



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

CYCLONE MICHAUNG

The cyclone, initially predicted to be a 'tropical cyclone,' was upgraded to a 'severe' storm, with wind speeds ranging from 88 kph to 166 kph.

4 DEC - 9 DEC 2023

WEEKLY CURRENT AFFAIRS

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GENERAL STUDIES – 2

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

1. TERMS OF REFERENCE (TOR) FOR THE SIXTEENTH FINANCE COMMISSION

Context:

Recently, the Union Cabinet, chaired by the Prime Minister approved the **Terms of Reference (ToR) for the Sixteenth Finance Commission.**

- The commission will make recommendations on the distribution of **net proceeds of taxes between the Union and the States**, allocation among the States, grants-in-aid, and measures to supplement Panchayats’ resources for a **five-year period starting April 1, 2026**

What is a Finance Commission?

The Finance Commission has been established by **Article 280 of the Indian Constitution**. The Finance Commission is a **cornerstone of India’s fiscal federalism**, playing a pivotal role in ensuring the **equitable distribution of resources between the central government, states and Local bodies.**

Major Terms of Reference for the 16th Finance Commission:

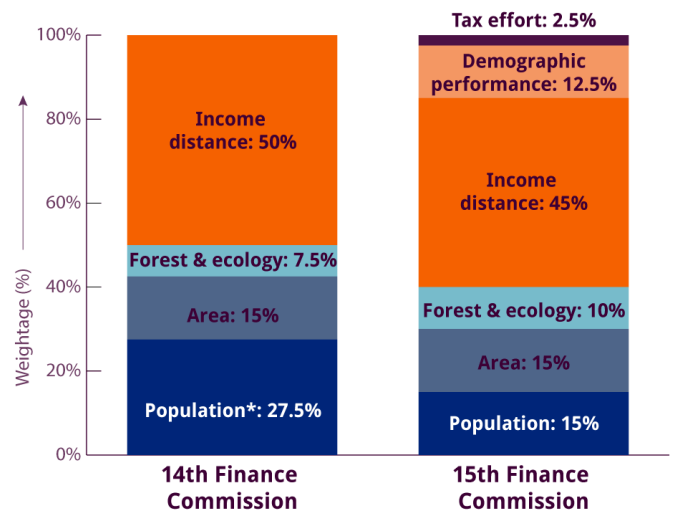
Terms of Reference (ToR)	Details
Division of Tax Proceeds:	Recommending the distribution of taxes between the Union Government and the States under Chapter I, Part XII of the Constitution. This includes the allocation of shares among the States from these tax proceeds.
Principles for Grants-in-Aid:	Establishing the principles governing grants-in-aid to the States from the Consolidated Fund of India. This encompasses determining the amounts to be provided to the States as grants-in-aid , specifically under Article 275 of the Constitution.
Enhancing State Funds for Local Bodies	Identifying measures to enhance the Consolidated Fund of a State . This is aimed at supplementing the resources available to Panchayats and Municipalities within the State, based on recommendations made by the State’s own Finance Commission.

Evaluation of Disaster Management Financing:	The Commission may review the current financing structures related to Disaster Management initiatives . This involves examining the funds created under the Disaster Management Act, 2005 , and presenting suitable recommendations for improvements or alterations.
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Key Recommendations of 15th Finance Commission (2020-2026):

- Share of States in Central Taxes:** Maintain states’ share at 41%, a **1% adjustment** to accommodate Jammu and Kashmir and Ladakh.
- Fiscal Deficit and Debt Levels:** Advise the Centre to **limit fiscal deficit to 4%** of GDP by 2025-26. States have specific fiscal deficit limits as a percentage of Gross State Domestic Product (GSDP) for different years in 2021-26.
- Other Recommendations:
 - Defence and Internal Security Funding:** Propose establishing a Modernisation Fund for Defence and Internal Security (MFDIS).
 - Centrally Sponsored Schemes (CSS):** Recommend a threshold for annual CSS allocations, third-party evaluations, transparent funding patterns, and stable financial allocations to phase out redundant schemes.

Revenue-sharing formulas in the 14th and 15th Finance Commissions



***Note:** The 14th Finance Commission considered ‘**Population (1971)**’, while the 15th introduced ‘**Population (2011)**’ and ‘Tax and fiscal efforts’

Finance Commission’s Role as a Balancing Wheel of Fiscal Federalism:

Role	Description
1. Vertical and Horizontal Distribution	

<p>a. Vertical Share</p>	<p>The Finance Commission determines the vertical share, ensuring a fair allocation of the Centre's tax revenue to the States. This vertical distribution safeguards the financial interests of the States and prevents fiscal centralization.</p> <p>Increase in the devolution of taxes: 32% to 42% by the 14th Finance Commission and 41% by the 15th FC</p>
<p>b. Horizontal Sharing Formula</p>	<p>Formulates the horizontal sharing formula, guiding how revenue is distributed among the States and with the local bodies</p>
<p>2. Addressing Fiscal Disparities</p>	
<p>a. Financial Transfers to Less Economically Developed States</p>	<p>Through mechanisms like revenue deficit grants, it bridges the fiscal gap and supports states with limited revenue-raising capacity.</p> <p>E.g., The 15th FC gave revenue deficit grants of about Rs 3 lakh crore, including special grants for Hill States like Himachal Pradesh.</p>
<p>3. Promoting Cooperative Federalism</p>	
<p>a. Facilitating Intergovernmental Fiscal Transfers</p>	<p>Foster's cooperative federalism by facilitating intergovernmental fiscal transfers</p> <p>The Finance Commission conducts extensive consultations with States to understand their unique needs and challenges.</p>
<p>4. Five-Year Review Cycle</p>	
<p>a. Periodic Review of Fiscal Arrangements</p>	<p>The 14th, 15th, and upcoming 16th Finance Commissions allow for a periodic review of fiscal arrangements.</p> <p>This ensures that fiscal transfers remain relevant and effective in light of evolving economic and social realities.</p>
<p>5. Expertise and Recommendations</p>	
<p>a. Composition of Experts</p>	<p>Comprising experts in economics, finance, and public administration, the Finance Commission's recommendations are based on rigorous analysis, consultations, and assessments of various factors.</p>
<p>6. Resolving Fiscal Conflicts</p>	
<p>a. Platform for Conflict Resolution between Centre and States</p>	<p>- The Finance Commission serves as a platform for resolving conflicts and disputes between the Centre and the States concerning fiscal matters</p>
<p>7. Strengthening Fiscal Discipline</p>	

<p>a. Assessing Fiscal Performance and Needs</p>	<p>By assessing the fiscal performance and needs of the States, the Finance Commission encourages responsible fiscal behaviour and discourages imprudent spending practices, thus contributing to fiscal discipline.</p> <p>The 14th FC introduced fiscal deficit targets and debt-GSDP ratios to encourage fiscal prudence by States.</p>
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Measures to Strengthen the Finance Commission

- 1. Regularization of Appointments**
 - a. Implement the recommendations of the **Punchhi Commission**, which suggested that the Finance Commission's appointment should be **regularized to ensure its autonomy and periodic review**.
- 2. Enhanced Consultations:**
 - a. Encourage the Finance Commission to conduct extensive consultations with state governments, local bodies, and other stakeholders, as recommended by the NITI Aayog.
- 3. Fiscal Responsibility Legislation:**
 - a. Promote the **implementation of Fiscal Responsibility and Budget Management (FRBM) Acts** at the state level, as suggested by the Fourteenth Finance Commission.
- 4. Greater Transparency:**
 - a. Implement the **recommendations of the Raghuram Rajan Committee by enhancing transparency in the Finance Commission's** decision-making process. Publish detailed reports and rationale behind resource allocation to promote accountability.
- 5. Horizontal Devolution Formula:**
 - a. **Review and update** the horizontal devolution formula periodically, as suggested by the **K.C. Pant Committee**. This will ensure that the formula remains relevant and responsive to changing economic realities.
- 6. Timely Implementation**
 - a. Ensure **timely implementation of the Finance Commission's recommendations**, as emphasized by various committees. Delays can disrupt state budget planning and hinder development projects.
- 7. Periodic Review**
 - a. Continuously review the Finance Commission's functioning and effectiveness through parliamentary committees, **as suggested by the Sivaraman Committee**. Regular evaluations can lead to improvements.

Conclusion

By adopting these measures, India can strengthen the Finance Commission's role as a 'balancing wheel of fiscal federalism,' ensuring fair and equitable resource distribution, fiscal discipline, and cooperative governance across states

and local bodies.

Mains Links:

Q. Discuss the recommendations of the 13th Finance Commission which have been a departure from the previous commissions for strengthening the local government finances. (UPSC 2013)

Q. 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

Ans: B

Topics: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

2. NEW POST OFFICE BILL, 2023

Context:

The Rajya Sabha passed the Post Office Bill, replacing the **125-year-old Indian Post Office Act of 1898**.

Need for the Bill:

- Replace the outdated **Indian Post Office Act of 1898**
- To modernize and enhance the efficiency of the **Postal Department**.
- Addresses the evolving role of post offices, transforming them **into service-delivery institutions** and expanding their functions to include **banking facilities**.
- To adapt to the **changing demands of the digital era**, ensuring that postal services remain relevant and effective.
- To broaden the **authority of the Director General of Postal Services** beyond mail services.

Major provisions of the Bill:

Provision	Details
Flexibility	Grants the postal department flexibility in determining service prices to respond quickly to market demands.
Legal Framework	Establishes a strong legal framework for citizen-centric services in the post office, facilitating various initiatives.

Digital Code	Introduces the option to replace physical addresses with digital codes using geospatial coordinates to identify specific premises.
Privilege	Eliminates the provision of “exclusive privilege” previously granted by the central government.
Authority of DG	It broadens the authority of the Director General of Postal Services beyond mail services. It empowers them to regulate activities for additional services prescribed by the central government and set charges without requiring parliamentary approval.
Authority of Centre	Empowers the central government , through notification, to authorize any officer to intercept, open, or detain items during transmission by the Post Office for reasons related to state security, foreign relations, public order, emergency, or public safety.

Issues with the new bill

1. **High Government Control:** The provision allowing the interception and opening of parcels by the government may enhance control but also raise potential issues of privacy and misuse.
2. **Loss of Exclusive Privileges:** The elimination of exclusive privileges for the central government in conveying letters and issuing postage stamps may impact traditional postal services.
3. **Liability Concerns:** Shifting liability from the central government to the Post Office for its services may raise questions about accountability and responsibility.
4. **Data Privacy and Security:** The expanded interception powers necessitate the establishment of robust data privacy and security measures to safeguard the personal information of postal service users.
5. **Differing Legislation for Couriers:** The absence of similar legislation for courier firms raises concerns about regulatory disparities.

Conclusion:

The introduction of the **new Post Office Bill (2023)** marks a significant step in clarifying **vague definitions**, particularly regarding what constitutes a **‘letter.’** The bill’s emphasis on **digital addressing not only streamlines** sorting processes but also opens avenues for efficient mail and parcel delivery, including the possibility of drone deliveries. Overall, the changes reflect an **adaptation to evolving needs, prioritizing legality**, and enhancing security in the postal service landscape.

About Indian Post:

India Post (formed 1854; HQ: New Delhi) operates under the **Department of Post within the Ministry of Communications**. Initially, the post was established in **1766 under the East India Company as "Company Mail,"** it was later transformed into a **Crown service in 1854** by **Lord Dalhousie**. Under Dalhousie's reforms, **uniform postage rates** and the India Post Office Act of 1854 were introduced, marking significant advancements in the postal system, including the creation of **the Director General of Post** for the entire country. With **1, 55,531 Post Offices**, the DoP has the most widely distributed postal network in the world.

Some of the Schemes by the Postal Department:

Post Office Schemes	Description
National Saving Recurring Deposit Account	Government-supervised savings system, requiring a minimum deposit of Rs. 10.
National Savings Time Deposit Account	Offers accounts with varying maturity dates (1, 2, 3, and 5 years) for individuals or groups of up to three persons.
Senior Citizen Savings Scheme Account	Fixed-income investment for individuals over 60, ensuring a steady flow of income after retirement, with a 5-year lock-in term.
Public Provident Fund Account	Long-term investment plan with a 15-year lock-in period, offering a mix of security, earnings, and tax savings.
National Savings Certificates (NSC)	Government savings bonds for smaller savings and tax-saving investments, with a 5-year maturity period.
Kisan Vikas Patra Account	Modest savings instrument encouraging long-term savings, doubling the principal in 9 years and 4 months.
Sukanya Samridhi Account	Government-sponsored savings program aimed at securing a prosperous future for girls in India, particularly for education and marriage.

Insta links:

- [India's 1st 3D printed post office](#)

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

3. NCRB REPORT 2022

Context:

The National Crime Records Bureau (NCRB)'s annual report reveals a harrowing surge in crimes against women in India.

Key Highlights of NCRB's Crime in India 2022 Report:

Highlights	Description
Overall Crime Statistics	A total of over 58,00,000 cognizable crimes were registered, comprising both the Indian Penal Code (IPC) and Special & Local Laws(SLL) crimes. The registration of cases witnessed around 4.5% decline compared to 2021.
Crime Rate Decline	The crime rate per lakh population dropped from about 446 in 2021 to 422 in 2022.
Safest City	Kolkata emerged as the safest city in India for the third consecutive year, recording the least number of cognisable offences per lakh population among metropolises. Pune (Maharashtra) and Hyderabad (Telangana) secured the second and third positions, respectively.
Rise in Cyber Crimes	Cybercrime reporting surged by about 24%, totalling 65,893 cases , a significant surge from 52,974 cases in 2021. Cyber fraud constituted the majority of cases (64%), followed by extortion, and sexual exploitation .
Suicides and Causes	In 2022, India witnessed a significant surge in suicides, totalling over 1.7 Lakh cases , reflecting a concerning increase of about 4% compared to 2021 Major causes included 'Family Problems,' 'Marriage Related Problems,' Bankruptcy and indebtedness, 'Unemployment and professional issues' and Illness'. Maharashtra reported the highest number of suicides, followed closely by Tamil Nadu, Madhya Pradesh, Karnataka, Kerala, and Telangana. Daily wage earners constituted a significant portion, accounting for over 26% of the total suicides. Agricultural workers and farmers were also disproportionately affected, forming a substantial part of the suicide statistics. This was followed by unemployed persons . Among all suicides reported in the year, over 12,000 were of students .

Escalating Crimes Against SCs and STs	The Crime in India report highlighted an overall increase in crimes and atrocities against Scheduled Castes (SC) and Scheduled Tribes (ST) persons.
	States like Rajasthan, Madhya Pradesh, Chhattisgarh, and Telangana experienced a surge in such cases in 2022.
Crimes Against Women	A total of about 4,45,000 cases of crime against women were reported in 2022, marking a 4% increase from 2021.
	Dominant Reasons included 'Cruelty by Husband or His Relatives,' 'Kidnapping & Abduction of Women,' and 'Assault on Women with Intent to Outrage Her Modesty.'
Crimes Against Children	Cases of crimes against children showed an increase of 8.7% compared to 2021. A majority of these cases are related to kidnapping and abduction
Crime Against Senior Citizens	Cases of crimes against senior citizens rose by about 9%. Major reasons included Physical hurt followed by theft and forgery, cheating, and fraud
Animal Attacks on the Rise	The NCRB report reveals a concerning trend in the number of people dying or getting injured due to animal attacks. A significant 19% increase in such incidents was recorded in 2022 compared to 2021.
	Maharashtra reported the highest number of cases, Uttar Pradesh, Odisha, Tamil Nadu, Chhattisgarh, and Madhya Pradesh followed with varying numbers of reported cases.
Offences Against the State	Offences against the State exhibited a slight increase in 2022 compared to the previous year. There was approximately a 25% rise in cases registered under the Unlawful Activities Prevention Act (UAPA) during this period.
	Cases under the sedition Section of the IPC experienced a significant decline. The decrease in sedition cases may be attributed to the Supreme Court's decision in May 2022 to keep sedition cases in abeyance (hold).

Rise in Economic Offences	Economic offences are categorized into criminal breach of trust, forgery, cheating, fraud (FCF), and counterfeiting. FCF accounted for the majority of cases (1,70,901 cases), followed by criminal breach of trust (21,814 cases) and counterfeiting (670 cases).
Crimes Against Foreigners	192 cases registered against foreigners, a 28% increase from 150 cases in 2021. 57% of victims were from the Asian continent, while 18% were from African countries.
High Chargesheeting Rates	States with the highest charge sheeting rates under IPC crimes are Kerala, Puducherry, and West Bengal. The chargesheet rate reflects cases where police reached the stage of framing charges against the accused.



National Crime Records Bureau (NCRB)



NCRB	Details
Origin	NCRB was set up in 1986 to function as a repository of information on crime and criminals. It assists investigators in linking crimes to perpetrators based on recommendations of the Tandon Committee , National Police Commission (1977-1981), and the Ministry of Home Affairs (MHA) Taskforce (1985).
Ministry	It operates under the Ministry of Home Affairs and is headquartered in New Delhi.
Divisions	NCRB has four divisions: Crime and Criminal Tracking Network and Systems (CCTNS), Crime Statistics, Fingerprints, and Training.
Publications	NCRB publishes reports such as Crimes in India , Accidental Deaths and Suicides, Prison Statistics, and Reports on Missing Women and Children in India.
Functions of NCRB	Compiling and keeping records of crime data. Acting as a "national warehouse" for fingerprint records , aiding in locating interstate criminals. Monitoring, coordinating, and implementing the CCTNS project, connecting about 15,000 police stations and 6,000 high offices. Maintaining the National Database of Sexual Offenders (NDSO) and sharing it with States/UTs. Overseeing the technical and operational process of the online Cyber Crime Information Portal. Maintaining the Counterfeit Currency Information and Management System (FICN) and Integrated Monitoring Application on Terrorism.
Data Compilation Process	Data is obtained from police departments of 36 states and Union Territories. Local police station data submitted by State/UT police is verified at district and state levels before being approved by NCRB.
Issues Associated with NCRB Data	Adherence to Principal Offence Rule can lead to undercounting of crimes, e.g., Murder with Rape counted as "Murder" instead of "rape." Data inefficiencies at the local level impact accuracy, as it is a compilation of local data. Lack of police personnel or vacancies at the local level makes data collection more challenging.

To know more Visit Insights IAS Daily CA

Insta Links

[National Crime Records Bureau \(NCRB\)](#)

[Topics: Role of civil services in a democracy.](#)

4. BUREAUCRACY AND STATE

Context:

The [article](#) addresses the **challenges faced by the Indian bureaucratic state**, emphasizing its paradoxical nature of being too large bureaucratically but too small in terms of personnel.

Status of Indian bureaucracy:

- India has a vast and intricate bureaucracy, **employing over 4 million people.**
- In the G-20 group, **India has the smallest number of civil servants per capita (approx. half that of In-**

donesia and China, and about a third of that in the UK). In comparison to the US, the number of central government personnel is **less than one-fourth**.

- Also, India has a number of vacancies, including **1,365 in the Indian Administrative Service (IAS) 703 in the Indian Police Service (IPS)**, 1,042 vacancies exist in the Indian Forest Service (IFS) and 301 in Indian Revenue Service (IRS)

Major Bureaucratic Challenges:

Bureaucratic Challenges	Impact on the Indian State
Lack of professionalism and poor capacity building.	Reduced efficiency, and lack of expertise in handling complex issues.
An ineffective incentive system	Diminished motivation and performance among civil servants.
Rigid and outmoded rules	Hindered adaptability and innovation, bureaucratic red tape.
Lack of accountability and transparency	No protection for whistleblowers, Increased corruption, and reluctance to report wrongdoing.
Political interference	Disrupted stability, and compromised decision-making.
An erosion in ethics and values	Erosion of public trust, compromised integrity, nepotism.
Patrimonialism (a form of governance in which all power flows directly from the leader).	Concentration of power, reduced checks and balances.
Resistance to change	Hindered modernization, and reluctance to adopt efficient practices.
The Technocratic Gap: Skill Gap among Officials	Ineffective policies, poor execution, and implementation.
Concentration of power within departments	Slow decision-making, lack of flexibility.

Suggested Solutions:

Suggestions	Description
Separating policymaking and implementation:	Experiences of countries such as Australia, Malaysia, and the United Kingdom show that separating policymaking and implementation responsibilities expedites execution and encourages innovations, making the programs better suited to local contexts.
	India: The National Highways Authority of India , is tasked with executing national highway projects, while policy decisions are made at the ministry level. This arrangement has drastically reduced delays and cost overruns.

Delegating power to frontline functionaries:	Restrictions on frontline personnel to decide on implementation-related issues foster a culture of mistrust and lack of accountability for poor implementation.
Filling the technocratic gap:	An institutionalized and regular lateral entry at the mid and senior levels can help fill the civil services' size and technocratic gap.
	Qualified officers in non-IAS services (such as the Indian Revenue, Economic and Statistical Services) should get a fair shot at high-level positions
	Subject-specific training under Mission Karmayogi (National Programme for Civil Services Capacity Building).
Providing professional strength to SEBI & RBI	SEBI has just about 800 professionals , whereas its counterpart in the U.S., the U.S. Securities and Exchange Commission, has more than 4,500 experts to govern the corporates. Similarly, the professional staff strength of the RBI, less than 7,000 , is tiny when compared to the US Federal Reserve which is assisted by 22,000 odd professionals.
Need for motivated personnel	Reevaluate the incentive system, considering alternative approaches to motivate public sector employees, such as recognition and career development opportunities .
	The public sector must attract intrinsically motivated individuals to contribute to the social good.
Cutting the breeding ground of corruption	Implement moderate pay raises , ensuring a balance between attracting talent and preventing corruption. Consider reducing the upper age limit for government jobs to promote a dynamic workforce.

Government Initiatives:

- Towards Capacity Building and Specialisation:**
 - Mission Karmayogi:** A National Programme for Civil Services Capacity Building (NPCSCB).
 - Lateral entry:** Personnel from the private sector are selected for administrative posts in the government.
- Towards transparency and accountability:**
 - SVAMITVA scheme:** A reformative step towards the establishment of clear ownership of property in rural inhabited areas, by mapping land parcels using drone technology.

- [Centralised Public Grievance Redress and Monitoring System \(CPGRAMS\)](#): An online web-enabled system that provides the facility to lodge a grievance online from any geographical location.
- [RTI](#), [Citizen Charter](#), etc

A new ethic of civil servants:

1. Selfless service and empathy.
2. **Duty-bound to drive India’s transition** from Amrit Mahotsav to Amrit Kaal.
3. **The removal of a colonial mindset**, sharing a sense of pride in the Indian roots, with a nation-first approach.
4. **A future-ready civil service, which is**
 - i. Proactive and polite
 - ii. Professional and progressive
 - iii. Energetic and enabling
 - iv. Transparent and tech-enabled
 - v. Creative and constructive
 - vi. Imaginative and innovative

Insta Links:

- [Reforms in Indian Civil Services](#)
- [Parliamentary Committee: Reduce the civil services examination’s selection cycle](#)

Mains Links:

Q. Has the Cadre-based Civil Services Organization been the cause of slow development in India? Critically examine. (UPSC 2014)

Q. “Institutional quality is a crucial driver of economic performance”. In this context suggest reforms in the Civil Service to strengthen democracy. (UPSC 2020)

[Topics: India and its neighbourhood- relations.](#)

5. INDIA’S TROUBLED NEIGHBOURHOOD

Context:

India faces various types of dilemmas in its [neighbourhood](#) including politically anti-India regimes, structural challenges due to China’s growing influence, and regional geopolitical changes.

Various types of challenges:

Type of Challenge	Examples
Politically Anti-India Regimes	Rise of anti-India regimes, e.g., Maldives
Structural Challenges	Beijing’s growing influence, Belt and Road Initiative (BRI) impact

Geopolitical Changes	Diminishing U.S. presence, China’s rising dominance
Limited Material Support	Inability to meet the material needs of its neighbours vis-à-vis China’s deeper pockets
Policy Stance	One-track policy focusing on those in power, alienating other centres of power
Mistaken Assumptions	The belief that South Asia minus Pakistan would align with Indian geopolitical reasoning
	The assumption that India’s cultural connections would secure better relations than China
Diplomatic Personnel Shortage	Shortage of diplomats to implement foreign policy, limiting engagement capacity

Security Threats Due to Economic Crisis in Neighbours:

Security Threats	Potential Consequences for India
Terrorism	Unemployment in the neighbour can lead to the radicalization of youth, posing a terrorism threat . (e.g., Mumbai Attack 2008)
Maritime Threat	Lack of maritime governance may result in maritime crimes and a potential refugee crisis due to porous maritime borders.
Chinese Threat	Instability provides opportunities for China’s strategic influence in India’s neighbours, impacting India’s security.
Easy Migration of Radicals	An open border with Nepal could facilitate the movement of radical groups, increasing security risks in India.
Influx of Migration	Economic crisis-induced migration may lead to an influx of migrants into India , similar to historical instances (e.g., the Rohingya crisis).
Drug Smuggling	Proximity to drug-producing regions (Pakistan, Myanmar) may exacerbate the issue of drug smuggling, affecting Indian society.
Change in Demographics	Large-scale migration in border states may alter demographics and potentially lead to social tensions (e.g., the Assam situation).

Possible solutions:

- Engaging with hostile neighbours:** India has reached out to other South Asian countries to bail them out of their economic crises. Pakistan needs such help, too, apart from calm on its border with India
- Regional Partnerships:** Strengthen regional partnerships and alliances to counterbalance Chinese influence.
- Adapting to Geopolitical Changes:** Acknowledge and adapt to the changing geopolitical landscape, recognizing China’s presence and impact.
- Enhanced Economic Cooperation:** Increase economic cooperation, trade, and development assistance to meet the material needs of neighbouring countries.
- Inclusive Diplomacy:** Adopt a more inclusive policy by engaging with multiple actors, including opposition leaders and diverse power centres.
- Revise Mistaken Assumptions:** Revise assumptions regarding South Asia’s geopolitical dynamics, recognizing the importance of engaging with all countries, including Pakistan.
- Cultural Leverage with Caution:** Balance cultural diplomacy with strategic considerations to prevent cultural ties from becoming a liability.
- Diplomatic Capacity Building:** Recruit and train more diplomats to meet the growing demands of India’s expanding role in world affairs.

Conclusion

The evolving crisis in the neighbourhood is something that India cannot afford to ignore. The crisis is an opportunity for India to create mutually beneficial, people-oriented, regional frameworks for stability and prosperity.

Insta Links

[India and its neighborhood](#)

GENERAL STUDIES – 3

Topics: [Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers.](#)

1. PRIMARY AGRICULTURAL CREDIT SOCIETIES (PACS) IN INDIA

Context:

The Ministry of Cooperation has introduced **Model Bye-Laws to revitalize Primary Agricultural Credit Societies (PACS).**

What are Model Bye-Laws?

The Model Bye-Laws empower PACS to **diversify by engaging in over 25 business activities**, including dairy, fishery, godowns, credit services, and more. Provisions ensure inclusive membership with adequate representation for women and Scheduled Castes/Scheduled Tribes. These guidelines aim to **govern the grassroots functioning of PACS, outlining their structure and operations**. The purpose is to enhance economic viability and expand their role in rural areas.

Status of PACS in India:

- With approximately **13 crore farmers as members**, **PACS** are integral to the country’s three-tier Short-term cooperative credit system.

About PACS:

- Established in **1904**, PACS contribute significantly to **financial inclusion** with minimal paperwork, facilitating timely access to capital for farmers.



Role of Primary Agricultural Credit Societies (PACS) for Rural and Agricultural Development in India:

Role	Description
Financial Inclusion	It is a village-level institution that works directly with rural residents . It encourages agriculturists to <u>save</u> , <u>accepts deposits from them</u> , <u>makes loans to deserving borrowers</u> , and collects repayments.
Extending Credit	PACS have the capacity to extend credit with minimal paperwork within a short time .
Kisan Credit Card (KCC) Scheme	The KCC scheme, launched by the government, is facilitated through PACS. It provides farmers with a simplified credit card to access short-term credit for crop cultivation and allied activities . (e.g., they account for 41% of all KCC loans.)

Providing Agricultural Inputs	It supplies agricultural inputs like fer-tilizers, seeds, insecticides , and im-plements to farmers.
Supporting Small and Marginal Farmers	Among these KCC loans provided by PACS, a remarkable 95% (approxi-mately 3 crore farmers) are availed by Small and Marginal farmers through PACS.
Marketing of Agri-cultural Produce	PACS assist farmers in the marketing of their agricultural produce and provides support in finding better markets, thereby improving farmers' income and reducing dependency on middlemen. (e.g., in Kerala, PACS play an active role in marketing cash crops like rubber and spices.)
Training and Ca-pacity Building	PACS conduct various training pro-grams and workshops to enhance the financial literacy and awareness of farmers, empowering them to make informed financial decisions. (e.g., in Maharashtra, training pro-grams on modern agricultural prac-tices, organic farming , etc.)

Issues with PACS:

- **Inadequate Coverage:** Coverage is low in some ar-eas, especially in the north-east. Only 50% of rural households are covered as members.
- **Inadequate Resources:** PACS resources are insuffi-cient for the short- and medium-term credit needs of the rural economy.
- **Overdue and NPAs:** RBI reports lending of Rs 1,43,044 crore and NPAs of Rs 72,550 crore.
 - Overdue hamper the **circulation of loanable funds**, diminish borrowing and lending pow-er and tarnish the image of societies.

Initiatives taken to strengthen the functioning and effec-tiveness of PACS in India:

- **Computerisation:** The **budget 2023** has announced **Rs 2,516 crore** for Computerisation of **63,000 Prima-ry Agricultural Credit Societies (PACS)** over the next five years, with the aim of bringing greater **transpar-ency and accountability** in their operations and en-abling them to **diversify their business and under-taking more activities**.
- **Credit Linkage with NABARD:** PACS are linked to the National Bank for Agriculture and Rural Develop-ment (NABARD), enabling them to access financial resources and expertise for better functioning.
- **Making PACS multidimensional:** The **model bylaws**, prepared by the **Ministry of Cooperation** after con-sultation with all stakeholders, will enable PACS to diversify its business by undertaking more than **25**

different economic activities, including, dairy, fish-eries, godowns, custom hiring centres, fair price shops, LPG/diesel/petrol distributorship, etc.

- **Multistate Cooperative Societies** have been formed for **seeds, marketing of organic farming and export of farmers' produce**.
- **Common Service Centres (CSCs):** Delivery of CSC services through PACS is a big step towards strength-ening them, which will allow PACS to provide facili-ties like Common Service Centres in the country and its benefits will reach crores of people living in rural areas in the country.

Conclusion

PACS form the **bedrock of India's cooperative movement**, and continuous efforts are essential to enhance their viabili-ty and contribute to sustainable rural and agricultural devel-opment.

Mains Links

Q.“In the villages itself no form of credit organization will be suitable except the cooperative society.” – All India Ru-ral Credit Survey. Discuss this statement in the background of agricultural fi nance in India. What constraints and chal-lenges do financial institutions supplying agricultural fi nance face? How can technology be used to better reach and serve rural clients? (UPSC 2014)

Q1. Consider the following statements: (UPSC 2020)

1. In terms of short-term credit delivery to the agriculture sector, District Central Cooperative Banks (DCCBs) deliv-er more credit in comparison to Scheduled Commercial Banks and Regional Rural Banks.
2. One of the most important functions of DCCBs is to pro-vide funds to the Primary Agricultural Credit Societies.

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

Ans: B

Q2. With reference to 'Urban Cooperative Banks' in India, consider the following statements: (UPSC 2021)

They are supervised and regulated by local boards set up by the State Governments.

They can issue equity shares and preference shares.

They were brought under the purview of the Banking Regu-lation Act, 1949 through an Amendment in 1966.

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

Ans: B

Topics: [Conservation related issues, environmental pollution and degradation, environmental impact assessment.](#)

2. WORLD SOIL DAY: SOIL DEGRADATION

Context:

The [article](#) emphasizes the **importance of preserving and restoring soil health** for a sustainable future, especially given the **threats posed by human activities** and decreasing soil productivity.

How Soil is formed?

Soil formation involves the **gradual breakdown of rocks** and the **incorporation of organic material**, leading to a medium that sustains plant and animal life.

Primary Factors of Soil Formation:

Factors	Description	Example
1. Parent Material	Refers to the original rock or organic material undergoing weathering to form soil. It influences soil fertility, texture, and structure.	Limestone parent material leads to alkaline soils, while granite leads to acidic soils.
2. Climate	Temperature and precipitation play a crucial role. Temperature affects weathering rates, and precipitation influences soil moisture and erosion.	Tropical climates with high temperatures and rainfall lead to rapid weathering and nutrient leaching , resulting in nutrient-poor soils.
3. Living Organisms	Flora, fauna, and microorganisms contribute by decomposing organic matter, enriching soil with nutrients, and influencing soil structure.	Earthworms aerate the soil and contribute to nutrient cycling, enhancing soil fertility.
4. Topography	Landscape shape and slope impact water drainage, sunlight exposure, and erosion, affecting soil development.	Steep slopes often have thinner soils due to increased erosion, while flat areas may have thicker, more developed soils.

5. Time	Soil formation is a slow process, and time determines the maturity of the soil. Soils undergo changes and reach different stages of development.	Older soils typically have well-defined layers or horizons , each with distinct characteristics.
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Implications of Soil Degradation:

Implications	Description
1. For Agriculture	
a. Reduced Crop Yields	Soil degradation lowers fertility, leading to decreased crop yields, as seen in parts of Sub-Saharan Africa.
b. Increased Irrigation Needs	Degraded soils often have reduced water retention, necessitating more irrigation, contributing to over-reliance on water resources in areas like California.
c. Pest and Disease Increase	Poor soil health creates susceptibility to pests and diseases, particularly in monoculture practices.
d. Soil Erosion	Intensive farming practices contribute to soil erosion, exemplified by the Dust Bowl in the U.S. during the 1930s.
e. Increased Costs	Farmers incur higher costs for fertilizers and soil amendments to compensate for poor soil quality, affecting economic sustainability.
2. For Food Security	
a. Vulnerability to Climate Change	Degraded soils are less resilient to climate shocks, posing a risk to food production in regions prone to droughts or floods.
b. Nutritional Quality Decline	Soils lacking nutrients result in crops with lower nutritional value, impacting human health.
c. Dependency on Imports	Countries facing severe soil degradation may become more reliant on food imports, observed in some Middle Eastern nations.
d. Price Fluctuations	Reduced agricultural productivity can lead to higher food prices, disproportionately affecting low-income populations.

e. Increased Risk of Famine	Extreme cases, like in the Horn of Africa, may witness soil degradation contributing to famine when combined with other factors.
3. For Biodiversity	
a. Loss of Habitat	Soil degradation contributes to habitat loss, notably in regions like the Amazon rainforest.
b. Reduced Plant Diversity	Poor soil health negatively impacts plant diversity, influencing the entire ecosystem.
c. Altered Ecosystem Services	Degraded soils affect water regulation and purification, disrupting local ecosystems.
d. Increased Invasiveness of Species	Weakened ecosystems become more susceptible to invasive species, impacting local biodiversity.
e. Pollinator Decline	Soil degradation affects flowering plants, contributing to the decline of pollinator species such as bees.

Remedial Measures:

Scientists recommend soil-centric agriculture:

- **Adopt conservation practices:** no-till, residue mulch, crop rotations, and integrated crops with trees and livestock.
- **Discourage broadcasting fertilizers;** promote seed-cum-fertilizer drill machines for water efficiency.
- **Use cover crops, mulching, and agroforestry;** adopt smart soil solutions like **Bhoomitra and Krishi-RAS-TAA**.
- **Promote practices enhancing sequestration** and crop diversification.
- **Eliminate farm residue burning;** adopt direct-seeded and aerobic rice.
- **Reduce chemical use;** employ precision agriculture, digital innovations, robotics, and AI.
- **Practice carbon farming** for emissions offset and soil restoration.
- **Reclaim saline, alkaline, and acidic soils;** use micro-nutrients and biofertilizers.
- **Mechanize deep placement** of fertilizers for efficiency.
- **Integrate nutrient management** using organic and mineral fertilizers for improved soil health.
- **Use happy turbo seeder** for in situ straw conservation and increased SOC.
- **Water Conservation Techniques:** Using **drip irrigation and rainwater harvesting** can reduce water waste and improve soil quality.
- **Integrated Pest Management:** Reducing **chemical use** and encouraging **biological pest control** can

help maintain soil health.

- **Education and Policy Support:** Educating farmers about **sustainable practices** and providing **policy support** for sustainable agriculture can help in long-term soil conservation.

Case Study: The Loess Plateau Restoration, China

The Loess Plateau, located in northern China, is **one of the world's most eroded regions**. It was historically known for its extremely fertile soil, but centuries of **agricultural overuse and deforestation** led to severe **soil erosion, reduced agricultural productivity, and widespread poverty**.

The Restoration Project: In 1994, the Chinese government, with support from the World Bank, initiated the **Loess Plateau Watershed Rehabilitation Project**. The **project's goals were:** To reduce soil erosion, increase agricultural productivity and improve local incomes and living conditions.

Key strategies included:

- **Terracing:** Large areas were terraced to reduce soil erosion and increase land for agriculture.
- **Reforestation and Afforestation:** Millions of trees were planted to stabilize the soil and restore ecological balance.
- **Changing Agricultural Practices:** Farmers were taught sustainable agricultural practices, such as crop rotation and the use of organic fertilizers.
- **Restricting Grazing:** Grazing was restricted in certain areas to allow vegetation to recover.

Results: The project was remarkably successful.

- By the mid-2000s: **Soil erosion significantly decreased.**
- **Agricultural productivity improved**, with marked increases in crop yields.
- **Biodiversity returned** to previously degraded areas.
- The **economic condition of local populations improved**, with significant **reductions in poverty**.

Conclusion:

India's development trajectory must prioritize soil health as a fundamental component of sustainable growth. By doing so, the nation can ensure that future generations inherit fertile and productive land, safeguarding both the environment and its people's well-being.

About World Soil Day (WSD):

It is observed annually on **December 5**, emphasising the **significance of healthy soil** and advocating for sustainable soil management. Proposed by the **International Union of Soil Sciences in 2002**, it was formally established under the **Global Soil Partnership**, with FAO's support. The UN General Assembly **designated December 5, 2014**, as the first official World Soil Day, commemorating the late **King of Thai-**

land Bhumibol Adulyadej's commitment to sustainable soil management. The theme for this year is "**Soil and Water: A Source of Life.**"

Insta Links:
[Problems of Soil](#)

GENERAL STUDIES – 4

1. VOLUNTARY CODE OF ETHICS BY THE ONLINE GAMING INDUSTRY

Context:

Major lobby groups, including the **Internet and Mobile Association of India (IAMAI)**, **E-Gaming Federation (EGF)**, and **All India Gaming Federation (AIGF)**, representing top online gaming companies like Dream11 and Games24x7, have voluntarily signed a code of ethics.

What is a Code of Ethics?

A Code of Ethics is a **set of principles or guidelines** that outline acceptable and expected behaviour within a particular organization, profession, or industry. It typically addresses issues such as **integrity, honesty, fairness, transparency, and accountability**, guiding individuals or entities to uphold ethical standards in their actions and interactions.

What is Online gaming?

It refers to **video games/mobile games** that are played over the internet through various devices. E.g., multiplayer online **battle arena (MOBA) games, first-person shooter (FPS) games**, massively multiplayer online role-playing games (MMORPGs), and many others.

Need for Code of Ethics in India's Gaming Market:

The gaming market is projected to **reach \$5 billion by 2025**. The code aims to prevent negative impacts such as **addiction and suicides** due to financial losses. Additionally, promoting **transparency and accountability** is crucial as online gaming contributes significantly to **India's vision of a \$1 trillion Digital Economy**.

Aim of the Online Gaming Industry Code of Ethics: The code aims to **protect consumer interests, promote informed choices**, and establish a **"healthy environment"** for online games in India. While the code is **not legally binding**, it outlines commitments such as **undertaking know-your-customer (KYC)** as per applicable laws and providing transparency on winner determination and platform fees.

Proposed Code of Ethics:

Objective	Key Commitments
-----------	-----------------

Protect Consumer Interests	Companies will enable consumers to make informed choices about online games by disclosing every minute details Create a "healthy environment" for online games in India by spreading consumer awareness about the risks involved in gaming
Compliance	Undertake Know-Your-Customer (KYC) as per relevant laws
Transparency	Specify on websites the manner of determining winners , and platform fees charged, and ensure deposits are used for gaming Establish transparency on the platform fee charged
Distinction from Gambling Firms	Clearly differentiate whether the firm is involved in gambling in any way

Ministry of Electronics and IT (MeitY) has released the **Draft Rules for Online Gaming (as an amendment to the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021): To know about it [Click Here](#)**

Ministry of Electronics and Information Technology (MeitY) is the nodal ministry to regulate gaming.

To know about State Regulations: [Click Here](#)

Conclusion:

The online gaming industry in India can continue to grow and provide entertainment and employment opportunities while also protecting players and promoting responsible gaming practices

Insta Links
[Online gaming](#)

Mains Links:

Q. "Internet gaming has turned worse than drugs". Do you agree? Critically examine the statement in light of the announcement made by the World Health Organization (WHO) to include "gaming disorder" as a mental health condition. (250 words)

Q. How does gaming addiction, impact children? Do you think China's recent imposition of a three-hour limit on gaming, is a good way to tackle it? (150 words)

CONTENT FOR MAINS ENRICHMENT

1. INCLUSIVE SCHOOLS AND SHADOW TEACHERS

Inclusive schools, in adherence to the [Right to Education \(RTE\) Act](#) and [National Education Policy \(NEP\)](#), are emphasizing the need for a supportive environment for children with learning disabilities.

What are Inclusive Schools?

Inclusive schools are educational institutions that **aim to provide equal opportunities and support for students** of all abilities and backgrounds. These schools accommodate **diverse learning needs, including those with disabilities** or special needs, fostering an environment of acceptance and participation.

What are Shadow teachers?

A shadow teacher is a professional who **assists and supports students** with special needs or **learning disabilities** in a mainstream classroom setting.

For example, **if a student on the autism spectrum** is enrolled in a regular classroom, a shadow teacher might accompany them, offering **personalized assistance** to enhance their learning experience and social integration.

Usage: The example can be used in Ethics/Essay/Indian Society papers

2. CREATOR ECONOMY

Context:

The article explores the **advantages of establishing a creator economy** based on Non-Fungible Tokens (NFTs) and Blockchain technology.

What is the Creator Economy?

The Creator Economy refers to an **internet-facilitated economic model** that allows content creators and influencers to earn revenue directly from their creations. It leverages digital platforms, such as **YouTube, TikTok, and Instagram**, enabling creators to produce and distribute content, products, or services independently.

How NFTs and Blockchain are helping the creator economy?

Key technologies like **Non-Fungible Tokens (NFTs)** and **Blockchain underpin** the creator economy, providing tools for **creators to verify ownership, eliminate intermediaries**, and establish **direct relationships with their audience**. This model promotes the **democratization of creativity, and creative independence**, and has the potential to attract diverse audiences across various fields.

3. FOOTBALL HEADING

Context:

New research suggests **a link between soccer heading**, the act of players hitting the ball with their head, and **a measurable decline in the microstructure and function of the brain over a two-year period**.

Additionally, high heading levels were **linked to a decline in verbal learning performance**.

Impact of other sports training:

Type of Sports Training	Impact on Body
High-impact sports (e.g., Football, Rugby)	Increased risk of joint injuries, concussions, and musculoskeletal trauma.
Endurance Training (e.g., Long-distance Running)	Potential for overuse injuries, stress fractures, and cardiovascular strain.
Heavy Weightlifting	Risk of musculoskeletal injuries, strains, and joint stress.
Contact Sports (e.g., Boxing, MMA)	Increased likelihood of head injuries, concussions, and long-term neurological effects.
Overtraining	Fatigue, increased susceptibility to illness, and risk of burnout.
Inadequate Warm-up or Stretching	Higher risk of strains, sprains, and muscle injuries.
Improper Technique or Form	Increased chance of acute injuries and long-term damage.
Inadequate Recovery	Risk of overtraining, decreased performance, and increased vulnerability to injuries.

Usage: The example can be used to show the importance of having a balance in our lives. E.g., in sports, training is as important as realising our body limit and taking adequate recovery.

4. LOBBYING

Context:

The ongoing **28th Conference of Parties (COP28) to the UN Framework Convention on Climate Change in Dubai** has drawn attention due to a record attendance of fossil fuel lobbyists.

What is Lobbying?

It is the act of **individuals or groups attempting** to influence decisions made by government officials or legislators. This influence can involve **promoting specific policies, supporting or opposing legislation**, or advocating for particular interests.

An analysis by the coalition Kick Big Polluters Out revealed that **2,456 fossil fuel lobbyists were on the provisional participant list in COP28**, surpassing the number of official indigenous representatives by over seven times.

Despite 2023 being the hottest year on record, the **lobbyists received more passes than the ten countries most affected by climate change combined**. The number of lobbyists exceeded those of **official indigenous representatives** by more than seven times.

Ethical Issues with Lobbying at COP28:

- **Conflict of Interest:** The presence of a large number of fossil fuel lobbyists at a climate summit poses a potential conflict of interest, as their **priorities may not align with climate action**.
- **Influence through Trade Associations:** Lobbyists gain access through trade associations, potentially leveraging collective influence, as seen with the International Emissions Trading Association.
- **Questionable Delegations:** Some countries include fossil fuel giants in their delegation, adding to the perception of industry influence on climate discussions.
- **Lack of Accountability:** Calls for a **UNFCCC** Accountability Framework highlight the need to address undue influence from **polluting interests and ensure transparency**.
- **Inadequate Climate Pledges:** Evaluation of Big Oil companies' climate plans reveals shortcomings, with profits **directed toward fossil fuel investment** instead of renewable energy, raising ethical concerns.

Usage: The example can be used in Questions to Pressure groups (Governance) and Environment Conservation.

5. KAJOLI EARLY CHILDHOOD EDUCATION MODEL

Context:

In her book "**Unequal: Why India Lags Behind Its Neighbors**," Swati Narayan explores the educational landscape in four countries—India, Bangladesh, Sri Lanka, and Nepal.

Under Kajoli Early Childhood Education Model, Bangladesh's government **does not run pre-primary schools**, but numerous learning centres, often **operated by NGOs like BRAC**, employ innovative and joyful teaching methods.

The Kajoli model, **based on play and peer learning**, was exemplified by a dynamic teacher named **Shaheen**. Despite challenging conditions, such as an asbestos-roofed classroom, limited ventilation, and little sunlight, Shaheen's students **outperformed their counterparts in nearby schools**. The school operated for **three hours a day**, and mothers collectively financed it, taking turns providing meals.

The **success factors in Bangladesh** include competent and dedicated teachers trained in joyful learning techniques, timely availability of textbooks, scholarships for the poor and female students, and a cultural emphasis on education.

Usage: The example can be used to **reform the primary education system** in India esp. in Bihar where **high prevalence of private tuition in Bihar**, with **82% of students in private schools and 44% in government schools** seeking additional coaching. In contrast, Bangladesh is considering **legislation to ban all private coaching centres, private tuition**, and guidebook publications

FACTS FOR PRELIMS

GS-1

1. NAVY OF ANCIENT INDIA

Context:

On Navy Day (4th December 2004), the PM paid tribute to **Chhatrapati Shivaji Maharaj**, unveiling his statue at **Sindhugharh, Maharashtra**.

Why Navy Day is celebrated on 4th December?

The Indian Navy celebrates **4th December as Navy Day every year** to acknowledge the role of the Indian Navy and commemorate its **achievements in 'Operation Trident** during the 1971 Indo-Pak War.

Announcements made:

- Highlighting Shivaji's naval insight, the PM announced **naval epaulettes** (an ornamental shoulder piece on an item of clothing) **featuring Shivaji's emblem**.
- The new Naval Ensign features **the octagonal design of Shivaji's seal**
- The Indian Navy named its **training (at Lonaval) establishment INS Shivaji** and logistics **hub (at Mumbai) INS Angre after Maratha naval commander Kanhoji Angre**.



Navy in Ancient India



Navy	Description
Early Literary Evidence	Arthashastra references Indian shipping and maritime trade Kautilya mentions the superintendent of ships overseeing ports, shipping, and maritime security Four ship categories: Commercial, Private, Royal, and Warship, with further subdivisions. Commercial ships include Merchant ships and Passenger ships
Gupta Empire Navy	Gupta military comprised infantry, cavalry, chariots, elephants, and ships Gunaighar copper plate inscription mentions ships as an integral part of the military in the 6th century AD
Chola Expeditions	Imperial Cholas, under Raja Raja Chola and Rajendra Chola , conducted naval conquests with a strong navy Expanded the empire to regions including Myanmar, Malaya, and Sumatra through maritime conquests Sent ambassadors to distant countries, including China .
Medieval Period	Naval build-up initiated by Manavikraman, Samoothiri Raja of Kozhikode , in response to Portuguese actions in 1503. Kunjali Marakkars appointed as admirals, successfully resisting Portuguese attempts with Dutch East India Company alliance
Maratha Navy	Maratha Empire, founded by Chhatrapati Shivaji Maharaj in 1674, established a naval force with cannons mounted on ships Shivaji's empire reached the west coast in 1656-57 , prompting the establishment of a navy to protect territories, secure ports, and facilitate maritime trade. Between 1661 and 1663, the Maratha Navy comprised 400+ ships , including battleships like gurab, tarande, galbat, shibad, and pal . Forts: Shivaji ordered the construction of naval forts like Vijaydurg, Sindhudurg, and Kolaba between 1653 and 1680 for strategic purposes and defence against sea-based enemies. The navy's strategic goals were primarily focused on countering and possibly preempting the Siddis of Janjira who projected power from their sea bases. Limitations: While strong in littoral waters, the Maratha Navy did not challenge European naval powers in the high seas.

To know more Visit Insights IAS Daily CA

2. CYCLONE MICHAUNG

Context:

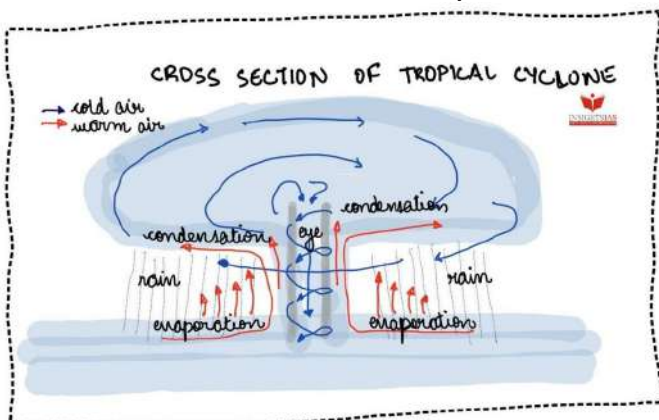
Cyclone Michaung, heading towards the **Andhra coast**, is considered unusual due to its **high intensity and timing in December**, a month when storms in the North Indian Ocean typically don't reach destructive levels.

- The cyclone, initially predicted to be a **'tropical cyclone'**, was upgraded to a **'severe' storm**, with wind speeds ranging from **88 kph to 166 kph**.
- This intensification in December is unique, attributed to **above-normal heat index values off the southern Andhra Pradesh coast**.

Cyclone intensification is influenced by factors such as warm ocean temperatures, **Tropical Cyclone Heat Potential (TCHP)**, atmospheric conditions, wind shear, convection, **Rossby waves**, and air-sea interaction.

About Cyclones:

Cyclones are **large-scale weather systems** characterized by **low-pressure centers, rotating winds, and atmospheric instability**. They are known by different names in various regions, such as **hurricanes (Atlantic and eastern Pacific), typhoons (northwestern Pacific), and tropical cyclones (southwestern Pacific and Indian Ocean)**.



3. GARBA OF GUJARAT

Context:

Gujarat's traditional dance form, **"Garba,"** has been added to **the UNESCO Intangible Cultural Heritage list**, becoming the **15th cultural element from India** to receive this recognition.

- The UNESCO statement describes **Garba as a ritualistic and devotional dance** performed during the **nine-day Navaratri festival, dedicated to the worship of feminine energy or Shakti**.
- The dance is celebrated in **various settings**, including **homes, temple courtyards, public spaces, villages, urban squares, streets, and large open grounds, making it a participatory community event**.
- The inscription aims to ensure the **viability of this tradition and inspire the community to preserve and promote the knowledge, skills, and oral traditions associated with Garba**.





List of UNESCO Intangible Cultural Heritage list from India	
Element	Description
Koodiyattam	Sanskrit theatre of Kerala
Vedic chanting	Recitation of sacred Hindu texts
Ramlila	Traditional performance of the Ramayana
Ramman	Religious festival and ritual theatre of Garhwal, Uttarakhand
Chhau dance	Classical dance form of Odisha and West Bengal
Kalbelia	Folk songs and dances of Rajasthan
Mudiyett	Ritual theatre and dance drama of Kerala
Ladakh Buddhist chantings	Recitation of sacred Buddhist texts in Ladakh
Manipuri Sankirtana	Ritual singing, drumming, and dancing of Manipur
Traditional brass and copper craft of utensil making	Thatheras of Jandiala Guru, Punjab
Yoga	Ancient Indian physical, mental, and spiritual practices
Kumbh Mela	Mass Hindu pilgrimage held at various locations in India
Durga Puja in Kolkata	Religious festival of Hindu Goddess Durga in Kolkata, West Bengal

The UNESCO Intangible Cultural Heritage list is a compilation maintained by the United Nations Educational, Scientific and Cultural Organization (UNESCO) that **recognizes and safeguards cultural practices, traditions, knowledge, and skills that are considered intangible cultural heritage**.

4. GI TAGS FOR MEGHALAYA PRODUCTS

Context:

Meghalaya’s Lakadong turmeric, along with Garo dakmanda (traditional dress), Larnai pottery, and Garo chubitchi (alcoholic beverage), has been granted the [Geographical Indication \(GI\) tag](#).

Product	Origin	Unique Feature
 Lakadong Turmeric	Lakadong area, Jaintia Hills, Meghalaya	High curcumin content (6.8 to 7.5%)
 Garo Dakmanda	Meghalaya	The traditional dress worn by Garo tribes
 Larnai Pottery	Meghalaya	Artisanal black pottery from Jaintai Hills
 Garo Chubitchi	Meghalaya	Rice-based alcoholic beverage of the Garo tribe

Under the [Maritime India Vision 2030 \(MIV 2030\)](#), India aims to **enhance its representation at the IMO by appointing permanent representatives** and nominating candidates for the Junior Professional Officer (JPO) Program.

The [International Maritime Organization \(IMO\)](#) is a United Nations specialized agency that works to **improve the safety and security of international shipping**. The IMO’s mission is to promote **sustainable, efficient, environmentally sound, and safe shipping through cooperation**.

2. J&K REORGANISATION AND RESERVATION BILL

Context:

The [Lok Sabha has passed two bills](#), the [Jammu and Kashmir Reorganisation \(Amendment\) Bill, 2023](#), and the [Jammu and Kashmir Reservation \(Amendment\) Bill, 2023](#).

Background:

- The [legislative assembly in Jammu and Kashmir](#) initially had 100 members, including 24 for Pakistan-occupied Kashmir (PoK), [until 1988 when the seats were increased to 111](#).
- The [24 PoK seats were not considered in quorum calculation](#), making the total contestable seats 87, including four for Ladakh.
- After [delimitation in 2020](#), the total seats rose to [114, including those for PoK](#).

New Provisions added:

- The former seeks to reserve seats in the upcoming [114-seat Jammu and Kashmir Assembly for “Kashmiri migrants, people displaced from Pakistan-occupied Kashmir \(PoK\), and Scheduled Tribes.”](#)
- The latter replaces the term [“weak and underprivileged classes” in the J&K Reservation Act, 2004, with “other backward classes.”](#) Top of Form

GS-2

1. INDIA RE-ELECTED TO INTERNATIONAL MARITIME ORGANISATION

Context:

The [International Maritime Organisation \(IMO\)](#) assembly for the [2024–25 biennium](#), India was [re-elected to the IMO Council with the highest vote tally](#).

- India falls under the [Category of 10 states](#) with the **largest interest in international seaborne trade**, alongside countries like **Australia, Brazil, Canada, France, Germany, the Netherlands, Spain, Sweden, and the United Arab Emirates**.
- The [IMO Council](#), which India has been re-elected to, **serves as the executive organ of the organization and is responsible for supervising its work**.

3. ARBITRATION AGREEMENT

Context:

The [Supreme Court of India](#) has ruled that an [arbitration agreement can be binding on non-signatory firms under the ‘group of companies’ doctrine](#).

- This doctrine holds that an arbitration agreement **can apply to a company that**, while not a signatory, is a **member of a group of companies that is party to the agreement**.
- The ruling maintains the **corporate separateness of group companies while establishing the common intention of parties to bind a non-signatory party to the arbitration agreement**.

The court clarified that the [definition of “parties” under the Arbitration Act](#) includes both signatory and non-signatory parties, and the requirement for a written arbitration [agree-](#)

ment does not exclude the possibility of binding non-signatory parties.

The judgment stemmed from a plea filed by **Cox and Kings Ltd** in a dispute related to an arbitration agreement.



4. ARTICLE 99 OF THE UN CHARTER

Context:

Amid ongoing military attacks in Gaza, UN Secretary-General Antonio Guterres has invoked **Article 99 of the UN Charter** to establish a **ceasefire**.

- Article 99 allows the **Secretary-General to bring matters threatening international peace** to the Security Council's attention.
- The provision has been rarely invoked. Past examples include the **upheaval in the Republic of the Congo in 1960** following the **end of Belgium's colonial rule and a complaint by Tunisia in 1961** against **France's naval and air forces launching an attack**.

GS-3

1. ALTÉRRRA FUND

Context:

UAE President Sheikh Mohammed Bin Zayed Al Nahyan, at the **COP28 climate summit** in Dubai, announced the creation of a **\$30 billion climate fund named ALTÉRRRA**.

- The fund **aims to attract \$250 billion in investment by the end of the decade**, with \$25 billion allocated to climate strategies and **\$5 billion to incentivize investment in the Global South**.
- The fund seeks to steer private markets towards **climate investments, especially in emerging markets and developing economies**.

The term "**Alterra**" typically refers to a Latin word that is

often used in various contexts to **signify alteration, transformation, or variation**.

The fund's investments will be guided by **four key pillars**:

- 1) Energy Transition
- 2) Industrial Decarbonization
- 3) Sustainable Living
- 4) Climate Technologies Top of Form

2. GLOBAL GREEN CREDIT INITIATIVE (GGCI)

Context:

The **Global Green Credit Initiative**, launched by India's Prime Minister at COP28, focuses on incentivizing **voluntary environmental actions** with a **primary focus on water conservation and afforestation**.

- GGCI is also referred as **Global Platform for Nature's Ecological Transformation**.

What is GGCI?

It is a proposed platform for **dialogue, Policy making (e.g., Green Credit policy tools) collaboration (sharing of global know-how), and the exchange of innovative environmental programs and instruments**.

About Green Credits:

- **Green credits**, assigned to specific actions, **will be tradable commodities**, allowing them to be sold on **domestic market platforms**.
- The aim is to stimulate activities like **tree plantation, water conservation, sustainable agriculture, and waste management** by providing incentives to corporations and private entities.
- Introduced by the **Ministry of Environment, Forest and Climate Change**, the initiative operates as a market-based mechanism, **encouraging individuals, communities, private sector industries, and companies to participate in environmental activities**.
- It has been **notified through Green Credit Rules, 2023** by the Ministry of Environment and Climate Change under the **Environment Protection Act, 1986**.

3. GREEN INDUSTRIALISATION INITIATIVE

Context:

African leaders launched the **Green Industrialisation Initiative** during the third day of COP28, **aiming to accelerate green growth in African industries and attract finance and investments**.

- The initiative builds on the **existing \$4.5 billion Africa green investment from the UAE**.
- It highlights the **continent's priorities for industrial transition and the need for just and equitable part-**

nerships.

- The leaders emphasized the **importance of de-risking and developing long-term plans for green industrialization.**
- Djibouti aspires for **100% green energy**, and Zambia stressed the importance of a shared resource pool for the continent's benefit.

The initiative aims to **position Africa as a global supplier of green energy and resources.**

4. WORLD MALARIA REPORT

Context:

The **World Malaria Report** highlights **India's success in reducing malaria cases and deaths, with a 30% decline in cases and a 34% decline in mortality in 2022 compared** to the previous year.

- Key factors contributing to this success include a **focus on primary healthcare in remote areas, digital data-backed surveillance, and effective management of extreme weather events.**
- **Investments in insecticide mosquito nets, anti-malarial drugs, and point-of-care tests,** along with urbanization reducing mosquito breeding grounds, have played crucial roles.

Challenges include **resistance issues**, especially **drug and insecticide resistance**, and addressing vivax malaria, which requires a **14-day treatment course often not completed**

About Malaria:

It is a **life-threatening disease caused by a parasite.** The parasite is spread to humans through the **bites of infected female Anopheles mosquitoes**

Malaria vaccines have been in development for almost 60 years. The first **approved vaccine is RTS,S,** also known as **Mosquirix.** The WHO recommends two malaria vaccines:

- **RTS,S/AS01**
- **R21/Matrix-M**

5. POPULATION-LEVEL GENOME SEQUENCING

Context:

The **UK recently completed sequencing half a million whole genomes,** marking a significant **milestone in population-scale genomics.**

- This approach offers **unprecedented insights into human diversity and has transformative implications for various scientific fields.**

Various large-scale genome programs are ongoing worldwide, including the **U.S.'s All of US program, the European Union's '1+ Million Genomes' initiative, and the planned 'Three Million African Genomes.'**

Benefits:

- Population-scale genome efforts serve **diverse objectives, from understanding disease prevalence and biomarkers to informing therapeutic target discovery and supporting public health initiatives.**

In Asia and India, initiatives like the **GenomeAsia project and India's GenomeIndia** aim to conduct **population-level sequencing,** contributing to the broader understanding of human evolution, migration patterns, and adaptation to diverse environments

About Population-level sequencing (also known as population-scale sequencing)

It is the process of **sequencing the DNA or mRNA of multiple individuals** of one or more species. This process uses probabilistic **matching tools and large amounts of sequence information to identify genomes**

6. ANTHROBOTS

Context:

Scientists have created tiny robots, called **anthrobots,** made from **human tracheal cells** capable of **repairing damaged neural tissue.**

- **Unlike previous xenobots** made from frog cells, **anthrobots are self-assembling and formed from human tissue,** potentially paving the way for **personalized medicine.**

How it works?

- The researchers **grew clusters of human tracheal skin cells,** developing **anthrobots with cilia acting as oars.**
- When placed on scratched neural tissue, **anthrobots fused into a 'superbot,'** leading to **complete healing within three days without genetic modification.**
- The researchers envision using **person-specific anthrobots** for tasks like **clearing arteries, breaking up mucus, or drug delivery, with potential applications in regenerative medicine.**

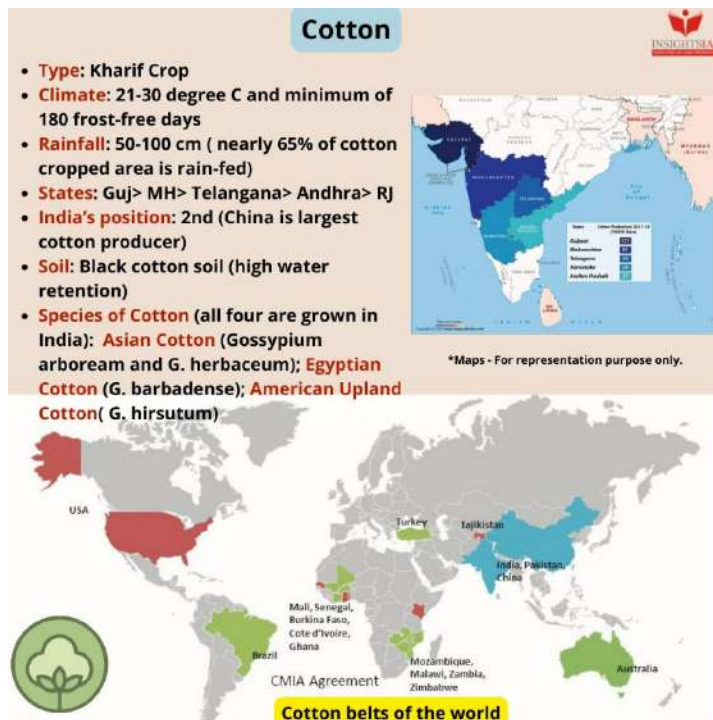


7. COTTON PRODUCTION IN INDIA

Context:

India aims to become the largest global cotton producer.

- India is currently the **second-largest cotton producer** with the largest cultivation area, and **need to enhance productivity, following the model of countries like Australia.**
- The Indian textile industry is striving to **achieve a target of \$250 billion by 2030, with \$100 billion in exports.**



8. "BIO-VISION" FOR BHARAT

Context:

The inaugural meeting of the **Biotechnology Research and Innovation Council (BRIC) Society**, emphasized the need to define a "Bio-vision" for India.

- BRIC brings together **14 top science autonomous institutions** under a unified platform to **maximize the impact of biotech research.**
- The BRIC Society aims to engage in **public-private research partnerships**, receive endowments from non-governmental resources, and maintain distinct research mandates for each of the 14 subsumed institutions under a common governing body.

The "Zero Waste Life on Campus" program was also **launched**, promoting sustainability through waste management on BRIC campuses. This **initiative aligns with Mission LiFE movement** and is expected to **strengthen collaborations among institutions while serving as a model for integrated waste management in the community.**

The **Biotechnology Research and Innovation Council (BRIC)** is an apex autonomous society operating under the **Department of Biotechnology (DBT)**, Ministry of Science and Technology, in India.

It was established **with the aim of centralizing and unifying biotech governance** across the country. The formation of BRIC involved the **subsuming of 14 Autonomous Institutions (AIs) under its umbrella.**

9. THE GLOBAL RENEWABLES AND ENERGY EFFICIENCY PLEDGE

Context:

During the **COP28 climate summit in Dubai**, 118 countries pledged to triple installed **renewable energy capacity by 2030**, committing to at least **11,000 gigawatts (GW)** and to double the global average annual rate of **energy efficiency improvements to more than 4%.**

- **India, along with China and Russia**, did not sign the pledge.
- The pledge lacks legal sanctity and has not been included in the main negotiating texts for the COP-28 agreement.
- The reasons for India's non-participation were not officially provided, but some pointed out **potential issues with the language in the text.**
- The pledge involves the **collaboration of G20 countries** on resilient value **chains and technology development**, expanding financial support for **scaling renewable energy, enhancing technical support and capacity building for developing economies**, and accelerating cross-border grid interconnections.

India's decision not to sign is attributed to its commitment, as part of its **nationally determined contributions (NDCs)**, to installing **500 GW of electricity from non-fossil fuel sources by 2030.** India recognizes coal as a crucial element in its **energy mix** due to the anticipated significant growth in energy demand over the next 30 years, which may not be met by renewables alone.

10. INDIA SET TO BECOME 3RD LARGEST ECONOMY BY 2030

Context:

S&P Global predicts that **India will become the third-largest economy globally by 2030**, with a **forecasted nominal GDP rise** from **\$3.5 trillion in 2022 to \$7.3 trillion in 2030.**

- Currently, **India holds the fifth position**, with the United States, China, Germany, and Japan ahead.
- S&P Global emphasizes the importance of **India becoming a global manufacturing hub and highlights the need for a robust logistics framework**, upskilling of workers, and increased female workforce participation.
- The agency also expects growth in **India's high-growth startup ecosystem**, especially in **financial**

and consumer technology, and foresees expansion in the automotive sector.

11. ACTION PLAN TO REDUCE EMISSIONS FROM THE COOLING SECTOR

Context:

The United Nations Environment Programme (UNEP) has proposed an action plan to make the **global cooling sector more sustainable**, aiming to **reduce predicted greenhouse gas emissions by 60% by 2050**.

- The cooling sector, **vital for combatting rising temperatures**, maintaining food quality, and supporting economies, **currently accounts for 20% of electricity use**.
- Without intervention, the installed capacity of cooling equipment is projected to triple by 2050, **resulting in a doubling of electricity consumption and emissions of 4.4 to 6.1 billion tonnes of carbon dioxide equivalent**.
- The proposed measures **include passive cooling, higher energy efficiency standards**, and an **accelerated phasedown of climate-warming refrigerants**.
- The action plan also calls for a **faster phasedown of hydrofluorocarbon (HFC)**, exceeding the requirements of the Kigali Amendment to the Montreal Protocol.

12. HOW DOES GPS WORK

Context:

The article discusses the **functionality and significance of the Global Positioning System (GPS)**.

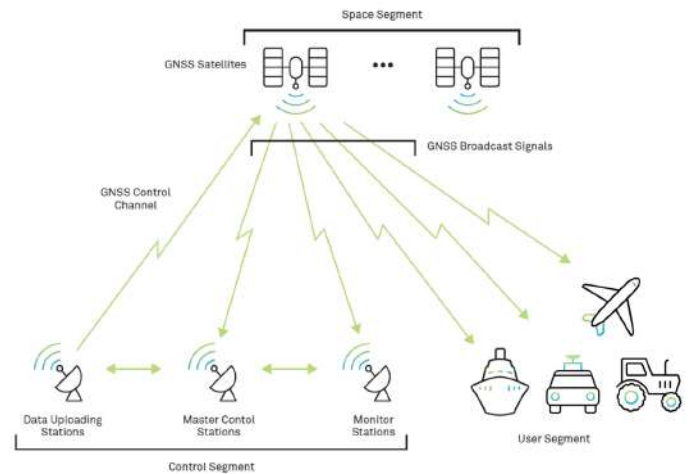
- Established by the U.S. Department of Defense in 1973, **GPS is a constellation of 24 satellites** orbiting the Earth, providing **location information through a network of ground control stations and user devices**.

Functioning:

- The GPS system consists of **three main segments**: the **space segment with 24 satellites in six orbits**, the **control segment** managing satellite performance and commands, and the **user segment** incorporating GPS across various sectors like agriculture, construction, military operations, and more.
- The satellites emit radio signals at **specific frequencies (L1 and L2)** with encoded information about their location and time.
- GPS receivers on devices, **like smartphones, pick up these signals to calculate the distance from satellites** and, by triangulation, determine the user's precise location in three dimensions of space and one of time.

Other Global Navigation Satellite Systems (GNSS) worldwide, such as **GLONASS, Galileo, and BeiDou**, operate alongside **GPS**.

India's has developed NavIC system, comprising seven satellites with **rubidium atomic clocks**, and the **GPS-Aided Geo Augmented Navigation (GAGAN) system**, developed for civil aviation applications.



13. WHO GLOBAL CLINICAL TRIALS FORUM

Context:

The first **WHO Global Clinical Trials Forum**, held on November 20-21, 2023, brought together around **130 experts from 43 countries** to discuss and develop a global vision for sustainable clinical research infrastructure.

Aim: The forum aimed to **strengthen clinical research** capabilities aligned with the World Health Assembly resolution, focusing on improving the quality and coordination of clinical trials.

What are Clinical trials?

They are research studies conducted to **evaluate the safety and efficacy of medical treatments**, interventions, or drugs in humans. These trials aim to **gather data on the effectiveness and potential side effects** of new or existing treatments and contribute to the **development of evidence-based medical practices**.

What is CTRI?

The Clinical Trials Registry – India (CTRI) (est. 2007; maintained by ICMR (under the Ministry of Health and Family Welfare) a national clinical trial registry in India.

- It is mandatory to **register for every trial at CTRI** before commencing
- **CTRI is a free online public record system** for the registration of clinical trials (both public and private research) conducted in India.

The government recently (in June) **passed an amendment to the New Drugs and Clinical Trial Rules (2023)** that permits researchers to utilize non-animal and human-relevant methods for testing the safety and effectiveness of new drugs.

14. ASPEX: ISRO'S ADITYA L1 SPACE-CRAFT

Context:

ISRO's [Aditya L1 spacecraft](#), launched in September to explore the Sun, has activated its second instrument, **ASPEX** (Aditya Solar Wind Particle Experiment).

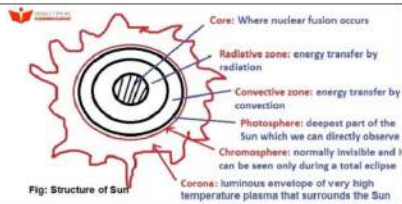
What is ASPEX?

ASPEX, or the **Aditya Solar Wind Particle Experiment**, is a scientific instrument on **ISRO's Aditya L1 spacecraft** designed to study solar wind particles. It comprises tools such as the '**Solar Wind Ion Spectrometer**' (SWIS) and the '**Supra-thermal and Energetic Particle Spectrometer**' (STEPS).

SWIS measures charged particles (ions) from the Sun, offering a broad view, while **STEPS** focuses on studying **high-energy particles emitted by the Sun**. ASPEX plays a crucial role in **understanding space weather** and its potential impact on communication systems and power grids on Earth.

Aditya-L1
Context: It was launched on September 2, is currently in Earth's orbit, but it is scheduled to leave this orbit and move towards the Earth-Sun system's Lagrange 1 (L1) point

Aspect	Explanation
Mission Objective	To study the Sun, its upper atmospheric dynamics (chromosphere and corona) , and understand the physics of the solar corona and its heating mechanism for the five years.
Launch Vehicle	Polar Launch Vehicle (PSLV)
Orbit	L1 orbit (First Lagrange point of the Sun-Earth system)
Primary Payload	Visible Emission Line Coronagraph (VELC)
Other Payloads	Solar Ultraviolet Imaging Telescope (SUIT), Solar Low Energy X-ray Spectrometer (SoLEXS), High Energy L1 Orbiting X-ray Spectrometer (HELIOS), Aditya Solar wind Particle Experiment (ASPEX), Plasma Analyser Package for Aditya (PAPA)
Significance of VELC	VELC is a solar coronagraph capable of simultaneous imaging, spectroscopy, and Spectro-polarimetry . It can image the solar corona down to 1.05 times the solar radius.
Purpose of Studying the Sun	To gain a deeper understanding of the Sun's radiation, heat, flow of particles, and magnetic fields ; provide clues about the high temperature of the solar corona; understand space weather dynamics; and offer early warnings for solar events.
Importance of L1 Point	L1 point provides an unobstructed view of the Sun , even during phenomena like an eclipse; allows payloads to directly observe the Sun; makes the mission fuel-efficient.
What is L1 Point?	Lagrange points are equilibrium positions in space where the gravitational forces of two large bodies, like the Earth and the Sun, produce enhanced regions of attraction and repulsion.



15. SURVEY VESSEL – SANDHAYAK

Context:

The **first of four Survey Vessel (Large) ships, Sandhayak**, constructed at Garden Reach Shipbuilders & Engineers (GRSE) in Kolkata, was delivered to the Indian Navy.

Feature	Details
Purpose	Intended for full-scale coastal and deep-water hydrographic surveys of port and harbour approaches, determining navigational channels and routes.

Zone of Operation	The zone of operation includes maritime limits up to the Exclusive Economic Zone (EEZ) and the extended continental shelf.
Data Collection	The ships have the capability to collect oceanographic and geophysical data for defence and civil applications.
Hydrographic Equipment	Equipped with advanced hydrographic equipment, including: - Data Acquisition and Processing System - Autonomous Underwater Vehicle - Remotely Operated Vehicle - DGPS Long-range positioning systems - Digital side-scan sonar
Propulsion	Propelled by two diesel engines.
Speed	Capable of achieving speeds exceeding 18 knots.
Indigenous Content	The ship boasts over 80% indigenous content by cost.
Aatma Nirbhar Bharat Commitment	The delivery of Sandhayak highlights the commitment of the Indian government and navy to 'Aatma Nirbhar Bharat' (Self-reliant India).

16. INDIA INFRASTRUCTURE REPORT 2023

Context:

The India Infrastructure Report 2023 on **Urban Planning and Development** was recently released virtually.

- The report is a collaborative effort by **the IDFC Foundation, Infrastructure Development Corporation (Karnataka) Ltd. (iDeCK), and the National Institute of Urban Affairs (NIUA)**.
- The report, **part of the India Infrastructure Report series**, covers various complex issues related to urban planning and development.

Key aspects of the report include **Planning and Governance, Smart Initiatives, PPPs and Financing, Housing and Migration, Public Service Delivery, Integrating Infrastructure, and Urban Redevelopment**.

17. GEMINI

Context:

Google has unveiled its latest AI project, "Gemini," designed to exhibit human-like behaviour.

- The rollout will occur in phases, introducing less sophisticated versions named **"Nano" and "Pro" into Google's AI-powered chatbot Bard and the Pixel 8 Pro smartphone**.
- Notable advancements are expected early next year

with the introduction of the “Ultra” model, powering an advanced version of Bard.

Google emphasizes Gemini’s potential in problem-solving, particularly in math and physics, while expressing commitment to addressing AI risks responsibly.

18. GENOME SEQUENCING OF JAMUN

Context:

Researchers at the **Indian Institute of Science Education and Research (IISER) Bhopal** have conducted the **first-ever genome sequencing of the jamun tree (*Syzygium cumini*)**.

- The study aimed to **gain insights into the genomic and evolutionary basis** of jamun’s medicinal properties.
- The research team used **Oxford Nanopore and 10x Genomics sequencing technologies** to sequence the ***S. cumini* genome**.
- The analysis revealed a **higher number of coding genes in the jamun genome, suggesting a neopolyploidy event**.

The study identified key genes involved in the adaptive evolution of jamun, contributing to its anti-diabetic, antioxidant, and anti-inflammatory properties.

A neopolyploidy event refers to the **occurrence of polyploidy**, a condition in which an organism has **multiple sets of chromosomes, leading to an increase in the number of chromosomes** in its cells.

Polyploidy can arise through **different mechanisms, including errors during cell division or hybridization between different species**

19. JT-60SA (NUCLEAR FUSION REACTOR)

Context:

The **world’s largest nuclear fusion reactor, the JT-60SA** in Japan’s Ibaraki Prefecture, has commenced operations, marking a **significant step toward achieving clean energy**.

More about the News:

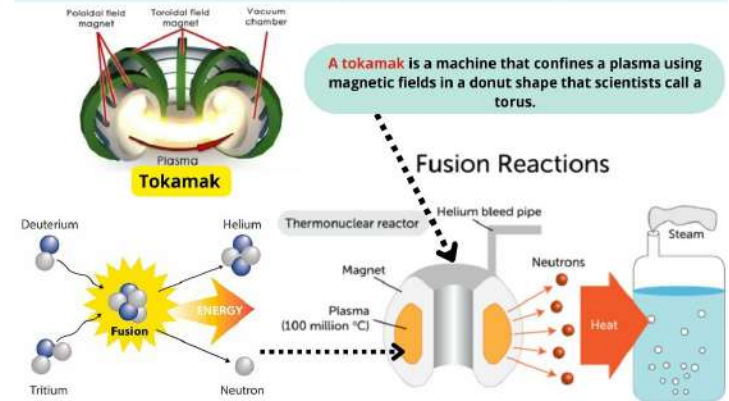
- **Aim:** The joint project between the **European Union and Japan** aims to explore the viability of nuclear fusion as a sustainable and virtually limitless power source.
- The achievement follows recent breakthroughs in nuclear fusion, including a **net energy gain by scientists at the Lawrence Livermore National Laboratory in California**.
- Another, even larger fusion reactor is currently **under construction in France** and is set to begin operations in 2025.

Nuclear Fusion

Nuclear Fusion reactor at South Korea have reached **temperature of over 100mn degree Celsius** (nearly 7 times that of core of Sun)

How nuclear fusion works

1	2	3	4
Hydrogen atoms are heated	Fusion reaction	Helium, neutron and energy released	Neutron energy heats water



20. IBM’S CONDOR

Context:

IBM has introduced **Condor**, its latest quantum computing chip featuring **1,121 superconducting qubits**, surpassing the 1,000 qubit milestone.

What are Qubits?

A qubit, short for a quantum bit, is the **basic unit of quantum information in quantum computing**. Unlike classical bits, which can exist in a state of 0 or 1, qubits can exist in a superposition of **both 0 and 1 simultaneously**. This property, along with **entanglement** and other Superposition, **enables quantum computers** to perform complex calculations **much more efficiently** than classical computers for certain tasks.

However, **qubits exhibit high sensitivity and may cause calculation errors**, and the problem worsens as quantum computer size increases

IBM plans to leverage the **quantum low-density parity check (qLDPC) error-correction scheme**, aiming to reduce the number of physical qubits needed for each logical qubit.



Quantum Computing



Context: Union Cabinet has approved the National Quantum Mission (NQM)



Quantum computing uses quantum bits (qubits) that can be both 0 and 1 at the same time, allowing for multiple calculations to be performed simultaneously, making quantum computing exponentially faster than traditional computing for certain types of problems.

About National Quantum Mission

	Description
Objective	Develop and promote Quantum Technology in India
Timeframe	2023 – 2031 (8 years)
Major themes	<ul style="list-style-type: none"> Quantum Computing: Develop physical qubit computers with a capacity ranging from 50-1000 qubits (to be completed within 3-8 years) Quantum Communication: Develop secure satellite-based communication with a range of 3000 km and communication lines using Quantum Key Distribution over 2000 km (to be completed within 3-8 years) Quantum Sensing and Metrology: Develop quantum sensors (magnetometers with high sensitivity in atomic clock systems) for Navigation, healthcare and diagnostics, defence, and energy sectors (to be completed within 8 years) Quantum Material and Devices: Develop devices and materials (superconductors, novel semiconductor structures, and topological materials) for quantum technology (to be completed within 3-8 years)
Key Agencies Involved	Department of Science & Technology, Department of Atomic Energy, Department of Telecommunications, DRDO, ISRO
Other Aim	The Mission also aims to establish four thematic hubs (T-Hubs) at research institutes and R&D centres (based on above themes)
Significance	India will be among the top six leading nations (US, Canada, France, Finland, China and Austria.) involved in the research and development in quantum technologies.
Other programmes	National Mission for Quantum Technologies and Applications (NM-QTA); Quantum-Enabled Science & Technology (QuEST); C-DOT's Quantum Communication Lab and Quantum Key Distribution (QKD) solution. Visit Insights IAS Daily Current Affairs

Prelims Links:

Q. Which one of the following is the context in which the term “qubit” is mentioned? (USPC 2022)

- Cloud Services
- Quantum Computing
- Visible Light Communication Technologies
- Wireless Communication Technologies

21. GLOBAL COOLING PLEDGE

Context:

The **Global Cooling Pledge**, signed by **63 countries**, including the **US, Canada, and Kenya at COP28**, commits to reducing cooling emissions by at **least 68% by 2050**.

- Cooling emissions, arising from refrigerants and energy used in appliances like ACs and refrigerators, **currently account for 7% of global greenhouse gas emissions** and are **expected to triple by 2050**.
- Refrigerants, such as **hydrofluorocarbons (HFCs) and hydrochlorofluorocarbons (HCFCs)**, contribute significantly to **global warming, with HFC-134a having a global warming potential** 3,400 times that of CO₂.

The solutions include the **phasing-out of HFCs, promoting climate-friendly chemicals, proper disposal of refrigerants, and exploring ways to cool buildings** without relying on air conditioners.

22. SANTIAGO NETWORK

Context:

At COP28, **the draft text for the Santiago Network**, a **collaborative framework to assist vulnerable developing countries in managing climate-induced loss and damage**, has been adopted.

The Santiago Network was established at COP 25 in Madrid as part of the **Warsaw International Mechanism for Loss and Damage (WIM)**

The network's objective is to **connect vulnerable developing countries with technical assistance, knowledge, and resources**. The resources are needed to address climate risks, such as rising sea levels, melting glaciers, storms, and floods

23. EARLY WARNINGS FOR ALL

Context:

“**Early Warnings for All**” is an initiative aimed at **providing life-saving early warning systems** to protect everyone on Earth from hazardous weather, water, or climate events by the end of 2027.

The initiative, led by the **World Meteorological Organization (WMO) and the United Nations Office for Disaster Risk Reduction (UNDRR)**, calls for over **\$3 billion investment over five years** to strengthen

- Disaster risk knowledge
- Observation and forecasting
- Warning dissemination
- Response capabilities

The initiative aligns with the **UN Secretary-General's Acceleration Agenda, the Paris Agreement, and the Sendai Framework for Disaster Risk Reduction**.

Other Initiatives for Disaster Risk Reduction:

- Regional Integrated Multi-Hazard Early Warning System for Africa and Asia ([RIMES](#))
- The first Asian Ministerial Conference for Disaster Risk Reduction was hosted by India in 2016. Coalition for Disaster Resilient Infrastructure (2019)
- Indian Tsunami Early Warning System (2007)
- iFLOWS Mumbai
- CFLOWS-Chennai etc.

As per the ‘Global Status of Multi-Hazard Early Warning Systems 2023’ Report released by the United Nations and the World Meteorological Organisation, only half of the world is covered by an early warning system

24. BAN ON USING SUGARCANE JUICE AND SUGAR SYRUP FOR ETHANOL PRODUCTION

Context:

The government has temporarily banned **the use of sugarcane juice and sugar syrup** for ethanol production due to uncertainties in cane output for the current season as per the Sugar (Control) Order 1966.

Why the temporary ban?

Government intends to maintain **adequate domestic sugar availability and price stability**, due to an estimated fall in sugar production in the current season. Sugar mills find it more profitable to sell sugarcane and syrup to **Oil marketing companies** for **ethanol blending**. However, this may create a shortage of sugar in the Indian market.

Will it impact the Government's goal of Ethanol blending?

The government says the ban would not impact India's goal of **achieving its 20% ethanol blending target by 2025-26**. The government plans to promote ethanol production using **alternative feedstocks such as B and C-heavy molasses**, damaged rice, and maize. The government is also exploring the **use of maize as a feedstock for ethanol production**, with plans to procure maize directly from farmers at a minimum support price.

In the 2022-23 ethanol supply year, the **government achieved a 12% blending of ethanol** with petrol, and the target for the current year is 15%.

The government programme for ethanol blending:

1. **National Policy on Biofuels** (2018);
2. **Ethanol blending Program** (target of 20 per cent ethanol blending in petrol by 2025);
3. **PM JI-VAN YOJANA** for providing **financial support for setting up second-generation (2G)** ethanol projects;
4. E100 Pilot project;
5. Repurpose Used Cooking Oil (RUCO)

25. DRESS SYNDROME

Context:

The **Indian Pharmacopoeia Commission (IPC)** has issued a drug safety alert regarding the **painkiller Meftal**, cautioning about potential adverse reactions associated with mefenamic acid, including the risk of **Drug Rash with Eosinophilia and Systemic Symptoms (DRESS) syndrome**.

What is DRESS syndrome?

It is a **severe and potentially life-threatening idiosyncratic reaction** to certain medications. It is characterized by a delayed onset of symptoms, including fever, skin rash, lymphadenopathy, eosinophilia (an increase in a type of white blood cells), and various systemic manifestations.

What is Meftal?

Meftal is **commonly prescribed for conditions** such as **rheumatoid arthritis, osteoarthritis, dysmenorrhoea, mild to moderate pain**, inflammation, fever, dental pain, muscle and joint pain, period pain, sore throats, nerve pain, and muscle aches.

Prolonged use of Meftal and similar drugs may increase the risk of **stomach ulcers, bleeding, and adverse effects on the cardiovascular system**.

About

Indian Pharmacopoeia Commission (HQ: Ghaziabad (UP); founded: 1956) is an **autonomous institution** of the **Ministry of Health and Family Welfare** which sets standards for all drugs that are manufactured, sold and consumed in India.

26. FOURTH-GENERATION NUCLEAR PLANT

Context:

China has launched the **world's first commercial operations of a fourth-generation gas-cooled nuclear reactor power plant**, the Shidao Bay plant in eastern Shandong province.

Unlike conventional reactors, this plant utilizes small modular reactors (SMRs), which are **high-temperature reactors cooled by gas instead of pressurized water**. SMRs are considered **more efficient and cost-effective** and can be employed for various applications such as heating, desalination, or steam for industrial purposes.

What are SMRs?

They are advanced nuclear reactors with a **capacity of up to 300 MW per unit**, offering advantages such as **simplicity, safety, and cost-effectiveness**.

- SMRs can be **factory-made and transported** to a site for installation.
- SMRs are **economical and time-efficient**, and unlike traditional reactors that require **refuelling every 1-2 years**, SMRs only need refuelling **every 3-7 years**.

The **Indian Government is considering offering incentives**, similar to a production-linked incentive (PLI) scheme, to encourage the manufacturing of **small modular reactors (SMRs)** with the goal of increasing nuclear power's share in India's energy production.

India has **22 operating reactors**, with an installed capacity of **7480 MWe**. India is currently in the **second stage of its three-stage nuclear programme**

27. GLOBAL COOLING WATCH 2023

Context:

The **Global Cooling Watch 2023 report** by UNEP highlights pathways to achieve near-zero emissions from cooling.

About the Report

It focuses on **three key measures**: passive cooling, higher-energy efficiency standards, and a faster phase-down

of climate-warming refrigerants. Aligned with the [Global Cooling Pledge](#), the report aims to reduce **cooling-related emissions** and promote sustainable cooling. It recommends incorporating these measures **into building codes and utilizing financial instruments** to drive demand for higher-efficiency products.

A report from the **Cool Coalition**, released during COP28 climate talks, suggests that implementing the above-given measures could reduce predicted 2050 emissions from cooling by at **least 60%**. If combined with **rapid power grid decarbonization**, these measures could result in up to a 96% reduction in emissions from the cooling sector. Previously, the **United Nations Environment Programme's Cool Coalition** and COP28 host the United Arab Emirates introduced a Global cooling pledge (**India had declined** to sign the pledge)

In 2016, over 150 countries signed the **Kigali Amendment** (including India) to the Montreal Protocol, agreeing to reduce HFC consumption by 80% by 2047.

India Cooling Action Plan (launched in 2019)

It seeks to **Reduce cooling demand across sectors by 20% to 25%** by 2037-38, and refrigerant demand by **25% to 30%** by 2037-38.

28. URBAN FLOOD MITIGATION PROJECT

Context:

PM approves the **first urban flood mitigation project** for the 'Integrated Urban **Flood Management Activities for Chennai Basin Project (IUFM)**' This initiative, under the **National Disaster Mitigation Fund (NDMF)**, includes Central assistance of Rs. 500 crore and aims to make **Chennai flood-resilient**.

What is IUFM?

It is a holistic approach that stresses the **interrelationship between socioeconomic development, environmental sustainability, and flood-risk management**.

Other Initiatives for Flood Mitigation in Indian Cities:

- Integrated flood warning system - **known as IF-LOWS-Mumbai**
- **CFLOWS (in Chennai)** is a complete webGIS-based decision support system that can be used both for mitigation planning operations before and after flooding

MAPPING

1. KRA ISTHMUS

Context:

The Kra Isthmus, located on the **Malay Peninsula in Thailand**, has gained strategic importance due to a **proposed transit artery** that could connect the **Andaman Sea and the Gulf of Thailand**.

This isthmus, **just 44 km wide** at its narrowest point, has the potential to impact international trade and security similarly to the historical significance of the **Suez and Panama Canals**. Recently, the Thai Prime Minister officially presented a multi-billion-dollar **land-bridge project**.

An isthmus is a narrow strip of land that connects two larger land masses and is bordered by water on two sides.

The Kra Isthmus in Thailand is the **narrowest part of the Malay Peninsula**. The isthmus is bordered to the west by the **Andaman Sea** and to the east by the **Gulf of Thailand**



2. ACCRA (GHANA)

Context:

The 2023 United Nations Peacekeeping Ministerial Meeting is scheduled to take place in Accra, Ghana, with **participation from over 85 countries and international organizations**.

Aim: The meeting is aimed at **expressing collective commitment to UN peacekeeping**, in alignment with ongoing reforms under **Action for Peacekeeping** and the **Action for Peacekeeping Plus plan**.

Ghana is a country **in West Africa**. It abuts the **Gulf of Guinea and the Atlantic Ocean** to the south, sharing borders **with Ivory Coast in the west, Burkina Faso in the north, and Togo in the east**. **Accra** is the capital of Ghana, on the Atlantic coast of West Africa.



3. MOUNT MERAPI (INDONESIA)

Context:

Indonesia’s Mount Merapi erupted on Sumatra Island, resulting in the tragic death of at least 11 hikers out of a group of 26, with three successfully rescued.

The eruption sent a **3,000-meter ash column** into the sky, causing volcanic debris to impact nearby villages.

About Mount Merapi

Mount Merapi, is an **active stratovolcano** located on the border between the province of **Central Java and the Special Region of Yogyakarta, Indonesia**. It is the most active volcano in Indonesia and has erupted **regularly since 1548**. **Indonesia**, situated on the subduction zone (the **Indo-Australian Plate is subducting under the Eurasian Plate**), part of the Pacific Ring of Fire, experiences frequent volcanic and seismic events.

Indonesia volcano



4. ITALY LEAVES BRI

Context:

Italy, the **only major Western nation to join China’s Belt and Road Initiative (BRI)** in 2019, has confirmed its withdrawal from the project ahead of the year-end deadline.

The BRI, a massive trade and infrastructure initiative, has faced criticism, with the US labelling it **“debt-trap diplomacy.”**

About BRI

The Belt and Road Initiative (One Belt One Road) is a global infrastructure development strategy adopted by the Chinese government in 2013 to invest in more than 150 countries and international organizations.



About Italy:

Italy is a **boot-shaped peninsula** in southern Europe into the **Adriatic Sea, Tyrrhenian Sea, and Mediterranean Sea**. Its location has played an important role in its history. The sea surrounds Italy, and mountains crisscross the interior, dividing it into regions.



5. GUYANA AND VENEZUELA

Context:

[Guyana](#) and [Venezuela](#) are in conflict over the **resource-rich Essequibo region**, historically claimed by both nations.

The dispute intensified after **Exxon Mobil's 2015 oil discovery**, leading to a Venezuelan referendum in December 2023, supporting Essequibo as a new province. Despite ICJ warnings, Venezuela proceeded. Guyana responded by raising its flag, alerting defence forces, and seeking international support.

India, with diasporic ties, **supports Guyana**; the US backs Guyana's sovereignty, Brazil reinforces its border, and China calls for diplomacy.

About Esequiba

Guayana Esequiba is a disputed territory **west of the Essequibo River**, claimed by both Guyana and Venezuela. Guyana's claim has been internationally accepted since the 1899 **Paris Arbitral Award**. The boundary dispute originated from colonial powers (**Spain in the case of Venezuela, and the Netherlands and the United Kingdom in the case of Guyana**) and persisted after the independence of Venezuela and Guyana.



6. ARMENIA AND AZERBAIJAN

Context:

Armenia and Azerbaijan have reached a significant agreement, agreeing to **exchange prisoners of war and work** towards signing a peace treaty, a move praised by the European Union as a major step towards peace in the historically troubled region.

Both countries are fighting over the disputed **Nagorno-Karabakh region**, resulting in casualties and significant tensions. The region, recognized as part of Azerbaijan but controlled by ethnic Armenians, has been a source of conflict for decades, with recent escalations in 2020 and 2023.

The [Nagorno-Karabakh](#) conflict is an ethnic and territorial dispute between Armenia and Azerbaijan. It centres on the **Nagorno-Karabakh region, predominantly Armenian-populated but within Azerbaijan's borders**. A ceasefire mediated by Russia in 1994 left the region under Armenian control, though it's still recognized as part of Azerbaijan.

