



CSB IAS ACADEMY

The road map to Mussorie



TABLE OF CONTENTS

POLITY	7
Law Commission of India.....	7
Bureau of Police Research and Development Foundation Day.....	7
National Investigation Agency.....	8
Fact Check Unit (FCU)	10
SAls	11
Department-Related Standing Committees.....	12
Defence Acquisition Council	13
POCSO Act 2012.....	13
Food Safety and Standards Authority of India (FSSAI).....	15
Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act	16
<i>Direct Democracy</i>	17
Public Accounts Committee (PAC).....	17
Foreigners Tribunals	18
NCLAT	19
Collegium System and Appointment of Judges	19
National Achievement Survey	20
Delhi Assembly elections	21
National Education Policy	22
<i>Census</i>	23
National Research Foundation	24
Central Drugs Standard Control Organization (CDSCO).....	25
National Commission for Protection of Child Rights (NCPCR)	26
National Human Rights Commission	27
Central Information Commission.....	28
District Mineral Foundation	29
Finance Commission	30
INTERNATIONAL RELATIONS	32
International Labour Organisation.....	32
World Bank	32
QUAD	33



Gulf Cooperation Council.....	34
Swiss Peace Process.....	35
United Nations' Refugee Agency for Palestinians.....	36
Indus Water Treaty	36
Shanghai Cooperation Organisation (SCO).....	37
Minerals Security Finance Network (MSFN).....	39
L69.....	39
GlobE Steering Committee	40
FATF	41
UNGA	42
ECONOMY	44
Digital Agriculture Mission	44
Periodic Labour Force Survey	44
Universal Basic Income	46
Purchasing Managers' Index	47
Business Reform Action Plan (BRAP)	47
VisionNext Initiative	49
Rangeen Machhli App.....	50
White Revolution 2.0.....	50
ART & CULTURE.....	52
UNESCO World Heritage Sites.....	52
Koodiyattom.....	54
Akbar the Great	54
Chhatrapati Shivaji.....	55
Bhagat Singh	56
Jagannath Puri Temple	57
Harappan Civilization.....	58
Self-Respect Movement	59
ENVIRONMENT.....	61
Commission for Air Quality Management (CAQM).....	61
E-waste (Management and Handling) Rules	62
Indian Gray Wolf.....	63
Green Turtle.....	64
Amur Falcon	64
Loss and Damage Fund (LDF)	65
Central Pollution Control Board (CPCB).....	65
National Tiger Conservation Authority.....	66
Ethanol	67



Onitis bordati	68
Neelakurinji.....	69
African Cheetah	70
Curcuma ungmensis.....	70
Syntretus Perlmani	71
Arabidopsis thaliana	71
Emu	71
One horned rhinoceros	72
Wild Boar	73
Indian Wild Ass	73
SCIENCE & TECHNOLOGY	75
Foot-and-Mouth Disease	75
Indian Cancer Genome Atlas (ICGA) Foundation.....	76
AntiMicrobial Resistance	77
Typhoid, pneumonia	78
Hepatitis E	80
Targeted Cancer Drugs.....	80
Privacy Sandbox.....	81
Gaganyaan Mission	83
Polaris Dawn Mission	84
Nipah Virus	85
TRISHNA.....	86
intercontinental ballistic missile.....	86
National Centre of Excellence for AVGC.....	87
Pinaka Multi-Barrel Rocket Launch System.....	88
Spiral Galaxy	89
Neutrino Fog.....	89
Valley Fever.....	90
Montulekast	91
Ovarian Cancer.....	91
BIOSIMILARS.....	92
PRESBYOPIA	92
PLACES IN NEWS AND GEOGRAPHY	94
El Nino & La Nina	94
Laos.....	95
Bryansk.....	96
BRUNEI	97
SINGAPORE	97



Guanabara Bay	98
Lothal located in the Bhal region of Gujarat.....	98
Cauvery River	99
Great Nicobar Islands	99
Puerto Rico	100
Venezuela.....	101
Malawi	101
Madeira River	102
Croatia	103
Spain	103
East Timor	104
Vietnam	105
Kedarnath	105
Central African Republic	106
South China Sea.....	107
Port Blair.....	108
Subarnarekha River.....	109
Gulf of Mexico.....	109
Nigeria	110
Lebanon.....	111
Kenya	111
Portugal	112
Paraguay River.....	113
Amazon River	113
Sri Venkateswara Temple	114
Barak Bhuban wildlife sanctuary.....	115
Navegaon-Nagzira Tiger Reserve (NNTR)	116
Tuvalu.....	116
Neom Megacity Project.....	117
Iraq	117
Senegal	118
Belgium.....	119
Greece.....	119
Canary Islands.....	120
GOVERNMENT SCHEMES.....	121
Lakhpati Didi Scheme.....	121
PM-JUGA	122
PM AASHA	122



SPICED Scheme	123
PM SHRI Scheme.....	123
Gramin Krishi Mausam Sewa (GKMS) scheme	124
Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY)	125
PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) Scheme	126
Vivad Se Vishwas 2.0	126
Swachh Bharat Mission 2.0	127
NAMASTE	127
Samagra Shiksha Scheme	128
U-Win Portal	129
Paryatan Mitra & Paryatan Didi Initiative	129
TERMS IN NEWS	131
Payment Passkey Service	131
Project NAMAN.....	131
Solar Paraboloid Technology	131
Acetanilide	132
Nanozymes.....	133
National Consumer Disputes Redressal Commission	133
World Gold Council (WGC).....	134
Turkmenistan–Afghanistan–Pakistan–India (TAPI) Pipeline	134
Zorawar Tanks	135
Trilobites	135
Organ-on-a-Chip.....	136
AUTISM SPECTRUM DISORDER	137
Tarang Shakti 2024.....	137
Advanced Chemistry Cell (ACC) Battery	138
Vertical Fiscal Imbalance	139
National Nutrition Week 2024	139
Paralympics	140
BPaLM regimen.....	141
Fiscal Deficit	142
GST Council	142
Neuromorphic Computing.....	143
Lab Grown Diamonds (LGDs)	144
Signal Modulation	145
Goods Trade Barometer	145
BHASKAR Platform	146
Vishvasya-Blockchain Technology Stack.....	146



Enemy Property Act	146
INS Malpe and INS Mulki.....	147
Northern United-2024	147
Index of Industrial Production	148
Stagflation.....	148
Dark Patterns.....	148
Shabd Platform	149
Cholera	150
Global Alliance for National Human Rights Institutions (GANHRI).....	150
First Mpox Vaccine	151
Exercise AL NAJAH V	152
Quantum Computing.....	152
Paraizinho community	153
Summit of the Future	153
Indian Cybercrime Coordination Centre (I4C).....	154
Megalithic urn burials.....	154
Integrated Ocean Energy Atlas	156
Amoebic Meningoencephalitis	156
Mini-Moon	157
Consumer Price Index (CPI).....	158
Next Generation Launch Vehicle (NGLV)	158
Alzheimer's disease.....	159
Venus Orbiter Mission.....	160
Chess Olympiad	160
Exercise Eastern Bridge	161
Criticality	162
Retraction	162
International Day for the Total Elimination of Nuclear Weapons	163
Mankidia Tribe	164
General Consent to CBI.....	164
Nine dash line	165
River Linking Project.....	165
K Shaped growth	166
External Commercial Borrowings	167
PARAM Rudra Supercomputer	167
Global Innovation Index 2024	168
Pusa-2090	168

Polity

LAW COMMISSION OF INDIA

Context: The term of the 22nd Law Commission has ended, with its key report on the Uniform Civil Code still in progress.



About Law Commission of India:

- The Law Commission of India is a **non-statutory body** constituted by Union Govt. from time to time.
- The 1st Law Commission was created in 1834 by **Charter Act of 1833** and was chaired by **Lord Macaulay**.
- First Law Commission of independent India was established in 1955. It was chaired by **M. C. Setalvad**.
- Law Commissions are **appointed for a three-year term, but this can be extended** by the Union Govt.
- It works as an **advisory body to the Ministry of Law and Justice**.

Objectives:

- Undertakes legal research.
- Review existing laws for reforms.
- Recommends repeal of obsolete laws.
- Suggest amendments and new legislations.
- Examines laws that affect the poor and marginalized.

Composition:

- Apart from a **full-time chairperson**, it has **4 full-time members**, including a member-secretary.
- **Law and Legislative Secretaries** in the Law Ministry will be the ex-officio members of the commission.
- It will also have **not more than five part-time members**.
- A **retired SC judge or Chief Justice of a HC** will head the Commission.



The 22nd Law Commission of India was constituted in 2020 and retired HC Chief Justice Rituraj Awasthi was been appointed as its chairperson.

BUREAU OF POLICE RESEARCH AND DEVELOPMENT FOUNDATION DAY

Context: Recently, the Bureau of Police Research and Development (BPR&D) celebrated its 54th Foundation Day in New Delhi, highlighting significant developments in criminal law and police modernization.

BUREAU OF POLICE RESEARCH AND DEVELOPMENT

- **Formation:** Established in 1970, replacing the Police Research Advisory Council (1966).
- **Purpose:** Identifies police needs, conducts research, and suggests solutions to challenges in policing.
- **Administration:** Operates under the Ministry of Home Affairs.
- **Initial Divisions:** Started with Research, Publication & Statistics Division and Development Division.



Evolution:

- **1973:** Training Division added based on Gore Committee recommendations.
- **1995:** Correctional Division established for prison reforms.
- **2008:** National Police Mission added; Development Division restructured as Modernisation Division.
- **Divisions:** Five divisions at headquarters and five Central Detective Training Institutes (CDTIs) located in Kolkata, Hyderabad, Chandigarh, Ghaziabad, Jaipur, with the Central Academy of Police Training in Bhopal.
- **Recent Development:** Foundation stone laid for the new CDTI in Bengaluru (2022); additional CDTIs planned in Srinagar and Agartala.

Objectives:

- **Crime Analysis:** Studies causes of crime, preventive measures, and juvenile delinquency.
- **Policing and Correctional Reforms:** Provides a platform for stakeholders to contribute to policy development.
- **State Assistance:** Assists in police research programs and assesses police equipment needs.

Need for BPR&D:

- **National Security:** Addresses evolving threats like cybersecurity, narco-terrorism, and fourth-generation warfare.
- **Police Transformation:** Shifts focus from imperial stability to citizen-centric rights protection.
- **Smart Policing:** Emphasizes intelligence networks and better coordination among police and security forces.
- **Collaboration:** Engages practitioners, academia, and civil society in policy development.

Current Scenario of Police Force:

- **2021 Data (Published in 2022):**

- **Sanctioned Police Force:** 26,88,938.
- **Actual Police Force:** 20,93,833.
- **Women in Police:** 11.75% of the total force, with a 13.40% increase over the previous year.
- **CAPF Strength:** Sanctioned - 11,10,804; Actual - 10,21,501.
- **Women in CAPF:** 3.98%.

Related Initiatives:

National:

- **Kavach 2023:** National-level hackathon addressing cybersecurity challenges.
- **Cyber Crime Prevention Scheme:** Focuses on cybercrimes against women and children with an online reporting portal.

Global:

- **CICA Conferences (2023):** Strengthened regional cooperation for peace and stability in Asia.
- **Anti-Terrorism Assistance (ATA) Program:** US-India partnership since 1995 to enhance counterterrorism capabilities. **India has been associated with this program since 1995.**

NATIONAL INVESTIGATION AGENCY

Context : Sleuths of the National Investigation Agency (NIA) on Tuesday searched multiple locations across Tamil Nadu in connection with a case pertaining to the Hizb-ut-Tahrir organisation, which allegedly promoted an anti-election campaign as part of a “divisive conspiracy”.

About National Investigation Agency :

- The NIA is a federal agency of the Indian government responsible for investigating and prosecuting crimes



related to Terrorism, Insurgency, and other national security matters.

- It was established in 2009 following the Mumbai terrorist attacks in 2008, under the **National Investigation Agency (NIA) Act, 2008**, operates under the Ministry of Home Affairs.
 - The **National Investigation Agency (Amendment) Act, 2019** was passed in July 2019, amending the NIA Act, 2008.
- The NIA has the power to **take over investigations of terrorism-related cases from state police forces** and other agencies. It also has the authority to investigate cases across state boundaries **without obtaining prior permission** from state governments.
- **Parent Ministry:** Union Ministry of Home Affairs.
- The NIA, with its **headquarters in New Delhi**, has 18 branch offices across the country.

What offences does the NIA regulate?

- It investigates and prosecutes offences related to **explosive substances, atomic energy, nuclear weapons, unlawful activities, terrorist activities, hijacking**, etc.
- The NIA has the power to regulate any offence given in the Schedule of the NIA Act.
- The NIA Act was amended in 2019 to enlarge the mandate of the NIA by inclusion of offences related to human trafficking, manufacture and sale of prohibited arms, cyber-terrorism, and offences under the Explosive Substances Act, 1908.

Jurisdiction:

- The agency is empowered to deal with terror-related crimes across states

without special permission from the states.

- It works under a written proclamation from the **Ministry of Home Affairs**.
- A State Government may request the Central Government to hand over the investigation of a case to the NIA, provided the case has been registered for the offences as contained in the schedule to the NIA Act.
- The Central government can ask the NIA to take over the investigation of any scheduled offence anywhere across the nation.
- According to the NIA (Amendment) Act, 2019, officers of the NIA will have the power to investigate scheduled offences committed outside India, subject to international treaties and domestic laws of other countries.

Powers:

- NIA officers have the power to investigate **scheduled offences** and arrest people who are involved in such offences.
- In relation to this, the officers of the NIA have all the powers, duties, privileges, and liabilities which ordinary police officers have while conducting an investigation.
- The administration of the NIA lies with its **Director-General (DG)**, who enjoys the same powers as a Director-General of Police.
- While investigating any offence under the Act, the NIA can request a state government to associate itself with the investigation.
- The NIA can also take the approval of the Central government to transfer a case to a state government for investigation and trial. For doing this, the NIA will take into account the



seriousness of the offence and other relevant factors.

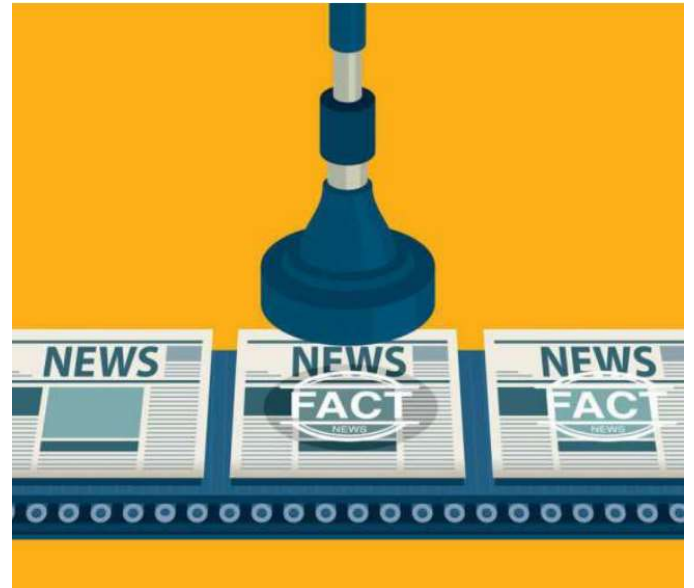
- **The Unlawful Activities (Prevention) Act, 1967**, was amended in 2019 to empower DG to seize/attach the properties related to proceeds of terrorism in cases being investigated by the NIA.

Special Courts:

- Various special courts have been notified by the Govt. of India for trial of the cases arising out of offences committed in various states of the Union.
- The Central government can choose session courts in different States to function as special courts for the trial of offences under the Act.
- These Special Courts are chosen in consultation with the Chief Justice of the High Court of the respective State.
- **Every offence investigated by the NIA is tried by the Special Court**, which has authority in the local area where the offence was committed.

FACT CHECK UNIT (FCU)

Context: On September 20, the Bombay High Court struck down as “unconstitutional” and “vague” the amended Information Technology (IT) Rules, 2021, which empowered the Centre to establish a “Fact Check Unit” (FCU) to identify “fake or false or misleading” online content.



About PIB's Fact Check Unit (FCU) :

- It was established in November 2019.
- It was started with an objective of acting as a deterrent to creators and disseminators of fake news and misinformation.
- It also provides people with an easy avenue to report suspicious and questionable information pertaining to the Government of India.
- It is mandated to counter misinformation on Government policies, initiatives and schemes either *suo motu* or under a reference via complaints.
- The FCU actively monitors, detects, and counters disinformation campaigns, ensuring that false information about the Government is promptly exposed and corrected.
- **Organisation**
 - It is headed by a senior DG/ADG level officer of the Indian Information Service (IIS). The day-to-day operations of the Unit are handled by IIS officers at various levels.
 - The Unit reports to the Principal Director General, PIB who functions as the Principal Spokesperson of the Government of India.



• **Fact-Check Mechanism**

- Users send requests over WhatsApp, email or a web portal. Each such request received is considered as a ‘**Query**’. Queries are segregated by the Unit based on their relevance to matters pertaining to Government of India.
- Only queries pertaining to Government of India are considered and taken up as Actionable Queries, while others are deemed not relevant for action.

Safe harbour principle :

- Social media platforms are not held legally liable for **user-generated content**, as long as they **act to remove or address flagged objectionable content**, thus supporting free speech and ensuring platforms are not responsible for pre-emptive content control.
- **Section 79** of the **Information Technology Act, 2000** offers similar protection.
- The Information Technology Rules, 2021, require social media companies with over **5 million users to appoint a chief compliance officer**, who can be held criminally liable for non-compliance with takedown requests or other regulations.

- They are public oversight institutions which audit a government’s use of public funds.
- They are a critical link in a country’s accountability chain.
- By scrutinizing public financial management and reporting they provide assurance that resources are used as prescribed .
- Most SAs derive their mandate from the constitution and/or legislation.
- SAs undertake financial audits of organizations’ accounting procedures and financial statements, and compliance audits reviewing the legality of transactions made by the audited body.
- They also conduct performance audits to scrutinize the efficiency, effectiveness or economy of government’s undertakings.
- The Comptroller and Auditor General (CAG) of India is India’s SA.

SAs

Context:Speaking at the opening ceremony of sixth Asian Organisation of **Supreme Audit Institution (ASOSAI)** Assembly, being organised by the Comptroller and Auditor-General (CAG) of India, President Ms. Murmu said supreme audit institutions (SAI) had the unique responsibility and opportunity to ensure that digital public infrastructure was designed and implemented in a way that was inclusive and accessible to all

About Supreme Audit Institutions (SAs):

About Comptroller and Auditor General (CAG)

- The Comptroller and Auditor General (CAG) is an **independent authority** established by the Constitution of India to audit the receipts and expenditures of the Central Government, State Governments, and other bodies that receive funding from the Government.
 - Since it is established directly under the provisions of the Constitution, it is a **Constitutional Body (Art.148)**.
- The CAG **heads the Indian Audit & Accounts Department** and acts as the Guardian of the Public Purse.

Appointment of the Comptroller and Auditor General of India (CAG)

- The Comptroller and Auditor General of India (CAG) is appointed by the President of India by a warrant under his/her hand and seal.
-

**Term of Comptroller and Auditor General of India (CAG)**

- As per the Comptroller and Auditor General of India (Duties, Powers, and Conditions of Service) Act of 1971, the CAG holds office for **6 years or up to the age of 65 years**, whichever is earlier.

Removal of CAG

- The Comptroller and Auditor General of India (CAG) can be removed by the President of India on the same grounds and **in the same manner as a judge of the Supreme Court**. Thus, he/she can be removed by the President based on a resolution passed to that effect by both Houses of Parliament with a special majority, either on the grounds of **proved misbehavior or incapacity**.

The Comptroller and Auditor General of India (CAG) **submits three Audit Reports to the President:**

- Audit Report on Appropriation Accounts
- Audit Report on Finance Accounts
- Audit Report on Public Undertakings

DEPARTMENT-RELATED STANDING COMMITTEES

Context: Nearly three months into the 18th Lok Sabha, the Department-related Parliamentary Standing Committees have not been constituted because of disagreements between the Union government and the Opposition, on control of these panels.

Parliamentary Committees:

India's Parliament has multiple types of committees. They can be differentiated on the basis of their work, their membership and the length of their tenure. Broadly there

are two types of Parliamentary Committees–

- Standing Committees and
- Ad Hoc Committees.

The Standing Committees are permanent (constituted every year or periodically) and work on a continuous basis. Standing Committees can be classified into the following six categories:

- Financial Committees
- **Departmental Standing Committees**
- Committees to Enquire
- Committees to Scrutinise and Control
- Committees Relating to the Day-to-Day Business of the House
- House-Keeping Committees or Service Committees

While the Ad Hoc Committees are temporary and cease to exist on completion of the task assigned to them. They are further subdivided into

- Inquiry Committees and
- Advisory Committees.

Department Standing Committees

There are a total of **24 Departmental Standing Committees**: - 8 under Rajya Sabha and 16 under Lok Sabha. Functions of these 24 Departmental Standing Committees are:

- They work upon the demand for grants of the concerned ministries. They don't propose any cut-motion
- They examine the bills of the concerned ministry
- They work upon the annual reports of the ministries
- They also consider policy documents presented the ministries before both the houses



Facts about Departmental Standing Committees

1. They generally don't intervene into matters taken up by another departmental standing committees
2. Recommendations made them are **advisory in nature**, hence are not binding on the Parliament
3. **Term of Office:** The term of members of these Committees is one year
4. A Minister is **not eligible to be nominated** to these Committees

These Committees **do not consider matters of day-to-day administration** of the concerned Ministries/Departments. With the emphasis of their functioning to concentrate on long-term plans, policies and the philosophies guiding the working of the Executive, these Committees are in a very privileged position to provide necessary direction, guidance and inputs for broad policy formulations

DEFENCE ACQUISITION COUNCIL

Context:The Defence Acquisition Council (DAC) has approved capital acquisition proposals worth ₹1.44 lakh crore for various indigenous defence projects, including stealth frigates, future-ready combat vehicles, air defence radars, and patrol vessels.

Defence Acquisition Council (DAC)

- Highest decision-making body in the defence ministry on procurement.
- **Objective:** Ensure timely procurement of approved requirements of the armed forces, optimally utilizing the allocated budget.
- **Formation:** Established in 2001 after Group of Ministers' recommendations

on 'Reforming the National Security System' post-Kargil War (1999).


- **Chairman:** Defence Minister.
- **Members:** Chief of Defence Staff (CDS), Chiefs of the Army, Navy, and Air Force.
- **Key Functions:**
 - Approve a 15-year Long Term Integrated Perspective Plan (LTIPP) for defence forces.
 - Accord acceptance of necessity for acquisition proposals.
 - Categorize acquisition proposals into 'Buy', 'Buy & Make', and 'Make'.
 - Handle issues related to single vendor clearance.
 - Decide on 'offset' provisions for proposals above ₹300 crore.
 - Oversee Transfer of Technology (ToT) under the 'Buy & Make' category.
 - Evaluate field trials.

POCSO Act 2012

Context:The Supreme Court expanded the interpretation of Section 15 of the POCSO Act, which deals with "Punishment for storage of pornographic material involving child".

Groundbreaking judgment

The verdict was based on an appeal filed by Just Right for Children Alliance against a Madras High Court ruling that said mere possession of pornographic material was not an offence under POCSO Act

<p>What the SC said:</p> <ul style="list-style-type: none"> ■ Sexual act is only the beginning of a child's victimisation ■ CSEAM and actual act of abuse share a common, malevolent intent: the exploitation and degradation of a child 	<ul style="list-style-type: none"> ■ Keeping such material without deleting them amounted to 'possession' or even intent to transmit them to others ■ A person is accountable if at any point of time he/she had an invariable degree of power and knowledge to control, modify, or destroy the material 	<p>Any visual depiction of a sexually explicit act which any ordinary person of a prudent mind would reasonably believe to <i>prima facie</i> depict a child or appear to involve a child, would be deemed as 'child pornography' for the purposes of the POCSO</p> <p>SUPREME COURT</p> 
---	--	--

POCSO Act

- **POCSO Act** came into effect on 14th November 2012 which was enacted in consequence to India's ratification of



the **UN Convention on the Rights of the Child in 1992**.

- The aim of this special law is to address **offences of sexual exploitation and sexual abuse** of children, which were either not specifically defined or in adequately penalised.
- The Act defines a **child as any person below the age of 18 years**. The Act provides **punishment as per the gravity of offence**.
- The Act was further reviewed and **amended in 2019** to introduce more stringent punishment including the **death penalty for committing sexual crimes on children**, with a view to deter the perpetrators & prevent such crimes against children.

Features:

- **Gender-Neutral Nature:** The Act recognizes that both girls and boys can be victims of sexual abuse and that such abuse is a **crime regardless of the gender** of the victim.
- **Ease in Reporting Cases:** There is sufficient general awareness **now to report cases of sexual exploitation of children** not only by individuals but also by institutions as non-reporting has been made a specific **offence under the POCSO Act**.
- **Explicit Definition of Terms:** The storage of child pornography material has been **made a new offence**.
 - Further, the offence of 'sexual assault' has been defined in explicit terms (with increased minimum punishment) unlike an abstract definition of 'outraging modesty of a woman' in the then **Indian Penal Code**.

POCSO Rules 2020:

- **Interim Compensation and Special Relief:** Rule-9 of the POCSO Rules allows the **Special Court to order interim compensation** for the child's needs related to relief or rehabilitation after the FIR's registration. This compensation is adjusted against the final compensation, if any.
- **Immediate Payment of Special Relief:** Under the POCSO Rules, the **Child Welfare Committee (CWC)** may recommend immediate **payment for essential needs** like food, clothes, and transportation, using funds from the District Legal Services Authority (DLSA), the District Child Protection Unit (DCPU), or funds maintained under the **Juvenile Justice Act 2015**.
 - The payment must be made within a week of receiving the CWC's recommendation.
- **Support Person for the Child:** The POCSO Rules **empower the CWC to provide a support person** to assist the child throughout the **investigation and trial process**.

Section 67B of the Information Technology (IT) Act:

- The provision had penalised not only the use, transmission and publication of obscene materials, including child pornography but also made browsing, creation, collection, online facilitation or enticement of children into any sexual act or conduct an offence.
 - **Case Context:** Madras High Court had quashed criminal proceedings against a man who downloaded but did not share child pornography.
 - **High Court's Ruling:** The ruling was limited to Section 14 of POCSO (using children for pornography) and excluded

Section 15 (punishing possession), as no sharing was proven.

- **Supreme Court's Verdict:** Overturned Madras High Court's ruling. Expanded the definition of "possession" to include "constructive possession" – holding control over content without physically storing it. Viewing or having knowledge of child pornography without downloading is considered sufficient for possession.
- Failing to delete or report such material implies intent to share and is punishable under **Section 15(1) of POCSO**.
- The Supreme Court urged Parliament to "seriously consider" amending the POCSO Act to substitute the term "child pornography" with "**Child Sexual Exploitative and Abuse Material**" or **CSEAM**.

FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA (FSSAI)

Context: FSSAI has issued a show-cause notice to Tamil Nadu-based A.R. Dairy, which supplied ghee to Tirupati temple for making laddu prasadam.



Inspiring Trust, Assuring Safe & Nutritious Food

Ministry of Health and Family Welfare, Government of India

- It is an **independent statutory Authority, head office at Delhi** established under the **Ministry of Health and Family Welfare, Government of India**.
- The FSSAI has been established **under the Food Safety and Standards Act, 2006**, which is a **consolidating statute related to food safety and regulation in India**.

- **Vision:** Build a new India by enabling citizens to **have safe and nutritious food, prevent diseases**, and lead a healthy and happy life.
- **Mission:** **Set globally benchmarked standards for food**, encourage and ensure that food businesses adhere to these standards, **adopt good manufacturing and hygiene practices**, and ultimately **enable citizens to access safe and right food**.

FSSAI has been mandated by the FSS Act, 2006 for performing the following functions:

- **Framing of Regulations** to lay down the Standards and guidelines in relation to articles of food and specifying appropriate system of enforcing various standards thus notified.
- **Laying down mechanisms** and guidelines for accreditation of certification bodies engaged in certification of food safety management system for food businesses.
- Laying down procedure and **guidelines for accreditation** of laboratories and notification of the accredited laboratories.
- To **provide scientific advice and technical support** to Central Government and State Governments in the matters of framing the policy and rules in areas which have a direct or indirect bearing of food safety and nutrition.
- **Collect and collate data** regarding food consumption, incidence and prevalence of biological risk, contaminants in food, residues of various, contaminants in foods products, identification of emerging risks and introduction of rapid alert system.
- **Creating an information network** across the country so that the public, consumers, Panchayats etc receive

rapid, reliable and objective information about food safety and issues of concern.

- **Provide training programmes** for persons who are involved or intend to get involved in food businesses.
- Contribute to the **development of international technical standards** for food, sanitary and phyto-sanitary standards.
- **Promote general awareness** about food safety and food standards.

SCHEDULED CASTES AND SCHEDULED TRIBES (PREVENTION OF ATROCITIES) ACT

Context: Nearly 97.7% of all cases of atrocities against Scheduled Castes in 2022 were reported from 13 States, with Uttar Pradesh, Rajasthan and Madhya Pradesh recording the highest number of such crimes, according to a new government report.

- It authorizes the Central Government to **frame rules** for carrying out the purpose of the Act.
- The Act is **implemented by the respective State Governments** and Union Territory Administrations, which are provided due central **assistance under the Centrally Sponsored Scheme** for effective implementation of the provisions of the Act.

Offences:

- This Act does not apply to crimes committed between SCs and STs or between STs and SCs.
- There are **37 offences** included in the Act that involve patterns of behaviour inflicting criminal offences and breaking the self-respect and esteem of the SCs and STs community.
- Among these are the denial of economic, democratic, and social rights, as well as the exploitation and abuse of the legal system.
- **All offences** listed in the Act are **cognizable**.

Special Courts:

- The act clearly states about the **constitution of special courts** for hearing cases on atrocities against SCs and STs.
- For the purpose of providing for a speedy trial, the State Government shall **with the concurrence of the Chief Justice of the High Court, establish in each district a Court of Session to be a Special Court** exclusively to try the offences under this Act.
- The exclusive Special Courts shall **try offences under this Act on day-to-day basis**.
- **For every Special Court, the State Government shall specify** a Public

Atrocities on Dalits, tribal people

The chart shows the States accounting for 97.7% of total cases of atrocities against members of Scheduled Castes during the year 2022.



About Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989:

- It is an Act to prevent the commission of offences of atrocities against the members of the Scheduled Castes (SCs) and the Scheduled Tribes (STs) **by persons other than SCs and STs**.
- It provides for punishment for offences of atrocities committed against SCs and STs.



Prosecutor or appoint an advocate who has been in practice as an advocate for not less than seven years, as a **Special Public Prosecutor** for the purpose of conducting cases in that Court.

- The investigation should be completed **within 30 days**, and the report should be sent directly to the director of the state police.

DIRECT DEMOCRACY

Context: Swiss voters rejected proposals to bolster biodiversity protections as well as a pensions reform in twin referendums on Sunday, according to projected results

Direct democracy is a form of government where citizens directly participate in decision-making, rather than electing representatives to make decisions on their behalf. In this system, people have the right to propose laws, vote on legislation, and make key policy decisions directly.

Mechanisms of Direct Democracy

1. Referendum:

- A vote by the electorate on a specific legislative proposal or policy.
- Examples: The Brexit referendum in the UK, where people voted directly on the UK's membership in the EU.

2. Initiative:

- Citizens can propose legislation or constitutional amendments, which are then submitted for a vote.
- Examples: Switzerland allows citizens to propose initiatives if a certain number of signatures are gathered.

3. Recall:

- A process where citizens can remove an elected official before their term ends.
- Example: Some states in the USA, such as California, allow the recall of governors and other officials.

4. Plebiscite:

- A direct vote by the people to express their opinion on an important issue, often regarding sovereignty or constitutional matters.
- Example: Plebiscites were used in India for the accession of territories like Junagadh post-independence.

PUBLIC ACCOUNTS COMMITTEE (PAC)

Context: The Public Accounts Committee (PAC) will review the performance of regulatory bodies like SEBI and examine tariffs and fees on public infrastructure.

- **Importance of PAC in Parliamentary Democracy:** PAC ensures administrative accountability to Parliament by supervising the execution of public policy and controlling government activities.
- **Genesis of the PAC:** Established in 1921 after **Montague-Chelmsford Reforms**. Initially chaired by Finance Ministry representatives. Became a Parliamentary Committee with a non-official chairman post-1950.
- The Public Accounts Committee is now constituted every year under **Rule 308 of the Rules of Procedure and Conduct of Business in Lok Sabha**.
- **Constitution:** PAC has **22 members**—15 from Lok Sabha and 7 from Rajya Sabha, with a term of **one year** only.



- The Chairman is appointed by the **Speaker** and is traditionally from the Opposition since 1967.
- **Scope and Functions:**
 - Examines government accounts, appropriations, and reports from the Comptroller and Auditor General (CAG).
 - Ensures government expenditure is within the scope of parliamentary approval.
 - Reviews accounts of state corporations, autonomous bodies, and excess expenditures.
- **Nature of Examination:** Focuses on financial discipline, efficiency, and the economy. It investigates cases of losses, irregularities, and negligence, but does not delve into general policy.
- **Action on Recommendations:**
 - Government must report actions taken on PAC recommendations within six months.
 - PAC produces follow-up Action Taken Reports to ensure accountability.
 - **Significance:** PAC holds the executive accountable, ensuring public funds are used for intended purposes effectively and economically.
- **Role of CAG:** CAG provides detailed audits and is crucial in PAC's function, often considered the "friend, philosopher, and guide" of the Committee.
- **Follow-up on Audit Paragraphs:** Ministries must report remedial actions on audit reports not selected by PAC to ensure accountability across the board.

FOREIGNERS TRIBUNALS

Context: Assam authorities sent 28 Bengali Muslims declared non-citizens by Foreigners' Tribunals to a detention center as part of ongoing efforts to address illegal immigration.

Foreigners' Tribunals



- **Formation:** Foreigners' Tribunals (FTs) were established through the **Foreigners (Tribunals) Order of 1964** under Section 3 of the Foreigners' Act of 1946 to assess suspected foreigners.
- It is applicable to the whole country.
- **State-Specific:** Currently, FTs operate **only in Assam**, whereas other states handle illegal immigration cases under the Foreigners' Act.
- **Composition:** Each FT is led by a member with judicial experience, including judges, advocates, or civil servants.
- **Number of FTs:** The Ministry of Home Affairs stated in 2021 that Assam has 300 FTs, though only 100 are currently functional, according to the State's Home and Political Department.
- **Powers:** FTs have civil court powers to summon individuals, examine witnesses on oath, and require the production of documents.



- **Notice Process:** A tribunal issues a notice to the suspected foreigner within 10 days of receiving a reference, providing another 10 days to reply and submit evidence.
- **Time Frame:** FTs must resolve cases within 60 days, and failure to prove citizenship can result in detention in a transit camp for deportation.

NCLAT

Context: The National Company Law Appellate Tribunal (NCLAT), Chennai ordered status quo to be maintained in the matter of Corporate Insolvency Resolution Process of Coastal Energen Private Ltd.

What is NCLAT?

- NCLAT is a **quasi-judicial body constituted under Section 410 of the Companies Act, 2013.**
- NCLAT is the Appellate Tribunal for hearing appeals against the orders of National Company Law Tribunal (NCLT).
- NCLAT is also the Appellate Tribunal to hear and dispose of appeals against any direction issued or decision made or order passed by the **Competition Commission of India (CCI).**
- The NCLAT was established to provide an efficient and specialized forum for addressing matters related to company law, insolvency, and competition law.
- **Composition:**
 - It is composed of a chairperson and judicial and technical members.
 - The NCLAT is headed by Chairperson who is a sitting or retired Judge of the Supreme Court of India or a sitting or

retired Chief Justice of a High Court.

- **Appointment:** These members are appointed by the Central Government based on their expertise and experience in relevant fields such as law, finance, accountancy, management, and administration.
- Any person aggrieved by the order of NCLT then appeal any order on Question of Law and Fact within 45 Days to NCLAT and any person aggrieved by the order of NCLAT then **appeal on Question of Law within 60 Days to Supreme Court.**
- The Principal Bench of the National Company Law Appellate Tribunal (NCLAT) is located in **New Delhi.** It also functions from the bench in Chennai.

COLLEGIUM SYSTEM AND APPOINTMENT OF JUDGES

Context : The Supreme Court on Friday asked the government to explain its reasons for sitting on names reiterated by the Collegium for months or even years together, reminding the Centre that it cannot treat the latter like a mere "search committee" whose recommendations can be ignored

Appointment of SC Judges :

- The Judges of the Supreme Court are appointed by the **President under clause (2) of Article 124 of the Constitution.**
- The President consults with judges of the Supreme Court and High Courts to make informed appointment
- The **collegium**, consisting of the **Chief Justice of India and the four senior-most judges of the Supreme Court,**



decides on appointments, elevations, and transfers of Judges.

- The term "collegium" is not mentioned in the Indian Constitution but has been established through judicial pronouncements.

Composition and Strength of the Supreme Court:

- Originally, the Supreme Court had eight judges (one chief justice and seven others). The Parliament has increased the number of judges over time.
- The current strength of the Supreme Court is 34 judges (one chief justice and 33 others).

Qualifications for Appointment as a Judge:

- According to Article 124(3) of the Constitution, a person can be appointed as a judge of the Supreme Court if he or she:
 - A person must be a citizen of India.
 - Must have served as a judge of a High Court for at least five years or two such courts in succession.
 - Alternatively, must have been an advocate of a High Court for at least ten years or two or more such courts in succession.
 - Must be a distinguished jurist in the opinion of the president.

Oath of Office:

- Every appointed judge must make and subscribe to an oath before the President or an appointed person.
 - The oath includes commitments to uphold the Constitution, sovereignty and integrity of India, and perform duties without fear or favor.

Removal:

- A judge of the Supreme Court can only be removed from office by an order of the President.

- The removal process requires an address by each House of Parliament, supported by a special majority i.e., a majority of the total membership of that House and a majority of not less than two-thirds of the members present and voting.
- The grounds for removal are proven **misbehaviour or incapacity**.
- Parliament has the authority to regulate the procedure for presenting the address and investigating and proving the misbehaviour or incapacity of a judge.
- Once appointed, judges can serve **until the age of 65** and cannot be removed during their tenure except for proved misbehaviour or incapacity.

NATIONAL ACHIEVEMENT SURVEY

Context: The National Achievement Survey, 2024, which is a large-scale assessment to obtain information about the learning achievements of school students, will be taken shortly

What is the National Achievement Survey (NAS)

- It is a nationwide survey to assess the learning outcomes and health of the education system.
 - It is the largest, nationwide, sample-based education survey conducted across India.
- It is undertaken by the **Ministry of Education**.
- It provides a system-level reflection on the effectiveness of school education.
- It collects information on relevant background variables such as school environment, teaching processes, and student home and background factors.

- It covers the whole spectrum of schools including Government schools (both State and Central government), Government-aided schools, and Private schools across India.
 - **Objective:**
 - To evaluate children's progress and learning competencies as an indicator of the efficiency of the education system, so as to take appropriate steps for remedial actions at different levels.
 - While the last survey covered 3.7 million schoolchildren in State government-run, government-aided, private unaided and Central government schools, and occurred across 720 districts, the 2024 survey has been expanded to cover nearly **five million children in 36 States and Union Territories.**
- five-year term of the Assembly ends.
 - **The Representation of the People Act, 1951:** According to **Section 15(2) of the Representation of the People Act, 1951**, elections cannot be announced less than **six months** before the Assembly's term ends, unless the Assembly is dissolved earlier.
 - **Things the ECI looks at before deciding the election schedule**
 - The new Assembly (or Lok Sabha) must be constituted before the end of the current Assembly's term, meaning the election process, including all formalities, must be completed beforehand.
 - The ECI works backward from the end date, considering factors like weather, security availability, festivals, training of officers, and procurement of EVMs.
 - Before finalizing the election schedule, the ECI consults local administration and police and attempts to align voting in states where elections are due around the same time.

DELHI ASSEMBLY ELECTIONS

Context: Ms. Atishi is set to become Delhi's interim Chief Minister after Arvind Kejriwal's resignation, pending the next Assembly elections.



Responsibility of deciding the schedule of Delhi Assembly elections

Role of Chief minister in deciding the schedule

- **Article 324 of the Indian Constitution:** Election Commission of India (ECI) is granted the authority to oversee and manage elections.
 - The ECI ensures that the election process is completed before the
- **Article 174(2)(b) of the Constitution**
 - **Article 174(2)(b)** of the Constitution allows the Governor to dissolve the Legislative Assembly, and the Council of Ministers can recommend early dissolution.
 - Once dissolved, the Election Commission must conduct elections within six months.
- Delhi is governed by the **Government of National Capital Territory of Delhi Act, 1991**, under which the **Lieutenant Governor (LG)** can dissolve the

Assembly, but the final decision lies with the Centre.

- Section 6(2)(b) of the Act says the Lieutenant Governor may from time to time dissolve the Assembly, even if a Chief Minister of Delhi recommends the dissolution of the Assembly, the final say is the Centre's (through the LG).
- Despite the current Delhi CM's intention to resign and call for early elections, he **has not recommended dissolving** the Assembly.
- **The Constitution (69th Amendment) Act 1991** introduced **Article 239AA** which created an **elected Legislative Assembly** and a Council of Ministers (CoM) including a Chief Minister (CM) for National Capital Territory of Delhi (NCT).
- **The president of India**, on the advice of the lieutenant governor, appoints the chief minister.

Chief Ministers of Delhi



NATIONAL EDUCATION POLICY

Context: Asserting that the National Education Policy (NEP) was a game-changer for the nation, Vice-President Jagdeep Dhankhar on Sunday appealed to the States which are yet to adopt it to rethink their stance.

What is National Education Policy (NEP) 2020 ?

Chief Ministers of Delhi Important Facts

- **First Chief Minister** of Delhi - Chaudhary Brahm Prakash
- **First female Chief Minister** of Delhi - Sushma Swaraj
- **The longest CM** of Delhi- Sheila Dikshit (served as Delhi's Chief Minister for 15 years, 25 days, from 3 December 1998 to 28 December 2013)

NATIONAL EDUCATION POLICY 2020

- Universalization of Education from pre-school to secondary level with 100% GER in school education by 2030
- GER in higher education to be raised to 50% by 2035; 3.5 crore seats to be added in higher education
- NEP 2020 will bring 2 crore out of school children back into the main stream
- New 5+3+3+4 school curriculum with 12 years of schooling and 3 years of Anganwadi/ Pre-schooling
- No rigid separation between academic streams, extracurricular, vocational streams in schools
- Vocational Education to start from Class 6 with Internships
- Teaching upto at least Grade 5 to be in mother tongue/regional language

- The National Education Policy (NEP) 2020 is the first education policy of the 21st century in India, which replaces the previous National Policy on Education (NPE) 1986.
- The Ministry of Education formed a committee under **Dr. K Kasturirangan**, which outlined this new policy.



- 5 foundational pillars of NEP 2020: **Access, Equity, Quality, Affordability, and Accountability.**

Targets under NEP 2020 :

- Universalization of education from Early Childhood Care and Education (ECCE) to Secondary Education by 2030, aligning with SDG 4.
- Attaining Foundational Learning & Numeracy Skills through National Mission by 2025.
- 100% GER in Pre-School to Secondary Level by 2030.
- 50% GER in Higher Education by 2035.
 - The current Gross Enrolment Ratio (GER) in higher education is 26.3%
- Bring back 2 Crore children to the mainstream through the open schooling system.
- Teachers to be prepared for assessment reforms by 2023
- Inclusive & Equitable Education System by 2030.

Key Features :

- The current 10+2 system will be replaced with a new 5+3+3+4 curricular structure corresponding to ages 3-8, 8-11, 11-14, and 14-18 years respectively.
- It will bring the uncovered age group of 3-6 years under school curriculum, which has been recognized globally as the crucial stage for development of mental faculties of a child.
- Class 10 and 12 board examinations to be made easier, to test core competencies rather than memorised facts, with all students allowed to take the exam twice.
- Vocational Education to start from Class 6 with Internships.

- Teaching up to at least Grade 5 to be in mother tongue/regionallanguage. No language will be imposed on any student.

CENSUS

Context : The Union Ministry of Statistics and Programme Implementation has quietly dissolved the 14-member Standing Committee on Statistics (SCoS) after its members questioned the delay in conducting the Census

- Population Census provides basic statistics on state of human resources, demography, culture and economic structure at local, regional and national level.
- However, the 2021 Census in India was postponed due to the Covid pandemic, resulting in delays.

About Census :

- Beginning in the year 1872, when the first census was conducted non-synchronously, the census enumeration

Learning plan
A look at the key features of the new education policy: • R.V.S. PRASAD

SCHOOL EDUCATION

- Universalisation from age 3 to Class 10 by 2030
- Mission to ensure literacy and numeracy skills by 2025
- Mother tongue as medium of instruction till Class 5 wherever possible
- New curriculum to include 21st century skills like coding and vocational integration from Class 6
- Board exams to be easier, redesigned

HIGHER EDUCATION

- New umbrella regulator for all higher education except medical, legal courses
- Flexible, holistic, multi-disciplinary UG degrees of 3-4 years' duration
- 1 to 2 year PG programmes, no M.Phil
- College affiliation system to be phased out in 15 years

Other points from the infographic:

- Public spending on education by States, Centre to be raised to 6% of GDP
- Ministry of Human Resource Development to be renamed Ministry of Education
- Separate technology unit to develop digital education resources

exercise in India is carried out in every 10 years.

- The first synchronous census was taken under British rule in 1881, by **W.C. Plowden**, Census Commissioner of India.
- The responsibility of conducting the decadal census rests with the Office of



the **Registrar General and Census Commissioner of India**, Ministry of Home Affairs.

- Population census is listed in **Union List (entry 69)** of Seventh Schedule in Indian Constitution.
- Census is conducted under the provisions of the **Census Act, 1948**.

How ?

The Census Operations in India have been carried out in two phases:

- House listing and Housing Census and Population Enumeration.
- The Population Enumeration follows the Housing Census within a gap of six to eight months.
- In Population Enumeration phase each person is enumerated and her/his individual particulars like Age, Marital status, Religion, mother tongue etc.

Delayed National Population Register :

- With this, the exercise related to National Population Register (NPR) would also get delayed.
- NPR is to be updated with the first phase of Census 2021.

**National Population Register (NPR)**

- NPR is a database containing a list of all usual residents of the country.
- A usual resident for the purposes of NPR is a person who has resided in a place for **six months or more** and intends to reside there for another six months or more.
- Its objective is to have a comprehensive identity database of people residing in the country.
- It is generated through house-to-house enumeration during the **“house-listing” phase** of the Census.
- The NPR was first collected in 2010 and then updated in 2015.

- The NPR is prepared under the provisions of the **Citizenship Act 1955** and the Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules, 2003.
- In the history of Indian Census, for the first time, the **Census data will be collected digitally** i.e., on Mobile App in the ensuing census.

NATIONAL RESEARCH FOUNDATION

Context: Prime Minister Narendra Modi on Tuesday convened the first meeting of the **Governing Board** of the Anusandhan National Research Foundation.

What is National Research Foundation?

- The National Research Foundation (NRF), an apex body to provide high-level strategic direction of scientific research in the country in accordance with the recommendations of the National Education Policy (NEP), will be established at a cost of 50,000 crore over the period 2023-28.
- **Goals :**
 - To increase private sector contributions to research in India and to ensure that a larger portion of government funds go to state universities and colleges.
- **The Department of Science and Technology (DST)** will be NRF's administrative department.

Anusandhan National Research Foundation Act, 2023

- The Anusandhan National Research Foundation Act of 2023 provides for the establishment of the Anusandhan National Research Foundation (NRF).
- It also repealed the **Science and Engineering Research Board**



(SERB) established by an act of Parliament in 2008 and subsumed it into NRF.

- **NRF**, as an apex body, aims to provide “high-level strategic direction for research, innovation and entrepreneurship”, and enhance “India’s national research infrastructure, knowledge enterprise, and innovation potential, for scientific pursuit”.

Organisational Structure :

- **Governing Board :**
 - **Prime Minister of India** is the Chairperson /President of Governing Council
 - Union Minister of Science and Technology and Union Minister of Education as Vice Presidents
- **Executive Council :**
 - Principal Scientific Advisor is the Chairperson/President
 - Secretaries to various departments of the central government including:
 - Science and Technology,
 - Higher Education,
 - Health Research,
 - Agricultural Research
 - Defence Research
 - Atomic Energy
 - Space

NRF will prioritize funding for projects in outlying, rural, and semi-urban areas, which are underserved and rarely receive funding for science projects.

CENTRAL DRUGS STANDARD CONTROL ORGANIZATION (CDSCO)

Context: CDSCO has suspended ENTOD Pharmaceuticals' permission to manufacture and market eye drops for presbyopia, citing misleading claims and

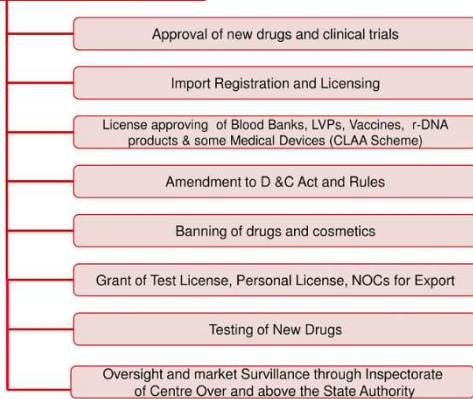
violation of the New Drugs and Clinical Trial Rules, 2019.



- It is the **National Regulatory Authority (NRA)** of India for the medical devices industry under the provisions of **Drugs & Cosmetics Act, 1940 and Rules 1945**
- **Ministry:** Works under the Ministry of Health & Family Welfare.
- **Head:Drugs Controller General of India (DCGI)** is the head of CDSCO.
- **Headquarters: New Delhi.**
- Under the Drugs and Cosmetics Act, **CDSCO is responsible for,**
 - **Approval of New Drugs;**
 - **Conduct of Clinical Trials;**
 - **Laying down the standards for Drugs;**
 - **Control over the quality of imported Drugs** in the country;
 - **Coordination of the activities of State Drug Control Organizations;**
- CDSCO, along with state regulators, is jointly responsible for the grant of licenses of certain specialized categories of critical Drugs such as blood and blood products, I. V. Fluids, Vaccine and Sera.



Functions of CDSCO



Drugs and Clinical Trials Rules, 2019:

- **Notified by:** Union Ministry for Health and Family Welfare.
- **Aim:** Promote clinical research in India by ensuring faster accessibility to new drugs and improving the regulatory framework for clinical trials.
- **Applicability:** Covers new drugs, ethics committees, investigational drugs for human use, bioequivalence studies, and clinical trials.
- **Approval Time:**
 - 30 days for drugs manufactured in India.
 - 90 days for drugs developed outside India.
- **Deemed Approval:** Applications will be deemed approved if no communication is received from the Drugs Controller General of India (DCGI).
- **Compensation:**
 - DCGI will decide compensation in cases of death, permanent disability, or injury to trial subjects.

- Ethics committee will monitor trials and determine compensation for adverse events.

• **Local Trial Waiver:**

- A local clinical trial may be waived for new drugs if approved and marketed in specified countries.
- Drugs approved in select developed markets will be automatically allowed in India if global trials include Indian patients.

- **Animal Testing:** Removed regulations on animal tests for drugs marketed for over two years in well-regulated overseas markets.

- **Medical Management:** Injured clinical trial subjects will receive medical care as long as required.

NATIONAL COMMISSION FOR PROTECTION OF CHILD RIGHTS (NCPCR)

Context: NCPCR, has told the Supreme Court that madrasas are “unsuitable or unit” places for children to receive “proper education”.

National Commission for Protection of Child Rights (NCPCR)

- It is a **Statutory body** established under the **Commission for Protection of Child Rights (CPCR) Act, 2005**.
- **Mandated to monitor:**
 - Protection of Children from Sexual Offences (POCSO) Act, 2012.



- Juvenile Justice (Care and Protection of Children) Act, 2015.
- Right to Free and Compulsory Education (RTE) Act, 2009.

- **International Commitment:** India acceded to the **Convention on the Rights of the Child (CRC) in 1992.**

Composition:

- **Chairperson:** Eminent person in child welfare, 3 years or till 65 years of age, with a maximum of 2 terms.
- **Members:** 6 members, at least two must be women. Eminent persons in areas like education, child health, juvenile justice, child psychology, and laws related to children. Term: 3 years or till 60 years of age, max 2 terms.
- **Appointment:** By the **Central Government**; Chairperson selected by a committee chaired by the Minister of Education.
- **Removal:** Central Government can remove for reasons like insolvency, paid employment, incapacity, or misconduct.

Functions:

- Review and recommend measures for child rights protection.
- Investigate child rights violations.
- Monitor and recommend improvements for existing child rights policies and programs.
- Promote child rights awareness through research, publications, and seminars.
- Inspect institutions housing children, e.g., juvenile homes, and recommend corrective actions.
- Handle complaints and take suo motu action on child rights violations.

Powers:

- Powers of a civil court during investigations, including summoning witnesses and enforcing document production.

- Can recommend prosecution or relief for victims.
- Can approach higher courts for directives.

Key Initiatives:

1. **POCSO e-Box:** Online platform for reporting child sexual abuse.
2. **Samvardhan:** Vulnerability mapping program to combat child trafficking.
3. **MASI App:** Real-time monitoring app for Child Care Institutions (CCIs).
4. **G HAR - GO Portal:** Digital portal to monitor and track restoration and repatriation of children.

NATIONAL HUMAN RIGHTS COMMISSION

Content: The National Human Rights Commission (NHRC) has been facing a vacancy crisis since June, with no full-time chairperson and only one active member, raising concerns from human rights groups about its impact on India's global reputation.

- **Establishment:** Established under the Protection of Human Rights Act (PHRA), 1993, as an independent statutory body.
- **Conformity with Paris Principles (1991):** NHRC aligns with international standards for the protection of human rights.
- **Composition:**
 - Chairperson: Must be a former Chief Justice of India or a Judge of the Supreme Court.
 - 5 Members: Include judges and experts in human rights, with at least one woman.
 - 7 Deemed Members: Chairpersons of various national commissions (e.g., SC/ST, Women, Child Rights).
- **Appointment:** Chairperson and members are appointed by the



President based on recommendations from a committee including the Prime Minister and other senior officials.

- **Term:** Three years or until the age of 70.
- **Removal:** By the President for reasons like misconduct, insolvency, or mental/physical incapacity after an inquiry by the Supreme Court.
- **Functions:**
 - Inquiring into human rights violations.
 - Intervening in court proceedings related to human rights.
 - Visiting jails and institutions to assess inmate conditions.
 - Reviewing safeguards for human rights and recommending improvements.
 - Promoting human rights literacy and research.
 - Encouraging NGOs in human rights work.
- **Powers:**
 - Civil court powers for investigation (e.g., summoning witnesses, requisitioning public records).
 - Recommending compensation for victims of human rights violations.
 - Approaching the Supreme Court/High Court for enforcing human rights.
 - Suo motu cognizance of human rights violations.
- **Key Initiatives:**
 - Review of laws like the Prevention of Terrorism Bill, 2000.
 - Protecting human rights in insurgency and terrorism-prone areas.
 - Guidelines to prevent misuse of police powers and custodial violence.
 - Reforms in police, prisons, and detention centers.

- Promoting the rights of HIV/AIDS-affected persons.

State Human Rights Commission (SHRC)

- **Establishment:** SHRCs are established under the Protection of Human Rights Act (PHRA), 1993, to monitor and promote human rights at the state level.
- **Composition:**
 - **Chairperson:** Must be a former Chief Justice or Judge of a High Court.
 - **4 Members:** One Member who is, or has been, a High Court Judge. One Member who is, or has been, a District Judge in that state. Two Members with expertise in human rights.
- **Appointment:** Chairperson and Members are appointed by the Governor on the recommendation of a committee comprising:
 - Chief Minister.
 - Speaker of the Legislative Assembly.
 - Minister-in-charge of Home Department.
 - Leader of the Opposition in the Legislative Assembly.
- **Removal:** Chairperson or Members can be removed by the President on similar grounds as NHRC members (e.g., misconduct, insolvency, mental/physical incapacity).

CENTRAL INFORMATION COMMISSION

About Central Information Commission (CIC)

- The Central Information Commission (CIC) is a statutory body (not a constitutional body) in India, established



under the provisions of the **Right to Information Act (2005)**.

- It functions as the overseer for implementing the RTI Act in the organizations of the Central Government as well as Union Territories (UTs).
- It looks into the complaints made to it and decides the appeals regarding matters related to the RTI Act and pertaining to the public offices under the Central Government and the UTs.
- The **Headquarters of CIC is in New Delhi**.
- **Composition:**
 - The Central Information Commission consists of a Chief Information Commissioner and **not more than ten** Information Commissioners.
 - They are appointed by the President on the recommendation of a Committee consisting of:
 - The Prime Minister as the Chairperson,
 - The Leader of Opposition in the Lok Sabha, and
 - A Union Cabinet Minister nominated by the Prime Minister.
- **Tenure of Members of CIC:**
 - The Chief Information Commissioner and an Information Commissioner hold office for **such term as prescribed by the Central Government or until they attain the age of 65 years**, whichever is earlier.
 - The Chief Information Commissioner as well as Information Commissioners are **not eligible for reappointment**.

- An Information Commissioner is eligible for appointment as Chief Information Commissioner for a tenure such that the total tenure including his/her term as Information Commissioner **does not exceed five years**.

- **Removal of members of CIC :** The President can remove the Chief Information Commissioner or any Information Commissioner from the office if he/she:
 - Is adjudged insolvent.
 - Has been convicted of an offense which, in the opinion of the President, involves moral turpitude.
 - Engages, during his term of office, in any paid employment outside the duties of his office.
 - Is, in the opinion of the President, unfit to continue in office due to infirmity of mind or body.
 - Has acquired such financial or other interest as is likely to affect prejudicially his official functions.
 - In **addition to the above circumstances**, the President can also remove the Chief Information Commissioner or any Information Commissioner on the grounds of **proved misbehaviour or incapacity**. However, in such cases, the President has to refer the matter to the Supreme Court for an enquiry.

DISTRICT MINERAL FOUNDATION

About District Mineral Foundation:

- DMF is a trust set up as a non-profit body under the Mines and Minerals (Development and Regulation) (MMDR) Amendment Act 2015.



- The object of the District Mineral Foundation is to work for the interest and benefit of persons, and areas affected by mining related operations in such manner as may be prescribed by the State Government. So far, DMFs have been set up in 645 districts in 23 States in the country which have framed DMF rules.
- **Composition and Functions** : The composition and functions of the District Mineral Foundation shall be such as may be prescribed by the State Government.
- **Working** : The holder of a mining lease or a prospecting licence-cum-mining lease granted on or after the date of commencement of the Mines and Minerals (Development and Regulation) Amendment Act, 2015, shall, **in addition to the royalty, pay to the District Mineral Foundation** of the district in which the mining operations are carried on, **an amount which is equivalent to such percentage of the royalty paid in terms of the Second Schedule, not exceeding one-third of such royalty**, as may be prescribed by the Central Government.

- **At least 60% of PMKKKY funds** to be utilized for High priority areas such as Drinking water supply, Health care, Education, Environment preservation etc.
- **Up to 40% of the PMKKKY** to be utilized for other priority areas such as- Physical infrastructure, Irrigation, Energy and Watershed Development etc.

FINANCE COMMISSION

Context: At a meeting in Thiruvananthapuram last week, the Finance Ministers of five-Opposition-ruled States demanded a raise in the divisible pool of taxes from 41% — the Fifteenth Finance Commission's recommendation — to a 50% apportionment.

About Finance Commission of India (FCI):

- The Finance Commission in India is a quasi-judicial body constituted by the President of India under the provisions of the Constitution of India.
 - **Article 280 and Article 281** of the Constitution of India deal with the provisions related to the Finance Commission of India (FCI).
- It is **not a permanent body** and the President of India constitutes the Finance Commission every fifth year or at such earlier times as he/she considers necessary.

Composition of FC :

- The Finance Commission consists of a **Chairman** and **four other members** to be **appointed by the President**.
- The Chairman and other members of the Commission **hold office** for such **period** as **specified by the President** in his/her order.



Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY)

- The Ministry of Mines launched PMKKKY in 2015 for the **welfare of areas and people affected by mining-related operations**, using the funds generated by DMFs.
- It will be implemented by the DMFs of the respective districts using the funds accruing to the DMF. The MMDR Amendment Act, 2015, mandated the setting up of DMFs in all districts in the country affected by mining related operations.



- The Chairman and other members of the Commission are **eligible for reappointment**.

Recommendations of Finance Commission covers :

- **Vertical Devolution** – It refers to the share of States in the divisible pool of Central taxes.
- **Horizontal Distribution** – This refers to the allocation of resources among States.
 - The Finance Commission makes this recommendation based on a formula so as to ensure equitable distribution of funds and foster balanced development across the regions.
- **Grants-in-aid** – It refers to the additional transfers to specific states or sectors that are in need of assistance or reform.
- Any other matter referred to it by the President in the interests of sound finance.
- The recommendations made by the Finance Commission are only advisory in nature and not binding on the government.

16th Finance Commission :

- The Government of India has established the **16th Finance Commission** under **Article 280(1)** of the Constitution. Dr. **Arvind Panagariya** is appointed as the Chairman.
- **Terms of Reference for 16th Finance Commission**
 - **Distributing taxes** between the Union and States and allocating State shares.
 - Principles governing **grants-in-aid** from the Consolidated Fund of India to States and grants under **Article 275**

- Measures to **boost State Consolidated Funds** for supporting Panchayats and Municipalities based on State Finance Commission recommendations.
- Review current **financing structures related to disaster management** under the Disaster Management Act of 2005, proposing improvements or changes.



International Relations

INTERNATIONAL LABOUR ORGANISATION

Context : The ILO in a recent study analysed the impact of technological innovations over the last two decades across 36 countries and noted how they can reduce the labour income share.

About ILO :

- It was **created in 1919** by the Versailles Peace Treaty ending World War I.
- After the demise of the League of Nations, the ILO became the first specialized agency associated with the UN.
- The organization has 187 of the 193 UN member states plus the Cook Islands (a nation in the South Pacific, with political links to New Zealand).
- Its secretariat is in **Geneva, Switzerland**.
- ILO designates some member countries as nations of “**Chief Industrial Importance**”.
- The designated nations are Brazil, China, France, Germany, India, Italy, Japan, the Russian Federation, the United Kingdom and the United States.
- It publishes
 - Global Wage report,
 - Global Employment Trends for Youth Report,
 - World Employment and Social Outlook – Trends
- **ILO Governing Body** – It is the apex executive body of the ILO and its Chairperson is a position of international repute. It meets thrice a year, in March, June and November.

- An ILO Recommendation is a **non-binding instrument** which seeks to serve as a guiding principle for national policy process.

India and ILO :

- India is a founder member of the ILO.
- India held the chairmanship of ILO's governing body from October 2020 to June 2021.
- In 2017, India has ratified two key ILO global conventions- Convention 138 and Convention 182.
- Convention 138 calls for the minimum age for employment to be not less than the age of completion of compulsory schooling. In India, it is 14 years according to RTE act.
- Conventions 138 and 182 of the United Nations body leave it to the member-states to determine what constitutes acceptable or unacceptable work for children at different ages.
- Countries which ratify any of the ILO conventions must go through a **periodical reporting system every 4 years**. The government must prove they are making progress.

WORLD BANK

Context: In its latest India Development Update, the World Bank has raised its 2024-25 GDP growth forecast for the economy to 7%. In this context, it is important to learn about World Bank

About World Bank Group:

The World Bank Group (WBG) is a family of 5 international organizations that make leveraged loans to developing countries. The organizations are



- International Bank for Reconstruction and Development (IBRD),
- International Development Association (IDA),
- International Finance Corporation (IFC),
- Multilateral Investment Guarantee Agency (MIGA) and
- International Centre for Settlement of Investment Disputes (ICSID).

India is a member **of 4 of the 5 constituents** of the World Bank Group. (India is not a member of ICSID)

- Governing Bodies - The two main governing bodies are Board of Governors and Board of Directors.
- BOG is appointed by World Bank members and meets annually in joint meeting with Board of Governors of IMF.
- There is a separate BOD for IBRD, IDA, IFC and MIGA.

The aim of World Bank is to

- End extreme poverty by reducing share of global population that lives in extreme poverty to 3% by 2030,
- Promote shared prosperity by increasing the incomes of the poorest 40% of people in every country
- Provide sustainable development

Reports

- Ease of Doing Business,
- Global Economic Prospects,
- Global Financial Development Report,
- International Debt Statistics,
- World Development Report,
- World Development Indicators,
- Logistic Performance Index,
- Poverty and Shared Prosperity.

International Bank for Reconstruction & Development

- IBRD is a global development cooperative owned by 189-member countries and it is the largest development bank in the world.

- It is headquartered in Washington, D.C.
- It was established in 1944 with the mission of financing the reconstruction of European nations devastated by World War II.
- IBRD places special emphasis on supporting **lower-middle-income countries** as they move up the economic chain, graduating from IDA to become clients of IBRD.
- To become a member of the Bank, under the IBRD Articles of Agreement, **a country must first join the International Monetary Fund (IMF).**
- **Only members of IBRD are allowed** to join other institutions within the Bank such as IDA, IFC, and MIGA.

QUAD

Context: Quad leaders are scheduled to meet in U.S. on September 21. New Delhi will miss its turn to host the Quad Summit in India this year, sources confirmed, as leaders of U.S.-Australia-Japan and India will meet in the U.S. instead, at a special summit ahead of UN meetings later this month.

Agenda for the meet :

Officials have been preparing the agenda for the Quad summit, which was discussed during the meeting of the four Foreign Ministers in Japan on July 29, including

- maritime security,
- critical and emerging technologies,
- cyber security,
- humanitarian assistance and disaster relief,
- health security,
- climate change,
- counterterrorism,
- infrastructure and connectivity,

and addressing the debt crisis through sustainable, transparent and fair lending and financing practices”.

About QUAD

- QUAD, also known as the Quadrilateral Security Dialogue or simply the Quad, is a strategic forum comprising four countries: the **United States, Japan, India, and Australia**.
- The four countries share a common interest in maintaining a **free and open Indo-Pacific**, promoting democracy, human rights, and the rule of law, and countering China's expanding influence in the region.
- The Quad is seen as a mechanism for **balancing China's influence** in the region, although its members have stressed that **it is not a military alliance** and is open to other countries who share their values and interests.
- The Quad is a loose grouping rather than a formal alliance. It does not have a decision-making body or a secretariat, **or a formal structure** like NATO or the United Nations.



Timeline :

- **2004** : Began as a “Tsunami core group”, after the 2004 Indian Ocean Tsunami, to provide humanitarian and disaster relief to the affected region.
- **2007** : Formalised and the first meeting took place on the sidelines of the ASEAN Regional Forum
 - Thereafter it was dormant for over a decade

- **2017** : First officials talk took place in Philippines on the margins of East Asia Summit
- **2021**: First Virtual Quad leaders Summit held in US. The leaders released a joint statement called “The Spirit of Quad”. First in-person meeting held.
- **2022-23** : Second and third in-person Quad Leaders’ Summit hosted by Japan.

GULF COOPERATION COUNCIL

Context: On September 8-9, 2024, India's External Affairs Minister S. Jaishankar is set to attend the first-ever India-GCC Foreign Ministers' meeting in Riyadh, Saudi Arabia.



- **Formation:** The GCC was established in 1981 through an agreement among Saudi Arabia, Bahrain, Oman, Kuwait, Qatar, and the UAE in Riyadh, Saudi Arabia.
- **Economic and Political Union:** It is an economic and political union of Arab countries bordering the Persian Gulf, excluding Iraq.
- **Official Name:** The current official name is "Cooperation Council for the Arab States of the Gulf," although it is commonly known by its former name, Gulf Cooperation Council (GCC).
- **Reason for Formation:** The GCC was formed due to the similar political



systems of member countries based on Islamic principles, geographical proximity, and shared destiny and objectives.

GCC Members:

1. Saudi Arabia (absolute monarchy)
2. Qatar (constitutional monarchy)
3. Oman (absolute monarchy)
4. UAE (federal monarchy)
5. Bahrain (constitutional monarchy)
6. Kuwait (constitutional monarchy)

Possible Future Members:

- Yemen, Jordan, and Morocco are potential future members of the GCC.

Economic Significance:

- **Total GDP:** The combined nominal GDP of GCC members is approximately \$1.638 trillion, making them some of the fastest-growing economies globally.

Key Objectives:

- Integration, coordination, and interconnection among member countries in various fields.
- Strengthening people-to-people ties and aligning regulations in finance, economy, customs, trade, tourism, administration, and legislation.
- Promoting scientific and technical cooperation in sectors like agriculture, mining, industry, animal resources, and water.
- Establishing a unified military structure.

Ambitious Projects:

- **Common Market and Economic Nationality:** The GCC is working toward creating a common market and economic nationality.
- **Single Currency:** Plans are in progress to introduce a single currency, potentially named "Khaleeji."

SWISS PEACE PROCESS

Context : As the Union government looks at a possible role for India in ending the Russia - Ukraine war, Kyiv is keen on getting New Delhi to sign the Swiss peace summit document

What is Swiss Peace Summit?

- The Swiss Peace Summit, also known as the Summit on Peace in Ukraine, is an international conference aimed at addressing and finding solutions to the ongoing conflict between Russia and Ukraine.
- **Objective :** The primary goal of the Swiss Peace Summit is to facilitate dialogue and negotiations aimed at ending the war between Russia and Ukraine, which has been ongoing since February 2022.
- **Participants :** The summit brings together a wide range of participants, including representatives from numerous countries, international organizations, and peace advocacy groups.
 - In the recently held summit, 80 countries and four organizations supported the final joint communiqué.

India's Stand :

- India had joined the summit to explore the way forward to a negotiated settlement of a very complex and pressing issue.
- However, India decided to not sign the joint communiqué by saying that only those options acceptable to both parties can lead to abiding peace.
- Russia - one of the two warring parties —declined to attend the summit in Burgenstock in central Switzerland.
- Besides India, Saudi Arabia, South Africa, Thailand, Indonesia, Mexico

and UAE were among countries participating at the summit on peace for Ukraine but did not sign a final communique.

UNITED NATIONS' REFUGEE AGENCY FOR PALESTINIANS

Content: UNRWA staffer 'shot and killed' in Israeli raid in occupied West Bank.

United Nations' Refugee Agency for Palestinians (UNRWA)

- UNRWA stands for UN Relief and Works Agency for Palestinian Refugees in the Near East.
- It was founded in 1949 to provide aid to about 700,000 Palestinians who were forced to leave their homes in what is now Israel during the 1948 Arab-Israeli war.
- **Working region**
 - The UN agency operates in Gaza and the Israeli-occupied West Bank, as well as Lebanon, Syria, and Jordan — countries where the refugees took shelter after their expulsion.
- **Areas of work**
 - The agency runs education, health, relief and social services, microfinance and emergency assistance programmes inside and outside refugee camps based in the aforementioned areas.
- **Funding**
 - UNRWA is funded almost entirely by voluntary contributions by donor states like the US.
 - It also gets a limited subsidy from the UN, which is used only for administrative costs.
- **Performance**

- Currently, around 5.9 million Palestine refugees — most of them are descendants of original refugees — access the agency's services.
- In Gaza, over 1 million are sheltering in UNRWA schools and other facilities.

INDUS WATER TREATY

Context : There will be no more meetings of the Permanent Indus Commission (PIC) till the governments of India and Pakistan meet and discuss the renegotiation of the 64-year-old Indus Water Treaty, a highly placed official told The Hindu.



What is Indus Water Treaty?

- Indus Waters Treaty was signed on September 19, 1960, between India and Pakistan and was brokered by the World Bank.
- The treaty sets out a mechanism for cooperation and information exchange between the two sides on the use of the water of the Indus River and its five

tributaries Sutlej, Beas, Ravi, Jhelum, and Chenab.

- It allocated the **three western rivers** Indus, Chenab and Jhelum to Pakistan for unrestricted use, barring certain non-consumptive, agricultural and domestic uses by India and the **three Eastern rivers Ravi, Beas and Sutlej** were allocated to India for unrestricted usage.

- This means that 80% of the share of water went to Pakistan while leaving the rest 20% of water for use by India.

Permanent Indus Commission :

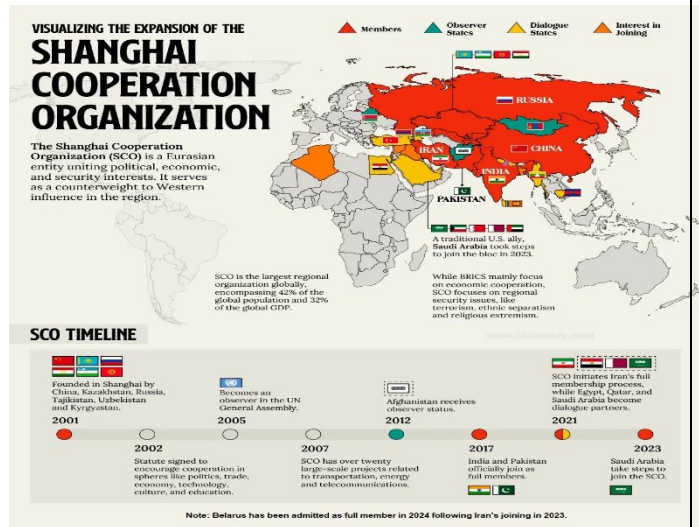
- Under the Indus Waters Treaty, both countries must set up a Permanent Indus Commission, mandated to meet annually.

Dispute Resolution Mechanism:

- The IWT provides a **three-step dispute resolution mechanism** under **Article IX of the Indus Waters Treaty**, under which “questions” on both sides can be resolved at the **Permanent Commission**, or can also be taken up at the inter-government level.
- In case of unresolved questions or “differences” between the countries on water-sharing, such as technical differences, either side can approach the **World Bank to appoint a Neutral Expert (NE)** to come to a decision.
 - And eventually, if either party is not satisfied with the NE’s decision or in case of “disputes” in the interpretation and extent of the treaty, matters can be referred to a **Court of Arbitration**.

SHANGHAI COOPERATION ORGANISATION (SCO)

Context: India considers sending External Affairs Minister S. Jaishankar to Pakistan for the SCO Heads of Government meeting, marking a potential high-level visit amidst strained bilateral relations.



Shanghai Cooperation Organization

- It is an intergovernmental political, economic, and security alliance **founded in 2001** by Kazakhstan, China, Kyrgyzstan, Russia, Uzbekistan, and Tajikistan. The first summit was held in Shanghai, China, in 2001.
- The SCO aims to promote** cooperation and mutual support in areas such as trade, investment, energy, transportation, and security.
- The Shanghai Spirit** is the core value of the SCO. It is about mutual trust, mutual benefit, equality, consultation, respect for cultural diversity, and the pursuit of common development among the SCO members.
- The official working language** of the SCO Secretariat is Russian and Chinese.



- **The main objectives of SCO are:**
 - Strengthen **relations among member states.**
 - **Promote cooperation** in political affairs, economics, and trade, scientific-technical, cultural, and educational spheres as well as in energy, transportation, tourism, and environmental protection.
 - **Safeguard regional peace,** security, and stability.
 - Create a **democratic, equitable** international political and economic order.

Shanghai Cooperation Organization Composition

The membership of SCO has expanded since 2001, and it currently has nine member states.

- **1996:** ‘Shanghai Five’ established by Kazakhstan, China, Kyrgyzstan, Russia, and Tajikistan.
- **2001:** After adding Uzbekistan in 2001, the Shanghai Five was renamed the SCO.
- **2015:** At Ufa, Russia, the SCO decided to admit India and Pakistan as full members.
- **2016:** India and Pakistan signed the memorandum of obligations in Tashkent (Uzbekistan), thereby starting the formal process of joining the SCO as full members.
- **2017:** At Astana, India and Pakistan officially joined SCO as full members
- **2021:** It was announced that Iran would become a full member of the SCO, became a member in 2023.

Dialogue Partners	Armenia, Azerbaijan, Cambodia, Sri Lanka, Turkey, Egypt, Nepal, Qatar, and Saudi Arabia
--------------------------	---

SCO Organizational Structure

The Council of Heads of State: This is the highest decision-making body of the SCO and comprises the heads of state of all member countries. It meets **annually** to set the overall strategic direction for the organization.

The Council of Heads of Government: Second-highest council in the organization. Holds annual summits, at which time members discuss issues of multilateral cooperation.

The Council of Ministers of Foreign Affairs: Comprises the foreign ministers of all member countries and is responsible for coordinating the organization's foreign policy.

The Council of National Coordinators: Key body coordinating and managing the SCO's current activities.

- Conducts the necessary preparations for the meetings of the Council of Heads of State, the Council of Heads of Government, and the Council of Foreign Ministers.

The Secretariat: It is the administrative arm of the SCO, responsible for coordinating and implementing the decisions of the organization.

- Based in Beijing, it is the main permanent executive body.
- The Secretariat is headed by the Secretary-General and he is nominated by the Council of Ministers of Foreign Affairs and approved by the Heads of State Council.

The Regional Anti-Terrorist Structure (RATS): RATS is responsible for coordinating efforts among member countries to combat terrorism, separatism, and extremism.

- RATS is headquartered in **Tashkent, Uzbekistan.**

Members	China, India, Iran, Russia, Kazakhstan, Kyrgyzstan, Russia, Pakistan, Tajikistan, Iran and Uzbekistan
Observers	Afghanistan, Belarus and Mongolia



The SCO Business Council: Comprises representatives from the business communities of all member countries and is responsible for promoting economic cooperation and investment among member countries.

The SCO Interbank Consortium: Comprises the central banks of all member countries and is responsible for promoting financial cooperation among member countries.

MINERALS SECURITY FINANCE NETWORK (MSFN)

Context: India has officially joined the US-led Minerals Security Finance Network (MSFN), a global initiative to strengthen cooperation in securing critical mineral supply chains.

What is the Minerals Security Finance Network (MSFN)?

- The MSFN is an initiative emerging from the Minerals Security Partnership (MSP), established by the US in 2022.
- It aims to promote cooperation, information exchange, and co-financing among countries.
- It brings together development finance institutions (DFIs) and export credit agencies (ECAs) from partner nations to facilitate investments in critical mineral supply chains.
- It seeks to meet the increasing global demand for critical minerals and reduce dependence on dominant suppliers like China.

About Minerals Security Partnership (MSP):

- Established 2022, by the United States.
- **Objective:** To ensure a stable, diversified, and secure supply of critical minerals essential for the global clean energy transition.
- Members 13 countries and the European Commission, including:

- United States, Australia, Canada, Estonia, Finland, France, Germany, India, Italy, Japan, Republic of Korea, Norway, Sweden, and the European Union.
- **Focus Areas:** Securing critical minerals such as lithium, cobalt, nickel, and rare earth elements.
 - Reducing dependency on dominant suppliers like China.
 - Promoting cooperation between development finance institutions (DFIs) and export credit agencies (ECAs) to finance critical mineral projects.
- **Significance for India:** India joined in June 2023, aiming to secure minerals for its growing electric vehicle (EV) and electronics sectors.
 - India seeks to diversify its supply sources from Argentina, Chile, Australia, and Africa

L69

Context: The L69 group of countries, of which India is a part, met on Thursday and held a joint meeting with the C-10 group of 10 African countries. The Ministers reiterated the urgent need to make the Security Council more representative, transparent, efficient, effective.

About L69 :

- The L69 group is of **pro-reform member states**, including primarily developing countries from Africa, Latin America and the Caribbean, Asia and the Pacific.
- The Group is bound by the firm conviction that **expansion in both the permanent and non-permanent categories of membership** of the UNSC is imperative to better reflect contemporary world realities.



- **Members** - The group currently has 42 countries as its members.
- India is also the member of the group.

United Nations Security Council (UNSC)

- It is **one of the UN's six main organs** and is aimed at maintaining international peace and security.
- It held its first session on 17th January 1946 in Westminster, London.
- **Headquarters: New York City.**
- **Membership:** The Council is composed of 15 Members:
 - **Permanent members with veto power:** China, France, Russia, the United Kingdom and the United States.
- More than 50 United Nations Member States have never been Members of the Security Council.

UNSC elections:

- Each year the General Assembly **elects five non-permanent members** (out of 10 in total) **for a two-year term.**
- The **10 non-permanent seats** are distributed on a **regional basis** as follows:
 - Five for African and Asian States.
 - One for the Eastern European States.
 - Two for the Latin American and Caribbean States;
 - Two for Western European and other States
- To be elected to the Council, candidate countries **need a two-thirds majority of ballots of the Member States** that are present and voting in the Assembly.
- The UNSC elections were traditionally held in the General Assembly hall with each of the 193 member states **casting its vote in a secret ballot.**

- **Reform of the United Nations Security Council (UNSC) encompasses five key issues:**

- Categories of membership,
- The question of the veto held by the five permanent members,
- Regional representation,
- The size of an enlarged Council and its working methods, and
- The Security Council-General Assembly relationship.

GLOBE STEERING COMMITTEE

Context: India was elected to the 15-member GlobE Steering Committee during the plenary session held in Beijing on Thursday after a multistage voting process

About GlobE Network :

- The **GlobE Network** is an initiative launched by the **United Nations Office on Drugs and Crime (UNODC)** to strengthen international cooperation in the fight against corruption.
- It is part of the broader efforts under the **United Nations Convention against Corruption (UNCAC)**, the only legally binding universal anti-corruption instrument.
- Involves : member states of the **UN Convention Against Corruption (UNCAC).**
- The GlobE Network was established to support the need for credible connections, secure information sharing and transnational cooperation on cases between anti-corruption law enforcement authorities globally.
- Practical support to investigators and prosecutors includes the **GlobE Secure Communications Platform (SCP)** for swift, secure exchange of information



and other specialized resources and tools.

- The Network is governed by its members and is supported by the **United Nations Office against Drugs and Crime (UNODC)** which provides the Network's **secretariat**.

Who can participate?

- Any anti-corruption law enforcement authority from UN Member States or State Parties to the UN Convention against Corruption can become a member or auxiliary member of the Network.
- **Up to three law enforcement authorities** specialized in combating corruption per country can become members of the Network

How is it governed?

- The GlobE members govern the Network through a Steering Committee and a plenary of members, supported by a permanent UN secretariat acting in accordance with the GlobE Charter.

Funding

- Resources comprise of **discretionary financial and in-kind contributions** from UN Member States.
- Initial funding to establish the GlobE Network and further funding for a customized Secure Communication Platform, have been provided by the **Government of Saudi Arabia**.

- FATF is an inter-governmental policy-making and standard-setting body dedicated to combating money laundering and terrorist financing.
- **Objective:** To establish international standards, and to develop and promote policies, both at national and international levels, to combat money laundering and the financing of terrorism.



- **Origin:**
 - It was established in 1989 during the G7 Summit in Paris to develop policies against money laundering.
 - In 2001 its mandate expanded to include terrorism financing.
- **Headquarters:** Paris, France.
- FATF members include 39 countries, including the United States, India, China, Saudi Arabia, Britain, Germany, France, and the EU as such.
- **India became a member of FATF in 2010.**
- FATF has 2 types of lists:
 - **Black List:** Countries known as Non-Cooperative Countries or Territories (NCCTs) are put on the blacklist. These countries support terror funding and money laundering activities. The FATF revises the blacklist regularly, adding or deleting entries.
 - **Grey List:** Countries that are considered a safe haven for

FATF

Context:The FATF placed India in the “regular follow-up” category for having an “effective” anti-money laundering and counter-terror financing system.

About Financial Action Task Force (FATF)



supporting terror funding and money laundering are put on the FATF grey list. This inclusion serves as a warning to the country that it may enter the blacklist.

- Three countries **North Korea, Iran, and Myanmar** are currently in FATF's blacklist.
- Consequences of being on the FATF blacklist:
 - No financial aid is given to them by the International Monetary Fund (IMF), the World Bank, the Asian Development Bank (ADB) and the European Union (EU).
 - They also face a number of international economic and financial restrictions and sanctions.

FATF Mutual Evaluation Report on India –

- **Regular Follow-up Category:** India placed in "regular follow-up" category, indicating an effective system for combating money laundering and terror financing.
- **Risk Profiling:**
 - Financial institutions need improved risk profiling of customers.
 - Ministry of Corporate Affairs (MCA) registry requires better monitoring for accurate ownership information.
- **Money Laundering Risks:**
 - Key sources: fraud, cyber-enabled fraud, corruption, and drug trafficking.
- **Terror Threats:**
 - Primarily linked to Islamic State and al-Qaeda groups in Jammu and Kashmir.

• **Domestic Politically Exposed Persons (PEPs):**

- Report calls for defining domestic PEPs under anti-money laundering laws.
- Improve identification and risk-based measures for PEPs.

UNGA

Context: Referring to the UNGA theme this year, 'Leaving no one behind', Mr. Jaishankar said, "Many countries get left behind due to circumstances beyond their control, but some make conscious choices with disastrous consequences," as he named Pakistan.

About United Nations General Assembly :

- It is the main deliberative organ and composed of all member states, each of which has one vote.
- The mandate of UNGA is to discuss, debate, and make recommendations on subjects pertaining to international peace and security, including development, disarmament, human rights, international law, and the peaceful arbitration of disputes between nations.
- **Founded in :** 1945
- **Headquarters :** New York, US.
- **Membership:** There are 193 UN member states, each with a vote in the General Assembly

Functions :

- It considers reports from the other four organs of the United Nations, assesses the financial situations of member states, and approves the UN budget, its most concrete role.
- It can make recommendations on any matters within the scope of the UN, except matters of peace and security



that are under consideration by the Security Council.

- It elects non-Permanent members in Security Council and Members for Social and Economic Council.
- Along with Security Council, it elects Judges to International Court of Justice (ICJ).
- UNGA has the power to censure states for violating UN Charter principles.
- The UNGA is headed by its President, who is elected for a **term of one year**.
- **Assembly Actions** - Decision on important questions such as those on peace and security, UN budget, admission, suspension and expulsion of members to various organs of UN requires special majority.
 - **UN budget** - United Nation is funded by its member states through compulsory and voluntary contributions.
 - The size of each state's compulsory contribution depends mainly on its economic strength, though its state of development and debt situation are also considered.

- International Law Commission
- Joint Inspection Unit
- Main Committees
- Standing Committees and ad-hoc bodies

Subsidiary Organs :

- Disarmament Commission
- Human Rights Council

Economy

DIGITAL AGRICULTURE MISSION

Context: The Union Cabinet on Monday (September 2) approved the Rs 2,817-crore **Digital Agriculture Mission** for the creation of Digital Public Infrastructure (DPI) in the farm sector.

MISSION MODE ON AGRICULTURE

AT PRESENT, data on the farm sector – on farmers, their land holdings, and land records – are scattered across various departments in states. The Digital Mission aims to create a consolidated database on a single platform, doing away with the need to have multiple databases and different platforms.



Union Minister Ashwini Vaishnaw after Monday's Cabinet meeting. PTI

QUESTIONS HAVE been raised over the accuracy of data on agricultural production. Through the DGCEs, the Mission seeks to produce more robust production estimates, which will give an accurate picture of a wide range of variables from sown area to crop health.

FARMERS' ID is expected to make it easier for farmers to avail of various government schemes, loans, and financing benefits.

About Digital Agriculture Mission :

- The Digital Agriculture Mission (DAM) aims to encourage and accelerate the use of digital technologies such as Artificial Intelligence (AI), blockchain, remote sensing, robots, and drones in agriculture.
- The DAM is a consolidated database on a single platform linking multiple databases and platforms from different Union Territories and States, as well as Ministries and Departments.
- The DAM has total outlay of ₹2.817 crore. It comprises of three pillars
 - **'Agri Stack'**, which will function as a registry of farmers, village land maps and crops; Farmers will be given a digital identity ('Farmer ID') similar to Aadhaar, which will be linked dynamically to records of land, ownership of

livestock, crops sown, demographic details, family details, schemes and benefits availed, etc.

- the **'Krishi Decision Support System'** to create a comprehensive geospatial set-up to unify remote sensing-based information on crops, soil, weather and water resources; and
- **'Soil Profile Mapping'** to create detailed soil-profile maps on a 1:10,000 scale for about 142 million hectares of agricultural land.
- **Timespan:** It will be rolled out over the next two years (till 2025-26).



DPI refers to blocks or platforms such as **digital identification, payment infrastructure and data exchange solutions** that help countries deliver essential services to their people, empowering citizens and improving lives by enabling digital inclusion.

PERIODIC LABOUR FORCE SURVEY

Context: The Periodic Labour Force Survey (PLFS) for the period between July 2023 and June 2024, released by the Labour Bureau on Monday, reported no major change in the unemployment rate (UR). There is a minor increase in the distribution of workers in agriculture, and the manufacturing sector shows no growth in giving jobs compared with the past year.



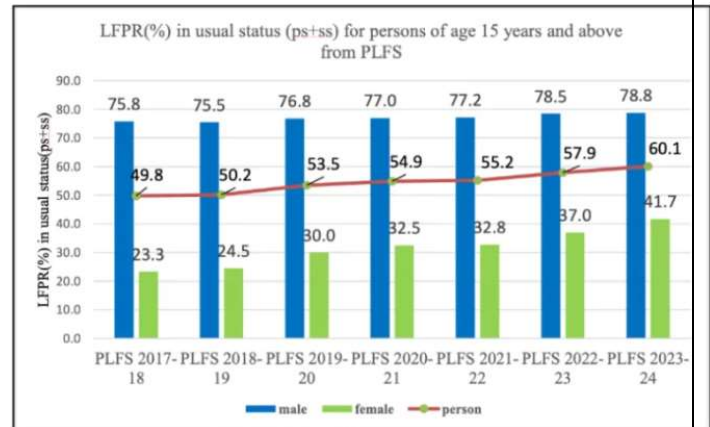
What is a Periodic Labour Force Survey (PLFS)?

- It is a survey conducted by the NSO under the Ministry of Statistics and Programme Implementation (MoSPI) to measure the employment and unemployment situation in India.
- **Launched by: National Sample Survey Office (NSSO) in 2017.**
- **Objective:** To estimate the key employment and unemployment indicators in:
 - Short time interval of **three months** for the **urban areas only** in the 'Current Weekly Status' (CWS). Both 'Usual Status' (ps (principal status) +ss(subsidiary status)) and CWS in both rural and urban areas annually.
- The key employment and unemployment indicators are defined in periodic labour force survey, as:
 - **Labour Force Participation Rate (LFPR):** LFPR is defined as the percentage of persons in labour force (i.e. working or seeking or available for work) in the population.
 - **Worker Population Ratio (WPR):** WPR is defined as the percentage of employed persons in the population.
 - **Unemployment Rate (UR):** UR is defined as the percentage of persons unemployed among the persons in the labour force.
- Now the **seventh Annual Report** is being brought out by NSSO on the basis of Periodic Labour Force Survey conducted during **July 2023-June 2024**.

Key findings

- Labour Force Participation Rate (LFPR) in usual status (ps+ss) for persons of age 15 years and above was **60.1%**

during July 2023 - June 2024. The same for male and female was **78.8%** and **41.7%** respectively.



- Overall LFPR in usual status (ps+ss) for persons of age 15 years and above has increased **from 57.9% during July 2022 – June 2023 to 60.1%** during July 2023 – June 2024. LFPR for female of age 15 years above in usual status (ps+ss) has increased from 37.0% during July 2022 – June 2023 to 41.7% during July 2023 – June 2024. For male of the same age group LFPR in usual status (ps+ss) increased from 78.5% to 78.8% during the same time span.
- **Worker Population Ratio (WPR)** in usual status (ps+ss) for persons of age 15 years and above was 58.2% during July 2023 – June 2024. The same for male and female was 76.3% and 40.3% respectively.
- **Unemployment Rate (UR)** in usual status (ps+ss) was 3.2% for both male and female of age 15 years and above during July 2023 – June 2024. While the same for male has shown a marginal decline from 3.3% during July 2022 – June 2023 to 3.2% during July 2023 – June 2024, **among female it has increased from 2.9% to 3.2%** during the same time span.

**Types of Unemployment :**

- **Disguised Unemployment** : More people are employed than needed, primarily found in the agricultural and unorganized sectors.
- **Seasonal Unemployment**: Occurs during specific seasons of the year, often affecting agricultural laborers who do not work year-round.
- **Structural Unemployment**: Arises from a mismatch between available jobs and the skills of workers.
- **Cyclical Unemployment** : Linked to economic cycles, with unemployment rising during recessions and declining in periods of growth.
- **Technological Unemployment**: Job losses due to technological changes. Examples include due to automation, AI etc.
- **Frictional Unemployment**: Involves a time lag when individuals search for or switch between jobs, often voluntary and not due to job shortages.

UNIVERSAL BASIC INCOME

Context: UBI has gained traction, especially since the International Labour Organization (ILO)'s most recent World Employment and Social Outlook links the decrease in jobs growth and the increase in inequality to a surge in automation and the use of artificial intelligence (AI).

- Universal Basic Income is a periodic, unconditional cash transfer to every citizen in the country.
- Here, social or economic positions of the individual are not taken into consideration.
- A Universal Basic Income is **unconditional**. It requires that every person should have a right to a **basic income to cover their needs, just by virtue of being citizens**.

- In **2016**, the idea of a Universal Basic Income in India made huge news by taking up over 40 pages in the **2016-2017 Economic Survey of India** as a serious and feasible solution to India's poverty and a hope for the healthy economy as a whole.
 - **Economic Survey of India 2016-17** highlighted that “**UBI liberates citizens from paternalistic and clientelist relationships with the state**”
- **UBI has mainly 4 components:**
 - **Universality:** It is universal in nature.
 - **Periodic:** Payments at regular intervals (not one-off grants)
 - **Individuality:** Payments to individuals
 - **Unconditionality:** No preconditions attached with the cash transfer


Why is There a Growing Debate Over UBI in India?

- India has **depended on subsidies and transfer payments to help those at the bottom of society**.
 - Various programmes sponsored by the **Central government** account for a large chunk of budgetary allocation.
- A large number of these programmes are fragmented and **plagued by administrative leakages**. Taxpayers' money often ends up lining the pockets of middlemen.
- Additionally, subsidising essential consumer goods, including food and fuel, compels the poor to consume those goods, regardless of quality or costs.
 - **Corruption** and **Waste** in India's **Public Distribution System** is endemic.
- Replacing these **subsidies with cash transfers would ensure, at the very**

least, that the recipients are getting the intended monetary benefit as well as freedom of choice.

UBI ACROSS THE WORLD

<p>US Alaska Permanent Fund distributes part of the state's oil revenues to all residents on per-capita basis</p> <p>Stockton, California Secured funding from private non-profits to launch a small project with about 100 participants receiving \$500 a month for about 18 months</p> <p>Finland Scheme started in 2017 to pay 2,000 jobless people assistance of €560 a month stopped last year</p>	<p>Kenya Largest experiment underway with some villages receiving \$0.50-1 a day</p> <p>Brazil Has run experiments</p> <p>Canada Ontario plans to test a basic income scheme</p>	<p>France A senate committee has recommended an experiment</p> <p>UK & Germany Studies have been conducted</p> <p>Scotland Committed funds to conduct an experiment</p> <p>Barcelona, British Columbia Plans to start experiments</p> <p>Switzerland Plan to give everyone right to basic income defeated in 2016</p>
--	---	--



represents that the economy is contracting.

- It is usually released at the start of every month. It is, therefore, considered a good leading indicator of economic activity.
- PMI is compiled by **IHS Markit for more than 40 economies worldwide.**

BUSINESS REFORM ACTION PLAN (BRAP)

Context: Kerala topped the Business Reforms Action Plan (BRAP) rankings for ease of doing business, followed by Andhra Pradesh.

PURCHASING MANAGERS' INDEX

Context : The PMI eased to 57.5 from July's 58.1, as manufacturing activity slid to a three-month low in August.

What is Purchasing Managers Index?

- It is a **survey-based measure** that asks the respondents about changes in their perception about key business variables as compared with the previous month.
- The **purpose** of the **PMI** is to provide information about current and future business conditions to company decision makers, analysts, and investors.
- It is **calculated** separately for the **manufacturing and services sectors** and then a composite index is also constructed.
- The **PMI** is a number from **0 to 100**.
 - A print above **50** means expansion, while a score below that denotes contraction.
 - A reading at **50** indicates no change.
- If PMI of the previous month is higher than the PMI of the current month, it

Business Reforms Action Plan (BRAP) 2022:

- **Top Performers in Ease of Doing Business:** Kerala ranked as the top performer, followed by Andhra Pradesh, Gujarat, Rajasthan, Tripura, and Uttar Pradesh.
- **Worst Performers:** Arunachal Pradesh, Telangana, Punjab, and Puducherry.



- **Initiation of BRAP:** DPIIT, in consultation with State Governments, initiated a comprehensive reform exercise in December **2014** to improve ease of doing business across States and UTs.
- **Assessment Criteria:** Under the Business Reforms Action Plan (BRAP), States and UTs are assessed based on reforms undertaken across various parameters.



- **Key Reform Areas:** BRAP covers multiple reform areas including:
 - Information Wizard
 - Single Window Systems
 - Online Building Permission System
 - Inspection Reforms
 - Labour Reforms
- **Impact of BRAP:** This exercise has contributed to improving the business environment across States and UTs.
- **Previous BRAP Editions:** Five editions of BRAP (**2015, 2016, 2017-18, 2019, and 2020**) have been completed, with assessments of States/UTs based on their performance.
- **GST Implementation:**
 - Unified various indirect taxes, simplifying tax payments for businesses.
 - GST subsumed 8 Central and 9 State taxes, reducing compliance costs.
 - February 2024 GST collections at INR 1,68,337 Cr, up by 12.5% from the previous year.
- **Corporate Tax Reform:**
 - Corporate tax reduced from 30% to 25% for mid-sized companies.
 - Lowered tax rates to 22% for domestic companies and 15% for new manufacturing companies.

Ease of Doing Business Initiatives in India:

- **Key Focus Areas:**
 - Simplifying procedures for applications, renewals, inspections, and filings.
 - Rationalizing redundant laws by repealing, amending, or subsuming them.
 - Promoting digitization through online interfaces, eliminating manual forms.
 - Decriminalizing minor technical or procedural defaults.
- **Landmark Initiatives:**
 - PAN as the common identifier for all regulatory clearances.
 - Decriminalized 3,400 legal provisions and reduced 39,000 compliance requirements.
 - Startups benefit from tax reductions for up to 10 years since inception.
 - 100% tax deduction on profits for eligible startups for three consecutive years.

Simplification of Taxes:

Entrepreneurship and Innovation:

- **Global Innovation Index:** India ranked 40th in 2023, a significant rise from 81st in 2015.
- **Patent Growth:** 247 patent applications filed daily in 2023; India is the 6th largest patent filer globally.
- **Supporting Institutions:**
 - NSTEDB and NIDHI programs provide seed funds, incubators, and accelerators.
 - TIDE 2.0 supports emerging technologies like AI, IoT, and Blockchain.
 - BIRAC assists biotechnology startups through incubators and funding.

Simplification of Permits and Licensing:

- SPICe+ platform simplifies the registration of businesses.
- Labour Identification Number (LIN) generated through Shram Suvidha Portal for transparency in labour inspections.
- ESIC and EPFO registration processes streamlined into an online system.



India vs World in Taxation Reforms:

- **RoDTEP Scheme:** Provides remissions on taxes for exported products; INR 15,070 Cr budgeted for 2023-24.
- **Project Insight and INTRAC:** Improve cooperation among tax authorities using data analytics.

Startup India and Self-reliant India:

- **Startup Growth:** India has 113 unicorns valued at \$350 Bn and ranks 3rd globally in the startup ecosystem.
- **Startup India Initiatives:**
 - Tax exemptions, credit guarantees, and 80% rebates on patent filings.
 - Regulatory reforms reduce compliance burdens and simplify fundraising.

India’s Global Ease of Doing Business Rankings (as per World Bank's Doing Business Report (DBR) of 2020)

- Ranked 27th in acquiring construction permits and 22nd in getting electricity.
- Ranks 13th in protecting minority investors and performs well in resolving insolvency and business registration.

VISIONXT INITIATIVE

Context: Recently, the Union Minister of Textiles launched the 'VisioNxt Fashion Forecasting Initiative' of National Institute of Fashion Technology (NIFT).

- **Initiative:** India’s first trend insights and forecasting initiative, established at NIFT Delhi (Creative Lab) and NIFT Chennai (Insights Lab) in 2018, supported by the Ministry of Textiles, Government of India.
- **Centralization:** Now centralized in NIFT Chennai, the initiative focuses on trend insights and forecasting for the Indian fashion and retail market.
- **Services Offered:** Provides consultancy services, academic courses, and workshops related to trends.
- **Mission:** To identify, map, and analyze geo-specific trends, reflecting India's cultural diversity and socio-economic nuances, while collating comprehensive trends and insights.
- **Technology Integration:** Uses a combination of Artificial Intelligence (AI) and Emotional Intelligence (EI) to generate fashion trend insights and forecasts.
- **Significance:**
 - Reduces dependence on global forecasting agencies.
 - Offers unique insights into Indian fashion consumers.
 - Integrates India’s IT strength with textiles.
 - Combines AI and human intelligence to provide fashion trends.
- **Support for Stakeholders:** Report is available in Hindi and English through the VisioNxt portal, aiding weavers, manufacturers, retailers, domestic businesses, homegrown designers, and fashion brands.
- **Consumer Empowerment:** Enables users to design, produce, and launch consumer-focused collections suited for India's diversity.





- **First Forecast Launch:** The "Paridhi" forecast will be the first inclusive fashion trend forecast by VisioNxt, along with a web portal disseminating India-specific fashion trends.
- **DeepVision Model:** A unique prediction model, "DeepVision," developed to decode patterns and interpret fashion trends in India.

RANGEEN MACHHLI APP

Context: Recently, the Union Minister for Fisheries, Animal Husbandry and Dairying launched the "Rangeen Machhli" mobile app at ICAR-Central Institute of Freshwater Aquaculture (ICAR-CIFA).

Rangeen Machhli App:

- It is designed to meet the growing needs of the **ornamental fisheries sector**, providing crucial knowledge resources for hobbyists, aquarium shop owners, and fish farmers.
- It is **developed by ICAR-CIFA** with support from the Pradhan Mantri Matsya Sampada Yojana (PMMSY).
- **Features**
 - It provides **multilingual information** on popular ornamental fish species in **eight Indian languages**, making it accessible to a wide audience.
 - The app offers comprehensive details on care, breeding, and maintenance practices to both farmers and hobbyists.
 - One of its key features is the **"Find Aquarium Shops"** tool, which allows users to locate nearby aquarium shops through a dynamic directory updated by shop owners, promoting local businesses and connecting users with reliable sources for

ornamental fish and aquarium-related products.

- In addition, the app **includes educational modules** for both newcomers and professionals in the ornamental fish industry.

Indian Council of Agricultural Research (ICAR)

- It is the **apex body** for coordinating, guiding and managing research and education in agriculture in the entire country under the aegis of DARE, **Ministry of Agriculture and Farmers Welfare**.

WHITE REVOLUTION 2.0

Context: The Ministry of Cooperation launched standard operating procedure for 'White Revolution 2.0' stating that it will aid empowerment of women and the fight against malnutrition.

About White Revolution 2.0

- **Objective:** Transforming India's dairy sector by empowering women farmers, increasing milk production, and modernizing dairy infrastructure.
- **Target:** Increase procurement from the current 660 lakh litres per day to 1,000 lakh litres per day.
- **Funding:** Initial funding of ₹40,000 per Multi-Purpose Primary Agricultural Credit Society (PACS) by National Dairy Development Board.
- Total outlay of ₹70,125 crore with full government budgetary support.
- **Provisions and Features**
 1. **Women Empowerment:** Focus on empowering women in the dairy sector and strengthening women's cooperatives.
 2. **Increase in Milk Procurement:** Aims to raise procurement by 50% over the next five years.



3. **Cooperative Infrastructure:** 100,000 new and existing cooperative societies (district cooperative societies and Primary Agricultural Credit Societies) to be set up or enhanced.

4. **RuPay Kisan Credit Cards:** Nationwide rollout for dairy farmers, with micro-ATMs at cooperative societies.

5. **Computerisation of Primary Agricultural Credit Societies:** 67,930 Primary Agricultural Credit Societies will be computerised for better management.

- **Significance**

1. **Women Empowerment:** Creates leadership opportunities for women in dairy, promoting gender equality.

2. **Boost to Rural Economy:** Strengthening cooperatives and milk

procurement will improve rural livelihoods.

3. **Improved Infrastructure:** Modern technology, micro-ATMs, and computerisation will increase efficiency.

4. **Job Creation:** Expanding cooperatives and modern practices will generate jobs for 130 million farmers.

5. **Malnutrition Reduction:** Enhances dairy quality to combat malnutrition.

6. **Cooperative Modernisation:** Focus on Artificial Intelligence and advanced technologies.

7. **Dairy Exports Boost:** Improved production and quality to enhance India's dairy exports.

Art & Culture

UNESCO WORLD HERITAGE SITES

Context: Jaipur's Walled City, a UNESCO World Heritage Site, is set for a ₹100 crore conservation project to preserve its architectural and cultural heritage.

- **World Heritage Site Definition:** Landmarks or areas legally protected by UNESCO for cultural, historical, scientific, or other significance.
- **Purpose:** Sites are considered to have “cultural and natural heritage of outstanding value to humanity.”
- **Origin:** Emerged post-WWII due to the destruction of cultural and natural sites, leading to the 1972 World Heritage Convention.
- **Convention:** Established a framework for preserving the world's heritage and defining criteria for inscription on the World Heritage List.
- **Global Responsibility:** Member countries commit to protecting both national and shared global heritage.
- **India's Role:** India ratified the **World Heritage Convention** on November 14, 1977.
- **Current Numbers:** 1,172 World Heritage Sites across 166 countries, including 913 cultural, 220 natural, and 39 mixed sites.
- **Key Features of the World Heritage Convention:**
 - Defines heritage of Outstanding Universal Value (OUV) for global conservation.
 - Signatory states are responsible for protecting their listed sites.

- Establishes the World Heritage Committee and List for site nominations and evaluations.
- Links heritage conservation with sustainable development.
- Provides financial assistance through the World Heritage Fund.
- **Selection Criteria:** Sites must demonstrate Outstanding Universal Value (OUV) and undergo nomination and evaluation by **ICOMOS and IUCN** to be inscribed.
- **Criteria for Cultural Sites:**
 - Represents a masterpiece of human creative genius.
 - Demonstrates significant cultural interchange or influence from a civilization.
 - Bears unique testimony to a tradition or civilization.
 - Is an outstanding example of architectural, technological, or landscape design.
 - Exemplifies traditional settlement, land use, or sea use.
 - Is associated with events or ideas of universal significance.
- **Criteria for Natural Sites:**
 - Contains superlative natural phenomena or formations.
 - Represents major stages of Earth's evolutionary history.
 - Demonstrates significant ecological and biological processes.
 - Contains vital habitats for biological diversity.
- **Preservation:** Sites must demonstrate adequate preservation and management to protect their Outstanding Universal Value (OUV).

- **Legal Status of Designated World Heritage Sites:**

- Sites remain the property of their respective state but are considered a shared responsibility of humanity.
- Member states must ensure the identification, protection, and conservation of their heritage.
- Heritage protection should be integrated into regional planning and reported to the World Heritage Committee.
- States must avoid actions that could harm the heritage and promote awareness through education.
- The World Heritage Committee can provide expert assistance or impose sanctions, including delisting, for endangered sites.

- **India** has currently **43** World Heritage Sites.

- The 43rd Site - **Moidams – the Mound-Burial System of the Ahom Dynasty** 2024 **Assam**

Walled City of Jaipur (Pink City)



- **Location:** Jaipur, Rajasthan, India.
- **Founded:** In **1727** by **Sawai Jai Singh II**.
- **Geography:** Unlike other cities in the region, Jaipur is built on a plain rather than hilly terrain.
- **Urban Planning:** The city follows a grid plan influenced by Vedic architecture, with streets featuring continuous colonnades that intersect at large public squares called **chaupars**.
- **Architecture:** Markets, shops, residences, and temples along the main streets have uniform facades.
- **Cultural Influence:** Jaipur's urban planning reflects an exchange of ideas from ancient Hindu, Mughal, and Western cultures.
- **Significance:** The city was designed as a commercial capital and continues to maintain its commercial, artisanal, and cooperative traditions.
- The decision was taken at the 43rd session of the UNESCO World Heritage Committee (WHC) taking

place in the city of Baku, Azerbaijan, from 30th June - 10th July, 2019.

- The city was nominated for its value of being an exemplary development in town planning and architecture that demonstrates an amalgamation and important exchange of ideas in the late medieval period.
- Jaipur has become **the second city of the country after Ahmedabad** to get the recognition.

KOODIYATTOM

Context:Cholliyattom is an informal platform for the younger generation of Koodiyattom artists in Kerala following different styles to collaborate and to keep alive various Koodiyattom traditions and styles.



- It is one of the **oldest traditional theatre** forms of Kerala and is based on Sanskrit theatre traditions.
- The prefix “kuti” in Malayalam language primarily means “**combined**” or “**together**”, and “attam” means “acting”: therefore, the word “**kutiyattam or Koodiyattam**” means “**combined acting.**”
- The characters of this theatre form are: **Chakyaar oractor, Nambiyaar**, the instrumentalists and **Naangyaar**, those taking on women's roles.
- In its stylized and codified theatrical language, **netraabhinaya** (eye

expression) and **hasta abhinaya** (the language of gestures) are prominent.

- **Pakarnattam** is an aspect of Kutiyattam that involves **embodying and emoting male and female roles**. Switching between the masculine and feminine and interpreting multiple roles at the same time is considered a challenging skill within the repertoire.
- Temple theatres called **Kuttambalam** are Permanent theatre structures attached to some of the major temples of Kerala.
- A striking feature of Kutiyattam is that it **treats single Acts from Sanskrit plays** as full-fledged plays. It bases its performance not on the full text of a Sanskrit play, but on the individual acts from Sanskrit plays.
- It was recognized as a **UNESCO Masterpiece of the Oral and Intangible Heritage of Humanity** in 2001.

AKBAR THE GREAT



- Akbar was only thirteen years old at the time of Humayun's death. When his father died, Akbar was at Kalanaur in Punjab and therefore his coronation took place in Kalanaur itself in 1556.

- **Regency:** Bairam Khan served as Akbar's regent from 1556 to 1560, guiding the early expansion of the Mughal Empire.

Key Achievements During Regency:

- **Second Battle of Panipat (1556):** Bairam Khan led the Mughal forces to victory against Hemu and the Afghan forces, solidifying Mughal power.

Akbar's Military Conquests:

- **Malwa (1562):** Conquered from Baz Bahadur, who was later made a mansabdar.
- **Gondwana (1564):** Annexed after defeating Rani Durgavati and her son Vir Narayan.
- **Gujarat (1573):** Conquered from Muzaffar Shah; Akbar built Fatehpur Sikri to commemorate the victory.
- **Battle of Haldighati (1576):** Rana Pratap Singh was defeated by Mughal forces led by Man Singh; most Rajput rulers accepted Akbar's suzerainty.
- **Bihar and Bengal (1576):** Annexed after defeating Daud Khan.
- **Khandesh (1591):** Occupied by Akbar's forces.
- **Ahmednagar:** Chand Bibi defended against Mughal forces but was eventually overpowered.

Religious policy:

- He abolished the pilgrim tax and jiziya
- In 1575, he ordered for the construction of **Ibadat Khana** (House of worship) at his new capital Fatehpur Sikri.
- Akbar invited learned scholars from all religions like Hinduism, Jainism, Christianity and Zoroastrianism.
- In 1582, he promulgated a new religion called **Din Ilahi** or Divine Faith. It believes in one God. It contained good points of all religions.
- He propagated a philosophy of **Sulh-i-Kul** (peace to all).

- In 1582, he discontinued the debates in the Ibadat Khana as it led to bitterness among different religions
- **Badauni**, a contemporary author, was bitter critic of Akbar's religious experiment.
- **Sheikh Mubarak** was religious guru of Akbar.
- Akbar's new religious policy was drafted by **Abul Faizi**.

CHHATRAPATI SHIVAJI



- **Birth:** Chhatrapati Shivaji Maharaj was born at Shivneri (Poona) on February 19, 1630, to Shahji Bhonsle and Jijabai.
- **Influences:** Influenced by his mother Jijabai, Dadaji Konddev, Sufi saint Pir Shaikh Yacub, Guru Ramdas, Bhakti Saint Tukaram, Hazrat Baba of Ratnagiri, and epics like the Ramayana and Mahabharata.
- **Jagir of Poona:** Inherited the jagir of Poona in 1637 CE, and assumed full control in 1647 CE after Dadaji Kondadev's death.
- **Early Conquests:** Captured hill forts near Poona (Rajgarh, Kondana, Torna) between 1645-1647 CE; built Raigarh fort after capturing Torna in 1646 CE.
 - **Conquest of Javli:** Conquered Javli in 1656 CE, becoming the

undisputed master of the Mavala area.

- **Attacks on Bijapur:** Attacked the Bijapur kingdom in 1657 CE and captured forts in the Konkan region.
- **Portuguese Raid:** Raided Portuguese settlements at Daman and secured tribute.
- **Battle of Pratapgarh (1659 CE):** Defeated Afzal Khan of Bijapur; captured Panhala fort and expanded into south Konkan and Kolhapur.
- **Battle of Kolhapur:** Defeated Bijapur's General Rustemjaman, alarming Aurangzeb.
- **Battle of Pavankhind (1660 CE):** Fought Siddi Johar, leading to recognition of Shivaji's independence.
- **Conflict with Mughals:** Defeated Mughal governor Shaista Khan in 1663 CE, sacked Surat in 1664 CE.
- **Treaty of Purander (1665 CE):** Surrendered 23 forts to Mughals, retained 12 under Mughal service.
- **Later Conquests:** Recovered lost forts in 1670 CE, defeated Mughals at Salher (1672 CE), and crowned himself at Raigarh.
- **Southern Campaigns:** Launched conquests in Carnatic region towards the end of 1676 CE, capturing forts like Vellore and Ginjee.
- **Death:** Died in 1680 CE at Raigad due to fever.
- **Legacy:** Founded a Maratha kingdom that dominated western India for a century and a half; promoted Sanskrit, respected all religions, and opposed forced conversions.

BHAGAT SINGH

About Bhagat Singh (1907-1931):

- Born into a Sikh family deeply involved in freedom struggle (his father and uncle were members of the Ghadar Party).
- He was greatly influenced by the political and social upheaval during the **Jallianwala Bagh massacre** in 1919.



- Initially inspired by **Mahatma Gandhi's Non-Cooperation Movement (1920–1922)**, but became disillusioned with non-violence after Gandhi called off the movement post the **Chauri Chaura incident**.

Key Revolutionary Organizations

- In 1924, Bhagat Singh became a member of the **Hindustan Republican Association**, founded by Sachindranath Sanyal, later renamed **Hindustan Socialist Republican Association (HSRA)**.
- Formed a youth organization named **Naujawan Bharat Sabha** in 1926, promoting revolutionary ideas and freedom struggle.
- Bhagat Singh established contact with Sohan Singh Josh and through him the **'Workers and Peasants Party'** which brought out the monthly magazine **Kirti** in Punjabi
- **Bhagat Singh and Sukhdev also organized the Lahore Students Union** for open, legal work among the students.

**Notable Revolutionary Activities**

- **Killing of Saunders (1928):**
 - In response to the death of **Lala Lajpat Rai** (due to police brutality), Bhagat Singh, along with **Shivaram Rajguru** and **Sukhdev Thapar**, killed **John Saunders**, a British police officer, to avenge Lajpat Rai's death.
- **Assembly Bombing Incident (1929):**
 - Bhagat Singh and **Batukeshwar Dutt** threw harmless bombs in the **Central Legislative Assembly** on 8 April 1929, with the aim to protest against **repressive laws** like the **Public Safety Bill** and **Trade Disputes Act**.

JAGANNATH PURI TEMPLE

Context :A 26-member team of the Archaeological Survey of India (ASI) on Wednesday began an inspection of the 'Ratna Bhandar' (treasury) of the Shree Jagannath Temple in Puri

**About Jagannath Temple**

- It is one of the most famous and sacred Hindu temples in the world, located in Puri, Odisha.

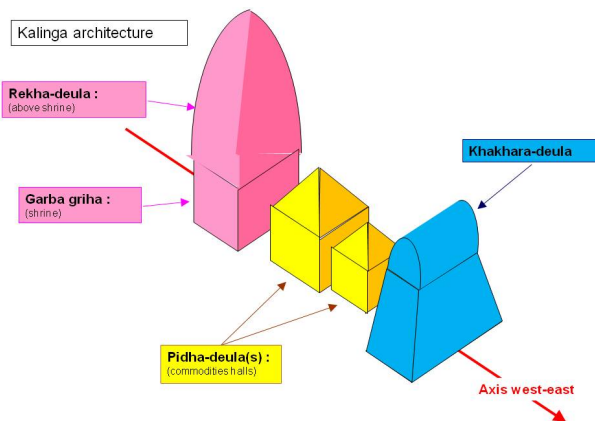
- It is dedicated to Lord Jagannath, a form of the Hindu deity Vishnu.
- It is believed to have been built during the reign of King Anantavarman Chodaganga Deva, of the Eastern Ganga dynasty, in the 12th century.
- This temple is called '**Yamanika Tirtha**' where, according to the Hindu beliefs, the power of 'Yama', the god of death, has been nullified in Puri due to the presence of Lord Jagannath.
- **Architecture:**
 - The Jagannath Temple is a striking example of Kalinga architecture, a distinct style prevalent in the Odisha region.
 - The temple's main structure, the sanctum sanctorum, or the garbhagriha, houses the idols of Lord Jagannath, Balabhadra, and Subhadra.
- **Ratha Yatra :**
 - Ratha Yatra is a Hindu festival associated with Lord Jagannath held at Puri in Odisha.
 - The festival commemorates Jagannath's annual visit to Gundicha Temple via Mausī Maa Temple (aunt's home) near Balagandi Chaka, Puri.
 - The most famous Rath Yatra festival begins on the second day of the bright half of the lunar month of Ashadha (June–July) and lasts for nine days.
 - During this time, the deities are taken out of the Jagannath Puri Temple and placed on three massive chariots.

Kalinga architecture :

- Kalinga architectural style is also a sub-style of **Nagara architecture**, flourished

in the ancient Kalinga region – present state of Odisha, West Bengal and northern Andhra Pradesh.

- In Kalinga Architecture, basically a temple is made in two parts, a tower and a hall. The tower is called **deula** and the hall is called **jagmohan**. The walls of both the **deul** and the **jagmohan** are lavishly sculpted with architectural motifs and a profusion of figures. In this, Shikhara (called deul in Odisha) is **almost vertical before it curves near the top**.
- **Shikhara** is preceded by a mandapa (called Jagmohan or ‘dance pavilion’ in Odisha).
- The style consists of three distinct types of temples: **Rekha Deula, Pidha Deula and Khakhara Deula**.
- Examples of Kalinga architecture: Rajarani temple (Bhubaneshwar); Jagannath Temple, Puri



HARAPPAN CIVILIZATION

Context:It has been 100 years since the discovery of the Harappan Civilization, announced by John Marshall on September 20, 1924.



- The **Harappan Civilization**, also known as the **Indus Valley Civilization**, flourished between **2600 BCE and 1900 BCE**, with earlier settlements dating back to **3200 BCE**.
- The origins of this civilisation are traced back to **Mehrgarh in Balochistan**, which dates to **7000 BCE**.
- It is considered one of the three earliest civilizations, alongside **Egypt and Mesopotamia**.
- The civilization covered over **1.5 million sq. km**, stretching across modern-day **India, Pakistan, and Afghanistan**.
- Remains of the civilization include:
 - **Well-planned cities** with a grid layout, intersecting streets, and fortified structures.
 - **Advanced drainage systems** with underground sewers and covered drains, showing a strong emphasis on hygiene.
 - **Granaries, warehouses, and dockyards**, indicating the presence of structured trade and food storage mechanisms.
 - The discovery of **seals made of steatite**, often engraved with animals and an un-deciphered



script, suggesting a sophisticated administrative system.

- **Craftsmanship** in pottery, bead-making, terracotta figurines, metal artefacts, and weaving.
- **Water management systems** such as **reservoirs, wells, and baths**, indicating an advanced understanding of hydraulic engineering.

The Discoverers:

- Two ASI archaeologists were credited with the discovery:
 - **Daya Ram Sahni** excavated **Harappa** in **1921-22**, discovering seals, pottery, and beads.
 - **Rakhil Das Banerji** began excavating **Mohenjo-daro** in **1922**, finding similar items such as seals and copper objects.
 - **John Marshall** noticed the **similarity** between the objects found at Harappa and Mohenjo-daro, despite the sites being **640 km apart**.

About the Mohenjo-daro Site:

- **Mohenjo-daro** is one of the **largest cities** of the Harappan Civilization, located in the **Sindh** province of **Pakistan**, discovered in **1922** by **Rakhil Das Banerji**.
- The city represents one of the finest examples of ancient urban planning:
 - **Great Bath, Granaries, Citadel and Lower Town, Drainage Systems, Residential Buildings, standardised brick sizes** (ratio 1:2:4) and **cubic weights**.
- Artefacts found at Mohenjo-daro include:

- **Seals** with animal motifs and the un-deciphered **Harappan script**, believed to have been used for administrative or trade purposes.
- **Pottery and tools** made of bronze and copper.
- **Terracotta figurines, jewellery, and toys** that reflect a highly developed artistic culture.
- **Weights and measures** based on a uniform standard, indicating the use of a standardized economic system.

SELF-RESPECT MOVEMENT

- **Founder:** Started by **E.V. Ramaswamy Naicker (Periyar)** in Tamil Nadu in **1925**.
- **Egalitarian Ideology:** Aimed at **breaking Brahminical hegemony**, promoting **equal rights for backward classes** and women, and revitalizing **Dravidian languages** (Tamil, Telugu, Kannada, Malayalam).
- **Pamphlets:** Key objectives were outlined in the pamphlets "**Namathu Kurikkol**" and "**Tiravitakkalaka Lateiyam**".
- **Key Objectives:**
 - **Eradication of social hierarchy:** Opposed the belief that one class or birth is superior to another.
 - **Gender Equality:** Aimed for **equal rights for women** along with men in social, political, and legal aspects.
 - **Untouchability:** Sought to **eliminate untouchability** and establish a society based on **brotherhood**.
 - **Equal Opportunities:** Advocated for **equal opportunities** for all individuals, regardless of caste or community.



- **Discouragement of orthodoxy:** Opposed the building of new **temples, mutts, Vedic schools**, and encouraged the use of funds for **education and employment**.
- **Self-Confidence:** Encouraged people to take pride in **dropping caste titles**.
- **Achievements:**
 - **Impact on Brahminical dominance:** The movement weakened **Brahminical monopoly of power** in Tamil Nadu.
 - **Promotion of Inter-caste Marriages:** Advocated for inter-caste and inter-religious marriages without a Brahmin priest.
 - **Legalization of Marriages:** Tamil Nadu became the first state to pass a law legalizing Hindu marriages without Brahmin priests.
 - **Municipal Reforms:** Separate seating for Harijans in Municipal Councils was discontinued.
 - **Hotel Naming Reform:** Due to the movement, "Brahmin Hotels" changed their name to "Vegetarian Hotels".
- **Caste Name Dropping:** People took pride in giving up caste names.
- **Limitations:**
 - **Limited scope:** The movement was largely confined to **Tamil Nadu**.

Environment

COMMISSION FOR AIR QUALITY MANAGEMENT (CAQM)

Context: The Supreme Court questioned the effectiveness of the CAQM interventions to curb pollution, saying that its directions only have a temporary impact on violators.

- The CAQM is a **statutory body** established under the **Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas, Act 2021**.
- The erstwhile **Environment Pollution (Prevention and Control) Authority, or EPCA** had been dissolved to make way for the Commission.
- **Mandate:** Better coordination, **research, identification, and resolution of problems surrounding the air quality index** and for matters connected therewith or incidental thereto.
- It undertakes action for **the prevention and control of Air pollution in Delhi-NCR & Adjoining Areas** which impacts the air quality of the National Capital Territory (NCT) of Delhi.
- The Commission is required to **coordinate its actions on monitoring of air quality with the government of Delhi and the adjoining states**, which includes Punjab, Haryana, Rajasthan, and Uttar Pradesh.
- **Powers:**
 - **Restricting activities** influencing air quality.
 - **Investigating and conducting research** related to environmental

pollution impacting air quality, preparing codes and guidelines to prevent and control air pollution,

- **Issuing directions** on matters including **inspections, or regulations**, which will be binding on the concerned person or authority.
- **All the directions** and orders by the Commission **are of binding nature**, and any person, officer, or authority shall be bound to comply with the same.
- The commission is **directly accountable to the parliament**.
- **Composition:**
 - **Chairperson:** To be chaired by a **government official of the rank of Secretary** or Chief Secretary. He will hold the post for three years or until s/he attains the age of 70 years.
 - It will also have five **ex officio members** who are **either Chief Secretaries** or Secretaries in charge of the department dealing with environment protection in the **States of Delhi, Punjab, Haryana, Rajasthan, and Uttar Pradesh**.
 - Three full time technical members.
 - Three **members from non-government organisations**.
 - Technical members from **Central Pollution Control Board (CPCB)**, Indian Space Research Organisation, and NITI Aayog

New WHO Global Air Quality Guidelines vs India's National Ambient Air Quality Standards:

REVISED AFTER 16 YEARS
WHO | Then & Now

Pollutant*	Average	2005*	2021*
PM2.5	Annual mean	10	5
	24-hour mean	25	15
PM10	Annual mean	20	15
	24-hour mean	50	45
O ₃	Peak season	NS**	60
	8-hour mean	100	100
NO ₂	Annual mean	40	10
	24-hour mean	NS**	25
SO ₂	24-hour mean	20	40
CO	24-hour mean	NS**	4

India's National Ambient Air Quality Standards (NAAQS)

Average

- Annual mean
- 24-hour mean

PM2.5
40 | 60

PM10
60 | 100

NO₂
40 | 80

SO₂
50 | 80

Average (8 hour mean)
O₃ | 100; CO | 2

* micrograms per cubic meter (µg/m³); **NS - Not Set; PM2.5 & PM10 - Particulate Matters; O₃ - Ozone; NO₂ - Nitrogen Dioxide; SO₂ - Sulfur Dioxide; CO - Carbon Monoxide

E-WASTE (MANAGEMENT AND HANDLING) RULES

Context: The Kerala High Court on Friday asked the State government to inform it about the steps taken to implement the E-waste (Management and Handling) Rules in the State.

- The first set of e-waste Rules was notified in **2011** and came into effect in 2012 with the **introduction of Extended Producer Responsibility (EPR)** as one of its important components.
 - Under EPR compliance, 'producers' are responsible for the safe disposal of electronic and electric products once the consumer discards them.
- Thereafter, E-waste rules 2016, amended in 2018, were comprehensive and included provisions to promote 'authorisation' and 'product stewardship'.
 - Product Stewardship** signifies whoever designs, produces, sells, or uses a product takes responsibility for its environmental impact throughout all stages of the products' life cycle, including end of life management.
 - Other categories of stakeholders such as the 'Producer Responsibility Organisations (PRO) were also introduced in these rules.
- The above rules placed importance on seeking authorization by stakeholders, but a weak monitoring system and a lack of transparency resulted in inadequacy in compliance.
 - Also, most of the 'refurbishers' or the 'repair shops' operating in Delhi are not authorized under the Central Pollution Control Board (CPCB) of India.
 - Further, many formal recyclers undertake activities only up to the pre-processing or segregation stage, and thereafter channelize e-waste to the informal sector, rendering a pure violation of law.
- A new set of e-waste rules, were further **notified in 2022**, which came into force from **1st April, 2023**.
 - They apply to **every** manufacturer, producer, refurbisher, dismantler and recycler.
 - All manufacturers, producers, refurbishers and recyclers **must register on the Central Pollution Control Board (CPCB) portal**.
 - No entity shall carry out any business without registration and

- not deal with any unregistered entity.
- Authorization has now been replaced by registration through the online portal, and only manufacturers, producers, refurbishers, and recyclers require registration.
 - Schedule I is expanded, and now **106 Electrical and Electronic Equipment (EEE)** have been included under the Extended Producer Responsibility (EPR) regime.
 - Producers of notified EEE have been given annual E-Waste Recycling targets based on the generation from the previously sold EEE or based on sales of EEE, as the case may be.
 - Target may be made stable for 2 years, starting from **60% for the years 2023-2024 and 2024-25, 70% for the years 2025-26 and 2026-27, and 80% for the years 2027-28 and 2028-29** and onwards.
 - Management of solar PV modules/panels/cells is added to new rules.
 - The quantity recycled will be computed based on end products to avoid any false claims.
 - Provision for generation and transaction of EPR Certificate has been introduced.
 - Provisions for environmental compensation, verification and audit have been introduced.
 - There is a provision for the constitution of a Steering Committee to oversee the overall implementation of the rules.
- Provision for reducing hazardous substances in the manufacturing of EEE mandates that every producer of EEE and their components shall ensure that their products do not contain lead, mercury and other hazardous substances beyond the maximum prescribed concentration.
 - It also provides recognition and registration, skill development, monitoring and ensuring the safety and health of workers involved in dismantling and recycling e-waste.

INDIAN GRAY WOLF



- Recently, Indian gray wolves have attacked people in certain areas of Uttar Pradesh.
- It travels in smaller packs and is less vocal than other wolves. They are **nocturnal animals**.
- It inhabits **scrub, grasslands and semi-arid pastoral agro-ecosystems**.
- Distribution: Wide range that extends from the **Indian subcontinent to Israel**. There are about 3,000 in India.
- Scientific Name: *Canis lupus pallipes*

Conservation Status

- IUCN: Least Concern
- Wildlife (Protection) Act: Schedule I
- CITES: Appendix 1

GREEN TURTLE



- The Green turtle (*Chelonia mydas*) is one of the largest sea turtles and the only herbivore among the different species.
- They are in fact named for the greenish color of their cartilage and fat, not their shells.
- In the Eastern Pacific, a group of green turtles that have darker shells are called black turtles by the local community.
- They graze on seagrasses and algae, which maintains the seagrass beds and makes them more productive.
- These species migrate long distances between feeding grounds and the beaches from where they hatched.
- They are potentially particularly susceptible, as the sex of their offspring is dependent on incubation temperature.
- Distribution: Green turtles are found mainly in tropical and subtropical waters.
- Conservation status
 - IUCN: Endangered
 - CITES: Appendix 1
- Threats: Habitat loss, fisheries bycatch and illegal trade etc.

AMUR FALCON



About Amur falcon:

- It is a small raptor of the falcon family.
- Locally known as Akhuipuina, the bird arrives mainly in Manipur and Nagaland.
- They breed in south-eastern Siberia and Northern China and migrate long distances in large flocks to winter in Southern and East Africa.
- The one-way journey via India is about 20,000 km long and the birds do this twice a year.

Conservation efforts:

- It is protected under the Wildlife Protection Act 1972 and **included under its Schedule IV**.
- Hunting of the birds or possessing its meat is punishable with imprisonment up to three years or a fine upto 25,000 or with bonds.
- In 2018, the forest department started a conservation programme by radio-tagging the birds to study their migratory route.
- IUCN: **Least Concern**.
- **Threats:** Illegal trapping and killing during migration, habitat loss from agricultural practices and land reclamation.
- It is also protected under **Convention on Migratory Species**, to which **India is a signatory** (which means it is mandatory to protect the birds).



LOSS AND DAMAGE FUND (LDF)

Context: The recent landslides in Kerala's Wayanad district have sparked discussions on whether subnational entities can claim compensation from the UNFCCC's Loss and Damage Fund (LDF)

- **Establishment:** The Loss and Damage Fund (LDF) was established at the 2022 UNFCCC Conference (COP27) in Egypt.
- **Purpose:** Provides financial support to regions suffering from both economic and non-economic losses caused by climate change.
- **Economic Loss and Damage:** Refers to impacts with a monetary value, such as costs of rebuilding damaged infrastructure or lost revenue from destroyed crops.
- **Non-Economic Loss and Damage:** Refers to impacts that cannot easily be assigned a monetary value, such as trauma, displacement, or loss of biodiversity.
- **Targeted Support:** Designed to provide crucial financial support to vulnerable nations facing the impacts of climate-related challenges.
- **Governance:** Overseen by a Governing Board that determines how resources are disbursed.
- **World Bank's Role:** Serves as the interim trustee of the fund for four years.
- **Financial Support:** Provided in the form of grants or concessional financing to eligible countries.
- **Contributions:** Encourages voluntary contributions from developed countries, while also inviting developing countries to contribute.

CENTRAL POLLUTION CONTROL BOARD (CPCB)

Context: The CPCB informed the National Green Tribunal that water quality at four locations in Kerala's Ashtamudi Lake fails to meet the Primary Water Quality Criteria for Bathing under the Environment (Protection) Rules, 1986

Central Pollution Control Board (CPCB)

- It is a statutory organisation constituted in September 1974 under the Water (Prevention and Control of Pollution) Act, 1974.
- Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.
- It provides technical services to the Ministry of Environment, Forests, and Climate Change (MOEFCC) of the provisions of the Environment (Protection) Act, 1986, and advises the Central Government on any matter concerning the prevention and control of water and air pollution and the improvement of the quality of air.
- Principal Functions of the CPCB:
 - to promote the cleanliness of streams and wells in different areas of the States by prevention, control, and abatement of water pollution
 - to improve the quality of air and to prevent, control or abate air pollution in the country.
- Standardization activity of CPCB:
 - CPCB lays down standards for streams or wells in consultation with the State Governments, and also lays down standards for the quality of air.



- CPCB also prepares manuals, codes, and guidelines relating to the treatment and disposal of sewage and trade effluents, as well as for stack gas cleaning devices, stacks, and ducts.
- In general, the following nine categories of standards are developed by CPCB:
 - National ambient air quality
 - Water Quality Criteria from different sources
 - Standards for Emission or Discharge of Environmental Pollutants from various Industries (Issued under Environment Protection Rules, 1986)
 - Standards for Treatment and Disposal of Bio-Medical waste by Incineration
 - Guidelines for the disposal of Common Hazardous Wastes by Incineration
 - Emission norms for vehicles
 - Auto fuel quality
 - Emission standard, Noise limits for Diesel Engines
 - Emission & Noise Limit of LPG & CNG Generator Sets
- Apart from the above, under the Comprehensive Industry Document Series (COINDS), CPCB also formulates the Minimal National Standards (MINAS) specific for various categories of industries with regards to their effluent discharge (water pollutants), emissions (air

pollutants), noise levels, and solid waste. These standards are required to be adopted by State Governments as minimal standards.

PRIMARY WATER QUALITY CRITERIA FOR BATHING WATER
(Water used for organised outdoor bathing)

CRITERIA		RATIONALE
1. Fecal Coliform MPN/100 ml:	500 (desirable) 2500 (Maximum Permissible)	To ensure low sewage contamination. Fecal coliform and fecal streptococci are considered as they reflect the bacterial pathogenicity.
2. Fecal Streptococci MPN/100 ml:	100 (desirable) 500 (Maximum Permissible)	The desirable and permissible limits are suggested to allow for fluctuation in environmental conditions such as seasonal change, changes in flow conditions etc.
2. pH:	Between 6.5 -8.5	The range provides protection to the skin and delicate organs like eyes, nose, ears etc. which are directly exposed during outdoor bathing.
3. Dissolved Oxygen:	5 mg/l or more	The minimum dissolved oxygen concentration of 5 mg/l ensures reasonable freedom from oxygen consuming organic pollution immediately upstream which is necessary for preventing production of anaerobic gases (obnoxious gases) from sediment.
4. Biochemical Oxygen demand 3 day, 27°C:	3 mg/l or less	The Biochemical Oxygen Demand of 3 mg/l or less of the water ensures reasonable freedom from oxygen demanding pollutants and prevent production of obnoxious gases*;

NATIONAL TIGER CONSERVATION AUTHORITY

Context : NTCA has recently sent a letter to 19 states urging to prioritise the removal of villagers who are residing in core tiger zones.

About NTCA :

- National Tiger Conservation Authority (NTCA) is a **statutory body** under the Ministry of Environment, Forests and Climate Change. The Wildlife Protection Act of 1972 was amended in 2006 to provide for constituting the NTCA.
- It is headed by the **minister of MOEFCC**

Objectives :

- Providing statutory authority to **Project Tiger** so that compliance of its directives becomes legal.



- Fostering accountability of Centre-State in management of Tiger Reserves, by providing a basis for MoU with States within our federal structure.
- Providing for an oversight by Parliament.
- Addressing livelihood interests of local people in areas surrounding Tiger Reserves.
- **Functions:**
 - Its functions are to assist in population assessment of tigers, law enforcement, wildlife forensics, infrastructural development, mitigation, smart patrolling & advisory role in policy formulation.
- **Monitoring System for Tigers: Intensive Protection and Ecological Status (M-STripES)** – It is a software-based monitoring system launched across Indian tiger reserves by the NTCA.

About Indian Tiger :

- IUCN Red List: **Endangered**
- Wildlife protection Act: Schedule 1
- CITES: Appendix 1
- The tiger reserves are constituted on a core/buffer strategy. The core areas have the legal status of a national park or a sanctuary. The buffer or peripheral areas are a mix of forest and non-forest land, managed as a multiple use area.
- India is home to **70% of global tiger population.**
- **Project Tiger**, launched in 1973 is a **100% centrally sponsored scheme** that has put the endangered tiger on a guaranteed path of revival by protecting it from extinction.

ETHANOL

Context: Recently, the Union Food and Public Distribution Minister said that India has become the **World’s third largest Producer and Consumer** of Ethanol.

Ethanol:

- It is an **agricultural by-product** which is mainly obtained from the processing of sugar from sugarcane, but also from other sources such as rice husk or maize.
- Ethanol appears as a **clear colourless liquid** with a characteristic vinous odour and pungent taste.
- Since ethanol is produced from plants that harness the power of the sun, it is also considered as **renewable fuel**.
- In India, ethanol is mainly produced from **sugarcane molasses by fermentation process.**
- Ethanol blending is the process of combining ethanol and petrol to use less fossil fuel while driving a vehicle.
- To supplement ethanol supplies, the Government of India has permitted the procurement of ethanol produced from sources other than molasses, which is known as first generation ethanol or 1G.
- Aside from molasses, ethanol can be derived from rice straw, wheat straw, maize cobs, corn stover, bagasse, bamboo and woody biomass, which are known as second generation ethanol sources or 2G.
- **Applications**
 - Ethanol is an important **industrial chemical**; it is used as a solvent, in the synthesis of other organic chemicals, and as an additive to automotive gasoline.

Ethanol Blending Programme

- The Ethanol Blended Petrol (EBP) program was launched in January **2003**.
- The program seeks to achieve blending of Ethanol with petrol with a view to reduce pollution, conserve foreign exchange and increase value addition in the sugar industry enabling them to clear cane price arrears of farmers.
- As per the programme targets, India has to achieve 10% blending rate (E10) by 2021-22 and 20% blending rate (E20) by 2025-26.
- The average ethanol blending in petrol has risen from 1.6% to 11.8% between 2013-14 and 2022-23.

- However, the **word biofuel is usually reserved for liquid or gaseous fuels**, used for transportation.
- Most of biofuel consumption occurs as a blend with refined petroleum products such as gasoline, diesel fuel, heating oil, and kerosene-type jet fuel.
 - However, some biofuels do not require blending with their petroleum counterparts and are referred to as drop-in biofuels.
- The most common biofuels now are –
 - **Bioalcohols** such as ethanol, propanol, and butanol (a substitute for petrol/gasoline);
 - **Biodiesel** (a substitute for diesel);
 - **Bio-oils** (substitutes for kerosene).



• Biofuels are the fuel derived from the biomass of plants or animal wastes. It is commonly produced from corn, sugarcane and animal waste like cow dung.

• **Generation of biofuels**

1st Generation Biofuel	Produced from edible items like sugar, corn, starch.	Higher carbon content and emit greenhouse gases.
2nd Generation biofuel	Produced from leftover food crops like rice husk, wood chips	Greenhouse content less than 1st generation biofuel
3rd Generation biofuel	Produced from microorganisms like algae.	Carbon Neutral (CO2 emitted=CO2 sequestered)
4th Generation biofuel	Produced from genetically engineered crops like GM crops	Carbon Negative

• **Common biofuels used**

Bioethanol	Produced from corn and sugarcane using fermentation process. E10 is the most common blend in which 10 per cent composition is Ethanol
Biodiesel	Produced from vegetable oils like soybean oil or palm oil, vegetable waste oils and animal fats using transesterification process.
Biogas	Produced from organic matter like sewage from animals and humans by anaerobic decomposition.

Biofuel

- Biofuel is a **fuel that is produced over a short time span from biomass**, rather than by the very slow natural processes involved in the formation of fossil fuels, such as oil.
- Since biomass can be used as a fuel directly (e.g., wood logs), some people use the words biomass and biofuel interchangeably.

ONITIS BORDATI



Recently, researchers have identified a previously unknown dung beetle species, *Onitis bordati*, in the Nongkhylllem Wildlife Sanctuary in Meghalaya.

Onitis bordati:

- It is a **dung beetle species** belonging to the genus *Onitis*.
- **Appearance:** Males of most species have distinctive forelegs that are long, slender, and curved, often with teeth or spines.
- Dung beetle species were previously only found in Vietnam and Thailand.



- **Ecological Significance:** They are known for their ecological functions, such as **seed dispersal, nutrient cycling, and pest control, and plant growth.**
- **Threats:** Habitat destruction and climate change posing significant threats.

Key facts about Nongkhyllem Wildlife Sanctuary

- **Location:** The Sanctuary falls in the Eastern Himalayan Global biodiversity hot spot and is located in the **state of Meghalaya.**
- The area consists of undulating plains to low hills, which are part of the **Archaean Meghalaya Plateau.**
- The area has become broken and rugged, especially towards west and north, because of continuous erosion by the rivers **Umtrew, Umran, Umling, Umtasor** and other smaller streams.
- The Umtrew is the main river of the area and the rest named above are its tributaries. The Umtrew also marks the western boundary of the Reserve Forest and the Sanctuary.
- **Fauna:** It is home to Clouded Leopard, majestic Elephants, and the powerful Himalayan Black Bear.
- **Flora:** Shorea robusta, Tectona grandis, Terminalia myriocarpa, Gmelina arborea etc.

- It is the purplish **flowering shrub** which **blooms once in 12 years.**
- **Habitat:** It is an **endemic shrub** of three-metre height, seen only in the **high-altitude shola grassland** ecosystems of five mountain landscapes of southwest India at an elevation of 1,340–2,600 m.
- **Distribution:**
 - The species has **34 subpopulations** within **14 ecoregions** of the high-altitude mountain ranges of southwest India. There are **33 subpopulations** in the **Western Ghats** and one in the **Eastern Ghats** (Yercaud, Shevaroy Hills).
- They are **semelparous** with showy synchronous blooming and **fruiting at every 12 years at the end of the life cycle, which has been reported since 1832.**
- **Cultural significance:**
 - Nilgiri Hills (Literally meaning the blue mountains), got their name from the blue flowers of Neelakurinji.
 - The **Paliyan tribes** (in Tamil Nadu) use it as a reference to calculate their age.
- **Threats:** It is threatened mainly due to its **fragile habitat** in the montane high altitude grasslands that has been under pressure of conversion for tea and softwood plantations, and urbanization.
- Recent Global assessment of **Neelakurinji** :
 - This is the first ever Global Red List assessment for this **flagship species** of the montane grasslands of southwest India.
 - **Conservation status:** The latest global assessment confirms its

NEELAKURINJI



threatened status in the **Vulnerable** category of the IUCN.

AFRICAN CHEETAH

- India's cheetah introduction programme has completed two years today.
- On September 17, 2022, eight cheetahs from Namibia were brought to **Kuno National Park in Madhya Pradesh** for a reintroduction program.

Why have African cheetahs been introduced in India?

- The goal of the introduction of African cheetahs is to "establish viable cheetah metapopulation in India that:
 - allows the cheetah to perform its functional role as a top predator and,
 - provides space for the expansion of the cheetah within its historical range thereby contributing to its global conservation efforts.
- Basically, the project aims to enable cheetahs to establish themselves as viable and free-ranging populations in large unfenced wildlife reserves which are in turn connected by wildlife corridors to other unfenced reserves.

Cheetah in India :

- The cheetah population used to be fairly widespread. The animal was found from Jaipur and Lucknow in the north to Mysore in the south, and from Kathiawar in the west to Deogarh in the east.
- The cheetah was officially declared extinct by the Indian government in 1952.
- Over-hunting was a major contributing factor for the cheetah's extinction.

CURCUMA UNGMENSIS



Curcuma ungmensis

- **New Discovery:** A new species of the turmeric family (Zingiberaceae) discovered in **Nagaland**, named **Curcuma ungmensis** after Ungma village, Mokokchung district.
- **Plant Characteristics:**
 - Grows 65-90 cm high with prominent yellow flowers.
 - Belongs to the **Curcuma** genus, known for species like turmeric (*Curcuma longa*), black turmeric (*Curcuma caesia*), and mango ginger (*Curcuma amada*).
 - Rhizomatous herb with branched subterranean stem deeply buried in the soil.
- **Flowering Season:** August to October during the rainy season; flowers last for a single day.
- **Significance:** Attractive inflorescence, ideal for ornamental gardening and as a cut flower.
- **Geographical Distribution:**
 - Found only in the Ungma village area so far.
 - **Curcuma** genus is widely distributed in South and Southeast Asia, South China, and some species in Australia and the South Pacific.
- **Conservation:** The plant faces threats from road construction, building

activities, and natural calamities, requiring conservation efforts.

SYNTRETUS PERLMANI



- It is a **new species of parasitoid wasp**.
- It is the **first wasp found to infect adult fruit flies**, a stark contrast to related wasp species that usually target the larvae and pupae stages of flies.
- These fruit fly invaders are **considered parasitoids** rather than parasites because they **always kill their hosts** unlike the latter, which generally leave them alive.
- Female *S. perlmanni* wasps **use a specialised organ called an ovipositor to inject eggs directly into the abdomen of adult fruit flies**.
- Over the next 18 days, the **eggs develop into wasp larvae**, slowly growing inside the host until they **eventually kill the fly by emerging out of its body**.
- The research team found evidence of *S. perlmanni* across the **eastern United States**, including Mississippi, Alabama, and North Carolina.

ARABIDOPSIS THALIANA



- It is a **small flowering plant native to Eurasia and Africa**.
- *A. thaliana* is **considered a weed**; it is found along the shoulders of roads and in disturbed land.
- *Arabidopsis*, **also called thale cress**, is **widely used in scientific research**, including previous experiments in orbit, owing to its speedy life cycle and a deep understanding of its genetics.
- NASA planted seeds of this weed in the soil from the **moon**

EMU



- **Endemic to Australia:** The emu is the tallest native bird in Australia and the third-tallest living bird globally, after the common and Somali ostrich.
- **Only extant member of the genus Dromaius.**

- **Range:** Found across most of the Australian mainland; subspecies on **Tasmania, Kangaroo Island, and King Island** became extinct after European settlement (1788).
- **Physical characteristics:** Brown feathers, long necks and legs, can reach up to **1.9 m (6 ft 3 in)** in height.
- **Speed:** Can sprint up to **48 km/h (30 mph)** and travel long distances as a robust bipedal runner.
- **Diet: Omnivorous**, forages on plants and insects; can go weeks without eating, drinks infrequently but in large quantities when possible.
- **Breeding:** Takes place in **May and June**; females often fight for mates and can lay several clutches of eggs. Males incubate eggs and lose significant weight, with the young cared for by their fathers.
- **Conservation status:** Listed as **Least Concern** by the **IUCN**, but some local populations are endangered; insular subspecies went extinct in the 1800s.
- **Threats:** Include **egg predation**, roadkills, and habitat fragmentation.
- **Cultural significance:** Emu is a key **cultural icon of Australia**, appearing on the **coat of arms**, coins, and featuring prominently in **Indigenous Australian mythology**.
- The greater one-horned rhino (or “Indian rhino”) is the **largest of the rhino species**.
- **Physical Appearance**
 - Indian Rhinos are **brownish-grey in colour and are hairless**.
 - They have knobby skin that appears to be armour-plated. A single horn sits on top of their snout, and their upper lip is semi-prehensile.
 - The greater one-horned rhino is identified by a **single black horn** about 8-25 inches long and a grey-brown hide with skin folds, which gives it an **armour-plated appearance**.
- **Diet :** They primarily graze, with a diet consisting almost entirely of grasses as well as leaves, branches of shrubs and trees, fruit, and aquatic plants.
- **Habitat:**
 - **It is confined to the tall grasslands and forests in the foothills of the Himalayas.**
 - The Great one-horned rhino is commonly found in **Nepal, Bhutan, Pakistan and in Assam, India.**
- **Conservation Status:** Greater One-Horned Rhinos (*Rhinoceros unicornis*): **Vulnerable (IUCN)**.

ONE HORNED RHINOCEROS



Conservation Efforts by India

- The Ministry of Environment and Forests (MoEF) has launched a **National Conservation Strategy** for Indian One-Horned Rhino and the conservation initiatives for rhino has also enriched the grassland management which helps in reducing the negative impacts of climate change through carbon sequestration.

- **New Delhi Declaration on Asian Rhinos 2019:** Signed by India, Bhutan, Nepal, Indonesia and Malaysia to conserve and protect the rhinos.
- **Project to create DNA profiles** of all rhinos by the Ministry of Environment Forest and Climate Change (MoEFCC).
- **Indian Rhino Vision 2020:** It is a unique programme where the government partnered international, national and local organisations for the conservation of the rhinos.
 - Under it, Manas has received a total of 22 rhinos from other protected areas.

**Indian Rhino Vision 2020 :**

- **Launched in 2005**, Indian Rhino Vision 2020 was an ambitious effort to attain a wild population of at least **3,000 greater one-horned rhinos** spread over seven protected areas in the Indian state of Assam by the year 2020.
- Seven protected areas are Kaziranga, Pobitora, Orang National Park, Manas National Park, Laokhowa wildlife sanctuary, Burachapori wildlife sanctuary and Dibru Saikhowa wildlife sanctuary.

- **Scientific Name:** *S. scrofa*
- It has by far the largest range of all pigs.
- It is sometimes called the **European wild boar**.
- **Description**
 - The animals are swift, nocturnal, and omnivorous and are good swimmers.
 - They possess sharp tusks, and, although they are normally unaggressive, they can be dangerous.
- **Habitat and Distribution:** It occupies a wide variety of temperate and tropical habitats, from semi-desert to tropical rainforests, temperate woodlands, grasslands and reed jungles; often venturing onto agricultural land to forage. It is found in a variety of habitats.
 - It is the **largest of the wild pigs** and is native to forests ranging from western and northern Europe and North Africa to India, the Andaman Islands, and China.
- **IUCN Status:** Listed as **Least Concern** due to its wide range, abundance, tolerance to habitat disturbance, and presence in many protected areas.

WILD BOAR**INDIAN WILD ASS**



- It is a **sub-species of Asian Wild Ass**, i.e., *Equus hemionus*.
- **Scientific name:** *Equus hemionus khur*
- It is characterized by **distinctive white markings** on the anterior part of the rump and on the posterior part of the shoulder and a **stripe down the back that is bordered by white**.
- **Distribution:** **World's last population** of Indian Wild Ass is restricted to **Rann of Kachchh, Gujarat**.
- **Habitat:** Desert and grassland ecosystems.
- **Conservation Status:**
 - **IUCN:** Near threatened.
 - **CITES:** Appendix II
- Wildlife Protection Act (1972): **Schedule-I**

**About Wild Ass Sanctuary:**

- **Location:** It is located in the **Little Rann of Kutch** of the **Gujarat State** in India.
- It is the **only place where the Indian wild ass**, locally called **Khacchar**, is found.
- The sanctuary is home to a sizeable population of **Rabari and Bharwad tribes**.
- **Topology:**
 - It can be considered a large **ecotone**, a transitional area between marine and terrestrial ecosystems.
 - It is a continuum of a **dry area of dark silt** with **salt encrustation**.
 - It is dotted with about **74 elevated plateaus or islands**, locally called '**bets**'.

- During the **monsoon**, **large parts are flooded** to depths of up to 2m.
- **Flora:**
 - It is **full of dry thorny scrub**, and there are **no large trees except on the fringes** and bets.
 - Some of the plants and trees that are found in this sanctuary are **Morad, Unt morad, Theg, Dolari, Khijdo, Kerdo, Mithi jar, Kheri pilu, Akado**, etc.
- **Fauna:**
 - Besides Indian Wild Ass, the other mammals found here include **Blackbuck, Nilgai, Bluebull, Hare, Wolf, Foxes, Desert Cat, Indian fox, Jackal, Hyena, Wild boar**, etc.
 - There is rich birdlife, including the **Houbara bustard, Sandgrouse, Pale harrier, Black-shouldered kite, Pelican**, etc.



Science & Technology

FOOT-AND-MOUTH DISEASE

Context: The Union government recently decided to establish foot-and-mouth disease-free zones in eight States — Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Uttarakhand, Punjab, Haryana, Maharashtra, and Gujarat.

Foot-and-Mouth Disease (FMD):

- It is a severe, highly **contagious viral disease of livestock** that has a significant economic impact. The disease **affects cattle, swine, sheep, goats, and other cloven-hoofed ruminants**.
- It does **not affect horses, dogs, or cats**.
- **Intensively reared animals are more susceptible** to the disease than traditional breeds.
- It is a **transboundary animal disease (TAD)** that deeply affects the **production of livestock and disrupts regional and international trade in animals and animal products**.
- It is **not a human health or food safety threat**. It is also **not related to hand, foot, and mouth disease**, which is a **common childhood illness** caused by a different virus.
- The **organism which causes FMD is an aphtho virus** of the family Picornaviridae. There are **seven strains** (A, O, C, SAT1, SAT2, SAT3, and Asia1) which are **endemic in different countries** worldwide.
- **Immunity to one type does not protect an animal against other types or subtypes.**
- **Transmission:** FMD is found in **all excretions and secretions** from infected animals.
- Notably, these **animals breathe out a large amount of aerosolised virus**, which can **infect other animals** via the respiratory or oral routes.
- The disease is **rarely fatal in adult animals**, but there is often **high mortality in young animals**.
- **Symptoms:** FMD is characterised by **fever and blister-like sores** on the tongue and lips, in the mouth, on the teats, and between the hooves.
- **Ruptured blisters can result in extreme lameness and reluctance to move or eat.**
- **Other frequent symptoms are fever, depression, hypersalivation, loss of appetite, weight loss, growth retardation, and a drop in milk production, which can persist even after recovery.**
- The disease causes **severe production losses**, and while the majority of affected animals recover, the disease **often leaves them weakened and debilitated**.
- It was the **first disease** for which the **World Organisation for Animal Health (WOAH, founded as OIE) established official status recognition**.
- **Vaccines for FMD are available** but must be matched to the specific type and subtype of virus causing the : outbreak.



INDIAN CANCER GENOME ATLAS (ICGA) FOUNDATION

Context: ICGA Foundation launches India's first comprehensive cancer genomics repository.

- **Indian Cancer Genome Atlas (ICGA) Foundation** has launched a portal to understand genetic variations of cancer in the Indian population.
- The portal aims to be a **repository of DNA, RNA, and protein profiles** of breast cancer patients integrated with clinical outcomes.
- The portal will offer data related to cancer, which is **India's first repository** of such information.
- Significance of this repository:
 - Cancer treatments in India have historically been based on **Western datasets**, but Indian cancers may differ significantly at the molecular level.
 - The ICGA data repository is intended to be freely accessible to the **global research community**.
 - Initial data includes profiles of **50 breast cancer patients**, with plans to expand to over **500 patients in the next year**.
- The inspiration for the ICGA comes from the **U.S.-based Cancer Genome Atlas (TCGA)**

Indian Cancer Genome Atlas (ICGA):

- It aims to create indigenous, open-source and comprehensive **database of molecular profiles** of **all cancers prevalent in Indian population**.

- Diverse molecular mechanisms including **genetic and lifestyle factors contribute to cancer**, posing significant challenges to treatment.
- Therefore, it is necessary to better understand the **underlying factors** patient by patient.

TCGA:

- TCGA is a joint **effort of** the National Cancer Institute (NCI) and the National Human Genome Research Institute (NHGRI), which are both part of the National Institutes of Health, **U.S. Department of Health and Human Services**.
- It was **started in 2006**.
- It is a landmark **cancer genomics program** that molecularly characterized over 20,000 primary cancer and matched normal samples spanning 33 cancer types. **Genomics** aims to **sequence, assemble, and analyse** the structure and function of **genomes**.
- **Genome** is **all genetic material of an organism**. It consists of DNA (or RNA in RNA viruses).
- Transcriptomics technologies are the techniques used to **study an organism's transcriptome**, the sum of all of its RNA transcripts.
- A Proteome is a **set of proteins** produced in an organism.

Other Similar Missions:

- **Genome India Project:** by the **Department of Biotechnology, Ministry of Science and Technology**, to build a grid of the Indian "reference genome" for understanding diseases and traits in the diverse Indian population. The first phase involves collecting 10,000 samples from across



India to form a representative Indian genome.

- **IndiGen Genome Project:** Implemented by CSIR-Institute of Genomics and Integrative Biology (IGIB), Delhi and CSIR-Centre for Cellular and Molecular Biology (CCMB), Hyderabad.

Cancer:



- Cancer is a large group of diseases where abnormal cells grow uncontrollably, invade adjoining parts, and may metastasize (spread to other organs), which is a major cause of death.

- Neoplasm and malignant tumor are other terms for cancer.
- Common cancer types in men: Lung, prostate, colorectal, stomach, liver.
- Common cancer types in women: Breast, colorectal, lung, cervical, thyroid.

- **Government Initiative:** National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) is implemented under the **National Health Mission (NHM)** for activities up to the district level.

ANTIMICROBIAL RESISTANCE

Context: Antimicrobial resistance is one of the great crises of the 21st century, and Staphylococcus aureus is an important bacteria species leading this charge. Methicillin-resistant Staphylococcus aureus (MRSA) — a strain that can resist several antibiotics — was responsible for more than 100,000 deaths.

What is Anti-Microbial Resistance ?

- Antimicrobial resistance is the **resistance acquired by any microorganism (bacteria, viruses, fungi, parasites, etc.)** against antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics) that are used to treat infections.
- It is a natural phenomenon as bacteria evolve, making drugs used to treat infections less effective.
- Microorganisms that develop antimicrobial resistance are sometimes referred to as **“superbugs”**.
- Excessive use of antimicrobial drugs can lead to the creation of resistant or extremely resistant superbugs, which can circulate in hospitals, through drinking water, or sewers. Infections caused by these pathogens will not respond to commonly prescribed antibiotics.
- The World Health Organization (WHO) has identified AMR as one of the top ten threats to global health.

Types of Antimicrobial Resistance :

- **Natural (intrinsic, structural) resistance :** Natural resistance is caused by the structural characteristics of microbes. It is not associated with the use of antimicrobials. It has no hereditary property.
- **Acquired resistance :** Acquired resistance develops due to the changes in the genetic characteristics of microbes, like changes in structures of chromosomes. This makes the microbes resistant to previous antimicrobial treatment.
- **Cross resistance :** Resistance developed in microbes

against antibiotics having similar structure.

- **Multi-drug resistance and pan-resistance** : Resistance of microorganisms to a range of anti-microbes used to kill them. Multiple drugs and their enhanced generation is also not able to kill them.



MRSA Infections :

- Methicillin-resistant *Staphylococcus aureus* (MRSA) is a type of bacteria resistant to several widely used antibiotics, making it challenging to treat. It is a superbug that can cause severe infections, particularly in hospital settings.
- Most MRSA infections occur in healthcare settings such as hospitals, nursing homes, and dialysis centers. This is where people with weakened immune systems, open wounds, invasive devices (such as catheters or IV lines), or surgical sites are more vulnerable.
- **Transmission:** It spreads through direct contact with contaminated hands (especially healthcare workers who don't practice proper hygiene) or surfaces (like bed rails, medical devices).
- MRSA is a significant example of the global AMR issue, where overuse or misuse of antibiotics leads to the emergence of drug-resistant strains.
- In more severe cases, it can lead to bloodstream infections, pneumonia, or infections in surgical sites.

TYPHOID, PNEUMONIA

Context: A recent ICMR report highlights rising drug resistance in urinary tract infections, bloodstream infections, pneumonia, and typhoid in India.

- **Typhoid:** Typhoid fever is a life-threatening **systemic infection caused by the bacterium *Salmonella enterica* serovar Typhi** (commonly known as *Salmonella Typhi*) **carried only by humans** – no other animal carrier has been found.
- **Transmission:**
 - Typhoid fever is **transmitted by the faecal-oral route**, through ingestion of contaminated food or water.
 - Without treatment, about **one person in 20 who recovers from typhoid becomes a 'carrier'**. Despite having no symptoms of illness, they have bacteria in their faeces and urine, and can infect others for a period of about three months (sometimes up to one year).
 - **Travellers are at high risk of developing typhoid fever** in many typhoid endemic countries. This includes parts of **Asia (especially India, Pakistan, and Bangladesh), Africa, the Caribbean, Central and South America, and the Middle East.**
- **Symptoms:** Fever, fatigue or tiredness, malaise (general feeling of unwellness), sore throat, persistent cough, headache.
- **Prevention:**
 - **Vaccine:**The typhoid vaccine is available as an oral medication or a one-off injection:



- **Capsule:** For adults and children over the age of 6 years, this is a **live, attenuated vaccine**.
- **Shot:** For adults and children over the age of 2 years, this is an inactivated vaccine a person needs to get 2 weeks before travel.
- The **typhoid vaccine is only 50–80% effective**.
- **Widal test** is used for its diagnosis.
- **Treatment:** Typhoid fever requires prompt treatment with **antibiotics**.

Pneumonia

- An acute respiratory infection of the lungs.
 - It is also a Pneumococcal disease caused by bacteria called Streptococcus pneumoniae or pneumococcus.
 - **Cause:** It doesn't have one single cause – it can develop from either bacteria, viruses or fungi in the air.
 - **Vulnerability:** Children whose immune systems are immature (i.e. newborns) or weakened – such as by undernourishment, or diseases like HIV – are more vulnerable to pneumonia.
 - **Spread:** Pneumonia is contagious and can be spread through coughing or sneezing.
 - It can also be spread through fluids, like blood during childbirth, or from contaminated surfaces.
 - **Vaccine:** Pneumonia caused by bacteria is easily preventable with vaccines. 3 doses of the primary vaccine (Pneumococcal Conjugate Vaccine (PCV)) to prevent it are recommended.
 - A new vaccine for one of the main viral causes of pneumonia is under development.
- India has introduced nationwide rollout of PCV under Universal Immunisation Programme (UIP).
 - **Diseases Burden:**
 - **Global:** Together, the Democratic Republic of Congo, Ethiopia, India, Nigeria and Pakistan account for more than half of all deaths due to pneumonia among children under 5.
 - Annually, India witnesses an estimated 71% of pneumonia deaths and 57% of severe pneumonia cases.
 - **Initiatives Related to Pneumonia:**
 - **Social Awareness and Action to Neutralise Pneumonia Successfully (SAANS):** The aim is to reduce child mortality due to pneumonia, which contributes to around 15% of deaths of children under the age of five annually.
 - The government aims to achieve a target of reducing pneumonia deaths among children to less than **three per 1,000 live births by 2025**.
 - In 2014, India launched 'Integrated Action Plan for Prevention and Control of Pneumonia and Diarrhoea (IAPPD)' to undertake collaborative efforts towards prevention of diarrhoea and Pneumonia related under-five deaths.
 - The WHO and UNICEF had launched an integrated **Global Action Plan for Pneumonia and Diarrhoea (GAPPD)**.

HEPATITIS E

Context: New research suggests that pigs may function as a transmission vehicle for a strain of the hepatitis E virus (HEV) common in rats that has recently been found to infect humans.

About Hepatitis E :

- Hepatitis E is an **inflammation of the liver** caused by infection with the hepatitis E virus (HEV).
- The virus has at least **4 different types: genotypes 1, 2, 3 and 4**. Genotypes 1 and 2 have been found only in humans. Genotypes 3 and 4 circulate in several animals including pigs, wild boars and deer without causing any disease, and occasionally infect humans.
- WHO estimates that hepatitis E caused approximately 44 000 deaths in 2015 (accounting for 3.3% of the mortality due to viral hepatitis).
- Hepatitis E is found worldwide, but the disease is most common in East and South Asia.

Transmission :

- The virus is transmitted via the fecal-oral route, principally via contaminated water.
- Hepatitis E infection is found worldwide and is **common in low- and middle-income countries** with limited access to essential water, sanitation, hygiene and health services.

Diagnosis :

- Definitive diagnosis of hepatitis E infection is usually based on the detection of specific anti-HEV immunoglobulin M (IgM) antibodies to the virus in a person's blood; this is

usually adequate in areas where the disease is common.

Treatment :

- There is no specific treatment capable of altering the course of acute hepatitis E. As the disease is usually self-limiting, hospitalization is generally not required.



Other Hepatitis variants :

- **Hepatitis A and E** are typically caused by ingestion of **contaminated food or water**.
- **Hepatitis B, C and D** usually occur as a result of contact with **infected body fluids**.
- **Hepatitis B and C** can cause chronic hepatitis and are responsible for **96% of overall hepatitis mortality**.
- **Hepatitis A and E** cause acute hepatitis.
- **Vaccines** are available to prevent **hepatitis A, B and E**. However, **no vaccine for hepatitis C**.

TARGETED CANCER DRUGS

Context: The GST Council approved a reduction in the rate on three cancer drugs — Trastuzumab Deruxtecan, Osimertinib and Durvalumab from 12% to 5%.

- **Trastuzumab deruxtecan:**
 - It is an **antibody-drug conjugate** developed by Daiichi Sankyo and marketed by Astrazeneca as Enhertu.
 - It is a **second-line treatment**, which costs around **Rs 1.6 lakh per vial** and is used when traditional therapies have failed. In 2019, the drug was approved

for the treatment of **breast cancers**.

- In 2024, it became the first drug in its class to receive “tissue-agnostic approval” (from the US FDA) - meaning it can be used to treat any cancer with HER-2 receptor regardless of where it originates.

- **Osimertinib:**

- It is the **most commonly used** of the three cancer drugs in India and it is quite expensive as it costs **1.5 lakh per strip of ten pills**, and has to be taken every day.
- Marketed as Tagrisso by AstraZeneca, the drug is used to treat **lung cancers**.

- **Durvalumab:**

- **An immunotherapy treatment**, it is used for the treatment of certain **lung cancers**, biliary tract cancers, bladder cancer, and liver cancer.
- Sold as Imfinzi, durvalumab costs around Rs 1.5 lakh for every 10ml vial.

Regulation of Prices of These Cancer Drugs in India:

- **Trastuzumab Injection is a scheduled drug** under National List of Essential Medicines (NLEM) 2022 and National Pharmaceutical Pricing Authority (NPPA) has fixed the ceiling price (Rs. 54725.21 per vial) of the same.
- **The other two medicines** i.e., Osimertinib and Durvalumab are **non-scheduled medicines** under Drug Prices Control Order (DPCO), 2013.
 - Hence, NPPA monitors the maximum retail price (MRP) of the non-scheduled formulation to ensure that the same does not

increase by more than 10% of MRP during the preceding 12 months.

PRIVACY SANDBOX

Context: Smaller ad-tech firms are raising competition concern over Google's long brewing cookies alternative Privacy sandbox.

- Privacy Sandbox is a set of technologies that aims to enhance user privacy by anonymizing data, implementing stricter access controls, and targeting groups of users rather than individuals.
- It was developed to replace cookies, which are used for tracking and targeting individual users.
- **Core Aims:**
 - Provide alternative browsing solutions without third-party cookies.
 - Reduce cross-site and cross-app tracking while maintaining free access to online content and services.



Expensive proposition: Privacy Sandbox is a set of technologies that aims to enhance user privacy by anonymising data. REUTERS

Functional Role of Privacy Sandbox:

- **Browser's Role:** Browsers act on the user's behalf, locally on their device, to protect identifying information while navigating the web.



- **Vision:** Browsers will provide tools for specific use cases while preserving user privacy.

Privacy Sandbox Proposals Lifecycle:

- **Phases:** Proposals go through **three phases**—discussion, testing, and scaled adoption—before becoming web standards.
- **Feedback Mechanism:** Input from developers and industry leaders is essential for creating web features that balance utility and privacy.

Key Proposals:**Strengthening Cross-Site Privacy Boundaries:**

- **CHIPS (Cookies Having Independent Partitioned State):** Allows developers to opt-in cookies to partitioned storage, creating a separate cookie jar for each top-level site.
- **Related Website Sets:** Enables related domain names owned by the same entity to declare themselves as belonging to the same first-party.
- **Shared Storage:** API allows secure storage and access to cross-site data without leakage.
- **Storage Partitioning:** Ensures user agent state (like localStorage or cookies) is keyed by both top-level site and resource origin.
- **Fenced Frames:** Securely embed cross-site content on a page without data sharing.
- **Network State Partitioning:** Ensures network resources are not shared across first-party contexts, using partition keys for requests.
- **Federated Credential Management (FedCM):** Supports federated identity without sharing users' email or identifying data unless explicitly consented.

Showing Relevant Content and Ads:

- **Topics API:** Enables interest-based advertising without third-party cookies or cross-site tracking.
- **Protected Audience API:** Supports remarketing and custom audience use cases without tracking user browsing behavior across sites. First implemented in Chromium from the TURTLEDOVE family of proposals.

Measuring Digital Ads:

- **Attribution Reporting:** Allows correlation of ad clicks/views with conversions; generates event-level or summary reports.
- **Private Aggregation API:** Produces noisy summary reports from cross-site data to protect privacy.

Preventing Covert Tracking:

- **User-Agent Reduction:** Limits passively shared browser data to prevent fingerprinting; developers can request specific information using Client Hints.
- **IP Protection:** Prevents the use of IP addresses for tracking.
- **Bounce Tracking Mitigations:** Reduces or eliminates bounce tracking, which identifies users across contexts.
- **Privacy Budget:** Limits the amount of individual user data exposed to websites to prevent covert tracking.

Fighting Spam and Fraud:

- **Private State Tokens:** Allows websites to convey limited, non-identifying information across sites to combat fraud, without passive tracking.

Stakeholder Engagement and Feedback:

- **GitHub:** Proposals and explainers available on GitHub for feedback and discussion.
- **W3C Groups:** Industry discussions on proposals occur in the W3C Improving Web Advertising Business Group, the

Privacy Community Group, and the Web Incubator Community Group.

- **Developer Support:** Developers can ask questions and participate in discussions on the Privacy Sandbox Developer Support repository.

GAGANYAAN MISSION

Context: Indian Space Research Organisation (ISRO) Chairman S. Somanath on Friday said that the space agency will take all precautions by carrying out a sufficient number of tests before the manned Gaganyaan mission is launched

About Gaganyaan Mission :

- The Gaganyaan Mission is India's ongoing project to send a 3-day manned mission to the Low Earth Orbit (LEO) of 400 km with a crew of 3 members and bring them safely back to Earth.
- As part of this program, two unmanned missions and one manned mission are approved by the Government of India.
- **Launch vehicle: GSLV Mk III**, also known as **LVM-3**, will be used as a launch vehicle in Gaganyaan mission.

Gaganyaan Mission



Components of Gaganyaan: Orbital module will be orbiting Earth, comprising the **Crew Module (CM)** and **Service Module (SM)**. The Orbital Module is equipped with state-of-the-art avionics systems with adequate redundancy.

- **Crew Module**
 - It is a habitable space with an Earth like environment for the onboard crew members.
 - Crew will perform micro-gravity and other scientific experiments.
- **Service Module (SM):**
 - It will be used for providing necessary support to the Crew Module while in orbit.
 - It is an unpressurized structure containing the propulsion system, thermal system, power systems, avionics systems and deployment mechanisms.
- **Crew Module Atmospheric Re-entry Experiment (CARE)**
 - Gaganyaan would return back to Earth. While re-entering Earth's atmosphere, the spacecraft needs to withstand very high temperatures created due to atmospheric friction.
 - A prior critical experiment was carried out in 2014 along with LVM3, when the CARE capsule successfully demonstrated that it could survive atmospheric re-entry.
- **Crew Escape System – PAT**
 - The Crew Escape System is an emergency accident avoidance measure.
 - In July 2018, ISRO completed the first successful flight 'pad abort test' or Crew Escape System.
- **Environmental Control & Life Support System ECLSS :**
 - Maintain steady cabin pressure and air composition
 - Remove carbon dioxide and other harmful gases
 - Control temperature and humidity

- Manage parameters like fire detection and suppression
- **Vyom Mitra**
 - ISRO's female humanoid robot that will test-flight Gangayaan.
 - Vyom Mitra was built by ISRO's Inertial Systems Unit, Thiruvananthapuram.
- Space-borne Assistant and Knowledge Hub for Crew Interaction (**SAKHI**) App : A digital platform integrated to the space suits of astronauts to:
 - Assist astronauts regarding technical documents and training manuals digitally.
 - Monitor vitals (blood pressure, heart rate and oxygen saturation), hydration level, sleep patterns throughout the mission.
 - Maintain mission log and keep crew connected with the onboard computer and ground-based stations on Earth.

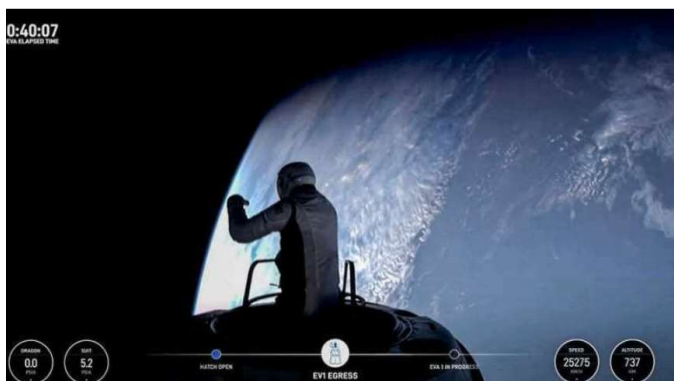
- It is set to be the **first non-government mission** to conduct a **spacewalk**.
- This **700km altitude** will surpass the current record held by **NASA's Gemini 11 mission** in 1966.
- The mission will test **new spacesuits** designed by SpaceX to protect astronauts from high radiation levels encountered in the **Van Allen Belts**.

Understanding the Van Allen Belts:

- **Composition:** The Van Allen Belts consist of charged particles trapped by Earth's magnetosphere, which protects the planet from solar storms and cosmic rays.
 - These belts were first identified in **1958** by the **American physicist James Van Allen**.
- **Location: The belts are divided into two types:**
- **Inner belt:** Located between **680 and 3,000 kilometres** above the Earth's surface, this belt is primarily composed of high-energy protons. It forms due to the interaction between cosmic rays and Earth's atmosphere.
- **Outer belt:** Situated at altitudes ranging from **15,000 to 20,000 kilometers** above the Earth's surface, the outer belt predominantly consists of high-energy electrons originating from the solar wind.
- **Radiation risks:** The spacewalk during Polaris Dawn will expose the crew to higher levels of radiation than those on the ISS.
 - The charged particles within these belts can lead to radiation sickness, harm to human tissues, and an increased risk of cancer.
 - Data collected during this mission will be crucial for future deep-

POLARIS DAWN MISSION

Context: Two astronauts stepped out of the SpaceX Dragon capsule to perform the world's first private spacewalk.



What is Polaris Dawn Mission?

- It is a **privately funded space mission** led by billionaire entrepreneur **Jared Isaacman**, in collaboration with **SpaceX**.

space missions, including NASA's planned 2025 mission to the Moon and Mars.

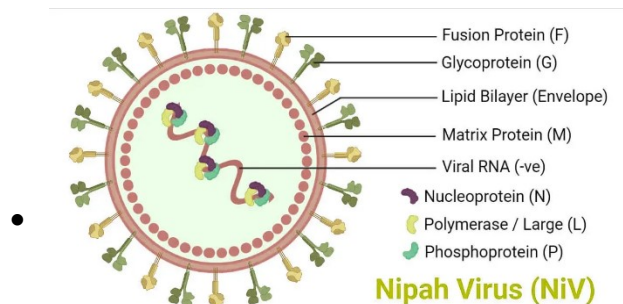
NIPAH VIRUS

Context: Sixteen contacts of a Nipah virus victim tested negative, but 80 more were added to the monitoring list, raising the total to 255.

- **Nipah Virus (NiV):** A zoonotic virus from the paramyxovirus family, transmitted from animals to humans, contaminated food, or human-to-human contact.
- **Transmission:** Primarily from bats and pigs, but can spread through direct contact with infected individuals or contaminated food.
- **Symptoms:** Common fever, respiratory problems, encephalitis in severe cases.
- **Outbreaks:**
 - First identified in pig farmers in Malaysia (1999).
 - Outbreaks in Bangladesh and India (2001, 2007).
 - Detected in countries like Cambodia, Ghana, and Thailand.
- **Nipah in India:**
 - First outbreak in Siliguri, West Bengal (2001) with human-to-human transmission.
 - Another outbreak in 2007 in the same region.
 - Outbreak in 2018 in Kerala.
- **No Vaccine:** Currently, no vaccine is available for Nipah Virus.
- **High Mortality:** Known for high mortality rates, requiring strict infection control measures.
- **Structure of Nipah Virus**
 - NiV is a **singlestranded**, enclosed, negative-sense RNA virus. It is a member of the **Henipavirus** genus,

which is part of the **Paramyxoviridae** family. The NiV's structure is defined by many main components:

- NiV's **nucleocapsid** is protected by a matrix protein, which contains prominent **fusion proteins** and **glycoproteins** required for attachment and entry into cells.
- It shows a distinct cytoplasmic structure close to the endoplasmic reticulum.
- **Genome structure:** The NiV genome is a **negative-sense single-stranded RNA**.
- It generates structural proteins like **N, P, M, F, G, and L**.



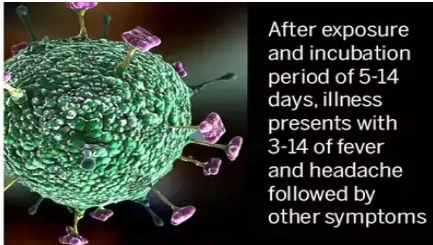
ah Virus Transmission:

- **Direct contact:** The infection can occur through direct contact with infected animals, such as **bats or pigs**, particularly through their **bodily fluids**.
- **Consumption of contaminated food:** In Bangladesh and India, the main source of the Nipah virus is eating fruits, which are **contaminated with the saliva** of infected fruit bats.
- **Testing:**
 - Real-time polymerase chain reaction (RT-PCR), Immunohistochemistry (IHC), Enzyme-linked immunosorbent

assay (ELISA) and Serum neutralisation test (SNT) are some tests available to detect the virus.

SYMPTOMS

- Fever
- Headache
- Drowsiness
- Disorientation
- Mental confusion
- Coma
- Potentially death



After exposure and incubation period of 5-14 days, illness presents with 3-14 of fever and headache followed by other symptoms

TREATMENT

No specific treatment for Nipah Virus
 Primary treatment is intensive supportive care

- **Ribavirin**, an antiviral, may play a role in lowering mortality in patients with Nipah virus encephalitis.

TRISHNA

Thermal Infrared Imaging Satellite for High-resolution Natural Resource Assessment (TRISHNA) mission, a collaboration between ISRO and CNES (French Space Agency), aims to monitor surface temperature and water management globally.

- **Objectives:** The Primary Goal of TRISHNA mission is to **monitor surface temperature and water management globally.**
 - It will address extreme heat issues in India and Europe.
- **Launch Details**
 - Tentative Launch: 2025
 - Mission Lifespan: 5 years
- **Features:** There are two primary payloads in satellites.
 - **The Thermal Infra-Red (TIR) payload :** It will be provided by the French space agency CNES
 - The TIR payload will feature a four-channel long-

wavelength infrared imaging sensor for studying high-resolution surface temperatures.

- It will also map the heat radiated back from land in different regions.
- **The Visible Near Infrared-Red Short Wave Infrared-Red (VNIR-SWIR) payload**
 - It will be developed by ISRO
 - The VNIR-SWIR payload will map the reflectivity (albedo) of the Earth's surface across seven bands.
 - This mapping will measure the amount of heat reflecting off the Earth's surface.
 - It will also calculate various biophysical and radiation budget variables.

INTERCONTINENTAL BALLISTIC MISSILE

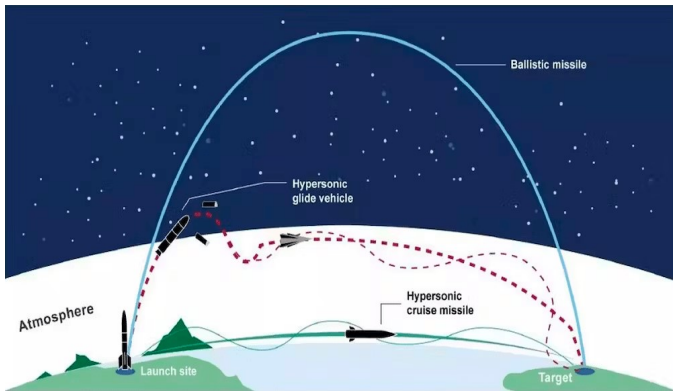
Context: China test-launched an intercontinental ballistic missile on Wednesday, firing it into the Pacific Ocean in its first such exercise in decades.

What is an Intercontinental ballistic missile?

- An intercontinental ballistic missile (ICBM) is a **long-range ballistic missile system primarily designed for nuclear weapons delivery.** They are powerful and destructive weapons, capable of travelling vast distances at incredibly high speeds.
- **Key features of ICBMs:**
 - **Range:** Range greater than 5,500 kilometres with maximum

ranges varying from 7,000 to 16,000 kilometres.

- **Speed:** ICBMs can travel at speeds exceeding 20,000 kilometres per hour.
- **Payload:** Typically designed to carry nuclear warheads, though they could potentially be used to deliver other types of weapons, such as chemical or biological weapons.
- **Deployment:** ICBMs can be launched from silos underground, mobile launchers on land, or submarines at sea.



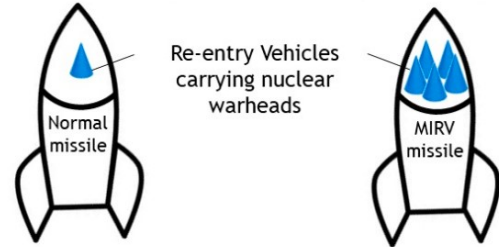
- **Countries having operational ICBMs:** Russia, United States, China, France, India, United Kingdom, Israel and North Korea.

India's ICBM:

- **Agni V** is India's solid-fuelled ICBM and has a strike range of 7,000-10,000 km.
- Its next iteration is called **Agni VI**, which will also have an MIRV feature.
 - **Multiple Independently-targetable Re-entry Vehicles (MIRVs)** permit a missile to **deliver multiple nuclear warheads** to different targets, in contrast to a traditional missile which carries one warhead.
 - MIRVs missiles **confuse anti-ballistic-missile protection systems** by releasing multiple

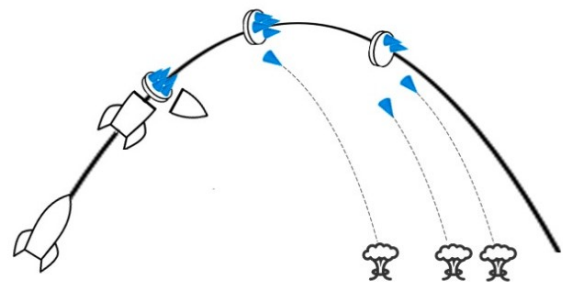
warheads, some of which may be dummies, with different targets.

Multiple Independently-targetable Reentry Vehicles (MIRVs)



Re-entry Vehicles carrying nuclear warheads

Each re-entry vehicle can be independently targeted - launched from one missile, but hitting different targets



NATIONAL CENTRE OF EXCELLENCE FOR AVGC

Context: Recently, the Union Cabinet recently approved the establishment of a National Centre of Excellence (NCoE) for Animation, Visual Effects, Gaming, Comics, and Extended Reality (AVGC-XR) in Mumbai.

National Centre of Excellence for AVGC:

- It will be set up as a Section 8 Company under the **Companies Act, 2013** in India.
- The **Federation of Indian Chambers of Commerce & Industry** and **Confederation of Indian Industry** represent the industry bodies as partners with the Government of India.
- It aims at creating a world class talent pool in India to cater to the Indian as well as global entertainment industry.

- It is provisionally named the **Indian Institute for Immersive Creators (IIIC)**, this centre aims to revolutionize the AVGC sector and foster innovation in immersive technologies.
- It will be **modelled after** renowned institutions like the **Indian Institutes of Technology (IITs)** and **Indian Institutes of Management (IIMs)**.
- **Key objectives of the NCoE (IIIC):**
 - Focusing of creating Indian IP
 - Leveraging our cultural heritage in new age
 - Create a multiplier effect in the industry
 - An industry led initiative, in partnership with state and academia
 - Integrated focus on education, skilling industry, development, innovation
 - Hub and spoke model of development to be followed
 - IIIC as the hub and several center's as its spokes dedicated innovation and research fund to promote start-up ecosystem
- **Significance:** This initiative is **set to boost the economy** while creating new job opportunities in the rapidly growing AVGC sector.
- As a global hub for filmmaking, India's advancements in technology and infrastructure will enable the production of high-quality content, positioning the country as a leader in technological innovation and creativity.

PINAKA MULTI-BARREL ROCKET LAUNCH SYSTEM



- The Pinaka MBRL is designed by the Armament Research and Development Establishment (ARDE), a laboratory of the **DRDO**.
- It was first used during the **Kargil War**, where it successfully neutralised Pakistan Army positions on the mountain tops.
- It delivers lethal and responsive fire against a variety of area targets, such as exposed enemy troops, armoured and soft-skin vehicles, communication centres, air terminal complexes, and fuel and ammunition dumps.
- **Features:**
 - It consists of a multi-tube launcher vehicle, a replenishment-cum-loader vehicle, a replenishment vehicle, and a command post vehicle.
 - The rocket launcher has two pods containing six rockets each and can neutralise an area of 700 × 500 square metres within 48 seconds.
 - The launcher system is supported on four hydraulically actuated outriggers at the time of firing.
 - It has a range of 60 to 75 kilometers.

- The system is mounted on a Tatra truck for mobility.

SPIRAL GALAXY



- Spiral galaxies are **twisted collections of stars and gas** that often have beautiful shapes and are **made up of hot, young stars**.
- In a spiral galaxy, the **stars, gas, and dust** are **gathered in spiral arms** that spread outward from the galaxy's center.
- **Most of the galaxies** that scientists have discovered so far are **spiral galaxies**, as opposed to the other two main categories of galaxy shapes—elliptical and irregular.
- Approximately **60% of all galaxies** are thought to be spiral galaxies.
- The **Milky Way**, the galaxy that includes Earth and our solar system, is an **example** of a spiral galaxy.
- **Structure:**
 - Most spiral galaxies contain a **central bulge surrounded by a flat, rotating disk of stars**.
 - The **bulge** in the center is **made up of older, dimmer stars** and is thought to contain a **supermassive black hole**.

- Approximately **two-thirds** of **spiral galaxies** also contain a bar structure through their center, as does the Milky Way.
- The disk of stars orbiting the bulge separates into arms that circle the galaxy.
- These spiral arms contain a wealth of gas and dust and younger stars that shine brightly before their quick demise.

- The **majority of spiral galaxies rotate** in the sense that the arms trail the direction of the spin.
- The **visible portion** of spiral galaxies **contains only a small fraction of the total mass** of the galaxy, and that spiral galaxies are **surrounded by an extensive halo** consisting mostly of **dark matter**.
- Spiral galaxies are thought to **evolve into elliptical galaxies** as the spirals get older.

NEUTRINO FOG



The **LUX-ZEPLIN (LZ) experiment** revealed that as we continue to push the boundaries of dark matter detection, the issue of neutrino fog becomes increasingly significant

- **Neutrinos**, often referred to as “**ghost particles**,” are subatomic particles with nearly **zero mass and no electric charge**.
- “**Neutrino Fog**” refers to the interference caused by **neutrinos**—



subatomic particles that rarely interact with matter—in **dark matter detection experiments**.

- Neutrinos are produced naturally in the **Sun's core, supernovae,** and even **Earth's atmosphere**.
- Though they pass through most matter undetected, their weak interactions can cause small disturbances in highly sensitive detectors.
- As **dark matter detectors** become larger and more sensitive, they are more likely to detect **neutrinos**, leading to a "fog" of signals that can obscure or mimic potential **dark matter interactions**.

LUX-ZEPLIN (LZ) Experiment?

- The LUX-ZEPLIN (LZ) experiment is a cutting-edge **dark matter detection project** located deep underground at the **Sanford Underground Research Facility** in **South Dakota, USA**.
- It is one of the most sensitive experiments in the world designed to detect **dark matter particles**, which are believed to make up about **85% of the matter** in the universe but have not yet been directly observed.
- The heart of the LZ experiment is a tank filled with **10 tonnes of liquid xenon**, a very dense and pure material.
- The idea is that if a **dark matter particle** collides with a **xenon atom**, it will produce a tiny burst of light and free electrons.
- These interactions are then **detected by sensitive equipment** surrounding the xenon.
- The experiment is located **1.5 km below the Earth's surface**.

VALLEY FEVER

Recently, there has been a rise in cases of Valley fever across California.

About Valley Fever:

- Valley fever (coccidioidomycosis) is a lung infection caused by breathing in spores from the *Coccidioides* fungus. It is endemic to the western United States.
- The fungus lives in the soil, especially in the Pacific Northwest and southwestern United States, and parts of Mexico, Central America, and South America.

Causes:

- It is caused by inhaling spores of *Coccidioides immitis* (in California) and *Coccidioides posadasii* (in other regions).
- Spores are released when the soil is disturbed, such as during dust storms or construction.

Transmission:

- It is non-contagious, but spores can spread through the air.

- In extremely rare cases, the spores can enter the skin through a wound and cause a skin infection.
- Adults aged 60 and older are at greater risk.
- People who have weakened immune systems, for example, people who have HIV/AIDS, have had an organ transplant, are taking medications such as corticosteroids or TNF-inhibitors, pregnant women, people who have diabetes etc.

MONTULEKAST

Montelukast is a medication primarily used in the management of asthma and allergic rhinitis.

- For allergic rhinitis, most guidelines across the world recommend intranasal corticosteroids and/or antihistamines; montelukast is not recommended first-line therapy.
- Yet, it is widely prescribed in India
- Montelukast is used for the long-term management of asthma. It helps to decrease the frequency and severity of asthma attacks.
- **Receptor Antagonism:** It selectively antagonizes the cysteinyl leukotriene receptor, preventing the binding of leukotrienes to these receptors and thereby reducing inflammation and bronchoconstriction.
- Montelukast works by blocking the action of **leukotrienes**, which are chemicals in the immune system that contribute to inflammation, bronchoconstriction (narrowing of the airways), and mucus production.

OVARIAN CANCER

Ovarian cancer is the most lethal gynaecological malignancy. It is often called a “silent killer” because its symptoms are non-specific and mimic less serious conditions that lead to late diagnosis and a poor prognosis

- In India, ovarian cancer ranks among the top three cancers, contributing to **6.6%** of all women’s cancers.

Risk factors :

- **Genetic Factors:** Mutations in BRCA1 and BRCA2 genes increase the risk. Other genetic syndromes include Lynch syndrome.
- **Family History:** Increased risk if there is a family history of ovarian or breast cancer.
- **Reproductive History:** Nulliparity, late menopause, and early menarche are risk factors.
- **Hormonal Factors:** Use of hormone replacement therapy (HRT) and fertility treatments can influence risk.
- **Lifestyle Factors:** Obesity and smoking may contribute to an increased risk, though the evidence is less robust.

OVER THE YEARS

YEAR	INCIDENCE	MORTALITY
2020	13.92 lakh	7,70,230
2021	14.26 lakh	7,89,202
2022	14.61 lakh	8,08,558
2025	15.69 lakh (projected)	

Source: National Cancer Registry data presented in Parliament; ICMR National Centre for Disease Informatics and Research study

INCIDENCE PER 1 LAKH, 2020*



COMMON CANCER SITES

MALE: Lung, mouth, prostate, tongue, stomach (36% of all cancers)
FEMALE: Breast, cervix, ovary, uterus, lung (53% of all cancers)

FOR WOMEN, SCREENING MATTERS

BREAST & CERVICAL, the two most common cancers in women, are highly preventable and treatable.

SELF-EXAMINATION of breasts every month, and a clinical examination by a doctor every year, is important. Women who detect any lumps during self-examination must consult a doctor immediately. Women over age

40 should get a mammography once a year.

A PAP SMEAR TEST to check for pre-cancerous growth in the genitals is recommended for women ages 25-60.

HPV TEST to detect human papilloma virus that causes the majority of cervical cancers, can be done every 5-10 years.

BIOSIMILARS

- Generic drugmaker Aurobindo Pharma is expanding specialty business, accelerating biosimilar product development, with Fourteen biosimilar products under different stages of development

What is a Biosimilar?

- A biosimilar product is a type of biologic product that receives approval by demonstrating its **high similarity to an already approved biologic product**, known as a **reference product**.
- The biosimilar must also prove that **there are no clinically significant differences in terms of safety and effectiveness** compared to the reference product. Minor differences are allowed only in clinically inactive components of biosimilar products.
- Biosimilars are **derived from the same sources, such as living cells or microorganisms, as their reference products**. Additionally, they possess comparable levels of safety and effectiveness, ensuring they are a reliable alternative to their reference counterparts.
- **Biosimilars are highly similar to the reference product in terms of safety, purity and potency**, but may have minor differences in clinically inactive components.

India is one of the leading manufacturers of similar biologics. India developed a new guideline in 2012 for the pre- and post-marketing approval of similar biologics. The guidelines also address the regulation of manufacturing process as well as quality, safety, and efficacy of similar biologics.

PRESBYOPIA

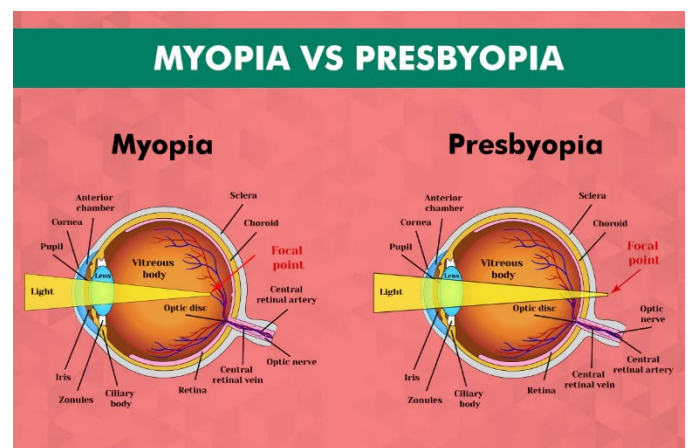
- It is an **age-related eye condition** (around 40) where the **eyes gradually lose the ability to focus on close objects**.
- It affects nearly everyone to some degree as they age.

Causes

- It is caused by the gradual hardening of the eye's lens (becomes less flexible over time).
- The lens changes shape to focus light on the retina.
- As the lens stiffens with age, its ability to change shape diminishes, making it difficult to focus on nearby objects.

Treatment

- **Simple, non-prescription glasses** that correct near vision problems by refracting light.
- **Bifocals:** Correct both near and far vision, with a dividing line between the two lens areas.
- Prescription eye drops (like pilocarpine hydrochloride) reduce pupil size, helping the eyes focus on close objects.
- **Laser surgery** corrects one eye for near vision and the other for distance vision.
- **Corneal Inlays:** Small devices implanted in the cornea to improve near vision.





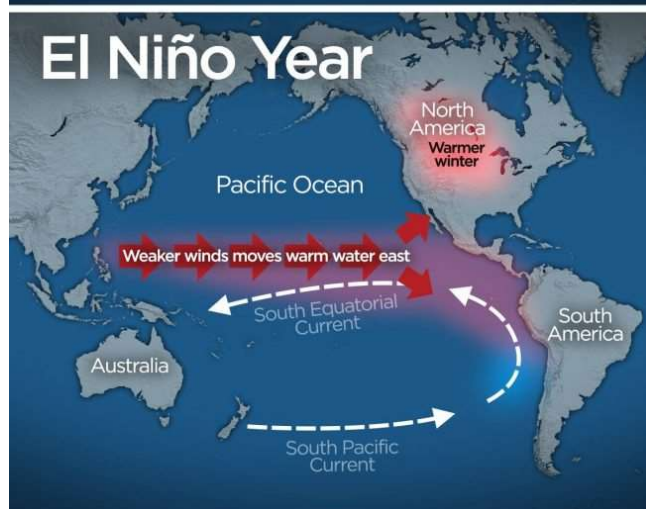
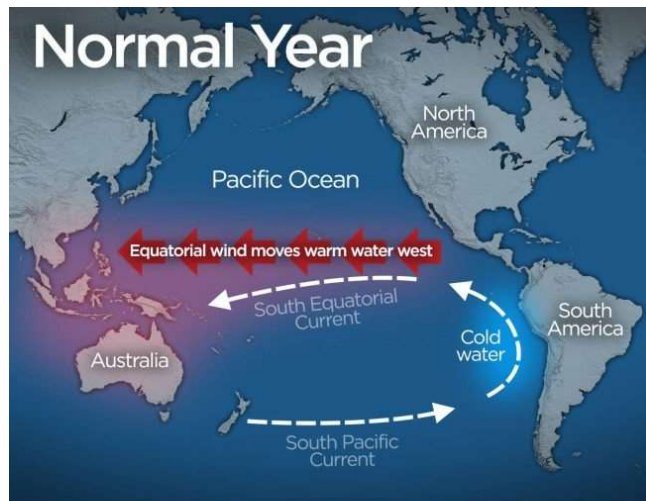
Disorder	Description	Treatment
Myopia (Nearsightedness)	Difficulty seeing distant objects clearly.	Eyeglasses, contact lenses, refractive surgery (LASIK).
Hyperopia (Farsightedness)	Difficulty seeing close objects clearly.	Eyeglasses, contact lenses, or surgery.
Astigmatism	Irregular curvature of the cornea or lens, causing blurred vision.	Corrective lenses, LASIK surgery.
Cataracts	Clouding of the eye's lens, leading to vision impairment.	Cataract surgery (replacement of the cloudy lens with an artificial one).

Glaucoma	Damage to the optic nerve, often caused by high intraocular pressure.	Eye drops, laser treatment, surgery
-----------------	---	-------------------------------------

Places in News and Geography

EL NINO & LA NINA

Context: La Nina is expected to take root in India by September, and the Indian Meteorological Department has forecast heavy rains for North India due to this.



- El Nino and La Nina are complex weather patterns resulting from **variations in ocean temperatures in the Equatorial Pacific Region**.
- They are opposite phases of what is known as the **El Nino-Southern Oscillation (ENSO)** cycle.
- The ENSO cycle describes the fluctuations in temperature between the ocean and

atmosphere in the east-central Equatorial Pacific.

- El Nino and La Nina episodes typically last nine to 12 months, but some prolonged events may last for years.

About El Nino:

- El Nino is a climate pattern that describes the **unusual warming of surface waters in the eastern tropical Pacific Ocean**.
- It was first recognized by Peruvian fishermen off the coast of Peru as the appearance of unusually warm water.
- It is not a regular cycle, not predictable and occur irregularly at **two- to seven-year intervals**.
- When coastal waters become warmer in the eastern tropical Pacific (El Nino), the **atmospheric pressure above the ocean decreases**.
- Climatologists define these linked phenomena as El Nino-Southern Oscillation (ENSO).

About La Nina:

- La Nina, the “cool phase” of ENSO, is a pattern that describes the **unusual cooling of the tropical eastern Pacific**.
- La Nina events may last between **one and three years**, unlike El Nino, which usually lasts no more than a year.
- Both phenomena tend to peak during the Northern Hemisphere winter.



The **Oceanic Niño Index (ONI)**, is a measure of the departure from normal sea surface temperature in the east-central Pacific Ocean, is the standard means by which each El Nino episode is determined, gauged, and forecast.

Impact of El Nino:

- **In South America:** As El Nino brings rain to South America, it brings droughts to Indonesia and Australia.
 - These droughts threaten the region's water supplies, as reservoirs dry and rivers carry less water. Agriculture, which depends on water for irrigation, is also threatened.
- Strong El Nino events contribute to **weaker monsoons** and even droughts in **India and Southeast Asia**.

Impact of La Nina:

- **Europe:** In Europe, El Nino reduces the number of autumnal hurricanes.
 - La Nina tends to lead to **milder winters** in **Northern Europe** (especially UK) and **colder winters** in **southern/western Europe** leading to snow in the Mediterranean region.
- **North America:** It is continental North America where most of these conditions are felt. The wider effects include:
 - Stronger winds along the equatorial region, especially in the Pacific.
 - Favourable conditions for hurricanes in the Caribbean and central Atlantic area.
 - Greater instances of tornados in various states of the US.
- **South America:** La Nina causes drought in the **South American countries** of Peru and Ecuador.
 - It usually has a positive impact on the fishing industry of western South America.
- **Western Pacific:** In the western Pacific, La Nina increases the potential for landfall in those areas most vulnerable to their effects, and especially into continental Asia and China.

- It also leads to **heavy floods** in **Australia**.
- There are **increased temperatures** in **Western Pacific, Indian Ocean and off the Somalian coast**.

- La Nina also means better monsoons for India.

LAOS



- At least 47 Indians who were trapped in 'cyber scam centres', have been rescued from Bokeo province in Laos recently.

About Laos:

- It is located in the **Indochinese Peninsula** in **Southeast Asia**.
- It is the **only landlocked country** in **Southeast Asia**.
- **Official Name:** **Lao People's Democratic Republic**
- Guided by Marxist-Leninist ideology, **Laos emerged** from the turmoil in **1975 as a communist country**.
- **Bordering Countries:** It is bounded to the north by **China**, to the northeast and east by **Vietnam**, to the south by **Cambodia**, to the west by **Thailand**, and to the northwest by **Myanmar** (Burma).

- **Highest point:** Phu Bia 2,817 m
- **Drainage:** All the major rivers—the Tha, Beng, Ou, Ngum, Kading, Bangfai, Banghiang, and Kong—are **tributaries of the Mekong River**, Southeast Asia's most significant river.
- The **Mekong** flows generally southeast and south along and through western Laos and **forms its boundary with Myanmar and most of the border with Thailand.**
- **Climate:** It has the **typical tropical monsoon (wet-dry) climate** of the region.
- **Vegetation:** Laos has **tropical rainforests** of broad-leaved evergreens in the north and **monsoon forests of mixed evergreens and deciduous trees** in the south.
- **Major Mountain Ranges:** Annamite Range, Luang Prabang Range
- **Languages:** Lao (official), French, English, various ethnic languages
- **Capital:** Vientiane
- **Religion:** The predominant religion of Laos is **Theravada Buddhism.**
- **Money:** Kip
- **Form of Government:** It is one of the world's few **openly communist states.**
- It is a **one-party state**, and the general secretary of the Lao People's Revolutionary Party holds ultimate power and authority over the state and government.

BRYANSK



- **Location:** The Bryansk region is situated in western Russia, bordering Belarus and Ukraine.
- **Administrative Center:** The capital of the region is the city of Bryansk.
- **Geography:** The region is characterized by a mix of forests, rivers, and rolling hills, with the Desna River being a prominent feature.
- **Economy:** Bryansk is an industrial and agricultural region, known for machinery manufacturing, metalworking, and timber production. Agriculture focuses on grain, potatoes, and livestock.
- **History:** The region has a rich history, with significant events during World War II, where it was a center of partisan resistance against Nazi occupation.
- **Recent Events:** The Bryansk region has occasionally been in the news due to its proximity to the conflict zones near Ukraine, particularly since the 2022 Russian invasion of Ukraine.
- **Transportation:** Bryansk is an important transportation hub, with well-developed rail and road networks.

connecting it to other parts of Russia and neighboring countries.

- **Population:** The region has a population of approximately 1.2 million people, with a majority of ethnic Russians.

BRUNEI

On September 3–4, the Prime Minister will travel to Brunei at Sultan Haji Hassanal Bolkiah's invitation to deepen bilateral cooperation across all current areas.

About Brunei:

Geography:

- **Location:** Brunei is a small, sovereign state located on the island of Borneo in Southeast Asia. It is bordered by the Malaysian state of Sarawak and has a coastline along the South China Sea.
- **Terrain:** It features a tropical rainforest climate, with a mix of coastal plains and hilly interior.

Geopolitical :

- Brunei is a member of the Association of Southeast Asian Nations (ASEAN) and has diplomatic relations with many countries.

Economy :

- Brunei's economy is heavily dependent on oil and natural gas, which are major sources of revenue. The country is one of the wealthiest in the world in terms of GDP per capita.
- **Currency:** Brunei Dollar (BND), which is pegged to the Singapore Dollar (SGD).



Brunei-India bilateral trade has hovered around the U.S. \$500 million mark for the past decade, although it has declined in recent years, as India began to source more Russian oil and gave up oil imports from Brunei and officials said they would discuss **increasing India's LNG intake from Brunei**. India and Brunei are also discussing initial moves on defence cooperation, beginning with the setting up of a joint working group, the MEA said.

SINGAPORE



PM Modi will be in Singapore at the invitation of Prime Minister Lawrence Wong. "The leaders will review the **progress of**



India–Singapore Strategic Partnership and exchange views on regional and global issues of mutual interest,” said a statement by the Ministry of External Affairs on Friday.

About Singapore :

- **Location:** Singapore is a city-state located at the southern tip of the Malay Peninsula in Southeast Asia. It lies between **Malaysia to the north and Indonesia to the south.**
- **Terrain:** Singapore is primarily flat with a few low hills. It has a tropical rainforest climate with high humidity and rainfall throughout the year.
- **Economic Basis:** Singapore has a highly developed and free-market economy. It is known for its global financial services, trade, and high-tech manufacturing sectors.
- Singapore is among India's largest trade and investment partners in ASEAN and accounted for 27.3 % of our overall trade with ASEAN in 2021-22.
- Singapore is also the **leading source of Foreign Direct Investment** into India.
- **Defence and Security Cooperation:** Military Exercises include :
 - Navy: SIMBEX
 - Air Force: SINDEK
 - Army: Bold Kurukshetra

- **Location:** Southeastern Brazil, with Rio de Janeiro on the southwest shore and Niterói on the southeast shore.
- **Discovery:** Around 1502, initially named Rio de Janeiro Bay.
- **Size:** Approximately 19 miles (31 km) long and up to 18 miles wide.
- **Entrance:** One-mile-wide entrance flanked by Papagaio Peak and Santa Cruz fortress on the east, and Sugar Loaf Mountain and São João fortress on the west.
- **Islands:** Includes notable islands such as Villegagnon, Governador, and Cobras (with fortifications and naval facilities).
- **Historical Significance:** Site of a temporary Huguenot settlement in 1555 on Laje Island.
- **Bridge:** Spans the bay, connecting Rio de Janeiro to Niterói.

LOTHAL LOCATED IN THE BHAL REGION OF GUJARAT

- **New Evidence:** IIT-Gandhinagar's study presents fresh evidence supporting the presence of a dockyard at Lothal (222 x 37 meters).
- **Historical Discovery:** Lothal, located in **Gujarat**, was discovered in the 1950s, sparking debates about the existence of a dockyard.
- **Sabarmati River:** The study reveals that the Sabarmati River flowed close to Lothal during the Harappan period, unlike its current course 20 km away.
- **Trade Route:** Suggests a trade route linking Ahmedabad, Lothal, Nal Sarovar, Little Rann, and Dholavira.
- **Satellite Data:** Ancient channels of the Sabarmati River were uncovered, confirming Lothal's strategic riverine location.

GUANABARA BAY



- **Trade Connections:** Traders may have accessed Gujarat via the Gulf of Khambhat, collected materials from Ratanpura, and transported them to Mesopotamia (modern-day Iraq).



CAUVERY RIVER

Kaveri River, also known as Cauvery River, is one of the major rivers of **southern India**.



Geography :

- It is bounded by the **Western Ghats on the west**, by the **Eastern Ghats on the east** and south and by the ridges separating it from the **Krishna basin and Pennar basin** on the north.
- The Cauvery basin extends over the states of Tamil Nadu, Karnataka, Kerala, and the Union Territory of Puducherry, draining an area of 81,155 Sq.km
- **Tributaries:** Its important tributaries joining from left are the Harangi, the Hemavati, the Shimsha, and the Arkavati, whereas the Lakshmantirtha, the Kabbani, the Suvarnavati,

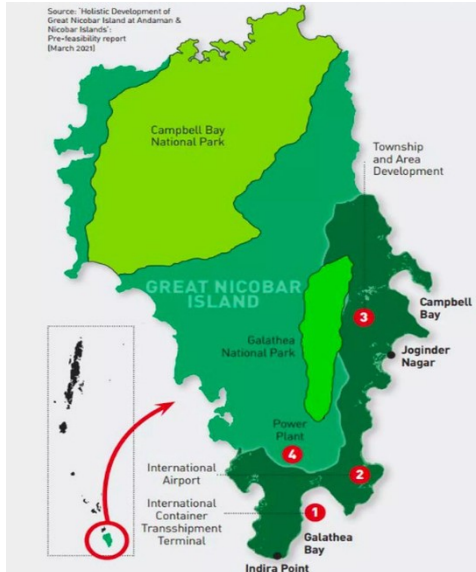
the Bhavani, the Noyil, and the Amaravati joins from right.

- **Dams:** Dams constructed across the river are **Krishna Raja Sagara Dam** and **Mettur Dam** and the Banasura Sagar Dam on the Kabini River, which is a tributary of Kaveri River.
- **Course:**
 - It rises on **Brahmagiri Hill** (near Talacauvery) of the Western Ghats in southwestern Karnataka, at an elevation of 1.341m (4,400 ft.) above mean sea level.
 - It flows in the south and east through Karnataka and Tamil Nadu and then across the southeastern lowlands, and finally surrenders in the Bay of Bengal through two principal mouths.
 - The total length of the river from origin to outfall is 800 km.

GREAT NICOBAR ISLANDS

The Great Nicobar Islands are a significant part of the Andaman and Nicobar Islands group in the Bay of Bengal.

- At approximately 6°N latitude and 93°E longitude, the Great Nicobar Island is the southernmost island of the Andaman and Nicobar Islands.
- The island features a rugged terrain with hills, dense forests, and rich biodiversity. The highest point on the island is the **Mount Thullier**, which rises to about 650 meters.



- **Biodiversity:** The Great Nicobar Island hosts diverse species of flora and fauna, including some endemic species.
 - **Nicobar pigeon (*Caloenas nicobarica*):** Endemic to the Nicobar Islands and one of the most notable bird species on Great Nicobar.
 - **Nicobar Shrew (*Crocidura nicobarica*):** A small mammal endemic to the Nicobar Islands.
 - **Nicobar Tree Skink (*Lipinia nicobarica*):** A species of skink found in the forested areas.
 - **Sea Turtles:** The island is a nesting ground for sea turtles such as the Olive Ridley and Green Turtle, Leatherback turtles etc.
- The Great Nicobar Biosphere Reserve in the Andaman and Nicobar Islands has two national parks:
 - Campbell Bay National Park and
 - Galathea National Park
- **Indigenous Tribes:** The island is inhabited by indigenous groups such as the **Nicobarese**.

PUERTO RICO



Puerto Rico is located in the **northeastern Caribbean Sea, east of the Dominican Republic and west of the Virgin Islands.**

- Puerto Rico is an unincorporated territory of the United States, meaning it is under U.S. sovereignty but does not have the same status as a U.S. state.
- **Pre-Colonial Period:** Originally inhabited by the Taíno people, an indigenous group. Later acquired by the United States from Spain following the Spanish-American War in 1898 under the Treaty of Paris
- **Economy:** Puerto Rico has a diverse economy, with major industries including manufacturing (pharmaceuticals, electronics, textiles), tourism, and services. It faces economic challenges, including a significant public debt crisis.
- **Currency:** U.S. Dollar (USD).
- **Language:** Spanish and English are the official languages. Spanish is the predominant language.

Recent Developments:

- **Economic Crisis:** Puerto Rico has been dealing with a severe economic

crisis, including high public debt and financial mismanagement.

VENEZUELA



- It is located on the **northern coast of South America**.
- **Boundaries:** It is bounded by the **Caribbean Sea** and the **Atlantic Ocean** to the north, **Guyana** to the east, **Brazil** to the south, and **Colombia** to the southwest and west.
- Capital: Caracas
- **Major Rivers:**
 - **Rio Negro** (shared with Colombia and Brazil): 2,250 km. It is a major tributary of the Amazon River.
 - **Orinoco** (shared with Colombia): 2,101 km. It is the third-longest river in South America, after the Parana and the Amazon.
- A physiographically diverse country, Venezuela incorporates the northern Andean Mountain chains and interior highlands, the main portions of the **Orinoco River basin with its expansive Llanos (plains), Lake Maracaibo**, which is the largest lake in South America, and the spectacular

Angel Falls, the world's highest waterfall.

- **Economic Overview**
 - **Oil Dependency:** Venezuela has one of the largest oil reserves in the world. The economy is heavily dependent on oil exports, making it vulnerable to fluctuations in oil prices.
 - **Economic Crisis:** Recent years have seen severe economic difficulties, including hyperinflation, food shortages, and a decline in living standards. The crisis has led to widespread poverty and mass emigration.

MALAWI



- Malawi is a landlocked country located in southeastern Africa. It is bordered by **Tanzania to the northeast, Mozambique to the east, Zambia to the west, and Mozambique to the south.**

Demographics and Culture

- The population of Malawi is predominantly of Bantu origin, with Chewa being the largest ethnic group.

- The official languages are English and Chichewa (Chewa), with various regional languages also spoken

Topography:

- Lake Malawi:** The country is named after Lake Malawi (formerly Lake Nyasa), which covers about 20% of Malawi's total area and is the third largest lake in Africa.
- Highlands:** The Shire Highlands and the Nyika Plateau are prominent features, with some areas reaching elevations over 2,000 meters.
- Rift Valley:** The Great Rift Valley runs through the western part of Malawi, influencing the country's topography and climate.

Climate:

- General Climate:** Malawi has a subtropical climate with a rainy season from November to April and a dry season from May to October.
- Agriculture:** The backbone of Malawi's economy, with major crops including tobacco, tea, sugarcane, and maize. Tobacco is the largest export product.
- India, in particular, has been a significant development partner for Malawi, supporting various projects in critical sectors like infrastructure, health, water resources, capacity building, and education.

MADEIRA RIVER



- Madeira River is a major tributary of the Amazon and a major waterway in South America.**
- Named "Madeira" (Portuguese for "Wood River"), previously called the Cuyari River.
- Source:** The river is formed by the confluence of the **Beni and Mamoré rivers** near the border between **Bolivia and Brazil**.
- Course:** It flows predominantly northward through the **Amazon Rainforest**, eventually joining the **Amazon River near the city of Manaus in Brazil**.
- Drainage Basin:** The Madeira River has a vast drainage basin that spans parts of **Brazil, Bolivia, and Peru**, covering an area of about **1,420,000 square kilometers**.

CROATIA



- Former Election Commission of India, **Arun Goel has been appointed as India's next ambassador to Croatia.**
- **Location:** Croatia is located in southeastern Europe, along the Adriatic Sea.
- **Capital:** Zagreb.
- **Official Language:** Croatian.
- **Population:** Approximately 4 million people.
- **Euro Adoption:** Croatia switched from its kuna currency to the euro, becoming the 20th member of the Eurozone on January 1, 2023.
- **Schengen Zone:** Croatia joined the Schengen Area at the same time, becoming the 27th country in the passport-free travel zone.
- **Free Movement:** By joining the Schengen Zone, Croatia allows free movement for over 400 million people across member nations.
- **European Union Membership:** Croatia has been a member of the European Union (EU) since July 1, 2013.
- **Maastricht Treaty:** The Eurozone was established based on the Maastricht Treaty of 1992, which outlined criteria for adopting the euro, focusing on political, monetary, and economic integration in Europe.

- **Convergence Criteria:** To adopt the euro, Croatia had to meet the Convergence Criteria set by the Maastricht Treaty, including inflation control, government deficit, debt-to-GDP ratio, exchange rate stability, and long-term interest rates.
- **Significance:** Croatia's adoption of the euro and entry into the Schengen Zone marks a major step in its integration into Europe's economic and political frameworks.

SPAIN



- **Location:** Spain is located in southwestern Europe, occupying most of the Iberian Peninsula.
 - **Borders:** Bordered by Portugal (west), France (north), and Andorra (northeast); maritime borders with Morocco and Gibraltar.
 - **Geography:** Includes mountain ranges (Pyrenees, Sierra Nevada), plains, and coastlines.

along the Mediterranean Sea and Atlantic Ocean.

- **Population:** Over 47 million, making it the sixth-most populous country in the European Union.
- **History and Culture:**
 - **Influences:** Influenced by Iberians, Romans, Visigoths, and Moors.
 - **Reconquista:** Christian reconquest of territories from the Moors, leading to the formation of modern Spain.
 - **Cultural Highlights:** Known for flamenco music, dance, and bullfighting traditions.
- **Political System:**
 - **Type:** Parliamentary constitutional monarchy.
 - **Head of State:** King Felipe VI (ascended in 2014).
 - **Head of Government:** Democratically elected Prime Minister.
- **Economy and Industries:**
 - **Mixed Economy:** Contributions from tourism, manufacturing, agriculture, and services.
- **Languages and Regions:**
 - **Official Language:** Spanish (Castilian).
 - **Notable Regions:** Catalonia, Basque Country, Andalusia, Galicia.
- **Art and Architecture:**
 - **Famous Artists:** Pablo Picasso, Salvador Dalí, Francisco Goya.
 - **Architectural Styles:** Influenced by Moorish, Gothic, Renaissance, and Modernist styles.
 - **Landmarks:** Sagrada Família in Barcelona, Alhambra in Granada.
- **Festivals and Celebrations:**

- **Running of the Bulls:** San Fermín festival in Pamplona.
- **La Tomatina:** Tomato fight in Buñol.
- **Semana Santa (Holy Week)** and **Feria de Abril** in Seville are culturally significant events.

EAST TIMOR



Geography

- East Timor is **bounded by the Timor Sea** to the southeast, the Wetar Strait to the north, the Ombai Strait to the northwest, and western Timor (part of the Indonesian province of East Nusa Tenggara) to the southwest.
- It spans a 15,000 square km land area – slightly smaller than Israel – and its 1.3 million people are predominantly Roman Catholic.
- East Timor comprises the eastern half of Timor island, the western half of which is part of Indonesia.

Economy :

- The territory depends on revenues from its offshore oil and gas reserves which account for 90% of its Gross Domestic Product (GDP).



- It has an agreement with Australia to split revenue from the Greater Sunrise gas field, Australia which is worth an estimated USD65 billion.
- The Bayu Undan gas field, its main revenue stream, is said to dry up by 2023 and the country is now planning to collaborate with companies in Australia to turn it into carbon capture facilities.
- **Dili** is the capital and largest city.

VIETNAM

Vietnam is located in Southeast Asia, bordered by China to the north, Laos to the northwest, Cambodia to the southwest, and the South China Sea to the east.



- **Geography :**
 - It has a diverse topography with mountainous regions in the north and central highlands, a fertile delta in the south (Mekong Delta), and extensive coastal plains.
 - Vietnam has a tropical monsoon climate with a rainy season from May to October and a dry season from November to April.
- **International Relations :**
 - Vietnam plays an active role in ASEAN (Association of Southeast Asian Nations) and maintains strategic partnerships with

countries like the U.S., China, Japan, and India.

- Territorial disputes in the South China Sea with China and other countries are ongoing issues (Paracel islands).
- **Mekong-Ganga Cooperation (MGC):** As members of MGC, India and Vietnam have been working to enhance ties between India and Southeast Asian nations and promote development cooperation.
- **Largest Rivers:** The Mekong in the south and the Red in the north, end at the South China Sea.
- **Currency:** Vietnamese Dong (VND)
- **Capital:** Hanoi

KEDARNATH

Kedarnath is situated in the Kedarnath range of the Himalayas, at an altitude of approximately 3,583 meters (11,755 feet) above sea level. It recently underwent a landslide on Kedarnath-Gaurikund route.

Significance :

- Kedarnath is one of the **twelve Jyotirlingas** dedicated to Lord Shiva and is a prominent site in Hindu pilgrimage. It is part of the Char Dham pilgrimage circuit in Uttarakhand.
- The Kedarnath Temple is an ancient structure, with its origins often attributed to the Pandavas of the Mahabharata era. The present structure is believed to have been built by **Adi Shankaracharya** in the 8th century AD.

Char dham :

- The Char-Dham yatra in Uttarakhand consists of visiting four temples, **Badrinath, Kedarnath, Gangotri, and Yamunotri**.
- The Char Dham Yatra holds profound spiritual significance in Hinduism. This

journey typically occurs from April/May to October/November.



CENTRAL AFRICAN REPUBLIC



Jyotirlingas:

- A jyotirlinga can be explained as a Shiva illustration. It is a Sanskrit term that signifies “radiance.” According to the Shiva Hindu mythology, there are up to 64 Jyotirlingas.
- Those same 12 are known as Mahajyotirlingam or also meaning Great Jyotirlingas. These 12 jyotirlingas are of high importance.
- The 12 jyotirlingas are :
 - Somnath
 - Mallikarjuna
 - Mahakaleshwar
 - Omkareshwara
 - Kedarnath
 - Bhimashankar
 - Vishweshwara
 - Trayambakeshwar
 - Nageshwara
 - Baidyanath
 - Rameshwaram
 - Grishneshwar

- **Location:** Landlocked country in central Africa, bordered by Chad, Sudan, South Sudan, Democratic Republic of Congo, Republic of Congo, and Cameroon.
- **Capital:** Bangui.
- **Population:** Approximately 5.65 million (2024 estimate).
- **Government:** Multiparty republic with a single legislative house (National Assembly, 140 seats).
- **Head of State:** President Faustin-Archange Touadéra.
- **Head of Government:** Prime Minister Félix Moloua.

Geography:

- **Area:** Roughly the size of France.
- **Landscape:** Rolling plateau, highlands, and plains. Divides the Lake Chad and Congo River basins.
- **Key Rivers:** Ubangi River (southern boundary), tributaries of the Chari River (northern area).
- **Highest Point:** Mount Ngaoui (1,410 m).

Climate:

- **North:** Moist savanna climate.
- **South:** Equatorial forest zone.
- **Rainy Season:** March to October/November.

- **Dry Season:** October to February/March, dominated by the harmattan winds.

Natural Resources & Wildlife:

- **Forests:** Dense rainforests in the southern regions.
- **Wildlife:** Elephants, gorillas, chimpanzees, and various antelope species.
- **Protected Areas:** Includes national parks like Manovo–Gounda–St. Floris (UNESCO World Heritage site).

People:

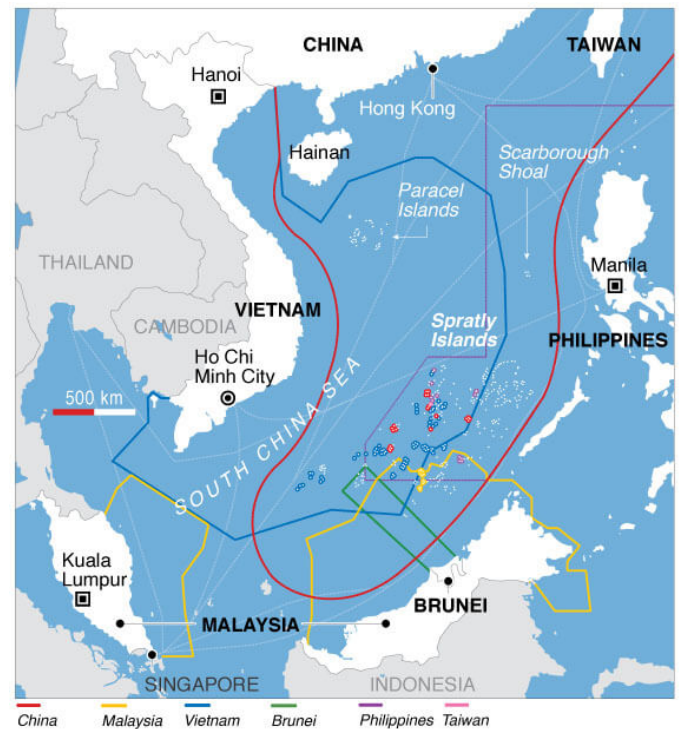
- **Ethnic Groups:** Aka (Pygmies), Zande, Nzakara, Ngbaka, and others.
- **Languages:** French and Sango (official languages).
- **Religion:** Majority Christian (Roman Catholics and Protestants), with a growing Muslim minority.

Economy:

- **Key Sectors:** Agriculture (cassava, cotton, coffee), timber, and diamonds.
- **Challenges:** Political instability, corruption, and reliance on international aid.

SOUTH CHINA SEA

- The South China Sea is a marginal sea that is part of the Pacific Ocean that extends from the Strait of Malacca in the southwest, to the Strait of Taiwan in the northeast.
- The littoral countries of the South China Sea are China, Taiwan, Philippines, Malaysia, Brunei, Indonesia, Singapore, Cambodia, Thailand, and Vietnam.



- This sea holds tremendous strategic importance for its location as it is the connecting link between the Indian Ocean and the Pacific Ocean, through Strait of Malacca.

Ongoing Disputes in South China Sea:

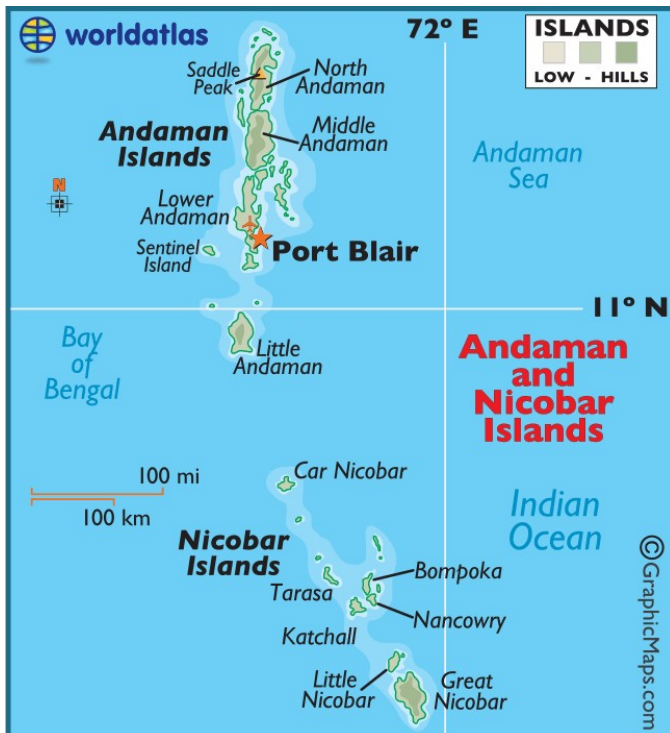
- China's "nine-dash line" and Taiwan's similar "eleven-dash line" overlap with the theoretical 200-nautical-mile (nm) Exclusive Economic Zones (EEZs) that five Southeast Asian countries—Brunei, Indonesia, Malaysia, the Philippines, and Vietnam—could claim from their mainland coasts under the 1994 United Nations Convention on the Law of the Sea (UNCLOS).
- **The Paracel Islands**
 - China, Vietnam, and Taiwan claim these islands in the northern part of the South China Sea. China has occupied them since 1974.
- **The Spratly Islands**
 - China, Taiwan, and Vietnam claim all of these islands in the southern part of the South China Sea. Brunei, Malaysia, and the

Philippines also claim some of them.

- **Scarborough Shoal**
 - China, Taiwan, and the Philippines claim this shoal in the eastern part of the South China Sea. China has controlled it since 2012.
- **Maritime boundaries**
 - There are disputes over maritime boundaries in the Gulf of Tonkin, north of Borneo, and north of the Natuna Islands.

PORT BLAIR

- Port Blair will be renamed **Sri Vijaya Puram**, as announced by Union Minister **Amit Shah**.
- **Location:** Capital of the Andaman and Nicobar Islands, a Union Territory of India, situated in the Bay of Bengal.
- **Geography:** Port Blair is located on **South Andaman Island** and is the largest town in the Andaman Islands.



- Known for the **Cellular Jail**, also called **Kala Pani**, where Indian freedom fighters were imprisoned during British rule.
- Named after **Archibald Blair**, a British naval officer who surveyed the area in the 18th century.
- **Climate:** Tropical monsoon climate, with warm temperatures year-round and heavy rainfall during the monsoon season (May to September).
- **Economy:**
 - Tourism is a major economic activity, with attractions like the **Cellular Jail**, **Ross Island**, **Viper Island**, and **Corbyn's Cove Beach**.
 - It is also an important hub for shipping and commercial activities in the region.
- **Transport:**
 - **Veer Savarkar International Airport** serves Port Blair, connecting it to major cities like Chennai and Kolkata.
 - Ferry services operate between Port Blair and other islands in the Andaman and Nicobar group.
- **Population:** Approximately 100,000 (as of the last census).
- **Language:** Hindi and English are the most commonly spoken languages, with Tamil, Bengali, and Telugu also prevalent.
- **Defense and Strategic Importance:**
 - Port Blair hosts a significant **Indian naval base** and serves as a key strategic location for India's maritime security in the eastern Indian Ocean.

- **Historical Significance:**

SUBARNAREKHA RIVER



- It is one of the longest **east-flowing interstate rivers**.
- 'Subarnarekha' means '**Streak of Gold**.' The river is known as the **storehouse of gold**.
- It flows through the states of **Jharkhand, West Bengal, and Odisha**.
- **Course:**
 - **Origin:** It rises near Nagri village in the **Ranchi District of Jharkhand** at an elevation of 600 m.
 - It flows east through a copper-mining region and **leaves the Chota Nagpur plateau by the Hundrugbagh waterfall**.
 - Continuing eastward, it **flows across West Bengal state**.
 - It **runs through some major industrial towns and cities**, i.e., **Jamshedpur, Chaibasa, Ranchi, and Bhadrak**, before **joining the Bay of Bengal** at Kirtania port in **Odisha**.
- It flows for a length of 395 km.
- The **basin is bounded** on the north-west by the **Chhotnagpur Plateau**, in the south-west by the **Brahmani basin**, in the south by the **Burhabalang basin** and in the south-east by the **Bay of Bengal**.

- The **principal tributaries** of the river are **Kanchi, Kharkai, and Karkari**.

GULF OF MEXICO



- It is a **partially landlocked** body of water on the **southeastern periphery** of the **North American continent**.
- It is a **marginal sea** of the **Atlantic Ocean** and the **world's largest gulf**.
- It is **surrounded** to the west by the Mexican Yucatan and Veracruz regions, to the north by the **United States**, to the east by the **Caribbean islands and Cuba**, and to the south by the tapering **Mexican mainland**.
- It is **connected to the Caribbean Sea** via the **Yucatán Channel** (between Cuba and Mexico) and with the **Atlantic Ocean** through the **Straits of Florida** (between Cuba and the US).
- It is one of the largest and **oldest water bodies** on Earth. It was formed in the late Triassic period, around 300 million years ago.

- It was formed as a **result of seafloor subsidence** due to the movement of the tectonic plates.
- Often referred to as the “**Mediterranean of the Americas**”, the Gulf of Mexico is the 9th largest water body, measuring approximately 1,600 km from west to east and about 900 km from north to south.
- It covers an area of some **600,000 square miles** (1,550,000 square km).
- It is somewhat **shallow, along the coastal continental shelf areas**, and has an average depth of 1,615 m.
- Climate:
 - The **climate** varies from **tropical to subtropical type**.
 - The region experiences some of the most **severe weather** in the world, including **major hurricanes, tornadoes,** and thunderstorms.
- The **seawater** from the **Caribbean Sea** that **enters the Gulf** of Mexico via the Yucatán Channel, quickly **circulates in a clockwise loop** current before **exiting the Gulf** through the Florida Straits, **eventually forming the Gulf Stream**.
 - It is **one of the most powerful and warm ocean currents** that flow from the Gulf of Mexico towards the northern Atlantic Ocean.
- The **Mississippi** and the **Rio Grande** are the **major rivers** draining into the gulf.
- The shallow continental shelf regions of the Gulf of Mexico contain **large deposits of petroleum and natural gas**.
 - It is the **center of the United States’ oil**

refining and petrochemical industry, and hence more than **18% of the US oil production** is derived from the offshore wells in the Gulf of Mexico.



NIGERIA

- It is a country located on the **western coast of Africa**. It is often called the “**Giant of Africa.**”
- **Boundaries:** It is bordered to the north by **Niger**, to the east by **Chad** and **Cameroon**, to the south by the **Gulf of Guinea** of the **Atlantic Ocean**, and to the west by **Benin**.
- It achieved **independence from Britain** in 1960.
- It covers an area of around 9.24 lakh square kilometres.
- It is also **Africa’s most populous country**.
- **Capital: Abuja**
- **Language:** **English** is Nigeria’s **official language**, although many **local languages** such as **Hausa, Yoruba, Igbo, and Ijaw** are also spoken.
- **Money: Naira**
- Nigeria has a diverse geography, with **climates** ranging from **arid to humid equatorial**.

- **Drainage:**
 - The major drainage areas in Nigeria are the **Niger-Benue basin**, the **Lake Chad basin**, and the **Gulf of Guinea basin**.
 - The **Niger River**, for which the country is named, and the **Benue**, its **largest tributary**, are the **principal rivers**.
- **Major Mountain Range:**
Cameroonian Highlands

The country has abundant natural resources, notably **large deposits of petroleum and natural gas**.

LEBANON

- Lebanon is a **country in Western Asia**.
- It is the **second smallest country in continental Asia**.

About :



- It is **located between Syria to the north and east and Israel to the south**, while **Cyprus lies to its west across the Mediterranean Sea**.
- Its location is at the **crossroads of the Mediterranean Basin and the Arabian hinterland**.
- It is **part of the Levant region** of the Middle East.
- **Beirut** is the capital of Lebanon.
- Lebanon has a **moderate Mediterranean climate**. In coastal areas, winters are generally cool and rainy whilst summers are hot and humid.

KENYA

About Kenya :

- Kenya is a country located in Eastern Africa, bordering the Indian Ocean to the southeast.
- **It borders:**
 - North: South Sudan and Ethiopia
 - East: Somalia and Indian Ocean
 - West: Uganda
 - South: Tanzania
- **Important geographical features :**
 - Kenya is famous for its diverse ecosystems, including savannas, forests, and deserts, hosting species like lions, elephants, giraffes, and zebras. National parks like Maasai Mara and Amboseli are world-renowned.
 - Kakamega Forest, Mau Forest, and Arabuko Sokoke Forest are key forest areas in the country.



- **Landforms:**
 - **Great Rift Valley:** A significant geographical feature that runs through Kenya from the north to the south. The valley is characterized by escarpments, lakes, and volcanic mountains.

- **Savannah:** Most of Kenya consists of grassland and savannahs.
- **Plateaus:** The central part of the country consists of highlands and plateaus.
- **Indian Ocean Coastline:** Eastern Kenya has a coastal plain.
- **Mount Kenya** is the second-highest mountain in Africa (after Mount Kilimanjaro).
- **Lake Victoria:** The largest lake in Africa and the second-largest freshwater lake in the world, shared with Uganda and Tanzania. Kenya holds a small portion of its northeastern shores.

India is one of Kenya's largest trading partners. Key exports from India to Kenya include pharmaceuticals, machinery, and petroleum products, while Kenya exports tea, coffee, and horticultural products.

PORTUGAL



- **Location:** Southwestern Europe, located on the Iberian Peninsula, bordered by Spain to the east and north

and the Atlantic Ocean to the west and south.

- **Capital:** Lisbon
- **Official Language:** Portuguese
- **Currency:** Euro (€)
- **Population:** Approximately 10.2 million (as of 2023 estimates).
- **Government:** Semi-presidential republic.
- **Major Cities:** Lisbon, Porto, Coimbra, Faro.
- **Major Rivers:** Tagus (longest), Douro, and Guadiana.
- **Climate:** Mediterranean climate with mild winters and hot, dry summers.
- **Geographical Features:**
 - Mountain ranges like Serra da Estrela.
 - The Azores and Madeira archipelagos are autonomous regions of Portugal in the Atlantic Ocean.
- **Economy:**
 - Major industries: Textiles, footwear, automobiles, cork (world's largest producer), agriculture, tourism.
 - Portugal is part of the **European Union (EU)**, **Eurozone**, **NATO**, and the **Community of Portuguese Language Countries (CPLP)**.
- **Historical Significance:**
 - Portugal had a significant colonial empire, particularly in the 15th and 16th centuries, with territories in Africa, Asia, and South America (including Brazil).
 - Famous explorers: Vasco da Gama, Bartolomeu Dias.
- **Independence:** First unified as a kingdom in 1139 and officially

recognized by the Kingdom of León in 1143.

- **Tourist Attractions:** Tower of Belém, Jerónimos Monastery (UNESCO World Heritage Sites), Douro Valley, Algarve beaches.
- **National Sport:** Football (soccer); home of legendary players like Cristiano Ronaldo.

PARAGUAY RIVER

- It is the **fifth largest river in South America**.
- It runs over a course of approximately 1,584 miles (**2,549 kilometers**) from its **headwaters in the Brazilian state of Mato Grosso (within the Brazilian Highlands)** to its **confluence with the Paraná River, of which it is the main tributary, just north of Corrientes, Argentina.**



- It runs through **Brazil, Bolivia, Paraguay, and Argentina.**
- The river serves as a **natural boundary, particularly between Paraguay and Brazil and between Paraguay and Argentina.**
- The **Pantanal**, one of the most pristine and biologically rich environments on the planet, is **contained**

within the Upper Paraguay River Basin.

- Pantanal is the **world's largest tropical wetland.**
- The **Paraguay, along with the Paraná and Uruguay Rivers, form the second most important drainage system in the world**, which covers approximately 1.6 million square miles.
- These empty into the **Rio de la Plata estuary** at a rate of 2.8 million cubic feet of water per second, an **outflow second only to that of the Amazon River.** Thereafter, the rivers empty into the **Atlantic Ocean.**

AMAZON RIVER

- **Origin:** The river originates from a glacial stream from a peak, called Nevado Mismi found at an elevation of 18,363 feet (5,597 meters) in the Peruvian Andes.
- It is the **largest river by discharge volume of water in the world.**
- **Length:** The Amazon River is the **second longest river in the world** and is about 4,000 miles (6400 km) long.
- Discharge into the **Atlantic Ocean.**
- **Basin:** Flowing through South America, the countries of Brazil, Peru, Bolivia, Colombia, Ecuador, Venezuela, Guyana are in its catchment basin.
- **Tributaries:** The Amazon River consists of over 1,100 tributaries, the main ones including **Madeira, Rio Negro, Japura, Purus, Madeira, Solimoes, and Xingu rivers.**
- The Amazon is the **only river basin in the world that has three tributaries (the Purus, the Juruá and the Madeira) longer than 3,000 km.**



SRI VENKATESWARA TEMPLE



- **Biodiversity:** The Giant Royal Water Lily, Amazon River dolphin (also known as the pink river dolphin or boto) is the largest species of river dolphin in the world.
 - The Amazonian Manatee is the largest aquatic mammal in the Amazon Basin.
 - The largest-known snake in the world is the Anaconda, or Eunectes murinus, of South America found here.
- **Features:** Oxbow lakes are common in the floodplains of Amazon river.
- **Recent issues:**
 - In **Tabatinga**, a Brazilian town bordering Colombia, the Solimoes River, a major tributary of the Amazon, has reached its lowest level on record.
 - **Lake Tefe**, where over 200 freshwater dolphins perished during 2023 drought, The lake has now dried up entirely, depriving the endangered pink dolphins of a crucial habitat.

About Tirupati Balaji Temple:

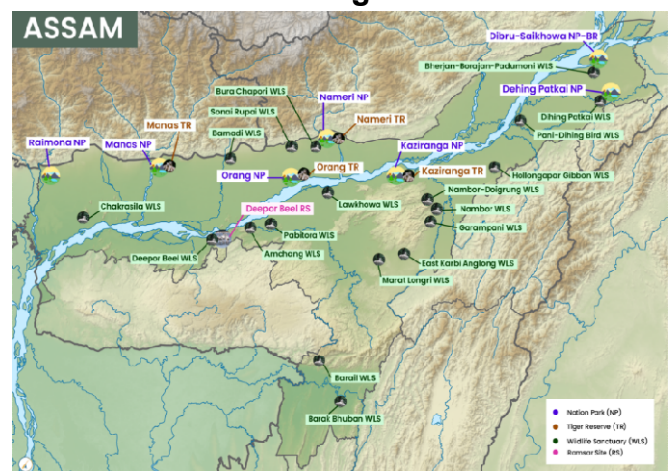
- The **Tirumala Venkateswara Temple**, also known as the Tirupati Balaji Temple, is a **hindu temple** situated in the hill town of Tirumala at Tirupati in Chittoor district of **Andhra Pradesh**.
- The temple is situated at a height of 853 m above sea level and is positioned on **Venkata Hill**, which is **one of the saptagiri (seven hills) of Tirumala Hills**.
- It is dedicated to **Lord Sri Venkateswara**, an **incarnation of Vishnu**.
- It has been mentioned in holy scriptures such as the Garuda Purana, Brahma Purana and many others.
- **History:**
 - The temple's ancient roots can be **traced to the Pallava dynasty**, which had a strong influence on the region during the 9th century.
 - **Subsequently**, the **Chola dynasty** played a crucial role in **further developing and patronizing the temple**.
 - Later on, **during** the reign of the **Vijayanagara Empire**, the temple received **significant**

contributions and endowments, solidifying its place in the religious landscape of South India.

- One of the defining moments in the temple's history was when the **famous saint, Ramanuja**, played a **pivotal role in reviving the temple and its rituals in the 12th century**.
- It is **one of the richest temples** in the world in terms of donations received and wealth.
- A **popular practice** in the temple is the **donation of hair** and various riches in order to please the god.
- **Tirupati Laddu**: The renowned sweet, Tirupati Laddu, **given as a prasad** at the temple, has the **Geographical indication (GI) tag**.
- **Architecture**:
 - The Temple is constructed in **Dravidian architecture** and is believed to be constructed over a period of time **starting from 300 AD**.
 - Three entrances lead to the sanctum sanctorum - the first is called Mahadwaram.
 - A **gopuram(gateway)**, measuring 50 ft, is placed **infront of the entrance**.
 - There are two circumambulation (parikrama) paths.
 - The **main shrine houses a gold-plated tower** that is called **Ananda Nilayam**, and a temple inside the tower houses the main deity.
 - The temple's vast courtyards, pillars, and halls are adorned with exquisite sculptures and designs that capture the essence of Hindu spirituality.

BARAK BHUBAN WILDLIFE SANCTUARY

- **Location**: It is located in Assam's **Barak Valley**. (The Barak Valley also houses the **Borail Wildlife Sanctuary**).
- It is nestled between the **Barak and Sonai rivers**.
- It is named after the second-largest river in the northeast and is spread across three districts – Cachar, Hailakandi and Karimganj.
- **Fauna**:
 - It serves as a critical habitat for a diverse range of wildlife.
 - Eight primate species, including the **slow loris, rhesus macaque, and hoolock gibbon**, find refuge here. The sanctuary is also known to be a vital habitat for the **king cobra**.



Key facts about the Barak Valley

- It is located in the **Southern part of Assam**.
- It is named after the river Barak, the largest river of the valley and second largest of Northeast India.
- The area shares its border with other states like **Meghalaya** in the north, Manipur in the east, Tripura and Mizoram in the south, and is flanked with the transnational **boundary of Bangladesh in the south**.

- It is a part of the **Indo Myanmar biodiversity hotspot**.
- Approximately 4.8% geographical area of the valley is covered by tea plantations and remaining most of the hillock areas are either in home gardens or under reserve forests.
- **Vegetation:** The forests in the valley are **tropical evergreen, semi-evergreen, tropical deciduous**, and secondary and there are large tracts of rainforests in the northern and southern eastern parts of the valley.
- **Climate:** The climate of the valley is characterized by subtropical, warm and humid.

NAVEGAON-NAGZIRA TIGER RESERVE (NNTR)

- **Location:** It spans 653.67 sq.km. across the Gondia and Bhandara districts of **Maharashtra**.
- It is located in the heart of the **central Indian Tiger Landscape**, which contributes almost 1/6 of the total tiger population of the country.
- Declared a tiger reserve in 2013, it is the fifth tiger reserve in Maharashtra.
- NNTR is comprised of the notified areas of Nawegaon National Park, Nawegaon Wildlife Sanctuary, Nagzira Wildlife Sanctuary, New Nagzira Wildlife Sanctuary, and Koka Wildlife Sanctuary.
- It has **linkages with Kanha, Pench, and Tadoba Tiger Reserves**.
- **Topography:** The topography is undulating, and the highest point, viz. 'Zenda Pahad', is around 702 m above Mean Sea Level.
- **Vegetation: Southern Tropical Dry Deciduous**
- **Flora:** There are 364 species of plants, and the major trees are: **Terminalia**

tomentosa, Lagerstroemia parviflora, Anogeisus lotifolia, Pterocarpus marsupium, Diospyrus melanoxylon, Ougeinia oogenesis, etc.

- **Fauna:** The major wild animals are: **Tiger, Panther, Small Indian Civet, Palm Civet, Wolf, Jackal, Wild Dog, Sloth Bear, Ratel, Common Giant Flying Squirrel, Gaur, Sambar, Chital, Four Horned Antelope, Mouse Deer, and Pangolin.**

TUVALU



About Tuvalu :

- **Location:** It is a **Polynesian country** in the west-central Pacific Ocean, composed of 9 small coral islands.
- **Bordering Countries:** It is situated to the east-northeast of Santa Cruz Islands, to the northeast of Vanuatu, to the southeast of Nauru; to the south of Kiribati, to the west of Tokelau, to the northwest of Wallis and Futuna and Samoa; and to the north of Fiji.
- **Capital City:** The de facto capital is Vaiaku, on Funafuti Atoll.
- **Key Islands:** Nanumanga Niutao and Niulakita.

- **Grouping:** Tuvalu is a member of the Pacific Islands Forum.

It is a volcanic archipelago comprising three reef islands and **six true atolls**. It is the **fourth smallest country globally**, with the highest point at 4.6 meters above sea level. It is often referred to as the **“first country that will be totally submerged, due to climate change.”**

NEOM MEGACITY PROJECT



The Wall Street Journal has highlighted controversies surrounding the Neom Megacity Project, a key project of Saudi Arabia and world’s largest construction real-estate project.

Neom Megacity Project:

- **Location:** Northwestern Tabuk Province, **Saudi Arabia**, along the Red Sea
- **Launched:** 2017 by Crown Prince Mohammed bin Salman, Part of Saudi Arabia’s Vision 2030.
- **Objective:** To diversify Saudi Arabia’s economy and reduce its reliance on oil.
- **Size:** 26,500 sq km
- **Completion Year:** expected by **2039**
- **Key Projects**
 - The Line: 170-km long linear city for 9 million residents
 - Oxagon: Octagonal industrial city
 - Trojena: Mountain resort for 2029 Asian Winter Games

- Magna: Luxury coastal city
- Sindalah: Luxury Island, opening in 2024

- **Technological Focus:** Renewable energy (solar, wind), AI and robotics, green hydrogen production,
- **Environmental Goals:** powered by 95% renewable energy, focus on sustainable development.

IRAQ



- **Located** in Western Asia, bordered by several countries including Iran, Syria, and Saudi Arabia.
- **Capital:** Baghdad
- **Population:** Approximately 40 million people. Diverse ethnic and religious composition, with Arab Muslims forming the majority.
- **Historical Significance:** Ancient Mesopotamia, the cradle of civilization, was located within modern-day Iraq.
 - Rich historical and cultural heritage, including UNESCO World Heritage Sites like Babylon and Samarra.

- **Political Structure:** Iraq is a **federal parliamentary republic**.
 - The President is the head of state, while the Prime Minister is the head of government.
 - Parliament consists of the Council of Representatives, with members elected through a proportional representation system.
- **Economy:** Iraq possesses **significant oil reserves**, making it one of the world's largest oil producers.

About India-Iraq Relations

- **Bilateral Cooperation:** India is one of Iraq's major oil importers, with a significant share of its crude oil imports coming from Iraq.
- **Joint Commission Meetings (JCM):** JCM meetings facilitate discussions and agreements on various sectors, including energy, trade, infrastructure, and healthcare.

SENEGAL



- **Location:** West Africa, bordered by Mauritania to the north, Mali to the east, Guinea and Guinea-Bissau to the south, and the Atlantic Ocean to the west.

- The Gambia, a small enclave, runs through the center of Senegal.
- It lies in the **Sahel region** and forms a **transitional zone** between the arid Sahara (desert) to the north and the belt of humid savannas to the south.
- Its Coastline stretches along the Atlantic Ocean, and has significant ports like Dakar, Kaolack, Ziguinchor and Saint-Louis.
- **Senegal River:** The river forms the border between Senegal and Mauritania.
- **Senegal** has been in news this year as following the postponement of Presidential elections, protests have emerged across the country, with the police cracking down on protestors through indiscriminate detentions and violence.
- The situation in Senegal raises doubts, as in Guinea, where President Alpha Condé's controversial re-election for a third term in 2020 ended up in a coup the following year.
 - Burkina Faso, Mali and Niger are already under military rule.



Sahel Region:

- The Sahel is the ecoclimatic and biogeographic realm of transition in Africa between the **Sahara to the north and the Sudanian savanna to the south**.
- The Sahel part of Africa includes from **west to east parts of northern Senegal, southern Mauritania, central Mali, northern Burkina Faso, the extreme south of Algeria, Niger, the extreme north of Nigeria, the extreme north of Cameroon and Central African Republic, central Chad, central and southern Sudan, the extreme north of South Sudan,**

Eritrea, and the extreme north of Ethiopia.

BELGIUM



- **Belgium**, officially the Kingdom of Belgium, is a country in **Northwestern Europe**.
- **Capital:** Brussels
- It is bordered by the **Netherlands** to the north, **Germany** to the east, **Luxembourg** to the southeast, **France** to the south, and the **North Sea** to the west.
- It is one of the six **founding members** of the **European Union**, and its capital, **Brussels**, is also the de facto capital of the **European Union** itself, hosting the official seats of the **European Commission**, the **Council of the European Union**, and the **European Council**, as well as one of two seats of the **European Parliament** (the other being Strasbourg).
- It is a **founding member** of the **Eurozone**, **NATO**, **OECD**, and **WTO**.
- It also hosts the **headquarters** of many major international organizations, such as **NATO**.

- Belgium is a **federal and constitutional monarchy**.
- It is divided into **two main linguistic and cultural regions**: Flemish (Dutch)-speaking Flanders and French-speaking Wallonia.

GREECE



- Greece is a country in southern Europe with a long coastline on the **Mediterranean Sea**. It is bordered by **Albania**, **North Macedonia**, **Bulgaria**, and **Turkey**.
- Greece is one of the **oldest civilizations in the world** and is considered the **cradle of Western civilization**.
- It is the birthplace of **democracy**, **philosophy**, **theater**, and the **Olympic Games**.
- **Government:** Parliamentary Republic.
- **Capital:** Athens
- **Language:** Greek
- **Currency:** Euro
- **Major Mountains Ranges:** Pindus and the Taurus mountains.
- The longest river is the river **Haliacmon**.
- Highest mountain is **Mount Olympus**.

CANARY ISLANDS



What is an archipelago?

- It is a term used to describe a **group or chain of islands** that are closely scattered in a body of water, such as a sea, ocean, lake, or river.
- **Formation:** These islands are typically formed through **geological processes** such as volcanic activity, tectonic movements, or the accumulation of sediment.

- It is an **archipelago** located in the **Atlantic Ocean**.
- It is about 1300 km South of mainland Spain and 115 km West of the African coast (Morocco).
- The Canaries comprise the Spanish provincias (provinces) of Las Palmas and Santa Cruz de Tenerife.
- These Islands were **formed by volcanic eruptions** millions of years ago.
- **Climatic condition**
 - They have a **subtropical climate**. Temperatures are warm and show little seasonal variation.
 - It has **rich volcanic soils** and mild temperatures that support a wide variety of vegetation that generally follows a zonal arrangement based on elevation.

Government Schemes

LAKHPATI DIDI SCHEME

Context: PM Modi participated in the Lakhpati Didi Sammelan in Maharashtra; an event focused on empowering women through SHGs.



About Lakhpati Didi Scheme:

- It was announced by the PM in his Independence Day speech in 2023.
- It is implemented under **Deendayal Antyodaya Yojana – National Rural Livelihood Mission (DAY-NRLM)**.
- Aim: **Encourage women to start micro enterprises** in their villages.
- Aim to **train women in SHGs so that they can earn a minimum income of Rs 1 lakh per annum** per household.
- Each SHG household is encouraged to take up multiple livelihood activities and value chain interventions.
- Women will be trained in various skills, such as plumbing, LED bulb making, drone operation and repair, and tailoring and weaving.
- **Ministry of Rural Development** is adopting a whole-of-govt approach to transform the rural economy through the creation of 'Lakhpati Didis'.

About DAY-NRLM:

- ✓ Centrally Sponsored Programme, launched by the Ministry of Rural Development in 2011.
- ✓ Aims to eliminate rural poverty through promotion of multiple livelihoods and improved access to financial services.


Objectives:

- ✓ Mobilizing rural households into SHGs.
- ✓ Organizing one-woman member from each rural poor household into SHGs
- ✓ Providing training and capacity building to SHG members
- ✓ Providing access to financial resources from their own institutions and banks.

Sub Programs:

- ✓ *Mahila Kisan Sashaktikaran Pariyojana* (MKSP): Aims to promote agro-ecological practices that increase women farmers' income & reduce input costs and risks.
- ✓ *Start-Up Village Entrepreneurship Programme* (SVEP): Aims to support entrepreneurs in rural areas to set up local enterprises.
- ✓ *Aajeevika Grameen Express Yojana* (AGEY): Launched in Aug 2017 to provide safe, affordable and community monitored rural transport services to connect remote villages.
- ✓ *Deen Dayal Upadhyaya Grameen Kaushalya Yojana* (DDUGKY): Building placement-linked skills of rural youth and placing them in higher wage employment sectors.

- ✓ *Rural Self Employment Institutes* (RSETIs): DAY-NRLM, in partnership with 31 banks and states, is supporting RSETIs for skilling rural youth.

 Self-Help Groups (SHGs) are informal associations of people who choose to come together to find ways to improve their living conditions. It can be defined as self-governed, peer-controlled



information group of people with similar socio-economic background and having a desire to collectively perform common purpose.

PM-JUGA

Pradhan Mantri Janjatiya Unnat Gram Abhiyan (PM-JUGA) is based on learnings and success of **PM-JANMAN (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan)**.

- **Aim:** Improving socio-economic condition of tribal communities, by adopting saturation coverage for tribal families in tribal-majority villages and aspirational districts.
 - India has **Scheduled Tribe population of 10.45 crore as per 2011 census** and there are more than **705 tribal communities**.
- **Total outlay: Rs.79,156 crore** with Central Share of Rs.56,333 crore.
- **Coverage: 63,000 villages** benefitting more than 5 crore tribal people, covering **549 districts** across 30 States/UTs.
- **Implementation: It comprises 25 interventions** to be implemented by **17-line ministries** through funds allocated under **Development Action Plan for Scheduled Tribes (DAPST)** in next 5 years.
 - Tribal villages covered will be mapped and progress will be monitored on **PM Gati Shakti platform**.
 - It is a unique **example of cooperative Federalism and whole of Government approach**.
- **Mission's Four Goals:**

- **Goal-1: Developing Enabling Infrastructure such as Pucca house for households and improving Village Infrastructure.**
- **Goal-2:** Promotion of economic empowerment through skill development, skill development etc.
- **Goal-3: Universalization of Access to Good Education.**
- **Goal-4: Healthy lives and Dignified Ageing.**

PM AASHA

The Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM AASHA Scheme) is a program designed to guarantee equitable prices for farmers and their agricultural products. By enhancing the procurement process, the PM AASHA Scheme is poised to significantly augment farmers' income.

- Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA) is an umbrella scheme under the **Ministry of Agriculture & Farmers Welfare**.

The PM AASHA Scheme as the following components

1. **Price Support Scheme (PSS):** Through the Price Support Scheme procurement of pulses, oilseeds will be carried out by the Central Nodal Agencies with support from state governments. The PSS will be set up by the **Food Corporation of India along with NAFED** and any expenses incurred will be borne by the Central Government.
2. **Price Deficiency payment Scheme (PDPS):** In this scheme, all oilseed notified for SP will be covered. Direct payment of the difference between **Minimum Support Price (MSP)** and the selling price will be made to the registered farmers. All



payments will be made to the registered bank account of the farmer. In other words, no procurement will take place but rather the difference between MSP and selling price will be paid to the farmers.

3. **Pilot of Private Procurement & Stockist Scheme (PPPS):** As per the Pilot of Private Procurement & Stockist Scheme (PPPS) the **private sector will take part in the procurement operations**. The states will have an option to carry out the scheme on pilot basis in selected APMCs with involvement from the private sector.

SPICED SCHEME

The **Union Ministry of Commerce and Industry** has approved a **Spices Board scheme**, 'Sustainability in spice sector through progressive, innovative and collaborative interventions for export development' (SPICED) scheme.

About SPICED Scheme:

- It is aimed at significantly **enhancing the export of spices** and value-added spice products as well as improving the productivity of cardamoms and upgrading the post-harvest quality of spices across **India for export**.
- It is implemented during the remaining term of the 15th Finance Commission, **up to 2025-26**.
- **Key highlights of the Scheme**
 - It is expected to facilitate value addition and to drive innovation and sustainability in the spice sector by introducing new sub-components/programs like the **Mission Value Addition, Mission Clean and Safe Spices, promotion of GI spices**, support for entrepreneurship through Spice Incubation Centres, etc.

- The scheme gives thrust on farmers groups / FPOS / Farmers Clusters identified under ODOP and DEH, SC/ST community, Exporters from NE region, and SMEs.
- While exporters with a valid **Certificate of Registration as Exporter of Spices (CRES)** are eligible for assistance under these programs, preference will be given to first-time applicants, Small and Medium Enterprises (SMEs), etc.
- The programs under the components such as Improving the productivity of cardamom and Post-harvest quality upgradation of spices are specifically designed to empower farmer groups, including Farmer Producer Organizations (FPOs), Farmer Producer Companies (FPCs), and Self-Help Groups (SHGs) in key spice-growing regions.
- These groups will be prioritized for **post-harvest improvement of spices**, with targeted assistance provided to enhance creation of an exportable surplus of spices, in compliance with the applicable food safety and quality standards.
- Scheme **activities will be geo-tagged** and fund availability, status of applications under different components, list of beneficiaries, etc. will be published in the Board's website for better transparency.

PM SHRI SCHEME

Context: There have recently been tensions between the Union Govt and some state govts. over non-implementation of PM SHRI Scheme.



About PM SHRI Scheme:

- Centrally sponsored scheme launched in 2022.
- Aim: Develop >14,500 schools across India by **strengthening schools that are managed by Union Govt, States, UTs, and local bodies.**
- Duration is from **2022 to 2027**, after which it shall be the responsibility of **States/UTs to continue to maintain benchmarks** achieved by the schools.

Features of PM SHRI Schools:

- Selected schools will act as exemplar schools **showcasing all components of NEP 2020 and offer mentorship to other schools** in their vicinity.
- They will be developed as **Green Schools**, incorporating environmentfriendly aspects.
- Pedagogy adopted in PM SHRI schools will be more experiential, holistic, integrated, play-based (particularly in foundational years), flexible, inquiry driven, discovery-oriented, learner-centric, and discussion-based.
- Focus on the **learning outcomes of every child in every grade.**

- Assessmentbased on conceptual understanding and application of knowledge to real-life situations.
- Linkage with Sector Skill Councils** and local industry for enhancing skilling and employability.
- A **School Quality Assessment Frameworkis being developed**, specifying the metrics to measure outcomes. Quality evaluationat regular intervals will be undertaken to ensure the desired standards.
- The total cost of the project will be Rs 27360 crore spread over a period of 5 years, which includes the central share of Rs 18128 crore.
- The selection of PM SHRI schools will be done through **Challenge Mode**, wherein schools compete for support to become exemplar schools.

GRAMIN KRISHI MAUSAM SEWA (GKMS) SCHEME

Context: Last week, PTI reported that the India Meteorological Department (IMD) is planning to revive District Agro-Meteorology Units (DAMUs) under the Gramin Krishi Mausam Sewa (GKMS) scheme.

- Ministry:** The scheme is under the Ministry of Earth Sciences.
- Objective:** To provide accurate, crop-specific weather advisories to farmers.
- Implementing Agency:** India Meteorological Department (IMD) in collaboration with State Agricultural Universities, Indian Council of Agricultural Research (ICAR), etc.
- Advisories Provided:**
 - Crop and location-specific weather-based agro advisories.
 - 5-day district-level weather forecasts including rainfall,



temperature, wind speed/direction, relative humidity, and cloud cover.

- Weekly cumulative rainfall forecasts.
- Crop-specific advisories provided to farmers.
- **Medium of Dissemination:** Advisories are disseminated through print, visual, radio, SMS, and Interactive Voice Response Service (IVRS).
- **Agromet Field Units (AMFUs):** 130 units across India prepare weather-based advisories in collaboration with IMD.
- **Agro-Meteorological Advisory Services (AAS):** Operated to prepare biweekly weather-based bulletins for farmers.
- **Benefits:** Enhances crop production and reduces crop damage/loss due to extreme weather events.
- **Reach:** GKMS advisories are provided in vernacular languages to about 22 million farmers across India.

- **New Card Issuance:** Eligible senior citizens will be issued a distinct new card under AB PM-JAY.
- **Top-up Coverage:** Senior citizens already under AB PM-JAY will receive an additional ₹5 lakh top-up cover, exclusive to them.
- **Other Health Schemes:** Senior citizens covered by schemes like CGHS, ECHS, or CAPF can opt for either their existing scheme or AB PM-JAY.
- **Private Health Insurance:** Individuals aged 70 and above with private health insurance or under ESIC are **also eligible** for AB PM-JAY benefits.

AB PM-JAY

- **World's Largest Health Insurance Scheme:** Fully financed by the government, launched in 2018.
- **Sum Insured:** Provides ₹5 lakh per family for secondary and tertiary care.
- **Health Benefit Packages:** Covers surgery, medical and day care treatments, cost of medicines, and diagnostics.
- **Beneficiaries:**
 - Entitlement-based scheme targeting beneficiaries identified by the latest Socio-Economic Caste Census (SECC) data.
 - States/UTs can use non-SECC databases with similar socio-economic profiles for unauthenticated SECC families.
- **Funding:**
 - **60:40** for all states and UTs with legislature.
 - **90:10** for Northeastern states, Jammu and Kashmir, Himachal Pradesh, and Uttarakhand.
 - **100% Central funding** for UTs without a legislature.

AYUSHMAN BHARAT PRADHAN MANTRI JAN AROGYA YOJANA (AB PM-JAY)

New Updates

- **Health Coverage for Senior Citizens:** All individuals aged 70 and above, irrespective of income or socio-economic status, will receive health insurance coverage.
- **Coverage Amount:** ₹5 lakh free health insurance cover per year, on a family basis.
- **Number of Beneficiaries:** Expected to benefit 6 crore senior citizens from 4.5 crore families.



- **Nodal Agency:**
 - **National Health Authority (NHA):** Autonomous entity for implementing PM-JAY, under the Society Registration Act, 1860.
 - **State Health Agency (SHA):** Apex body at the state level responsible for the scheme's implementation.
- **E-Trucks:** ₹500 crore allocated for e-trucks, with incentives for scrapping old vehicles as per MoRTH guidelines.
- **Charging Infrastructure:**
 - ₹2,000 crore for the installation of EV public charging stations (EVPCS).
 - Plan includes 22,100 fast chargers for e-4Ws, 1,800 for e-buses, and 48,400 for e-2Ws/3Ws.

PM ELECTRIC DRIVE REVOLUTION IN INNOVATIVE VEHICLE ENHANCEMENT (PM E- DRIVE) SCHEME

- The PM E-DRIVE Scheme will be implemented by the **Ministry of Heavy Industries (MHI)**
- **Objective:** Promote electric mobility in India by providing incentives for electric vehicle (EV) adoption and establishing charging infrastructure.
- **Outlay:** ₹10,900 crore over two years.
- **Subsidies/Demand Incentives:**
 - ₹3,679 crore for e-2Ws, e-3Ws, e-ambulances, e-trucks, and other emerging EVs.
 - Support for 24.79 lakh e-2Ws, 3.16 lakh e-3Ws, and 14,028 e-buses.
- **E-Vouchers:** Aadhaar authenticated e-vouchers for EV buyers to avail demand incentives.
- **E-Ambulances:** ₹500 crore allocated for promoting e-ambulances with safety standards developed with MoHFW and MoRTH.
- **E-Buses:** ₹4,391 crore for procurement of 14,028 e-buses by STUs/public transport agencies in 9 cities with over 40 lakh population.

- **Testing Agencies Modernization:** ₹780 crore for upgrading MHI test agencies to handle new technologies in EVs.
- **Phased Manufacturing Programme (PMP):** Focus on domestic EV manufacturing to promote Aatmanirbhar Bharat and strengthen the EV supply chain.
- **Environmental Impact:** Aims to reduce air pollution and improve air quality by promoting sustainable transportation.
- **Employment Generation:** Significant job creation in EV manufacturing and charging infrastructure development.

VIVAD SE VISHWAS 2.0

- The scheme aims to **reduce ongoing litigations related to income tax.**
- VSV 2.0 will enable **taxpayers and the Income Tax Department to resolve disputes** through a streamlined appeals process.
- It will provide a mechanism for **filing appeals across various appellate forums**, including the **Joint Commissioner of Income-tax (Appeals)**, the **Income Tax Appellate Tribunal (ITAT)**, and **higher courts.**
- The scheme **covers appeals, writ petitions, and special leave petitions pending** as of July 22, 2024, and



will waive penalties and interest for settlements, ensuring no prosecution will be initiated for cases resolved under the scheme.

- The scheme also covers cases with objections filed before the Dispute Resolution Panel (DRP) where no final assessment order has been issued and pending revision applications before the Commissioner.
- However, **certain cases are excluded** from eligibility, including those involving **searches, prosecutions, and undisclosed foreign income.**
- **Tax payers under specific legal restrictions or serious offenses** will also **not benefit from the scheme.**
- The primary goal of VSV 2.0 is to provide a **cost-effective mechanism** for settling disputed issues, thereby alleviating the burden of litigation on taxpayers and the judicial system.

SWACHH BHARAT MISSION 2.0

- Swachh Bharat Mission-Urban (SBM-U) was launched on October 2, 2014, by the **Ministry of Housing and Urban Affairs** as a national campaign to promote cleanliness, sanitation, and proper waste management in urban areas.
- The launch of the Swachh Bharat Mission (SBM) had a unique goal — to achieve universal sanitation coverage and to make the country **Open Defecation Free (ODF).**
- By offering financial incentives for building household toilets, as well as community toilets for slums and migrant populations, the government gave a huge fillip to the toilet infrastructure.

- To bring changes to the age-old idea that toilets in the home were unclean, the government ran several programs with the participation of the private sector and NGOs to educate the population on the benefits of ODF in what is acclaimed as one of the largest behaviour change programs in the world.
- From 2014 to 2020, more than 10 crore toilets were constructed. The country declared itself ODF on October 2, 2019.

About SBM-U 2.0:

- SBM-U 2.0, announced in Budget 2021-22, is the continuation of SBM-U first phase.
- It was launched on 1st October 2021 to achieve the vision of 'Garbage Free Cities' over the next five years.
- The government is also trying to tap safe containment, transportation, disposal of faecal sludge, and septage from toilets.
- It will be implemented over five years from 2021 to 2026 with an outlay of Rs.1.41 lakh crore.
- **SBM-U** first phase was launched on 2nd October 2014 aiming at making urban India Open Defecation Free (ODF) and achieving 100% scientific management of municipal solid waste. It lasted till October 2019.

NAMASTE

- NAMASTE stands for National Action for Mechanised Sanitation Ecosystem.
- It has been launched with an objective to ensure safety and dignity of sanitation workers in urban India as well as providing sustainable livelihood to these workers.
- **Ministries involved:** It is launched as a joint initiative of the **Ministry of Social Justice and Empowerment (MoSJE)**



and the **Ministry of Housing and Urban Affairs** (MoHUA).

- **Implementing agency** - National Safai Karamchari Financial Development Corporation (NSKFDC) would be implementing agency for NAMASTE.
- **Coverage:** Five hundred cities (converging with AMRUT cities) will be taken up under this phase of NAMASTE.
- It will be implemented for the period 2022-26.

Aims of NAMASTE Scheme

- Zero fatalities in sanitation work in India
- All sanitation work is performed by skilled workers
- No sanitation workers come in direct contact with human faecal matter
- Sanitation workers are collectivized into SHGs and are empowered to run sanitation enterprises
- All Sewer and Septic tank sanitation workers (SSWs) have access to alternative livelihoods

Components of NAMASTE Scheme

- **Extending Insurance Scheme Benefits**
 - These workers and their families will be covered under the Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana (AB-PMJAY).
 - The premium for AB-PMJAY for those identified SSWs families who are not covered earlier shall be borne under NAMASTE.
- **Livelihood Assistance**
 - The Action Plan will promote mechanization and enterprise development.
 - Identified SSWs and their dependants will be given counselling on available livelihood choices and an

opportunity to acquire alternative skills, if they so desire.

- An SSW may choose to continue working in the sanitation sector, thereby becoming eligible for receiving capacity building training.
- Alternatively, the worker may choose to explore an alternative livelihood option or an entrepreneurial venture.

- **Saturation with Social Security Schemes' benefits**

- The identified SSWs and their family members will be extended benefits of all the social security schemes.

- **Other assistance**

- The scheme will include capital subsidies of up to ₹5 lakh on sanitation machinery costing up to ₹15 lakh and interest subsidies on loans.
 - Interest rates will be capped between 4-6% for the beneficiaries.
- The scheme also provides for training the workers in the use of these machines, during which time a stipend of up to ₹3,000 per month will be provided.

SAMAGRA SHIKSHA SCHEME

- Samagra Shiksha is an overarching programme for the school education sector extending from pre-school to class 12.
- The scheme has been prepared with the broader goal of improving school effectiveness measured in terms of equal opportunities for schooling and equitable learning outcomes.



- It subsumes the three Schemes of Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and Teacher Education (TE) and was launched in 2018.

Components of the Samagra Shiksha Abhiyan (SSA) 2.0

- **Direct Outreach:** Child-centric interventions will be provided directly to students via Direct Benefit Transfer (DBT) on an IT platform.
- **RTE Entitlements:** DBT will cover textbooks, uniforms, and transport allowances.
- **Language Promotion:** New component for hiring language teachers, including salaries, training, and bilingual educational materials.
- **NIPUN Bharat Initiative:** ₹500 per child for learning materials, ₹150 per teacher for resources, and ₹10-20 lakh per district for assessments.
- **Digital Initiatives:** Funding for ICT labs, smart classrooms, digital boards, virtual classrooms, and DTH channels.
- **Support for Out-of-School Youth:** ₹2000 per grade for open schooling for children aged 16-19.
- **Khelo India Incentive:** Up to ₹25,000 incentive for schools with two medal-winning students at the Khelo India national games.

U-WIN PORTAL

- **Online vaccine management portal U-Win** will be launched soon by the Union **Health Secretary**.
- **About:** It is aiming to maintain an **electronic registry of routine immunizations**.
- Children, up to the **age of six years**, and **pregnant mothers** are registered on U-WIN using **government ID like**

Aadhaar, and their mobile phone numbers.

- Upon registration, **records of all 25 shots given to a child** — and the **two given to pregnant mothers** — can be added.
- U-WIN is a **multilingual, open-source application**.
- **Interoperability:** Integration with other portals ensures interoperability and a unified database.

PARYATAN MITRA & PARYATAN DIDI INITIATIVE

Ministry of Tourism launched a new initiative 'Paryatan Mitra' and 'Paryatan Didi' on the occasion of World Tourism Day (September 27, 2024)

About the 'Paryatan Mitra' and 'Paryatan Didi' Initiative

- 'Paryatan Mitra' and 'Paryatan Didi' program is to **connect tourists with locals** who can act as Ambassadors and Storytellers for their regions.
- It was launched by **Ministry of Tourism**
- **Aim** : To enhance tourism through social inclusion, employment generation, and economic progress.
- **Pilot program locations** : The initiative was piloted in 6 tourist destinations across India
 - Orchha (Madhya Pradesh),
 - Gandikota (Andhra Pradesh),
 - Bodh Gaya (Bihar),
 - Aizawl (Mizoram),
 - Jodhpur (Rajasthan) and
 - Sri Vijaya Puram (Andaman & Nicobar Islands)
- Training will be provided to the target group which includes Cab and auto drivers, Railway station and airport staff, Hotel, restaurant, and homestay staff, Police personnel, Tour guides, street



vendors, and shopkeepers and Students and other community members

- Special emphasis is given on **empowering women and youth** to develop tourism-based livelihoods.

Terms in News

PAYMENT PASSKEY SERVICE

- **Mastercard has debuted its Payment Passkey Service in India.**
- The Payment Passkey Service is a **secure, non-OTP-based method** for managing online transactions
- Instead of using traditional OTPs, this service **relies on biometric authentication** (fingerprints, facial scans) or PINs available on the user's device.
- It uses **tokenization to replace sensitive financial information** with secure, encrypted tokens. This means your actual financial data is not shared during transactions, thus enhancing security.

PROJECT NAMAN



- The Indian Army has launched the first phase of Project NAMAN, aimed at **providing comprehensive support and services to Defence Pensioners, Veterans, and their families.**
- Launched By: Army Wives Welfare Association (AWWA)
- It aims to provide dedicated support and services to Defence Pensioners, Veterans, and their families. It will **improve access to essential services**

for veterans and families & **facilitate effective grievance redressal.**

- It is centered on **SPARSH (System for Pension Administration Raksha) digital pension system**, which eases pension-related processes.
- It proposes establishment of **Common Service Centres (CSCs) for offering SPARSH-enabled pension services, Government to Citizen (G2C) services, and Business to Consumer (B2C) services.**
- **Initial deployment will be across 14 CSCs** established across key locations in India including New Delhi (first center), Jalandhar, Leh, Dehradun, Lucknow, Jodhpur etc. **Approximately 200 centers are planned nationwide over the next 2-3 years.**
- **HDFC Bank will provide the necessary IT infrastructure** for the CSCs, while local military stations contributed essential physical infrastructure and facilities.

SOLAR PARABOLOID TECHNOLOGY



- Solar paraboloid technology is a type of concentrating solar power (CSP) that

uses a **parabolic-shaped reflector** to **focus sunlight** onto one focal point.

- It leverages the geometric properties of a parabola to **maximize the concentration of solar energy into heat**, making it highly efficient for solar applications.
- It can generate **significant energy from a small reflective surface area**, making it suitable for both large-scale power plants and smaller, decentralized applications.
- The systems are modular and can be **scaled to meet specific energy needs**, providing flexibility in deployment.
- High efficiency of solar paraboloids could lower the cost per unit of electricity. This makes solar energy **more competitive with fossil fuels**.

Components:

- **Reflector:** A parabolic dish made from materials like aluminum or silver-coated glass, designed to reflect and concentrate sunlight.
- **Receiver:** Positioned at focal point of the parabola to absorb concentrated solar energy and convert it into thermal energy.
- **Working Fluid:** The thermal energy is transferred to a working fluid (e.g., water or molten salt) that drives a thermodynamic cycle, such as a steam turbine, to generate electricity.

ACETANILIDE



- Five persons were unconscious and were hospitalised when they were engaged in shifting acetanilide bags from one container to another in Visakhapatnam recently.
- It is a **synthetic organic compound** with a designated molecular formula of **C₈H₉NO**.
- It is also known as **N-phenylacetamide, acetanil, or acetanilid**.
- It is a **white, odorless solid**.
- It is **functionally related to an acetic acid**.
- It was introduced in therapy in 1886 as a **fever-reducing drug**.
- Its effectiveness in **relieving pain** was discovered soon thereafter, and it **was used as an alternative to aspirin** for many years in treating such common complaints as headache, menstrual cramps, and rheumatism.
- Excessive or **prolonged use** of acetanilide **engenders toxic side effects**: it **interferes with the function of hemoglobin**, the oxygen-carrying pigment of the blood.



- In the body, acetanilide is mostly converted to acetaminophen (paracetamol), which has replaced acetanilide in therapy because it is less likely to induce blood disorders.
- It is used as an intermediate in the production of dyes, rubber, and other chemicals.

NANOZYMES

- **Nanozymes** are the **nonmaterial-based artificial enzymes** which exhibit potential for emulating the catalytic functions **inherent in enzymes**.
- They may be **metallic, metal oxide-based, carbon-based** or of other types.
- They have many advantages over biological enzymes. It exhibits high activity and stability at different conditions of and temperatures and pH.
- **Advantages:** They offer various advantages over conventional enzymes because of **high stability, low cost, durability, ease of mass production, controllability** and better recovery rates.
- **Applications:** Nanozymes have been used as **therapeutics** against cancer, inflammatory diseases, **neurodegenerative and neurological disorders**, bacterial, fungal and viral infections, wounds and diseases associated with Reactive Oxygen Species.

What are Enzymes?

- These are **proteins** that help **speed up metabolism**, or the chemical reactions in our bodies. They build some substances and break others down.
- All living things have enzymes. Our bodies naturally produce enzymes. But enzymes are also in manufactured products and food.

What is Collagen?

- It is the **primary building block** of your body's skin, muscles, bones, tendons and ligaments, and other connective tissues. It's also found in your organs, blood vessels and intestinal lining.

NATIONAL CONSUMER DISPUTES REDRESSAL COMMISSION

- It is a **quasi-judicial commission** set up in 1988 under the **Consumer Protection Act of 1986**.
- **Mandate:** To provide inexpensive, speedy, and summary redressal of consumer disputes.
- It is headed by a **sitting or a retired Judge of the SC** or a sitting or a retired **Chief Justice of a High Court**.
- NCDRC shall have jurisdiction to entertain a complaint valued **more than two crore** and also have appellate and revisional jurisdiction from the orders of State Commissions or the District fora as the case may be.
- The provisions of this act cover 'goods' as well as 'services'.
- **Who Can File a Complaint:** A complaint may be filed by the following:
 - A consumer
 - Any **voluntary consumer association** registered under the Companies Act 1956
 - The Central Government or any State Government
 - One or more consumers where there are numerous consumers.
- **Appeal:** Any person aggrieved by an order of NCDRC, may prefer an appeal against such an order to SC within a **period of 30 days**.



WORLD GOLD COUNCIL (WGC)

- The World Gold Council (WGC) has raised its projection for India's gold consumption in 2024 to 850 tonnes from 750 tonnes.
- It is the market development organisation for the **gold industry**.
- It is a **nonprofit association** formed in 1987 whose members comprise the world's leading and most forward-thinking gold mining companies.
- The WGC was established to promote the use of and demand for gold through marketing, research, and lobbying.
- **Headquartered in London**, with operations in India, China, Singapore, and the USA, the WGC covers the markets which comprise about **three-quarters** of the world's annual gold consumption.
- The WGC is also the global authority on gold, and they offer comprehensive analyses of the industry.
- It aims to **maximize the industry's potential** growth by monitoring and defending existing gold consumption.
- It achieves this by **setting up gold standards, proposing policies**, ensuring fairness and sustainability in the gold mining industry, and promoting the usage and demand for gold for individuals, industries, and institutions.
- It also co-sponsors research in the development of new uses for gold, or of new products containing gold.
- WGC was the creator of the first gold **exchange-traded fund**.

TURKMENISTAN–AFGHANISTAN–PAKISTAN–INDIA (TAPI) PIPELINE

- It is a **1,814-kilometre pipeline** that aims to **transport 33 billion cubic metres of gas** from Turkmenistan to Afghanistan, Pakistan and finally, India.
- It is also called the '**Peace Pipeline**'.
- **Route:**
 - It will **start from the Galkynysh gas field** in Turkmenistan.
 - It will then **pass through Afghanistan and Pakistan** to finally reach the **Indian town of Fazilka** (near the Indo-Pak border).
- **Capacity:** At full capacity, the pipeline will **transport 33 billion cubic meters (bcm) of natural gas** annually from TKM to **respective buyers in AFG (5%), PAK (47.5%) and IND (47.5%)** during the **30-year** commercial operations period.
- The Project comprises the procurement, installation and operation of the pipeline and related facilities within Afghanistan and Pakistan.
- **Timeline:**
 - The project was **originally conceived in the 1990s**, and an **inter-governmental agreement was signed in 2010** by the heads of four member nations.
 - A **Gas Pipeline Framework Agreement was signed in December 2010**, and a **bilateral gas sale agreement was signed in May 2013**.
 - In **February 2018**, a **ground-breaking ceremony** for Afghanistan's section of the

TAPI gas pipeline was held in the western Afghan city of Herat.

- **Financing:**
 - The TAPI project is being **funded by the Asian Development Bank (ADB)**, which is also **acting as transaction adviser** for the development.
 - **Turkmenistan took a loan of \$700m** from the Islamic Development Bank for financing the project in December 2016.
 - The **remaining three countries made an initial investment of \$200m** in the TAPI project.

- It can be integrated with drones and battle management systems for enhanced situational awareness.
- Designed for rapid deployment and maneuverability in mountainous regions.
- Tanks are amphibious, making them versatile for operations in riverine regions.

TRILOBITES

- Trilobites are an exclusive form of marine animals that are a member of a group of extinct fossil **arthropods**, they are recognized from their distinctive feature as a three-lobed three-segmented form.
- **Body Structure:**
 - **Three-lobed body:** Two pleural lobes on each side of a central axial lobe.
 - **Three sections:** Cephalon (head), Thorax (body), Pygidium (tail).
 - **Exoskeleton:** Like all arthropods, trilobites had an external skeleton.
- **Feeding Behavior:** Diverse feeding habits; some trilobites were predators, others scavengers, and some ate plankton.

ZORAWAR TANKS



DRDO successfully conducts the first phase of field firing trials of 'Zorawar' tanks.

About Zorawar tanks:

- It is a light-tank designed to provide the Indian army with enhanced capabilities at high altitude.
- Jointly developed by the DRDO and private sector firm L&T.
- Named after the legendary General Zorawar Singh who led multiple successful victories in Tibet.

Key Features:

- **Time Period:**
- **First appearance:** Early Cambrian Period (~542 million years ago).



- **Extinction:** Trilobites went extinct by the end of the Permian Period (~251 million years ago), alongside 90% of all Earth's species.
- **Evolution:**
 - Trilobites likely evolved from arthropod-like ancestors, such as **Spriggina**, during the Ediacaran Period (~630 to 542 million years ago).
 - Fossil evidence shows similarities between **Spriggina** and early trilobites.
- **Earliest Trilobites:** Redlichiids and Ptychopariida from around 540 to 520 million years ago, found in regions like modern-day Siberia.
- **Geographical Distribution:** Trilobites were geographically widespread and highly diversified, contributing significantly to the fossil record.
- **Domination & Extinction:** Dominated marine ecosystems during the Cambrian and Ordovician periods. Declined in the Devonian period and went extinct by the end of the Permian period.

- **Also Known As:** Micro physiological systems or “tissue chips.”
- **Composition:** Small devices containing human cells, mimicking human organs, including blood flow and breathing movements.

Applications:

- **Precision Medicine:** Used in drug development and screening.
- **Organ Function Insight:** Provides insights into human organ function and disease pathophysiology.
- **Personalized Medicine:** Enables accurate drug discovery for tailored treatments.

Importance:

- **Ethical Benefits:** Reduces reliance on animal testing, addressing concerns from organizations like PETA.
- **Testing on Human Cells:** Useful substitutes for traditional preclinical cell culture methods and in vivo animal studies.
- **Drug Development:** Important for studying drug effects on different human organs, eliminating ethical issues tied to animal models.

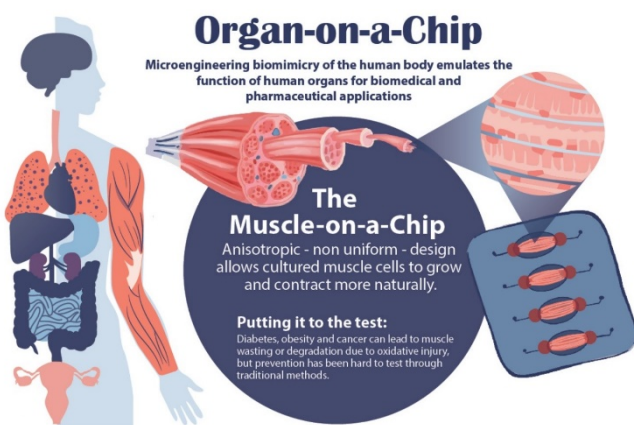
Global Developments:

- **Pioneers:** Developed first by Donald E. Ingber and colleagues at the Wyss Institute, Harvard University, in 2010 (first lung-on-chip model).
- **Commercialization:** Wyss Institute members launched **Emulate Inc.** in 2014 to commercialize this technology.
- **Further Developments:** Chips for bone marrow, lung, gut, kidney, and more have been developed.

India's Contributions:

- **Skin-on-Chip:** Being tested for studying skin irritation and toxicity.
- **Retina-on-Chip:** Under development for eye research.

ORGAN-ON-A-CHIP



- **Organ-on-a-Chip (OoC):** Micro-engineered biomimetic systems that mimic the structural and functional characteristics of human tissues.



AUTISM SPECTRUM DISORDER

About Autism Spectrum Disorder:

- Autism spectrum disorder (ASD) is the term for a **group of neurodevelopmental disorders**.
- It is characterized by **difficulties** in social interaction, verbal and nonverbal communication, and the presence of repetitive behavior and restricted interests.
- Signs of autism usually appear by **age 2 or 3**. Some associated development delays can appear as early as 18 months.
- There is **no cure for autism**.
- In 2008, the United Nations General Assembly unanimously declared **2nd April** as **World Autism Awareness Day**.
- Fragile X Syndrome (FXS) is the leading inherited cause of autism in 4% of the global population.
- **Transmission** -It is transmitted genetically for some people.
- **Symptom** -People with ASD often have problems with social communication, interaction and restricted or repetitive behaviors.
- People with ASD may also have different ways of learning, moving, or paying attention.
- **Diagnosis** -There is no medical test such as blood test to diagnose the disorder.
- While behavioral therapies, such as **Applied Behavior Analysis (ABA)**, are a primary approach to managing ASD, pharmacological treatments are generally used to address co-occurring symptoms or conditions rather than being the first-line treatment for ASD itself.

- Autism Spectrum Disorder (ASD) is **generally more prevalent in males than females**. Research and clinical studies consistently show that ASD is diagnosed more frequently in males. The ratio often cited is approximately 4:1, meaning that for every four males diagnosed with autism, there is about one female diagnosed.

TARANG SHAKTI 2024

Sky is the limit





In tandem: The Indian Air Force's Suryakiran Aerobatic Team performing during Phase 2 of Exercise Tarang Shakti 24, at the Air Force station in Jodhpur on Wednesday. MINISTRY OF DEFENCE/ANI

About Exercise 'Tarang Shakti':

- It is the largest international air exercise ever conducted in India, with invitations extended to 51 countries.
- It is inspired by the **Red Flag** exercise hosted by the US.
- This exercise aims to strengthen strategic relations with our friends from the international community.
- **Participating countries:** Fifty-one countries were invited to take part in the exercise and nearly 30 of them will be taking part in it
- **Phase one** of the exercise was conducted at Sulur in Tamil Nadu from August 6 to August 14 and four countries including France, Germany, Spain and the United Kingdom has participated.

- **Phase two** will be held at Jodhpur in Rajasthan from September 1 to 14 and it will see participation from Australia, Bangladesh, Greece, Singapore, UAE and the USA with their assets.

 Recently, IAF participated in the  2nd edition of air exercise Red Flag 2024 from 4th to 14th June 2024 in Alaska.

- **Indian Rafales** participated in joint exercises with Singaporean and American aircraft. The missions involved beyond-visual range combat exercises in offensive counter-air and air defence roles as part of large force engagements.

- They are characterized by their advanced chemistry, which allows them to store electric energy either as electrochemical or chemical energy and convert it back to electric energy as needed.
- India, recognizing the importance of ACCs in transitioning to a clean energy economy, has launched the **National Programme on Advanced Chemistry Cell (ACC) Battery Storage** to reduce import dependence on these critical components.
- Advanced Chemistry Cell offers improved energy density, longer lifespan, and enhanced safety compared to traditional battery chemistries like lead-acid or nickel-metal hydride (NiMH).

Types of Advanced Chemistry Cells:

- **Solid-State Batteries:** Solid-state batteries replace the liquid or gel electrolyte found in traditional Li-ion batteries with a solid electrolyte, offering improved safety and potentially higher energy density.
- **Lithium-Sulfur (Li-S) Batteries:** Li-S batteries utilize sulfur as the cathode material, offering significantly higher theoretical energy densities compared to Li-ion batteries.
- **Lithium-Air (Li-air) Batteries:** Li-air batteries have a lithium anode and use oxygen from the air as the cathode material. Electrolytes are typically liquid solutions containing lithium salts like LiPF₆ or LiTFSI in organic solvents.
- **Sodium-ion (Na-ion) Batteries:** Na-ion batteries are similar to Li-ion batteries but use sodium ions instead of lithium ions, potentially offering lower cost and greater abundance of materials.

ADVANCED CHEMISTRY CELL (ACC) BATTERY



About Advanced Chemistry Cell

- These are the new generation technologies that can store electric energy either as electrochemical or as chemical energy and convert it back to electric energy as and when required.
- Advanced Chemistry Cells (ACCs), also known as advanced chemistry cell batteries, are a crucial component of lithium-ion batteries and other energy storage systems.

About NPACC Scheme :

- The scheme called the National Programme on Advanced Chemistry Cell Battery Storage (NPACC) is under the Ministry of Heavy Industries & Public Enterprises.
- The plan is to set up 50 gigawatt hour (GWh) manufacturing capacity for ACC batteries by attracting investments totalling Rs. 45,000 crore.

VERTICAL FISCAL IMBALANCE

- Vertical fiscal imbalance (VFI) refers to the mismatch between the revenue-raising powers and expenditure responsibilities of different levels of government (between the Center and state) within a country.

Estimation of VFI after devolution of taxes

The 15th Finance Commission had noted that India has had a larger, and rising, vertical fiscal imbalance (VFI) than most other federations

Year	VFI after tax devolution (as a ratio)	The desired share of tax devolution to eliminate VFI (%)
2015-16	0.12	47.82
2016-17	0.13	48.24
2017-18	0.12	47.59
2018-19	0.11	47.38
2019-20	0.18	51.17
2020-21	0.28	56.87
2021-22	0.14	47.90
2022-23 (RE)	0.20	51.42
Average (excluding 2020-21 and 2021-22)		48.94



SOURCE: COMPUTED FROM UNION BUDGET DOCUMENTS, AND STATE FINANCES: A STUDY OF THE BUDGETS, RBI.

- **Impact on Fiscal Performance:** Large VFIs can lead to poor fiscal performance, with sub-national governments typically balancing their budgets while central government performance depreciates at higher VFI levels.
- **State-Level Variation:** VFI varies across states due to differences in budgets, revenue sources, and spending obligations. This variation can be predicted and addressed to reduce imbalance.

- **Importance of Corrective Measures:** If VFI is excessively high, sub-national governments must address the root causes to avoid financial instability and ensure efficient policy implementation.
- **Effect on GDP:** High VFI variation may negatively impact a country's GDP, making it essential for all stakeholders to understand and manage the VFI ratio effectively.
- **Calculation of VFI Ratio:** The VFI ratio is calculated by dividing a sub-national government's total revenue sources by its total current expenditure. **A lower VFI ratio is preferred for healthy economic growth.**

NATIONAL NUTRITION WEEK 2024



The National Nutrition Week is a global healthcare event focussed on nutrition. In India it is observed for the **first week of September every year since 1982**. During this day, various local and global communities gather around to advocate the importance of nutrition through various events and mediums. It is in 1973 that the American Diabetes Association (ADA) launched the first National Nutrition Week campaign.

- **Initiation:** First celebrated in the U.S. in 1973 by the American Dietetic Association to emphasize nutrition's importance.
- **Adoption in India:** Introduced in India in 1982 by the National Institute of Nutrition (NIN) to promote healthy eating habits and educate the public on nutrition.
- **Objectives:** Aims to raise awareness about balanced diets, the impact of nutrition on health, and proper dietary practices.



- **Activities:** Includes educational campaigns, workshops, seminars, and community outreach programs to improve dietary knowledge.
- **Evolution:** Now addresses emerging nutrition-related challenges and aligns with global health initiatives.
- **2024 Theme:** Not yet officially announced, but many are celebrating under the theme “**Nutritious Diets for Everyone.**”
- **Previous Themes:** 2023 theme was “Healthy Diet Going Affordable for All,” focusing on accessible and affordable nutritious food.

Rashtriya Poshan Maah (National Nutrition Month):

- **Initiative:** Celebrated in September under POSHAN Abhiyaan to improve nutrition for at-risk populations.
- **2024 Themes:** Includes Anaemia, Growth Monitoring, Complementary Feeding, and Technology for Better Governance.
- **Activities:** Health check-ups, community outreach, and distribution of nutritional supplements.

POSHAN Abhiyaan:

- **Launched in 2018:** Targets children (0-6 years), adolescent girls, pregnant women, and lactating mothers to reduce stunting, wasting, and anemia.
- **By Ministry of Women and Child Development (MWCD).**
- **Key Aspects:** Leverages technology, community engagement, and Nutri-gardens to improve nutrition.
- **Mission Saksham Anganwadi and Poshan 2.0:** Focuses on diet diversity, food fortification, and millet promotion.

PARALYMPICS

Introduction of Paralympics:

- **Origins:** The Paralympic Games began in **1948 with the Stoke Mandeville Games**, organized by Dr. Guttman for injured servicemen and women.
- **First Official Games:** Held in **Rome in 1960** with 400 athletes from 23 countries.
- **Winter Paralympics:** Introduced in 1976.
- **Olympic Integration:** Since 1988, the Paralympics have been held in the same cities and venues as the Olympics, under an agreement between the IPC and IOC.
- **Paris 2024:** The upcoming Paralympic Games will be held in Paris, the largest sporting event ever organized in France.

Aim of Paralympics:

- **Athletic Achievement:** Celebrate the accomplishments of athletes with disabilities.
- **Inclusion & Opportunity:** Inspire inclusion and advocate for opportunities for people with disabilities.

Major Categories of Disabilities in Paralympics:

- Muscle power
- Impaired passive range of movement
- Limb deficiency
- Leg length difference
- Short stature
- Hypertonia
- Ataxia
- Athetosis
- Vision impairment
- Intellectual impairment

About the International Paralympic Committee (IPC):

- **Founded in 1989**
- **Central Body:** Governs 176 National Paralympic Committees and four

disability-specific international sports federations.

- **Managing the Paralympics:** Oversees the Summer and Winter Paralympics, showcasing athletic talent.
- **Governing Competitions:** Manages World Championships and other major Para sports events.
- **Sport Development:** Promotes Para sport participation and inclusivity globally.

India's Paralympic Journey:


- **Start of Participation:** India began participating in the Paralympic Games in 1968.
- **First Paralympic Medal:** India won its first medal, a gold, in 1972.
- **First Gold Medal:** Murlikant Petkar won the gold in the men's 50m freestyle swimming event at the 1972 Paralympics in Heidelberg, Germany.
- India's Medals in Paralympics 2024 Medals- **Total 25 so far**
- **Notable Achievements:**
 - Shooter Avani Lekhara became the **first Indian woman** to win a Paralympic gold.
 - Bhavina Patel (table tennis) and Harvinder Singh (archery) became the **first Indians to win medals** in their respective events.



BPALM REGIMEN

Union Ministry of Health & Family Welfare has approved introduction of the BPaLM regimen – a novel treatment for Multi-Drug-Resistant Tuberculosis (MDR-TB) under its **National TB Elimination Program (NTEP)** as a highly effective and shorter treatment option.

- The BPaLM regimen, which consists four-drug combination – Bedaquiline, Pretomanid, Linezolid and Moxifloxacin, has been proven to be safe, more effective and a quicker treatment option than the previous MDR-TB treatment procedure.
- **Multidrug-resistant TB (MDR-TB)** refers to TB infections that are resistant to at least **isoniazid and rifampicin**, the two most powerful anti-TB drugs. MDR-TB requires a longer and more complex treatment regimen.
- This regimen includes a new anti-TB drug namely Pretomanid in combination with Bedaquiline & Linezolid (with/without Moxifloxacin). Pretomanid has earlier been approved & licensed for use in India by **Central Drugs Standard Control Organization (CDSCO)**.
- While traditional MDR-TB treatments can last up to 20 months with severe side effects, BPaLM regimen can cure the drug-resistant TB in just six months with high treatment success rate.

 The National Tuberculosis Elimination Programme (NTEP), previously known as Revised National Tuberculosis Control Programme (RNTCP), aims to strategically reduce TB burden in India by **2025, five years ahead** of the Sustainable Development Goals.



FISCAL DEFICIT

- **Fiscal deficit** is the difference between the government's total expenditure and its revenue (excluding borrowings) in a financial year.
- It is an indicator of the extent to which the government must borrow in order to finance its operations and is expressed as a percentage of the country's GDP.
- It is calculated as :

$$\text{Fiscal Deficit} = \text{Total Expenditure} - \text{Total Receipts (Except Borrowings)}$$

Here,

- **Total Expenditure** includes Revenue expenditure and Capital Expenditure
 - **Revenue Expenditure:** It is that part of the government expenditure which does not result in creation of assets. Revenue expenditure includes salaries of government employees, expenditure on welfare schemes, etc.
 - **Capital Expenditure:** It is the expenditure on acquisition of assets like land, buildings, machinery, equipment, as well as investment in shares.
- **Total Receipts** include Revenue receipts, Loan recoveries, and Capital Receipts
 - **Revenue Receipts:** It is the receipt of the government that includes both tax revenue (like income tax, excise duty) and non-tax revenue (like interest receipts, profits).
 - **Capital receipts** are funds that a government receives from non-recurring sources that increase its liabilities or decrease its assets

Current fiscal deficit of India :

- The fiscal deficit for the 2023-2024 financial year (FY24) was 5.6% of GDP, which is estimated to be due to increase in revenue and lowered spending.
- The fiscal deficit target for India in 2024-25 is **4.9% of GDP**, which is lower than the actuals for 2023-24 (5.6% of GDP). The government's goal is to reduce the fiscal deficit to less than **4.5% of GDP by 2025-26**.

Other related terms :

- **Revenue deficit** : It refers to the excess of total revenue expenditure of the government over its total revenue receipts.
 - Revenue deficit = Total Revenue expenditure – Total Revenue receipts. OR Revenue deficit = Total Revenue expenditure – (Tax Revenue + Non-Tax Revenue)
- **Primary Deficit:** Primary deficit is defined as fiscal deficit minus interest payments on previous borrowings. Primary deficit shows the borrowing requirements of the govt. for meeting expenditure excluding interest payment.
 - Gross Primary deficit = Fiscal deficit – Interest payments
 - **Net Primary deficit** = Fiscal deficit + Interest received – Interest payments
- **Effective Revenue Deficit (ERD)** : It's the difference between a government's revenue deficit and grants for the creation of capital assets.
 - **Effective Revenue Deficit** = Revenue Deficit - Grants in aid for the creation of capital assets

GST COUNCIL

Goods & Services Tax Council (GST Council) is a **constitutional body** for making recommendations to the Union and State



Government on issues related to Goods and Service Tax.

- The 101st Amendment Act of 2016 paved the way for the introduction of a new tax regime (i.e. goods and services tax – GST) in the country.
- The amendment inserted a new **Article 279-A** in the Constitution of India. This article empowered the President to constitute a GST Council by an order.

Composition of GST Council:

The Council is a joint forum of the centre and the states and consists of the following members:

- The Union Finance Minister as the Chairperson
- The Union Minister of State in-charge of Revenue or Finance
- The Minister in-charge of Finance or Taxation or any other Minister nominated by each state government
- The Union Cabinet also decided to include the Chairperson of the Central Board of Excise and Customs (CBEC) as a permanent invitee (non-voting) to all proceedings of the Council.

Working of GST Council :

- The decisions of the Council are taken at its meetings. One-half of the total numbers of members of the Council is the quorum for conducting a meeting. Every decision of the Council is to be taken by a majority of not less than three-fourths of the weighted votes of the members present and voting at the meeting.
- The decision is taken in accordance with the following principles:
 - The vote of the central government shall have a weightage of one-third of the total votes cast in the meeting.
 - The votes of all the state governments combined shall

have a weightage of two-thirds of the total votes cast in that meeting.

Tax Structure under GST:

- Central GST to cover Excise duty, Service tax etc,
- State GST to cover VAT, luxury tax etc.
- Integrated GST (IGST) to cover inter-state trade.
- IGST per se is not a tax but a system to coordinate state and union taxes.

NEUROMORPHIC COMPUTING



Researchers from the Indian Institute of Science (IISc), Bengaluru have created a revolutionary computing platform inspired by human brain function. The platform mimics brain-like processes and could significantly enhance AI tools' speed and energy efficiency.

What is Neuromorphic Computing?

- Neuromorphic Computing is an approach to computing that is inspired by the structure and function of the human brain.
- The development of neuromorphic hardware aims at mimicking biological synapse that monitors and remembers the signal generated by the stimuli.

Working of Neuromorphic computer



- A neuromorphic computer/chip consists of Artificial Neural Networks comprised of millions of artificial neurons (made from silicon).
 - These neurons pass signals to each other in layers, converting input into output through electric spikes or signals, based on the architecture of Spiking Neural Networks.
 - This allows the machine to mimic the **neuro-biological networks in the human brain** and perform tasks efficiently such as visual recognition and data interpretation.
 - The brain-inspired neuromorphic computing platform's molecular film enables free ionic movement, creating countless memory pathways and intermediary states, which are inaccessible in conventional digital platforms.
 - Digital platforms **can typically only access two conductance states**, but this new system offers precise control over molecular kinetics, mapping each movement to a distinct electrical signal.
- According to a report by Diamond Foundry, an environmentally conscious LGD manufacturer, it takes ten times more energy to extract a natural diamond from the earth than it takes in creating one above the ground.
 - Open-pit mining, one of the most common methods of mining naturally occurring diamonds, involves moving tonnes of earth and rock to extract these precious stones.

- **Manufacturing:**

- They are mostly manufactured through two processes, **High Pressure High Temperature (HPHT)** method or **Chemical Vapour Deposition (CVD)** method.
- Both HPHT and CVD methods of growing diamonds artificially begin with a seed, a slice of another diamond.
- In the HPHT method, the seed, along with pure graphite carbon, is exposed to temperatures around 1,500 degrees Celsius and extremely high pressure.
- In the CVD method, the seed is heated to around 800 degrees Celsius inside a sealed chamber filled with a carbon-rich gas. The gas sticks to the seed, gradually building the diamond.

- In the **Union Budget 2023-24**, the government announced a five-year research grant for one of the Indian Institutes of Technology (IITs). The grant aims to **encourage the indigenous production of LGD** machinery, seeds, and recipes.
- The project has been assigned to **IIT Madras**, and an **India Centre for Lab-**

LAB GROWN DIAMONDS (LGDs)

- LGDs are manufactured in laboratories, as opposed to naturally occurring diamonds. However, the chemical composition and other physical and optical properties of the two are the same.
- Naturally occurring diamonds take millions of years to form; they are created when carbon deposits buried within the earth are exposed to extreme heat and pressure.
- **Significance:**
 - The environmental footprint of a diamond grown in a laboratory is much lesser than that of a naturally occurring diamond.



Grown Diamond (InCent-LGD) is proposed to be established there.

SIGNAL MODULATION

Modulation is the addition of information to an electrical or optical carrier signal in order to convert data into radio waves. A carrier signal has a waveform which has constant amplitude (height) and frequency.

Types of Modulation

There are three types of modulation which are given here.

- **Amplitude Modulation (AM)**
 - It was the first modulation technology used to send voice over the radio. In electronic communication, this form of modulation is applied. The carrier signal's amplitude varies in response to the message signal, but other parameters such as phase and frequency stay constant.
 - Amplitude modulation occurs when the amplitude of basic signal changes or modulates when it is superimposed with a carrier signal of same frequency but different amplitude.
- **Frequency Modulation (FM)**
 - In frequency modulation, the carrier signal's frequency changes in response to the message signal, while other characteristics such as amplitude and phase stay constant.
 - Frequency modulation is widely used in a variety of applications, including radar, radio, and telemetry, seismic prospecting, and EEG

monitoring of newborn for seizures.

- **Phase Modulation (PM) :**
 - The carrier signal's phase varies in phase with the message signal in phase modulation. When the phase of a signal changes, the frequency changes as well.
 - As a result, this modulation is also classified as frequency modulation.
 - It is an important component of several digital transmission coding methods that support a variety of technologies, including GSM, WiFi, and satellite television.

GOODS TRADE BAROMETER

- Indian merchandise exports may improve in the year's second half, as the World Trade Organization (WTO) Goods Trade Barometer signals a global trade upturn.
- **Composite Indicator:** Goods Trade Barometer provides real-time insights into global merchandise trade trends and tracking its trajectory compared to recent patterns.
- **Objective:** The index is developed by the WTO to supplement traditional trade statistics and projections.
- **Focus:** It identifies key turning points in global merchandise trade and offers predictions for its potential direction in the near term.
- **Frequency:** Published quarterly, the barometer relies on available data to provide insights.
- **Interpretation:** Readings above 100 signify growth exceeding the trend, while those below 100 indicate growth falling short of the trend.



- **Current Trends:** The current value of the WTO Goods Trade Barometer stands at 103 i.e above both the quarterly trade volume index and the baseline value of 100.
 - All barometer component indices are on or above trend, except the **electronic components index**, which is declining.

BHASKAR PLATFORM

- The **Department for Promotion of Industry and Internal Trade (DPIIT)** under the Ministry of Commerce and Industry is launching the **Bharat Startup Knowledge Access Registry (BHASKAR)**. It is a digital platform aimed at boosting India's startup ecosystem.
- India is home to over 1,46,000 DPIIT-recognized startups. This makes India a global startup hub. BHASKAR aims to leverage this potential by providing a one-stop digital platform that addresses the challenges faced by entrepreneurs and investors.

Objectives :

- Create world's largest digital registry for startup ecosystem stakeholders and fosters a conducive environment for networking and growth. It also facilitates cross-border collaborations and drives innovation, entrepreneurship, and job creation.
- Supporting India's Global Brand: BHASKAR will serve as a vehicle for promoting India's global reputation as a hub for innovation, making cross-border collaborations more accessible to startups and investors alike.

VISHVASYA-BLOCKCHAIN TECHNOLOGY STACK

- Launched by the **Ministry of Electronics and Information Technology (MeitY)**.
- It is a **part of the broader National Blockchain Framework** provided under National Strategy on Blockchain.
- **Refers:** Third-party cloud-based infrastructure and management for companies building and operating blockchain apps.
- **Aim:** To offer **Blockchain-as-a-Service with a geographically distributed infrastructure** designed to support various permissioned Blockchain based applications.
- **Significance:** It addresses the challenges of Blockchain adoption across various stakeholders including Infrastructure Providers, Smart Contract Developers and Application Developers.

ENEMY PROPERTY ACT

- **Enemy Property Act (1968):** This act was enacted to regulate and manage properties belonging to enemies.
- **Historical Context:** After the partition of India in 1947, and during the wars with Pakistan (1947-48, 1965, 1971) and China (1962), many people who migrated to these countries left behind properties in India.
- **Defence of India Rules:** They were framed under The Defence of India Act, 1962, the GOI took over the properties and companies of those who took Pakistani nationality.
- **For China:** The same was done for property left behind by those who went to China after the 1962 Sino-Indian War.



- **Custodian:** Centre vested these “enemy properties” with the Custodian of Enemy Property for India.
- The Custodian of Enemy Property for India (CEPI) was established to administer these properties.
- **Highest Number:** Uttar Pradesh (5,982) has the highest number of enemy properties, followed by West Bengal (4,354).
- **Not only limited to Real Estate:** Besides real estate, enemy property may also include bank accounts, shares, gold, and other assets of such individuals.

- **Role:** Designed for anti-submarine warfare, low-intensity maritime operations, mine-laying, and search and rescue operations.
- **Armament:** Equipped with lightweight torpedoes, ASW rockets, mines, close-in weapon systems, and stabilized remote-control guns.
- **Propulsion:** Each vessel has an installed propulsion power of 12 MW.
- **Contract Details:** Design and construction contract between the Ministry of Defence and Cochin Shipyard Ltd. signed in April 2019.

INS MALPE AND INS MULKI



The fourth and fifth ships in the series of eight vessels will be called *INS Malpe* and *INS Mulki*. R.K. NITHIN

- These are Anti-Submarine Warfare Shallow Watercraft (ASWSWC) vessels launched by Indian Navy at Cochin Shipyard.
- **Dimensions:** 78 meters long, 11.36 meters wide, with a draught of 2.7 meters.
- **Speed and Endurance:** Maximum speed of 25 knots and endurance of 1,800 nautical miles.
- **Displacement:** About 900 tonnes.
- **Indigenous Sonar:** Fitted with sonar for underwater surveillance.
- **Class:** Part of the Mahe-class of ships, replacing the Abhay-class ASW corvettes.

NORTHERN UNITED-2024



- **Participants:** China and Russia.
- **Nature of Drills:** Joint naval and air drills.
- **Location:** The exercises will take place in the **Sea of Japan** and the **Sea of Okhotsk**, situated in the northern Pacific region.
- **Objective:** To enhance strategic cooperation between China and Russia and strengthen their ability to jointly respond to security threats.
- **Broader Context:** These drills highlight the deepening military ties between China and Russia, particularly as Russia continues its invasion of Ukraine.



- **Associated Exercises:** Along with the **Northern United-2024**, the two countries' navies will cruise together in the Pacific for the **fifth time** and take part in Russia's "**Great Ocean-24**" exercise.
- **Geopolitical Importance:** This exercise signals China and Russia's growing defense collaboration, with Russia aiming to establish itself as a Pacific power and supporting China's territorial claims in areas like the South China Sea.

INDEX OF INDUSTRIAL PRODUCTION

What is the Index of Industrial Production?

- IIP is an indicator that measures the changes in the volume of production of industrial products during a given period.
- It is compiled and published monthly by the **National Statistical Office (NSO)**, Ministry of Statistics and Programme Implementation.
- It is a composite indicator that measures the growth rate of industry groups classified under:
 - **Broad sectors**, namely, Mining, Manufacturing, and Electricity.
 - **Use-based sectors**, namely Basic Goods, Capital Goods, and Intermediate Goods.
- Base Year for IIP is **2011-2012**.
- **Significance of IIP:**
 - It is used by government agencies including the Ministry of Finance, the Reserve Bank of India, etc, for policy-making purposes.
 - IIP remains extremely relevant for the calculation of the quarterly and advance GDP (Gross Domestic Product) estimates.

About Eight Core Sectors:



- These **comprise 40.27% of the weight of items** included in the Index of Industrial Production (IIP).
- The eight core sector industries in decreasing order of their weightage: **Refinery Products > Electricity > Steel > Coal > Crude Oil > Natural Gas > Cement > Fertilizers**.
- The Index of Eight Core Industries (ICI) is prepared every month and released by the **Office of the Economic Adviser (OEA)**, Department for Promotion of Industry and Internal Trade (DPIIT), and Ministry of Commerce & Industry.

STAGFLATION

Stagflation is a situation in which the inflation rate is high, the economic growth rate slows and unemployment remains steadily high.

- Stagflation can be triggered by various factors, but the most common cause is a supply shock, such as a sudden increase in the price of a crucial commodity like oil. This leads to higher production costs, which in turn fuels inflation and reduces economic output.
- The most well-known example of stagflation occurred in the 1970s, following the oil crisis of 1973. More recently, the global economy faced stagflationary risks in 2022-23 due to the Ukraine war, which disrupted supply chains and led to a surge in food and energy prices.

DARK PATTERNS

- Dark patterns are deceptive and **manipulative user interface (UI)**



design techniques employed by websites, apps, and other digital platforms to trick or **manipulate users into taking actions they may not intend to take** or to make decisions that **are not in their best interest**.

- It is a deceptive practice employed to influence user behaviour in a way that benefits the company implementing it.
- The term “dark patterns” was coined in 2010 by Harry Brignull, a user experience specialist.
- These patterns are often used to encourage users to sign up for services, make purchases, or share personal information, among other things.
- Dark patterns exploit cognitive biases and psychological principles to influence user behavior.
- There are **different kinds** of dark patterns: **Friend spam, forced continuity, disguised ads, confirm shaming, bait and switch, hidden costs, roach motel, privacy zuckering, misdirection, price comparison prevention, trick questions, and sneak into basket**
- In November 2023, the Department of Consumer Affairs, Government of India, released guidelines for 13 dark patterns.
 - According to these guidelines, the use of any of these prescribed dark patterns amounts to a misleading advertisement, an unfair trade practice, or a violation of consumer rights.

SHABD PLATFORM

- The Commission for Scientific and Technical Terminology (CSTT), under the Union Education Ministry, has launched a unique website, shabd.education.gov.in, providing

technical terms in all 22 official Indian languages.

About the Shabd Portal

- The portal aims to serve as a **central repository** for technical terminologies across Indian languages, hosting glossaries from **CSTT** as well as other institutions and agencies.
- The portal currently hosts **450 dictionaries** comprising **3 million words**, making it a vast resource for users seeking **scientific and technical terms** in Indian languages.
- Search Features:
 - Users can search for equivalent terms by **language, subject, dictionary type, or language pairs**.
 - Specific searches can also be made within a particular **glossary** or across the entire collection.
 - The platform also allows users to provide **feedback** on the terms prepared by the CSTT.

About CSTT (Commission for Scientific and Technical Terminology) :

- The **Union Education Ministry** established the CSTT in **December 1960** to develop scientific and technical terminology in Hindi and other Indian languages.
- It works to **evolve, define, and standardize scientific and technical terms** in Hindi and other Indian languages.
- It has developed over **450 glossaries**, creating more than **3 million standardized words** in Indian languages.



CHOLERA

Cholera is an acute diarrheal disease caused by the bacterium *Vibrio cholerae*.

- It is primarily a waterborne disease and is classified as a neglected tropical disease.

Transmission

- **Primary Mode:** Contaminated water and food.
- **Fecal-Oral Route:** The bacteria are ingested through water or food contaminated with fecal matter.
- **Environmental Factors:** Poor sanitation, inadequate water treatment, and inadequate hygiene contribute to the spread.

Symptoms

- **Incubation Period:** Usually 2 hours to 5 days.
- **Clinical Features:**
 - **Diarrhea:** Watery, often described as "rice-water stools."
 - **Vomiting:** Can accompany diarrhea.
 - **Dehydration:** Rapid loss of fluids and electrolytes, leading to severe dehydration.
 - **Shock:** If not treated promptly, can result in hypovolemic shock and death.

Treatment

- **Rehydration Therapy:**
 - **Oral Rehydration Solution (ORS):** First-line treatment to replace lost fluids and electrolytes.
 - **Intravenous Fluids:** Required for severe cases with signs of shock or dehydration.
- **Antibiotics:** Useful in severe cases to shorten the duration of symptoms and reduce transmission. Commonly used

antibiotics include doxycycline, azithromycin, and ciprofloxacin.

About Neglected Tropical Diseases :

- NTDs are a diverse group of 20 conditions/diseases that are mainly prevalent in tropical areas, where they thrive among people living in impoverished communities.
- They are caused by a variety of pathogens (including viruses, bacteria, parasites, fungi, and toxins) and are associated with devastating health, social, and economic consequences.
- The World Health Organization (WHO) estimates that NTDs affect more than 1 billion people, while the number of people requiring NTD interventions (both preventive and curative) is 1.6 billion.
- These include **Guinea worm, Chikungunya, Dengue, Kala Azar (Visceral Leishmaniasis), and Elephantiasis (Lymphatic Filariasis)**, among others, and India is home to about 12 NTDs.

GLOBAL ALLIANCE FOR NATIONAL HUMAN RIGHTS INSTITUTIONS (GANHRI)

- **The Global Alliance for National Human Rights Institutions (GANHRI)** is an organisation affiliated to the UN High Commissioner for Human Rights.
- It is a global network of national human rights institutions (NHRIs) that works to promote and protect human rights.
- GANHRI represents 120 NHRIs from around the world.
- GANHRI's mission is to unite, promote, and strengthen NHRIs to operate in line with the UN Paris Principles.



- **Accreditation:**
 - **Conducted by:** Sub-Committee on Accreditation (SCA), which reviews NHRIs every five years.
 - **Process:** Peer-reviewed, ensuring compliance with the Paris Principles on independence, pluralism, and accountability.
 - **Status:** 'A status' for full compliance with Paris Principles; 'B status' for partial compliance.
 - **Impact:** Accreditation affects voting rights at the UN Human Rights Council and some UNGA bodies.
- **Paris Principles:** Require NHRIs to be independent in structure, composition, decision-making, and operations.
- **India's NHRC:**
 - **Achieved 'A' status in 1999, retained it in 2006, 2011, and 2017 after deferral.**
 - **2023 Review Concerns:** Composition procedure transparency, Involvement of police personnel in investigations, Lack of gender and minority representation.
- **2024 Review:** NHRC's performance under review for potential re-accreditation.
- **India's Response:** GANHRI's suggested reforms delayed due to the general elections
- **MVA-BN** is approved for use against **smallpox, mpox, and orthopoxvirus infections** in adults, with potential off-label use in **infants, children, pregnant women, and immunocompromised individuals** during outbreaks.
- WHO prequalification enables procurement by organizations like **Gavi** and **UNICEF** for **African countries**.
- Prequalification was granted based on evaluations by the **European Medicines Agency (EMA)**.
- **MVA-BN** is the only **non-replicating mpox vaccine** approved in multiple countries, including the **U.S., Canada, EU, Switzerland, and Singapore**.
- The vaccine was originally developed in collaboration with the **U.S. government** for smallpox immunization, especially for **immunocompromised individuals**.
- Bavarian Nordic is working with partners like **CEPI** to expand vaccine approval to **children aged 2-12 years**.
- During the **2022-2023 mpox outbreak**, the company supplied the vaccine to **over 70 countries**.
- The company has a **strong portfolio of vaccines** for **travelers** and **endemic diseases** and is a global leader in **smallpox and mpox vaccines**, enhancing **public health preparedness**.
- **Bavarian Nordic** is a **fully integrated vaccine company** with a mission to **protect and save lives** through innovative vaccines.

FIRST MPOX VACCINE

- **Bavarian Nordic A/S** has received **WHO prequalification** for its mpox vaccine **IMVANEX® (MVA-BN®)**, making it the **first mpox vaccine** on the WHO prequalification list.

EXERCISE AL NAJAH V



- The **Indian Army contingent** has departed for the **5th edition of Exercise AL NAJAH**, which will take place from **13th to 26th September 2024** at the Rabkoot Training Area in Salalah, **Oman**.
- **Conducting between:** AL NAJAH is a **Joint Military exercise between India and Oman**.
- **Purpose:** Exercise **AL NAJAH**, aims to **strengthen the joint military capabilities** of both the nations in **executing counter-terrorism operations under Chapter VII of the United Nations Charter**.
- **Operational Environment:** This year the exercise will be based on operations in a **desert environment**.
- **Biennial Schedule:** Exercise AL NAJAH has been held **biennially since 2015**.
- **Previous Edition Location:** The last edition was conducted at **Mahajan, Rajasthan**.
- **Significance of this Exercise:** It will allow both sides to exchange best practices in tactics, techniques and procedures for joint operations.

- It will **foster interoperability, goodwill and camaraderie** between the two armies.
- Additionally, the joint exercise will **strengthen bilateral defence cooperation** between the two friendly nations.

Other exercises between India and Oman:

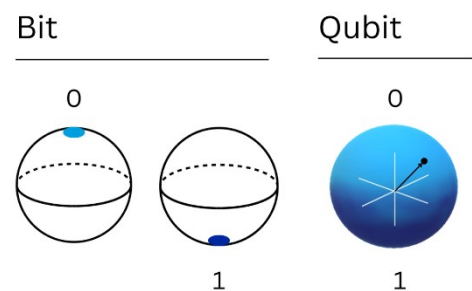
- **Navy exercise:** Naseem-Al-Bahr
- **Air Force:** Eastern Bridge

QUANTUM COMPUTING

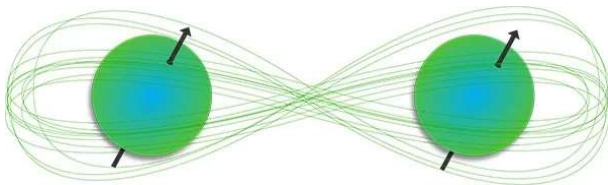
- Quantum computing leverages quantum mechanics principles, such as superposition and entanglement, to perform complex computations.
- Unlike classical computers using binary bits (0 or 1), **quantum computers use qubits that can exist in multiple states simultaneously**. This allows for exponentially faster calculations, useful in areas like cryptography, artificial intelligence, and complex simulations.


Key principles :

1. **Superposition :** Quantum superposition is a fundamental principle in quantum mechanics where a particle, like a qubit in a quantum computer, can exist in multiple states at once. In classical computing, a bit is either 0 or 1, but in superposition, a qubit can be both 0 and 1 at the same time. This allows quantum computers to process vast amounts of information simultaneously.



2. **Quantum Interference:** This principle controls the probability of quantum states combining or cancelling each other out, allowing quantum computers to selectively process only the most probable outcomes for efficient computation.
3. **Quantum Entanglement:** This is when two or more particles become linked in such a way that the state of one directly affects the state of the other, even if they are far apart. This allows for faster information transfer.



 **Qubits:** As the basic units for information representation and processing, different physical systems are engineered to serve as qubits. The most common in use today are:

- **Superconducting circuits** are maintained at very low temperatures.
- **Trapped ions** are manipulated using lasers and kept at an ultrahigh vacuum.
- **Defects in diamond crystals** provide stability at room temperature.

PARAZINHO COMMUNITY

- Small, indigenous or local community, often located in rural or remote areas.
- “Parazinho” is a Portuguese term, meaning “little paradise” associated with a Portuguese-speaking country, such as **Brazil** or **Portugal**.
- **Location:** Typically found in rural or remote regions, possibly in forested areas or near natural reserves.
- **Population:** Often a small, close-knit group of people, preserving traditional lifestyles and practices.

- **Economy:** May rely on agriculture, fishing, or small-scale craftsmanship for sustenance and livelihood.
- **Culture:** Strong cultural heritage, with a focus on traditional beliefs, customs, and possibly a distinct language or dialect.
- **Challenges:** Likely to face issues such as lack of access to healthcare, education, and modern infrastructure, along with potential challenges related to land rights and environmental conservation.

SUMMIT OF THE FUTURE

About Summit of the Future

- It is a high-level event, bringing world leaders together to forge a new international consensus on how we deliver a **better present and safeguard the future**.
- It serves as a moment to mend eroded trust and demonstrate that international cooperation can effectively tackle current challenges as well as those that have emerged in recent years or may yet be over the horizon.
- The high-level event will bring together UN Member States, UN agencies, non-governmental organizations (NGOs), civil society organizations (CSOs), academic institutions, the private sector, and youth under the theme, ‘Summit of the Future: Multilateral Solutions for a Better Tomorrow’.
- The aim is to build upon the **Sustainable development Goal (SDG) Summit** and deliver an action-oriented Pact for the Future to accelerate progress towards the Sustainable Development Goals.
- This will be achieved through an action-oriented outcome document called the **Pact for the Future**.



- The Pact will be negotiated, and endorsed by countries in the lead-up to and during the Summit in September 2024.
- UN Member States have agreed the Summit of the Future is centered around five key targets:
 - Reaffirm the UN Charter.
 - Reinvigorate multilateralism.
 - Boost implementation of existing commitments.
 - Agree on solutions to new challenges.
 - Restore trust.

INDIAN CYBERCRIME COORDINATION CENTRE (I4C)



सहवीर्य करवावहै • Working Together With Vigour

Indian Cybercrime Coordination Centre (I4C)

- Initiative of the **Ministry of Home Affairs**, Government of India to deal with cyber-crime in the country in a coordinated and comprehensive manner.
- I4C focuses on tackling all the issues related to Cybercrime for the citizens, which includes improving coordination between various Law Enforcement Agencies and the stakeholders.
- Indian Cybercrime Coordination Centre scheme was approved on **05th October 2018**.
- Since its roll out, it has worked towards enhancing the nation's collective capability to tackle cybercrimes and

develop effective coordination among the Law Enforcement Agencies.

- The I4C was dedicated to the Nation on 10th January **2020** by the Home Minister.

Objectives of I4C

- To act as a nodal point to curb Cybercrime in the country.
- To strengthen the fight against Cybercrime committed against women and children.
- Facilitate easy filing Cybercrime related complaints and identifying Cybercrime trends and patterns.
- To act as an early warning system for Law Enforcement Agencies for proactive Cybercrime prevention and detection.
- Awareness creation among public about preventing Cybercrime.
- Assist States/UTs in capacity building of Police Officers, Public Prosecutors and Judicial Officers in the area of cyber forensic, investigation, cyber hygiene, cyber-criminology, etc.

MEGALITHIC URN BURIALS



A capstone found on top of an urn burial on Kundlikkad hill in Koduvayur panchayat.

- A megalith is a stone that is larger in size and has been used to construct a monument or a structure.
- The "Polyolithic type" and the "Monolithic type" are two categories into which megalithic building types can be divided.
- The megalithic structure in the polyolithic type is constructed from multiple stones.

A monolithic structure is made up of just one stone.

- Polyolithic Type

Dolmen: This kind of megalith, which is typically supported by three or more upright stones and a sizable flat horizontal capstone, was made in a single chamber tomb.

Example: Clusters of Dolmen at Hire Benkal, Karnataka.



Cairn: A man-made stone pile known as a "cairn" is frequently conical in shape.

Example: Ottiyambakkam Cairns



Cist or kist was used to encase the bodies of the dead. It might be connected to other monuments.

Example: Brahmagiri Cist, Karnataka.



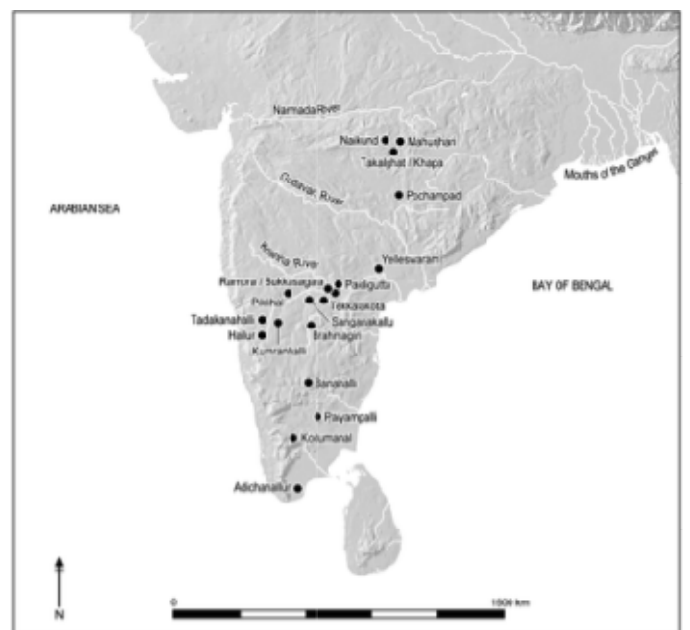
- **Monolithic type**

Menhir is a monolithic stone structure that is upright.

Example: Ellarigudem, Telangana



Stone circles: It is made up of standing stones arranged in circle. Example: Stone Circle at Junapani, Madhya Pradesh



Megalithic Sites

INTEGRATED OCEAN ENERGY ATLAS

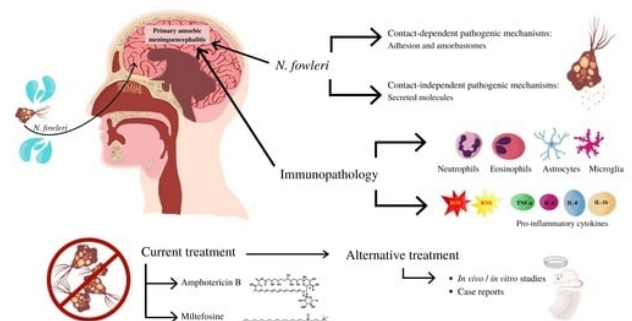
- Recently, the **Indian National Centre for Ocean Information Services (INCOIS)** has announced the development of an 'Integrated Ocean Energy Atlas' of the Indian EEZ (Exclusive Economic Zone).
- It showcases the vast **potential of ocean energy resources** encompassing **marine meteorological** (solar and wind) and **hydrological** (wave, tide, currents, ocean thermal, and salinity gradients) energy forms.
- It identifies areas with high potential for energy generation and will **serve as a reference for policymakers**, industry and researchers for harnessing the rich energy resources available in the Indian EEZ.
- INCOIS prepared the annual, monthly, and daily energy estimates of ocean energy components following standard methods that can be visualised through a WebGIS interface at 5 km grid resolution.

Indian National Centre for Ocean Information Services

- It was established as an **autonomous body** in 1999 under the **Ministry of Earth Sciences (MoES)** and is a unit of the **Earth System Science Organization (ESSO)**.
- **Mandate:** To provide the best possible **ocean information and advisory services** to society, industry, government agencies, and the scientific community through sustained ocean observations and constant improvements through systematic and focussed research.
- **Activities:**

- It provides **round-the-clock monitoring and warning services** for the coastal population on tsunamis, storm surges, high waves, etc. through the in-house Indian Tsunami Early Warning Centre (ITEWC).
- It provides daily advisories to fisher folk to help them easily **locate areas of abundant fish** in the ocean.
- Short-term (3-7 days) **Ocean State Forecasts** (waves, currents, sea surface temperature, etc.) are issued daily to fisher folk, the shipping industry, the oil and natural gas industry, the Navy, the Coast Guard, etc.

AMOEBIC MENINGOENCEPHALITIS



- Kerala faced a sudden surge in **Amoebic Meningoencephalitis** cases, caused by free-living amoebae (FLA) found in freshwater ponds, lakes, and rivers.
- Kerala also saw a **diverse range of amoebic infections**, caused by ***Naegleria fowleri*, *Vermamoeba vermiformis* and *Acanthamoeba***.

What is Primary Amoebic Meningoencephalitis (PAM)?

- PAM is caused by the *Naegleria fowleri*, often referred to as the “**brain-eating amoeba**“. It destroys brain tissue, causing severe swelling and is fatal in most cases.
 - An amoeba is a type of cell or **unicellular organism** with the ability to alter its shape, primarily by extending and **retracting pseudopods**.
 - Higher temperatures of up to **115°F (46°C)** are conducive to its growth and it can survive for short periods in warm environments.
- The amoeba **enters the body through the nose**, typically during activities like swimming, and travels to the brain, causing severe damage.
- PAM is also **non-communicable**.
- **Symptoms:** Headache, fever, nausea, vomiting, stiff neck, confusion, seizures, hallucinations, and coma.
 - According to the **US Centers for Disease Control and Prevention (CDC)**, most people with PAM die within 1 to 18 days after symptoms begin. It usually leads to coma and death after 5 days.

Diagnosis and Treatment:

- Currently, there are **no established effective treatments** for PAM.
- Diagnosis involves **PCR tests of cerebrospinal fluid**, though detection can be challenging due to the rarity of PAM.
- **Treatment follows CDC guidelines**, including miltefosine, Azithromycin, and Amphotericin B, with miltefosine recently procured by the State Health Department from Germany.
 - Medical interventions typically involve a combination of drugs,

including amphotericin B, azithromycin, fluconazole, rifampin, miltefosine, and dexamethasone.

MINI-MOON

In a rare celestial event, Earth's gravitational field will witness a **small asteroid, 2024 PT5**, creating a “**mini-moon**” for two months.



What is Mini-Moon?

- A mini-moon is a **small asteroid temporarily captured by Earth's gravitational field, orbiting the planet** for a short period before escaping back into space.
- Unlike Earth's permanent moon, mini-moons only **stay for a few months to a few years** before being ejected from orbit.
- Mini-moons are a **rare occurrence** because most asteroids either **pass by Earth** or **burn up in the atmosphere** rather than being captured by Earth's gravity.
- Mini-moons are usually small, often just a **few meters in diameter**.
 - For example, **2024 PT5** is only about **33 feet (10 meters)** in length.
- They are **hard to detect** and are usually discovered using **advanced**



telescopic surveys like NASA's Asteroid Terrestrial-impact Last Alert System (ATLAS).

Significance of Mini-Moons

- Mini-moons offer scientists a unique opportunity to study near-Earth objects, enhancing our understanding of asteroids' behavior and composition.
- Mini-moons could contain valuable minerals or water, making them potential targets for future space missions to extract resources.
- Studying mini-moons helps scientists learn more about Earth's gravitational influence and how it interacts with space objects.

- Weightage to these groups will vary in CPI rural, CPI urban and CPI combined.
- **For example:** weightage of food and beverages in CPI rural, CPI urban and CPI combined are 54%, 36% and 45% respectively.
- The **National Statistical Office (NSO), Ministry of Statistics and Programme Implementation (MoSPI)**, compiles All India as well as state-wise CPI for Rural, Urban, Combined sectors and releases the CPI numbers every month.
- **CPI** = (Cost of a Fixed Basket of Goods and Services in the Current Year/Cost of a Fixed Basket of Goods and Services in the Base Year) * 100

CONSUMER PRICE INDEX (CPI)**What is CPI?**

- It is a comprehensive measure used for estimation of price changes in a basket of goods and services representative of consumption expenditure in an economy.
- The CPI measures changes only in one of the factors - prices.
- It is calculated on a monthly basis.
- Base year for CPI (Rural, Urban and Combined) is 2012.

About CPI Basket

- The basket of goods and services represents the level of living or the utility derived by the consumers at given levels of their income, prices and tastes.
- The number of items in CPI basket include 448 in rural and 460 in urban.
- **Items can be classified in to six groups**
 - Food and beverages
 - Miscellaneous (health, education etc.)
 - Fuel & Light
 - Clothing & Footwear
 - Pan, Tobacco and Intoxicants

NEXT GENERATION LAUNCH VEHICLE (NGLV)

The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has approved the development of **Next Generation Launch Vehicle (NGLV)**, that will be a significant step towards the Government's vision of establishing & operating the **Bharatiya Antariksh Station** and towards developing capability for Indian Crewed Landing on the Moon by 2040.

About NGLV :

- **Developed by** Indian Space Research Organisation (ISRO)
- **Timeline:** The NGLV will undergo three developmental flights: D1, D2, and D3. The project is expected to be completed in 96 months (eight years).
- **Industry Participation:** The project will involve extensive industry participation, with private industries expected to invest in manufacturing capacity. This will enable a smooth transition from the development phase to the operational phase.



Key Features of NGLV

- The NGLV is designed to provide three times more payload capacity than the existing LVM3.
- The cost of the NGLV will only be 1.5 times more than the current vehicles.
- The vehicle will incorporate reusability features, making access to space more affordable and efficient.
- NGLV will be capable of launching 30 tonnes to **Low Earth Orbit (LEO)**. It includes a reusable first stage, which is a significant enhancement over the current satellite launch capabilities.
- India's current launch systems, such as the PSLV, GSLV, LVM3, and SSLV, can handle up to 10 tonnes to LEO and 4 tonnes to Geo-Synchronous Transfer Orbit (GTO).

The Bharatiya Antariksh Station (BAS) is India's proposed space station, which the Indian Space Research Organisation (ISRO) **aims to set up by 2035**. It will serve as a platform for conducting space research and experiments in a microgravity environment.

ALZHEIMER'S DISEASE

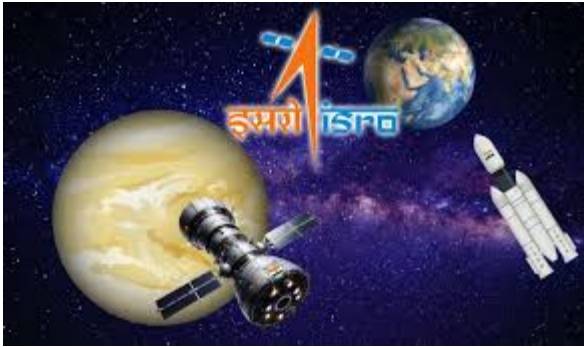
About Alzheimer's Disease

- It is a brain condition that causes a progressive decline in memory, thinking, learning, and organizing skills.
- It is the most common type of dementia, accounting for 60-80% of all dementia cases.
- It involves parts of the brain that control thought, memory, and language.
- It can seriously affect a person's ability to carry out daily activities.
- The condition usually affects people aged 65 years and over, with only 10% of cases occurring in people younger than this.

Causes and Risk Factors:

- Currently the causes of Alzheimer is not fully known, still factors that may contribute to Alzheimer's include:
 - **Age:** Advancing age is the primary risk factor, with the majority of cases occurring in individuals over 65.
 - **Genetics:** Certain gene mutations, such as those in the APP, PSEN1, and PSEN2 genes, can increase the risk of developing Alzheimer's.
 - **Amyloid Protein:** Alzheimer's disease is thought to be caused by the abnormal build-up of amyloid-beta and tau proteins in and around brain cells.
 - **Amyloid-beta protein** clumps together to form plaques between nerve cells in the brain, while tau protein forms twisted tangles inside neurons.
 - **Lifestyle Factors:** Chronic conditions like cardiovascular disease, diabetes, obesity, smoking, and a sedentary lifestyle may contribute to the risk.
- **Treatment and Management:**
 - There's **currently no cure** for Alzheimer's disease. But there is medicine and supportive therapies available that can temporarily reduce the symptoms.

VENUS ORBITER MISSION



The Union Cabinet chaired by the Prime Minister of India has approved the development of Venus Orbiter Mission (VOM).

Venus Orbiter Mission:

- It is envisaged to **orbit a scientific spacecraft** in the orbit of planet Venus.
- **Objectives**
 - It is for better understanding of the **Venusian surface and subsurface**, atmospheric processes and influence of the Sun on Venusian atmosphere.
 - The study of the underlying **causes of the transformation of Venus**, which is whispered to be once habitable and quite similar to Earth would be an invaluable aid in understanding the evolution of the sister planets, both Venus and Earth.
 - The Indian Venus mission is expected to answer some of the outstanding scientific questions resulting in various scientific outcomes.
- India Space Research Organisation (ISRO) will be responsible for the development of spacecraft and its launch.
- The mission is expected to be accomplished on the opportunity **available during March**

2028. The realization of the spacecraft and launch vehicle is through various industries.

- **Funding:** The total fund approved for the VOM is Rs.1236 Cr out of which Rs 824.00 Crore will be spent on the spacecraft.
- The cost includes development and realization of the spacecraft including its specific payloads and technology elements, global ground station support cost for navigation and network as well as the cost of launch vehicle.
- **Significance:** Venus, the closest planet to Earth and believed to have formed in conditions similar to Earth, offers a unique opportunity to understand how planetary environments can evolve very differently.

CHESS OLYMPIAD

Context: India recorded one of the greatest moments in its sporting history in Budapest on Sunday, winning the gold medals both in the Open and women's sections of the 45th Chess Olympiad



About Chess Olympiad :

- A biennial international chess tournament organized by **FIDE (International Chess Federation)**,



where teams from various countries compete.

- It consists of two tournaments: **Open and Women's**, with countries sending teams of four players for each category.
- **First Chess Olympiad**: Held in 1927 in London.
- In 2022, India hosted the **44th Chess Olympiad** in **Mamallapuram, Tamil Nadu**, marking the first time the event was held in India.
- The Open event was contested by a total of 975 players from **197 teams**. It featured seven of the top ten players from the FIDE rating list published in September 2024.

Organizational Structure & Format

- The Chess Olympiad is organized by FIDE, the world governing body of chess.
- Teams from each country participate in a **round-robin or Swiss-system** format, depending on the number of teams.
- Medals are awarded to the top three teams, and individual players can also win medals based on their board performances.
- **Format**: Teams of four players compete in a series of rounds.
- **Scoring**: Each match has four individual games, and teams receive points based on game results (win = 1 point, draw = 0.5 points).
- For the first time at the Chess Olympiads, **teams of refugees participated in both sections**. A selection process consisting of tournaments organised by FIDE at schools and community centres in Kakuma, Kenya was conducted in order to find ten promising players—five for the team in the Open and five for the team in the Women's event—that would

represent the team at the Budapest Chess Olympiad.

India's performance :

- The Indian men and women finished by winning gold at the Chess Olympiad in both categories.
- It was a first for India in either section. The best performance previously was the bronze the men and the women had won in the 2022 Chennai Olympiad.
- USA became the runner up for the open section, with a total score of 17.

EXERCISE EASTERN BRIDGE

Recently, the **Indian Air Force (IAF)** completed Exercise Eastern Bridge VII in collaboration with the **Royal Air Force of Oman (RAFO)**.

About Exercise Eastern Bridge VII



- Exercise Eastern Bridge VII with the Royal Air Force of Oman (RAFO) was held at the RAFO airbase in **Masirah**.
- The exercise saw the participation of **MiG-29 and Jaguar aircraft from the IAF**, while RAFO deployed F-16 and Hawk aircraft.
- The exercise featured complex air operations, air-to-air combat drills, and mission scenarios, which were designed to improve the strategic and tactical capabilities of both forces.

The exercise involved:

- Complex air operations designed to simulate real-world scenarios.
- Air-to-air combat drills to enhance tactical capabilities.
- Mission scenarios focusing on improving strategic and operational proficiencies

The successful completion of the exercise reinforces the commitment of both India and Oman to maintaining regional peace and security. The forces showcased their ability to jointly operate in diverse scenarios and demonstrated preparedness to face emerging security challenges.

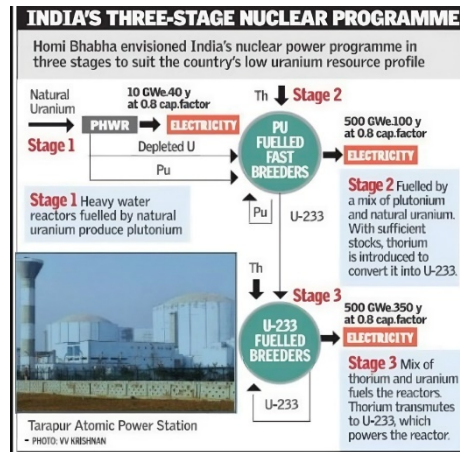
CRITICALITY

India's **third indigenous 700 MW Nuclear power reactor (RAPP-7)** built at Rajasthan Atomic Power Project in Rawatbhata has achieved criticality. It has set the stage for its gradual move towards producing electricity for commercial purposes.

- Earlier, two 700 MWe PHWRs started commercial operation at **Kakrapar Atomic Power Station (KAPS)** in Gujarat.

What is criticality?

- Criticality refers to the state where the **chain reaction of nuclear fission in a nuclear reactor is self-sustaining**. This means that each fission event produces enough neutrons to cause further fissions, maintaining a constant rate of fission and energy release. Its the first step in nuclear energy generation.



RETRACTION

The 'Retraction Watch' database reports an Indian scientist in Lucknow with 45 retractions, while a Kolkata researcher, who published 300 papers in a year, had six papers retracted.

What is retraction?

- A retraction is when a scientific journal officially takes back a research paper because it contains serious mistakes or was found to be dishonest (like using fake data).

What is retraction index?

- The retraction index is a way to measure how often papers are retracted in a particular journal.
- It helps to see the rate of retractions compared to the total number of papers published by the journal.

How It's Calculated:

- It is calculated by multiplying the number of retractions by 1,000 and dividing it by the total number of papers published in that journal during a specific time period.



INTERNATIONAL DAY FOR THE TOTAL ELIMINATION OF NUCLEAR WEAPONS

- In 2013, the United Nations General Assembly (UNGA) took a significant step towards global nuclear disarmament by declaring **September 26** as the International Day for the Total Elimination of Nuclear Weapons, also known as **Nuclear Abolition Day**. This declaration was formalized through **UNGA Resolution 68/32**.
- **The primary objectives** of this international observance are twofold:
 - **To enhance public awareness about the existential threat that nuclear weapons pose to humanity**
 - **To emphasize the urgent necessity for the total elimination of these weapons of mass destruction**
- **The UNGA resolution also calls for progress on a nuclear weapons convention.**
- **First Resolution (1946):** Established Atomic Energy Commission to control nuclear energy and eliminate weapons of mass destruction.
- **General Assembly (1959):** Endorsed the objective of general and complete disarmament.
- **Special Session (1978):** Nuclear disarmament identified as the priority in disarmament.
- **Current Status:** Approximately 12,100 nuclear weapons remain globally; countries continue modernizing their arsenals.
- **Nuclear Deterrence:** Still a key element in the security policies of nuclear-armed states.
- **Arms-Control Framework:** Strained post-Cold War with the U.S. withdrawal from the Intermediate-Range Nuclear Forces Treaty (2019) and Russia suspending New START (2023).
- **Notable Treaties:**
 - **Partial Test Ban Treaty (1963):** Banned nuclear tests in atmosphere, space, underwater.
 - **Treaty of Tlatelolco (1967):** Created the first nuclear-weapon-free zone in Latin America.
 - **New START:** Extended to 2026 before Russian suspension (2023).
 - **Comprehensive Nuclear-Test-Ban Treaty:** The CTBT prohibits all forms of nuclear explosions—whether for military or civilian purposes—across all environments, including underground, atmospheric, and underwater. **India is not a signatory**
 - **Treaty on the Prohibition of Nuclear Weapons (TPNW):** The TPNW, in force since 2021, is **the first legally binding international agreement that comprehensively bans nuclear weapons**. As of July 2024, it has 70 states parties and 27 signatories yet to ratify, covering nearly 50% of the world's states.
- **Recent Developments:** Russia withdrew from the Comprehensive Nuclear-Test-Ban Treaty (2023).

MANKIDIA TRIBE



Recently, the Mankidia community became the 6th particularly vulnerable tribal group (PVTG) PVTG to get habitat rights over forests in Odisha.

About Mankidia Tribe:

- The Mankidia community is an **Austro-Asiatic community** that ekes out a living mainly from the forests.
- They constitute a **semi-nomadic section** of the Birhor tribe.
- They have been identified as a **Particularly Vulnerable Tribal Group (PVTG)** in Odisha.
- **Occupation:** They are primarily a **food gathering and hunting** community. They are one of the most little-known forest dwelling and wandering communities of the state as well as the country.
- They wander inside forests in small bands and stay at different tandas — the temporary makeshift settlements consisting of temporary dome-shaped leaf **huts known as Kumbhas**.
- **Language:** They speak a **form of Munda language** and some of them are also conversant in Odia.
- They believe in both malevolent and benevolent **spirits and Gods**. Logobir and Budhimai are their supreme deities.
- They worship their ancestors for the purpose of enjoying health and achieving success in hunting and collecting forest produce.

- They are mainly found in Odisha, Jharkhand, Madhya Pradesh and West Bengal.

Particularly Vulnerable Tribal Group (PVTG)

- PVTGs are more **vulnerable among the tribal groups**.
- Due to this factor, more developed and assertive tribal groups take a major chunk of the tribal development funds, because of which PVTGs need more funds directed for their development.
- In this context, in 1975, Government of India declared 52 tribal groups as PVTGs on the recommendation of the **Dhebar Commission**.
- Currently, there are **75 PVTGs out of 705 Scheduled Tribes**.
- The PVTGs are spread over 18 states and one Union Territory (UT), in the country (2011 census).
- **Odisha has the highest number (more than 2.5 lakh) of PVTGs**.
- **Characteristics of PVTGs:**
 - Population – stagnant/declining
 - Technology – pre-agricultural
 - Literacy Level – extremely low
 - Economy – Subsistence level

GENERAL CONSENT TO CBI



About CBI :

- CBI is a non-constitutional, **non-statutory body**.

- CBI derives power to investigate from the **Delhi Special Police Establishment Act, 1946**.
- It is the nodal Indian agency that coordinates investigations on behalf of Interpol Member countries.
- It functions under the **Department of Personnel**, Ministry of Personnel, Pension and Public Grievance.

General Consent Principle :

- The CBI must mandatorily obtain the consent of the **concerned state government** before investigating crime in a state.
 - This is provided through **Section 6 of The DSPE Act** (“Consent of State Government to exercise of powers and jurisdiction”).
- The consent of the state government to CBI can be either **case-specific or general**.
- General consent is given to help the CBI seamlessly investigate corruption cases against central government employees in the concerned state.
- Otherwise, it would require consent in every case.
- States, including **WB, Rajasthan, Kerala, and Maharashtra, have withdrawn the general consent**.
 - It means the **CBI needs case-specific consent** to register any fresh case against a **Central Government official** or a **private person** in these states.
- **Withdrawal of general consent** means that the CBI will not be able to register any fresh case involving central government officials or private persons in a particular state without the prior permission of that state.

NINE DASH LINE

- The nine-dash line is a historical demarcation line on a map used by China to assert **territorial claims in the South China Sea**.
- China asserts a claim to 90% of the South China Sea, primarily based on the historical U-shaped nine-dash line drawn on a map in the 1940s and encompassing several islands, notably the **Paracels and Spratlys**.



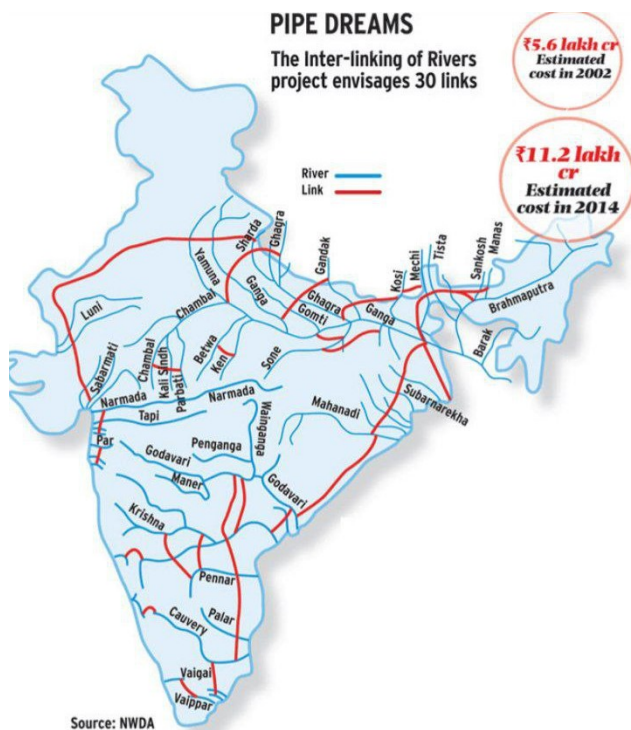
- However, the Permanent Court of Arbitration under UNCLOS (United Nations Convention on the Law of the Sea) has determined that China's claim in this region lacks a legal foundation
- Parts of this sea is also claimed by Taiwan, Malaysia, Philippines, Brunei and Vietnam.
- The **ten dash line** is China's new claim line in the South China Sea, which adds an additional dash to the original nine dash line.

RIVER LINKING PROJECT

- It is an initiative to **transfer water** from **water-surplus** regions to **water deficient & rain-fed**

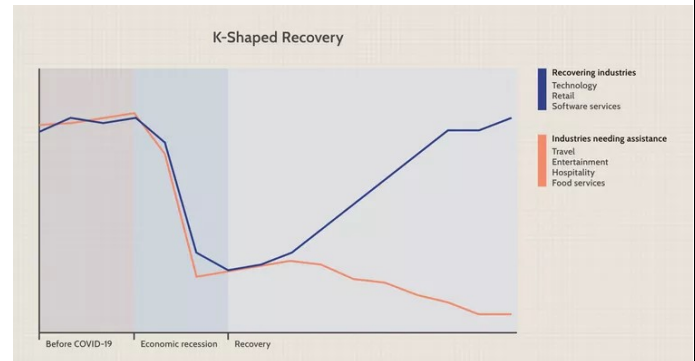
areas through inter-basin transfers, to ensure greater equity in the distribution of water.

- ILRs are identified by the **National Water Development Agency (NWDA)**, under the National Perspective Plan (NPP).
- **Nodal Ministry:** Ministry of Jal Shakti.
- **Components under NPP:** It includes two components, which comprises 30 links;
 1. 14 links under the **Himalayan Rivers Component** and
 2. 16 links under the **Peninsular Rivers Component**.
- **Objective:** To connect more than 60 rivers across India through a network of storage dams to form a gigantic South Asian Water Grid.
- The Ken-Betwa link project is the first interlinking of rivers project under the National Perspective Plan (NPP).



K SHAPED GROWTH

- A K-shaped recovery occurs when, following a recession, different parts of the economy recover at different rates, times, or magnitudes.
- This is in contrast to an even, uniform recovery across sectors, industries, or groups of people.



Features of K-Shaped Recovery

- **Divergent Recovery Rates:** Certain sectors, such as technology and finance, may recover quickly and strongly. Other sectors, like hospitality and retail, may continue to struggle or recover much more slowly.
- **Income Inequality:** High-income individuals and businesses may see significant improvements in their financial situations. Low-income individuals and small businesses may face prolonged financial hardships.
- **Sectoral Disparities:** Industries that can adapt to remote work or have online business models (e.g., tech, e-commerce) thrive.

Other types of economic recovery include **Z-shaped recovery**, **V-shaped recovery**, **U-shaped recovery**, **elongated U-shaped recovery**, **W-shaped recovery**, **L-shaped recovery** etc.



EXTERNAL COMMERCIAL BORROWINGS

- ECBs refer to the borrowing of funds by Indian companies from foreign sources in the form of loans, bonds, or other financial instruments
- **Purpose:** It can be used to finance a variety of purposes, including the expansion of business, the acquisition of assets, and the repayment of existing debt.
- **Source of ECBs:** ECBs can be obtained from a variety of sources, including foreign banks, international financial institutions, and foreign subsidiaries of Indian companies.
- ECB can be in the form of **rupee-denominated loans**, which are repaid in Indian rupees, or foreign currency-denominated loans, which are repaid in a foreign currency.
- **Regulation:** ECB is subject to regulatory oversight by the RBI, which sets limits on the amount of ECB that Indian companies can obtain and the purposes for which it can be used.
- The ECBs fall under the umbrella of RBI regulations as postulated under the Master Direction - External Commercial Borrowings, Trade Credits, and Structured Obligations (Master Direction), and the **Foreign Exchange Management Act, 1999 (FEMA)**.
- ECBs are part of the **Capital Account** in Balance of Payments.



External Debt :

External debt refers to the portion of a country's total debt that is borrowed from foreign lenders, including commercial banks, governments, or international financial institutions. Major heads under External Debt include:

- **Multilateral Debt:** Debt from the multilateral institutions such as World Bank, IMF, ADB etc.
- **Bilateral Debt:** Debt from sovereign countries such as Japan, Germany etc.
- **Trade Credits/Export Credits:** Loans and credits extended for imports directly by overseas supplier, bank and financial institutions.
- **External Commercial Borrowings:** Loans from commercial banks, other commercial financial institutions.
- **NRI Deposits:** Non-Resident Deposits in Banks and Financial Institutions.

PARAM RUDRA SUPERCOMPUTER

Recently, Prime Minister Shri Narendra Modi inaugurated **PARAM Rudra Supercomputer** at S.N. Bose National Centre for Basic Sciences (SNBNCBS).

About :

- It is a **high-performance computing facility** that will benefit approximately 10-12 institutions and thousands of researchers in the Eastern Region of India.
- It is developed under the **National Supercomputing Mission (NSM)**, a joint initiative of the Ministry of Electronics and IT (MeitY) and the Department of Science and Technology (DST).
- It is aimed at revolutionizing research across multiple domains including **advanced materials, high-energy physics, earth sciences, cosmology, and biological sciences**.
- It will model the universe's structure, including gravitational waves, high-energy photons, and astrophysical neutrinos.



- The supercomputer will aid high-energy astrophysics research, particularly in studying dense matter, as part of the **ALICE experiment at CERN.**

The PARAM Rudra supercomputer symbolizes India's commitment to self-sufficiency in advanced computing technology.

GLOBAL INNOVATION INDEX 2024

Recently, the Global Innovation Index (GII) 2024 was released by World Intellectual Property Organization.

About Global Innovation Index (GII)

- It is published by the **World Intellectual Property Organization.**
- It is a reliable tool for governments across the world to **assess the innovation-led social and economic changes** in their respective countries
 - **GII helps governments to assess innovation-led social and economic changes.**



Key Highlights of the Global Innovation Index 2024

LEADING THE INNOVATION CHARGE
INDIA RANKS 39
 GLOBAL INNOVATION INDEX 2024

IMPROVED GLOBAL RANK:
 India climbed from **81st** in **2015** to **39th** in **2024** among **133 economies**

TOP PERFORMER:
 India ranks **1st** among 38 lower-middle-income economies, maintaining its leadership

INNOVATION OUTPUT STRENGTH:
 India excels in innovation outputs, ranking **33rd**, an improvement from last year

- India has been **ranked first among 10 economies** in Central and Southern

Asia, further emphasizing its regional dominance in innovation.

- India has also secured the 4th position in the World Intellectual Property Organization (WIPO) Science and Technology (S&T) Cluster Ranking.
- Major cities like Mumbai, Delhi, Bengaluru, and Chennai are listed among the world's **top 100 S&T clusters**, which are hubs for research, development, and technological advancements.
- India has achieved the **7th rank globally in intangible asset intensity**, which measures the strength of non-physical assets like patents and trademarks, essential for driving innovation.

World Intellectual Property Organization

- The World Intellectual Property Organization (WIPO) is the global forum for intellectual property (IP) services, policy, information and cooperation.
- It was established by the **WIPO Convention** in 1967.
- WIPO has 193 member states.
- India is a member
- **Headquarters** : Geneva, Switzerland
- Its mission is to lead the development of a balanced and effective international IP system that enables innovation and creativity for the benefit of all.

PUSA-2090

- Pusa-2090 is a newly bred, shorter-duration **paddy variety** developed by the Indian Agricultural Research Institute (IARI) as a potential replacement for Pusa-44.
- A cross between **Pusa-44** and **CB-501** (an early-maturing Japonica rice line), **Pusa-2090** matures in 120-125 days, similar to PR-126, but with a



higher yield of 34-35 quintals per acre, closer to Pusa-44's yield.

- **Benefits**

- The variety maintains a high number of tillers (branches with grain-bearing ear-heads or panicles) and grains per panicle, comparable to Pusa-44 and higher than PR-126.
- Pusa-2090 also features a strong culm, making it less prone to lodging (bending over or falling due to heavy winds and rains) in adverse weather conditions, and it is highly responsive to nitrogen application.
- Moreover, its shorter duration results in significant water savings, requiring 5-6 fewer irrigations than Pusa-44, which typically needs 29-30.

- **A viable replacement of Pusa-44?**

- Pusa-2090 has a lower reduction in yield compared to Pusa-44, as it produces almost as much grain as Pusa-44.
- At the same time, Pusa-2090 matures in a shorter time, similar to PR-126, which allows farmers to harvest earlier and potentially prepare for the next crop without delays.

Pusa-44

- Developed by the Indian Agricultural Research Institute in 1993, takes 155-160 days to mature.
- It has high yield of 35-36 quintals per acre, sometimes reaching 40 quintals.
- Despite its longer growing period compared to the PR-126 variety, which matures in 123-125 days and yields 30-32 quintals per acre, farmers prefer Pusa-44.