.
- **Vision:** “Translating Research into Action for Improving the Health of the Population.”

Insta links:

1. [ICMR](#)

26. VACCINE-DERIVED POLIOVIRUS

Context:

WHO faced scrutiny over its handling of polio data, particularly its limited transparency on immune-deficiency and ambiguous vaccine-derived poliovirus cases.

- Recently the ICMR-NIV Mumbai unit confirmed and reported that the **polio case detected in Meghalaya** was a **type 1 vaccine-derived poliovirus**.

About Polio Virus:

- **Definition:** Polio is a highly infectious viral disease primarily affecting children under five, causing paralysis and sometimes death by attacking the nervous system.
- **Types of Polio Virus:**
 - **Wild Poliovirus Types:**
 - **WPV1:** Currently the most common strain.
 - **WPV2:** Eradicated globally.
 - **WPV3:** **Declared eradicated in 2019.**
 - **Vaccine-derived Poliovirus (VDPV):** Occurs when the weakened virus in the oral polio vaccine (OPV) reverts to a more virulent form, potentially causing outbreaks in under-immunized areas.

Why is WHO not fully transparent?

The WHO registry on polio — wild poliovirus and vaccine-derived poliovirus — is at best sketchy



Problematic: As long as OPV is used, vaccine-associated and vaccine-derived poliovirus cases will be reported.

SPECIAL ARRANGEMENT

1 The WHO registry has data of wild poliovirus and circulating vaccine-derived poliovirus (cVDPV) cases alone. It does not have data of iVDPV and aVDPV

2 Even the case of the circulating VDPV cases, the WHO registry does not classify the cases into type-1, type-2 and type-3

3 The GPEI database too has data of only wild poliovirus and circulating VDPV cases in individuals and environmental samples

4 The GPEI database classifies the circulating VDPV cases as type-1, type-2 and type-3

5 The GPEI database has data of circulating VDPV cases and environmental samples for only 2021 to 2024

6 GPEI maintains a registry of iVDPV cases but does not make the data publicly available

7 GPEI periodically publishes a list of iVDPV cases. The last time GPEI published the data was in July 2020

- **Vaccines:**
 - **Oral Polio Vaccine (OPV):** Contains weakened virus, given at birth, with additional doses at 6, 10, and 14 weeks, and a booster at 16-24 months.
 - **Inactivated Polio Vaccine (IPV):** Administered with DPT in the Universal Immunization Programme (UIP) as a booster for added immunity.
- **Vaccine-derived Poliovirus (VDPV):**
 - **Circulating VDPV (cVDPV):** Develops in under-immunized populations when the vaccine strain spreads and mutates.
 - **Immune-deficiency VDPV (iVDPV):** Can occur in immune-deficient individuals who carry and excrete the virus for extended periods.
 - **Ambiguous VDPV (aVDPV):** Cases that do not fit into cVDPV or iVDPV categories.
- **Transmission:** Primarily through the fecal-oral route, the virus multiplies in the intestine, allowing it to invade the nervous system.
- **Global Eradication Efforts:** Multiple rounds of OPV immunization are recommended to stop cVDPV transmission, with high-quality immunization campaigns being critical.
- **India's Status:** Declared polio-free by WHO in 2014, with the last wild polio case reported in 2011.

Insta links:

1. [World-polio-day](#)

27. ANIMAL HEALTH SECURITY STRENGTHENING IN INDIA FOR PANDEMIC PREPAREDNESS AND RESPONSE INITIATIVE

Context: The Government of India has launched the “Animal Health Security Strengthening in India for Pandemic Preparedness and Response” initiative to bolster animal health security as a preventive measure against future pandemics

About the ‘Animal Health Security Strengthening in India for Pandemic Preparedness and Response’ Initiative:

- **Launched in:** October 25, 2024
 - The project was approved by the Pandemic Fund, **created by G20 countries under Indonesian presidency in 2022.**
- **Ministry:** Ministry of Fisheries, Animal Husbandry and Dairying
- **Aim:**
 - Enhance capacity to prevent, detect, and respond to animal health threats.
 - Reduce risks of zoonotic disease transmission to humans.
- **Implementing agencies:** Asian Development Bank

(ADB), World Bank, and Food and Agriculture Organisation (FAO)

- **Timeline:** Expected completion by August 2026
- **Funds:** \$25 million from the Pandemic Fund under the G20 initiative
- **Features:**
 - Strengthen disease surveillance and early warning systems.
 - Upgrade laboratory networks and vaccine manufacturing facilities.
 - Improve interoperable data systems and analytics.
 - Build human resources capacity and address institutional gaps.
 - Foster regional cooperation for cross-border disease management.

Insta Links:

1. [Pandemic-Fund](#)

28. ‘PPP PLUS PPP’ MODEL

Context: On World Diabetes Day, Union Minister for Science and Technology Jitendra Singh introduced the **innovative ‘PPP plus PPP’ model**, aimed at addressing **India’s diabetes epidemic** through collaborative efforts between domestic and international stakeholders.

About ‘PPP plus PPP’ model:

- **Definition:** A dual-layered collaboration model combining Public-Private Partnerships (PPP) within India with international PPP collaborations.
- **Objective:** To enhance healthcare infrastructure, promote innovation, and make diabetes care accessible and affordable.
- **Domestic Partnerships:** Strengthens India’s healthcare system by uniting public and private sectors to develop cost-effective and scalable solutions.
- **International Collaborations:** Engages global expertise to bring advanced technologies and AI-driven solutions for diabetes monitoring and management.
- **Focus Areas:** Develop affordable non-invasive devices, increase awareness, ensure treatment adherence, and close healthcare accessibility gaps.

Insta links:

1. [Diabetes-a-non-communicable-disease](#)

29. ‘KNOW YOUR MEDICINE’ (KYM) APP

Context: Union Minister for Youth Affairs and Sports, Dr. Mansukh Mandaviya, launched the **‘Know Your Medicine’ (KYM)** app developed by NADA India to combat doping in sports.



About Know Your Medicine (KYM) App:

- **Developer:** [National Anti-Doping Agency \(NADA\)](#), India.
- **Purpose:** To prevent inadvertent doping by allowing athletes to check if a medicine contains substances prohibited by WADA.
- **Key Features:**
 - Verifies medicine or ingredients for prohibited substances.
 - Includes image and audio search for ease of access.
 - Customizable search options based on sport categories for specific information.
- **Impact:** Supports clean sports by fostering a fair and ethical sporting culture.
- **Target Users:** Athletes, coaches, and sports professionals.

Insta links:

1. [Doping-in-sports](#)
2. [Play-true-campaign](#)

Energy

30. MILLIMETER WAVE TRANSCIVER

Context:

The Centre for Development of Telematics ([C-DOT](#)) has signed an agreement with the IIT Roorkee to develop a **Millimeter Wave Transceiver** aimed at improving 5G connectivity in rural areas under the **Telecom Technology Development Fund (TTDF)** scheme.

About Millimeter Wave Transceiver Technology:

| Aspect | Description |
|----------------------|--|
| What is it | A device used to transmit and receive signals in the millimeter wave (mmWave) frequency range (30-300 GHz), enabling high-speed wireless communication for applications like 5G. |
| How it works | Uses small cells to emit high-frequency mmWaves that provide fast data rates over short distances; small cells are placed in clusters to ensure continuous coverage. |
| Advantages | <ul style="list-style-type: none"> - High data rates and bandwidth - Low latency - Less interference with other systems - Compact antennas for IoT compatibility - Increased data capacity |
| Disadvantages | <ul style="list-style-type: none"> - Limited range; blocked by physical objects - Prone to signal degradation from rain, humidity, and obstructions - Higher manufacturing costs and need for clustered cells |

About Telecom Technology Development Fund (TTDF):

- **Origin:** Previously called the Universal Service Obligation Fund Scheme.
 - Was established by the **Indian Telegraph (Amendment) Act, 2003**
- **Aim:** To support R&D in telecom tech, enable affordable broadband and mobile services in rural/remote areas, and foster synergies between startups, academia, and industry.
- **Ministry:** Department of Telecommunications, Ministry of Communications.
- **Features:**
 - Provides grants to Indian entities for telecom innovation and indigenous manufacturing.
 - Encourages Intellectual Property creation, technology co-innovation, and reduced imports.
 - Supports the telecom ecosystem, including standards development, design, prototyping, and testing.

Insta Links:

1. [The-communication-system-in-india](#)

31. GRAVITY ENERGY STORAGE

Context:

As climate change intensifies, transitioning to renewable energy is crucial, with solar energy offering abundant yet intermittent supply. Gravity energy storage is emerging as a sustainable solution to stabilize power grids, providing an alternative to batteries.

About Gravity Energy Storage:

- **What it is:** A renewable energy storage technology that uses gravitational force to store and release energy, especially suitable for grid-scale applications.
- **How It works:**
 - During excess energy generation, a heavy mass (water, concrete, or compressed earth blocks) is lifted, converting electrical energy into stored potential energy.
 - When energy demand rises, the mass is released, descending to drive water through a turbine, generating electricity.
- **Advantages:**
 - **Longevity:** Lasts for decades with minimal maintenance compared to battery systems.
 - **Environmentally friendly:** No harmful chemicals; reduces disposal and environmental impact.
 - **Cost-effective:** Offers lower lifetime energy and storage costs for large-scale applications.
 - **Flexible deployment:** Can be used in areas unsuitable for pumped-hydro or large battery systems, such as urban or constrained environments.
- **Limitations:**
 - **Early Development Stage:** High initial setup costs and regulatory challenges.
 - **Geographic limitations:** Requires suitable locations for large infrastructure.
 - **Limited energy density:** While effective for grid storage, less efficient for compact or smaller-scale applications compared to batteries.

Insta Links:

1. [Renewable-energy](#)

32. SHANAN HYDROPOWER PROJECT

Context:

The Himachal Pradesh government has intensified efforts to reclaim the 110 MW British-era Shanan Hydropower Project from Punjab, asserting its rightful ownership over the project.

About Shanan Hydropower Project:

- **Established:** Commissioned in 1932, it is India’s first megawatt-capacity hydroelectric project.

- **Location:** Joginder Nagar in Mandi district, Himachal Pradesh.
- **River:** Built on the Uhl River, a tributary of the Beas.
- **Issue:** Leased to Punjab for 99 years in 1925, the agreement ended in March 2024; Himachal Pradesh seeks ownership now, arguing that the land originally belonged to it.
- **Present Status:** Under Punjab’s control, Himachal is seeking support from the Centre to secure the project’s transfer.

Insta Links:

1. [Shanan-hydropower-project](#)
2. [Haryana-Punjab-dispute](#)

Environment & Ecology

33. SANJAY DUBRI TIGER RESERVE

Context:

A resort and a conference hall built within tiger reserve corridors at Madhya Pradesh’s Sanjay Dubri and Bandhavgarh have emerged as a point of contention between the state’s Wildlife and Tourism departments.



About Sanjay Dubri Tiger Reserve:

- **Location:** Situated in the Sidhi district of northeastern Madhya Pradesh, bordering Guru Ghasidas National Park to the south.
- **Composition:** Encompasses Sanjay National Park and Dubri Sanctuary, along with buffer zones from Sidhi and Shahdol districts.
- **Ecological corridor:** Part of the Bandhavgarh-Sanjay-Guru Ghasidas-Palamau landscape, forming a vital wildlife corridor between Bandhavgarh and Palamau Tiger Reserves.
- **Rivers:** Key rivers include Banas, Gopad, Mawai, Mahan, Kodmar, and Umrari.
- **Flora:** Dominated by moist deciduous and dry deciduous sal forests, with some areas featuring open sal forests and bamboo remnants.

- **Fauna:** Home to diverse species like tigers, leopards, sloth bears, chital, nilgai, wild dogs, jungle cats, and the Indian python.

About About Bandhavgarh Tiger Reserve:

- **Location:** Situated between the Vindhyan and Satpura ranges in **Umaria** district, Madhya Pradesh.
- **Status:** Designated a national park in 1968, it gained **Tiger Reserve** status in 1993.
- **Topography:** Known for valleys, hills, and plains with the historic Bandhavgarh Fort, associated with Lord Rama and his brother Lakshmana, prominently located.
- **Vegetation:** Features tropical moist deciduous forests, including sal, mixed forests, and grasslands, with bamboo on the lower slopes.
- **Flora:** Includes notable species like Saj (*Terminalia tomentosa*), Dhaora (*Anogeissus latifolia*), Arjun (*Terminalia arjuna*), and Amla (*Emblica officinalis*).
- **Fauna:** Hosts the Royal Bengal Tiger noted for the highest density of tiger population in India and globally.

Insta links:

1. [Forest.MPonline](#)

34. ILLEGAL SAND MINING

Context:

Villagers from **Assam and Meghalaya**, particularly along areas with ongoing inter-state boundary disputes, have united **against illegal sand mining** that threatens the local ecosystem, livelihoods, and road infrastructure.



About Rivers in news:

- **Kolong River (Assam)**
 - **Location:** Morigaon district, Assam
 - **Joins:** The Brahmaputra River
 - **Significance:** The Kolong is a major distributary of the Brahmaputra and is impacted by sand mining activities in

Morigaon, affecting the local ecosystem and road conditions.

- **Dudhnoi (Manda) River (Meghalaya-Assam border)**
 - **Location:** Along the Assam-Meghalaya border, especially near Nokmakundi and surrounding villages
 - **Joins:** Eventually joins the Brahmaputra River
 - **Significance:** It is a primary site for illegal sand mining in the North Garo Hills region, leading to erosion and water scarcity for cultivation.
- **Kulsi River (Assam)**
 - **Location:** Kamrup district, Assam
 - **Joins:** Flows into the Brahmaputra River
 - **Significance:** The Kulsi is a habitat for the endangered Gangetic dolphin, with illegal sand mining contributing to habitat loss and ecosystem disruption.
- **Morakolohi River (Assam)**
 - **Location:** Chamaria area, near Puthimari village, Kamrup district, Assam
 - **Joins:** Feeds into the Brahmaputra system
 - **Significance:** A hotspot for high-speed sand extraction using pump motors, affecting the river’s sustainability and endangering aquatic species.

Insta Links:

1. [Assam-floods-why-ganga-brahmaputra-region-is-flood-prone](#)

35. RC MORRIS REPORT & KODO MILLET

Context:

The deaths of 10 elephants in Madhya Pradesh’s Bandhavgarh Tiger Reserve have brought renewed attention to a **1934 report by zoologist RC Morris** on similar fatalities of elephants in Tamil Nadu.

About RC Morris Report:

- **Origin:** Written by RC Morris, Fellow of the Zoological Society, in 1934, documenting 14 elephant deaths due to kodo millet poisoning in Tamil Nadu’s Vannathiparai Reserve Forest.
- **Antidotes:** The report proposed tamarind water and buttermilk as effective remedies for **kodo** millet poisoning, which are now being reconsidered in the recent Bandhavgarh case.
- **Significance:** This historical document offers insights into early knowledge of millet toxicity and practical antidotes, drawing connections to recent elephant fatalities from possible mycotoxins associated with kodo millet.

About Varagu (Kodo Millet):

- **Definition:** A drought-resistant millet known as kodo

or varagu in India, primarily cultivated in dry regions for food and fodder.

- **Geographic spread:** Grown across India, particularly in states like Madhya Pradesh, Tamil Nadu, and Chhattisgarh, as well as in Pakistan, Thailand, and parts of Africa.
- **Nutritional value:** Known for high fibre, antioxidant properties, and as a gluten-free option beneficial to health, especially among economically weaker sections.
- **Toxicity risks:** Vulnerable to fungal contamination under specific environmental conditions, leading to **cyclopiazonic acid (CPA) toxin** production, which causes “kodo poisoning” with serious symptoms in humans and animals.

About Bandhavgarh Tiger Reserve:

- **Location:** Situated between the Vindhyan and Satpura ranges in Madhya Pradesh.
- **Status:** Designated a national park in 1968, it gained **Tiger Reserve** status in 1993.
- **Topography:** Known for valleys, hills, and plains with the historic Bandhavgarh Fort, associated with Lord Rama and his brother Lakshmana, prominently located.
- **Vegetation:** Features tropical moist deciduous forests, including sal, mixed forests, and grasslands, with bamboo on the lower slopes.
- **Flora:** Includes notable species like Saj (*Terminalia tomentosa*), Dhaora (*Anogeissus latifolia*), Arjun (*Terminalia arjuna*), and Amla (*Emblica officinalis*).
- **Fauna:** Hosts the Royal Bengal Tiger noted for the highest density of tiger population in India and globally.

NOTE: This topic is very important from a preliminary point of view. Make a note of the RC Morris report (year, state, anecdote suggested) and note down about Kodo Millet too.

Insta Links:

1. [International-year-of-millet-2023](#)

36. FOAM IN YAMUNA RIVER

Context:

In preparation for Chhath Pooja, Delhi has faced recurring debates and actions around the toxic foam in the Yamuna River, where devotees gather for rituals.

Why Does Foam Occur in the Yamuna River?

- **Pollutant accumulation:** The river’s lean flow during winter time reduces the natural dilution of pollutants, allowing them to concentrate.
- **Detergents:** The main contributors to foaming are **phosphates** from detergents used in domestic and industrial activities. These chemicals lead to surfactant buildup in the water.

- **Industrial effluents:** Discharge from industries upstream also contributes chemicals that create foam.
- **Bacteria activity:** Anaerobic bacteria act on the pollutants, especially as water falls from heights, such as at the Okhla barrage, aiding foam formation.
- **Seasonal changes:** The onset of **winter reduces oxygenation**, aggravating the foaming.

About Defoaming Process:

- **Defoamer solution:** A **polyoxypropylene-based defoamer**, approved by the US FDA, is used to suppress foam effectively without harming water quality.
- **Dilution ratio:** The defoamer is diluted at a ratio of 1:100, minimizing any adverse effects from constituents like silicone.
- **Ecological safety:** Testing indicated no reduction in dissolved oxygen levels after defoaming, implying it doesn’t impact the river’s ecology.
- **Temporary solution:** Spraying is focused on the Okhla barrage area, and while effective for short-term foam control, it is **not a permanent fix for pollution**.
- **Monitoring and Approval:** The **National Mission for Clean Ganga** (NMCG) and other stakeholders oversee the process to ensure eco-friendly application methods.

Insta links:

1. [Yamuna-river-and-its-pollution](#)

37. INTERNATIONAL SOLAR ALLIANCE

Context:

The Seventh International Solar Alliance (ISA) Assembly session, held in New Delhi at Bharat Mandapam, concluded with key leadership elections, the review of **ISA initiatives**, and deliberations on advancing global solar energy adoption.

Recent Outcomes of the ISA Summit:

- **Leadership Elections:** India was unanimously elected President, and France won the contested Co-Presidency against Grenada. Eight Vice Presidents from ISA’s regional groups were also selected, including Ghana, Seychelles, Australia, and Germany.
- **Director general appointment:** Ashish Khanna from India was appointed Director General, with goals to strengthen ISA’s collaboration and practical implementation of solar goals.
- **Focus areas:** The Assembly discussed key initiatives targeting energy access, security, and transition, focusing on funding requirements and programmatic support.
- **Committees and Governance:** Decisions included enhancing ISA’s governance structure with the Standing Committee and Regional Committees to

streamline collaboration and action among Member Countries.

About the International Solar Alliance (ISA):

- **Established:** 2015; headquartered in India (first intergovernmental organization headquartered in India).
- **Membership:** 120 Member and Signatory countries, aiming to mobilize \$1 trillion in solar investments by 2030.
- **Mission:** Drive global solar energy adoption to foster sustainable growth, reduce energy costs, and provide universal energy access.
- **Primary goals:** Enhance solar energy in sectors like agriculture, transport, and health; standardize solar policies; and provide solar training and data.
- **Partnerships:** Collaborates with development banks, civil society, private, and public sectors, focusing on support for Least Developed Countries (LDCs) and Small Island Developing States (SIDS).

Insta Links:

1. [International-Solar-Alliance](#)

38. MARKHOR

Context:

Efforts are urgently needed to protect the habitat of the [endangered Markhor](#), the world’s largest wild goat, to support and increase its population in Jammu and Kashmir.



About Markhor:

- **Scientific name:** *Capra falconeri*
- The UN General Assembly proclaimed **24 May the International Day of the Markhor**, and it is celebrated for the first time in 2024.
- **Distinctive features:** Spiral horns (up to 160 cm in males), thick fur in shades of brown and gray; males weigh 80-110 kg, females weigh 32-50 kg.
- **Habitat:** Mountainous regions at 600–3,600 meters in Pakistan, Afghanistan, India (J&K), and Tajikistan.
- **Diet:** Herbivorous; feeds on grasses, leaves, herbs, and woody plants in winter.

- **Social behavior:** Males often solitary or in small groups, while females and young form larger herds.
- **Threats:** Illegal hunting for horns, habitat encroachment, livestock competition, and climate change effects.
- **Conservation status:** Listed as Near Threatened by IUCN; conservation efforts focus on habitat protection, reducing poaching, and managing livestock competition.

Insta links:

1. [Species-in-news](#)

39. COMMISSION FOR AIR QUALITY MANAGEMENT

Context:

Following repeated directives from the Supreme Court to address stubble burning more effectively, the Commission for Air Quality Management (CAQM), has doubled fines for farmers engaging in this practice.

More about news:

- **Revised Fines for Stubble Burning:**
 - **Farmers with less than two acres:** Increased fine from ₹2,500 to ₹5,000 per incident.
 - **Farmers with between two and five acres:** Fine doubled from ₹5,000 to ₹10,000.
 - **Farmers with more than five acres:** Fine raised from ₹15,000 to ₹30,000.
 - **Implementation:** Nodal officers in Delhi, Punjab, Haryana, and NCR regions of Rajasthan and Uttar Pradesh are authorized to enforce and collect these fines as environmental compensation.

About Commission for Air Quality Management:

- **Origin:** Established under the CAQM Act, 2021 for NCR and adjoining areas, replacing the Environment Pollution (Prevention and Control) Authority (EPCA).
- **Aim:** Coordinate and oversee efforts to improve air quality, prevent and control air pollution in Delhi-NCR and surrounding states (Punjab, Haryana, Rajasthan, Uttar Pradesh).
- **Jurisdiction:** Delhi-NCR, Punjab, Haryana, Rajasthan, and Uttar Pradesh.
- **Powers:**
 - Restrict activities impacting air quality.
 - Conduct research on pollution.
 - Issue binding directions to authorities and individuals.
 - Enforce compliance and take preventive actions.
- **Composition:**
 - Chairperson: Secretary/Chief Secretary rank official.
 - Five ex officio members from Delhi, Punjab,

- Haryana, Rajasthan, and UP.
- Three full-time technical members.
- Members from NGOs and technical bodies like CPCB, ISRO, and NITI Aayog.

Insta Links:

1. [CAQM](#)

40. AIRSHIPS

Context:

As [climate change](#) drives the need for more sustainable transport options, airships are resurfacing as a viable choice, particularly for cargo transportation.

About Airships:

- **Origin and History:**
 - Developed as the first aircraft capable of powered, controlled flight in the early 20th century.
 - Initially seen as the future of travel until airplanes took precedence; notable incidents like the **Hindenburg disaster (1937)** further diminished public trust in airships.
- **How they work:**
 - Operate on the **“lighter-than-air” principle**, utilizing gases like helium (non-combustible) or, earlier, hydrogen (flammable) for lift.
 - Lift occurs as the gas inside the airship is less dense than atmospheric air.
- **Buoyancy challenge:**
 - Variations in buoyancy needed for cargo handling complicate airship operations; previously, releasing and refilling helium was unfeasible due to cost.
 - Innovative solutions involve water ballast or compressed gas systems to adjust buoyancy without excessive helium usage.

Insta Links:

2. [Analysis-of-Indias-aviation-sector](#)

41. WORLD’S FIRST CO₂-TO-METHANOL CONVERSION PLANT

Context:

NTPC, India’s largest power producer, launched the **world’s first CO₂-to-methanol conversion plant** at its Vindhyachal facility, marking a significant advancement in carbon management and green fuel technologies.

About CO₂-to-Methanol Conversion Process:

- **Carbon capture:** CO₂ emissions from industrial processes are captured directly from flue gases.
- **Catalytic reaction:** The captured CO₂ reacts with

- hydrogen (produced through renewable sources) using a specialized catalyst developed by [NTPC](#)
- **Methanol synthesis:** The reaction occurs under controlled pressure and temperature conditions, producing methanol as the end product.
- **Storage and utilization:** The synthesized methanol is stored and can be used as a fuel or a feedstock for chemicals.

Significance of CO₂-to-Methanol Conversion:

- **Carbon management:** Reduces CO₂ emissions by recycling them into useful products.
- **Green fuel production:** Methanol serves as a cleaner alternative to fossil fuels, supporting India’s transition to green energy.
- **Indigenous innovation:** Development of India’s first indigenous methanol synthesis catalyst promotes self-reliance in green technologies.
- **Industrial applications:** Methanol is used in fuel blending, chemicals production, and hydrogen generation.
- **Sustainable development:** Aligns with global climate goals and India’s commitment to reducing carbon footprints.

Insta links:

1. [Carbon-capture-utilisation-and-storage](#)

42. CSE ASSESSMENT

Context:

According to the CSE and **Down To Earth** analysis, 2024 saw a record frequency and severity of such events, disproportionately affecting vulnerable populations, agriculture, and infrastructure.

NOTE: This key data from the CSE report will be more useful for Mains compared to Prelims. While studying this article, please read it from the main perspective more.

Key Highlights of CSE Assessment:

- **Rising frequency of events:**
 - Extreme weather events occurred on **255 of 274 days** in 2024, up from 235 in 2023 and 241 in 2022.
- **Impact on lives:**
 - Deaths increased by **18% in 3 years**, with **3,238 fatalities** in 2024 compared to 2,755 in 2022.
 - Kerala recorded the **highest fatalities (550)**, followed by Madhya Pradesh (353) and Assam (256).
- **Agricultural losses:**
 - Crop loss spiked by **74%**, with **3.2 million hectares affected** in 2024 compared to 1.84 million hectares in 2022.

- Maharashtra suffered the largest crop losses (>60%).
- **Infrastructure and Livestock Damage:**
 - **235,862 houses** were destroyed in 2024, a significant increase from 80,293 in 2022.
 - **9,457 livestock** perished, up from 92,519 last year.
- **Regional and State Impact:**
 - Central India had the **highest extreme weather days (218 days)** in 2024.
 - **Madhya Pradesh** recorded the most extreme weather days (176) among states.
 - Andhra Pradesh reported the **most houses damaged** due to extreme weather.
- **Broader implications:**
 - [Heatwaves](#) claimed **210 lives** but underestimated prolonged health impacts.
 - Lack of robust compensation systems for farmers exacerbates poverty and marginalization.

Insta Links:

1. [Synthesis-report-of- IPCC AR6](#)

43. 'EV AS A SERVICE' PROGRAMME

Context:

The Government of India, through CESL, launched the 'EV as a Service' programme to accelerate electric vehicle (EV) adoption in government offices, contributing to the nation's sustainability goals and commitment to achieving net zero emissions by 2070.

About 'EV as a Service' Programme:

- **Launched by:** Convergence Energy Services Limited (CESL), under Energy Efficiency Services Limited (EESL).
- **Ministry:** Ministry of Power and Housing & Urban Affairs.
- **Aim:** To deploy 5,000 E-Cars in Central and State Government ministries/departments over the next two years to promote e-mobility and reduce emissions.
- **Implementation:** Flexible procurement model, allowing government departments to choose from a variety of [E-Car](#) makes/models suitable for their operational needs.
- **Features:**
 - Supports government sustainability and net-zero targets by 2070.
 - Focuses on reducing carbon emissions and reliance on fossil fuels.
 - CESL has already deployed 2,000 E-Cars and facilitated 17,000 E-Buses across India.
 - Includes an EV rally featuring a range of electric vehicles to showcase e-mobility diversity.

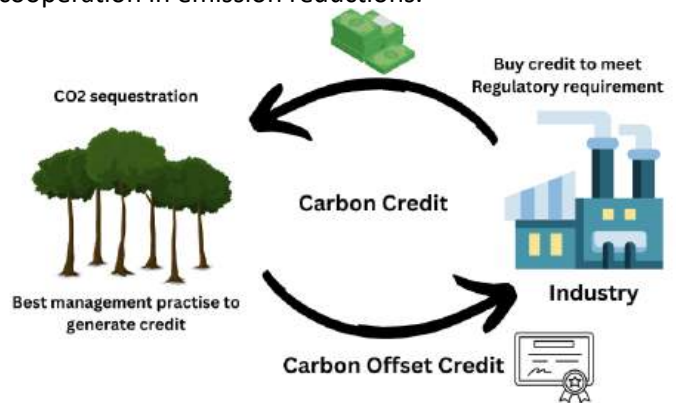
Insta links:

1. [EV report](#)

44. ARTICLE 6 – CARBON CREDITS

Context:

At the COP29 climate summit in Azerbaijan, countries aim to finalize rules for a global carbon offset trading system under Article 6 of the Paris Agreement, enhancing international cooperation in emission reductions.



About Carbon Offsets:

- **Definition:** Mechanisms enabling governments or companies to offset their greenhouse gas emissions by funding emission reduction projects elsewhere.
- **Examples:** Solar installations, electric vehicle adoption, mangrove restoration.
- **Purpose:** Support emission reduction goals and facilitate global climate finance.

About Article 6 of the Paris Agreement:

- **Purpose:** Framework for international carbon trading to meet climate goals.
- **Mechanisms:**
 - **Article 6.2:** Bilateral agreements for trading carbon credits.
 - **Article 6.4:** UN-managed centralized trading system.
- **Significance:** Drives climate finance to developing countries and ensures compliance with NDCs.

Decisions so far:

- **COP26 (Glasgow):** Established a broad framework for carbon credit trading.
- **COP28 (Dubai):** Failed to operationalize the central trading system or clarify bilateral trading rules.
- **Current Progress:**
 - 91 bilateral agreements across 56 countries.
 - Concerns remain about double-counting and the robustness of credit verification.

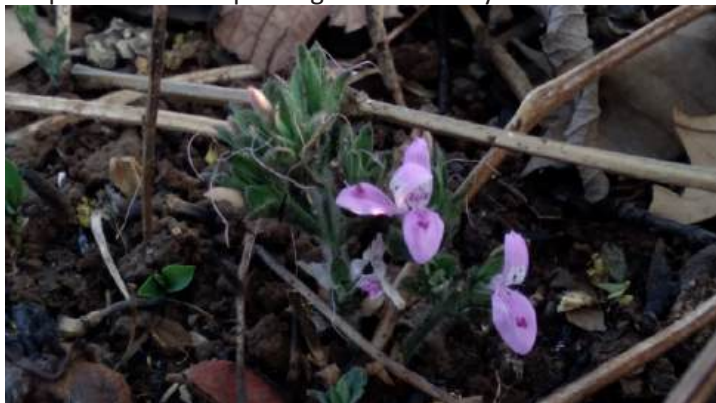
Insta Links:

1. [Important-outcomes-of-cop28](#)

45. DICLIPTERA POLYMORPHA

Context:

A unique plant species, **Dicliptera polymorpha**, has been discovered in the **Western Ghats**, showcasing remarkable adaptations to fire-prone grassland ecosystems.



About Dicliptera polymorpha:

- **Scientific name:** *Dicliptera polymorpha*
- **Found in:** Grasslands of the northern Western Ghats, particularly **Talegaon-Dabhade** (Maharashtra).
- **Features of the Plant:**
 - **Fire-resilient** and pyrophytic.
 - Exhibits **dual-blooming** patterns.
 - **Unique spicate inflorescence structure**, a rarity among Indian species.
 - Morphological diversity reflected in its naming.
- **Characteristics:**
 - **Blooming Cycles:**
 1. **Post-monsoon:** November to April.
 2. **Post-fire:** May and June.
 - Survives extreme climatic conditions like summer droughts and frequent fires.
 - Rootstocks produce dwarf flowering shoots during the fire-triggered cycle.
- **Significance:**
 - Demonstrates rare fire-adaptive traits.
 - Highlights the importance of conserving grassland ecosystems in the Western Ghats.
 - Informs fire management practices to support biodiversity.

Insta links:

1. [Water-hyacinth-plant-into-eco-friendly-handicraft](#)

46. EURASIAN OTTER

Context:

A rescue operation conducted by the Pune Forest Department and RESQ Charitable Trust has revealed a rare Eurasian Otter in Indapur, Pune District, a species previously unrecorded in this area.



About Eurasian Otter:

- **Scientific name:** *Lutra lutra*
- **Habitat:** Found in streams, rivers, lakes, freshwater and peat swamps, ocean shores, and rice fields; prefers areas near waterways.
- **Distribution:**
 - **Global:** From Ireland to China, across Europe, North Africa, and Asia.
 - **India:** Present in northern, northeastern, and southern regions, especially cold hills and mountain streams.
- **Physical features:**
 - Long body, thick tail, short legs.
 - Brown upper body, cream-colored underside.
 - Sensitive whiskers and two layers of fur (outer waterproof layer and inner warm layer).
- **Diet:** Predominantly fish, crustaceans, and amphibians; occasionally reptiles, birds, eggs, insects, and worms.
- **Behavior:** Solitary, but occasionally seen in family groups (mother and offspring).
- **Conservation Status:**
 - **IUCN:** Near Threatened
 - **Wildlife Protection Act (India):** Schedule II
 - **CITES:** Appendix I

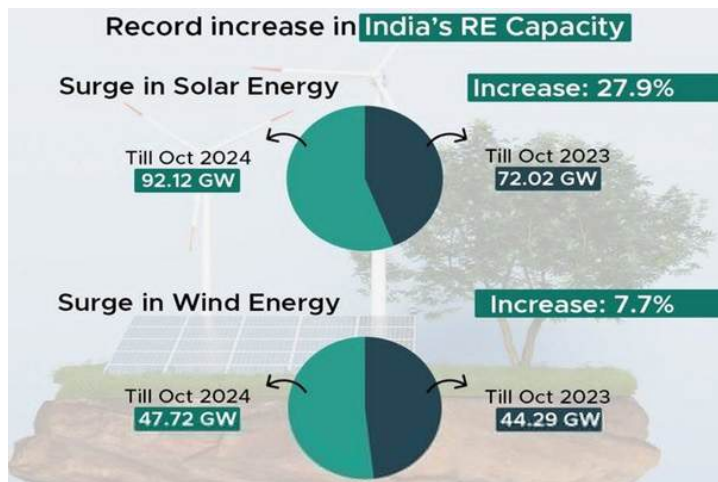
Insta Links:

2. [Eurasian-otter](#)

47. INDIA'S ACHIEVEMENTS IN RENEWABLE ENERGY

Context:

India's renewable energy sector saw notable growth from October 2023 to October 2024, with significant additions in solar, wind, hydro, and nuclear capacities.



India's Achievements in Renewable Energy: Key Points

- **Total Renewable Energy Capacity:**
 - Increased by **24.2 GW** (13.5%) in a year, reaching **203.18 GW** in October 2024, up from **178.98 GW** in October 2023.
- **Non-Fossil Fuel Capacity:**
 - Total capacity, including nuclear energy, rose to **211.36 GW** in 2024 from **186.46 GW** in 2023.
- **Solar Power:**
 - **Added 20.1 GW** (27.9%) to reach **92.12 GW** in October 2024, up from **72.02 GW** in October 2023.
 - Total solar capacity, including projects under implementation and tendered, stands at **250.57 GW**, up from **166.49 GW** last year.
- **Wind Power:**
 - Installed capacity grew by 7.8%, reaching **47.72 GW** in 2024, up from **44.29 GW** in 2023.
 - Total capacity in the pipeline for wind energy reached **72.35 GW**.
- **Capacity Additions (April-October 2024):**
 - Added **12.6 GW** of renewable capacity, with **1.72 GW** installed in October 2024 alone.
 - Projects under implementation expanded to **143.94 GW**, with 89.69 GW tendered, compared to 99.08 GW and 55.13 GW, respectively, in 2023.
- **Hydro and Nuclear Energy:**
 - Large hydro projects contribute **46.93 GW**, and nuclear power adds **8.18 GW** to the renewable energy mix as of October 2024.

Insta links:

1. [Challenges-posed-by-renewable-energy-projects-in-India](#)

48. COMB JELLIES

Context: A groundbreaking discovery reveals that the **comb jelly *Mnemiopsis leidyi*** has the unique ability to reverse its aging process by regressing from an adult stage back to a

larval form under stress.



About Comb jellies:

- **Classification:** Marine invertebrates belonging to the phylum **Ctenophora**, distinct from jellyfish.
- **Physical traits:**
 - Characterized by rows of cilia ("combs") for swimming and often exhibit **bioluminescence**.
 - Use sticky cells called **colloblasts** to capture prey, unlike jellyfish that use stinging cells.
- **Unique abilities:**
 - *Mnemiopsis leidyi* **can reverse aging**, regressing from adulthood to a larval stage when under extreme stress.
- **Evolutionary significance:**
 - Among Earth's oldest animals, existing for approximately **700 million years**.
 - Shares age-reversal traits with species like the immortal jellyfish (*Turritopsis dohrnii*), forming a rare group of "time-traveling" organisms.
- **Scientific implications:**
 - Offers insights into aging, rejuvenation, and developmental biology.
 - Promises to advance research on molecular mechanisms of reverse development and their potential application in human longevity studies.

Insta Links:

1. [Species in News](#)

49. AFRICAN ELEPHANT

Context:

A comprehensive study covering 52 years has revealed a **dramatic decline in African elephant populations**, with savannah elephants experiencing a 70% decrease and forest elephants suffering a 90% decline.

AFRICAN ELEPHANT | ASIAN ELEPHANT

What are the differences?



EARS: Large, "Africa-shaped" ear
TRUNK TIP: Two "fingers" for grasping
HEAD: Single dome
HEIGHT (tallest at shoulder): 9 – 13'
WEIGHT: 8,800 – 15,400 lbs.

EARS: Small, rounded ear
TRUNK TIP: One "finger" for grasping
HEAD: Twin dome
HEIGHT (tallest at back): 6.5 – 9'
WEIGHT: 6,600 – 13,200 lbs.

About African Elephants:

- **Classification:**
 - Largest land animals, native to **Sub-Saharan Africa**.
 - **Two subspecies:** African Bush Elephant (*Loxodonta africana*) and African Forest Elephant (*Loxodonta cyclotis*).
- **Habitat:**
 - Found in **savannas, forests, grasslands, arid regions, rainforests,** and woodlands like mopane and miombo.
- **Physical features:**
 - Distinct **two-finger-like processes** at the trunk's tip.
 - Both males and females have **tusks**, with the forest elephant's tusks being smaller and darker.
- **Behavior and Reproduction:**
 - Live in **family units** led by adult females, with strong social bonds.
 - Have the **lowest sleep time** among animals (~2 hours per day).
 - Long gestation period of **up to two years**; calves are nurtured by mothers and **allomothers**.
- **Conservation status:**
 - **African Bush Elephant:** Endangered (IUCN).
 - **African Forest Elephant:** Critically Endangered (IUCN).
 - Listed under **CITES Appendix I**.

Insta Links:

1. [Botswana - Elephant](#)

50. DUAL APPROVAL EXEMPTION

Context:

The **Ministry of Environment, Forest, and Climate Change (MoEFCC)** has issued a notification addressing a long-standing industry demand by removing the requirement for dual compliance of Environmental Clearance (EC) and Consent to Establish (CTE).

Exempts Industries from Dual Approvals: Key Points

- **What is Dual Approval?**
 - Dual approval refers to the mandatory requirement for industries to obtain both **Environmental Clearance (EC)** and **Consent to Establish (CTE)** from State Pollution Control Boards (SPCBs) under the **Air Act, 1981** and **Water Act, 1974** before starting operations.
- **Relevant laws governing approvals:**
 - The **Air (Prevention and Control of Pollution) Act, 1981** and **Water (Prevention and Control of Pollution) Act, 1974** mandate dual approvals to prevent pollution from industrial operations.
- **Exemption given:**
 - **Non-polluting 'white category' industries** are exempted from obtaining CTE and Consent to Operate (CTO).
 - Industries with **Environmental Clearance (EC)** will no longer require a separate CTE.
- **Industries exempted:**
 - **39 categories of white category industries** including:
 - Solar cell and module manufacturing
 - Wind and hydel power units
 - Fly ash brick manufacturing
 - Leather cutting and stitching
 - Air-cooler and air-conditioner assembling, repairing, and servicing.
- **Process of exemption:**
 - State Pollution Control Boards (SPCBs) will be consulted during the EC process to ensure all aspects covered by CTE are addressed.
 - A **Standard Operating Procedure (SOP)** has been issued for this integrated process.
 - Industries will **still pay a CTE fee** to ensure no revenue loss for States.

Insta links:

1. [White-category-sectors](#)

51. GRADED RESPONSE ACTION PLAN

Context:

To address the worsening air quality in Delhi NCR, the **Commission for Air Quality Management (CAQM)** has invoked **Stage III** of the Graded Response Action Plan (GRAP).

About Graded Response Action Plan (GRAP):

- **What is GRAP?**
 - A framework of emergency measures aimed at preventing the further deterioration of air quality in Delhi NCR.
 - Approved by the **Supreme Court in 2016** following the **M.C. Mehta vs. Union of India**

case.

- Initially implemented by the Environment Pollution (Prevention and Control) Authority (EPCA); **now managed by CAQM** since 2021.
- **Implementation:**
 - Based on real-time AQI data and meteorological **forecasts by IITM and IMD**.
 - GRAP measures are incremental, requiring compliance with measures from all lower stages as air quality worsens.
- **New Revised GRAP:**
 - Came into **effect on October 1, 2023**, across NCR.
 - Strengthened to handle AQI deterioration during winter.
- **Revised GRAP Stages:**

| Stage | AQI Range | Actions |
|----------------------|-----------|---|
| Stage I – Poor | 201-300 | Enforce orders on overaged diesel/petrol vehicles by NGT/SC. |
| Stage II – Very Poor | 301-400 | - Targeted actions at pollution hotspots. |
| | | - Regulate diesel generator operations. |
| Stage III – Severe | 401-450 | - Restrict BS III petrol and BS IV diesel light motor vehicles (LMVs). |
| | | - Consider suspending physical classes up to Class V. |
| Stage IV – Severe+ | > 450 | - Ban entry of LCVs from outside Delhi unless they are EVs, CNG, or BS-VI diesel (except essential services). |
| | | - Close educational institutions and non-essential commercial activities. |
| | | - Implement odd-even traffic rules for vehicles. |

Insta links:

1. [Air Pollution](#)

52. GLOBAL ENERGY EFFICIENCY ALLIANCE

Context:

At **COP29** in Azerbaijan, the **UAE** announced the establishment of the Global Energy Efficiency Alliance, a major step to enhance global energy efficiency and reduce emissions.

About Global Energy Efficiency Alliance:

- **Objective:** Double annual global energy efficiency rates by 2030 and reduce carbon emissions.
- **Vision:** Aligns with the **UAE Consensus** from COP28 to minimize natural resource consumption.
- **Leadership:** UAE leads by sharing best practices, promoting knowledge transfer, and fostering public-private partnerships.
- **Key Actions:**
 - Encouraging investments in energy efficiency projects.
 - Developing technologies and policies to meet sustainability goals.
 - Promoting standardization across member countries.
- **Focus on Africa:** Highlights financing and technological solutions for African nations to boost energy efficiency.
- **Collaboration:** Invites global governments, organizations, and private sector leaders to unite under the alliance.

Also in news:

- **Why in news?**
 - India has recently joined the International Energy Efficiency Hub (IEEH) following approval from the Union Cabinet led by the Prime Minister.
- **About IEEH:**
 - **Global Platform:** Established in **2020** as a successor to the International Partnership for Energy Efficiency Cooperation (IPEEC), the IEEH fosters global collaboration on energy efficiency.
 - **Membership:** Comprises **16 members**, including countries such as the USA, UK, China, Germany, and Japan, along with international organizations and private entities.
 - **Mission:** Promotes knowledge sharing, innovation, and best practices to advance energy efficiency globally.
 - **India's Role:**
 - Represented by **Bureau of Energy Efficiency** (BEE), the statutory body facilitating participation and alignment with national goals.
 - Enhances India's domestic energy efficiency initiatives through access to global expertise and resources.

Insta links:

1. [State-energy-efficiency-index-SEEI-2023](#)

53. ORIENTAL PIED HORNBILL

Context:

In Mayong village, Morigaon district, Assam, a unique community-driven conservation initiative has established an ideal habitat for the oriental pied hornbill, showcasing exemplary efforts in biodiversity conservation.

About Mayong Village Initiative:

- **Community conservation:** Villagers collectively support the nesting and breeding of oriental pied hornbills, ensuring their safety and well-being.
- **Plantation drive:** Fruit-bearing trees like banana and papaya have been planted extensively to provide natural food sources for the hornbills.
- **Sacred connection:** Hornbills are revered as harbingers of peace and prosperity, fostering a harmonious relationship with the community.

About Oriental Pied Hornbill:

- **Scientific name:** *Anthracoceros albirostris*
 - Two other common names for this species are **Sunda pied hornbill** (*convexus*) and **Malaysian pied hornbill**.
- **IUCN Status:** **Least concern**
- **Habitat:** Found in subtropical or tropical moist lowland forests across the Himalayan foothills, northeast India, and Southeast Asia.
- **Role in Ecosystem:** Known as 'forest engineers' for dispersing seeds of tropical trees, contributing to forest health.
- **Diet:** Omnivorous, feeding on fruits, insects, shellfish, small reptiles, mammals, and bird eggs.
- **Characteristics:** Smallest and most common of the Asian hornbills; adaptable and widespread across its range.

Insta links:

1. [Pakke-paga-hornbill-festival](#)

54. THAI SACBROOD VIRUS

Context:

Research found that pathogen spillover from managed honey bees to wild pollinators poses a serious threat, with shared habitats facilitating disease transmission and endangering pollinator ecosystems.

About Thai Sacbrood Virus:

- **Impact on Bees:** Devastated 90% of Asiatic honeybee colonies in South India (1991–1992) and reemerged in Telangana in 2021.
- **Symptoms:** Kills larvae, preventing colony growth and reproduction.
- **Geographical Spread:** Reported in India, China, and Vietnam.
- **Host Range:** Less virulent in western honeybees

but significantly threatens Asiatic honeybees (*Apis cerana indica*).

- India hosts more than 700 bee species, including four indigenous honey bees **Asiatic honey bee (*Apis cerana indica*)**, **giant rock bee (*Apis dorsata*)**, **dwarf honey bee (*Apis florea*)**, and **the stingless bee (sp. *Trigona*)**.
- Western honey bees were introduced in India **in 1983** to increase the country's honey yield.
- **Transmission:** Unclear pathways; likely through shared habitats or migratory routes of managed bees.

Additional information:

- **Pathogen Spillover:** Occurs when pathogens jump from one species (e.g., managed honeybees) to another (e.g., wild pollinators) due to shared habitats.
- **Pathogen Spillback:** Happens when pathogens from wild species return to infect the original host species (e.g., managed honeybees), often in more virulent forms.

Other Diseases Impacting Butterflies:

- **Ophryocystis elektroscirrha (OE):** A protozoan parasite that infects monarch butterflies, leading to wing deformities and shortened lifespans.
- **Nosema:** A fungal disease that affects butterfly reproduction and energy levels.
- **Baculovirus:** Impacts caterpillar stages, causing high mortality rates.
- **Viral Polyhedrosis:** Targets larvae, disrupting metamorphosis and development.
- **Bacterial Infections:** Pathogens like *Serratia marcescens* can infect butterflies, particularly in captive populations.

Insta links:

1. [Swallowtail-butterflies](#)

55. GURU GHASIDAS-TAMOR PINGLA TIGER RESERVE

Context:

The Guru Ghasidas-Tamor Pingla Tiger Reserve in Chhattisgarh has been notified as **India's 56th tiger reserve**. This milestone reflects India's ongoing efforts to conserve tigers and their habitats under Project Tiger and the National Wildlife Plan.

About Guru Ghasidas-Tamor Pingla Tiger Reserve:

- **Location:** Spread over 2,829.38 sq. km in Chhattisgarh, encompassing Guru Ghasidas National Park and Tamor Pingla Wildlife Sanctuary.
- **Core and Buffer:** Core/critical habitat spans 2,049.2

sq. km, and the buffer covers 780.15 sq. km.

- This makes it the **third largest tiger reserve in the country** after Nagarjunasagar-Srisailem Tiger Reserve in Andhra Pradesh and Manas Tiger Reserve in Assam.
- **Landscape Connectivity:** Links with Sanjay **Dubri** Tiger Reserve (Madhya Pradesh), Bandhavgarh (Madhya Pradesh), and Palamau (Jharkhand).
- **Biodiversity:** Hosts 753 species, including 230 birds, 55 mammals, and a range of insects.
- **Terrain and Climate:** Situated on the Chota Nagpur and Baghelkhand plateaus, characterized by dense forests and tropical climate.
- **Fauna:** Tigers, leopards, wolves, sloth bears, hyenas, and various deer species.
- **Significance:** This will be the **fourth Tiger Reserve in Chhattisgarh**, after the Udanti-Sitanadi, Achanakmar and Indravati Reserves.

| | | | | | | | |
|----|--|---|-------------------|------|----------|-----------|-----------|
| 50 | Kamlang | - | Arunachal Pradesh | 2017 | 671.00 | 112.00 | 783.00 |
| 51 | Srivilliputhur Megamalai | - | Tamil Nadu | 2021 | 641.86 | 374.70 | 1016.57 |
| 52 | Bamgarh Vishdadi Tiger Reserve | - | Rajasthan | 2022 | 481.9073 | 1019.9848 | 1501.8921 |
| 53 | Ranipur Tiger Reserve | - | Uttar Pradesh | 2022 | 230.31 | 299.0512 | 529.3612 |
| 54 | Veerangana Durgavati Tiger Reserve | - | Madhya Pradesh | 2023 | 1414.006 | 925.120 | 2339.12 |
| 55 | Dholpur - Karauli Tiger Reserve | - | Rajasthan | 2023 | 599.6406 | - | 599.6406 |

Source: NTCA Official website

Procedure for Notification of Tiger Reserves in India:

- **Identification of Area:** The state government identifies a potential area based on ecological significance, tiger population, and habitat quality.
- **Recommendation by NTCA:** The state government submits the proposal to the National Tiger Conservation Authority (NTCA), which assesses the ecological and conservation value of the area.
- **Approval by NTCA:** If NTCA finds the proposal viable, it grants preliminary approval and advises the state government to proceed.
- **State Government Notification:** The state government officially notifies the area as a tiger reserve under Section 38V of the [Wildlife Protection Act, 1972](#).
- **Core and Buffer Zones: The area is divided into:**
 1. **Core Zone:** Critical habitat for tigers, with limited human activity.
 2. **Buffer Zone:** Area surrounding the core to reduce human-tiger conflict.
- **Final Approval:** The state's notification is submitted to the NTCA for final approval, completing the process.
- **Implementation:** The state government, with NTCA's technical and financial support, implements conservation measures in the notified tiger reserve.

Insta links:

1. [Monitoring-tigers](#)

56. AFRICAN PENGUIN

Context:

The African Penguin, or Cape Penguin, is now "Endangered" per the IUCN, with under 10,000 breeding pairs, mostly in South Africa. Conservationists warn of possible extinction in the wild by 2035.

About African Penguin:

- **Scientific Name:** *Spheniscus demersus*.
- **Endemic Region:** Southern Africa; primarily South Africa and Namibia.
- **Habitat:** Found within 40 km of the shore; utilizes coastal habitats for breeding, molting, and resting.
- **Physical Features:** Streamlined body, black stripe with unique black chest spots, pink glands above eyes for temperature regulation.
- **Diet:** Primarily feeds on pelagic schooling fishlike sardines and anchovies.
- **Breeding:** Prefers burrows in guano but adapts well to artificial nests; burrows protect chicks from harsh weather.
- **Conservation Status:** Listed as **Endangered** under the IUCN Red List.
- **Threats:** Food scarcity, climate change, habitat loss, oil spills, predators, diseases, and human disturbances.

Insta Links:

1. [Emperor-penguin](#)

57. GREEN WORLD ENVIRONMENT AWARD 2024

Context:

Coal India Limited (CIL), a leading state-owned coal mining corporation, has been conferred the 'Green World Environment Award 2024' in the CSR category.

About Green World Environment Award:

- **Award Significance:** Recognizes organizations for outstanding contributions to environmental sustainability and CSR initiatives globally.
- **Recipient:** Coal India Limited in 2024 for its [Thalassemia Bal Sewa Yojna](#), which supports curative treatments for Thalassemia through Bone Marrow Transplants (BMT).
 - **Support:** Thalassemia Bal Sewa Yojna provide financial assistance of up to ₹10 lakh provided for BMT operations across 17 partner hospitals.
- **Presented by:** The Green Organisation at Kensington Palace, London.

About The Green Organisation:

- **Founded:** 1994.
- **Nature:** An independent, non-political, and non-profit group.
- **Objective:** Recognizing, rewarding, and promoting environmental and CSR best practices worldwide.
- **Initiatives:** Includes global awards like the Green World Awards to encourage sustainability and [CSR](#) excellence.

About Coal India Limited (CIL):

- **Establishment:** Formed in November 1975.
- **Largest Producer:** World's single largest coal producer and one of the largest corporate employers in India.
- CIL has **seven producing subsidiaries**.
- **Production status:**
 - Produces around 83% of India's overall coal production in India where approximately 57% of primary commercial energy is coal dependent, CIL alone meets to the tune of 40% of primary commercial energy requirement.

Insta links:

1. [Goldman-environmental-prize](#)

58. REDUCING METHANE FROM ORGANIC WASTE DECLARATION

Context:

The COP29 Presidency launched the Reducing Methane from Organic Waste Declaration, with over 30 countries committing to set sectoral targets for reducing methane emissions from organic waste.

About Reducing Methane from Organic Waste Declaration:

- **Launch:** COP29, by the Presidency in collaboration with [UNEP](#)-convened Climate and Clean Air Coalition (CCAC).
- **Signatories:** Over 30 countries, including 8 of the top 10 organic waste methane emitters.
- **Goal:** To reduce [methane emissions](#) from organic waste and meet targets in future Nationally Determined Contributions ([NDCs](#)).
- **Focus Areas:**
 1. **NDC Integration:** Inclusion of waste sector targets in climate action plans.
 2. **Regulation:** Development of policies for better waste management.
 3. **Data:** Improving data collection on waste generation and methane sources.
 4. **Finance:** Mobilizing funds for solid waste management and reduction projects.
 5. **Partnerships:** Promoting cross-country collaboration to share best practices.
- **Alignment with GMP:** Supports the 2021 [Global](#)

[Methane Pledge](#) to reduce methane emissions by 30% below 2020 levels by 2030.

- **Priority Actions:**
 - Preventing organic waste generation.
 - Promoting separate waste collection.
 - Improving management of organic waste in landfills and wastewater facilities.
- **India has not joined** the COP29 Declaration on Reducing Methane from Organic Waste.

Insta Links:

1. [Global-methane-tracker-2024-report](#)

59. MEALWORM LARVAE

Context:

Researchers at the International Centre of Insect Physiology and Ecology in Kenya have discovered that the Kenyan lesser mealworm larvae can degrade [polystyrene plastic](#), offering a potential solution to plastic pollution.

About Mealworm Larvae:

- **Species:** The Kenyan lesser mealworm is the larval form of the **Alphitobius darkling** beetle.
- **Habitat:** Found in poultry rearing houses; thrives in warm, food-rich environments.
- **Plastic Consumption:** Capable of **degrading polystyrene** with assistance from gut bacteria like Proteobacteria and Firmicutes.
- **Significance:** Shows potential for scalable solutions to [plastic degradation](#) without direct release of insects into the environment.

Plastic-Decomposing Insects:

1. **Yellow Mealworms (Tenebrio molitor):** Break down polystyrene with gut bacteria.
2. **Superworms (Zophobas morio):** Known to digest synthetic plastics like polystyrene.
3. **Kenyan Lesser Mealworm:** The first African-native species identified to degrade polystyrene.

Insta Links:

1. [Plastic-Pollution](#)

60. CLIMATE CHANGE PERFORMANCE INDEX (CCPI), 2025

Context:

The Climate Change Performance Index (CCPI) 2025 evaluates the climate protection performance of 63 countries and the EU, collectively responsible for over 90% of global greenhouse gas emissions.

About Climate Change Performance Index (CCPI), 2025:

- **Origin:** First published in 2005.
- **Published by:** Germanwatch, NewClimate Institute,

and Climate Action Network.

- **Aim:** To monitor and compare climate mitigation efforts and enhance transparency in climate policies globally.
- **Indicators Used:**
 1. GHG Emissions
 2. Renewable Energy
 3. Energy Use
 4. Climate Policy
- **Top Ranking Countries:**
 - No country received an overall very high rating.
 - Denmark holds its 4th-place ranking in this year's CCPI and is again the highest-ranked of all countries surveyed. (No nation made it top 3)

India's Performance in CCPI 2025:

- **Overall Rank:** 10th, among the highest performers.
- Overall, **only 22 of the 64 surveyed CCPI countries** (including the EU) are on track, while 42 are lagging. India and the United Kingdom are two that are on track.
- **Category Ratings:**
 - **GHG Emissions:** High
 - **Energy Use:** High
 - **Climate Policy:** Medium
 - **Renewable Energy:** Low

Key Outcomes



- India ranks 10th in this year's CCPI, remaining among the *highest performers*
- Despite the positive developments in renewables, India remains heavily reliant on coal

- **Strengths:**
 - Rapid renewable energy expansion, particularly in large-scale solar power projects.
 - Introduction of energy efficiency standards and electric vehicle deployment.
 - Low per capita emissions and energy use despite being the most populous country.
- **Challenges:**
 - Heavy reliance on coal with slow phase-out progress.
 - Limited inclusion of sectors like transport, housing, and water in climate targets.

Insta links:

1. [Climate-change-and-associated-issues](#)

61. RANTHAMBORE TIGER RESERVE

Context:

The recent conflict between tigers and villagers near the Ranthambore Tiger Reserve in Rajasthan highlights the challenges of [human-wildlife](#) coexistence.

- **Overcrowding, habitat overlap, and inadequate management** have led to tragic incidents, emphasizing the need for balanced conservation strategies and human safety measures.



About Ranthambore Tiger Reserve (RTR):

- **Location:** Situated at the confluence of the Aravallis and Vindhyas, near Sawai Madhopur, Rajasthan.
- **Area:** Covers 1,411 sq. km, making it one of northern India's largest tiger reserves.
- **History:** Former royal hunting grounds of Jaipur's Maharajas; designated a Project Tiger Reserve in 1973.
- **Geography:** Includes steep rocky hills, Padam Talab, Raj Bagh Talab, rivers Chambal and Banas, and the Great Boundary Fault.
- **Flora:** Tropical dry deciduous forests and thorny landscapes dominated by Dhok trees and grasslands.
- **Fauna:** Home to Bengal tigers, leopards, sloth bears, striped hyenas, marsh crocodiles, and over 250 bird species.
- **Tourism Significance:** A popular destination for wildlife enthusiasts, contributing significantly to local livelihoods.

Insta Links:

1. [Project-tiger](#)

62. PARIS AGREEMENT

Context:

Argentina, under President Javier Milei's leadership, is reconsidering its commitment to the Paris Agreement, citing philosophical disagreements and a re-evaluation of its climate strategies.

About Paris Agreement:

- **Adoption:** Signed in 2015 by 195 countries to address global climate change.
- **Goals:**
 - Limit global temperature rise to well below 2°C, with efforts to cap it at 1.5°C above pre-industrial levels.
 - Enhance countries' abilities to adapt to climate impacts.
 - Ensure nations commit to updated and ambitious [Nationally Determined Contributions](#) (NDCs) every five years.
- **Framework:** Non-binding yet cooperative, focusing on shared but differentiated responsibilities.

Withdrawal process:

- **Eligibility:** A country can withdraw after three years of the treaty's entry into force for that party (since 2016).
- **Notification:** Written communication to the UN's Office of Legal Affairs.
- **Timeline:** Withdrawal becomes effective one year after the notification is received.
- **Participation:** Until withdrawal takes effect, the country remains bound by the treaty.

Argentina's Position and Contribution to Global Warming:

- **24th** largest global emitter of GHGs.
- Significant reserves of **shale gas and shale oil**, contributing to fossil fuel exports.
- A major agricultural producer, influencing methane emissions through livestock.

Insta Links:

1. [What-is-the-Paris-agreement?](#)

63. GLOBAL MATCHMAKING PLATFORM

Context:

At [COP29](#), the Global Matchmaking Platform for Industrial Decarbonization (GMP) was launched by UNIDO and the Climate Club.

- It is a pioneering initiative to **decarbonize heavy-emitting industries** in developing and emerging economies by connecting countries with global technical and financial resources.

About Global Matchmaking Platform:

- **Origin:** Conceptualized at COP28 (December 2023) under the Climate Club framework to drive industrial decarbonization globally.
- **Launch:** Officially launched at COP29 with key donor and partner organizations.
- **Agencies Involved:** [UNIDO](#), Climate Club, German Ministry of Economic Cooperation and Climate Action, World Bank, GIZ, and other international partners.
- **Aim:** To provide financial and technical support to decarbonize high-emission industrial sectors in developing and emerging economies, advancing climate goals.
- **Key Features:**
 - **Tailored Support:** Country-specific guidance for industrial decarbonization.
 - **Global Partnerships:** Involves financiers, technology providers, and experts.
 - **Delivery Partners:** Includes World Bank, Climate Investment Funds, and GIZ.
 - **Pilot Countries:** Includes Argentina, Chile, Egypt, Indonesia, Kenya, and others.
 - **Technology Transfer:** Facilitates adoption of low-carbon industrial technologies.
 - **Funding:** Supported initially by German climate cooperation funds.
- **Significance:**
 - Accelerates decarbonization in **"hard-to-abate"** sectors.
 - Strengthens North-South climate cooperation.
 - Promotes innovative, sustainable industrial practices in developing economies.
 - Supports the [Paris Agreement](#) and a global net-zero emissions pathway.

Insta Links:

1. [UNIDO](#)

64. TRACKING STUBBLE BURNING

Context:

Stubble burning in Punjab and Haryana heavily pollutes NCR air. While satellites monitor fires, farmers burning outside detection windows raise concerns about tracking methods and government measures.

About Satellites Used to Track Stubble Burning:

- **NASA Satellites:**
 - **Aqua** (2002) and **Suomi-NPP** (2011) with MODIS and VIIRS instruments detect fires via visible and infrared imaging during overpasses at 1:30 p.m. and 1:30 a.m. local time.
 - **Ozone Mapping and Profiler Suite** measures aerosol levels to assess smoke impact on air

quality.

- **South Korea's GEO-KOMPSAT 2A:**
 - Provides continuous geostationary observations to capture fires missed by Aqua and Suomi-NPP.
- **European Space Agency's Sentinel II:**
 - Offers burnt area data every five days.
- **Indian Satellites:**
 - **INSAT-3DR:** Tracks fire activity but with coarse resolution, limiting accuracy.
 - **RESOURCESAT Series:** LISS-3, LISS-4, and AWiFS sensors detect fires with varying spatial resolutions.

NOTE: Basic information on stubble burning has been covered in the previous article; kindly cover it as well.

Insta Links:

1. [List-of-Earth-observation-satellites](#)

65. GLOBAL PEATLAND HOTSPOT ATLAS, 2024

Context:

The Global Peatland Hotspot Atlas, 2024, published by [UNEP's](#) Global Peatlands Initiative, provides actionable insights for their conservation and sustainable management, placing them at the heart of global environmental discussions.

About The Global Peatland Hotspot Atlas, 2024:

- **Published by:** UNEP under the [Global Peatlands Initiative](#).
- **Aim:**
 - Provide data and insights into the global state of peatlands.
 - Highlight threats and opportunities for conservation and sustainable management.
 - Bridge the gap between science and policy for informed decision-making.
- **Key Insights:**
 - Updated hotspot maps intersecting data on biodiversity, climate change, and land use.
 - Identifies 488 million hectares of peatlands globally, with **12% highly degraded**.
 - Peatlands emit **1,941 Mt CO₂e per year** due to human activity.

About Peatland:

- **What is Peatland?**
 - Peatlands are unique wetland ecosystems characterized by waterlogged conditions that slow the decomposition of plant material, leading to the formation of peat soils.
 - These ecosystems consist of both the **organic-rich soil (peat)** and the wetland

vegetation thriving on the surface.

- **Distribution of Peatlands:**
 - Found in nearly all countries, peatlands cover at **least 3% of the Earth's** land surface.
 - **The Congo Basin** hosts the largest known tropical peatland, discovered in 2017.
- **Significance of Peatlands:**
 - **Carbon Storage:** Peatlands store more carbon than all the world's forests combined, acting as a natural buffer against climate change.
 - **Climate Regulation:** They provide a cooling effect by sequestering atmospheric carbon.
 - **Water Management:** Regulate and purify water supplies, supporting human consumption and ecosystems.
 - **Biodiversity:** Provide habitats for rare and endangered species of flora and fauna.
 - **Cultural Importance:** Preserve archaeological and cultural heritage due to their waterlogged conditions.
 - **Livelihoods:** Support local communities through ecosystem services and resources.

Insta Links:

2. [Peat Soil](#)

66. SUKPAK: A SIBERIAN DEMOISELLE CRANE

Context:

A Siberian Demoiselle crane, nicknamed Sukpak, has set a new migratory record by flying 3,676 km to Khichan in Rajasthan, surpassing the previous distance of 2,800 km.



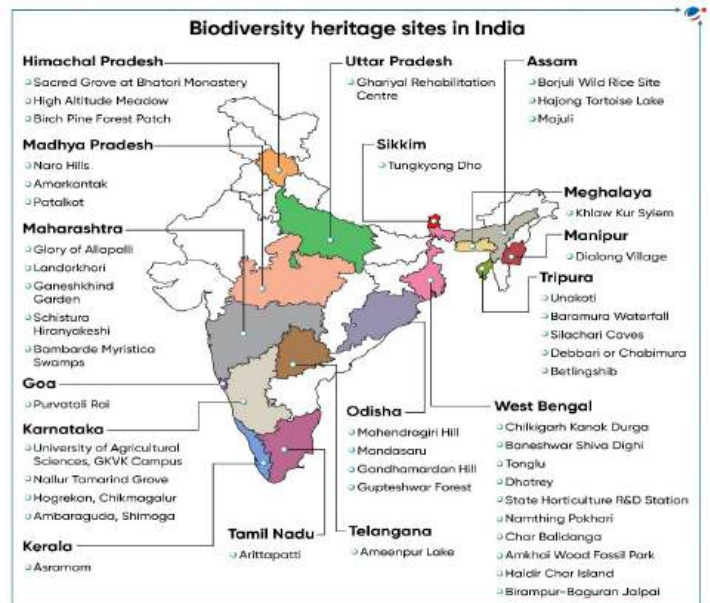
About Siberian Demoiselle Crane:

- **Scientific Name:** *Anthropoides virgo* (also referred to as *Grus virgo*).

- **Breeding Range:** Central Asia to Mongolia, east to Northeast China.
- **Wintering Range:** Primarily western India, with large congregations in Gujarat and Rajasthan.
- **Migration Path:** Traditionally via Himalayan valleys, with notable reverse routes like Sukpak's journey through Russia, Kazakhstan, Turkmenistan, Afghanistan, and Pakistan.
- **Cultural Significance:** Known as *koonj* or *kurjaa* in Indian culture, symbolically important in Gujarat and Rajasthan.
- **IUCN Status:** Listed as Least Concern.
- **Conservation Efforts:** Khichan in Rajasthan is India's first Demoiselle crane conservation reserve, hosting 20,000 cranes annually during their winter migration.

Insta Links:

1. [Migration-in-India-status](#)



About Tungsten:

- **Properties:**
 - Known for its high melting point (highest among metals) and exceptional strength.
 - Resistant to corrosion and thermal expansion, making it ideal for industrial applications.
- **Uses:**
 - Used in manufacturing cutting tools, heavy machinery, and electrical components.
 - Essential for defense (armor-piercing projectiles) and aerospace industries.
 - Key component in lighting (filaments) and electronics.
- **Global Supply:**
 - China dominates global tungsten production, contributing over 80% of the supply.
 - Tungsten is categorized as a critical mineral due to its strategic importance.
- **Indian Resources:**
 - Major reserves in Karnataka (42%), Rajasthan (27%), Andhra Pradesh (17%), and Maharashtra (9%).
 - Smaller deposits in Tamil Nadu, Haryana, Uttarakhand, and West Bengal.
- **Recent Auctions in India:**
 - First tungsten blocks successfully auctioned in 2024 at Nayakkarpatti (Tamil Nadu) and Balepalyam (Andhra Pradesh).
 - Hindustan Zinc Limited won mining rights, marking a milestone in India's critical mineral strategy.

Insta links:

2. [Biodiversity-heritage-site](#)

67. NAYAKKARPATTI TUNGSTEN BLOCK

Context:

Tamil Nadu's Nayakkarpatti Tungsten Block, auctioned to Hindustan Zinc Ltd., faces controversy over its overlap with the Arittapatti Biodiversity Heritage Site, raising ecological and cultural concerns.

Nayakkarpatti Tungsten Block:

- **Location:** Spread across 20.16 sq. km in Tamil Nadu, covering villages like Kavattayampatty, Ettimangalam, and Arittapatti.
- **Critical Mineral:** Tungsten is categorized as a critical and strategic mineral, essential for national development.
- **Clearances Required:** Mining can only proceed after obtaining forest and environmental clearances, excluding sensitive areas like biodiversity sites.

Arittapatti Biodiversity Heritage Site:

- **District:** Madurai.
 - Includes Arittapatti and Meenakshipuram villages.
- **Ecological Importance:**
 - Home to 250 bird species, including **Laggar Falcon**, **Shaheen Falcon**, and Bonelli's Eagle.
 - Wildlife includes Indian Pangolin, Slender Loris, and Pythons.
- **Water Resources:**
 - Notable waterbody: **Anaikondan Lake**, built during the Pandiyana era.
- **Cultural Significance:**
 - Hosts megalithic structures, Tamil Brahmi inscriptions, Jain beds, and rock-cut temples.

68. ASIATIC LIONS

Context:

Asiatic Lions, with their entire population of 674 residing in Gujarat, exemplify a unique model of human-wildlife coexistence driven by cultural, economic, and legal factors.

Why Asiatic Lions Are Only Found in Gujarat?

- **Historic Habitat Shrinkage:** Asiatic Lions, once widespread from the Middle East to India, are now confined to Gujarat's [Gir Forest](#) due to hunting, habitat loss, and poaching.
- **Legal Protection:** Gir National Park and nearby areas ensure strict legal safeguards for the lions.
- **Cultural Acceptance:** Gujarat's [Maldhari](#) herders revere lions due to cultural ties and income from wildlife tourism.
- **Abundant Prey Base:** Old livestock and carrion outside protected areas sustain the lions.
- **Lack of Translocation:** Supreme Court orders to relocate lions to Madhya Pradesh remain unimplemented due to political and logistical challenges.



About Asiatic Lion (*Panthera leo persica*):

- **Distribution:**
 - Historically ranged from southwest Asia to northern India.
 - Currently found only in Gir National Park and surrounding areas in Gujarat, India.
- **Protection Status:**
 - **IUCN Red List:** Endangered
 - **CITES:** Appendix I
 - **Wildlife Protection Act (India):** Schedule I
- **Physical Characteristics:**
 - Slightly smaller than African lions; males weigh 160–190 kg, females 110–120 kg.
 - Distinct fold of skin along the belly, less developed mane, and visible ears in males.
 - Fur varies from tawny to sandy-grey with a silvery sheen in some lights.
 - Larger tail tuft and less inflated auditory bullae compared to African lions.
- **Habitat and Behavior:**
 - Adapted to dry deciduous forests and

savannas.

- Preys on deer, antelope, and livestock; scavenges on carrion.
- Coexists with humans in Gujarat through cultural tolerance and conservation measures.

Insta Links:

3. [Census-of-Asiatic-Lion](#)

Internal Security

69. CISF ALL WOMEN BATTALION

Context:

The Indian Home Ministry has approved the establishment of the **first all-women battalion** in the Central Industrial Security Force (CISF), comprising 1,025 personnel.

About Central Industrial Security Force (CISF):

- **Overview:**
 - A Central Armed Police Force (CAPF) established on **March 10, 1969** under an Act of Parliament.
 - Became an armed force of the Republic of India in 1983.
- **Strength and Structure:**
 - Current strength exceeds 1,88,000 personnel, **with women comprising 7%**.
 - Headquartered in **New Delhi**, headed by a Director-General (IPS officer).
 - Organized into seven sectors.
- **Functions and Roles:**
 - Provides security to **359 establishments**, including nuclear facilities, airports, seaports, and heritage monuments like the Taj Mahal.
 - Manages **airport security since 2000** post IC-814 hijacking.
 - Operates a **VIP Security** vertical for high-profile protectees.
 - Offers fire protection services and consultancy to private entities.
- **Public Interface:**
 - CISF personnel interact daily with the public at [airports](#), Delhi Metro, and historical landmarks.
 - Ensures safety while maintaining a visible and approachable presence.
- **Special Initiatives:**
 - Post-2008 Mumbai attacks, its **mandate expanded to secure private establishments**.
 - The newly announced all-women battalion will focus on diverse roles like VIP security and public-facing assignments.

Insta Links:

1. [Nana Singh](#)

70. OPERATION KAWACH

Context:

Delhi Police initiated Operation Kawach, a targeted crackdown against gangs, drug traffickers, and organized crime in response to rising criminal activities, including shootings in the city.

About Operation Kawach:

- **Aim:** To combat gang-related violence, drug trafficking, and illegal activities such as possession of firearms, liquor, and banned substances.
- **Agency involved:** Delhi Police, including local units, Special Cell, and Crime Branch.
- **Geographical area:** Multiple districts across Delhi, including Outer North, Dwarka, Southeast, Southwest, and North districts.
- **Significance:**
 - Strengthens law enforcement against organized crime.
 - Enhances public safety by dismantling networks linked to prominent gangs like Lawrence Bishnoi, Neeraj Bawana, and others.
 - Prevents illegal trade of firearms, liquor, and narcotics.

Insta Links:

1. [Parliamentary-panel-findings-on-drug-abuse-in-India](#)

71. ARMED FORCES SPECIAL POWERS ACT

Context:

The Armed Forces (Special Powers) Act (AFSPA) has been reimposed in six police station limits in Manipur amidst escalating ethnic violence between the **Meitei and Kuki-Zo-Hmar communities**.

About AFSPA:

- **Enactment:** Passed by the **Parliament in 1958**.
 - AFSPA grants special powers to armed forces in disturbed areas to maintain public order.
- **Application:**
 - Applied after an area is declared “disturbed” under **Section 2** of the Act, due to issues like ethnic, religious, or communal tensions.
- **Declaration of Disturbed Areas:**
 - The **Central Government**, State Governor, or UT Administrator can declare an area as

disturbed.

- **Special Powers Under AFSPA:**
 - Armed forces can:
 - Prohibit gatherings of five or more people.
 - Use force or open fire after due warning if laws are contravened.
 - Arrest individuals or search premises without warrants on reasonable suspicion.
 - Seize firearms and ban their possession.
 - Hand over arrested persons to local police with a detailed report.
- **Immunity Clause:**
 - Armed forces personnel are protected from prosecution unless sanctioned by the Union Government.
- **Current Enforcement:**
 - Enforced in **Jammu & Kashmir, Assam, Nagaland**, parts of **Manipur** (excluding Imphal), and parts of **Arunachal Pradesh**.

Committees Related to AFSPA:

- **Justice B.P. Jeevan Reddy Committee (2004):**
 - Proposed incorporating the provisions of **AFSPA** into the **Unlawful Activities (Prevention) Act, 1967**.
 - Recommended repealing AFSPA to ensure a balance between security needs and human rights.
- **Second Administrative Reforms Commission (ARC) 5th Report (2007):**
 - Suggested **repealing AFSPA** to eliminate feelings of **discrimination and alienation** among the affected populations.
- **Santosh Hegde Committee (2013):**
 - Recommended **periodic review every six months** to assess the necessity of implementing AFSPA in designated areas.
- **Justice Verma Committee (2013):** Suggested bringing cases of **sexual violence by armed forces personnel** under **ordinary criminal law** to ensure accountability.

Insta links:

1. [AFSPA](#)

72. BHARAT NATIONAL CYBER SECURITY EXERCISE

Context: The Bharat National Cyber Security Exercise (Bharat NCX 2024), aimed at strengthening India’s cybersecurity re-

silience, was inaugurated by the National Security Council Secretariat (NSCS) in collaboration with Rashtriya Raksha University (RRU).

About Bharat National Cyber Security Exercise (Bharat NCX 2024):

- **Ministry/Organization:** Organized by National Security Council Secretariat (NSCS) in collaboration with Rashtriya Raksha University (RRU).
- **Launch Date:** November 18, 2024.
- **Aim:**
 - Enhance India’s cybersecurity resilience.
 - Train cybersecurity professionals in advanced defense, incident response, and decision-making.
 - Prepare leadership to handle national-level cyber crises.
- **Key Features:**
 - **Immersive Training:** Cyber defense and incident response training with live-fire simulations targeting IT and OT systems.
 - **Strategic Decision-Making Exercise:** Simulates national-level cyber crises for senior leadership across sectors.
 - **CISO’s Conclave:** Brings together Chief Information Security Officers to discuss trends, government initiatives, and insights.
 - **Startup Exhibition:** Showcases innovative cybersecurity solutions by Indian startups.
 - **Collaborative Platforms:** Facilitates interactions between government and industry stakeholders.
 - **Comprehensive Debrief:** Consolidates best practices and lessons learned at the end of the event.

Insta Links:

- 2. [Cyber-security](#)

Defence

73. MAHASAGAR

Context:

The Indian Navy recently conducted the **third edition of MAHASAGAR**, a high-level virtual engagement that brought together naval leaders from [Indian Ocean Region](#) (IOR) nations.

About MAHASAGAR:

- **Meaning:** “MAHASAGAR” translates to “vast ocean” in Hindi.
 - MAHASAGAR which stands for **Maritime Heads for Active Security And Growth for All in the Region.**
- **Objective:** Strengthen cooperation on maritime

security through joint training and capacity-building in the Indian Ocean Region.

- **Participants:** Heads of Navies/Maritime Agencies from 10 IOR littoral nations, including Bangladesh, Maldives, Seychelles, Sri Lanka, and Tanzania.
- **Initiative:** Started by the Indian Navy in 2023, conducted bi-annually as a virtual interaction platform for IOR nations.
- **Focus of Third Edition:** Emphasized collaboration on training to develop skilled manpower and strengthen collective responses to maritime security challenges.

Insta Links:

- 2. [Mahasagar/](#)

74. ONE RANK ONE PENSION

Context:

Prime Minister Narendra Modi commemorated a decade of the **One Rank One Pension (OROP)** scheme, highlighting it as a tribute to the dedication and sacrifices of India’s veterans and ex-service personnel.



About One Rank One Pension (OROP) Scheme:

- **Definition:** OROP ensures that uniform pensions are paid to personnel retiring in the same rank with identical service lengths, regardless of when they retired.
- **Implementation year:** The government approved OROP in 2015, with benefits retroactively effective from July 1, 2014.
- **Pension Re-fixation:** Pensions are re-fixed based on the average of the minimum and maximum pensions of 2013 retirees of the same rank and service length.
- **Arrears:** Arrears are paid in four half-yearly instalments, except for family pensioners and Gallantry awardees, who receive it in one instalment.
- **Future revisions:** Pensions will be re-fixed every five years.

- **Nodal agency:** Department of Ex-Servicemen Welfare, Ministry of Defence.
- **Payment:** Integrated within the standard pension, not a separate component.
- **Exclusions:** Personnel discharged voluntarily under specific military rules post-OROP implementation are not eligible.

Insta links:

3. [OROP](#)

75. PINAKA MULTI-BARREL ROCKET LAUNCHER

Context:

France is evaluating India's Pinaka multi-barrel rocket launcher (MBRL) system for its military requirements, highlighting the growing defense ties between India and France.

About Pinaka Rocket Missile System:

- **Type:** Multi-Barrel Rocket Launcher (MBRL) designed by DRDO's Armament Research and Development Establishment (ARDE).
- **First Use:** Played a crucial role in neutralizing enemy positions during the Kargil War.
- **Targets:** Effective against enemy troops, vehicles, communication centers, air terminals, and ammunition depots.
- **Features:**
 - Launcher system includes a multi-tube launcher vehicle, command post vehicle, and replenishment vehicles.
 - Can fire 12 rockets in 48 seconds, covering an area of 700 × 500 square meters.
 - Mounted on a Tatra truck for mobility with hydraulically actuated outriggers for stability during firing.
- **Range:**
 - Current range of 38-75 km.
 - Guided extended-range variants in development to increase range to 120 km and eventually to 300 km.

Insta Links:

2. [Army-weapons-stock](#)

76. LONG-RANGE LAND ATTACK CRUISE MISSILE

Context:

The Defence Research and Development Organisation (DRDO) successfully conducted the maiden flight test of the **Long-Range Land Attack Cruise Missile (LRLACM)**, a state-of-the-art indigenous missile with a range of 1,000 km.

About LRLACM:

- **Range and Performance:**
 - **Range:** 1,000 km with precision strike capability.
 - Equipped with advanced avionics and software for reliability and efficiency.
 - This is a new variant of **Nirbhay LRLACM** with improved features
- **Development:**
 - Developed by Aeronautical Development Establishment (**ADE**), Bengaluru, with contributions from **DRDO** labs and Indian industries.
 - Bharat Dynamics Limited and Bharat Electronics Limited are key development-cum-production partners.
- **Design and Navigation:**
 - Configured for ground launch using mobile articulated launchers and naval launch from ships using universal vertical launch modules.
- **Strategic Significance:**
 - Provides the armed forces with long-range standoff capabilities, comparable to the U.S. Tomahawk cruise missile.
- **Approval:**
 - Approved by the Defence Acquisition Council in July 2020.

About Nirbhay Cruise Missile:

- **Type and Range:** Sub-sonic long-range cruise missile with a strike capability of up to 1,000 km.
- **Development:** Designed by Aeronautical Development Establishment (ADE), under DRDO, Bengaluru.
- **Launch and Propulsion:** Uses a solid booster for launch, transitioning to a turbojet engine for sustained flight.
- **Capabilities:**
 - Deep penetration to target high-value assets with precision.
 - Capable of loitering and operating at very low altitudes (~100 meters).
- **Warhead options:** Can carry both conventional and nuclear payloads weighing 200-300 kg.

Insta links:

1. [Army weapon stocks](#)

77. E-TARANG SYSTEM

Context:

The e-Tarang System, an AI-enabled software developed collaboratively by the Integrated Defence Staff and **BISAG-N**, was launched during the annual meeting of the Joint Electromagnetic Board (JEMB).

About e-Tarang System:

- **Developer:** Integrated Defence Staff and BISAG-N.
- **Launch Event:** Unveiled during the Joint Electromagnetic Board (JEMB) meeting, chaired by Deputy Chief of Integrated Defence Staff (Operations) Air Marshal Jeetendra Mishra.
- **Features:**
 - AI-enabled system for automated and efficient defence spectrum planning and management.
 - Integrates various defence communication systems for improved operational synergy.
 - Enables interference-free operation of defence equipment during wartime and peacetime.
 - Supports the development of advanced technologies in higher frequency bands.
- **Objective:** Enhance joint electronic warfare operations and modernize India's spectrum warfare capabilities.
- **Significance:**
 - Part of broader initiatives to modernize [military infrastructure](#).
 - Improves interoperability among the Army, Navy, and Air Force.
 - Boosts efficiency and coordination in electromagnetic spectrum management.

Insta Links:

1. [Tarang-shakti-2024](#)

78. EXERCISE POORVI PRAHAR

Context:

The Indian Armed Forces are conducting Exercise Poorvi Prahar, a tri-services joint operation in Arunachal Pradesh from November 10th to 18th, 2024.

About Exercise Poorvi Prahar:

- **Objective:** To enhance combat effectiveness and synergy across the Indian Army, Navy, and Air Force for integrated joint operations.
- **Location:** Forward areas of Arunachal Pradesh, emphasizing operational readiness in mountainous terrain.
- **Participation:** Cutting-edge military platforms including advanced fighter jets, reconnaissance aircraft, [Chinook helicopters](#), Advanced Light Helicopters ([Rudra](#)), and M777 Ultra-Light Howitzers.
- **Technological Integration:** Utilisation of swarm drones, loitering munitions, and advanced situational awareness systems for precision strikes and enhanced flexibility.
- **Strategic Relevance:** Reinforces India's defence posture along the Eastern frontier, reflecting its capability to execute multi-domain operations across land, air, and sea.

Insta Links:

2. [Military-Exercises](#)

79. LONG-RANGE HYPERSONIC MISSILE

Context:

India successfully tested its first long-range hypersonic missile, marking a significant milestone in defence technology and joining a select group of nations capable of developing advanced hypersonic weapons.

About India's First Hypersonic Missile:

- **Features**
 - **Mach 6 Speed:** Travels six times the speed of sound, reducing enemy reaction time.
 - **Long Range:** Covers over 1,500 km for deep-strike missions.
 - **Mid-Flight Manoeuvrability:** Combines ballistic missile speed with cruise missile agility to evade defences.
 - **Multi-Payload Capacity:** Can carry conventional or nuclear warheads.
 - **Advanced Tracking:** Precision targeting ensured by cutting-edge multi-domain monitoring systems.
 - **Indigenous Design:** Fully developed by [DRDO](#), showcasing India's self-reliance in advanced defence technology.
- **Capabilities:**
 - **Strategic Deterrence:** Enhances defence readiness and border security.
 - **Multi-Domain Use:** Adaptable for land, air, and naval platforms, including ship-targeting.
 - **Defence Evasion:** Overcomes modern missile defence systems with speed and agility.
 - **Precision Strikes:** Pinpoint targeting of critical enemy assets with minimal collateral damage.
- **Applications:** Multiple uses across Army, Navy, and Air Force; naval version aimed at destroying enemy warships with precision at long ranges.
- **Developmental Background:** Builds upon the [Hypersonic Technology Demonstrator Vehicle \(HSTDV\)](#) project initiated in 2019.
- **Global Context:** Positions India alongside major military powers like China, Russia, and the US in hypersonic weapon technology.

Insta Links: [Cruise-missiles-vs-Ballistic-missiles](#)

80. ATACMS (ARMY TACTICAL MISSILE SYSTEMS)

Context:

Ukraine’s military used American-made ATACMS (Army Tactical Missile Systems) to strike a Russian ammunition depot in Bryansk, marking a significant development in the Ukraine-Russia conflict.

ATACMS: The missile the US has allowed Ukraine to use against Russia



About ATACMS (Army Tactical Missile Systems):

- **Manufacturer:** Produced by Lockheed Martin, developed in the 1980s.
- **Type:** Short-range ballistic missile.
- **Range:** Up to 190 miles (300 km), depending on the model.
- **Warhead:** Carries approximately 375 pounds of explosives.
- **Launch Platforms:** Compatible with HIMARS mobile launchers and older M270 systems provided by the U.S., Britain, and Germany.
- **Purpose:** Designed to target high-value military and paramilitary facilities deep within enemy lines.
- **Flight Characteristics:** Travels higher into the atmosphere than artillery rockets and descends at high speed due to gravity.

Insta Links:

1. [Russias-ukraine-war](#)

81. RS-26 RUBEZH

Context:

In a significant escalation of the ongoing war between Russia and Ukraine, Russia reportedly used a new type of intercontinental ballistic missile (ICBM) targeting Dnipro, Ukraine.

About RS-26 Rubezh:

- **Reported Weapon:**
 - **The RS-26** Rubezh, a solid-fuelled intercontinental ballistic missile.

- Capable of carrying **multiple independently targetable re-entry vehicles (MIRVs)**.
- **Specifications:**
 - Range: **5,800 km**, classified under nuclear arms treaties as an ICBM.
 - Payload: Can carry an **800-kg nuclear warhead** or heavier conventional payloads.
- **Global Significance:**
 - First-ever reported use of an ICBM in an active conflict, primarily designed as a deterrent weapon.
 - The MIRV capability signals advanced nuclear escalation potential.

About Intercontinental Ballistic Missile (ICBM):

- **Definition:** Long-range ballistic missile primarily designed for delivering nuclear weapons.
- **Range:** Over **5,500 km**, maximum ranges between **7,000 and 16,000 km**.
- **Speed:** Exceeds **20,000 km/h**.
- **Countries with ICBMs:** Russia, United States, China, France, India, United Kingdom, Israel, North Korea.
- **India’s ICBMs:**
 - **Agni V:** Solid-fuelled missile with a range of **7,000–10,000 km**.
 - **Agni VI:** Upcoming iteration with **MIRV capability** (Multiple Independently Targetable Re-entry Vehicles).

Insta links:

1. [Hwasong-19](#)
2. [Minuteman-iii](#)

82. SABAL-20 LOGISTICS DRONE

Context:

The Indian Army has inducted the Sabal-20 logistics drone, developed by IIT-Kanpur-incubated EndureAir Systems, to enhance its operational capabilities in rugged terrains, especially in the eastern sector.

About Sabal-20 Drone:

- **Design:** Electric unmanned aerial vehicle (UAV) with variable pitch technology and large rotors, inspired by Chinook helicopters.
- **Payload:** Capable of carrying up to 20 kg, about half its own weight.
- **Technology:** Features tandem rotor configuration for improved lift and stability in high-altitude and rugged terrains.

Features of Sabal-20 Drone:

- **VTOL (Vertical take-off and landing) Technology:** Enables vertical take-off and landing, suitable for confined and challenging environments.
- **Stealth Operations:** Low RPM design minimizes noise, ideal for sensitive missions.

- **Long-Range and High-Altitude Capability:** Supports delivery of critical supplies like ammunition, food, and medical equipment in inaccessible areas.
- **Durability:** Designed for tough terrains and extreme operational demands.

Significance:

- Enhances the Indian Army's logistical efficiency in remote and high-altitude regions.
- Promotes indigenous defense manufacturing under "[Make in India](#)" and "[Atmanirbhar Bharat](#)".

Similar Drones:

- **Global Counterparts:** Comparable to heavy-lift drones like the **K-Max** (USA) but tailored for Indian defense needs.

83. EKLAVYA PLATFORM

Context:

General Upendra Dwivedi, the Chief of the Army Staff (COAS), launched the Eklavya online learning platform for the Indian Army.

- This initiative aligns with the Army's vision of a "[Decade of Transformation](#)" and the 2024 theme, "[Year of Technology Absorption](#)."

About Eklavya Platform:

- **Developed by:** Bhaskaracharya National Institute of Space Applications and Geoinformatics ([BISAG-N](#)), with support from the Directorate General of Information Systems.
- **Launched in:** 2024 by the [Chief of the Army Staff](#), General Upendra Dwivedi.
- **Aim:** To facilitate continuous professional military education, decongest physical courses, and encourage domain specialization.
- **Features:**
 - Hosted on the Army Data Network with scalable architecture.
 - Includes a "[Knowledge Highway](#)" for accessing journals, research papers, and articles.
 - Registration delinked from physical nominations; accessible throughout an officer's career.
 - Focuses on **contemporary content and emerging concepts** aligned with modern warfare.

Insta links:

1. [Honorary-Army-General](#)

84. SAREX-24

Context: The 11th edition of the [Indian Coast Guard's](#) Na-

tional Maritime Search and Rescue Exercise (SAREX-24) is being held in Kochi, Kerala.

About SAREX-24:

- **Location:** Kochi, Kerala.
- **Theme:** "Enhancing Search and Rescue Capabilities through Regional Collaboration."
- **Activities:**
 - Sea exercise involving contingencies with participation from Coast Guard, Navy, Air Force, Cochin Port Authority, and Customs.
- **Objectives:**
 - Evaluate operational efficiency and coordination.
 - Strengthen collaborative efforts among regional and international maritime agencies.
- **Significance:** Largest-ever simulations, enhancing cooperative engagement with littoral states and friendly nations.

Insta Links:

3. [Military Exercises-in-News](#)

[Disaster Management](#)

85. LIGHTNING RODS

Context:

In 2022, lightning strikes claimed 2,887 lives in India, highlighting the urgent need for safety measures. Petitions in India seek to classify lightning as a natural disaster, enabling better institutional support for affected individuals.

Geographical distribution of lightning in India:

- Lightning is **not a notified disaster** in India.
- **High frequency regions:** Northeastern states and eastern states (West Bengal, Jharkhand, Odisha) experience frequent lightning due to climatic factors.
- **High fatality regions:** Central Indian states like Madhya Pradesh, Maharashtra, Chhattisgarh, and Odisha report higher lightning-related deaths due to open agricultural fields.
- **Most vulnerable state:** Bihar faces the highest vulnerability, with significant fatalities annually due to population density and frequent thunderstorms.
- **In World:** [Lake Maracaibo in Venezuela](#) is the place on Earth that receives the most lightning strikes.

Science behind lightning rods:

- **Electric potential and current flow:** Electric current naturally flows from a region of higher electric potential (e.g., a charged cloud) to a lower electric potential (e.g., the earth).
- **The earth as a ground:** The earth serves as an abundant reservoir of low electric potential, capable of absorbing virtually infinite charges without becoming electrically saturated.


- **Structure of the lightning rod:** The rod is connected to a conductive wire that runs through the building and is grounded in the earth. This ensures the safe dissipation of electrical charges.
- **Ionization of air:** The sharp tip of the rod ionizes the surrounding air, creating a conductive path for the lightning discharge to follow, minimizing resistance.
- **Energy dissipation:** The rod channels the intense electric energy directly into the earth, preventing damage to the structure and surrounding environment.
- **Protection mechanism:** By being the path of least resistance, the rod attracts lightning strikes away from other nearby structures, ensuring safety.
- **Types of Lightning Rods:**
 - **Franklin Rods and Meshed Conductors:** Use grids or spikes to dissipate the discharge.
 - **Early streamer emission (ESE) rods:** Emit a continuous upward tracer to capture lightning more efficiently.

Insta Links:

2. [Upward-lightning](#)

MAPPING

INTERNATIONAL

| Place | Why in News? |
|--|---|
| <p>1. MOUNT LEWOTOB LAKI-LAKI</p> | <p>Context: Mount Lewotobi Laki-Laki erupted in southeastern Flores, Indonesia, triggering earthquakes, fatalities, property damage, and mass evacuations.</p> <p>About Lewotobi Laki-Laki:</p> <ul style="list-style-type: none"> • Location: Situated on Flores Island, southeastern Indonesia. • Twin volcano: Part of the Lewotobi twin volcano complex, comprising Lewotobi Laki-Laki (Male) and Lewotobi Perempuan (Female) stratovolcanoes. • Geological significance: Positioned within the “Ring of Fire,” a region known for intense tectonic activity. • Eruption details: Recently erupted, emitting lava and ash, causing significant damage to surrounding villages and resulting in multiple fatalities. • Safety measures: Authorities advised residents to stay at least 7 km away from the volcano due to the risk of further eruptions and earthquakes. • Previous names: Historically referred to as Lobetabi, Lovotivo, and Loby Toby. <p style="text-align: center;">Indonesia volcano</p>  <p>Insta links:</p> <ol style="list-style-type: none"> 1. Places-in-news 2. Mount-Ruang-Indonesia |

2. LAND PORT DARRANGA

Context: The [Immigration Check Post \(ICP\) at Land Port](#) Darranga in Assam’s Tamulpur district, located just 700 meters from the Indo-Bhutan border, is set to be inaugurated.

About Darranga Check Post:

- **Location:** Positioned near the Indo-Bhutan border, only 700 meters from [Bhutan](#), in Assam’s Tamulpur district.
- **Facilities:** Spans 14.5 acres with advanced infrastructure for efficient cross-border travel and trade.
- **Connectivity:** Benefits from proximity to National Highway 27 and Bhutan’s enhanced customs facilities.
- **Economic impact:** Expected to catalyze trade expansion, benefiting India’s development goals and Bhutan’s industrial output.
- **Significance:** Acts as both a commercial hub and an immigration checkpoint, fostering economic and cultural ties between India and Bhutan.



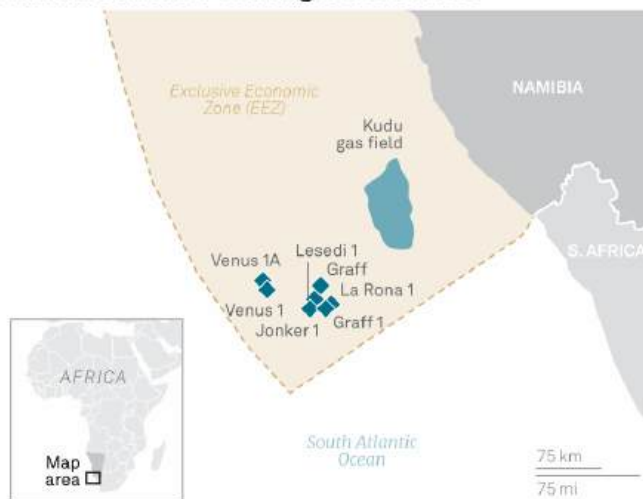
Insta links:

1. [India-Bhutan-relations](#)

3. NAMIBIA OFFSHORE OIL

Context: Namibia, viewed as one of the last frontiers of untapped oil potential, has recently faced challenges in its journey to becoming a prolific oil producer. Despite significant offshore discoveries in recent years, an unexpectedly high gas-to-oil ratio in these fields has created complications for oil development.

Namibia's offshore oil and gas discoveries



About Namibia and Its Oil Reserve Locations

- **Orange Basin:** Major discoveries have been made here, contributing significantly to Namibia’s estimated 2.6 billion barrels of oil reserves.
- **Luderitz Basin:** Another prospective area along the Namibian coast known for its oil exploration potential.
- **Kavango Basin:** Inland exploration in this area has generated interest for its untapped reserves.
- **Walvis Basin:** Also, a target for oil exploration, adding to Namibia’s appeal as a new frontier for oil production.

NOTE: All these places were in the news in 2024; hence, try to remember these names and why they were in the news. Also, the image contains more location names; kindly remember their names too.



About Namibia:

- **Location:** Situated on the southwestern coast of Africa in the Southern and Eastern Hemispheres.
- **Borders:** Neighboring countries include South Africa, Botswana, Zimbabwe, Zambia, and Angola; bordered by the Atlantic Ocean to the west.
- **Topography:**
 - **Namib Desert:** Stretches along the western coast.
 - **Central Plateau:** Located inland, transitioning from the coastal desert.
 - **Kalahari Desert:** Positioned further east.
- **Rivers:** Permanent rivers include the Kunene, Okavango, Mashi, Zambezi (north), and Orange River (south).
- **Mountain:** Brandberg, Namibia’s highest peak, lies on the plateau’s western edge.

Insta links:

2. [Namaqualand-Africa](#)

4. CARICOM (CARIBBEAN COMMUNITY AND COMMON MARKET)

Context: The second meeting of the India-CARICOM Joint Commission was held virtual-ly to review and strengthen the multifaceted relationship between India and CARICOM.



About CARICOM (Caribbean Community and Common Market):

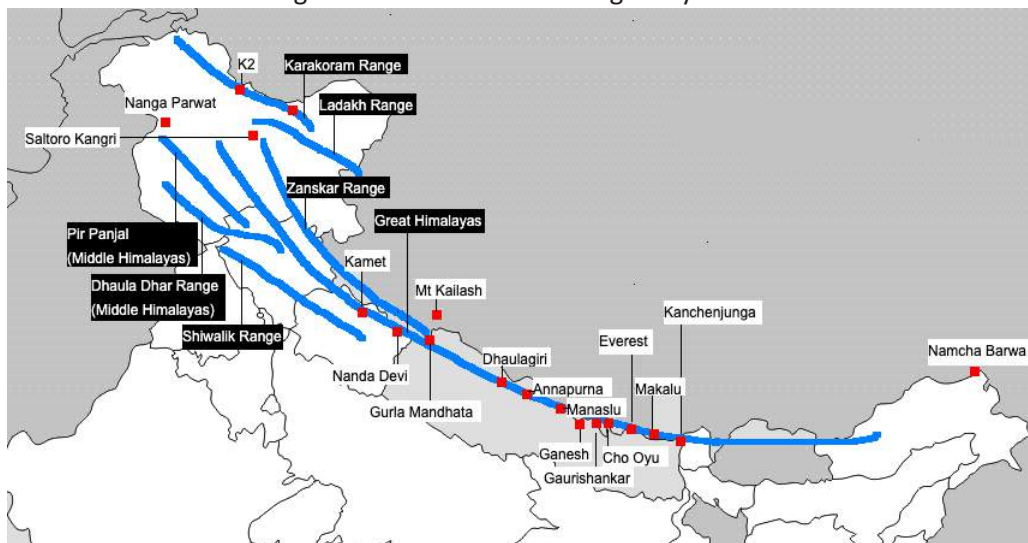
- **Origin:** Established in 1973 by the Treaty of Chaguaramas.
- **Aim:**
 - **Economic Integration:** Promote integration and cooperation among member states.
 - **Equitable Benefits:** Ensure fair sharing of the benefits of integration.
 - **Foreign Policy Coordination:** Develop a unified approach to foreign relations.
- **Nations involved:**
 - **15 full members:** Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago.
 - **Associate members:** Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Turks and Caicos Islands.
- **Secretariat:** Located in Georgetown, Guyana.
- **Chairmanship:** Rotates every six months among the Heads of Member States.

Insta Links:

3. [India - CARICOM](#)

5. MOUNT ANNAPURNA

Context: Annapurna Base Camp (ABC), located at the base of Annapurna-I, has witnessed a record-breaking influx of tourists following this year’s Dashain festival.



About Mount Annapurna:

- **Location:** Situated in the Annapurna Range of Gandaki Province, north-central Nepal.
- **Elevation:** Stands as the world’s tenth-highest peak, reaching 8,091 meters above sea level.
- **Conservation:** Encompassed within the Annapurna Conservation Area, covering 7,629 square kilometers.
- **Nickname:** Often called the “Killer Mountain” due to its high fatality rate among climbers attempting to summit.

Insta links:

1. [Places-in-news](#)

6. SOUTH CHINA SEA

Context: The Philippines' Foreign Ministry said it summoned China's Ambassador to protest Beijing's drawing of baselines around the disputed Scarborough Shoal in the South China Sea.

Disputed claims in the South China Sea



Source: D.Rosenberg/MiddleburyCollege/HarvardAsiaQuarterly/Phil gov't

AFP

Places in News: [South China Sea Dispute](#)

1. South China Sea:

- Contains an estimated 11 billion **barrels of oil** and 190 trillion cubic feet of **natural gas**.
- Claimed by China, Brunei, Indonesia, Malaysia, Philippines, Taiwan, and Vietnam.

2. Spratly Islands:

- Strategic location with rich natural resources and fishing zones.
- **Second Thomas Shoal:** Philippines grounded BRP Sierra Madre to assert claims.
- Frequent site of **China-Philippines clashes**, including laser usage and water cannon incidents by Chinese vessels.

3. Paracel Islands:

- Militarized by China with fighter jets, missiles, and radar systems.

4. Woody Island:

- Key base for China's military installations in the region.

5. Scarborough Shoal:

- Known as **Scarborough Shoal**, **Panacot**, **Bajo de Masinloc** (Spanish), **Huangyan Island** (Mandarin), and **Panatag Shoal** (Filipino).
- Disputed between the Philippines, People's Republic of China, and Taiwan.
 - Claimed by the Philippines via the **Treaty of Washington (1900)** and the **1734 Velarde map**.
 - Claimed by China under its **nine-dash line**.

Insta Links:

2. [South-China-Sea](#)

7. SOLOMON ISLANDS



Context: Scientists have uncovered the largest coral colony on Earth in the **Solomon Islands**, offering insights into marine ecosystems’ resilience and the threats posed by climate change.

New Discovery of Coral Colony:

- **Location:** Solomon Islands, Southwest Pacific Ocean.
- **Region and Depth:** Found 42 feet underwater, near the Macquarie Ridge.
- **Size and Structure:** Measures **112 feet by 105 feet**, rising 16 feet above the ocean floor.
- **Age:** Estimated to be around **300 years old or older**.
- **Features:** Composed of hard coral ***Pavona clavus***, with colors ranging from brown, yellow, red, pink, and blue. Often referred to as “shoulder blade coral.”
- **Discovery:** Made during an October 2024 expedition by National Geographic’s Pristine Seas team.

About Corals:

- **Nature:** Corals are **sessile animals** that attach permanently to the ocean floor.
- **Symbiosis:** Corals share a mutualistic relationship with algae (**zooxanthellae**), which provide nutrients through photosynthesis.
- **Structure:**
 - **Polyps:** Individual coral animals that form large colonies.
 - **Skeletons:** Hard corals create reefs with limestone skeletons, providing habitats for marine life.
- **Classification:** Divided into **hard corals** (reef-building) and **soft corals** (non-reef-building).
- **Ecological role:**
 - Serve as **rainforests of the sea**, home to thousands of marine species.
 - Play a crucial role in marine biodiversity and shoreline protection.

Insta Links:

3. [Coral reef](#)

8. NIGERIA NATION

Context: Prime Minister of India has been conferred with the ‘Grand Commander of the Order of the Niger’ Award by Nigeria, signifying strong diplomatic ties between the two nations.

- **Also in news:** Nigeria’s Borno state experienced severe flooding due to the collapse of the Alau Dam.

NOTE: “Grand Commander of the Order of Niger” is given by Nigeria nation not Niger nation.



About Nigeria:

- **Capital:** Abuja.
- **Location:** West Coast of Africa.
- **Border Nations:** Niger, Chad and Cameroon, Benin and Gulf of Guinea (Atlantic Ocean).
- **Major Plains:** Sokoto Plains (Northwest), Borno Plains (Northeast).
- **Highest Point:** Chappal Waddi.
- **Major Rivers:**
 - **Niger River:** Forms the Niger Delta and drains into the Gulf of Guinea.
 - **Sokoto River:** A significant tributary of the Niger.
- **Major Lake:** Lake Chad shared with Chad, Cameroon, and Niger, this freshwater lake is crucial for regional water resources.

About Alau Dam:

- **Location:** Situated on the **Ngadda River** in Borno State, Nigeria.
- **Purpose:** Built for irrigation, flood control, and water supply to Maiduguri.

Insta Links:

2. [Nigeria](#)

9. EL CAJAS NATIONAL PARK

Context: El Cajas National Park, located in the highlands of Ecuador near Cuenca, has been severely impacted by wildfires exacerbated by a prolonged and severe drought.

- The [Ecuadorian](#) government has **declared a 60-day national emergency** to address the **raging forest fires**, which threaten not only the park's ecological integrity but also its critical water resources.



About El Cajas National Park:

- **Location:** Highlands of Ecuador, 30 km west of Cuenca in Azuay province.
- **Area:** Spans **285.44 km²** with altitudes between **3100m and 4450m**.
- **Declared:** National Park status granted on **November 5, 1996**.
- **Topography:** Features **páramo vegetation**, jagged hills, valleys, and about **270 lakes and lagoons**, with **Luspa** as the largest lake.
- **Rivers:** The **Tomebamba** and **Yanuncay** rivers originate here, contributing to the **Amazon basin**. Western drainage connects to the [Pacific Ocean](#).
- **Highest Point:** Cerro Arquitectos (4450m).

Insta Links:

4. [Ecuador](#)
5. [Places-in-news](#)

10. SALT CHIMNEYS AT DEAD SEA

Context: Researchers from the Helmholtz Centre for Environmental Research (UFZ) discovered unique salt chimneys on the Dead Sea floor, a rare geological phenomenon formed by highly saline groundwater.



About Salt Chimneys:

- **Formation:** Created by the upward flow of hypersaline brine from aquifers, leading to the crystallization of halite upon contact with Dead Sea water.
- **Characteristics:** Structures range from 1-7 meters in height with diameters of 2-3 meters. They grow rapidly, up to several centimetres per day.
- **Significance:** Serve as early indicators of sinkhole risks, highlighting areas prone to karstification and ground collapse.
- **Applications:** Potential for autonomous mapping to predict regions at risk of sinkhole formation.



About the Dead Sea:

- **Geographical Location:** A saltwater lake between Jordan, Israel, and the West Bank.
 - Found at 430.5 meters below sea level—the lowest land-based elevation on Earth.

- **Salinity:** Contains 34.2% salinity, making it one of the saltiest water bodies globally, supporting only microorganisms and algae.
- **Physical Dimensions:** Covers 605 sq. km, 50 km long, and 15 km wide at its broadest.
- **Hydrology:** Fed by the Jordan River, with no outlet, losing water mainly through evaporation.
- **Environmental Concerns:** Rapidly declining water levels (~1 meter per year) due to evaporation and restricted tributary flow, impacting regional groundwater dynamics.

Insta Links:

6. [Dead sea](#)

11. REYKJANES PEN-INSULA

Context:

The Reykjanes Peninsula in Iceland witnessed a new volcanic eruption on Wednesday, marking the seventh eruption since December 2023.



About Reykjanes Peninsula:

- **Location:** Southwest Iceland; continuation of the submarine Reykjanes Ridge (part of the Mid-Atlantic Ridge).
- **Geography:** Home to volcanic systems like Reykjanes, Svartsengi, Fagradalsfjall, Krýsuvík, Brennisteinsfjöll, and Hengill; characterized by en-echelon fissure systems.
- **Tourism:** Popular attractions include volcano tours, hiking trails, and the Blue Lagoon geothermal spa.
- **Population:** Around 27,829 (2020); largest settlement is Reykjanesbær, created by merging Keflavík, Njarðvík, and Hafnir.
- **Economy:** Strong fishing industry centered in Grindavík.

Insta Links:

7. [Volcano](#)

12. CAYIRHAN COAL MINE

Context: Nearly 500 miners have locked themselves in the Cayirhan coal mine near Ankara, Turkiye, protesting the privatization of the mine and associated [thermal power](#) plant.



About Cayirhan Mine:

- **Location:** Situated on the outskirts of Ankara, in Ankara Province, Turkiye.
- **Grade of Coal:** Produces [lignite](#), a low-grade coal primarily used for power generation.
- **Significance:**
 - Supplies the adjacent 620 MW Cayirhan coal-fired power station.
 - Integral to Turkiye's energy production and local employment.
 - Subject of environmental and economic scrutiny due to proposed extensions and concerns over inefficiency and pollution.

Insta Links:

8. [Coal Mine](#)

13. KURRAM DISTRICT OF PAKISTAN

Context: Sectarian violence has escalated in the Kurram district of Pakistan, following a massacre of Shia travelers, resulting in days of clashes and significant casualties.



About Kurram District:

- **Location:**
 - Situated in [Khyber Pakhtunkhwa](#), northwestern Pakistan.
 - Borders Afghanistan with multiple crossings along the **192-km Durand Line**.
- **Key River:**
 - The district is named after the **Kurram River** (Pashto: Kwarma), derived from the Sanskrit word **Krumu**.
- **Geographical Features:**
 - Lies in the **Kurram Valley**, a strategically significant and mountainous region.
 - Shares borders with Afghan provinces like Logar, Paktia, and Nangarhar.
- **Demographics:**
 - Predominantly **Pashtun tribes**: Turi, Bangash, Orakzai, Wazir, and others.
 - **Shia-Sunni composition**: Shia Turis dominate Upper Kurram, while Sunnis inhabit Lower and Central Kurram.
- **Why Conflict:**
 - **Tribal rivalries** over land and resources exacerbated by governance failures.
 - **Sectarian tensions** fueled by external influences (Saudi-Iran rivalry) and local grievances.
 - **Historical factors**: Zia-ul-Haq’s Sunni Islamisation policies and Cold War geopolitics.

Insta Links:

9. [Shia - Sunni](#)

14. GELEPHU MINDFULNESS CITY

Context:

Bhutan’s PM Tshering Tobgay highlighted the Gelephu Mindfulness City as a major “Zero Carbon” project, thanking India for supporting its development as a sustainable, cooperative initiative.



About Gelephu Mindfulness City:

- **Vision:** To create a sustainable, zero-carbon city promoting harmony, sustainability, and Bhutan’s Gross National Happiness philosophy.
- **Origin:** Envisioned by **King Jigme Khesar Namgyel Wangchuck** to improve Bhutanese lives and build a global model for sustainable living.

- **India's Role:** Strategic collaboration with India for investment and infrastructure, strengthening India-Bhutan ties; viewed as a cooperative project benefiting both nations.
- **Key Features:**
 - Spread over **2,500 sq. km**, comprising 2.5% of Bhutan's landmass.
 - Includes protected national parks, wildlife sanctuaries, and renewable energy facilities generating 4,000-5,000 MW.
 - Self-governed **Special Administrative Region (SAR)** with independent judiciary and lawmaking powers.
 - **Mandala-style neighbourhoods** connected by inhabitable bridges over 35 rivers and streams.
 - Infrastructure for hydroelectric power, hydroponic farming, spiritual centers, markets, and healthcare (both traditional and modern).
 - Designed as a **low-rise, eco-friendly city** prioritizing personal well-being and environmental sustainability.

Insta Links:

10. [Bhutan's-Gelephu-Project](#)

15. BALTIC SEA

Context: The cutting of undersea cables in the Baltic Sea has escalated geopolitical tensions, particularly in the context of the ongoing Ukraine war.



About Baltic Sea:

- **Location:** Part of the North Atlantic Ocean, situated in Northern Europe, separating the Scandinavian Peninsula from continental Europe.
- **Surrounding Countries:** Denmark, Germany, Poland, Lithuania, Latvia, Estonia, Russia, Finland, and Sweden.
- **Connections:** Links to the Atlantic Ocean through the Danish Straits, facilitating global trade and connectivity.
- **Depth and Area:** Average depth is 55 meters; deepest point is 459 meters.
- **Gulfs:** Contains the Gulf of Bothnia (north), Gulf of Finland (east), and Gulf of Riga (south).
- **Rivers:** Over 250 rivers drain into it, with the **Neva River** being the largest contributor.
- **Islands:** Hosts over 20 islands and archipelagos, with **Gotland (off Sweden's coast)** as the largest.

Insta links:

2. [Baltic-sea](#)

16. UGANDA

Context:

Heavy rains in eastern Uganda triggered devastating [landslides](#) in the Bulambuli district, claiming 20 lives, displacing 750 people, and destroying 125 homes.

About Places in News:

- **Bulambuli District, Uganda:**

- Site of the landslides that destroyed six villages and displaced hundreds.
- Located in the eastern mountainous region, vulnerable to heavy rains and mudslides.



About Uganda:

- **Geography:**

- Landlocked country in East Africa, located in the African Great Lakes region.
- Lies within the Nile basin, with fertile lands and significant water bodies.

- **Borders:**

- Shares borders with Kenya (east), South Sudan (north), Democratic Republic of Congo (west), Rwanda (southwest), and Tanzania (south).

- **Rivers:**

- Includes the Nile, Kafu, Semliki, and others like Albert Nile, Agago, and Katonga.

- **Mountains:**

- Home to the Rwenzori Mountain range (highest peak: Margherita on Mount Stanley) and Mount Elgon.

- **Lakes:**

- Features Africa's largest freshwater lake, Lake Victoria, shared with Kenya and Tanzania.
- Other major lakes include Lake Albert and Lake Edward.

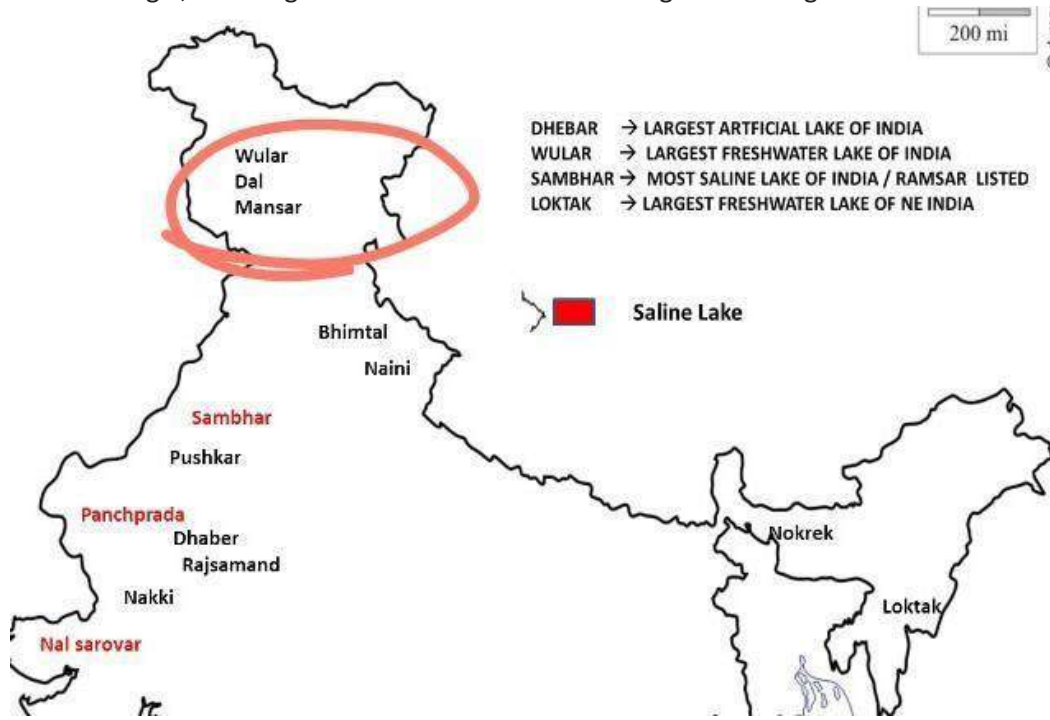
- **National Parks:**

- Includes Bwindi Impenetrable Forest, Rwenzori Mountains, Kibale, and Mgahinga National Parks, rich in biodiversity.

Insta Links:

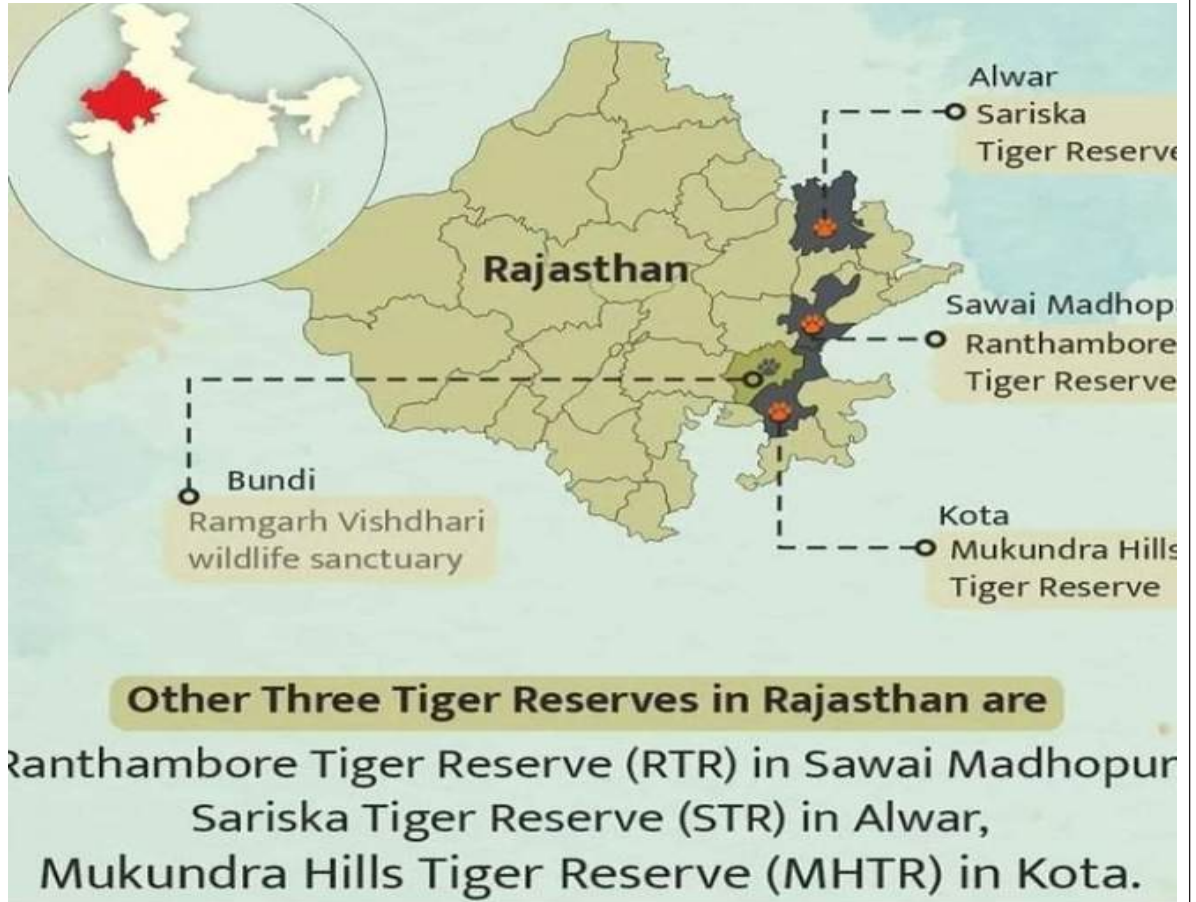
11. [Places-in-News](#)

INDIAN

| Place | Why in News? |
|---------------------------|---|
| <p>1. DAL LAKE</p> | <p>Context: In a historic event, 150 women participated in the first-ever traditional shikara boat race on Dal Lake in Srinagar, breaking societal norms and showcasing their strength.</p>  <p>About Dal Lake:</p> <ul style="list-style-type: none"> • Location: Situated in Srinagar, Jammu and Kashmir, surrounded by the Pir Panjal mountains. • Nicknames: Known as the “Jewel in the crown of Kashmir” and “Srinagar’s Jewel.” • Size and Structure: The lake spans 18 square kilometers, part of a natural wetland of 21.1 square kilometers, including floating gardens. • Floating Gardens: Called “Raad” locally, these bloom with lotus flowers during July and August. • Basins: Divided into four basins—Gagribal, Lokut Dal, Bod Dal, and Nagin (often considered a separate lake). • Shoreline: Extends 15.5 kilometers with Mughal gardens, parks, houseboats, and hotels along the boulevard. • Floating Market: Known for its vibrant floating market where vendors sell goods from wooden shikaras. • Depth: Varies from 6 meters at the deepest point to 2.5 meters at the shallowest. • Winter Freeze: Temperatures can drop to -11°C in winter, causing parts of the lake to freeze. • Islands: Includes three islands, with Char Chinari (Four Chinars) and Sone Lank (Gold Island) being notable for their historical and scenic significance. <p>Insta links:</p> <ol style="list-style-type: none"> 2. Dal-lake-area-to-be-eco-sensitive-zone 3. Places-in-news |

2. RANTHAMBORE NATIONAL PARK

Context: As many as 25 tigers, out of a population of around 75 in the tiger reserve in Ranthambore National Park (RNP) in Rajasthan, have “disappeared” within the last year.



Issues in Ranthambore Tiger Reserve:

- **Overpopulation:** RNP currently holds around 75 tigers in a space suitable for about 40, leading to intense competition.
- **Territorial Conflicts:** Due to overcrowding, many tigers engage in territorial disputes, sometimes resulting in fatal conflicts.
- **Human-Wildlife Conflict:** The proximity of villages in the buffer zone exacerbates human-tiger conflicts, creating challenges for coexistence.
- **Insufficient Monitoring:** Monitoring gaps, as revealed by missing tigers in camera traps, have underscored the need for consistent surveillance.
- **Delayed Relocation:** Slow relocation efforts of villages around RNP have hampered mitigation of human-animal conflicts.

About Ranthambore Tiger Reserve (RTR):

- **Location:** At the junction of the Aravallis and Vindhyas in eastern Rajasthan, near Sawai Madhopur.
- **Area:** Spans 1,411 sq. km, one of northern India’s largest tiger reserves.
- **History:** Former royal hunting grounds for Jaipur’s Maharajas.
- **Geography:** Features steep rocky hills, lakes (Padam Talab, Raj Bagh Talab), and rivers Chambal and Banas, with the Great Boundary Fault.
- **Flora:** Tropical dry deciduous and thorn forests; dominated by Dhok trees and grasslands.
- **Fauna:** Hosts tigers, leopards, sloth bears, hyenas, and over 250 bird species.

Insta links:

4. [Places-in-news](#)

3. CHUSHUL-MOLDO BORDER

Context: The Indian and Chinese armies observed Diwali with an exchange of sweets and greetings at the Chushul-Moldo border point in [Ladakh](#), reflecting a continued tradition of goodwill despite ongoing tensions.

About Chushul-Moldo Border:

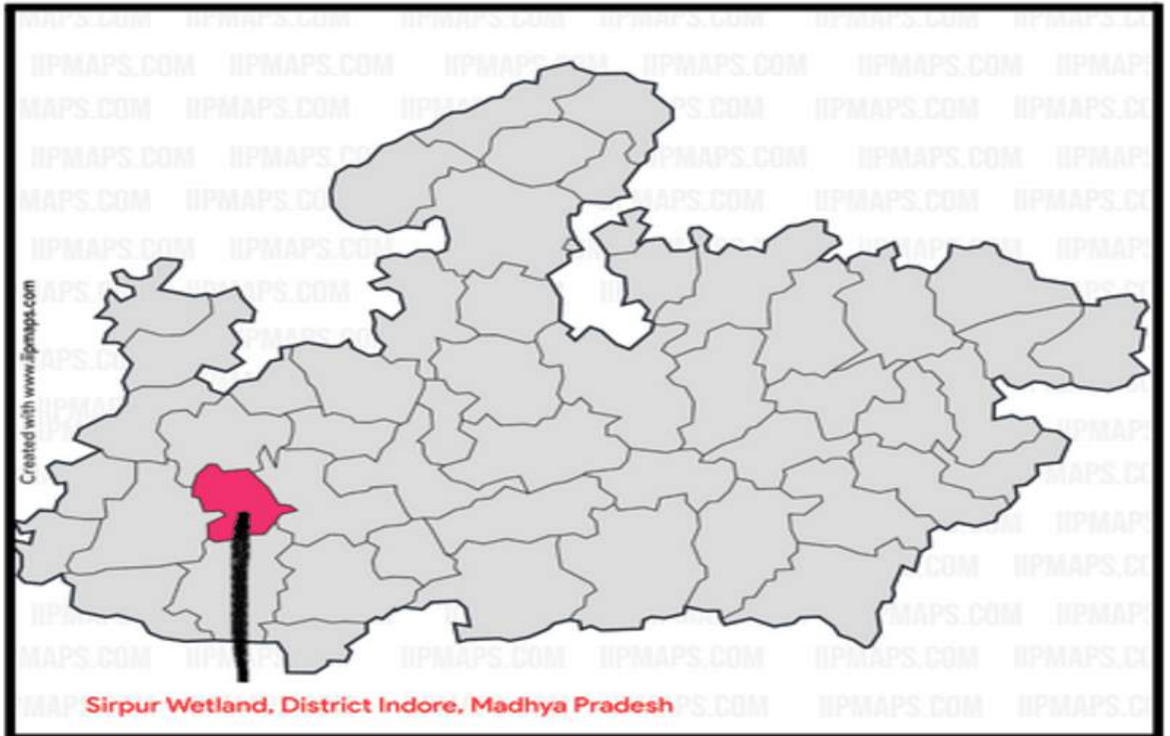
- **Location:** Chushul-Moldo is a key border meeting point situated in eastern Ladakh along the Line of Actual Control (LAC) between India and China.
- **Strategic importance:** Located close to the contested Pangong Lake area, Chushul-Moldo has seen multiple military confrontations, making it crucial for diplomatic interactions.
- **Altitude and terrain:** Situated at a high altitude with challenging mountainous terrain, it serves as a significant location for monitoring troop movements and facilitating communication between the two armies.

Insta links:

2. [India China-patrolling-arrangement](#)

4. SIRPUR RAMSAR SITE

Context: In a decisive move to protect the ecological significance of the **Sirpur Ramsar site**, the Indore Municipal Corporation (IMC) launched a demolition drive on Saturday to remove unauthorized encroachments.



About Sirpur Wetland:

- **Location:** A 670-acre lake in Indore, Madhya Pradesh, over 130 years old.
- **Created by:** Maharaja Shivajirao Holkar for water supply and recreation.
- **Ramsar recognition:** Declared a Ramsar site in 2022.
- **Ecological importance:** Inhabited by 189 bird species from 55 families alongside reptiles, insects, butterflies, and fish.
- **Restoration:** Revived from severe deterioration to an urban wetland of international ecological importance.
- **Water sources:** Fed by three channels, with Sukhniwas Lake being the most significant.

Insta Links:

12. [World-wetlands-day-2024](#)

5. MATTUPETTY DAM

Context: The trial run of Kerala’s first seaplane service at Mattupetty Dam in Idukki district has sparked ecological concerns due to its proximity to sensitive wildlife habitats, despite its potential to boost tourism.



About Mattupetty Dam:

- **Location:** Near Munnar, in Idukki district, Kerala, India.
- **Type:** Storage concrete gravity dam.
- **Purpose:** Built for water conservation and hydroelectric power generation.
- **Rivers:** Located near the confluence of Muthirappuzha, Chanduvarai, and Kundale rivers.
- **Ecological significance:** Provides habitat and sustenance for a variety of wildlife, including elephants and birds.

More locations in news:

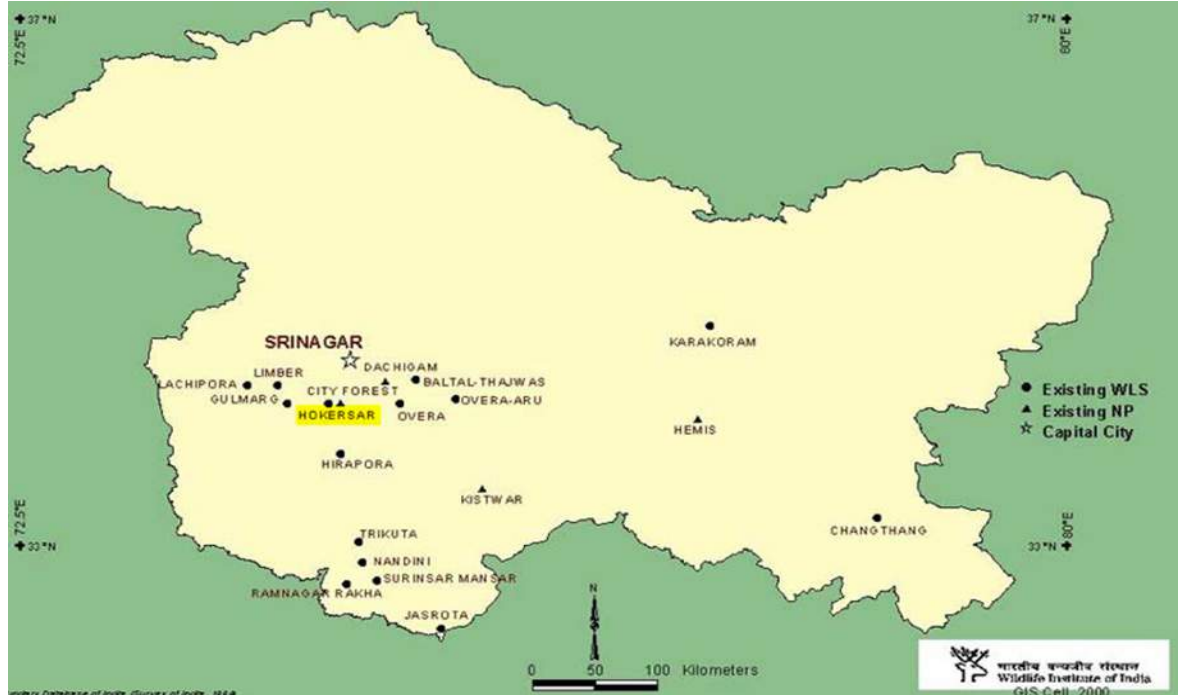
- **Mattupetty Dam:** Site of Kerala’s first seaplane service trial.
- **Munnar:** Closest hill station, benefitting from the project.
- **Anamudi Shola National Park:** Located 3.5 km north of Mattupetty.
- **Pampadum Shola National Park & Kurinjimala Sanctuary:** East of Mattupetty, designated as eco-sensitive zones.
- **Kanan Devan Hills Reserve Forest:** Surrounds Mattupetty and serves as a habitat for protected species.

Insta Links:

13. [Analysis-of-the-dam-safety-act-2021](#)

6. HOKERSAR WETLAND

Context: The **Hokersar wetland**, a Ramsar site in the Kashmir Valley, has witnessed a sharp decline in migratory bird populations due to an 81% rainfall deficit in the region.



About Hokersar Wetland:

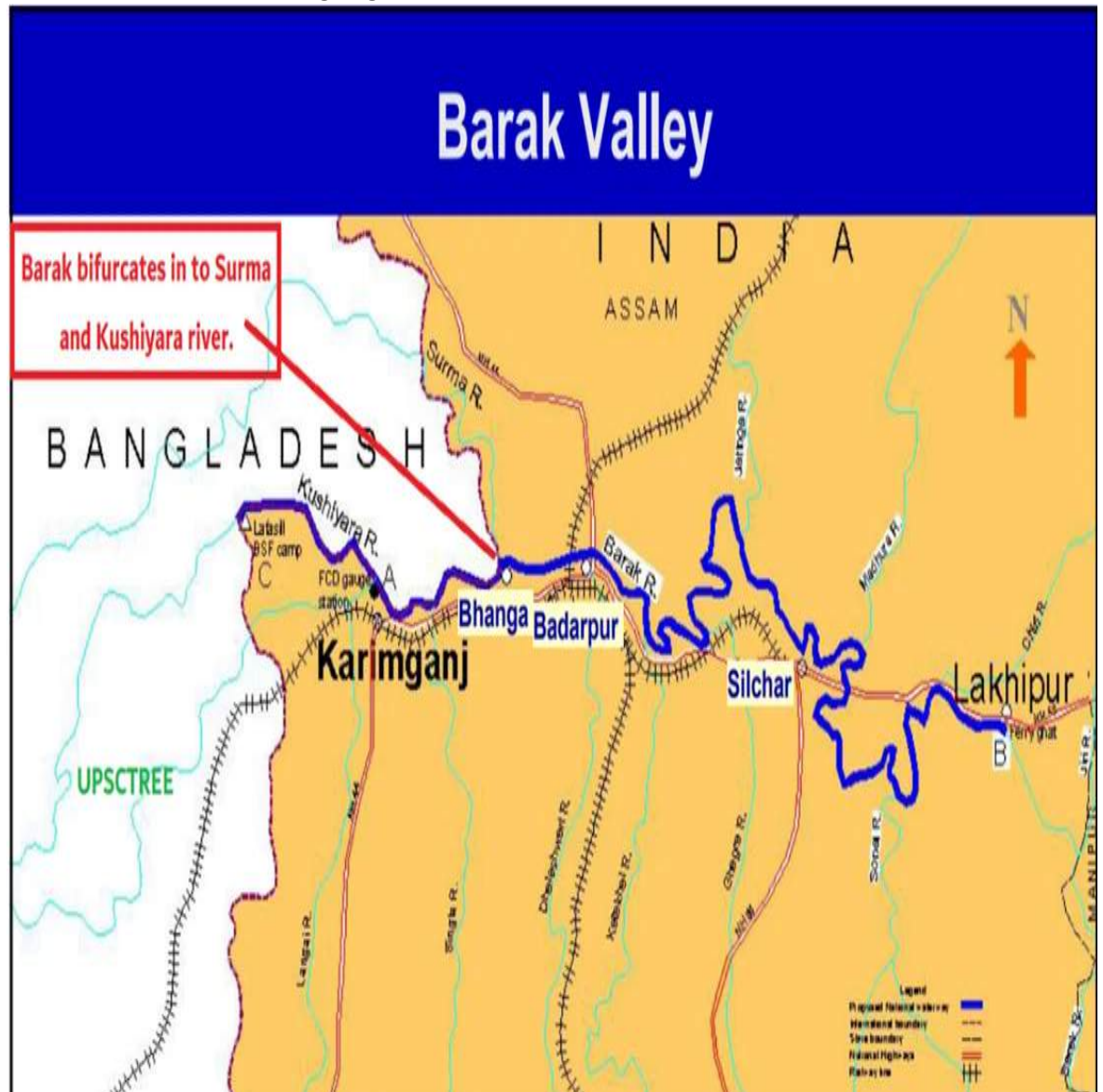
- **Location:**
 - Situated in Srinagar, **Jammu and Kashmir**, within the northwest Himalayan biogeographic province.
 - Receives water from **Doodhganga River**, a tributary of Jhelum.
- **Ecological Importance:**
 - Known as the **‘Queen Wetland of Kashmir’**, it is the only site with remaining reed-beds of Kashmir.
 - Acts as a pathway for 68 waterfowl species, including Little Cormorant, Common Shelduck, and endangered White-eyed Pochard.
 - Provides food, spawning grounds for fish, and feeding and breeding habitats for migratory birds.
- **Biodiversity:**
 - Hosts over 232 bird species and shelters 2 million migratory waterfowl annually.
 - Attracts birds from Siberia, Central Asia, and Europe.
- **Threats:**
 - **Rainfall Deficit:** Reduced water levels due to insufficient rainfall.
 - **Habitat Degradation:** Encroachments, illegal sewage dumping, and mining activities.
 - **Illegal Mining:** Increased stream widths and silt deposition have harmed the wetland ecosystem.

Insta Links:

14. [Ramsar site](#)

7. BARAK RIVER

Context: The Manipur Police discovered three bodies, suspected to be those of missing abductees, in the Barak River amidst ongoing militant activities in the state.



About Barak River:

- **Origin and Course:**
 - Rises in the Manipur Hills, flows into Assam, and later enters Bangladesh as the Surma and [Kushiyara rivers](#).
 - Joins the Meghna River, receiving the combined flow of the Ganga and Brahmaputra.
- **Tributaries:**
 - Major tributaries include the Jiri, Dhaleswari, Singla, Longai, Sonai, and Katakhal.
- **Drainage and Sub-basin:**
 - Covers a drainage area of 41,723 sq. km in India, about 1.38% of the country's total geographical area.
 - Lies across Meghalaya, Manipur, Mizoram, Assam, Tripura, and Nagaland.
- **Geographic Boundaries:**
 - Bounded by the Barail range to the north, the Lushai Hills to the east, and Bangladesh to the south and west.

Insta Links:

15. [Drainage-system](#)

8. WILLINGDON ISLAND

Context: Willingdon Island, built in the 1920s, has lost prominence since container operations moved to Vallarpadam. Stakeholders seek revival through tourism, commerce, and logistics, preserving its heritage while boosting opportunities.



About Willingdon Island:

- **Historical Significance:** Constructed in the 1920s, named after Viceroy Lord Willingdon, and served as a vital port hub for Cochin.
 - A man-made marvel built in the **1920s by Sir Robert Bristow**, was once the nucleus of port-related activities **in Kochi**.
- It is also home to **the Kochi Naval Base** of the Indian Navy, the Central Institute of Fisheries Technology and the Port of Kochi.
- **Decline:** Operations reduced post-2011 when the container terminal shifted to Vallarpadam under a build-operate-transfer model.
- **Potential:** Ideal for coastal and defence cargo handling, cold storage, godown networks, and container freight stations.
- **Tourism Appeal:** Waterfront location suitable for tourism activities such as cruise operations, luxury yachts, water sports, and wellness retreats.
- **Challenges:** Rigid land lease policies and lack of infrastructural upgrades, including transportation and logistics, hinder development.

Insta Links:

4. [Renovation-of-cochin-port](#)

9. PANCHACHULI MOUNTAIN RANGE

Context: Uttarakhand's Pithoragarh faces environmental degradation as tourism and emissions accelerate glacier melt in the Panchachuli range.



About Panchachuli Mountain Range:

- **Group of Peaks:** Comprises five snow-capped peaks, forming a part of the **Kumaon Himalayas** in **Uttarakhand**, India.
- **Altitude Range:** Peaks rise from 6,334 m (20,781 ft) to 6,904 m (22,651 ft), with Panchchuli II being the tallest.
- **Geographical Significance:** Lies at the watershed between the Gori and Darmaganga valleys, near Munsiyari, and on the Gori Ganga-Lassar Yankti **divide**.
- **Cultural Legend:** Named after the Pandavas' "Five Chulis" (cooking hearths) from Indian mythology.
- **First Ascent:** Panchchuli II was first scaled by an Indo-Tibetan Border Police (ITBP) team led by Mahendra Singh on May 26, 1973.
- **Tourism Impact:** Located 138 km from Pithoragarh, the peaks attract trekkers and pilgrims but face environmental degradation due to human activities.

Insta Links:

16. [Dhauladhar-hills](#)

10. ASHTAMUDI LAKE

Context: Kerala's Ashtamudi Lake, a [Ramsar site](#), faces ecological threats from pollution and habitat degradation, with recent fish deaths from algal blooms endangering biodiversity and local livelihoods.

Under threat

Sewage discharged by industries and houseboats have severely polluted the lake



More about news:

- **Issues:**
 - **Pollution:** Sewage discharge, plastic dumping, and illegal waste disposal are rampant.
 - **Encroachments:** Illegal constructions block water flow and degrade habitats.
 - **Microplastics:** High levels of pollution detected in fish, shellfish, and sediments, impacting the aquatic ecosystem.
 - **Water Hyacinth:** Spread of invasive plants limits fishing activities.
- **Algal Bloom Impact:**
 - Overloading of nutrients causes oxygen depletion, suffocating aquatic species.
 - Streptococci and E. coli contamination points to severe sewage pollution.
 - Leads to significant economic losses for fishers and cage farmers.

About [Ashtamudi Lake](#):

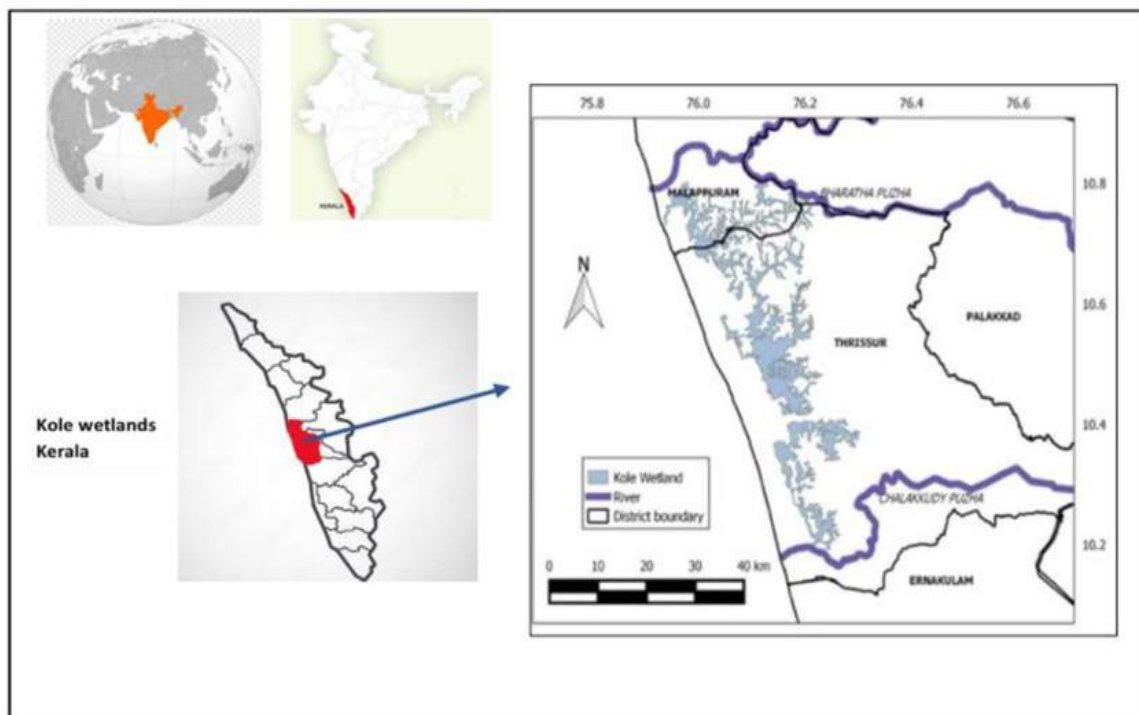
- **Location:** Situated in Kollam district, Kerala; named for its eight interconnected arms ("Ashtamudi").
- **Significance:**
 - Second-largest Lake in Kerala.
 - Designated as a Ramsar Wetland of International Importance in 2002
 - Major source of livelihood for local fishers.
- **Hydrology:** Fed by the Kallada River, connects to the Arabian Sea through the Neendakara estuary.
- **Historical Importance:** A key port city during the 14th century; noted in the travel records of Moroccan explorer Ibn Battuta.
- **Biodiversity:** Rich in mangrove species, including endangered ones like *Syzygium travancoricum* and *Calamus rotang*.

Insta links:

1. [Vembanad-and-Ashtamudi-lake](#)

11. THRIS-SUR-PONNANI KOLE WETLANDS

Context: The Eastern Imperial Eagle (*Aquila heliaca*), a rare and vulnerable bird of prey, was recently sighted in the Pulluzhi kole wetlands, a [Ramsar](#)-protected area in Kerala.



About Eastern Imperial Eagle:

- **Scientific Classification:** Member of the family Accipitridae; subfamily Aquilinae.
- **Habitat:** Found in old forests, mountain and riverine forests, and isolated tall trees for nesting.
- **Range:** Breeds in southeastern Europe, West, and Central Asia; migrates to northeastern Africa, Middle East, and South/East Asia in winter.
- **Physical Features:**
 - Large eagle with a wingspan of 1.76 to 2.2 m and length between 68 to 90 cm.
 - Reverse sexual dimorphism: females larger than males.
 - Golden crown and nape, grey base to the tail, white “braces” on scapulars.
 - Keen eyesight, strong legs with curved talons for prey capture.
- **Conservation Status:** Listed as **Vulnerable** on the IUCN Red List.

About Thrissur-Ponnani Kole Wetlands:

- **Location:** Spreads across Thrissur and Malappuram districts in Kerala, India.
- **Area:** Covers 13,632 hectares (33,690 acres).
- **Significance:**
 - Provides 40% of Kerala’s rice requirement.
 - Acts as a natural drainage system for Thrissur city, Ponnani city, and surrounding districts.
 - Part of the [Central Asian Flyway](#), supporting migratory bird species.
- **Boundaries:** Lies between Chalakudy River (South) and Bharathappuzha River (North), extending to Ponnani Taluk.
- **Hydrological Network:** Connects to Enamavu River, Canoli Canal, Chettuva River, and flows into the Arabian Sea.
- **Soil Fertility:** Enriched by alluvium soil deposited by Kechery and Karuvannoor rivers during monsoons.

Insta links:

2. [Three-new-wetlands-in-the-Ramsar-site-tag](#)

12. UT-TARAKHAND STATE'S RIVERS

Context: A report by the Spring and Rejuvenation Authority (SARA) highlights alarming threats to 5,428 water sources, with significant declines in water levels across the Uttarakhand state's rivers.



About Rivers in News:

1. **Song River**
 - **Origin:** Lesser Himalayas, near Mussoorie, Uttarakhand.
 - **Tributary of:** Seasonal feeder to the Ganga River system.
2. **Western Nayar River**
 - **Origin:** Pauri district, Uttarakhand.
 - **Tributary of:** Ganga River.
3. **Eastern Nayar River**
 - **Origin:** Pauri district, Uttarakhand.
 - **Tributary of:** Ganga River.
4. **Shipra River**
 - **Origin:** Nainital district, Uttarakhand.
 - **Tributary of:** Kosi River.

NOTE: Madhya Pradesh also has one of the rivers named Shipra, which joins Chambal.

5. **Gaudi River**
 - **Origin:** Champawat district, Uttarakhand.
 - **Tributary of:** Tributary of the Saryu River.

Insta Links:

17. [Rivers-in-news](#)

13. PENNAI-YAR RIVER

Context: The Supreme Court has asked the Union government to produce a report from the Negotiation Committee addressing the Pennaiyar river water dispute between Tamil Nadu and Karnataka.



About Periyar River:

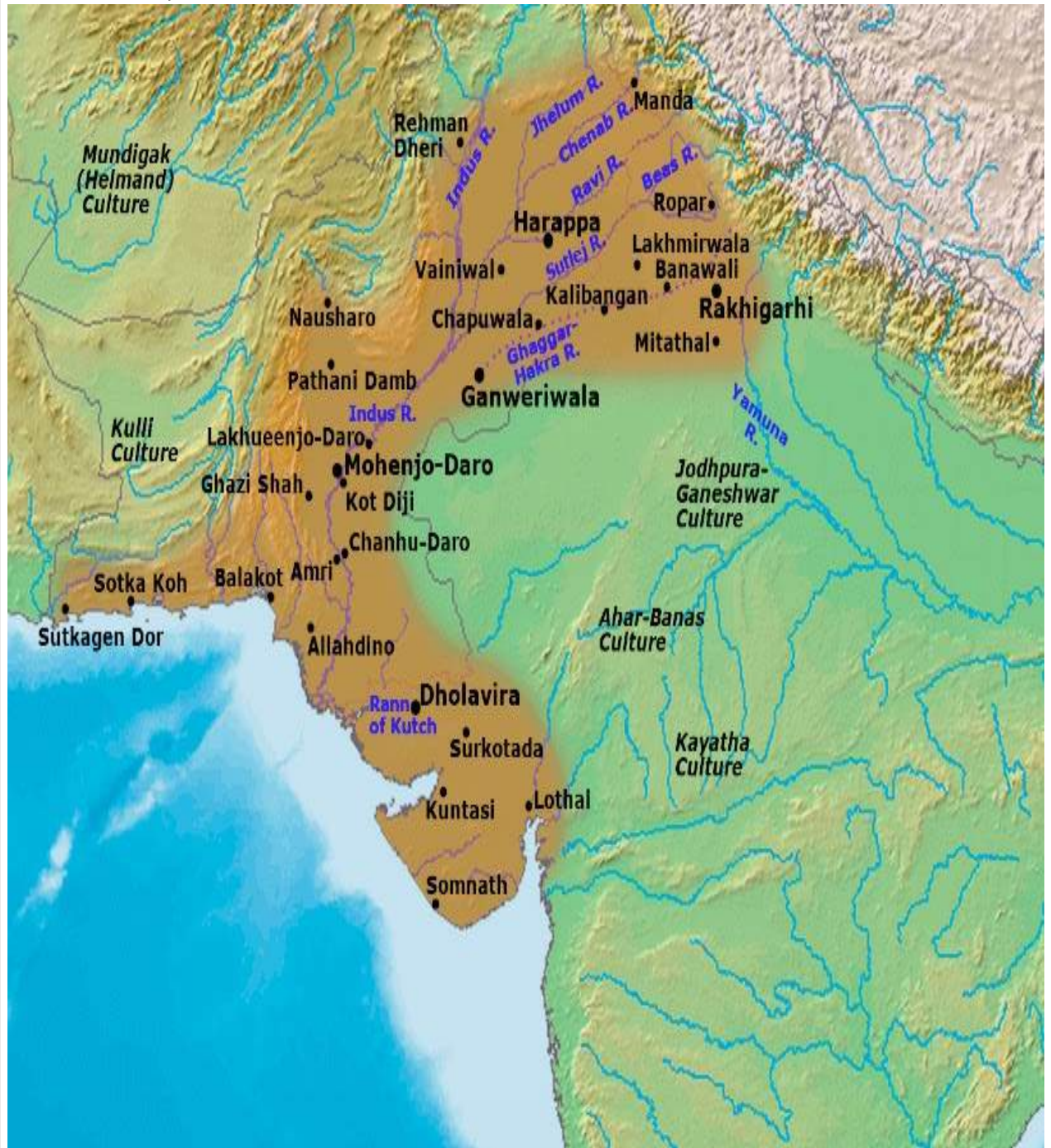
- **Origin:** Sivagiri Hills, Western Ghats.
- **Flow:** Passes through the Periyar National Park, flows into Vembanad Lake, and empties into the Arabian Sea.
- **Tributaries:** Muthirapuzha, Mullayar, Cheruthoni, Perinjankutti.
- **Significance:**
 1. Provides drinking water for major towns and Kochi city (via Aluva).
 2. Powers Kerala's Idukki Dam, generating significant electricity.
 3. Supports 25% of Kerala's industries along its banks.
- **Unique Feature:** One of Kerala's few perennial rivers, sustaining agriculture, industry, and biodiversity.

Insta Links:

18. [Mullaperiyar-Dam-Issue](#)

Lothal

Context: The tragic incident at Lothal highlights the risks researchers face while uncovering historical knowledge. Lothal, a prominent Harappan-era port city, represents a critical chapter in India's ancient maritime and trade history.



About Lothal:

- **Historical Significance:** Southernmost Indus Valley Civilization site, built around 2200 BCE, known for its advanced trade and bead-making industry.
- **Unique Features:** Home to the world's earliest known dockyard, linking it to ancient trade routes.
- **Discovery:** Excavated between 1955-1960 by SR Rao; marine microfossils confirmed its dockyard purpose.
- **Heritage Status:** Nominated as a [UNESCO](#) World Heritage Site in 2014; remains on the tentative list.
- **Modern Development:** The National Maritime Heritage Complex (Rs. 3,500 crore project) recreates Harappan architecture and showcases India's maritime legacy.

Insta Links:

19. [Harappan-Indus-Valley-Civilization](#)